



**Environmental and Combustion Controls
2010-2011 Product Catalog**

In addition to the most up-to-date information on all of the Honeywell products you have seen before, the 2010 - 2011 Tradeline® catalog includes:

- RedLINK™ wireless thermostats and zoning products
- Pressure-regulated Control Valves
- Commercial wireless occupancy sensors
- SOLA Controllers and Displays
- Delphi Combustion Systems
- SmartVFD COMPACT Drives
- SmartHVAC Drives and SmartHVAC BYPASS Drives and bypass assemblies
- TrueDRY Dehumidification
- TrueIAQ Controls
- Bath Fan Controls
- The GlowFly™ Universal HSI Kit

For more information on the products in this catalog, a cross-reference to obsolete products, product pricing, production tools and the latest information about new products please visit our website at <http://customer.honeywell.com>

The screenshot shows the Honeywell website interface for Environmental & Combustion Controls. At the top, there is a navigation bar with links for HOME, ABOUT US, PRODUCTS, TRAINING, NEWS & EVENTS, SUPPORT & RESOURCES, CONTACT US, HELP, and VIEW QUOTE. Below the navigation bar is a banner with the text: "In more than 100 million homes and five million buildings worldwide, Honeywell products, components and systems deliver temperature control, comfort, energy conservation and safety." The main heading is "Environmental & Combustion Controls" with the subtext "A Honeywell Automation & Control Solutions Business".

The page is divided into several columns:

- What's New:** A list of recent updates including "Hearth Gas Valve Recall", "Commercial Buildings' New Product Showcase", "BBC Collateral Builder", "Hot Fresh Cool", "Energy Savings", "Water Awareness", "Spec Take-Off Service", "Order D2/D3 Dampers", "Product Selection Tool", and "Order Literature".
- Locators:** A section for finding distributors, including "Honeywell Distributors", "ACI Locator - Commercial Contractors", and "Residential Contractors".
- Homeowners:** A section for homeowners with the text "Homeowners -- Click here for assistance".
- Buildings Products:** A section with a "Featured Product" titled "New TR20-Series Wall Modules". It includes a description: "The TR20 family of wall modules is a replacement for the T7770 product line. For situations where you'd like to use a T7770 model, reach instead for a TR20 module for extended functionality and the same reliable performance." and a "Learn More" link.
- Homes Products:** A section with a "Featured Product" titled "TrueSTEAM™". It includes a description: "TrueSTEAM™ takes the best features from current steam humidifiers with their efficiency, performance and decreased water consumption, and combines it with the ease of installation, reliability and value of flow-through humidifiers. TrueSTEAM is different from others because it operates independent of equipment operation. And, with its near 1:1 humidification delivery rate, TrueSTEAM delivers the right amount of humidification to keep your customers satisfied." and a "Learn More" link.
- Right Sidebar:** A vertical navigation menu with sections: "Welcome" (Login to My Account, New User Registration, Find Quote), "Product Search" (input field), "Cross Reference Search" (input field), "Search" (input field, Advanced Search), and "Literature / Image Search" (All Literature dropdown, Model / Part Number dropdown, input field).

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Honeywell Environmental and Combustion Controls Maintains ISO 9001:2008 Registration

What is ISO?

ISO is the International Organization for Standardization. ISO standards used to apply only to manufacturing, but now can be applied to many types of businesses. This promotes a common standard for accessing systems worldwide.

What does ISO 9001 registration involve?

ISO 9001 is part of the ISO 9000 family. Registration is evidence that a Quality Management System has been put in place to verify that customer requirements are being identified and met. This means that an Organization has demonstrated the capability to define, document, and control the processes that define the product or service being supplied. Continuous improvement is assured through the preventive and corrective actions that result from a comprehensive system of Internal Audits and Agency (3rd party) Audits.

Registration focuses on the concept of companies using a process approach to quality management. ISO requires that companies meet some very specific requirements, which include defining the process used and controls for each level of every process, from design, through delivery of the finished product or service. Systems, procedures and documentation are required for all processes.

Each facility must be registered separately since it is the quality management system of each facility that is registered, not the products that are manufactured by the system.

Characteristics of ISO Compliant Businesses

ISO Management system standards provide the organization with a model to follow in setting up and operating the management system. This model incorporates the features on which experts in the field have reached a consensus as representing the international state of the art. A management system, which follows the model - or "conforms to the standard" - is built on a firm foundation of state-of-the-art practices. It is a well-organized operation with trained and motivated people. It continually rethinks how it runs its business and focuses on meeting and exceeding customer specifications through eliminating non-value-added functions.

It welcomes outside auditors who review its processes and ensure continual improvement against a universally recognized standard of performance.

What does Honeywell ISO registration offer you?

It offers the confidence and peace of mind that the Honeywell quality system requires production processes that meet highest standards for consistency and control, which translates to consistent product quality.

Honeywell ISO Registered Facilities

Many of the products described in this catalog are built in ISO registered facilities.

The following facilities are registered under ISO 9001:2008 registered by Quality Management Institute; Certificate # CERT-0038166:

ACS ECC – Golden Valley Facility

1985 Douglas Drive North
Golden Valley, MN 55422-3992
USA
File No: 014498

Honeywell Limited - Honeywell Limitée Control Products

35 Dynamic Drive
Scarborough, Ontario M1V 4Z9
Canada
File No: 001082

Honeywell International ACS ECC (West Coast Operations)

2055 Dublin Drive
San Diego, CA 92154-8203
USA
File No: 014499

Honeywell International Manufacturas de Chihuahua S de RL de CV

Avenida Cristobal Colon #11364 Complejo Ind. Chihuahua
Chihuahua, C.P. 31136
México
File No: 014501

Honeywell International ACS ECC (Mexhon)

Mexhon S.A. de C.V. Blvd. Insurgentes No. 8503-2
Tijuana, Baja, CA
México
File No: 014504

Honeywell International Inc., A Delaware Corporation ACS ECC

304 S. Chicago Avenue
Freeport, IL 61032
USA
File No: 014587

Honeywell International Inc., A Delaware Corporation

25 E. Spring Street
Freeport, IL 61032
USA
File No: 014588

Honeywell International Manufacturas de Chihuahua S de RL de CV

Ave. Parque Industrial Juárez #3328
Parque Industrial Juárez
Juárez, Chihuahua 32630
México
File No: 1065696

General Information

Order Specification Number System

TYPE LETTER
V

TYPE NUMBER
4055

SUFFIX LETTER
A

OS NUMBER
1007

The type letter is the single letter, or two letter group, which begins the model number. This letter usually indicates the general type of device involved, however, some product model numbers may not follow these designations exactly. If you have questions about a particular product designation, please contact your Honeywell sales representative. A list of type letters used is shown below (some may fit in more than one category):

- A — Testers.
- AT — Transformers.
- BC — Microcomputer burner control system.
- C or CS — Combustion controls; sensors.
- D or DM — Dampers.
- DSP — Demonstrators.
- EL — Lighting controls.
- ER — Energy recovery ventilators.
- F — Electronic air cleaners.
- H — Humidity controls, including combination temperature and humidity controllers.

- L, LA or LS — Limit controllers.
- M — Motors.
- P — Pressure controllers.
- PM — Program modules.
- Q — Accessories.
- QS — Communication interface modules.
- R, RA or RW — Relays.
- RM — Primary controls.
- S — Switches and ignition modules.
- ST — Electronic fan timers.
- SV — Integrated controls.
- T, TA or TS — Thermostats and remote bulb temperature controllers.
- TG — Thermostat guards.
- V, VR, VS or VW — Valves.
- W — Load control panels, accessories.
- Y — Package sets.
- ZM — Software packages.

Summary of Honeywell Control Series Designations

Series Designation	Controller Type	Controller Action	Relay or Valve Type	Motor Action	Example
Series 20	3-wire, low voltage (2-position)	Makes circuit to start; makes second circuit to stop.	—	Low voltage; rotates 180 to open, continues 180 to close; stops on power interruption.	V2045
Series 40	2 wire, line voltage (2-position)	Makes circuit to start; breaks it to stop.	Line voltage coil circuit; makes (opens) when powered; breaks (closes) when power interrupted.	Line voltage; motor drives open when powered; spring returns on power interruption.	T42, L4064, L4008
Series 50	Mechanical (nonelectrical) series.				V5011
Series 60	3-wire, line voltage (2-position)	Makes circuit to start; makes second circuit to stop.	—	Old style—line voltage equivalent to series 20. New style—line or low voltage drives open when powered open; reverses and drives closed when powered closed; stops on power interruption.	M6284
Series 70	Electronic series.				M7285, C7031
Series 80	2-wire, low voltage (2-position)	Makes circuit to start; breaks it to stop.	Low voltage coil circuit; makes (opens) when powered; breaks (closes) when power interrupted.	Low voltage; motor drives open when powered; spring return closed on power interruption.	T87, L8124
Series 90	3-wire, low voltage (modulating)	Varies resistance between common terminal and two end terminals in response to controlled variable.	—	Low voltage; motor modulates position in response to changes in controlled variable signaled by controller.	T921, M9164, W899

Approval Bodies

Most of the devices described in this catalog have been approved or listed by one or more of the approval bodies listed below.

Underwriters Laboratories Inc.

Underwriters Laboratories Inc., is a not-for-profit organization that examines and tests devices, systems and materials. Its membership represents a broad cross section of industry, education, and government.

Field inspectors for Underwriters Laboratories Inc., do not normally inspect equipment installed on job sites, but restrict their activities entirely to periodic inspections of products coming off manufacturers' assembly lines.

The three general categories of acceptance of a product by Underwriters Laboratories Inc., are:

1. Listing
2. Component Recognition
3. Classification

Listed devices are structurally and functionally complete and suitable for field installation.

Component Recognized devices are incomplete in some way that makes them unsuitable for general field installation. They are intended to be factory installed as part of some other piece of equipment. Classified devices or products have been evaluated as to specific hazards only.

Underwriters Laboratories of Canada can also provide certification services to Canadian standards, which is displayed as a "c" adjacent to the UL mark (cUL).

Canadian Standards Association

The Canadian Standards Association is a not-for-profit, membership-based, non-governmental organization which provides a national standardizing body for Canada.

The Canadian Standards Association Testing Laboratories, inaugurated in May 1940, is a division of the Canadian Standards Association, and is recognized as a testing and investigating agency by Inspection Authorities and by Fire Marshals and Fire Commissioners throughout Canada.

The Canadian Standards Association Laboratories test and examine electrical products submitted for approval in compliance with pertinent Canadian Standards Association codes and standards.

The Canadian Standards Association now includes International Approval Services (IAS).

CSA can also provide certification services to UL standards, which is indicated by a "US" adjacent to the CSA mark.

International Approval Services—U.S.

IAS, now part of CSA and no longer known as IAS, is the testing organization of the American gas industry with laboratories in Cleveland, Ohio and Irvine, Calif. The CSA sponsors the American National Standards Institute Z21 and Z83 Committees on standards for gas-fired equipment.

Any manufacturer of gas appliances or gas appliance accessories may submit their products to the Laboratories and secure certification of

their designs upon compliance with the appropriate national standards. Upon such compliance, the manufacturer is granted an Appliance Certificate or an Accessory Certificate and is permitted to display the trademarked Laboratories' Certification Seal or trademarked Laboratories' Certification Symbol on the appliance or accessory.

International Approval Services—Canada

IAS, now part of CSA and no longer known as IAS, represents all segments of the Canadian gas industry, has been accredited by the Standards Council of Canada and the Standards Advisory Committee to prepare National Standards in the area of equipment for use with natural gas and propane. CSA has laboratories in Toronto, Canada.

Each standard is intended to be used within the scope of the standard by the manufacturing sector, those applying the equipment or those responsible for its application. It is the responsibility of the user to determine in each case that the standard is suitable for the application.

IAS operates a certification program for gas appliances, equipment, and accessories.

Canadian Gas Association (CGA), is now part of CSA and is no longer known as CGA, although some legacy products still may display the CGA mark.

American Gas Association (AGA) is also now part of CSA and is no longer known as AGA, although some legacy products still may display the AGA mark.

Factory Mutual

Factory Mutual is an association of mutual insurance companies dedicated to loss prevention. Through its research arm, the Factory Mutual Research Corporation, it investigates means of preventing and minimizing fire and other losses. Factory Mutual Laboratories test and approve two broad categories of devices and materials:

1. Those used for the control or prevention of property damage.
2. Those that in themselves would present serious hazards if not properly designed.

Factory Mutual Acceptance refers to a specific installation or arrangement of equipment. Installations using approved devices, if found satisfactory following review of plans and inspection of completed work, are "accepted".

A continuing follow-up program is carried out through periodic plant inspections and reports of performance in actual use.

CE Mark ("Conformité Européene" European Self-Certification mark)

CE marking is mandatory for products covered by one or more Directives. The manufacturer must apply the CE mark and declare conformity to the applicable Directives in order to bring a product on the market in the European Community. CE marking requirements vary from Directive to Directive, and even within Directives.

Some of the Directives (e.g. Gas Appliance Directive) require third party testing by Notified Bodies, in which case a product surveillance contract with a Notified Body is also mandatory. Other Directives can be satisfied by Declarations of Conformity provided by the manufacturer as a result of internal testing and documentation.

Reference Information

Date Code

A date code is stamped on each device to identify the date of manufacture.

In October 1975, Honeywell adopted the industry standard date code system of a 4-digit code. The first 2 digits indicate the year; the second 2 digits indicate the week of the year. EXAMPLE: 7812—the last week of March 1978.

For devices manufactured before October 1975, the following date code was used. If the letter "R" is added as a third letter, it indicates a repair date.

A January	G July	H 1962	Z 1970
B February	H August	G 1963	Y 1971
C March	I September	F 1964	X 1972
D April	J October	E 1965	W 1973
E May	K November	D 1966	V 1974
F June	L December	C 1967	U 1975
		B 1968	T 1976
		A 1969	

Terms of Payment and Prices

Contact your local Honeywell TRADELINE Wholesaler or Authorized Distributor for your discount and terms of payment.

Horsepower Ratings

Ratings of Honeywell controls listed herein are in amperes, and correspond generally to the values for various horsepower as shown in this chart. Full load ratings are taken from the National Electrical Code, 1978 edition; locked motor ratings are 6 times full load rating (ac) or 10 times full load rating (dc).

Approximate Horsepower	120V		240V	
	Full Load	Locked Rotor	Full Load	Locked Rotor
1/6 ac	4.4	26.4	2.2	13.2
dc	—	—	—	—
1/4 ac	5.8	34.8	2.9	17.4
dc	3.1	31.0	1.6	16.0
1/3 ac	7.2	43.2	3.6	21.6
dc	4.1	41.0	2.0	20.0
1/2 ac	9.8	58.8	4.9	29.4
dc	5.4	54.0	2.7	27.0
3/4 ac	13.8	82.8	6.9	41.4
dc	7.6	76.0	3.8	38.0
1 ac	16.0	96.0	8.0	48.0
dc	9.5	95.0	4.7	47.0
1-1/2 ac	20.0	120.0	10.0	60.0
dc	13.2	132.0	6.6	66.0
2 ac	24.0	144.0	12.0	72.0
dc	17.0	170.0	8.5	85.0
3 ac	34.0	204.0	17.0	102.0
dc	25.0	250.0	12.2	122.0

Taxes

The amount of any and all present or future taxes or other government charges upon the production, shipment, installation or sale of the equipment covered hereby, including use or occupation taxes, shall be added to the price and paid by the Purchaser; or in lieu thereof, the Purchaser shall furnish the Company with a tax-exemption certificate acceptable to the taxing authorities.

International Controls

Some Honeywell controls are available with Celsius scales and/or at 110/220V, 50 Hz. For information on the availability of these devices, contact:

Commercial/Industrial Combustion Controls
 Honeywell International Inc., MN10-181B
 1985 Douglas Drive North
 Golden Valley, MN 55422-3992

All other controls and systems:
 International Marketing MN10-131A
 Honeywell International Inc.
 1985 Douglas Drive North
 Golden Valley, MN 55422-3992

All motors do not necessarily come within the maximum ampere ratings shown in the table, and control devices must be used which have a rating equal to, or greater than, the actual motor running and starting currents.

NEMA Standard Classification Code for Flame Safeguard Enclosures

NEMA 1—General purpose. for indoor protection, where conditions are not unusually severe.

NEMA 2—Driptight. Designed to exclude falling moisture or dirt. Particularly applicable to cooling rooms, laundries, etc., where condensation is prevalent. For indoor use.

NEMA 3—Weather Resistant (weatherproof). For outdoor use; designed to withstand all normal exposure to natural elements. Controls mounted on pullout racks for easy access. With rain hood and weather seals.

NEMA 4—Watertight. Withstands water pressure from 1 in. hose nozzle, 65 gallons per minute, from distance of not less than 10 ft for five minutes. Suitable for maritime applications, breweries, etc.

NEMA 5—Dust-tight. Equipped with dust-tight gaskets. Suitable for mills and other high-dust atmospheres.

NEMA 6—Submersible. For submerged operation under specified pressures and time.

NEMA 7—Hazardous Locations, National Electrical Code Class 1 (circuit breaks in air).

NEMA 8—Hazardous Locations, National Electrical Code Class 1 (circuit breaks immersed in oil).

NEMA 9—Hazardous Locations, National Electrical Code Class 2.

NEMA 10—Explosion-proof. Meets U.S. Bureau of Mines requirements for explosive atmospheres.

NEMA 11—Acid or Fume Resistant. Provides for immersion of enclosed equipment in oil.

NEMA 12—Industrial Use. Excludes oils, dust, moisture, to satisfy individual requirements.

Conversion of Pressure Units

(Convert by multiplying value in known pressure units by factor listed under required pressure unit.)

Known Pressure Unit	Required Pressure Unit								
	Kilo-pascals	Pounds per sq in.	Ounces per sq in.	Millimeters of Mercury	Kilograms per sq cm	Inches of Water	Inches of Mercury	Feet of Water	Centimeters of Water
Centimeters of Water	0.0981	0.0142	0.227	0.735	0.000999	0.394	0.0289	0.0328	—
Feet of Water	2.99	0.433	6.94	22.4	0.0305	12.0	0.883	—	30.5
Inches of Mercury	3.39	0.491	7.86	25.4	0.0345	13.6	—	1.13	34.6
Inches of Water	0.249	0.0361	0.578	1.87	0.00254	—	0.0735	0.0833	2.54
Kilograms per sq cm	98.1	14.2	228.0	735.0	—	394.0	29.0	32.8	1000.0
Millimetres of Mercury	0.133	0.0193	0.308	—	0.00136	0.535	0.0394	0.0446	1.36
Ounces per sq in.	0.431	0.0625	—	8.24	0.00439	1.73	0.128	0.144	4.40
Pounds per sq in.	6.89	—	16.0	51.7	0.0703	27.7	2.04	2.31	70.4
Kilopascals	—	0.145	2.32	7.52	0.010	4.02	0.295	0.334	10.2

Absolute Pressure = Gauge Pressure +14.74 psi.

Capacities

Most gas capacities listed in this catalog are stated for natural gas, based on 1,000 Btu per cu ft, 0.64 sp. gr. nat. gas, at a pressure drop of 1.0 in. w.c. (37.3 MJ/m³, 0.64 sp. gr. at a pressure drop of 0.25 kPa).

To calculate the Btu/h capacity for other gases, multiply the listed Btu/h capacity by the conversion factor.

Total Heating Value for Gas X		At sp. gr.	Conversion Factor (multiply)
Btu/cu ft	MJ/m ³		
500 to 800	18.7 to 29.8	0.60	0.516 ^a
800 to 950	29.8 to 35.4	0.70	0.765 ^a
2500	93.3	1.53 (LP gas)	1.62

^a Nominal conversion factor for range of total heat value.

For gases not listed in table, use one of the following formulas:

$$\left(\frac{\text{Listed Btu/h Capacity}}{(0.64 \text{ sp. gr.})} \right) \left(\sqrt{\frac{0.64}{\text{sp. gr. gas X}}} \right) \left(\frac{\text{Btu/cu ft (MJ/m}^3 \text{ gas X)}}{1000 \text{ Btu/cu ft (37.3 MJ/m}^3)} \right) = \text{Btu/h Capacity gas X}$$

or

$$\left(\frac{\text{Btu/h Capacity}}{(\text{gas A})} \right) \left(\sqrt{\frac{\text{sp. gr. gas A}}{\text{sp. gr. gas B}}} \right) \left(\frac{\text{Btu/cu ft (MJ/m}^3 \text{ gas B)}}{\text{Btu/cu ft (MJ/m}^3 \text{ gas A)}} \right) = \text{Btu/h Capacity gas B}$$

M18317

Reference Information

Power & Heat

1 Btu	776 ft-lb 0.293 Watt-hr 252 cal
1 cal	0.003968 Btu 0.0011619 Watt-hr
1 Btu/h	0.293 Watt 4.2 cal/min
1 Watt	3.413 Btu/h
1 Watt-hr	3.413 Btu
1 kW (1000 Watts)	3413 Btu/h
1 kW-hr	3413 Btu
1 hp	0.746 kW 2544.65 Btu/h 33,000 ft-lb./min
1 Bhp ^a	9.809 kW 33,479 Btu/h 34.5 lb of steam per hour

^a Boiler Output Horsepower is the equivalent of the heat required to evaporate 34.5 lb of water per hour into dry, saturated steam at 212 F.

Btu Contents of Fuels

Grade or Type	Unit	Btu
No. 1 Oil	Gallon	137,400
No. 2 Oil	Gallon	139,600
No. 3 Oil	Gallon	141,800
No. 4 Oil	Gallon	145,100
No. 5 Oil	Gallon	148,800
No. 6 Oil	Gallon	152,400
Nat. Gas	cu ft	950 to 1,150
Propane	cu ft	2,550
Butane	cu ft	3,200

Commercial/Industrial Combustion Conversion Factors

Simplified method of determining combustion air required to completely burn a given amount of fuel.

$$\text{Cf/h Air} = \frac{\text{Btu/hr input}}{100}$$

M18318

To correct gas volume from one set of conditions to another.

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

P = Absolute pressure.
= 14.7 + gauge psi.

T = Absolute temperature in -R = 460.

V = Volume in any consistent terms.

Turndown ratio of fixed area burner.

$$\text{T.D.} = \sqrt{\frac{\text{Maximum Pressure Drop across Burner}}{\text{Minimum Pressure Drop across Burner}}} = \frac{\text{Maximum Firing Rate}}{\text{Minimum Firing Rate}}$$

M18319

Where pressure drops are expressed in the same units.

Relationship between flow capacity at a specified pressure drop and Cv factor.

Cv = Flow Factor. Defined as the amount of water at 60 F in gallons per minute which will flow through a valve in the open position with a pressure drop through the valve of 1 pound per square inch.

For capacity conversion to gases the following may be used for pressure ratios less than critical ratios.

$$Q = 1360 C_v \sqrt{\frac{(P_1 - P_2) P_2}{GT}}$$

M18320

Q = Standard cubic feet per hour at 14.7 psia and 60 F.

P1 = Inlet pressure, psia.

P2 = Outlet pressure, psia.

T = Absolute temperature in -R = -F+460.

G = Specific gravity of the gas.

Steam Valve Selection

There are five steps in choosing the appropriate steam valve:

1. Determine the steam medium temperature, pressure, and the pressure drop across the valve. (This is often determined using inlet vs. outlet pressures. For example, a valve with a 75 psi inlet and a 50 psi outlet would have a pressure drop of 25 psi.)
2. Using this information (and Tables 1 and 2), calculate the C_v or select the pipe size.
3. Check the average pressure and the temperature to determine the quality of the steam medium. The quality of the steam is:
 - Saturated
 - Superheated
4. Establish the required valve body configuration for the application. This is typically fixed by the particular application and is often part of the design specifications. Standard body configurations are:
 - Two-way
 - Straight-through
 - Angle Body
5. See valve and actuator Product Overview Table and individual catalog pages.

NOTE: Traditionally, steam valves use a linear flow characteristic, but equal percentage characteristics are used in Europe.

All steam valves are two-way valves. There are two valve operation control types; two-position (open/closed) and modulating (proportional).

Two-Position

Two-position steam valves are typically selected based on the pipe size of the line, which is matched to the coil to deliver the amount of steam required at design conditions. For example, if the pipe size is three inches in diameter, you would select a three inch steam valve. Delivered heat is a function of steam pressure, valve capacity index (C_v), and the percentage open time of the valve (duty cycle). The condensed steam may be returned to the boiler by active or passive methods.

Modulating

Two-way modulating steam valves are typically used to throttle the flow of steam in proportion to the load. Similar to water valves, when sizing a modulating valve for steam, consider the pressure throughout the valve travel. The pressure drop must be large enough so that, as the valve starts to close, it can diminish the flow. If this is not accomplished, the valve is not able to maintain control throughout its entire range of travel. However, a pressure drop that is too large causes noisy valve operation and decreases the life-span of the valve.

Calculating C_v

To determine the appropriate C_v rating, one must know:

- Supply pressure (psi)
- Valve differential pressure (Δp)
- Flow rate (lb/hr)

$$C_v = \frac{Q\sqrt{v}}{63.5\sqrt{\Delta p}}$$

- Q = Quantity of Steam (pounds per hour)
- v = specific volume of steam (cubic feet per pound) at the average pressure in the valve
- 63.5 = scaling constant
- Δp = pressure drop in psi

When Btu/hr (heat output) is known:
Using the supply pressure, differential pressure and the Table 1, determine the value of Factor A for the application. Then using Factor A, the flow rate and Table 2, determine the C_v for the application.

Table 1. Calculations of Factor A for Steam Valves

Supply (psig)	Return Pressure (psig)																			Supply (Bar)		
	0	1	2	3	4	5	6	7	8	9	10	11	12	15	20	25	30	40	50		60	70
2	4.0	5.5																				0.1
3	3.2	3.9	5.4																			0.2
4	2.7	3.1	3.7	5.2																		0.3
5	2.4	2.7	3.0	3.7	5.1																	0.3
6	2.2	2.3	2.6	2.9	3.6	5.0																0.4
7	2.0	2.1	2.3	2.5	2.9	3.5	4.9															0.5
8	1.8	1.9	2.1	2.2	2.5	2.8	3.4	4.8														0.6
9	1.7	1.8	1.9	2.0	2.2	2.4	2.8	3.3	4.7													0.6
10	1.6	1.7	1.7	1.8	2.0	2.1	2.4	2.7	3.3	4.6												0.7
11	1.5	1.6	1.6	1.7	1.8	1.9	2.1	2.3	2.6	3.2	4.5											0.8
12	1.4	1.5	1.5	1.6	1.7	1.8	1.9	2.0	2.3	2.6	3.1	4.4										0.8
15	1.2	1.3	1.3	1.3	1.4	1.4	1.5	1.6	1.7	1.8	1.9	2.1	2.5									1.0
20	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.8								1.4
25	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.7							1.7
30	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.1	1.6						2.1
40	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.9	1.0					2.8
50	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.9				3.4
60	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.9			4.1
70	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.8	4.8
80	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.8	5.5
	.00	.07	.14	.21	.28	.34	.41	.48	.55	.62	.69	.76	.83	1.03	1.38	1.72	2.07	2.76	3.45	4.14	4.83	
	Return Pressure (Bar)																					

Reference Information

Table 2. Steam valve Cv final Calculation

	Steam Flow Rate (in lb/hr)																							
	5	10	25	50	75	100	200	300	400	500	600	700	800	900	1k	2k	3k	4k	5k	7.5k	10k	20k	30k	
FACTOR A	0.4			0.16	0.31	0.47	0.63	1.26	1.9	2.5	3.1	3.8	4.4	5.0	5.7	6.3	13	19	25	31	47	63	126	189
	0.5		0.08	0.20	0.39	0.59	0.79	1.6	2.4	3.1	3.9	4.7	5.5	6.3	7.1	7.9	16	24	31	39	59	79	157	236
	0.6		0.09	0.24	0.47	0.71	0.94	1.9	2.8	3.8	4.7	5.7	6.6	7.6	8.5	9.4	19	28	38	47	71	94	189	283
	0.7		0.11	0.28	0.55	0.83	1.1	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11.0	22	33	44	55	83	110	220	331
	0.8		0.13	0.31	0.63	0.94	1.3	2.5	3.8	5.0	6.3	7.6	8.8	10.1	11.3	13	25	38	50	63	94	126	252	378
	0.9		0.14	0.35	0.71	1.1	1.4	2.8	4.3	5.7	7.1	8.5	9.9	11.3	13	14	28	43	57	71	106	142	283	425
	1		0.16	0.39	0.79	1.2	1.6	3.1	4.7	6.3	7.9	9.4	11.0	13	14	16	31	47	63	79	118	157	315	472
	1.1		0.17	0.43	0.87	1.3	1.7	3.5	5.2	6.9	8.7	10.4	12	14	16	17	35	52	69	87	130	173	346	520
	1.2		0.19	0.47	0.94	1.4	1.9	3.8	5.7	7.6	9.4	11.3	13	15	17	19	38	57	76	94	142	189	378	567
	1.3	0.10	0.20	0.51	1.0	1.5	2.0	4.1	6.1	8.2	10.2	12	14	16	18	20	41	61	82	102	154	205	409	614
	1.4	0.11	0.22	0.55	1.1	1.7	2.2	4.4	6.6	8.8	11.0	13	15	18	20	22	44	66	88	110	165	220	441	
	1.5	0.12	0.24	0.59	1.2	1.8	2.4	4.7	7.1	9	12	14	17	19	21	24	47	71	94	118	177	236	472	
	1.6	0.13	0.25	0.63	1.3	1.9	2.5	5.0	7.6	10.1	13	15	18	20	23	25	50	76	101	126	189	252	504	
	1.7	0.13	0.27	0.67	1.3	2.0	2.7	5.4	8.0	10.7	13	16	19	21	24	27	54	80	107	134	201	268	535	
	1.8	0.14	0.28	0.71	1.4	2.1	2.8	5.7	8.5	11.3	14	17	20	23	26	28	57	85	113	142	213	283	567	
	1.9	0.15	0.30	0.75	1.5	2.2	3.0	6.0	9.0	12	15	18	21	24	27	30	60	90	120	150	224	299	598	
	2	0.16	0.31	0.79	1.6	2.4	3.1	6.3	9.4	13	16	19	22	25	28	31	63	94	126	157	236	315	630	
	2.1	0.17	0.33	0.83	1.7	2.5	3.3	6.6	9.9	13	17	20	23	26	30	33	66	99	132	165	248	331		
	2.2	0.17	0.35	0.87	1.7	2.6	3.5	6.9	10.4	14	17	21	24	28	31	35	69	104	139	173	260	346		
	2.3	0.18	0.36	0.91	1.8	2.7	3.6	7.2	10.9	14	18	22	25	29	33	36	72	109	145	181	272	362		
	2.4	0.19	0.38	0.94	1.9	2.8	3.8	7.6	11.3	15	19	23	26	30	34	38	76	113	151	189	283	378		
	2.5	0.20	0.39	0.98	2.0	3.0	3.9	7.9	12	16	20	24	28	31	35	39	79	118	157	197	295	394		
	2.6	0.20	0.41	1.0	2.0	3.1	4.1	8.2	12	16	20	25	29	33	37	41	82	123	164	205	307	409		
	2.7	0.21	0.43	1.1	2.1	3.2	4.3	8.5	13	17	21	26	30	34	38	43	85	128	170	213	319	425		
	2.8	0.22	0.44	1.1	2.2	3.3	4.4	8.8	13	18	22	26	31	35	40	44	88	132	176	220	331	441		
	2.9	0.23	0.46	1.1	2.3	3.4	4.6	9.1	14	18	23	27	32	37	41	46	91	137	183	228	343	457		
	3	0.24	0.47	1.2	2.4	3.5	4.7	9.4	14	19	24	28	33	38	43	47	94	142	189	236	354	472		
	3.1	0.24	0.49	1.2	2.4	3.7	4.9	9.8	15	20	24	29	34	39	44	49	98	146	195	244	366	488		
	3.2	0.25	0.50	1.3	2.5	3.8	5.0	10.1	15	20	25	30	35	40	45	50	101	151	202	252	378	504		
	3.3	0.26	0.52	1.3	2.6	3.9	5.2	10.4	16	21	26	31	36	42	47	52	104	156	208	260	390	520		
	3.4	0.27	0.54	1.3	2.7	4.0	5.4	10.7	16	21	27	32	37	43	48	54	107	161	214	268	402	535		
3.5	0.28	0.55	1.4	2.8	4.1	5.5	11.0	17	22	28	33	39	44	50	55	110	165	220	276	413	551			
3.6	0.28	0.57	1.4	2.8	4.3	5.7	11.3	17	23	28	34	40	45	51	57	113	170	227	283	425	567			
3.7	0.29	0.58	1.5	2.9	4.4	5.8	11.7	17	23	29	35	41	47	52	58	117	175	233	291	437	583			
3.9	0.31	0.61	1.5	3.1	4.6	6.1	12	18	25	31	37	43	49	55	61	123	184	246	307	461	614			
4.4	0.35	0.69	1.7	3.5	5.2	6.9	14	21	28	35	42	49	55	62	69	139	208	277	346	520				
4.5	0.35	0.71	1.8	3.5	5.3	7.1	14	21	28	35	43	50	57	64	71	142	213	283	354	531				
4.6	0.36	0.72	1.8	3.6	5.4	7.2	14	22	29	36	43	51	58	65	72	145	217	290	362	543				
4.7	0.37	0.74	1.9	3.7	5.6	7.4	15	22	30	37	44	52	59	67	74	148	222	296	370	555				
4.8	0.38	0.76	1.9	3.8	5.7	7.6	15	23	30	38	45	53	60	68	76	151	227	302	378	567				
4.9	0.39	0.77	1.9	3.9	5.8	7.7	15	23	31	39	46	54	62	69	77	154	231	309	386	579				
5	0.39	0.79	2.0	3.9	5.9	7.9	16	24	31	39	47	55	63	71	79	157	236	315	394	591				
5.2	0.41	0.82	2.0	4.1	6.1	8.2	16	25	33	41	49	57	66	74	82	164	246	328	409	614				
5.3	0.42	0.83	2.1	4.2	6.3	8.3	17	25	33	42	50	58	67	75	83	167	250	334	417					
5.4	0.43	0.85	2.1	4.3	6.4	8.5	17	26	34	43	51	60	68	77	85	170	255	340	425					
5.5	0.43	0.87	2.2	4.3	6.5	8.7	17	26	35	43	52	61	69	78	87	173	260	346	433					

IMPORTANT

If the steam is superheated, it can require a valve with a larger C_v . Use the following equation to determine the correct C_v to use:

$$C_v = C_v \text{ Calculated} \times [1 + (0.00075 \times S)]$$

Where: S = degrees of superheat (in Fahrenheit).

If the calculated C_v falls between two valve sizes, use a valve with the next higher C_v value unless the calculated C_v is within 10 percent of the next lower C_v value.



CAUTION

Pressure reducing valves can also produce superheated steam and exceed the valve's temperature rating.

For example: 100 psi steam at 338F passing through a pressure reducing valve gives up no heat as it expands to 10 psi, so the 10 psi steam downstream will be at 338F not 239F. This is 99 Fahrenheit degrees of superheat and downstream valves and piping will be exposed to the higher temperature. To correct for superheated steam, 1 Btu/lb is added for each Fahrenheit degree of superheat.

Superheat—The additional heat contained in a vapor at a temperature higher than the saturation (boiling) temperature corresponding to the pressure of the vapor.

Table 3. Properties of Saturated Steam

Vacuum, Inches of Mercury	Boiling Point or Steam Temperature Deg. F	Specific Volume (V), cu. ft/lb	\sqrt{V} (For valve sizing)	Maximum Allowable Pressure Drop, psi. (For valve sizing)	Heat of the Liquid, Btu	Latent Heat of Evap., Btu	Total Heat of Steam, Btu
29	76.6	706.00	26.57	0.23	44.7	1048.6	1093.3
25	133.2	145.00	12.04	1.2	101.1	1017.0	1118.1
20	161.2	75.20	8.672	2.4	129.1	1001.0	1130.1
15	178.9	51.30	7.162	3.7	146.8	990.6	1137.4
14	181.8	48.30	6.950	3.9	149.7	988.8	1138.5
12	187.2	43.27	6.576	4.4	155.1	985.6	1140.7
10	192.2	39.16	6.257	4.9	160.1	982.6	1142.7
8	196.7	35.81	5.984	5.4	164.7	980.0	1144.7
6	201.0	32.99	5.744	5.9	168.9	977.2	1146.1
4	204.8	30.62	5.533	6.4	172.8	974.8	1147.6
2	208.5	28.58	5.345	6.9	176.5	972.5	1149.0
Gage Pressure, psig							
0	212.0	26.79	5.175	7.4	180.0	970.4	1150.4
1	215.3	25.20	5.020	7.8	183.3	968.2	1151.5
2	218.5	23.78	4.876	8.4	186.6	966.2	1152.8
3	221.5	22.57	4.751	8.8	189.6	964.3	1153.9
4	224.4	21.40	4.626	9.4	192.5	962.4	1154.9
5	227.1	20.41	4.518	9.8	195.3	960.6	1155.9
6	229.8	19.45	4.410	10.4	198.0	958.8	1156.8
7	232.3	18.64	4.317	10.8	200.5	957.2	1157.7
8	234.8	17.85	4.225	11.4	203.0	955.5	1158.5
9	237.1	17.16	4.142	11.8	205.4	954.0	1159.4
10	239.4	16.49	4.061	12.4	207.7	952.5	1160.2
11	241.6	15.90	3.987	12.8	209.9	951.1	1161.0
12	243.7	15.35	3.918	13.4	212.1	949.7	1161.8
15	249.8	13.87	3.724	14.8	214.2	948.3	1162.5
20	258.8	12.00	3.464	17.4	227.4	939.5	1166.9
25	266.8	10.57	3.251	19.8	235.6	934.0	1169.6
30	274.0	9.463	3.076	22.4	243.0	928.9	1171.9
40	286.7	7.826	2.797	27.4	255.9	919.9	1175.8
50	297.7	6.682	2.585	32.4	267.1	911.9	1179.0
60	307.3	5.836	2.416	37.4	277.1	904.7	1181.8
70	316.0	5.182	2.276	42.4	286.1	898.0	1184.1
80	323.9	4.662	2.159	47.4	294.3	891.9	1186.2
90	331.2	4.239	2.059	52.4	301.9	886.1	1188.0
100	337.9	3.888	1.972	57.4	308.9	880.7	1189.6
120	350.0	3.337	1.827	67.4	321.7	870.7	1192.4
140	360.9	2.923	1.710	77.4	333.1	861.5	1194.6

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LineVoltPRO® 8000 7-Day Programmable Hydronic Thermostat



The TL8100 Hydronic Thermostat offers the energy savings of a programmable control for a wide variety of applications. With the TL8100 there's no need to carry multiple thermostats for different applications. It can be used to control 2-way zone valves, 3-way zone valves or circulator pumps in both line volt and low volt applications. It also offers special protection modes to prevent system seizures and to reduce callbacks. Easy to install, the TL8100 is exactly what you need to provide your customers with cost-efficient programmable control of hydronic heating systems.

Application: Baseboards; Convectors; Fan-forced Heaters; Radiant Ceilings; Central Heating (Conventional)

Dimensions, Approximate: 3.3 in. x 3.1 in. x 0.5 in.
(83 mm x 79 mm x 13 mm)

Color: White

Programmability: 7-Day Program

Electrical Connections: 6 in. (150 mm) tinned copper lead wires

Electrical Ratings: Maximum Load: 5 A (resistive),
2 A (inductive) @ 24 VDC, 120 Vac, 240 Vac;
Compatible with millivolt systems

Voltage: Millivolt Compatible; 24 Vdc; 120 Vac; 240 Vac

Operating Humidity Range (% RH): 0% to 95%, non-condensing

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Differential Temperature: 0.1 F (0.1 C)

Accuracy: 0.5 C

Power Method: 2 X AA (LR6) batteries

Sensor Element: Thermistor

Switch Type: Relay

Mounting: Vertical

Approvals:

Underwriters Laboratories, Inc. Approved

Product Number	Switch Positions		Stages	Setting Temperature Range		Terminal Designations	Comments	Used With
	System	Fan		(F)	(C)			
TL8100A1008	No Switch		1 Heat	40 F to 85 F	5 C to 30 C	R, W, (X, C, optional remote input)	Remote input for telephone controller or home automation system; Comfort, Economy and Vacation Presets; With Backlit Display	Aube CT240-02 Telephone Controller

LineVoltPRO® 8000 7-Day Programmable Electric Heat Thermostat



The LineVoltPRO® programmable thermostat provides electronic control of 208/240 Vac resistive rated electric baseboard heaters, radiant ceiling heat, convectors and fan forced heaters.

- 7 day programmable - maintain the pre-set program schedule for up to 20% energy savings, or modify the schedule to fit your lifestyle.
- Electronic temperature control - precision of ±1 F saves up to an additional 10% on heating bills.
- Large, clear, backlit display - easy to read in various lighting conditions.
- Soundproofed for quiet operation - reduces the clicking noise commonly heard with conventional thermostats.
- On/Off or On/Standby switch allows you to turn the thermostat off at the end of the heating season.
- Early start - ensures programmed temperature is reached by programmed time.
- Heating indicator - at a glance confirmation that the heat is on.
- Maintenance free - no batteries required.

Application: Electric baseboards, convectors and fan forced heaters (resistive rated loads).

Dimensions, Approximate: 4 7/8 in. high x 2 3/4 in. wide x 7/8 in. deep
(124 mm high x 70 mm wide x 23 mm deep)

Display Size: 2.67 sq. in.

Color: Premier White®

Programmability: 7 Day Program

Electrical Connections: 5.5 in. (140mm) tinned copper lead wires

Operating Temperature Range: 32F to 122 F (0 C to 50 C)

Frequency: 50 Hz; 60 Hz

Voltage: 208/240 Vac

Sensor Element: Thermistor

Mounting: Vertical

Approvals:

Canadian Standards Association: cCSAus, File Number: LR76030

Underwriters Laboratories, Inc. UL Listed 9R12, File Number: E183695

Product Number	Electrical Ratings	Switch Positions		Switching Action	Stages	Setting Temperature Range	
		System	Fan			(F)	(C)
TL8130A1005	16.7 Amps Max; 4000 Watts at 240 VAC, 3470 Watts at 208 VAC	No switch		SPST	1 Heat	40 F to 86 F	5 C to 30 C
TL8230A1003	15 Amps Max; 3600 Watts at 240 VAC, 3120 Watts at 208 VAC	No switch		DPST	1 Heat	40 F to 86 F	5 C to 30 C

Electric Heat Thermostats

LineVoltPRO® 7000 Digital Non-Programmable Electric Heat Thermostats



The LineVoltPRO® non-programmable digital thermostat provides electronic control of 208/240 Vac resistive rated electric baseboard heaters, radiant ceiling heat, convectors and fan forced heaters. If used as directed, electronic thermostats can save up to 10% on annual heating costs. Savings may vary based on geographic region and usage.

- Electronic temperature control - precision of ±1 F saves up to 10% on heating bills.
- Large, clear, backlit display - easy to read in various lighting conditions.
- Soundproofed for quiet operation - reduces the clicking noise commonly heard with conventional thermostats.
- On/Off switch allows you to turn the thermostat off at the end of the heating season.
- Heating indicator - at a glance confirmation that the heat is on.
- Maintenance free - no batteries required.

Application: Electric baseboards, convectors and fan forced heaters (resistive rated loads).

Dimensions, Approximate: 4 7/8 in. high x 2 3/4 in. wide x 7/8 in. deep (124 mm high x 70 mm wide x 23 mm deep)

Accuracy: ±1 F (±0.5 C)

Switch Type: Relay

Switching Action: DPST

Frequency: 50 Hz; 60 Hz

Sensor Element: Thermistor

Color: Premier White®

Mounting: Vertical Mount

Approvals:

Canadian Standards Association: cCSAus, File Number: LR76030

Underwriters Laboratories, Inc. UL Listed 9R12, File Number: E183695

Product Number	Electrical Ratings	Switch Positions		Stages	Setting Temperature Range	
		System	Fan		(F)	(C)
TL7235A1003	15 Amps Max; 3600 Watts at 240 VAC, 3120 Watts at 208 VAC	No switch		1 Heat	40 F to 86 F	5 C to 30 C

LineVoltPRO® 7000 Non-Programmable Electric Heat Thermostats



The LineVoltPRO® thermostat provides electronic control of 208/240 Vac resistive rated electric baseboard heaters, radiant ceiling heat, radiant floor heat, convectors and fan forced heaters.

- Electronic temperature control - precision of ± 1 F saves up to 10%* on heating bills.
- Easy temperature setting - with single control dial.
- Soundproofed for quiet operation - reduces the clicking noise commonly heard with conventional thermostats.
- On/Standby switch allows you to turn the thermostat off at the end of the heating season.
- Temperature range stops - prevents user from setting the temperature too high or too low.
- Maintenance free - no batteries required.
- 5-year limited warranty.

Application: Electric baseboards, convectors and fan forced heaters (resistive rated loads).

Dimensions, Approximate: 4 7/8 in. high x 2 3/4 in. wide x 7/8 in. deep (124 mm high x 70 mm wide x 23 mm deep)

Electrical Ratings: 16.7 Amps Max; 4000 Watts at 240 VAC, 3470 Watts at 208 VAC

Accuracy: ±1 F (±0.5 C)

Switch Type: Relay

Switching Action: SPST

Frequency: 50 Hz; 60 Hz

Sensor Element: Thermistor

Color: Premier White®

Mounting: Vertical Mount

Approvals:

Canadian Standards Association: cCSAus, File Number: LR76030

Underwriters Laboratories, Inc. UL Listed 9R12, File Number: E183695

Product Number	Electrical Ratings	Switch Positions		Setting Temperature Range		Minimum Temperature Setting		Stages
		System	Fan	(F)	(C)	(F)	(C)	
TL7130A1006	16.7 Amps Max; 4000 Watts at 240 VAC, 3470 Watts at 208 VAC	No switch		59 F to 95 F	15 C to 35 C	Thermostat maintains 45 F when dial is set below 59 F.	Thermostat maintains 7 C when dial is set below 15 C.	1 Heat

LineVoltPRO 6000® Programmable Thermostat



The LineVoltPRO® programmable thermostat provides electronic control of 240 Vac resistive rated electric baseboard heaters, radiant ceiling heat, convectors and fan forced heaters.

- 5-2 day programmable - maintain the pre-set program schedule for up to 20% energy savings, or modify the schedule to fit your lifestyle.
- Electronic temperature control - precision of ± 0.27 F saves up to an additional 10% on heating bills.
- Large, clear, backlit display - easy to read in various lighting conditions.
- Silent operation.
- Heating indicator - at a glance confirmation that the heat is on.
- Maintenance free - no batteries required.
- 5-year limited warranty.

Application: Electric baseboards, convectors and fan forced heaters (resistive rated loads).

Dimensions, Approximate: 4 13/16 in. high x 4 1/2 in. wide x 1 in. deep (120 mm high x 115 mm wide x 26 mm deep)

Color: Premier White®

Programmability: 5-2 Day Program

Electrical Connections: 6 in. (150 mm) tinned copper lead wires

Electrical Ratings: 12.5 Amps Max: 3000 Watts at 240 VAC, 2 Amps Min.

Operating Temperature Range: 32 F to 99 F (0 C to 70 C)

Differential Temperature: ± 0.27 F (± 0.15 C)

Frequency: 50 Hz; 60 Hz

Voltage: 240 Vac

Sensor Element: Thermistor

Mounting: Vertical

Approvals

Underwriters Laboratories, Inc. UL Listed 9R12, File Number: E183695

Product Number	Switch positions		Switching Action	Stages	Setting Temperature Range	
	System	Fan			(F)	(C)
TL6120A1016	No switch		SPST	1 Heat	40 F to 80 F	5 C to 27 C

T410 Electric Heat Thermostats



Economy thermostats that provide reliable line voltage control of resistive rated electric heating equipment. Snap-action switch makes heating circuit on temperature fall.

- Economical.
- Replace virtually any two-wire (T410A) or four-wire (T410B) line voltage wall-mounted electric heating thermostat.
- Easy to install; 6 in. (150 mm) color-coded leads.
- Include long-lasting Micro Switch® mechanism.
- Rugged, plastic mounting base and one-piece cover with vents.
- Ideally suited to new construction applications.

Application: Electric baseboards, convectors and fan forced heaters (resistive rated loads).

Dimensions, Approximate: 4 1/2 in. high x 2 3/4 in. wide x 2 1/4 in. deep (115 mm high x 70 mm wide x 57 mm deep)

Electrical Ratings: Noninductive Resistive 22A at 120/208/240 Vac. 19A at 277 Vac.

Accuracy: 2 C

Differential Temperature: 3 F (2 C)

Frequency: 60 Hz

Sensor Element: Bimetal

Color: Premier White®

Mounting: Vertical Mount

Approvals:

Canadian Standards Association: Listed: File No. LR1322

Underwriters Laboratories, Inc. Listed; File No. E47434, Guide No. XAPX

Accessories:

272804A Range Stop and Locking Screws Assembly

Product Number	Color	Switch Positions		Switching Action	Stages	Setting Temperature Range	Includes
		System	Fan			(F)	
T410A1013	Premier White®	No Switch		SPST	1 Heat	40 F to 80 F	—
T410B1004	White	No Switch		DPST	1 Heat	40 F to 80 F	Positive OFF

Electric Heat Thermostats

T498 Electric Heat Thermostats



Electric Heat Thermostats provide line voltage control of electric heating systems.

- Easy to install; color-coded leads.
- Include thermometer. Include long-lasting Micro Switch® mechanism; makes on temperature fall.
- Rugged, plastic mounting base.
- Mount on standard 2 x 4 in. outlet box or 4 x 4 in. junction box.
- Select models include extra knob decal for recalibration, if necessary.

Application: Electric baseboards, convectors and fan forced heaters (resistive rated loads).

Dimensions, Approximate: 4 9/16 in. high x 2 7/8 in. wide x 1 15/16 in. deep (116 mm high x 73 mm wide x 33 mm deep)

Electrical Ratings: Noninductive Resistive 22A at 120/208/240 Vac. 19A at 277 Vac.

Accuracy: 1 F (2 C)

Ambient Temperature Range: 40 F to 80 F (5 C to 27 C)

Differential Temperature: 3 F (2 C)

Frequency: 60 Hz

Sensor Element: Bimetal

Mounting: Vertical Mount

Approvals:

Canadian Standards Association: Listed; File No. LR1322

Underwriters Laboratories, Inc. Listed; File No. E47434, Guide No. XAPX

Accessories:

272804A Range Stop and Locking Screws Assembly

272823 Blind Locking Cover and Range Stop Assembly

Product Number	Color	Switch Positions		Switching Action	Stages	Setting Temperature Range		Includes
		System	Fan			(F)	(C)	
T498A1778	Beige	No switch		SPDT	1 Heat	40 F to 80 F	5 C to 27 C	Range stops, locking cover and extra knob decal for recalibration
T498A1810	Brush gold finish	No switch		SPST	1 Heat	40 F to 80 F	—	—
* T498B1512	Brush gold finish	No switch		DPST	1 Heat	40 F to 80 F	—	Positive OFF, Range stops, locking cover and extra knob decal for recalibration
T498B1553	Brush gold finish	No switch		DPST	1 Heat	40 F to 80 F	—	Positive OFF

* TRADELINE models • SUPER TRADELINE models

T4398 High Performance Electric Heat Thermostats



High Performance Electric Heat Thermostats provide precise line voltage control of resistive-rated electric heating equipment.

- For control of resistive-rated baseboard electric heaters.
- Extremely sensitive to temperature changes.
- Replace virtually all standard wall-mounted line voltage thermostats.
- Color-coded leads allow easy installation.
- Include long-lasting Micro Switch® mechanism.
- Rugged, plastic mounting base.
- Cover thermometer indicates room temperature.
- Well suited for upgrades and high-end new construction.
- Mounts directly on vertical 2 x 4 in. outlet box, or on 4 x 4 in. outlet box.

Application: Electric baseboards, convectors and fan forced heaters (resistive rated loads).

Dimensions, Approximate: 4 1/2 in. high x 2 7/8 in. wide x 2 5/8 in. deep (115 mm high x 73 mm wide x 67 mm deep)

Electrical Ratings: Noninductive Resistive 22A at 120/208/240 Vac. 19A at 277 Vac.

Accuracy: 1 C

Ambient Temperature Range: 50 F to 80 F (10 C to 25 C)

Differential Temperature: 2 F (1 C)

Setting Temperature Range: 50 F to 80 F

Frequency: 60 Hz

Sensor Element: Vapor filled dual diaphragm

Color: Premier White®

Mounting: Vertical Mount

Approvals:

Canadian Standards Association: Listed; File No. LR1322

Underwriters Laboratories, Inc. Listed; File No. E47434, Guide No. XAPX

Accessories:

272804A Range Stop and Locking Screws Assembly

Product Number	Switch Positions		Switching Action	Stages	Includes
	System	Fan			
* T4398A1021	No Switch		SPST	1 Heat	Thermometer, range stops and locking cover screws
* T4398B1029	No Switch		DPST	1 Heat	Thermometer, range stops, locking cover screws, Positive Off

* TRADELINE models • SUPER TRADELINE models

Programmable Thermostats

Prestige™ Comfort System



High Definition Color Touchscreen Thermostat



Standard Definition Touchscreen Thermostat

The Prestige™ HD thermostat provides control of 24Vac of heating and cooling systems. RedLINK™ enabled to work with compatible wireless accessories. The Prestige™ HD Thermostat Kits contains Wireless Outdoor Sensor and High Definition (HD) Color Touchscreen Thermostat.

Application: Up to 2 Heat/2 Cool Conventional Systems
Up to 3 Heat/2 Cool Heat Pumps

Dimensions, Approximate: 3 15/16 in. high, 6 7/8 in. wide,
1 1/2 in. deep (100 mm. high, 175 mm. wide, 38 mm. deep)

Display Size: 8.06 sq. in.

Color: Arctic White

Programmability: 7-Day Multiple Day Programming or Non-Programmable

Changeover: Auto or Manual

Electrical Connections: Screw terminals

Electrical Ratings: 18 to 30 Vac

Frequency: 50 Hz; 60 Hz

Voltage: 18 to 30 Vac

Operating Humidity Range (% RH): 0 to 90% RH, non-condensing

Humidity Setting Range: Cooling: 40 to 80% RH. Heating: 10 to 80% RH.

Dehumidification Setting Range: 40 to 80% RH

Humidification Setting Range: 10 to 60% RH.

Setting Temperature Range:

Heat: 40 F to 90 F; Cool 60 F to 99F

(Heat: 4.5 C to 32.0 C; Cool: 15.5 C to 37.0 C)

- Large, easy-to-read backlit full color display shows current indoor temperature and humidity, temperature setting, date and time on the home screen. Also displays outdoor temperature and humidity on home screen (if wireless outdoor sensor is installed)
- Adjustable backlight level allows thermostat to be on full brightness at all times or dim to the brightness level of choice when the thermostat is not being used
- Interview-Based Programming wizard to easily and confidently schedule thermostat temperatures and times
- USB Port allows downloading of installer settings to quickly and consistently perform setup of thermostats in similar applications
- USB Port also allows easy setup of dealer logo and contact information on thermostat screen
- Real-Time Clock keeps time during power failure; automatically updates for daylight saving time
- Precise Temperature Control ($\pm 1 \times F$) for reliable and consistent temperature.
- Multiple HOLD options allows modification of schedule as needed
- Change Reminders to inform it is time to replace Air Filter, humidifier pad, ultraviolet bulb or batteries in connected devices
- RedLINK™ Enabled to communicate with compatible wireless devices
- Kit Includes Portable Comfort Control, Wireless Outdoor Sensor and Prestige™ HD Thermostat



Operating Temperature Range: 32 F to 120 F (0 C to 48.9 C)

Stages: Up to 3 Heat/2 Cool Heat Pump

or Up to 2 Heat/2 Cool Conventional

Power Method: Hardwired

Outdoor Sensor: Yes, optional

Remote Sensor: No

Comments: Tri-Lingual Display (selectable for English, French or Spanish)

Used With: RedLINK™ enabled thermostats and accessories

Accessories:

50028399-001 Cover plate for Prestige Thermostats 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)

C7089R1013 Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

REM5000R1001 Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience.

RedLINK™ Enabled. Works in both zoned and non-zoned applications.

THP9045A1007 THP9045 WireSaver

Product Number	Switch Positions		Terminal Designations	Includes
	System	Fan		
THX9321R1008	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	Standard Definition Touchscreen Thermostat
THX9321R5000	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	High Definition Color Touchscreen Thermostat
YTHX9321R1000	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	Standard Definition Touchscreen Thermostat; REM5000R1001 Portable Comfort Control and C7089R1013 Wireless Outdoor Sensor
YTHX9321R1011	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	Standard Definition Touchscreen Thermostat; C7089R1013 Wireless Outdoor Sensor
YTHX9321R5003	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	High Definition Color Touchscreen Thermostat; REM5000R1001 Portable Comfort Control and C7089R1013 Wireless Outdoor Sensor
YTHX9321R5012	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	High Definition Color Touchscreen Thermostat; C7089R1013 Wireless Outdoor Sensor

VisionPRO® IAQ Total Home Comfort System



The VisionPRO IAQ touchscreen universal programmable thermostat provides electronic control of 24 Vac heating and cooling systems in addition to humidification, dehumidification and ventilation all with just 3 wires to the thermostat.

- Advanced dual-fuel control.
- Three wires to the living space allows for easy equipment upgrade without having to run additional thermostat wire.
- Thermostat connects with Equipment Interface Module or EnviraZONE panel to control temperature, humidification, dehumidification and ventilation from a single point in the home.
- Automatically raises humidity levels throughout all rooms in the home, moisturizing air to prevent symptoms of dryness and to protect hardwood flooring and woodwork.
- Removes air pollutants by exchanging the stale air in a house with fresh, filtered air better than having an open window.

Thermostat Dimensions, Approximate: 4 9/16 in. high x 6 in. wide x 1 1/4 in. deep (116 mm high x 152 mm wide x 32 mm deep)

Color: Premier White®

Programmability: 7 Day Multiple Day Programming or Non-Programmable

Changeover: Auto/Manual Selectable

Thermostat Display Size: 10 sq. in.

Electrical Ratings: THM5421 is rated 20 to 30 Vac

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Differential Temperature: ± 1 F (±0.5 C)

Stages: Up to 3 Heat/2 Cool Conventional; Up to 4 Heat/2 Cool Heat Pump

Power Method: Communicating

Voltage: 20 to 30 Vac

Dehumidification Setting Range: 40 to 80% RH.

Humidification Setting Range: 10 to 60% RH.

Sensor Element: Thermistor

Mounting: Horizontal

Switch Type: Yes, optional

Outdoor Sensor: Yes, optional

Remote Sensor: Yes, optional

Accessories:

32003796-001 Premier White® cover plate 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)

C7089U1006 Remote Outdoor Sensor

C7189U1005 Remote Indoor Sensor

Product Number	Application	Mounting	Switch Positions		Terminal Designations	Setting Temperature Range		Comments	Used With	Includes
			System	Fan		(F)	(C)			
TH9421C1004	Conventional and Heat Pump systems	Horizontal	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	1, 2, 3	Heat: 40 F to 90 F; Cool: 60 F to 99 F	Heat: 4.5 C to 32 C; Cool: 15 C to 37 C	Includes Humidification Control with or without Frost Protection, Dehumidification using Whole House Dehumidifier or Air Conditioning with High or Low speed fan, Advanced Patented Ventilation Control and Advanced Dual Fuel Heat Pump Control.	THM5421C1008 Equipment Interface Module	Thermostat only
THM5421C1008	Heat/Cool or Heat Pump with Auxiliary Heat	Vertical	—	—	1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1, Vnt2	—	—	Includes Humidification Control with or without Frost Protection, Dehumidification using Whole House Dehumidifier or Air Conditioning with High or Low speed fan, Advanced Patented Ventilation Control and Advanced Dual Fuel Heat Pump Control.	TH9421 VisionPRO IAQ Thermostat	Equipment Interface Module Only
YTH9421C1002	Heat/Cool or Heat Pump with Auxiliary Heat	Horizontal	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1, Vnt2	Heat: 40 F to 90 F; Cool: 60 F to 99 F	Heat: 4.5 C to 32 C; Cool: 15 C to 37 C	Includes Humidification Control with or without Frost Protection, Dehumidification using Whole House Dehumidifier or Air Conditioning with High or Low speed fan, Advanced Patented Ventilation Control and Advanced Dual Fuel Heat Pump Control.	—	TH9421C1004 Thermostat and THM5421C1008 Equipment Interface Module
YTH9421C1010	Heat/Cool or Heat Pump with Auxiliary Heat	Horizontal	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1, Vnt2	Heat: 40 F to 90 F; Cool: 60 F to 99 F	Heat: 4.5 C to 32 C; Cool: 15 C to 37 C	Includes Humidification Control with or without Frost Protection, Dehumidification using Whole House Dehumidifier or Air Conditioning with High or Low speed fan, Advanced Patented Ventilation Control and Advanced Dual Fuel Heat Pump Control.	—	TH9421C1004 Thermostat, THM5421C1008 Equipment Interface Module and C7089U1006 Outdoor Temperature Sensor

Programmable Thermostats

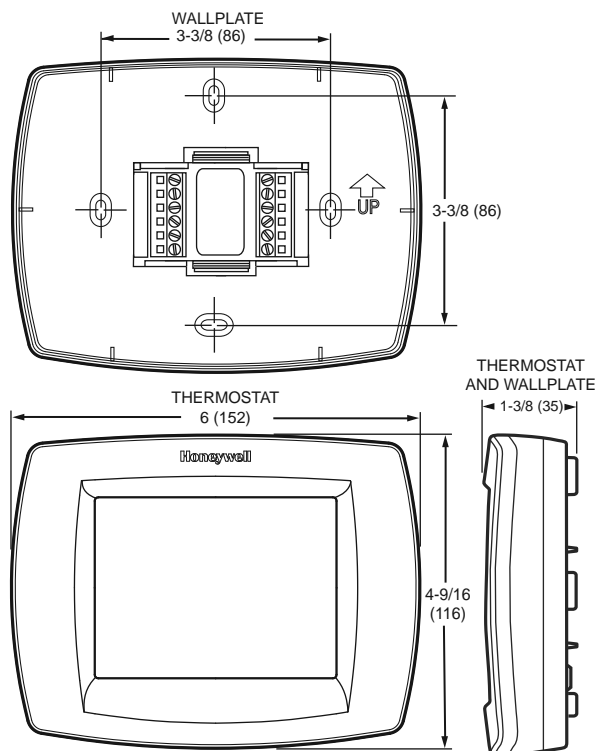
Commercial VisionPRO® 8000



The TB8220 Commercial VisionPRO 8000 Touchscreen Programmable Thermostat is an effortless, seven day programmable thermostat that provides universal system compatibility, precise comfort control and is easy to-program. The TB8220 provides temperature control for gas, oil, electric and heat pumps for up to 2 heat, 2 cool systems.

- Large, clear display with backlight shows the current and set temperature and time even in the dark.
- Menu-driven programming make setup effortless.
- Beautiful ergonomic design is smart and sophisticated to match your customers' lifestyle.
- Touchscreen interaction Real-time clock keeps time during power failures and automatically updates to daylight savings.
- Saving Changes notification lets you know when the schedule changes have been saved.
- Change reminders let you know when to replace the batteries.
- Holiday Override options allow you to override the program schedule, as desired.
- Speedy same--schedule programming--no need to copy multiple days.
- Armchair programming allows you to remove the thermostat from the wall for programming.

Dimensions in inches (millimeters)



M22421

Color: Premier White®

Electrical Connections: 24 VAC or Battery

Network Communications: None

Dimensions, Approximate: 6 in. wide x 4 9/16 in. high x 1 3/8 in. deep (152 mm wide x 116 mm high x 35 mm deep)

Accessories:

32003796-001 Premier White® cover plate 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)

TR21 20 K ohm NTC non-linear Temperature Wall Module

TR21-A 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

C7189U1005 Remote Indoor Sensor

C7770A1006 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

C7772A1004 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

C7772A1012 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

C7041B2005 20K ohm NTC Temperature Sensor with 6 in. insertion

C7041B2013 20K ohm NTC Temperature Sensor with 12 in. insertion

C7041C2003 20K ohm NTC Temperature Sensor with 18 in. insertion

C7041P2004 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

C7089U1006 Remote Outdoor Sensor

W7212A1009 Series 72 Economizer Logic Module with Demand Control Ventilation

Product Number	Application	Switch Position		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(F)	(C)	
TB8220U1003	24 Vac heating and cooling systems; Heat Pump Systems; Conventional systems; Packaged RTU	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	R, Rc, W (O/B), W2 (W1), Y, Y2, L, A, G, C, S1, S2	Up to 2 Heat/ 2 Cool Conventional; Up to 3 Heat/ 2 Cool Heat Pump	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	The L-terminal is an input only; Selectable programmable or non-programmable; Includes A terminal to enable an economizer or control a lighting panel when used as a time of day relay

VisionPRO® 8000 Touchscreen 7-Day Programmable Thermostat



The VisionPRO Touchscreen Universal Programmable Thermostats provides electronic control of 24 Vac heating and cooling systems or 750 mV heating system.

Dimensions, Approximate: 4 9/16 in. high x 6 in. wide x 1 1/4 in. deep (116 mm high x 152 mm wide x 32 mm deep)

Display Size: 10 sq. in.

Color: Premier White®

Programmability: 7 Day Multiple Day Programming or Non-Programmable

Changeover: Auto/Manual Selectable

Electrical Ratings: 20 to 30 Vac or 750 mV

Frequency: 50 Hz; 60 Hz

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Differential Temperature: ± 1 F (±0.5 C)

Current (Cooling): 1.0 A running

Current (Heating): 1.0 A running

- Large, Clear Display with Backlighting current temperature, set temperature and time are easy-to-read and all are displayed on the home screen.
- Menu Driven Programming Guides you through the scheduling process, showing only necessary information and choices on each screen.
- Ability to Select Multiple Days allows you to easily customize the thermostat for your unique schedule.
- Real-Time Clock keeps time during power failure; automatically updates for daylight saving time.
- Armchair Programming allows you to remove thermostat from wall to set the schedule.
- Precise Temperature Control (±1 F) reliable, consistent comfort.
- Multiple HOLD options allow you to modify schedule indefinitely or for a specific time.
- Change Reminders reminds you to service or replace the air filter, humidifier pad, ultraviolet lamp or thermostat batteries.
- Adaptive Intelligent Recovery® - ensures programmed temperature is reached by programmed time.
- Temperature range stops - prevents user from setting the temperature too high or too low.
- Keypad lockout options for partial or full lockout.

Current (Fan): 0.6A running

Power Method: Battery or Hardwired

Sensor Element: Thermistor

Mounting: Horizontal

Outdoor Sensor: Yes, optional outdoor or indoor remote

Accessories:

32003796-001 Premier White® cover plate 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)

C7089U1006 Remote Outdoor Sensor

C7189U1005 Remote Indoor Sensor

C7735A1000 Discharge Air Sensor (used with TH8321U1097 for desert humidification)

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(F)	(C)	
TH8110U1003	Heat/Cool or Heat Pump without Auxiliary Heat	HEAT-OFF-COOL-AUTO	AUTO-ON-CIRC	R, RC, C, W (O/B), Y, G, S1, S2	Up to 1 Heat/1 Cool	Heat: 40 F to 90 F Cool: 50 F to 99 F	Heat: 4.5 C to 32 C Cool: 10 C to 37 C	Selectable: Programmable or Non-Programmable; Selectable; Heat Only or Cool Only
TH8320U1008	Heat/Cool or Heat Pump with Auxiliary Heat	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	R, RC, W (O/B), W2 (AUX), Y, Y2, L, E, G, C, S1, S2	Up to 2 Heat/2 Cool Conventional; Up to 3 Heat/2 Cool Heat Pump	Heat: 40 F to 90 F Cool: 50 F to 99 F	Heat: 4.5 C to 32 C Cool: 10 C to 37 C	Selectable: Programmable or Non-Programmable. The L terminal is an input or output.
TH8321U1006	Heat/Cool or Heat Pump with Auxiliary Heat	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	R, RC, W (O/B), W2 (AUX), Y, Y2, L, E, G, C, S1, S2	Up to 2 Heat/2 Cool Conventional; Up to 3 Heat/2 Cool Heat Pump	Heat: 40 F to 90 F Cool: 50 F to 99 F	Heat: 4.5 C to 32 C Cool: 10 C to 37 C	Includes Dehumidification Control. Selectable: Programmable or Non-Programmable. The L terminal is an input or output.
TH8321U1097	Heat/Cool or Heat Pump with Auxiliary Heat	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	R, C, W (O/B), W2 (E/AUX), Y, Y2, G, L, U1, U1, S1, S2	Up to 2 Heat/2 Cool Conventional; Up to 3 Heat/2 Cool Heat Pump	Heat: 40 F to 90 F Cool: 50 F to 99 F	Heat: 4.5 C to 32 C Cool: 10 C to 37 C	Includes a set of Universal IAQ contacts to control humidification, dehumidification or ventilation. Also has advanced Dual Fuel control. Selectable Programmable or Non-Programmable. The L terminal is an input or an output.

Programmable Thermostats

CommercialPRO® 7000

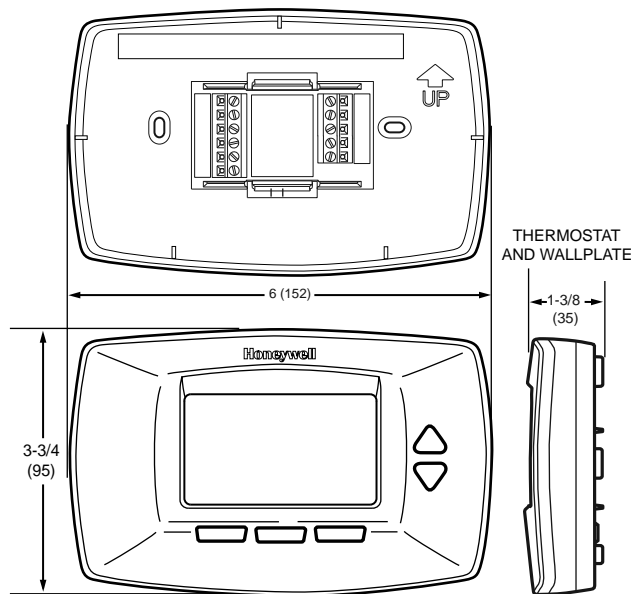


The COMMERCIALPRO® 7000 Programmable Thermostat is an effortless, seven-day programmable thermostat that provides universal system compatibility, precise comfort control and is easy-to-program.

The TB7220 provides temperature control for gas, oil, electric and heat pumps for up to 2 heat, 2 cool systems.

- Large, clear display with backlight shows the current and set temperature and time--even in the dark.
- Menu-driven programming make setup effortless.
- Beautiful ergonomic design is smart and sophisticated to match your customers' lifestyle.
- Real-time clock keeps time during power failures and automatically updates to daylight savings.
- Saving Changes notification lets you know when the schedule changes have been saved.
- Change reminders let you know when to replace the batteries.
- Holiday Override options allow you to override the program schedule, as desired.
- Speedy same--schedule programming--no need to copy multiple days.
- Armchair programming allows you to remove the thermostat from the wall for programming.

Dimensions in inches (millimeters)



M13668

Color: Premier White®

Electrical Connections: 24 VAC or Battery

Network Communications: None

Dimensions, Approximate: 6 in. wide x 3 3/4 in. high x 1 3/8 in. deep (152 mm wide x 96 mm high x 35 mm deep)

Accessories:

50002883-001 FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

TR21 20 K ohm NTC non-linear Temperature Wall Module

TR21-A 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

C7189U1005 Remote Indoor Sensor

C7770A1006 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

C7772A1004 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

C7772A1012 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

C7041B2005 20K ohm NTC Temperature Sensor with 6 in. insertion

C7041B2013 20K ohm NTC Temperature Sensor with 12 in. insertion

C7041C2003 20K ohm NTC Temperature Sensor with 18 in. insertion

C7041P2004 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

C7089U1006 Remote Outdoor Sensor

W7212A1009 Series 72 Economizer Logic Module with Demand Control Ventilation

Product Number	Application	Switch Position		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(F)	(C)	
TB7220U1012	24 Vac heating and cooling systems; Heat Pump Systems; Conventional systems; Packaged RTU	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	R, Rc, W (O/B), W2 (W1), Y, Y2, A, G, C, S1, S2	Up to 2 Heat/2 Cool Conventional; Up to 3 Heat/2 Cool Heat Pump	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Selectable programmable or non-programmable; Includes A terminal to enable an economizer or control a lighting panel when used as a time of day relay

MultiPRO™ 7000



The MultiPRO™ Multispeed and Multipurpose Thermostat is an effortless, seven-day programmable or non-programmable thermostat that provides universal system compatibility, precise comfort and is easy to program.

Color: Premier White®

Electrical Connections: 24 VAC or Battery

Network Communications: None

Accessories:

50002883-001 FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

TR21 20 K ohm NTC non-linear Temperature Wall Module

TR21-A 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

C7189U1005 Remote Indoor Sensor

The MultiPRO provides temperature control for gas, oil, electric, heat pumps, PTACs, and fan-coil equipment for the following types of applications: 1H/1C conventional; Up to 2H/1C heat pump; 4 pipe fan coil (3 fan speeds); 2 pipe fan coil (3 fan speeds); 2 pipe fan coil w/Auxiliary Heat (3 fan speeds); PTAC (Hi, Lo fan speeds).

- Large, clear display with backlight shows the current and set temperature and time--even in the dark.
- Menu-driven programming make setup effortless.
- Beautiful ergonomic design is smart and sophisticated to match your customers' lifestyle.
- Real-time clock keeps time during power failures and automatically updates to daylight savings.
- Saving Changes notification lets you know when the schedule changes have been saved.
- Change reminders let you know when to replace the batteries.
- Holiday Override options allow you to override the program schedule, as desired.
- Speedy same--schedule programming--no need to copy multiple days.
- Armchair programming allows you to remove the thermostat from the wall for programming.
- Programmable or non-programmable modes.
- Remote setback input for occupancy sensors or timeclocks.
- VersaSpeed™ fan ramping algorithm and fan reset algorithm (fan coil and PTAC applications).
- Up to 3 fan speeds for fan coil and 2 fan speeds for PTAC applications.
- Remote Indoor air sensing option (20K ohm or 10K ohm)

C7770A1006 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

C7772A1004 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

C7772A1012 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

C7041B2005 20K ohm NTC Temperature Sensor with 6 in. insertion

C7041B2013 20K ohm NTC Temperature Sensor with 12 in. insertion

C7041C2003 20K ohm NTC Temperature Sensor with 18 in. insertion

C7041P2004 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

WSK-24 Wireless Occupancy Solution

Product Number	Application	Switch Position		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(F)	(C)	
TB7100A1000	Conventional, Heat Pump, Fan Coil, and PTAC Systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON; Fan Coil: HI-MED-LO-AUTO; PTAC: HI-LO-AUTO	R, Rc, W1, O/B, Y, G, G2, G3, C, S1, S2	1 Heat/ 1Cool Conventional; Up to 2 Heat/ 1 Cool Heat Pump; 2 or 4 pipe Fan Coil; Up to 2 Heat/ 1 Cool PTAC	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Includes 3 speed fan control and configurable sensor input for indoor temperature, occupancy sensor, or changeover; Selectable programmable or non-programmable

Programmable Thermostats

Wireless System Kits



Everything you need to relocate thermostat or upgrade equipment without running new wires. Includes the Portable Comfort Control to sense and control temperature from any room and a Wireless Outdoor sensor to display outdoor temperature and humidity on all devices.

- **WIRELESS FocusPRO® THERMOSTAT:** Same great features of the FocusPRO® thermostat - now wireless. Installs in minutes. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning. Dual Fuel enabled.

Application: Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

Electrical Ratings:

Equipment Interface Module--18 to 30 Vac, 50 Hz; 60 Hz

Changeover: Auto/Manual Selectable

Currents (Cooling): 1.0 A running

Currents (Heating): 1.0 A running

Currents (Fan): 0.6 A running

Power Method: Thermostat--Battery

- **EQUIPMENT INTERFACE MODULE (EIM):** All HVAC equipment is wired to the module. Module receives communication from the wireless devices.
- **RETURN AIR SENSOR:** Works with the Equipment Interface Module to maintain safe indoor temperatures if power is lost at the wireless thermostat. Maintains 62 F for heating and 82 F for cooling.
- **PORTABLE COMFORT CONTROL:** Allows homeowners to sense and control temperature from any room in the home to provide comfort where they spend their time. Manage comfort and energy savings from one convenient control. Touchscreen interface with backlit display. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning.
- **WIRELESS OUTDOOR SENSOR:** Reliable performance in all climates. Installs in minutes. Up to 5 year battery life. 2 month low battery warning.
- **RedLINK™ WIRELESS TECHNOLOGY:** Powered by RedLINK™ reliability. No interference with other wireless devices in the home.



Accessories:

50002883-001 FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

50007298-001 12 pack of medium coverplates (5 in. x 6 7/8 in.)

Replacement Parts:

50007072-001 Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Terminal Designations	Stages	Includes
	System	Fan			
YTH6320R1015	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat/ 2 Cool Heat Pump; Up to 2 Heat/ 2 Cool Conventional	REM5000R1001 Personal Comfort Station; TH6320R1004 Wireless FocusPRO® 5-1-1 Programmable Thermostat; C7089R1013 Wireless Outdoor Sensor; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor

See page 26 through page 33 for more RedLINK™ products

FocusPRO® 6000 5-1-1 Day Programmable Thermostat



Standard Display

Large Display

The FocusPRO® programmable thermostat provides electronic control of 24 Vac conventional and heat pump systems or 750 mV heating systems.

Dimensions, Approximate: 3 9/16 in. high x 5 13/16 in. wide x 1 1/2 in. deep (91 mm high x 147 mm wide x 38 mm deep)

Color: Premier White®

Programmability: 5-1-1 Day Program or 5-2 Day Program

Changeover: Auto/Manual Selectable

Electrical Ratings: 20 to 30 Vac or 750 mV

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Differential Temperature: ± 1 F (±0.5 C)

Currents (Cooling): 0.02 A to 1.0 A running

Currents (Heating): 0.02 A to 1.0 A running

Currents (Fan): 0.02 A to 0.5 A running

Frequency: 50 Hz; 60 Hz

- Selectable to 5-1-1 (Weekdays, Saturday, Sunday) or 5-2 (Weekdays, Weekend) programmable thermostat.
- Large, clear, backlit display - easy to read in various lighting conditions.
- Display size options - available in large screen or standard.
- Precise comfort control (±1 F) - maintains consistent comfort to the highest level of accuracy.
- Simplified programming and operation.
- Easy change battery door - flip out door allows for easy battery replacement without removing or disassembling the thermostat.
- Built in instructions - simple, pull out instruction manual.
- Adaptive Intelligent Recovery® - ensures programmed temperature is reached by programmed time.
- Temperature range stops - prevents user from setting the temperature too high or too low.

Power Method: Battery or Hardwired

Sensor Element: Thermistor

Mounting: Horizontal

Accessories:

50002883-001 FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

50007298-001 12 pack of medium coverplates (5 in. x 6 7/8 in.)

Replacement Parts:

50007072-001 Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(F)	(C)	
TH6110D1005	Heat/Cool or Heat Pump without Auxiliary Heat	HEAT-OFF-COOL-AUTO	AUTO-ON	Rc, R, W (O/B), Y, G, C	Up to 1 Heat/1 Cool	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Standard display size 3.75 sq. in.
TH6110D1021	Heat/Cool or Heat Pump without Auxiliary Heat	HEAT-OFF-COOL-AUTO	AUTO-ON	Rc, R, W (O/B), Y, G, C	Up to 1 Heat/1 Cool	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Large display size 5.09 sq. in.
TH6220D1002	Heat/Cool or Heat Pump with Auxiliary Heat	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Rc, R, W (O/B), W2 (AUX), Y, Y2 (E), G, L, C	Up to 2 Heat/1 Cool Heat Pump; Up to 2 Heat/2 Cool Conventional	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Standard display size 3.75 sq. in.
TH6220D1028	Heat/Cool or Heat Pump with Auxiliary Heat	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Rc, R, W (O/B), W2 (AUX), Y, Y2 (E), G, L, C	Up to 2 Heat/1 Cool Heat Pump; up to 2 Heat/2 Cool Conventional	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Large display size 5.09 sq. in.
TH6320U1000	Heat/Cool or Heat Pump with Auxiliary Heat	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Rc, R, W (O/B), W2 (AUX/E), Y, Y2, G, L, C	Up to 3 Heat /2 Cool Heat Pump; Up to 2 Heat /2 Cool Conventional	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Large display size 5.09 sq. in.

Programmable Thermostats

PRO 4000 5-2 Day Programmable Thermostat



Dimensions, Approximate: 3 13/16 in. high x 5 3/8 in. wide x 1 1/4 in. deep (97 mm high x 137 mm wide x 32 mm deep)

Display Size: 1.73 sq. in.

Color: Premier White®

Programmability: 5-2 Day Program

Changeover: Manual

Electrical Ratings: 20 to 30 Vac or 750 mV

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Differential Temperature: ± 1 F (±0.5 C)

Currents (Cooling): 0.02 A to 1.0 A running

The PRO programmable series provides 24 Vac control for conventional and heat pump systems.

- Weekday/Weekend programming - 5-2 (Weekdays, Weekend) programming.
- Backlit digital display - both current and set temperatures are easy to read in various lighting conditions.
- Precise comfort control [±1 F (± 0.5 C)] - maintains consistent comfort to the highest level of accuracy.
- Basic operation - easy-to-use slide switches allow you to select the heat or cool mode, and operate the fan.
- Built in instructions - simple, pull out instruction manual.
- Adaptive Intelligent Recovery® - ensures programmed temperature is reached by programmed time.

Currents (Heating): 0.02 A to 1.0 A running

Frequency: 50 Hz; 60 Hz

Power Method: Dual Powered: Battery or Hardwire

Sensor Element: Thermistor

Mounting: Horizontal

Accessories:

50002883-001 FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

50007298-001 12 pack of medium coverplates (5 in. x 6 7/8 in.)

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range	
		System	Fan			(F)	(C)
TH4110D1007	Heat/Cool or Heat Pump without Auxiliary Heat	HEAT-OFF-COOL	AUTO-ON	R, Rc, W, Y, G, O, B, C	1 Heat/1 Cool	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C
TH4210D1005	Heat Pump Systems	HEAT-OFF-COOL-EM. HT	AUTO-ON	R, Y, AUX, E, G, O, B, L, C	2 Heat/1 Cool Heat Pump	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C

Basic PRO 2000 Programmable Thermostat



Dimensions, Approximate: 4 11/16 in. high x 2 7/8 in. wide x 1 1/8 in. deep (120 mm high x 74 mm wide x 28 mm deep)

Color: Premier White®

Programmability: 5-2 Day Program

Changeover: Manual

Electrical Ratings: 20 to 30 Vac or 750 mV

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Currents (Cooling): 0.02 A to 1.0 A running

Currents (Heating): 0.02 A to 1.0 A running

Frequency: 50 Hz; 60 Hz

The PRO programmable series provides 24 Vac control for conventional and heat pump systems.

- Weekday/Weekend programming - 5-2 (Weekdays, Weekend) programming.
- Backlit digital display - both current and set temperatures are easy to read in various lighting conditions.
- Precise comfort control [±1 F (±0.5 C)] - maintains consistent comfort to the highest level of accuracy.
- Basic operation - easy-to-use slide switches allow you to select the heat or cool mode, and operate the fan.
- Adaptive Intelligent Recovery® - ensures programmed temperature is reached by programmed time.

Power Method: Dual Powered: Battery or Hardwire

Sensor Element: Thermistor

Accuracy: ± 1 F (±0.5 C)

Switch Type: Relay

Mounting: Vertical

Accessories:

50022893-001 Premier White® cover plate 5 3/4 in. (146 mm) x 7 3/8 in. (187 mm)

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range	
		System	Fan			(F)	(C)
* TH2110D1009	Heat/Cool or Heat Pump without Auxiliary Heat	HEAT-OFF-COOL	AUTO-ON	R, C W, Y G, O/B	1 Heat/1 Cool	Heat: 40 to 90 F; Cool: 50 to 99 F	Heat: 4.5 to 32 C; Cool: 10 to 37 C
TH2210D1007	Heat Pump Systems	HEAT-OFF-COOL-EM. HT	AUTO-ON	R, C, Aux, Y, G, O/B	2 Heat/1 Cool Heat Pump	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C

* TRADELINE models • SUPER TRADELINE models

C7089 Outdoor Sensor



Remote outdoor temperature sensor, when installed, the current outdoor temperature is displayed. Also can be used to manage dual fuel and lock-out expensive auxiliary heat in heat pump applications.

- Mounting clip allows easy sensor positioning on siding or soffit.
- Includes 60 in. leadwires.
- Factory calibrated; no field calibration required.
- Maximum wire run of 200 feet.

Dimensions, Approximate: 2 1/4 in. x 3/8 in. with 60 in. leadwires. (57 mm x 10 mm with 1524 mm leadwires.)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Ambient Temperature Range: -40 F to +128 F (-40 C to +53 C)

Mounting: Mounting Clip provided and screws provided.

Product Number	Application	Used With
* C7089A1002	Outdoor sensor for PC8900/W8900 Perfect Climate Comfort Control Center	PC8900/W8900
* C7089B1000	Outdoor sensor for Chronotherm IV thermostats and TZ-4 Zone Panel	Chronotherm IV T8600 and T8500 Thermostat families and TZ-4 Zone Panel; Chronotherm® IV T8600 and T8500 Thermostat families
C7089U1006	Outdoor sensor for VisionPRO and VisionPRO IAQ Thermostats	VisionPRO® Series Thermostats, VisionPRO® IAQ Thermostat

* TRADELINE models • SUPER TRADELINE models

C7189 Remote Indoor Sensor



The Remote Indoor Temperature Sensor is used to sense temperature remotely.

- Used to sense temperature if the thermostat is installed in a poor temperature sensing location.
- Small remote temperature sensor to match any room decor.
- Easy to install and use.
- Factory calibrated; no field calibration required.
- Works with a maximum 200 foot wire run.

Dimensions, Approximate: 1 1/2 in. wide x 2 1/4 in. high x 3/4 in. deep (38 mm wide x 57 mm high x 19 mm deep)

Color: Premier White®

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Ambient Temperature Range: 45 F to 88 F (7 C to 32 C)

Mounting: Mounts directly on the wall using mounting screws and anchors provided

Product Number	Application	Setting Temperature Range		Used With
		(F)	(C)	
* C7189U1005	Remote Indoor Temperature Sensor for VisionPRO and VisionPRO IAQ Thermostats	See Thermostats		VisionPRO® and VisionPRO® IAQ Series Thermostats

* TRADELINE models • SUPER TRADELINE models

Non-Programmable Thermostats

Wireless System Kits



- **EQUIPMENT INTERFACE MODULE (EIM):** All HVAC equipment is wired to the module. Module receives communication from the wireless devices.
- **RETURN AIR SENSOR:** Works with the Equipment Interface Module to maintain safe indoor temperatures if power is lost at the wireless thermostat. Maintains 62 F for heating and 82 F for cooling.
- **PORTABLE COMFORT CONTROL:** Allows homeowners to sense and control temperature from any room in the home to provide comfort where they spend their time. Manage comfort and energy savings from one convenient control. Touchscreen interface with backlit display. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning.
- **WIRELESS OUTDOOR SENSOR:** Reliable performance in all climates. Installs in minutes. Up to 5 year battery life. 2 month low battery warning.
- **RedLINK™ WIRELESS TECHNOLOGY:** Powered by RedLINK™ reliability. No interference with other wireless devices in the home.

Everything you need to relocate thermostat or upgrade equipment without running new wires. Includes the Portable Comfort Control to sense and control temperature from any room and a Wireless Outdoor sensor to display outdoor temperature and humidity on all devices.

- **WIRELESS FocusPRO® THERMOSTAT:** Same great features of the FocusPRO® thermostat - now wireless. Installs in minutes. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning. Dual Fuel enabled.

Application: Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

Electrical Ratings:

Equipment Interface Module--18 to 30 Vac, 50 Hz; 60 Hz

Changeover: Auto/Manual Selectable

Currents (Cooling): 1.0 A running

Currents (Heating): 1.0 A running

Currents (Fan): 0.6 A running

Power Method: Thermostat--Battery



Accessories:

50002883-001 FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

50007298-001 12 pack of medium coverplates (5 in. x 6 7/8 in.)

Replacement Parts:

50007072-001 Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Terminal Designations	Stages	Includes
	System	Fan			
YTH5320R1017	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat/ 2 Cool Heat Pump; Up to 2 Heat/ 2 Cool Conventional	REM5000R1001 Personal Comfort Station; C7089R1013 Wireless Outdoor Sensor; TH5320R1002 Wireless FocusPRO® Non-Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor

See page page 26 through page 33 for more RedLINK™ products

FocusPRO® 5000 Digital Non-Programmable Thermostats

Standard Display

Large Display



TH5110



TH5220

The FocusPRO® non-programmable digital thermostat provides control when connected to an EnviraZone Zone Panel or an EnviraCOM equipment interface module or an EnviraCOM control board at the equipment.

- Non-programmable digital thermostat.
- Large, clear, backlit display - easy to read in various lighting conditions.
- Display size options - available in large screen or standard.
- Precise comfort control (± 1 F) - maintains consistent comfort to the highest level of accuracy.
- Easy change battery door - flip out door allows for easy battery replacement without removing or disassembling the thermostat.
- Up to 3 Heat/2 Cool Heat Pump or Up to 2 Heat/2 Cool Conventional.
- Dual-powered (battery and/or hardwire).

Dimensions, Approximate:

TH5110: 3 7/16 in. high x 4 1/2 in. wide x 1 5/16 in. deep
(86 mm high x 114 mm wide x 33 mm deep)

TH5220: 3 9/16 in. high x 5 13/16 in. wide x 1 1/2 in. deep
(91 mm high x 147 mm wide x 38 mm deep)

Electrical Ratings: 20 to 30 Vac or 750 mV

Changeover: Auto/Manual Selectable

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Accuracy: ± 1 F (± 0.5 C)

Cycles per Hour: Heating 1-12 CPH; Cooling 1-6 CPH

Switch Type: Relay

Cooling: 1.0 A running

Heating: 1.0 A running

Fan: 0.5A running

Frequency: 50 Hz; 60 Hz

Power Method: Dual Powered: Battery or Hardwire

Sensor Element: Thermistor

Color: Premier White®

Mounting: Horizontal

Accessories:

50001137-001 FocusPRO® TH5110 Cover Plate Assembly

50002883-001 FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

50007297-001 12 pack of small coverplates (4 5/16 in. x 5 1/2 in.)

50007298-001 12 pack of medium coverplates (5 in. x 6 7/8 in.)

Replacement Parts:

50000951-001 Replacement Battery Holder for FocusPRO® TH5110 Thermostat

50007072-001 Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(F)	(C)	
TH5110D1006	Up to 1 Heat/1 Cool Conventional Systems and Heat Pumps with No Auxiliary Heat	HEAT-OFF-COOL-AUTO	AUTO-ON	R, Rc, C, W (O/B), Y, G	Up to 1 Heat/1 Cool	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Standard display size 1.95 sq. in.
TH5110D1022	Up to 1 Heat/1 Cool Conventional Systems and Heat Pumps with No Auxiliary Heat	HEAT-OFF-COOL-AUTO	AUTO-ON	R, Rc, C, W (O/B), Y, G	Up to 1 Heat/1 Cool	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Large display size 2.98 sq. in.
TH5220D1003	Up to 2 Heat/2 Cool Conventional Systems; Up to 2 Heat/1 Cool Heat Pumps	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Rc, R, W (O/B), W2 (AUX), Y, Y2 (E), G, L, C	Up to 2 Heat/2 Cool	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Standard display size 3.75 sq. in.
TH5220D1029	Up to 2 Heat/2 Cool Conventional Systems; Up to 2 Heat/1 Cool Heat Pumps	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Rc, R, W (O/B), W2 (AUX), Y, Y2 (E), G, L, C	Up to 2 Heat/2 Cool	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Large display size 5.09 sq. in.
TH5320U1001	Up to 2 Heat/2 Cool Conventional Systems; Up to 3 Heat/2 Cool Heat Pumps	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Rc, R, W (O/B), W2 (AUX/E), Y, Y2, G, L, C	Up to 3 Heat/2 Cool	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Large display size 5.09 sq. in.

Non-Programmable Thermostats

PRO 3000 Non-Programmable Thermostats



The PRO series provides non-programmable thermostats for 24 Vac conventional and heat pump systems or 750 mV heating systems.

- Non-programmable digital thermostat.
- Backlit digital display - both current and set temperatures are easy to read in various lighting conditions.
- Shows both current and set temperatures at the same time.
- Precise comfort control [± 1 F (± 0.5 C)] - maintains consistent comfort to the highest level of accuracy.
- Basic operation - easy-to-use slide switches allow you to select the heat or cool mode, and operate the fan.

Dimensions, Approximate: 3 13/16 in. high x 5 3/8 in. wide x 1 1/4 in. deep (97 mm high x 137 mm wide x 32 mm deep)

Display Size: 1.32 sq. in.

Electrical Ratings: 20 to 30 Vac or 750 mV

Changeover: Manual

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Accuracy: ± 1 F (± 0.5 C)

Cycles per Hour: Heating 1-12 CPH; Cooling 1-6 CPH

Switch Type: Relay

Current (Cooling): 0.02 A to 1.0 A running

Current (Heating): 0.02 A to 1.0 A running

Frequency: 50 Hz; 60 Hz

Power Method: Dual Powered: Battery or Hardwire

Sensor Element: Thermistor

Color: Premier White®

Mounting: Horizontal

Accessories:

50002883-001 FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

50007298-001 12 pack of medium coverplates (5 in. x 6 7/8 in.)

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range	
		System	Fan			(F)	(C)
TH3110D1008	1 Heat/1 Cool Conventional Systems and Heat Pumps with No Auxiliary Heat	HEAT-OFF-COOL	AUTO-ON	R, Rc, W, Y, G, O, B, C	1 Heat/1 Cool	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C
TH3210D1004	2 Heat/1 Cool Heat Pump Systems	HEAT-OFF-COOL-EM. HT	AUTO-ON	R, Y, AUX, E, G, O, B, L, C	2 Heat/1 Cool Heat Pump	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C

PRO Basic 1000 Non-Programmable Thermostats



The PRO non-programmable digital thermostat provides electronic control of 24 Vac conventional and heat pump systems or 750 mV heating systems.

- Non-programmable digital thermostat.
- Easy-to-read backlit display - easy to read in various lighting conditions.
- Precise comfort control [± 1 F (± 0.5 C)] - maintains consistent comfort to the highest level of accuracy.
- Basic operation - easy-to-use slide switches allow you to select the heat or cool mode, and operate the fan.

Dimensions, Approximate: 4 11/16 in. high x 2 7/8 in. wide x 1 1/8 in. deep (120 mm high x 74 mm wide x 28 mm deep)

Display Size: 1.32 sq. in.

Electrical Ratings: 20 to 30 Vac or 750 mV

Changeover: Manual

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Accuracy: ± 1 F (± 0.5 C)

Cycles per Hour: Heating 2-6 CPH

Switch Type: Relay

Heating: 0.02 A to 1.0 A running

Frequency: 50 Hz; 60 Hz

Power Method: Dual Powered: Battery or Hardwire

Sensor Element: Thermistor

Color: Premier White®

Mounting: Vertical

Accessories:

50022893-001 Premier White® cover plate 5 3/4 in. (146 mm) x 7 3/8 in. (187 mm)

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(F)	(C)	
TH1100D1001	Heat Only	HEAT-OFF	—	R, C, W,	1 Heat	Selectable Heat: 40 F to 90 F or 35 F to 90 F	Selectable Heat 4.5 C to 32 or 1.5 C to 32 C	Adjustable Temperature Scale: Standard selection of 40 to 90F or Garage selection of 35 to 90F
TH1110D1000	1 Heat/1 Cool Conventional Systems and Heat Pumps with No Auxiliary Heat	HEAT-OFF-COOL	AUTO-ON	R, C, W, Y, G, O/B	1 Heat/ 1 Cool	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	—
TH1210D1008	2 Heat/1 Cool Heat Pump Systems	HEAT-OFF-COOL-EM. HT	AUTO-ON	R, C, Aux, Y, G, O/B	2 Heat/ 1 Cool Heat Pump	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	—

Non-Programmable Thermostats

T8775A,C The Digital Round® Non-Programmable Thermostats



The Digital Round® Thermostats provide 24V control of heating only or heat/cool systems.

- Attractive styling complements any decor.
- One-touch backlit display.
- Familiar twist-to-see operation. Available in Heat/Cool and Heat Only models.

Dimensions, Approximate: 3 11/16 in. diameter x 1 7/16 in. deep
(94 mm diameter x 37 mm deep)
Display Size: 0.75 sq in.
Operating Humidity Range (% RH): 5 to 90% RH (non-condensing)
Accuracy: ±1 F (±0.5 C)
Cycles per Hour: Adjustable 1, 3, 6, 9
Switch Type: Electronic
Cooling: 0.02A to 1.5A running; 6.0A inrush
Heating: 0.02A to 1.5A running, 3.5A inrush
Fan: 0.02A to 0.5A running, 2.5A inrush
Frequency: 60 Hz
Power Method: Powered through system heating controls

Sensor Element: Thermistor
Color: Premier White®
Mounting: Round
Comments: Large easy-to-see backlit display
Includes: Wallplate, resistor assembly, mounting screws and wall anchors

Accessories:
50000066-001 Decorative Cover Plate for T8775 or T87K,N

Replacement Parts:
32007680-001 Replacement Cover for T8775

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range		Electrical Ratings
		System	Fan			(F)	(C)	
T8775A1009	24 Vac gas or oil heat only systems	—	—	R, W	1 Heat	40 to 90	4.5 to 32	18 to 30 Vac
T8775C1005	1 Heat/1 Cool Conventional Systems and Heat Pumps with No Auxiliary Heat	HEAT-OFF-COOL	AUTO-ON	R, Rc, W, Y, G, O, B	1 Heat/ 1 Cool	40 to 90 in heat; 45 to 99 in cool	4.5 to 32 in heat; 7 to 37 in cool	18 to 30 Vac

Non-Programmable Thermostats

T87K,N The Round®



Heat Only



1 Heat/1 Cool



1 Heat/1 Cool,
Easy To See

The Round® thermostats provide electronic control of 24Vac heating and cooling systems with the classic twist to set dial.

- Mercury Free
- Classic Styling
- Premier White®
- The T87K heat only works with 2 or 3 wire heat-only systems

Electrical Ratings: 20 to 30 Vac

Operating Humidity Range (% RH): 5 to 90% RH (non-condensing)

Accuracy: ±1 F (± 0.5 C)

Cycles per Hour: Adjustable 1, 3, 5, 9

Switch Type: Relay

Heating: 0.02 A to 1.0 A running

Frequency: 50 Hz; 60 Hz

Power Method: Battery assisted power stealing

Sensor Element: Thermistor

Color: Premier White®

Mounting: Round

Accessories:

50000066-001 Decorative Cover Plate for T8775 or T87K,N

50010944-001 Range Stop Assembly

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range (F)	Dimensions, Approximate		Includes	Comments
		System	Fan				(inch)	(mm)		
T87K1007	Heat Only	—	—	R, W, Y	1 Heat	40 to 90	3 11/16 in. diameter x 1 3/4 in. deep	94 mm diameter x 45 mm deep	—	—
T87N1000	1 Heat/1 Cool Conventional Systems and Heat Pumps with No Auxiliary Heat	HEAT-OFF-COOL	AUTO-ON	R, Rc, W, Y, G, O, B	1 Heat/1 Cool	40 to 90	3 11/16 in. diameter x 1 3/4 in. deep	94 mm diameter x 45 mm deep	—	—
T87N1026	1 Heat/1 Cool Conventional Systems and Heat Pumps with No Auxiliary Heat	HEAT-OFF-COOL	AUTO-ON	R, Rc, W, Y, G, O, B	1 Heat/1 Cool	40 to 90	4 in. diameter x 1 3/4 in. deep	102 mm diameter x 45 mm deep	6 in. (152 mm) cover ring and switch position labels	EASY-TO-SEE model with Large raised markings and a click at each 2 degree setpoint change

Non-Programmable Thermostats

Mercury Free T822 Econo Thermostats



No Heat-Off

Heat-Off

Dual Scale

Thermostats provide 24 Vac control of heating or cooling systems.

- Vented cover for improved temperature sensing.
- Setting lever and thermometer scale on thermostat cover.
- Mounts directly on the wall or on vertical outlet box.
- Integrated thermometer and setting scale.

Dimensions, Approximate: 4 3/4 in. high x 2 7/8 in. wide x 1 3/8 in. deep (121 mm high x 73 mm wide x 35 mm deep)

Electrical Ratings: 20 to 30 Vac

Accuracy: ±2 F (±1 C)

Switch Type: Precision Snap Action

Switching Action: SPST

Heating: 0.02 A to 1.0 A running

Sensor Element: Bimetal

Color: Premier White®

Mounting: Vertical

Product Number	Application	Switch Positions	Terminal Designations	Stages	Setting Temperature Range		Description
		System			(F)	(C)	
T822K1000	Heat Only	HEAT-OFF	R, W	1 Heat	45 to 95	—	Mercury Free Heat Only Thermostat with Positive Off for control of single stage low voltage heating systems
T822K1018	Heat Only	—	R, W	1 Heat	45 to 95	—	Mercury Free Heat Only Thermostat for control of single stage low voltage heating systems
T822K1042	Heat Only	HEAT-OFF	R, W	1 Heat	35 F to 85 F	—	Mercury Free Heat Only Thermostat with Low Temperature Scale, Ideal for Garages. Heat/Off. For control of heat only low voltage systems.
T822L1000	Cool Only or Heat Only for Normally Open Hot Water Zone Valves	—	R, Y	1 Cool	45 to 95	7 to 32	Temperature scale in Fahrenheit and Celsius; Mercury Free Cool Only Thermostat control of single stage low voltage cooling systems

Non-Programmable Thermostats

Mercury Free T827 Econo Thermostats



The EconoStat series mechanical thermostats provide control of 12 Vdc or 750 mV heat only systems.

- Integrated thermometer and temperature setting scale.
- Precise Snap-action switch.
- Mount directly on wall or outlet box.
- Includes dealer logo pocket.

Dimensions, Approximate: 4 3/4 in. high x 2 7/8 in. wide x 1 3/8 in. deep (121 mm high x 73 mm wide x 35 mm deep)

Accuracy: ±2 F (±1 C)

Switch Type: Precision Snap Action

Switching Action: SPST

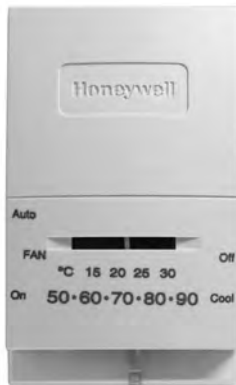
Sensor Element: Bimetal

Color: Premier White®

Mounting: Vertical

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range		Description
		System				(F)	(C)	
T827K1009	Heat Only	HEAT-OFF		R, W	1 Heat	45 to 95	—	Mercury Free Heat Only Thermostat with Positive Off for control of single stage low voltage heating systems

Mercury Free T834; T8034 Econo Thermostats



Cool Only



1 Heat/1 Cool

Thermostats for low voltage control of single-stage heating, cooling or heating-cooling systems.

- Integrated thermometer and temperature setting scale.
- Precise Snap-action switch.
- Mount directly on wall or outlet box.
- Includes dealer logo pocket.

Dimensions, Approximate: 4 3/4 in. high x 2 7/8 in. wide x 1 3/8 in. deep (121 mm high x 73 mm wide x 35 mm deep)

Electrical Ratings: 20 to 30 Vac

Accuracy: ±2 F (±1 C)

Switch Type: Precision Snap Action

Switching Action: SPST

Cooling: 0.02 A to 1.0 A running

Heating: 0.02 A to 1.0 A running

Sensor Element: Bimetal+

Color: Premier White®

Mounting: Vertical

Accessories:

50019661-001 Range Stop Assembly for Econostat

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range		Description
		System	Fan			(F)	(C)	
T834L1004	Cool Only	COOL-OFF	AUTO-ON	R, Y, G, O	1 Cool	45 to 95	7 to 32	Temperature scale in Fahrenheit and Celsius; Mercury Free Cool Only Thermostat with Positive Off for control of single stage low voltage cooling systems
T834N1002	1 Heat/1 Cool Conventional Systems and Heat Pumps with No Auxiliary Heat	HEAT-OFF-COOL	AUTO-ON	R, Rc, W, Y, G, O, B	1 Heat/1 Cool	45 to 95	—	Mercury Free 1Heat/1Cool Stage Thermostat for control of single stage low voltage heating/cooling systems

Non-Programmable Thermostats

T812; TS812 Heating and/or Cooling Thermostats



Heat Only



1 Heat/1 Cool

Thermostats for low voltage control of single-stage heating, cooling or heating-cooling systems.

- Snap-acting bimetal switch uses no mercury and does not require leveling.
- Thermostat is streamlined and economical.
- Model available for 12 Vdc (T812B) and 750 mV (TS812).
- Includes dealer logo pocket.

Dimensions, Approximate: 3 1/8 in. high x 3 1/8 in. wide x 7/8 in. deep
(79 mm high x 79 mm wide x 23 mm deep)

Operating Humidity Range (% RH): 5 to 90% RH

Setting Temperature Range: 45 to 95 F (7 to 35 C)

Accuracy: ±3 F (±1.5 C)

Switch Type: Snap action

Heating: 1.0A running, 2.5A inrush at 24 Vac

Fan: 1.0A running, 5A inrush at 24 Vac

Sensor Element: Bimetal

Color: Premier White®

Mounting: Square

Accessories:

50005625-001 Premier White® Cover Plate Assembly 4 3/4 in. (120 mm) x 4 3/4 in. (120 mm)

Product Number	Application	Switch Positions		Terminal Designations	Stages	Electrical Ratings	Switching Action	Description
		System	Fan					
T812A1002	Heat Only	—	—	W, R	1 Heat	18 to 30 Vac	SPST	Premier White 1 Heat Stage Thermostat with W,R terminals for 24 volt control of heating only systems
T812A1010	Heat Only	Positive Off	—	W, R	1 Heat	18 to 30 Vac	SPST	Premier White 1 Heat Stage Thermostat with W,R terminals for 24 volt control of heating only systems
T812B1001	Heat Only - 12 Vdc	Positive Off	—	W, R	1 Heat	12 Vdc	SPST	Premier White 1 Heat Stage Thermostat with W,R terminals for 12 Vdc control of heating only systems
T812C1000	1 Heat/1 Cool Conventional Systems	OFF-HEAT-COOL	AUTO-ON	R, W, Y, G	1 Heat/1 Cool	18 to 30 Vac	SPDT	Premier White 1 Heat/1 Cool Stage Thermostat for 24 Vac heating and cooling systems
T812D1009	Cool Only	—	—	R, Y	1 Cool	18 to 30 Vac	SPST	Premier White 1 Cool Stage Thermostat with Y,R terminals for 24 volt control of cooling only systems
* TS812A1007	Heat Only - Millivolt	Positive Off	—	R, W	1 Heat	750 mV	SPST	Premier White 1 Heat Stage Thermostat with R,W terminals for heat only 750 mV applications

* TRADELINE models • SUPER TRADELINE models

S483 Winter Watchman



Used as a freeze warning device. Completes circuit to household lamp on temperature fall, indicating inoperative heating equipment.

- Plugs directly into wall outlet.
- Lamp plugs into receptacle at bottom of Winter Watchman device.
- Useful when house is unoccupied to notify a neighbor of a temperature drop so heating source fault can be rectified before freeze-up occurs.
- Not precision calibrated for use as a thermostat.

Dimensions, Approximate: 3 3/8 in. high x 2 1/8 in. wide x 13/16 in. deep (86 mm high x 54 mm wide x 21 mm deep)

Electrical Ratings: Load: 120W maximum for incandescent lamp load only.

Accuracy: ±5 F (±3 C)

Ambient Temperature Range: 30 F to 60 F (-1 C to +16 C)

Switching Action: SPST

Heating: 1.0A

Frequency: 60 Hz

Sensor Element: Bimetal

Color: Beige

Mounting: Vertical Mount

Product Number	Application	Setting Temperature Range	
		(F)	(C)
S483B1002	Incandescent Lamp	30 to 60	-1 C to 16 C

RedLINK™ Products

Prestige™ Comfort System



High Definition Color Touchscreen Thermostat



Standard Definition Touchscreen Thermostat

The Prestige™ HD thermostat provides control of 24Vac of heating and cooling systems. RedLINK™ enabled to work with compatible wireless accessories. The Prestige™ HD Thermostat Kits contains Wireless Outdoor Sensor and High Definition (HD) Color Touchscreen Thermostat.

Application: Up to 2 Heat/2 Cool Conventional Systems
Up to 3 Heat/2 Cool Heat Pumps

Dimensions, Approximate: 3 15/16 in. high, 6 7/8 in. wide,
1 1/2 in. deep (100 mm. high, 175 mm. wide, 38 mm. deep)

Display Size: 8.06 sq. in.

Color: Arctic White

Programmability: 7-Day Multiple Day Programming or Non-Programmable

Changeover: Auto or Manual

Electrical Connections: Screw terminals

Electrical Ratings: 18 to 30 Vac

Frequency: 50 Hz; 60 Hz

Voltage: 18 to 30 Vac

Operating Humidity Range (% RH): 0 to 90% RH, non-condensing

Humidity Setting Range: Cooling: 40 to 80% RH. Heating: 10 to 80% RH.

Dehumidification Setting Range: 40 to 80% RH

Humidification Setting Range: 10 to 60% RH.

Setting Temperature Range:

Heat: 40 F to 90 F; Cool 60 F to 99F

(Heat: 4.5 C to 32.0 C; Cool: 15.5 C to 37.0 C)

- Large, easy-to-read backlit full color display shows current indoor temperature and humidity, temperature setting, date and time on the home screen. Also displays outdoor temperature and humidity on home screen (if wireless outdoor sensor is installed)
- Adjustable backlight level allows thermostat to be on full brightness at all times or dim to the brightness level of choice when the thermostat is not being used
- Interview-Based Programming wizard to easily and confidently schedule thermostat temperatures and times
- USB Port allows downloading of installer settings to quickly and consistently perform setup of thermostats in similar applications
- USB Port also allows easy setup of dealer logo and contact information on thermostat screen
- Real-Time Clock keeps time during power failure; automatically updates for daylight saving time
- Precise Temperature Control ($\pm 1 \times F$) for reliable and consistent temperature.
- Multiple HOLD options allows modification of schedule as needed
- Change Reminders to inform it is time to replace Air Filter, humidifier pad, ultraviolet bulb or batteries in connected devices
- RedLINK™ Enabled to communicate with compatible wireless devices
- Kit Includes Portable Comfort Control, Wireless Outdoor Sensor and Prestige™ HD Thermostat



Operating Temperature Range: 32 F to 120 F (0 C to 48.9 C)

Stages: Up to 3 Heat/2 Cool Heat Pump

or Up to 2 Heat/2 Cool Conventional

Power Method: Hardwired

Outdoor Sensor: Yes, optional

Remote Sensor: No

Comments: Tri-Lingual Display (selectable for English, French or Spanish)

Used With: RedLINK™ enabled thermostats and accessories

Accessories:

50028399-001 Cover plate for Prestige Thermostats 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)

C7089R1013 Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

REM5000R1001 Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience.

RedLINK™ Enabled. Works in both zoned and non-zoned applications.

THP9045A1007 THP9045 WireSaver

Product Number	Switch Positions		Terminal Designations	Includes
	System	Fan		
THX9321R1008	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	Standard Definition Touchscreen Thermostat
THX9321R5000	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	High Definition Color Touchscreen Thermostat
YTHX9321R1000	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	Standard Definition Touchscreen Thermostat; REM5000R1001 Portable Comfort Control and C7089R1013 Wireless Outdoor Sensor
YTHX9321R1011	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	Standard Definition Touchscreen Thermostat; C7089R1013 Wireless Outdoor Sensor
YTHX9321R5003	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	High Definition Color Touchscreen Thermostat; REM5000R1001 Portable Comfort Control and C7089R1013 Wireless Outdoor Sensor
YTHX9321R5012	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	High Definition Color Touchscreen Thermostat; C7089R1013 Wireless Outdoor Sensor

Wireless System Kits



Everything you need to relocate thermostat or upgrade equipment without running new wires. Includes the Portable Comfort Control to sense and control temperature from any room and a Wireless Outdoor sensor to display outdoor temperature and humidity on all devices.

- **WIRELESS FocusPRO® THERMOSTAT:** Same great features of the FocusPRO® thermostat - now wireless. Installs in minutes. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning. Dual Fuel enabled.
- **EQUIPMENT INTERFACE MODULE (EIM):** All HVAC equipment is wired to the module. Module receives communication from the wireless devices.
- **RETURN AIR SENSOR:** Works with the Equipment Interface Module to maintain safe indoor temperatures if power is lost at the wireless thermostat. Maintains 62 F for heating and 82 F for cooling.
- **PORTABLE COMFORT CONTROL:** Allows homeowners to sense and control temperature from any room in the home to provide comfort where they spend their time. Manage comfort and energy savings from one convenient control. Touchscreen interface with backlit display. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning.
- **WIRELESS OUTDOOR SENSOR:** Reliable performance in all climates. Installs in minutes. Up to 5 year battery life. 2 month low battery warning.
- **RedLINK™ WIRELESS TECHNOLOGY:** Powered by RedLINK™ reliability. No interference with other wireless devices in the home.



Application: Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

Electrical Ratings:

Equipment Interface Module--18 to 30 Vac, 50 Hz; 60 Hz

Changeover: Auto/Manual Selectable

Current (Cooling): 1.0 A running

Current (Heating): 1.0 A running

Current (Fan): 0.6 A running

Power Method: Thermostat--Battery

Accessories:

50002883-001 FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

50007298-001 12 pack of medium coverplates (5 in. x 6 7/8 in.)

Replacement Parts:

50007072-001 Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Terminal Designations	Stages	Includes
	System	Fan			
YTH5320R1017	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat/2 Cool Heat Pump; Up to 2 Heat/2 Cool Conventional	REM5000R1001 Personal Comfort Station; C7089R1013 Wireless Outdoor Sensor; TH5320R1002 Wireless FocusPRO® Non-Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor
YTH6320R1015	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat/2 Cool Heat Pump; Up to 2 Heat/2 Cool Conventional	REM5000R1001 Personal Comfort Station; TH6320R1004 Wireless FocusPRO® 5-1-1 Programmable Thermostat; C7089R1013 Wireless Outdoor Sensor; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor

RedLINK™ Wireless Products

Wireless Thermostat Kits with Outdoor Sensor



Everything you need to relocate thermostat or upgrade equipment without running new wires. Includes Wireless Outdoor Sensor to display outdoor temperature and humidity on all devices.

- WIRELESS FocusPRO® THERMOSTAT: Same great features of the FocusPRO® thermostat - now wireless. Installs in minutes. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning. Dual Fuel enabled.
- EQUIPMENT INTERFACE MODULE (EIM): All HVAC equipment is wired to the module. Module receives communication from the wireless devices.
- RETURN AIR SENSOR: Works with the Equipment Interface Module to maintain safe indoor temperatures if power is lost at the wireless thermostat. Maintains 62 F for heating and 82 F for cooling.
- WIRELESS OUTDOOR SENSOR: Reliable performance in all climates. Installs in minutes. Up to 5 year battery life. 2 month low battery warning.
- RedLINK™ WIRELESS TECHNOLOGY: Powered by RedLINK™ reliability. No interference with other wireless devices in the home.
- reliability. No interference with other wireless devices in the home.



Application: Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

Electrical Ratings:

Equipment Interface Module--18 to 30 Vac, 50 Hz; 60 Hz

Changeover: Auto/Manual Selectable

Current (Cooling): 1.0 A running

Current (Heating): 1.0 A running

Current (Fan): 0.6 A running

Power Method: Thermostat--Battery

Accessories:

50002883-001 FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

50007298-001 12 pack of medium coverplates (5 in. x 6 7/8 in.)

REM5000R1001 Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience. RedLINK™ Enabled. Works in both zoned and non-zoned applications.

Replacement Parts:

50007072-001 Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Terminal Designations	Stages	Includes
	System	Fan			
YTH5320R1008	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat/2 Cool Heat Pump or Up to 2 Heat/2 Cool Conventional	C7089R1013 Wireless Outdoor Sensor; TH5320R1002 Wireless FocusPRO® Non-Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor
YTH6320R1009	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat/2 Cool Heat Pump or Up to 2 Heat/2 Cool Conventional	TH6320R1004 Wireless FocusPRO® 5-1-1 Programmable Thermostat; C7089R1013 Wireless Outdoor Sensor; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor

Wireless Thermostat Kits



Everything you need to relocate thermostat or upgrade equipment without running new wires

- **WIRELESS FocusPRO® THERMOSTAT:** Same great features of the FocusPRO® thermostat - now wireless. Installs in minutes. Can display outdoor temperature and humidity. 1 year battery life. 2 month low battery warning. Dual Fuel enabled -requires C7089R1013 wireless outdoor sensor (sold separately).
- **EQUIPMENT INTERFACE MODULE (EIM):** All HVAC equipment is wired to the module. Module receives communication from the wireless devices.
- **RETURN AIR SENSOR:** Works with the Equipment Interface Module to maintain safe indoor temperatures if power is lost at the wireless thermostat. Maintains 62 F for heating and 82 F for cooling.
- **RedLINK™ WIRELESS TECHNOLOGY:** Powered by RedLINK™ reliability. No interference with other wireless devices in the home.



Application: Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

Electrical Ratings:

Equipment Interface Module--18 to 30 Vac, 50 Hz; 60 Hz

Changeover: Auto/Manual Selectable

Current (Cooling): 1.0 A running

Current (Heating): 1.0 A running

Current (Fan): 0.6 A running

Power Method: Thermostat--Battery

Accessories:

50002883-001 FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

50007298-001 12 pack of medium coverplates (5 in. x 6 7/8 in.)

C7089R1013 Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

REM5000R1001 Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience. RedLINK™ Enabled. Works in both zoned and non-zoned applications.

Replacement Parts:

50007072-001 Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Terminal Designations	Stages	Includes
	System	Fan			
YTH5320R1000	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat/2 Cool Heat Pump; Up to 2 Heat/2 Cool Conventional	TH5320R1002 Wireless FocusPRO® Non-Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor
YTH6320R1001	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat/2 Cool Heat Pump; Up to 2 Heat/2 Cool Conventional	TH6320R1004 Wireless FocusPRO® 5-1-1 Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor

RedLINK™ Wireless Products

Wireless Zoning Adapter Kits



Wireless Zoning Adapter Kit allows you to easily add to a TrueZONE™ system without running new wires.

- WIRELESS ADAPTER: Allows for wireless zoning when used with HZ432 or HZ322 TrueZONE™ panels (sold separately). Adapter receives communication from the wireless devices.
- WIRELESS FocusPRO® THERMOSTAT: Same great features of the FocusPRO® thermostat - now wireless. Installs in minutes. Displays outdoor temperature and humidity (outdoor sensor sold separately). 1 year battery life. 2 month low battery warning.
- RedLINK™ WIRELESS TECHNOLOGY: Powered by RedLINK™ reliability. No interference with other wireless devices in the home.



Application: Heat Pump Systems; Forced warm air

Changeover: Auto/Manual Selectable

Power Method: Thermostat--Battery

Accessories:

50002883-001 FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

50007298-001 12 pack of medium coverplates (5 in. x 6 7/8 in.)

C7089R1013 Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

REM5000R1001 Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience. RedLINK™ Enabled. Works in both zoned and non-zoned applications.

Replacement Parts:

50007072-001 Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Includes
	System	Fan	
YTH5320R1025	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	THM4000R1000 Wireless Adapter; TH5320R1002 Wireless FocusPRO® Non-Programmable Thermostat
YTH6320R1023	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	THM4000R1000 Wireless Adapter; TH6320R1004 Wireless FocusPRO® 5-1-1 Programmable Thermostat

Wireless FocusPRO® Thermostats



Easily add a zone to a TrueZONE™ system without running new wires. Choose from programmable or non-programmable.

- Powered by RedLINK™ reliability
- No interference with other wireless devices in the home
- Works with compatible RedLINK™ enabled devices
- Same great features of the FocusPRO® thermostat now wireless
- Installs in minutes
- Can display outdoor temperature and humidity
- 1 year battery life
- 2 month low battery warning
- Dual Fuel enabled - requires THM5320R1000 Equipment Interface Module and C7089R1013 Wireless Outdoor Sensor (sold separately).



Application: Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

Dimensions, Approximate: 3 9/16 in. high x 5 13/16 in. wide x 1 1/2 in. deep (91 mm high x 147 mm wide x 38 mm deep)

Changeover: Auto/Manual Selectable

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Setting Temperature Range:

Heat: 40 F to 90 F; Cool: 50 F to 99 F
(Heat: 4.5 C to 32 C; Cool: 10 C to 37 C)

Differential Temperature: ± 1 F (±0.5 C)

Power Method: Battery

Sensor Element: Thermistor

Color: Premier White®

Mounting: Horizontal

Comments: Thermostat is also available in kits for zoned and non-zoned systems

Accessories:

50002883-001 FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

50007298-001 12 pack of medium coverplates (5 in. x 6 7/8 in.)

C7089R1013 Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

C7735A1000 Mount on return duct for backup control of non-zoned RedLINK™ enabled wireless systems. Works with the EIM to maintain safe indoor temperatures if power is lost at the wireless thermostat.

REM5000R1001 Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience. RedLINK™ Enabled. Works in both zoned and non-zoned applications.

Replacement Parts:

50007072-001 Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Stages	Parts Needed for Operation (not included) - Non-Zoned System	Parts Needed for Operation (not included) - TrueZONE™ System
	System	Fan			
TH5320R1002	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Up to 3 Heat/2 Cool Heat Pump; Up to 2 Heat/2 Cool Conventional	THM5320R1000 Equipment Interface Module	HZ432 or HZ322 TrueZONE™ panel; THM4000R1000 Wireless Adapter
TH6320R1004	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Up to 3 Heat/2 Cool Heat Pump; Up to 2 Heat/2 Cool Conventional	THM5320R1000 Equipment Interface Module	HZ432 or HZ322 TrueZONE™ panel; THM4000R1000 Wireless Adapter

RedLINK™ Wireless Products

THM5320 Equipment Interface Module



- Powered by RedLINK™ reliability
- No interference with other wireless devices in the home
- Works with TH6320R1004 or TH5320R1002 Wireless FocusPRO® thermostats
- Input for Return Air Sensor
- Quick-connect terminal blocks
- LEDs for power and system status



Easily relocate thermostat or upgrade equipment without running new wires using this module and a wireless FocusPRO® thermostat.

Application: Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

Dimensions, Approximate: 8 1/8 in. high x 8 in. wide x 1 7/8 in. deep (206 mm high x 203 mm wide x 47 mm deep)

Electrical Ratings: 18 to 30 Vac, 50/60 Hz

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Current (Cooling): 1.0 A running

Current (Heating): 1.0 A running

Current (Fan): 0.6 A running

Color: Gray

Accessories:

C7735A1000 Mount on return duct for backup control of non-zoned RedLINK™ enabled wireless systems. Works with the EIM to maintain safe indoor temperatures if power is lost at the wireless thermostat.

C7089R1013 Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

REM5000R1001 Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience.

RedLINK™ Enabled. Works in both zoned and non-zoned applications.

Product Number	Terminal Designations	Stages	Parts Needed for Operation (not included)	Description	Comments
THM5320R1000	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat/2 Cool Heat Pump or Up to 2 Heat/2 Cool Conventional	TH6320R1004 or TH5320R1002 Wireless FocusPRO® Thermostat	Controls up to 3 heat/2 cool heat pump systems or up to 2 heat/2 cool conventional systems when used with the wireless FocusPRO® thermostat.	Equipment Interface Module is also available in kits

Wireless Adapter



Wireless Adapter allows you to easily add RedLINK™-enabled thermostats to a TrueZONE™ system without running new wires. Use a RedLINK™-enabled TrueSTEAM® Humidification System with a Wireless Adapter to communicate and control humidity from Prestige without running new wires to the living space. Prestige also controls whole-house dehumidifiers like the Honeywell TrueDRY®.

- Powered by RedLINK™ reliability.
- No interference with other wireless devices in the home.
- Communicates with Wireless Outdoor Sensor to automatically control humidity to proper levels.



Dimensions, Approximate: 5 9/16 in. high x 4 3/8 in. wide x 1 1/4 in. deep (141 mm high x 112 mm wide x 32 mm deep)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Color: Gray

Mounting: Mount Wireless Adapter on wall near HVAC equipment or on the duct.

Product Number	Terminal Designations	Requirements	Description
THM4000R1000	A, B, C, D	One adapter per zone control panel, HZ322 or HZ432 TrueZONE panel	Wireless Adapter allows you to easily add RedLINK™ enabled thermostats to a TrueZONE™ system without running new wires.

REM5000 Portable Comfort Control



Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience. Works in both zoned and non-zoned applications.

- Powered by RedLINK™ reliability

Application: Zoned and Non-Zoned Applications

Dimensions, Approximate: 6 1/4 in. high x 3 1/8 in. wide x 1 5/8 in. deep (159 mm high x 79 mm wide x 41 mm deep)

Changeover: Auto or Manual

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

- No interference with other wireless devices in the home
- Works with compatible RedLINK™ enabled thermostats and accessories
- Installs in minutes
- Touchscreen interface with backlit display
- Can display outdoor temperature and humidity
- Built-in pager with an audible noise helps locate the device in the home
- Screen-lock feature helps prevent accidental changes
- 1 year battery life
- 2 month low battery warning
- In Non-Zoned Applications:
 - Bring it with you anywhere in the home to sense and control temperature from the room that you are in.
- In Zoned Applications:
 - View and adjust all RedLINK™ enabled thermostats from a single control.
- Controls up to 16 thermostats



Operating Temperature Range: 32 F to 120 F (0 C to 48.9 C)

Differential Temperature: ± 1 F (±0.5 C)

Power Method: Battery

Sensor Element: Thermistor

Product Number	Comments	Used With
REM5000R1001	Portable Comfort Control is also available in kits.	RedLINK™ enabled thermostats and accessories

C7089 Wireless Outdoor Sensor



Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

- Powered by RedLINK™ reliability
- No interference with other wireless devices in the home
- Reliable performance in all climates
- Installs in minutes
- Up to 5 year battery life
- 2 month low battery warning
- Battery warning displayed on RedLINK™ enabled thermostats
- Includes 2 AA Lithium batteries and mounting hardware

Application: Outdoor Sensor

Dimensions, Approximate: (with mounting bracket) 5 in. high x 3 1/2 in. wide x 1 11/16 in. deep ((with mounting bracket) 127 mm high x 89 mm wide x 43 mm deep)

Color: Gray

Operating Humidity Range (% RH): 0 to 100% RH, condensing

Operating Temperature Range: -40 F to 140 F (-40 C to 60 C)

Power Method: Battery

Sensor Element: Thermistor

Mounting: Mounts on a vertical wall with supplied bracket and mounting hardware

Product Number	Comments	Used With
C7089R1013	Wireless Outdoor Sensor is also available in kits	RedLINK™ enabled thermostats and accessories

RedLINK™ Accessories

C7735 Return Air Sensor



Mount on return duct for backup control of non-zoned RedLINK™ enabled Wireless Systems and Thermostats.

- Works with THM5320R1000 Equipment Interface Module to maintain safe indoor temperatures if power is lost at the wireless thermostat
- Takes control of the equipment by turning on the blower fan and sensing the indoor temperature of the home
- Controls heating at 62 F and cooling at 82 F
- Provides homeowners with peace of mind
- Installs in minutes
- Includes mounting hardware

Dimensions, Approximate: 3 7/8 in. high x 4 1/8 in. wide x 1 1/4 in. deep (77 mm high x 102 mm wide x 25 mm deep. Sensor probe is 3 3/4 in. long (77 mm))

Color: Gray

Operating Temperature Range: 0 F to 200 F (-17.8 C to 93.3 C)

Mounting: Mounts on return duct

Product Number	Application	Comments	Used With
C7735A1000	Mount on return duct for backup control of non-zoned systems	Return Air Sensor is also available in kits for non-zoned systems	THM5320R1000 Equipment Interface Module; TH6320R1004 or TH5320R1002 Wireless FocusPRO® Thermostat

VisionPRO® IAQ Total Home Comfort System



The VisionPRO IAQ touchscreen universal programmable thermostat provides electronic control of 24 Vac heating and cooling systems in addition to humidification, dehumidification and ventilation all with just 3 wires to the thermostat.

- Advanced dual-fuel control.
- Three wires to the living space allows for easy equipment upgrade without having to run additional thermostat wire.
- Thermostat connects with Equipment Interface Module or EnviraZONE panel to control temperature, humidification, dehumidification and ventilation from a single point in the home.
- Automatically raises humidity levels throughout all rooms in the home, moisturizing air to prevent symptoms of dryness and to protect hardwood flooring and woodwork.
- Removes air pollutants by exchanging the stale air in a house with fresh, filtered air better than having an open window.

Thermostat Dimensions, Approximate: 4 9/16 in. high x 6 in. wide x 1 1/4 in. deep (116 mm high x 152 mm wide x 32 mm deep)

Color: Premier White®

Programmability: 7 Day Multiple Day Programming or Non-Programmable

Changeover: Auto/Manual Selectable

Thermostat Display Size: 10 sq. in.

Electrical Ratings: THM5421 is rated 20 to 30 Vac

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Differential Temperature: ± 1 F (±0.5 C)

Stages: Up to 3 Heat/2 Cool Conventional; Up to 4 Heat/2 Cool Heat Pump

Power Method: Communicating

Voltage: 20 to 30 Vac

Dehumidification Setting Range: 40 to 80% RH.

Humidification Setting Range: 10 to 60% RH.

Sensor Element: Thermistor

Mounting: Horizontal

Switch Type: Yes, optional

Outdoor Sensor: Yes, optional

Remote Sensor: Yes, optional

Accessories:

32003796-001 Premier White® cover plate 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)

C7089U1006 Remote Outdoor Sensor

C7189U1005 Remote Indoor Sensor

Product Number	Application	Mounting	Switch Positions		Terminal Designations	Setting Temperature Range		Comments	Used With	Includes
			System	Fan		(F)	(C)			
TH9421C1004	Conventional and Heat Pump systems	Horizontal	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	1, 2, 3	Heat: 40 F to 90 F; Cool: 60 F to 99 F	Heat: 4.5 C to 32 C; Cool: 15 C to 37 C	Includes Humidification Control with or without Frost Protection, Dehumidification using Whole House Dehumidifier or Air Conditioning with High or Low speed fan, Advanced Patented Ventilation Control and Advanced Dual Fuel Heat Pump Control.	THM5421C1008 Equipment Interface Module	Thermostat only
THM5421C1008	Heat/Cool or Heat Pump with Auxiliary Heat	Vertical	—	—	1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1, Vnt2	—	—	Includes Humidification Control with or without Frost Protection, Dehumidification using Whole House Dehumidifier or Air Conditioning with High or Low speed fan, Advanced Patented Ventilation Control and Advanced Dual Fuel Heat Pump Control.	TH9421 VisionPRO IAQ Thermostat	Equipment Interface Module Only
YTH9421C1002	Heat/Cool or Heat Pump with Auxiliary Heat	Horizontal	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1, Vnt2	Heat: 40 F to 90 F; Cool: 60 F to 99 F	Heat: 4.5 C to 32 C; Cool: 15 C to 37 C	Includes Humidification Control with or without Frost Protection, Dehumidification using Whole House Dehumidifier or Air Conditioning with High or Low speed fan, Advanced Patented Ventilation Control and Advanced Dual Fuel Heat Pump Control.	—	TH9421C1004 Thermostat and THM5421C1008 Equipment Interface Module
YTH9421C1010	Heat/Cool or Heat Pump with Auxiliary Heat	Horizontal	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1, Vnt2	Heat: 40 F to 90 F; Cool: 60 F to 99 F	Heat: 4.5 C to 32 C; Cool: 15 C to 37 C	Includes Humidification Control with or without Frost Protection, Dehumidification using Whole House Dehumidifier or Air Conditioning with High or Low speed fan, Advanced Patented Ventilation Control and Advanced Dual Fuel Heat Pump Control.	—	TH9421C1004 Thermostat, THM5421C1008 Equipment Interface Module and C7089U1006 Outdoor Temperature Sensor

Communicating Thermostats

FocusPRO® Communicating Thermostats



The FocusPRO® non-programmable digital thermostat provides control when connected to an EnviraZone Zone Panel or an EnviraCOM equipment interface model or an EnviraCOM control board at the equipment.

- Non-programmable digital thermostat.
- Large, clear, backlit display - easy to read in various lighting conditions.
- Precise comfort control (± 1 F) - maintains consistent comfort to the highest level of accuracy.
- Up to 3 Heat/2 Cool Heat Pump or Up to 2 Heat/2 Cool Conventional.

Application: Conventional and Heat Pump systems; Network Zoning 3H/2C system

Dimensions, Approximate: 3 7/16 in. high x 4 1/2 in. wide x 1 5/16 in. deep (86 mm high x 114 mm wide x 33 mm deep)

Display Size: 5.09 sq. in

Changeover: Auto/Manual Selectable

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Accuracy: ± 1 F (± 0.5 C)

Switch Type: Relay

Frequency: 50 Hz; 60 Hz

Power Method: Communicating

Sensor Element: Thermistor

Color: Premier White®

Mounting: Horizontal

Replacement Parts:

50001137-001 FocusPRO® TH5110 Cover Plate Assembly

Product Number	Switch Positions		Terminal Designations	Stages	Setting Temperature Range		Used With	Zones
	System	Fan			(F)	(C)		
TH5320C1002	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	1, 2, 3	Up to 3 Heat/2 Cool	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	W8835A EnviraZONE Panel; THM5421C1008 Equipment Interface Module	Up to 9

W8735 Telephone Access Module



The **W8735D Telephone Access Module (TAM)** provides remote telephone access to the HVAC system when used with an EnviraCOM™ enabled thermostat such as the TH9421C1004 VisionPRO® IAQ Total Home Comfort System and the TH5320C1002 FocusPRO® thermostat. These thermostats are used with one or more of the following controls: A W8835A EnviraZone panel, a THM5421C1008 or W8703 Damper Interface Module. The W8735D also communicates with R7184P and R7184U oil primary controls and L7224U Aquastat® remote temperature sensors as well as any other EnviraCOM enabled controls to communicate current status and alert information.

Dimensions, Approximate: 10 in. high x 5 in. wide x 2 in. deep (254 mm high x 127 mm wide x 51 mm deep)

Programmability: Up to 3 dialup numbers, alert prioritization, low/high temperature alert settings, low/high humidity alert settings, and zone naming.

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Ambient Temperature Range: 32 F to 120 F (0 C to 49 C)

Electrical Ratings: EnviraCOM™ Terminals: 1/D, 2/R, 3/B = 24 Vac; Auxiliary Terminals: Aux In = N.C.24 Vac/24 Vdc, polarity insensitive; Aux Out = N.O. dry contact, 24 Vac/24 Vdc

LEDs: Communication and Battery LEDs

Network Zoning: Yes

Mounting: Number 6 screw and wall anchors supplied in bag assembly

Power Method: Plug in transformer, 12 Vdc (± 5%), 2.0 A, 9 Vdc battery backup

- Supports up to four independent EnviraCOM channels for a maximum of 36 zones per W8735D (9 zones per channel when using zone panels)
- Use with the TH9421C1004 VisionPRO IAQ Total Home Comfort System and W8835A EnviraZone for zoned systems
- Use with THM5421C1008 for single zone applications
- Use with TH5320C1002 FocusPRO® EnviraCOM thermostat for zoning applications
- Compatible with the T8635L Microelectronic Communicating Programmable Thermostat, W8835A EnviraZone panel, or W8635A and W8635B Equipment Interface Modules
- Use with any EnviraCOM generating products like R7184U Oil Primary and L7224U Aquastat™ controls
- Provides remote telephone access to check or change thermostat settings (i.e. heat, cool, auto, or off)
- Provides remote telephone access to check current indoor and outdoor temperatures and indoor humidity
- Reports alert messages on high or low indoor/outdoor temperature, high or low humidity, low battery, auxiliary input sensor tripped, pass code change, air filter change required, system alerts, and power outage
- Prioritize alerts to specify the time of day that the TAM will dial-out
- Emergency drop call feature
- Up to three telephone numbers can be programmed for alert messaging
- Auxiliary sensor input for use with an optional N.C. sensor contact
- Auxiliary output for local alert enunciation

Approvals:

Federal Communications Commission: FCC rules: Part 68 and Part 15

Accessories:

50022037-001 Outdoor Sensor Interface Module

C7089U1006 Remote Outdoor Sensor

TH9421C1004 VisionPRO® IAQ Total Home Comfort System with Temperature, Humidification, Dehumidification and Ventilation Control

THM5421C1008 Premier White VisionPRO IAQ Total Home Comfort Solution Equipment Interface Module with up to 4 Heat/2 Cool stages and 1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1, V


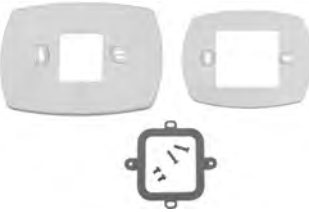



W8703A1003 Damper Interface Module utilizes the EnviraCOM HVAC communication Network Use with T8635L and W8635A,B

W8835A1004 EnviraZone Control Panel

Product Number	Color	Terminal Designations	Number of Zones
W8735D1009	Premier White®	1/D, 2/R, 3/B (terminal connections per channel), Aux In, Aux Out	9 zones per channel; 2 channels; 18 total zones
W8735D1017	Premier White®	1/D, 2/R, 3/B (terminal connections per channel), Aux In, Aux Out	9 zones per channel; 4 channels; 36 total zones

Thermostats Parts and Accessories

Parts and Accessories

Product Number	Color	Description	Used With	
32003796-001	Premier White®	Premier White® cover plate 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)	TH8000 VisionPRO™ Series Thermostats	
50000066-001	—	Decorative Cover Plate for T87K, T87N and T8775	T87K, T87N, T8775	
50000951-001	Premier White®	Replacement Battery Holder for FocusPRO® TH5110 Thermostat	FocusPRO® TH5110 Thermostat	
50001137-001	Premier White®	Coverplate assembly for use with FocusPRO® TH5110 thermostat. Includes one small and one medium coverplate, bracket for j-boxes and mounting hardware. Small coverplate is 4 5/16 in. x 5 3/4 in. Medium coverplate is 5 in. x 6 7/8 in.	FocusPRO® TH5110 Thermostat	
50002883-001	Premier White®	Coverplate assembly for use with FocusPRO® 6000/5000 and PRO 4000/3000 thermostats. Includes one medium and one large coverplate, bracket for j-boxes and mounting hardware. Medium coverplate is 5 in. x 6 7/8 in. Large coverplate is 6 in. x 8 5/16 in.	FocusPRO® 6000, 5000; PRO 4000, 3000	
50005625-001	Premier White®	Premier White® Cover Plate Assembly includes 4 3/4 in. (120mm) x 4 3/4 in. (120mm) coverplate, bracket for junction box mounting, mounting screws.	T812 and TS812 Thermostats	
50007072-001	Premier White®	Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat	FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat	
50010944-001	—	Range Stop Assembly for T87K, T87N, includes: range stops for degree F and C with screws	The Round® T87K and T87N Mercury Free Thermostats	
50022893-001	Premier White®	White Coverplate 5 3/4 in. (146 mm) x 7 3/8 in. (187mm)	PRO TH1000 and TH2000 Series Thermostats	
50028399-001	Arctic White	Cover plate for Prestige Thermostats 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm) Premier White® cover plate 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)	THX9000 Series Thermostats	
THP1000A1007	Gray	Battery demo pack used with Prestige thermostat. Powered by 6 AA batteries. Batteries sold separately.	THX9000 Series Thermostats	
THP9045A1007	Gray	Wiring module that connects to "K" terminal on thermostat and separates into Y and G signals to equipment. Can be used in conventional and heat pump systems requiring one wire more than is available.	THX9000 Series Thermostats	

TG510 Versaguard Universal Thermostat Guards



Inside Height: 4 7/16 in. (113 mm)
Inside Width: 4 7/16 in. (113 mm)
Outside Height: 2 1/2 in. (64 mm)
Outside Width: 5 7/8 in. (149 mm)
Outside Depth: 2 1/2 in. (64 mm)

Enclose and protect wall thermostats against tampering, damage and unauthorized adjustment of thermostat settings.

- Unique double-wall construction provides extra measure of tamper-resistance.
- Used in both new and existing applications.
- Tamper-resistant lock; key cannot be removed unless in locked position.
- All models mount vertically or horizontally on wall or exposed junction box.
- Vents in guard base allow airflow for optimum thermostat performance.

Size: small
Wallplate Color: Opaque Polystyrene

Accessories:
191990A Replacement Keys (set of 2) for TG509, TG510, TG511 and TG512

Product Number	Color	Ring Base Color	Description	Used With
* TG510A1001	Clear Acrylic	clear acrylic	Small universal thermostat guard Clear cover, clear base opaque wallplate Fits T87 RS TX400	T87 and others of similar size
TG510D1005	Painted metal	opaque polystyrene	Small Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate	T87 and others of similar size

* TRADELINE models • SUPER TRADELINE models

TG511 Versaguard Universal Thermostat Guards



Inside Height: 5 1/16 in. (129 mm)
Inside Width: 6 1/16 in. (154 mm)
Outside Height: 2 15/16 in. (75 mm)
Outside Width: 7 1/2 in. (191 mm)
Outside Depth: 2 15/16 in. (75 mm)

Enclose and protect wall thermostats against tampering, damage and unauthorized adjustment of thermostat settings.

- Unique double-wall construction provides extra measure of tamper-resistance.
- Used in both new and existing applications.
- Tamper-resistant lock; key cannot be removed unless in locked position.
- All models mount vertically or horizontally on wall or exposed junction box.
- Vents in guard base allow airflow for optimum thermostat performance.

Size: Medium
Wallplate Color: Opaque Polystyrene

Accessories:
191990A Replacement Keys (set of 2) for TG509, TG510, TG511 and TG512

Product Number	Color	Ring Base Color	Description	Used With
* TG511A1000	Clear Acrylic	clear acrylic	Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others	TH3000 Series, TH4000 Series, TH5000 Series, TH6000 Series, TH8000 Series, Others thermostats of similar size
TG511D1004	Painted metal	opaque polystyrene	Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others	TH3000 Series, TH4000 Series, TH5000 Series, TH6000 Series, TH8000 Series, Others thermostats of similar size

* TRADELINE models • SUPER TRADELINE models

Thermostat Guards

TG512 Versaguard Universal Thermostat Guards



Enclose and protect wall thermostats against tampering, damage and unauthorized adjustment of thermostat settings.

- Unique double-wall construction provides extra measure of tamper-resistance.
- Used in both new and existing applications.
- Tamper-resistant lock; key cannot be removed unless in locked position.
- All models mount vertically or horizontally on wall or exposed junction box.
- Vents in guard base allow airflow for optimum thermostat performance.

Inside Height: 5 7/8 in. (149 mm)
Inside Width: 8 3/8 in. (213 mm)
Outside Height: 3 3/8 in. (86 mm)
Outside Width: 9 3/4 in. (248 mm)
Outside Depth: 3 3/8 in. (86 mm)

Size: large
Wallplate Color: Opaque Polystyrene

Accessories:
191990A Replacement Keys (set of 2) for TG509, TG510, TG511 and TG512

	Product Number	Color	Ring Base Color	Description	Used With
*	TG512A1009	Clear Acrylic	clear plastic	Large Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T8082, T8085, T8600, and most electronic thermostats	TH5000 Series, TH6000 Series, TH8000 Series, Other thermostats of similar size
	TG512D1003	Painted metal	opaque polystyrene	Large Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T8082, T8085, T8600, and most electronic thermostats	TH5000 Series, TH6000 Series, TH8000 Series, Other thermostats of similar size

* TRADELINE models • SUPER TRADELINE models

TrueZONE® HZ432 Panel



TrueZONE® HZ432 Panel for conventional, heat pump or dual fuel applications expandable up to 32 zones (3H/2C)

- Intuitive Installer setup. Easy-to-follow, digital display uses real language to guide installer through four easy steps.
- Standard Checkout Procedure
- Robust Push Terminals
- Common-Sense LEDs
- Clean, Professional Installation
- Variable-Speed Fan Control
- Discharge Air Temperature Staging
- Advanced Dual-Fuel Operation
- Use with TAZ-4 Add-A-Zone to expand to 32 zones
- RedLINK™ enabled for up to 4 wireless zones when used with THM4000R1000 Wireless Adapter

Application: Zoning
Available for: 4 Zones
Auto Changeover: Yes
Discharge Air Temperature Compatible: Yes
Individual Zone Fan Control: Yes
Resettable Fuse: Yes
Voltage: 24V



Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Emergency Heat Switch	Includes
HZ432	3 Heat/ 2 Cool	4 Zone, Expandable	No	Yes	Yes	Yes	—
HZ432K	3 Heat/ 2 Cool	4 Zone, Expandable	No	Yes	Yes	Yes	HZ432 Zone Control Panel, AT140 Transformer, C7735A Discharge Air Temperature Sensor
YHZ432R1108	3 Heat/ 2 Cool	4 Zone	No	Yes	Yes	Yes	Zone panel, two programmable wireless FocusPRO® thermostats, wireless adapter module, portable comfort control. Wireless outdoor air temperature sensor, transformer, and discharge air temperature sensor
YHZ432R5108	3 Heat/ 2 Cool	4 Zone	No	Yes	Yes	Yes	Zone panel, one Prestige HD and one programmable wireless FocusPRO® thermostat, wireless adapter module, portable comfort control. Wireless outdoor air temperature sensor, transformer, and discharge air temperature sensor

TotalZONE® Add-A-Zone (TAZ) Panel



Zone panel used to add zones to HZ432.

- Used with HZ432 TrueZONE Panel to expand number of zones.
- Use multiple TAZ-4 Control Panels to control up to 32 zones.

Application: Zoning - add a zone panel (4-zone)
Auto Changeover: Yes
Compatible with Supply Air Sensor: No
Discharge Air Temperature Compatible: Yes
Individual Zone Fan Control: Yes
Resettable Fuse: Yes
Voltage: 24V

Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Emergency Heat Switch
TAZ-4	3 Heat/2 Cool	4 Zone	No	Yes	Yes	No

TrueZONE™ Zoning Panels and Kits

TrueZONE® HZ322 Panel



TrueZONE® HZ322 Panel for conventional and heat pump applications up to 3 zones (2H/2C).

- Intuitive Installer setup. Easy-to-follow, digital display uses real language to guide installer through four easy steps.
- Standard Checkout Procedure
- Robust Push Terminals
- Common-Sense LEDs
- Clean, Professional Installation
- Smaller Footprint
- Variable-Speed Fan Control
- Discharge Air Temperature Staging
- RedLINK™ enabled for wireless operation when used with THM4000R1000 wireless adapter

Application: Zoning
Available for: 3 Zones
Auto Changeover: Yes
Discharge Air Temperature Compatible: Yes
Individual Zone Fan Control: Yes
Resettable Fuse: Yes
Voltage: 24V



Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Emergency Heat Switch	Includes
HZ322	2 Heat/2 Cool	3 Zone	No	Yes	Yes	Yes	—
HZ322K	2 Heat/2 Cool	3 Zone	No	Yes	Yes	Yes	HZ322 Zone Control Panel, AT140 Transformer, C7735A Discharge Air Temperature Sensor
YHZ322R1108	2 Heat/2 Cool	3 Zone	No	Yes	Yes	Yes	Zone panel, two programmable wireless FocusPRO® thermostats, wireless adapter module, portable comfort control. Wireless outdoor air temperature sensor, transformer, and discharge air temperature sensor
YHZ322R5108	2 Heat/2 Cool	3 Zone	No	Yes	Yes	Yes	Zone panel, one Prestige HD and one programmable wireless FocusPRO® thermostat, wireless adapter module, portable comfort control. Wireless outdoor air temperature sensor, transformer, and discharge air temperature sensor

TrueZONE® HZ311 Panel



TrueZONE® HZ311 Panel for conventional, single stage applications up to 3 zones (1H/1C).

- Robust Push Terminals
- Common-Sense LEDs
- Clean, Professional Installation
- Smaller Footprint
- Variable-Speed Fan Control

Application: Zoning

Available for: 3 Zones

Auto Changeover: Yes

Discharge Air Temperature Compatible: Yes

Individual Zone Fan Control: Yes

Resettable Fuse: Yes

Voltage: 24V

Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Includes
HZ311	1 Heat/1 Cool	3 Zone	No	Yes	No	—
HZ311K	1 Heat/1 Cool	3 Zone	No	Yes	No	HZ311 Zone Control Panel, AT140 Transformer, C7735A Discharge Air Temperature Sensor

TrueZONE® HZ221 Panel



TrueZONE® HZ221 Panel for single stage heat pumps with auxiliary heat applications up to two zones.

- Robust Push Terminals
- Common-Sense LEDs
- Clean, Professional Installation
- Smaller Footprint
- Variable-Speed Fan Control

Application: Zoning

Available for: 2 Zones

Auto Changeover: Yes

Discharge Air Temperature Compatible: Yes

Individual Zone Fan Control: Yes

Resettable Fuse: Yes

Voltage: 24V

Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Emergency Heat Switch	Includes
HZ221	1 stage heat pump with auxiliary heat	2 Zone	No	Yes	Yes/Heat Pump Only	Yes	—
HZ221K	1 stage heat pump with auxiliary heat	2 Zone	No	Yes	Yes/Heat Pump Only	Yes	HZ221 Zone Control Panel, AT140 Transformer, C7735A Discharge Air Temperature Sensor

EnviraZONE Panels and Kits

EnviraZONE Control Panel



Advanced zoning control system using the EnviraCOM™ communications protocol. The easiest to install networked zoning system in the industry. Zone of Greatest Demand algorithm reduces and regulates HVAC cycles, decreases damper cycles, and increases efficiency.

- Use with VisionPRO IAQ Thermostats or FocusPRO® communicating thermostats.
- Expandable to nine zones with additional W8703 Damper Interface Modules and Thermostats.
- Compatible with conventional gas, oil, electric or heat pump systems up to 3H/2C.
- Unsurpassed ease-of-wiring with only three wires to connect between devices.
- True communicating system using standard thermostat wire.
- Networked zoning enables these features: Time synchronization, Selectable high and low equipment protection settings, Adjustable purge timing and damper positions.
- Telephone access when used with optional W8735D Telephone Access Modules.
- Uses Zone of Greatest Demand Intelligence to reduce system cycling.
- Optional use of two transformers for power when many dampers are needed.

Networked zoning kits are one-box solutions that contain a W8835 Panel, VisionPRO or FocusPRO® Communicating Thermostats, C7835 Discharge Air Temperature Sensor, AT140 Transformer, C7089U Outdoor Temperature Sensor, and 50022037-001 Outdoor Temperature Interface Module.

Application: Zoning
Auto Changeover: Yes
Compatible with Supply Air Sensor: No
Discharge Air Temperature Compatible: Yes
Individual Zone Fan Control: Yes
Resettable Fuse: Yes
Voltage: 24V

Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Emergency Heat Switch	Includes
W8835A1004	3 Heat/ 2 Cool	3 Zone	Yes	Yes	Yes	No	—
Y8835A1028	3 Heat/ 2 Cool	3 zone kit with 3 VisionPRO IAQ thermostats	Yes	Yes	Yes	No	W8835A Zone Control Panel, 3-VisionPRO IAQ Thermostats, AT140 Transformer, C7835 Discharge Air Temperature Sensor, C7089U Outdoor Temperature Sensor, and 50022037-001 Outdoor Temperature Interface Module
Y8835A1036	3 Heat/ 2 Cool	2 zone kit with 1 VisionPRO thermostat and 1 FocusPRO® thermostat	Yes	Yes	Yes	No	W8835A Zone Control Panel, 1-VisionPRO IAQ Thermostat, 1-FocusPRO® Communicating Thermostat, AT140 Transformer, C7835 Discharge Air Temperature Sensor, C7089U Outdoor Temperature Sensor, and 50022037-001 Outdoor Temperature Interface Module
Y8835A1044	3 Heat/ 2 Cool	2 zone kit with 2 Vision PRO IAQ thermostats	Yes	Yes	Yes	No	W8835A Zone Control Panel, 2-VisionPRO IAQ Thermostats, AT140 Transformer, C7835 Discharge Air Temperature Sensor, C7089U Outdoor Temperature Sensor, and 50022037-001 Outdoor Temperature Interface Module
Y8835A1051	3 Heat/ 2 Cool	3 zone kit with 1 VisionPRO IAQ and 2 FocusPRO® communicating thermostats	Yes	Yes	Yes	No	W8835A Zone Control Panel, 1-VisionPRO IAQ Thermostat, 2-FocusPRO® Communicating Thermostats, AT140 Transformer, C7835 Discharge Air Temperature Sensor, C7089U Outdoor Temperature Sensor, and 50022037-001 Outdoor Temperature Interface Module

Outdoor Sensor Interface Module

Application: 50022037 is required when using the C7089U temperature sensor with the W8835 EnviraZONE Panel

Product Number	Network Zoning
50022037-001	Yes

C7835 Discharge Air Temperature Sensor



Duct-mounted temperature probe used to provide capacity control of heating and cooling equipment. Used with Honeywell Network Zoning System and single unit zone applications.

LEDs: Yes
Network Zoning: Yes
Compatible with Discharge Air Temperature Sensor: Yes
Heat Pump Compatible: Yes

Product Number	Application	Used With
C7835A1009	Sensor	Networked Zoning System

W8703 Damper Interface Module



The W8703 Damper Interface Module expands the capacity of the W8835 EnviraZONE control panel by three zones.

- Use with up to three thermostats and a W8835 EnviraZONE Control Panel.
- Use one or two W8703 to expand W8835 to 6 or 9 zones.

Individual Zone Fan Control: Yes
LEDs: Yes
Network Zoning: Yes

Product Number	Application	Number of Zones	Used With
W8703A1003	Damper Interface Module	Up to 3 zones when used with communicating thermostats and EnviraCOM Zone Control Panel	Networked Zoning System

W8735A EnviraCOM™ Serial Adapter








The EnviraCOM Serial Adapter allows a user to control Honeywell EnviraCOM Communicating Thermostats, EnviraZONE Systems, and other HVAC products by using any manufacturer's RS-232 compatible home automation control system.

- Use with YTH9421C VisionPRO IAQ thermostat, or with W8835 EnviraZONE zone control panel.
- Can be used with W8735D Telephone Access Module.
- Allows easy integration to host controllers, gateways and computers.
- Uses standard DB-9 connector.
- Powered through EnviraCOM bus; no external power source required.
- Uses true RS-232 signals; universally compatible.

Product Number	Application	Used With
W8735A1005	The W8735A EnviraCOM Serial Adapter provides local access to an EnviraCOM HVAC system through a host computer, gateway, or controller. The host provides the application to control the W8735A and the HVAC equipment.	Networked Zoning System

Zone Control Panel Accessories

Zone Control Panel Accessories

Product Number	Description	
FPC	Freeze Protection Control - Breaks Y circuit to compressor below 36 F and remakes at 46 F	
MSTN	Power Open Power Close Damper Actuator	
PIRR	Plug-In replacement relay - Used with legacy zone control panels including MM-2, MM-3, MABS-3, and MARK-V	
SDCR	Slave Damper Control Relay	
SPC	Static Pressure Control - Used with MARD for bypass control	

Automatic Round Damper (ARD)



Round damper with 24-volt, spring return damper motor used to control volume of circulating air in heating, cooling, and ventilating systems.

- Galvanized steel.
- Single-blade damper.
- Shipped as power closed/spring return open damper, for use with Honeywell Zoning Systems.
- Can be field-converted to power open/spring return closed damper when used as an independent zone or for fresh air intake.
- Blade closes off tightly against gasket for minimal leakage.
- Rated to operate up to 1 in. wc.
- Available in 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, and 20 in. diameter sizes.

Application: Zone Damper

Voltage: 24V

Wires to Motor: 2

Motor Timing: 30 seconds power open/10 seconds spring return

Other Motor Information: Range stops

Product Number	Size (inch)	Shape	Motor Mount	Motor Type	Description
ARD10	10 in.	Round	TopSide	Power closed, spring open, reversible	Spring Return Round Damper
ARD12	12 in.	Round	TopSide	Power closed, spring open, reversible	Spring Return Round Damper
ARD14	14 in.	Round	TopSide	Power closed, spring open, reversible	Spring Return Round Damper
ARD16	16 in.	Round	TopSide	Power closed, spring open, reversible	Spring Return Round Damper
ARD18	18 in.	Round	TopSide	Power closed, spring open, reversible	Spring Return Round Damper
ARD20	20 in.	Round	TopSide	Power closed, spring open, reversible	Spring Return Round Damper
ARD5	5 in.	Round	TopSide	Power closed, spring open, reversible	Spring Return Round Damper
ARD6	6 in.	Round	TopSide	Power closed, spring open, reversible	Spring Return Round Damper
ARD7	7 in.	Round	TopSide	Power closed, spring open, reversible	Spring Return Round Damper
ARD8	8 in.	Round	TopSide	Power closed, spring open, reversible	Spring Return Round Damper
ARD9	9 in.	Round	TopSide	Power closed, spring open, reversible	Spring Return Round Damper

EARD Fresh Air Damper



The EARD is a round damper with a 24 Vac powered-open/spring-closed motor. It is used for fresh air intake for ventilation or for combustion makeup air.

- Adjustable damper position range stops.
- Single-blade damper.
- Shipped as power open/spring return closed damper.
- Galvanized steel.
- Quiet operation.
- Can be field-converted to power closed/spring return open damper.
- Blade closes off tightly against gasket for minimal leakage.
- Male (crimped) and female (uncrimped) ends to connect to any rigid or flexible round duct.

Application: Fresh Air Damper

Voltage: 24V

Wires to Motor: 2

Motor Timing: 30 seconds power closed/10 seconds spring return

Other Motor Information: Range stops

Product Number	Size (inch)	Shape	Motor Mount	Motor Type	Description
EARD5	5 in.	Round	TopSide	Power open, spring closed, reversible	Spring Return Round Damper
EARD6	6 in.	Round	TopSide	Power open, spring closed, reversible	Spring Return Round Damper
EARD7	7 in.	Round	TopSide	Power open, spring closed, reversible	Spring Return Round Damper
EARD8	8 in.	Round	TopSide	Power open, spring closed, reversible	Spring Return Round Damper

Zone Control Dampers

Modulating Automatic Round Dampers (MARD)



The Modulating Automatic Round Damper is a round damper with a 24-Vac, floating-control type modulating motor for bypass and zone damper control.

- Uses 90-second open to closed motor.
- Can be used as a zone damper.
- ML6161 is replacement motor.
- Available in 5, 6, 7, 8, 9, 10, 12, 14, 16, and 18 in. diameter sizes.
- Used with Static Pressure Control (SPC) for bypass applications.

Application: Motorized Bypass or Zone Damper

Voltage: 24V

Wires to Motor: 3

Motor Timing: 90 seconds

Product Number	Size (inch)	Shape	Motor Mount	Motor Type	Description
MARD10	10 in.	Round	TopSide	Floating	Power Open, Power Close Damper
MARD12	12 in.	Round	TopSide	Floating	Power Open, Power Close Damper
MARD14	14 in.	Round	TopSide	Floating	Power Open, Power Close Damper
MARD16	16 in.	Round	TopSide	Floating	Power Open, Power Close Damper
MARD18	18 in.	Round	TopSide	Floating	Power Open, Power Close Damper
MARD5	5 in.	Round	TopSide	Floating	Power Open, Power Close Damper
MARD6	6 in.	Round	TopSide	Floating	Power Open, Power Close Damper
MARD8	8 in.	Round	TopSide	Floating	Power Open, Power Close Damper
MARD9	9 in.	Round	TopSide	Floating	Power Open, Power Close Damper

Retrofit Round Damper (RRD)



The RRD is a round damper that is easily inserted into rigid round ducts for retrofit zoning in forced air heating and cooling systems. It is available in four sizes for use in 5 in., 6 in., 7 in., and 8 in.

ducts. The damper is used with Honeywell HZ221, HZ311, HZ322, HZ432 and similar zone control systems. The power open, power closed actuator draws 2 VA allowing multiple dampers per zone, but delivers high torque for reliable operation.

- Easy slide-in installation
- 2 VA allows for many dampers on one zone
- Available in 4 sizes to fit most rigid round branch ducts
- Quiet, long life motor automatically shuts itself off in full open and closed positions
- Gaskets around blade and under motor housing for low internal leakage and very low external leakage
- Range stops with easy adjustment from top of motor
- Easy to see and reliable mechanical blade position indicator
- Easy to hook up with conventional thermostat wire
- Simple manual blade positioning with push button gear release

Application: Zone Damper

Voltage: 24V

Wires to Motor: 3

Motor Timing: 90 seconds

Other Motor Information: Range stops

Product Number	Size (inch)	Shape	Motor Mount	Motor Type	Description
RRD5	5 in.	Round	Direct connection to damper shaft	Power open/Power close	Retrofit Round Damper
RRD6	6 in.	Round	Direct connection to damper shaft	Power open/Power close	Retrofit Round Damper
RRD7	7 in.	Round	Direct connection to damper shaft	Power open/Power close	Retrofit Round Damper
RRD8	8 in.	Round	Direct connection to damper shaft	Power open/Power close	Retrofit Round Damper

Static Pressure Regulating Damper (SPRD)



Single-blade, steel barometric damper used to bypass excess air when majority of zone dampers are closed.

- Counter-balanced weighted arm to control bypass air for zoned systems.
- Available in rectangular/square and round sizes.
- Air pressure in duct system increases as zone dampers close, pushing the SPRD open automatically.
- Arm and weight both adjustable to control amount of air bypassed.
- Recommended for low pressure systems with less than 0.5 in. wc.
- For larger systems and tighter pressure control, use MARD damper and static pressure controller (SPC).
- Additional weights available
- Available in: Round sizes 7, 8, 9, 10, 12, 14 and 16 in. diameters. Rectangular sizes (width x height) 12 x 8, 12 x 10, 12 x 12, 20 x 8, 20 x 10, 20 x 12 in.

Product Number	Size (inch)	Shape	Motor Type	Used With
SPRD7	7 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD8	8 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD9	9 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD10	10 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD12	12 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD14	14 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD16	16 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD12X10	12 in. x 10 in.	Rectangular	Weighted damper arm	Honeywell zoning systems
SPRD12X12	12 in. x 12 in.	Rectangular	Weighted damper arm	Honeywell zoning systems
SPRD12X8	12 in. x 8 in.	Rectangular	Weighted damper arm	Honeywell zoning systems
SPRD20X10	20 in. x 10 in.	Rectangular	Weighted damper arm	Honeywell zoning systems
SPRD20X12	20 in. x 12 in.	Rectangular	Weighted damper arm	Honeywell zoning systems
SPRD20X8	20 in. x 8 in.	Rectangular	Weighted damper arm	Honeywell zoning systems

SPRD Damper Replacement Parts

Product Number	Description
32005688-001	SPRD Weight
32005981-003	SPRD Counterweight Assembly (includes, arm, coupling, and weight). Used with SPRD 6, 8,9 and SPRD12x8, 20x8, 12x10, and 20x10
32005981-004	SPRD Counterweight Assembly (includes arm, coupling, and weight). Used with SPRD10, 12,14,16, and SPRD12x12 and 20x12

Zone Control Dampers

ZD Series Dampers



The ZD is a power close and spring open damper. It has a 24-volt motor used to control circulating air in heating, cooling and ventilating systems. It is used when a normally-open damper is required. The ZD is typically used with the TrueZONE systems and other electronic zoning systems.

- Kevlar gearing reduces wear, more than doubling damper life.
- Adjustable range stops.
- Mechanical visual position indicator for damper status.
- Solid construction using extruded aluminum frame and blades.
- Parallel blade design for low leakage performance.
- Simple, easy-to-wire, two-wire installation.
- Reliable, strong, 24-volt spring-return motor.
- Fail-safe, normally open operation.
- Compatible with conventional and networked zoning.
- Ordering Instructions: Order ZD (dimension 1) x (dimension 2). (Motor is always mounted on dimension 2 side.) For example, ZD10x8 is a 10 in. x 8 in. damper with the motor on the 8 in. side; but a ZD8x10 is a 8 in. x 10 in. damper that has the motor on the 10 in. side.
- Damper can be installed in any orientation (mounting side can be on either the bottom or the side of the duct).

Application: Parallel Blade Damper

Voltage: 24V

Wires to Motor: 2

Motor Timing: 30 seconds power open/10 seconds spring return

Other Motor Information: Range stops

Product Number	Size (inch)	Shape	Motor Mount	Motor Type	Used With
ZD6X6	6 in. x 6 in.	Square	Side	power closed, spring open	Honeywell zoning systems
ZD6X8	6 in. x 8 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X10	6 in. x 10 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X12	6 in. x 12 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X14	6 in. x 14 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X16	6 in. x 14 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X18	6 in. x 18 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X20	6 in. x 20 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X22	6 in. x 22 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X24	6 in. x 24 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X28	6 in. x 28 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X6	8 in. x 6 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD8X8	8 in. x 8 in.	Square	Side	power closed, spring open	Honeywell zoning systems
ZD8X10	8 in. x 10 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X12	8 in. x 12 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X14	8 in. x 14 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X16	8 in. x 14 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X18	8 in. x 18 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X20	8 in. x 20 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X22	8 in. x 22 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X24	8 in. x 24 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X26	8 in. x 26 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X28	8 in. x 28 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X6	10 in. x 6 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD10X8	10 in. x 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD10X10	10 in. x 10 in.	Square	Side	power closed, spring open	Honeywell zoning systems
ZD10X12	10 in. x 12 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X14	10 in. x 14 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X16	10 in. x 16 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X18	10 in. x 18 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X20	10 in. x 20 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X22	10 in. x 22 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X24	10 in. x 24 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems

Zone Control Dampers

Product Number	Size (inch)	Shape	Motor Mount	Motor Type	Used With
ZD20X18	20 in. x 18 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD20X20	20 in. x 20 in.	Square	Side	power closed, spring open	Honeywell zoning systems
ZD20X22	20 in. x 22 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD20X24	20 in. x 24 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD22X6	22 in. x 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD22X8	22 in. x 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD22X10	22 in. x 10 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD22X12	22 in. x 12 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD22X14	22 in. x 14 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD22X16	22 in. x 16 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD22X18	22 in. x 18 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD22X20	22 in. x 20 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD22X22	22 in. x 22 in.	Square	Side	power closed, spring open	Honeywell zoning systems
ZD22X24	22 in. x 24 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD24X6	24 in. x 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD24X8	24 in. x 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD24X10	24 in. x 10 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD24X12	24 in. x 12 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD24X14	24 in. x 14 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD24X16	24 in. x 16 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD24X18	24 in. x 18 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD24X20	24 in. x 20 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD24X22	24 in. x 22 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD24X24	24 in. x 24 in.	Square	Side	power closed, spring open	Honeywell zoning systems
ZD26X8	26 in. x 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD26X10	26 in. x 10 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD26X12	26 in. x 12 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD26X14	26 in. x 14 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD26X16	26 in. x 16 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD26X18	26 in. x 18 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD26X20	26 in. x 20 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD28X6	28 in. x 6 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD28X8	28 in. x 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD28X10	28 in. x 10 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD28X12	28 in. x 12 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD28X14	28 in. x 14 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD28X16	28 in. x 16 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD28X20	28 in. x 20 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems

Zoning Damper Accessories

Product Number	Size (inch)	Description	Includes
32006184-001	37 in. Filler Strip Kit	Filler strip kit used to install ZD dampers in odd sized ducts	1 1/8 in. x 3/4 in. adhesive-backed foam strips

AT140 Universal Mount Transformer



The AT140 is a 24V, 40VA universal mount transformer.

- Provides a low voltage power source for any Honeywell zone control panel or damper
- Powers up to 5 ZD or ARD damper motors and 14 RRD damper motors from one 40VA transformer
- Mounting options include plate or foot mounting
- 120/240 VAC primary

Application: Accessory

Product Number	Voltage
AT140A1042	120/240V Primary, 24V Secondary 40VA

M847D Damper Actuator



The M847D is a two position, 24 Vac spring return actuator designed to operate ARD, EARD and ZD zone dampers.

- Low voltage, spring-return damper actuator.
- Equipped with anti-rotation and drive shaft extensions for direct mounting to 7/16 inch diameter coupling style dampers.
- Adjustable range stops.
- Direct replacement for M847D1004

Application: Damper Actuator

Voltage: 24V

Wires to Motor: 2

Motor Timing: 30 seconds powered/10 seconds spring return

Other Motor Information: Range stops

Product Number	Size (inch)	Motor Mount	Motor Type	Description
M847D1012	4 1/2 in. high x 2 3/8 in. wide x 3 3/8 in. deep	Direct connection to damper shaft	Spring return	Spring Return Damper Actuator

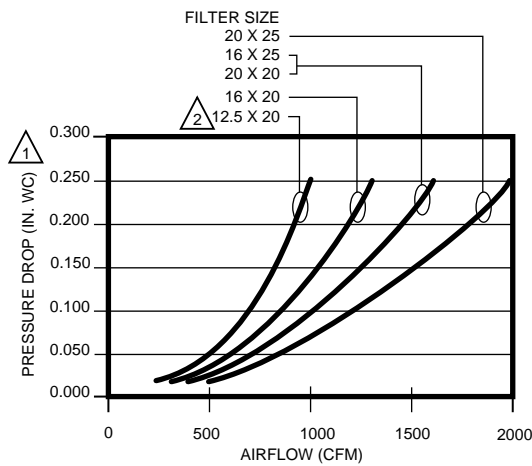
F100F Media Air Cleaner



The F100F Media Air Cleaner captures a significant amount of the airborne particles from the air circulated through the unit. Recommended as the basic minimum air quality product. The F100F Media Air Cleaner includes cabinet, access door and FC100A pleated media filter, and W8600A Airwatch Indicator (optional on some models).

- High efficiency media filter captures particles as small as 0.3 microns.
- Applicable to all gas, oil and electric forced air furnaces and to compressor cooling up to 5 tons.
- Mounts in the return air duct.
- Rugged zinc-coated, roll-formed cabinet resists corrosion and can support weight of residential furnace and evaporator coil.
- Requires no electrical connections.
- Mounts in any position.
- Requires no maintenance except periodic media filter replacement.
- Quick and easy media filter replacement.
- Later upgrade to higher performing media or electronic air cleaner is easy.

Pressure Drop of FC100 Filter



1 WHEN FIRST INSTALLED, PRESSURE DROP INCREASES AS FILTER BECOMES LOADED. REPLACE FILTER WHEN PRESSURE DROP REACHES 0.5 IN. WC. (0.1 kPa).

2 AVAILABLE ONLY IN UNITED STATES.

M14709

Type of Air Cleaner: Media Air Cleaner

Application: Duct mounted

Efficiency Standard: Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

Minimum Efficiency Reporting Value (Media Filters Only): MERV 10

Fractional Efficiency: E1=25%, E2=62%, E3=85%

Static Pressure Drop (in. w.c.): 0.23 at 500 FPM

Approvals:

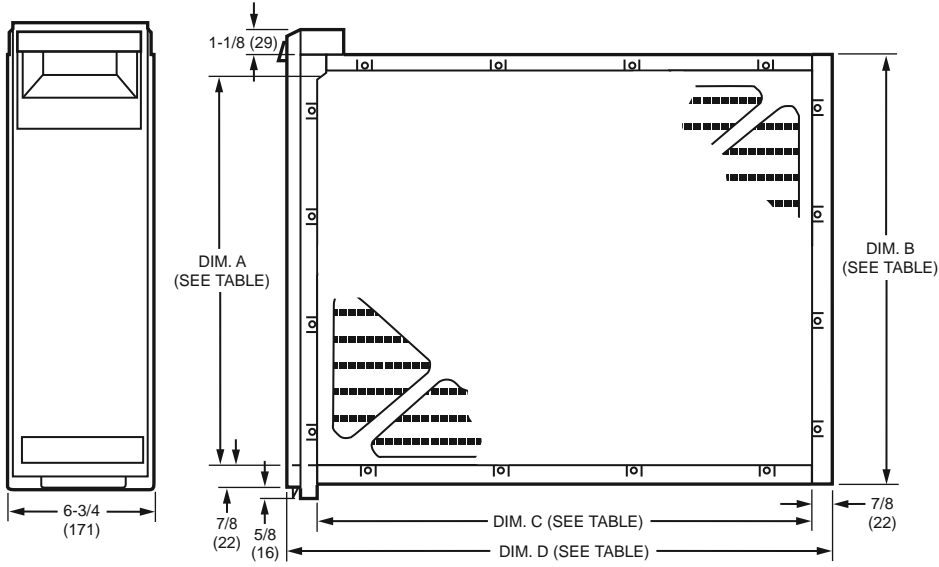
Underwriters Laboratories, Inc. Filter Element: UL Listed, UL900, Class 2

Product Number	Air Cleaner Size Dimensions, Approximate		Airflow Max.-Capacity		Replacement Filters
	(inch)	(mm)	(cfm)	(m ³ /hr)	
* F100F1004	16 in. x 20 in.	406 mm x 508 mm	1200 cfm	2040 m ³ /hr	FC100A1003, FC200E1003, POPUP1620
* F100F1012	16 in. x 25 in.	406 mm x 635 mm	1400 cfm	2380 m ³ /hr	FC100A1029, FC200E1029, POPUP1625
* F100F1020	20 in. x 20 in.	508 mm x 508 mm	1400 cfm	2380 m ³ /hr	FC100A1011, FC200E1011, POPUP2020
* F100F1038	20 in. x 25 in.	508 mm x 635 mm	2000 cfm	3400 m ³ /hr	FC100A1037, FC200E1037, POPUP2025
* F100F2002	16 in. x 25 in.	406 mm x 635 mm	1400 cfm	2380 m ³ /hr	FC100A1029, FC200E1029, POPUP1625
* F100F2010	20 in. x 25 in.	508 mm x 635 mm	2000 cfm	3400 m ³ /hr	FC100A1037, FC200E1037, POPUP2025
* F100F2028	16 in. x 20 in.	406 mm x 508 mm	1200 cfm	2040 m ³ /hr	FC100A1003, FC200E1003, POPUP1620
* F100F2036	20 in. x 20 in.	508 mm x 508 mm	1400 cfm	2380 m ³ /hr	FC100A1011, FC200E1011, POPUP2020
* F100F2044	25 in. x 20 in.	635 mm x 508 mm	2000 cfm	3400 m ³ /hr	FC100A1037, FC200E1037, FC100C1017
* F100F2051	25 in. x 22 in.	635 mm x 559 mm	2000 cfm	3400 m ³ /hr	FC100A1037, FC200E1037, FC100C1017

* TRADELINE models • SUPER TRADELINE models

Media Air Cleaners

Dimensions in inches (millimeters)



F100 SIZE		DIM. A		DIM. B		DIM. C		DIM. D	
IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM
16 X 25	406 X 635	14 7/16	367	16 3/16	411	23 1/4	591	25 1/2	648
16 X 20	406 X 508	14 7/16	367	16 3/16	411	18 1/4	457	20 1/2	521
20 X 25	508 X 635	18 7/16	468	20 3/16	513	23 1/4	591	25 1/2	648
20 X 20	508 X 508	18 7/16	468	20 3/16	513	18 1/4	457	20 1/2	521
25 X 20	635 X 508	23 5/16	592	25 1/8	638	18 3/8	467	20 5/8	524
25 X 22	635 X 559	23 5/16	592	25 1/8	638	20 1/4	514	22 1/2	572

M14710D

F200 Media Air Cleaner

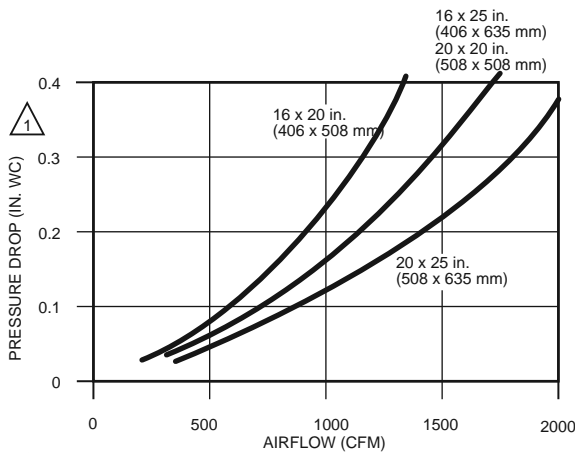


The F200E Media Air Cleaner captures a significant amount of the airborne particles from the air circulated through the unit. Recommended high efficiency media air quality product. The F200E Media Air Cleaner includes cabinet, access door and FC200E pleated media filter, and W8600B RF Airwatch Indicator.

- W8600B RF AIRWATCH filter change indicator included.
- Integral pressure sensors signal when filter change is required based on increased pressure drop threshold at filter.
- Filter change status is transmitted to wall-mounted RF AIRWATCH Indicator.
- High efficiency charged-media filter captures particles as small as 0.3 microns.
- Applicable to all gas, oil and electric forced air furnaces and to compressor cooling up to 5 tons.
- Mounts in the return air duct.
- Rugged zinc-coated, roll-formed cabinet resists corrosion and can support weight of residential furnace and evaporator coil.
- Requires no electrical connections.
- Mounts in any position.
- Requires no maintenance except periodic media filter replacement.
- Quick and easy media filter replacement.
- Later upgrade to higher performing media or electronic air cleaner is easy.

Indoor Air Quality

Pressure Drop of FC200 Filter



1 WHEN FIRST INSTALLED. PRESSURE DROP INCREASES AS FILTER BECOMES LOADED. REPLACE FILTER WHEN PRESSURE DROP REACHES 0.5 IN. WC. (0.1 kPa). M13662

Type of Air Cleaner: Media Air Cleaner

Application: Duct mounted

Efficiency Standard: Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

Minimum Efficiency Reporting Value (Media Filters Only): MERV 13

Fractional Efficiency: E1=63%, E2=91%, E3=99%

Static Pressure Drop (in. w.c.): 0.3 at 500 FPM

Approvals:

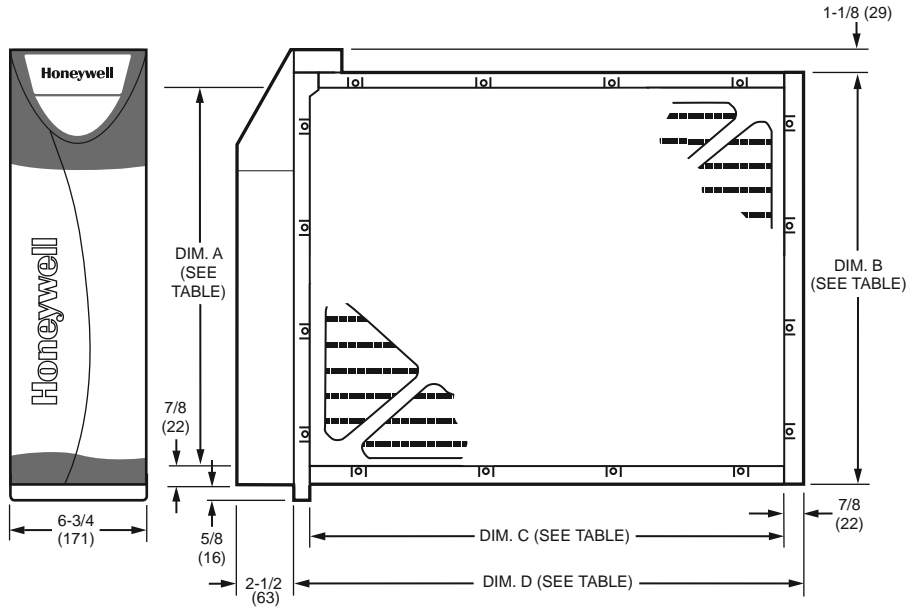
Underwriters Laboratories, Inc. Filter Element: UL Listed, UL900, Class 2

Product Number	Air Cleaner Size Dimensions, Approximate		Airflow Max.-Capacity		Replacement Filters
	(inch)	(mm)	(cfm)	(m ³ /hr)	
* F200E1003	16 in. x 20 in.	406 mm x 508 mm	1200 cfm	2040 m ³ /hr	FC100A1003, FC200E1003, POPUP1620
* F200E1011	20 in. x 20 in.	508 mm x 508 mm	1400 cfm	2380 m ³ /hr	FC100A1011, FC200E1011, POPUP2020
* F200E1029	16 in. x 25 in.	406 mm x 635 mm	1400 cfm	2380 m ³ /hr	FC100A1029, FC200E1029, POPUP1625
* F200E1037	20 in. x 25 in.	508 mm x 635 mm	2000 cfm	3400 m ³ /hr	FC100A1037, FC200E1037, POPUP2025

* TRADELINE models • SUPER TRADELINE models

Media Air Cleaners

Dimensions in inches (millimeters)



F200E SIZE		DIM. A		DIM. B		DIM. C		DIM. D	
IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM
16 X 25	406 X 635	14 7/16	367	16 3/16	411	23 1/4	591	25	648
16 X 20	406 X 508	14 7/16	367	16 3/16	411	18 1/4	457	20	521
20 X 25	508 X 635	18 7/16	468	20 3/16	513	23 1/4	591	25	648
20 X 20	508 X 508	18 7/16	468	20 3/16	513	18 1/4	457	20	521

M14784C

F300 Electronic Air Cleaner



Type of Air Cleaner: Electronic Air Cleaner

Application: Duct mounted

Efficiency Standard: Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

Frequency: 60 Hz

Approvals:

Underwriters Laboratories, Inc. Listed: Report E30954

Capturing up to 98% of particles (3.0 - 10.0 micron) that pass through the filter, the F300 offers the highest level of filtration on the market. It is widely compatible, operating with all gas, oil and electric forced warm air furnaces and air-conditioning systems, and is also available in four convenient sizes to fit most ducts.

- Media post-filter provides enhanced filtration.
- Solid state power supply is self-regulating and maintains peak efficiency during a wide range of cell dirt loading conditions.
- New low-profile door with test button to check system operation.
- Helps filter efficiency-robbing "gunk" before it coats critical system parts.
- Very low pressure drop.
- Exclusive wireless W8600A AIRWATCH indicator reminds customers when to wash cells to keep the unit operating at peak efficiency, as well as when to change UV Lamps and Humidifier Pads (optional).
- Exclusive 10-year Clean Coil Guarantee.
- Rugged zinc-coated, roll-formed cabinet provides superior strength and corrosion protection.

Accessories:

W8600A1007 AIRWATCH indicator for use with F100F, F200 or F300A,E

W8600F1014 White EAC Performance indicator for use with F50F or F300E

Replacement Parts:

4074EHG FC37A Terminal Board Repair Kit. Contains 2 connector clips, 1 Terminal Board and instruction sheet

FC37A1049 Electronic Air Cleaner Cell, 9.8 x 20

FC37A1064 Electronic Air Cleaner Cell, 12.4 x 20

FC37A1114 Electronic Air Cleaner Cell, 9.8 x 16

FC37A1130 Electronic Air Cleaner Cell, 12.4 x 16

203365A Conversion Kit for changing 120V Power Supply to 240V

50000293-001 16x10 Post Filter for 16x20 F300E and F50F

50000293-002 16x12.5 Post Filter for 16x25 F300E and F50F

50000293-003 20x10 Post Filter for 20x20 F300E and F50F

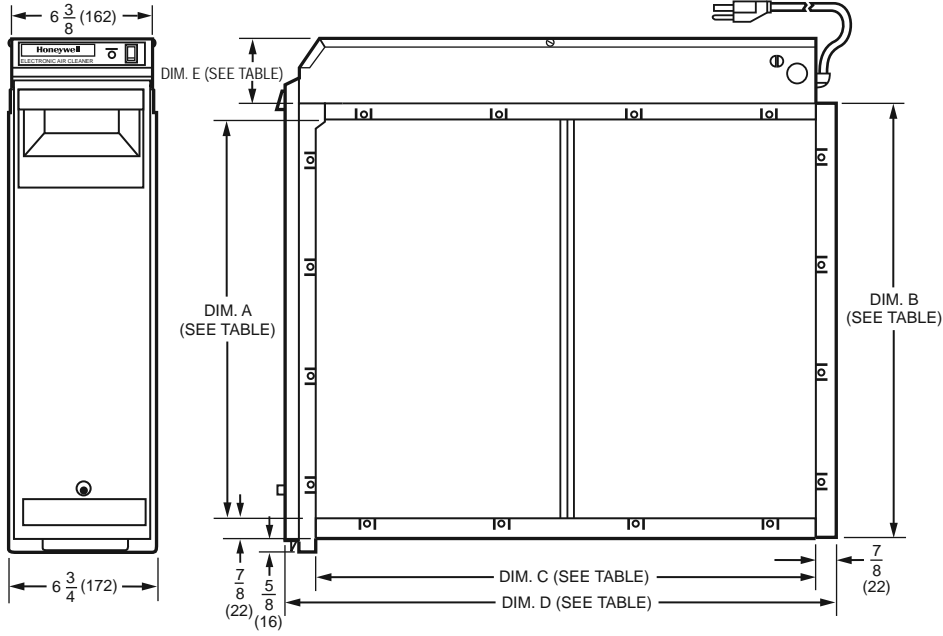
50000293-004 20x12.5 Post Filter for 20x25 and 20x12.5 F300E and F50F

Product Number	Air Cleaner Size Dimensions, Approximate		Airflow Max.-Capacity		Electrical Ratings	Fractional Efficiency	Static Pressure Drop (in. w.c.)	Replacement Filters	Comments
	(inch)	(mm)	(cfm)	(m ³ /hr)					
* F300A1620	16 in. x 20 in.	406 mm x 508 mm	1200 cfm	2040 m ³ /hr	120 Vac, 0.4A max.	E1=73%, E2=88%, E3=95%	0.15 at 500 FPM	50000293-001	—
* F300A1625	16 in. x 25 in.	406 mm x 635 mm	1400 cfm	2380 m ³ /hr	120 Vac, 0.4A max.	E1=73%, E2=88%, E3=95%	0.15 at 500 FPM	50000293-002	—
* F300A2012	20 in. x 12 1/2 in.	508 mm x 318 mm	875 cfm	1487 m ³ /hr	120 Vac, 0.4A max.	E1=73%, E2=88%, E3=95%	0.15 at 500 FPM	50000293-004	—
* F300A2020	20 in. x 20 in.	508 mm x 508 mm	1400 cfm	2380 m ³ /hr	120 Vac, 0.4A max.	E1=73%, E2=88%, E3=95%	0.15 at 500 FPM	50000293-003	—
* F300A2025	20 in. x 25 in.	508 mm x 635 mm	2000 cfm	3400 m ³ /hr	120 Vac, 0.4A max.	E1=73%, E2=88%, E3=95%	0.15 at 500 FPM	50000293-004	—
* F300B2012	20 in. x 12 1/2 in.	508 mm x 318 mm	875 cfm	1487 m ³ /hr	240 Vac, 0.2A max.	E1=73%, E2=88%, E3=95%	0.15 at 500 FPM	50000293-004	—
* F300E1001	16 in. x 20 in.	406 mm x 508 mm	1200 cfm	2040 m ³ /hr	120 Vac, 0.4A max.	E1=81%, E2=93%, E3=99%	0.26 at 500 FPM	50000293-001	Enhanced Filtration
* F300E1019	16 in. x 25 in.	406 mm x 635 mm	1400 cfm	2380 m ³ /hr	120 Vac, 0.4A max.	E1=81%, E2=93%, E3=99%	0.26 at 500 FPM	50000293-002	Enhanced Filtration
* F300E1027	20 in. x 20 in.	508 mm x 508 mm	1400 cfm	2380 m ³ /hr	120 Vac, 0.4A max.	E1=81%, E2=93%, E3=99%	0.26 at 500 FPM	50000293-003	Enhanced Filtration
* F300E1035	20 in. x 25 in.	508 mm x 635 mm	2000 cfm	3400 m ³ /hr	120 Vac, 0.4A max.	E1=81%, E2=93%, E3=99%	0.26 at 500 FPM	50000293-004	Enhanced Filtration

* TRADELINE models • SUPER TRADELINE models

Electronic Air Cleaners

Dimensions in inches (millimeters)



F50F SIZE		DIM. A		DIM. B		DIM. C		DIM. D		DIM. E	
IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM
16 X 25	406 X 635	14 7/16	367	16 3/16	411	23 1/4	591	25 1/2	648	2 3/4	70
16 X 20	406 X 508	14 7/16	367	16 3/16	411	18 1/4	457	20 1/2	521	2 3/4	70
20 X 25	508 X 635	18 7/16	468	20 3/16	513	23 1/4	591	25 1/2	648	2 3/4	70
20 X 20	508 X 508	18 7/16	468	20 3/16	513	18 1/4	457	20 1/2	521	2 3/4	70
20 X 12 1/2	508 X 318	18 7/16	468	20 3/16	513	10 7/8	276	13 1/8	333	3 5/8	92

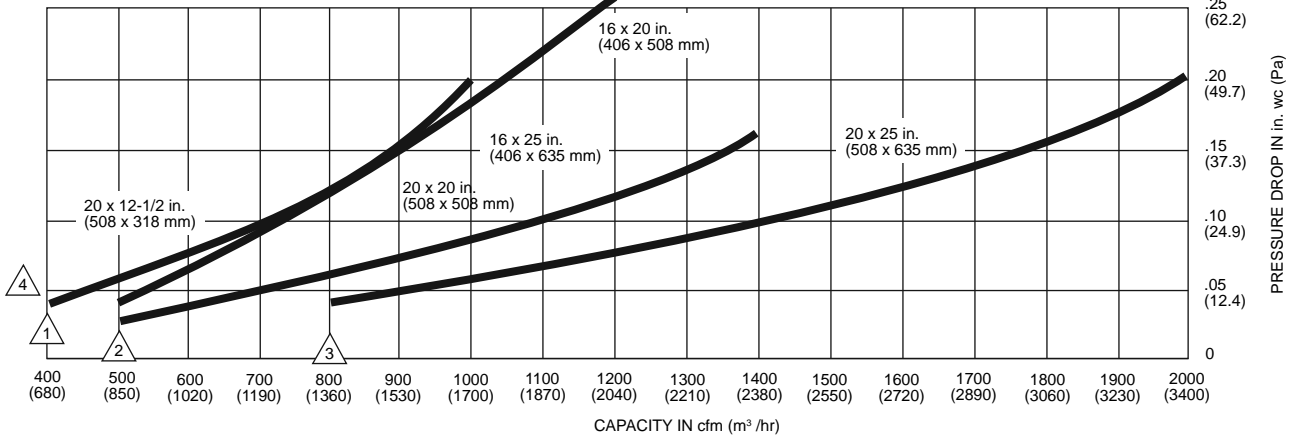
M2872B

Electronic Air Cleaners

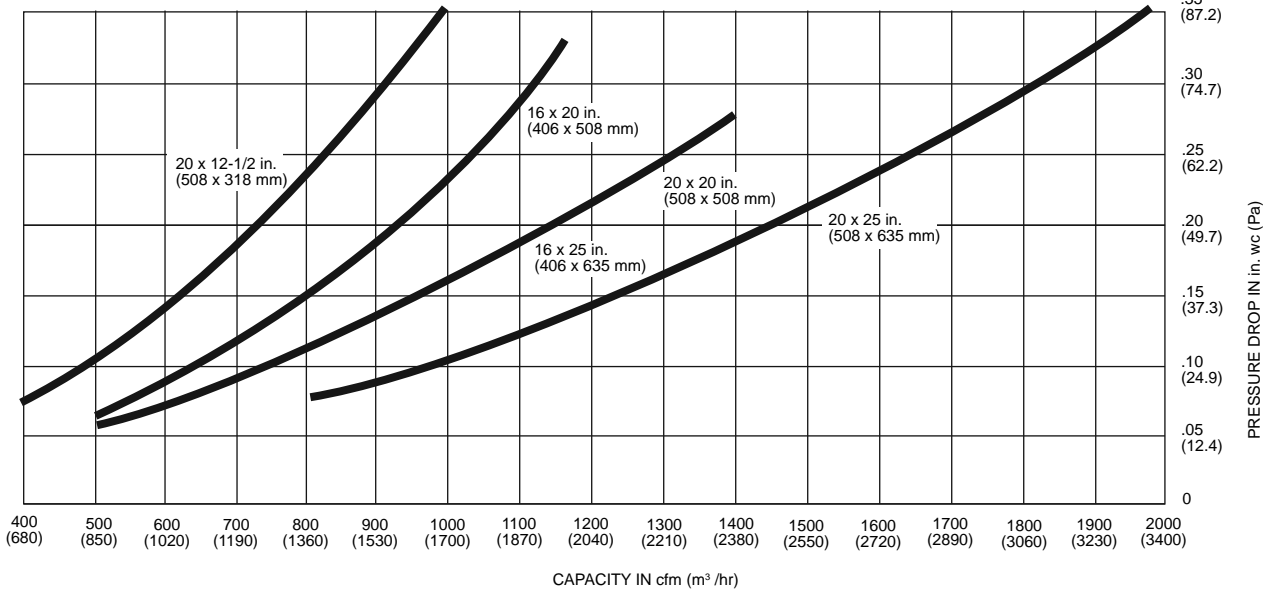
Pressure Drop versus Airflow

AIR CLEANER EFFICIENCY AND PRESSURE DROP AT VARIOUS AIRFLOW RATES.

WITHOUT POST FILTERS



WITH POST FILTERS



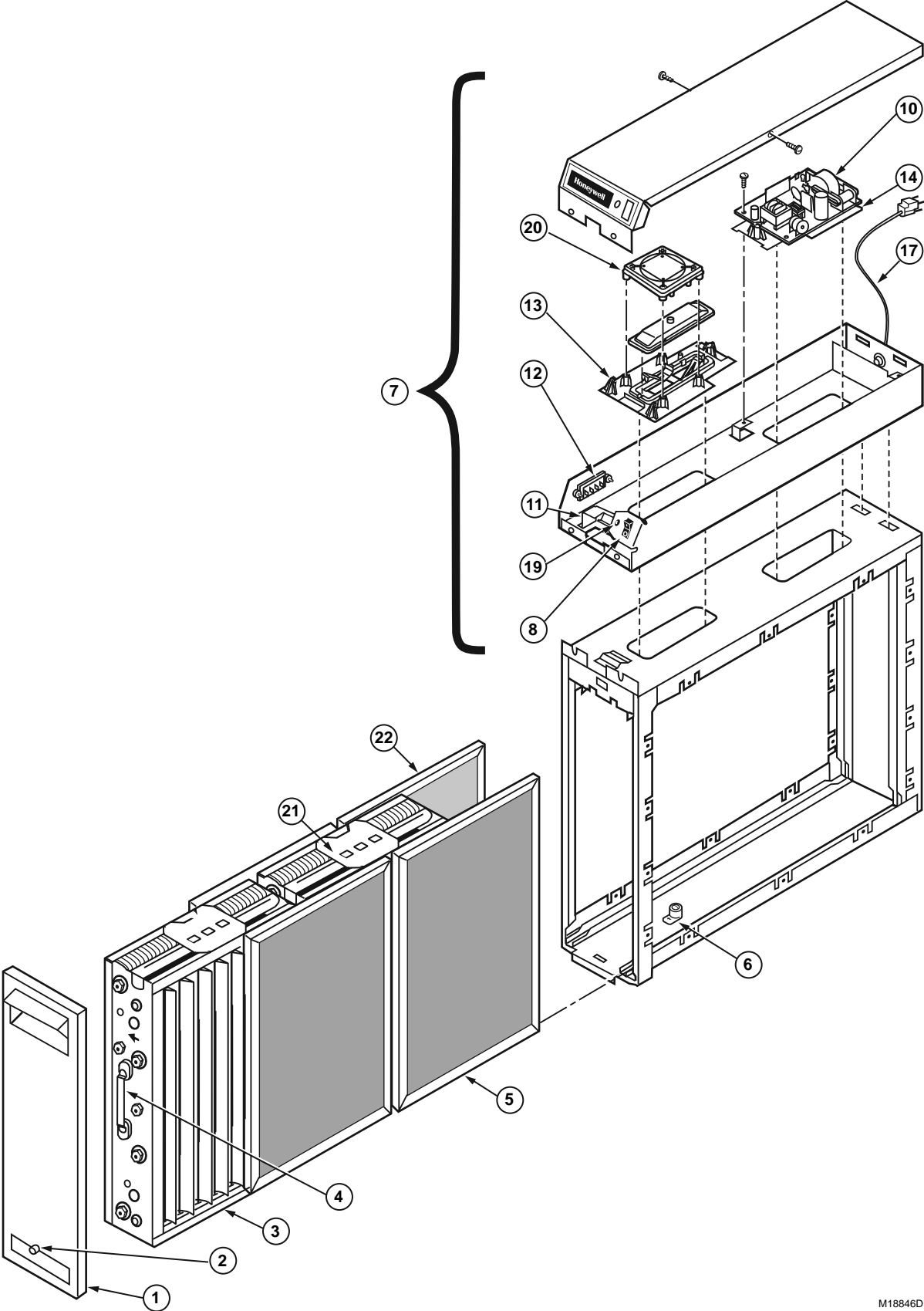
- △1 MINIMUM RECOMMENDED cfm FOR 20 x 12-1/2 in. (508 x 318 mm) MODEL.
- △2 MINIMUM RECOMMENDED cfm FOR 16 x 25 in. (406 x 635 mm), 20 x 20 in. (508 x 508 mm), 16 x 20 in. (406 x 508 mm) MODELS.
- △3 MINIMUM RECOMMENDED cfm FOR 20 x 25 in. (508 x 635 mm) MODEL.
- △4 SELECT SIZE THAT MOST CLOSELY FITS DIMENSIONS OF FURNACE/AIR HANDLER RETURN AIR OPENING

M13654

Indoor Air Quality

Electronic Air Cleaners

F300E Exploded View



M18846D

Electronic Air Cleaner Filters

Indoor Air Quality

No.	Description	Nominal Return Air Opening				
		16 x 20 in. (406 x 508 mm)	16 x 25 in. (406 x 635 mm)	20 x 12-1/2 in. (508 x 318 mm)	20 x 20 in. (508 x 508 mm)	20 x 25 in. (508 x 635 mm)
1	F50 Access Door includes No. 2	203306AB (1)	203306AB (1)	203305AB (1)	203305AB (1)	203305AB (1)
1	F300 Access Door includes No. 2	32007528-003	32007528-003	32007528-002	32007528-002	32007528-002
2	Test Button Assembly	137980A (1)	137980A (1)	137980A (1)	137980A (1)	137980A (1)
3	Electronic Cell	FC37A1114 (2)	FC37A1130 (2)	FC37A1064 (1)	FC37A1049 (2)	FC37A1064 (2)
4	Cell Handle	137266 (2)	137266 (2)	137266 (1)	137266 (2)	137266 (2)
5	Prefilter (without spring clips)	209989 (2)	203368 (2)	203369 (1)	203370 (2)	203369 (2)
6	Cell Key	136518 (1)	136518 (1)	136518 (1)	136518 (1)	136518 (1)
7	F50 Power Box Assembly Series One ^a . Includes No. 8-20, 120V, 60 Hz. Brown Cover.	208418G ^c (1)	208417Q ^c (1)	208419D ^d (1)	208418F ^c (1)	208417Q ^c (1)
7	F300 Power Box Assembly Series Two ^b . Includes No. 8-20, 120V, 60 Hz. White Cover.	208418J (1)	208417S (1)	208419D ^d	208418H (1)	208417R (1)
8	Switch	203321 (1)	203321 (1)	203321 (1)	203321 (1)	203321 (1)
10	F50 and F300 Power Supply, Series Two ^b . 120V, 60 Hz	208045J ^c (1)	208045G ^c (1)	208045G (1)	208045G ^c (1)	208045G ^c (1)
11	Interlock Bracket and Switch	4074ETG (1)	4074ETG (1)	4074ETG (1)	4074ETG (1)	4074ETG (1)
12	W8600 Terminal Strip	Supplied with W8600F				
13	Terminal Board Assembly Front	203329B (1)	203329B (1)	N/A	203329B (1)	203329B (1)
14	Terminal Board Assembly Rear	203329A (1)	203329A (1)	N/A	203329A (1)	203329A (1)
17	Line Cord	4074ETD (1)	4074ETD (1)	4074ETD (1)	4074ETD (1)	4074ETD (1)
19	Neon Assembly	4074EYS (1)	4074EYS (1)	4074EYS (1)	4074EYS(1)	4074EYS (1)
20	Airflow Switch, pin connection	4074ETH (1)	4074ETH (1)	4074ETH (1)	4074ETH (1)	4074ETH (1)
20	Airflow Switch, plug connection	4074EZB (1)	4074EZB (1)	N/A	4074EZB (1)	4074EZB (1)
21	FC37A Bag Assembly for cell repair. Contains 2 Connector Clips, 1 Terminal Board and Instructions.	4074EHG	4074EHG	4074EHG	4074EHG	4074EHG
22	Post Filter (not included with F300A)	50000293-001	50000293-002	50000293-004	50000293-003	50000293-004

^a Series One compatible with W8600E and W8600F.

^b Series Two compatible with W8600F only.

^c Use 203365A Conversion Kit for changing 120V, 60Hz model to 240V, 60 Hz.

^d Change from brown cover to white cover as a running change. Use original cover for color match.

Parts and Accessories Not Illustrated

Description	Nominal Return Air Opening				
	16 x 20 in. (406 x 508 mm)	16 x 25 in. (406 x 635 mm)	20 x 12-1/2 in. (508 x 318 mm)	20 x 20 in. (508 x 508 mm)	20 x 25 in. (508 x 635 mm)
Ionizer Wires (multiples of 5)	136434BA	136434BA	136434AA	136434AA	136434AA
Premier White® AIRWATCH® Indicator	W8600A1007	W8600A1007	W8600A1007	W8600A1007	W8600A1007
Premier White® Air Cleaner Monitor	W8600F1014	W8600F1014	W8600F1014	W8600F1014	W8600F1014
240V Conversion Kit	203365A	203365A	N/A	203365A	203365A

(#) = Quantity required per unit

N/A = Not available as merchandised part.

EAC Media Post Filter

Our high-efficiency, charged post-filters boost the efficiency of any Honeywell electronic air cleaner with negligible effect on pressure drop.

Type of Air Cleaner: Electronic Air Cleaner
Application: Replacement Filter

Product Number	Description	Used With
50000293-001	High air flow media post-filter for EAC, 16x10	F300, F50F
50000293-002	High air flow media post-filter for EAC, 16x12.5	F300, F50F
50000293-003	High air flow media post-filter for EAC, 20x10	F300, F50F
50000293-004	High air flow media post-filter for EAC, 20x12.5	F300, F50F

Return Grille Electronic Air Cleaners

F52 Return Grille Electronic Air Cleaner



The F52F Return Grille Electronic Air Cleaner is wall or ceiling mounted in the main return air duct of a central forced air heating, cooling, or ventilation system. It captures a significant number of the airborne particles (0.5 microns and larger) from the air circulated through the cell(s).

- Removes airborne particles from the air circulated through it.
- Electronic cells can be washed easily.
- Neon light shows that air cleaner is operating.
- Wiring consists of simply connecting air cleaner to power source.
- Solid state power supply is energized by an airflow switch; no interconnection to the fan system is required.
- Solid state power supply is self-regulating and maintains peak efficiency during a wide range of cell dirt loading conditions.
- Automatic interlock switch disconnects power when unit is opened.
- Use with optional W8600F Electronic Air Cleaner Monitor (ordered separately) to monitor air cleaner performance.

Type of Air Cleaner: Electronic Air Cleaner

Application: Return Grille

Efficiency Standard: Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

Fractional Efficiency: E1=73%, E2=88%, E3=95%

Static Pressure Drop (in. w.c.): 0.2 at max flow

Approvals:

Underwriters Laboratories, Inc. Listed: Report E30954

Replacement Parts:

136434AA 20 in. Replacement Ionizer wire

190912A Contact Board Assembly

4074EHG FC37A Terminal Board Repair Kit. Contains 2 connector clips, 1 Terminal Board and instruction sheet

4074ETE Neon Light Assembly, includes lens and wire tie

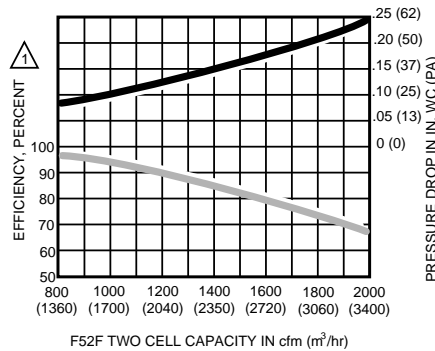
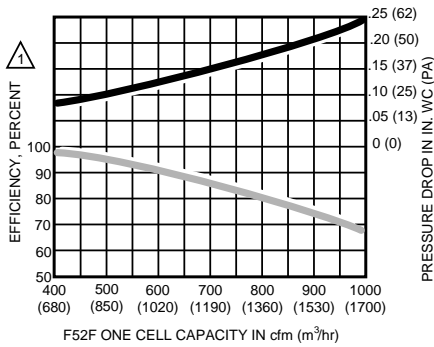
4074ETH Air Flow Switch Bag Assembly, with pin connections

FC37A1171 Electronic Air Cleaner Cell, 12.4 x 20

	Product Number	Air Cleaner Size Dimensions, Approximate		Airflow Max.-Capacity		Electrical Ratings	Frequency
		(inch)	(mm)	(cfm)	(m ³ /hr)		
*	F52F1048	20 in. x 12 1/2 in.	508 mm x 318 mm	1000 cfm	1700 m ³ /hr	120 Vac, 0.4A max.	60 Hz
*	F52F1055	20 in. x 25 in.	508 mm x 635 mm	2000 cfm	3400 m ³ /hr	120 Vac, 0.4A max.	60 Hz

* TRADELINE models • SUPER TRADELINE models

Pressure Drop and Efficiency versus Airflow

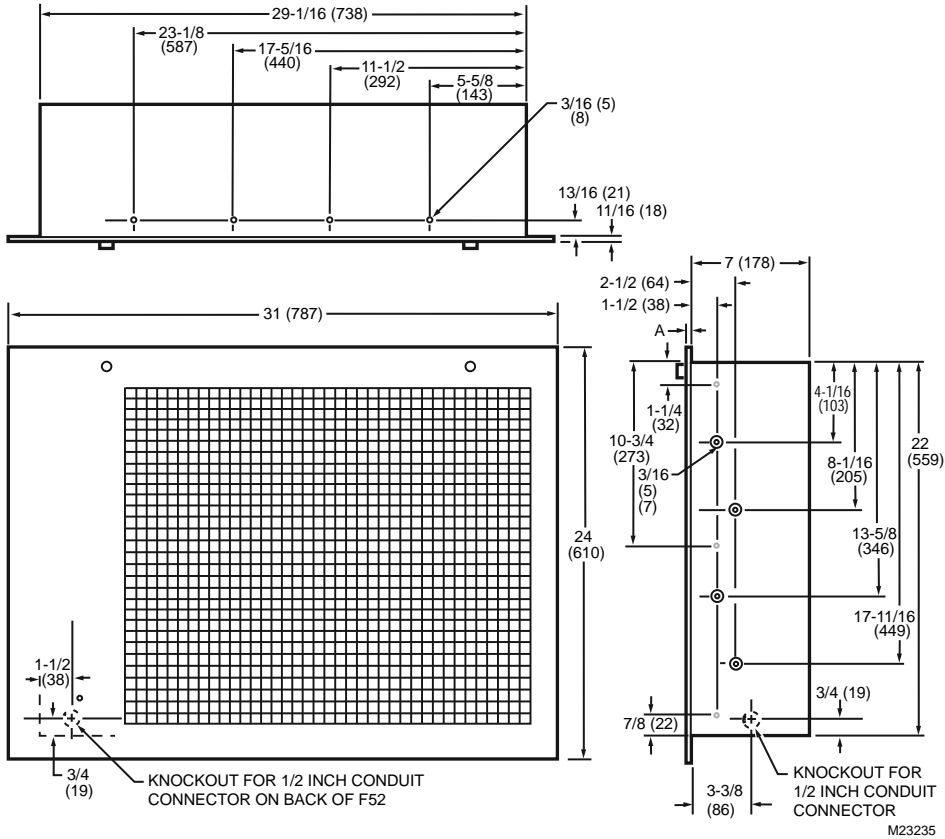


△ EFFICIENCY RATINGS BASED ON NATIONAL BUREAU OF STANDARDS DUST SPOT METHOD USING ATMOSPHERIC DUST AND AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS STANDARD 52.1-92.

M7824

Return Grille Electronic Air Cleaners

Dimensions in inches (millimeters)



Indoor Air Quality

Return Grille Electronic Air Cleaners

F52F Exploded View

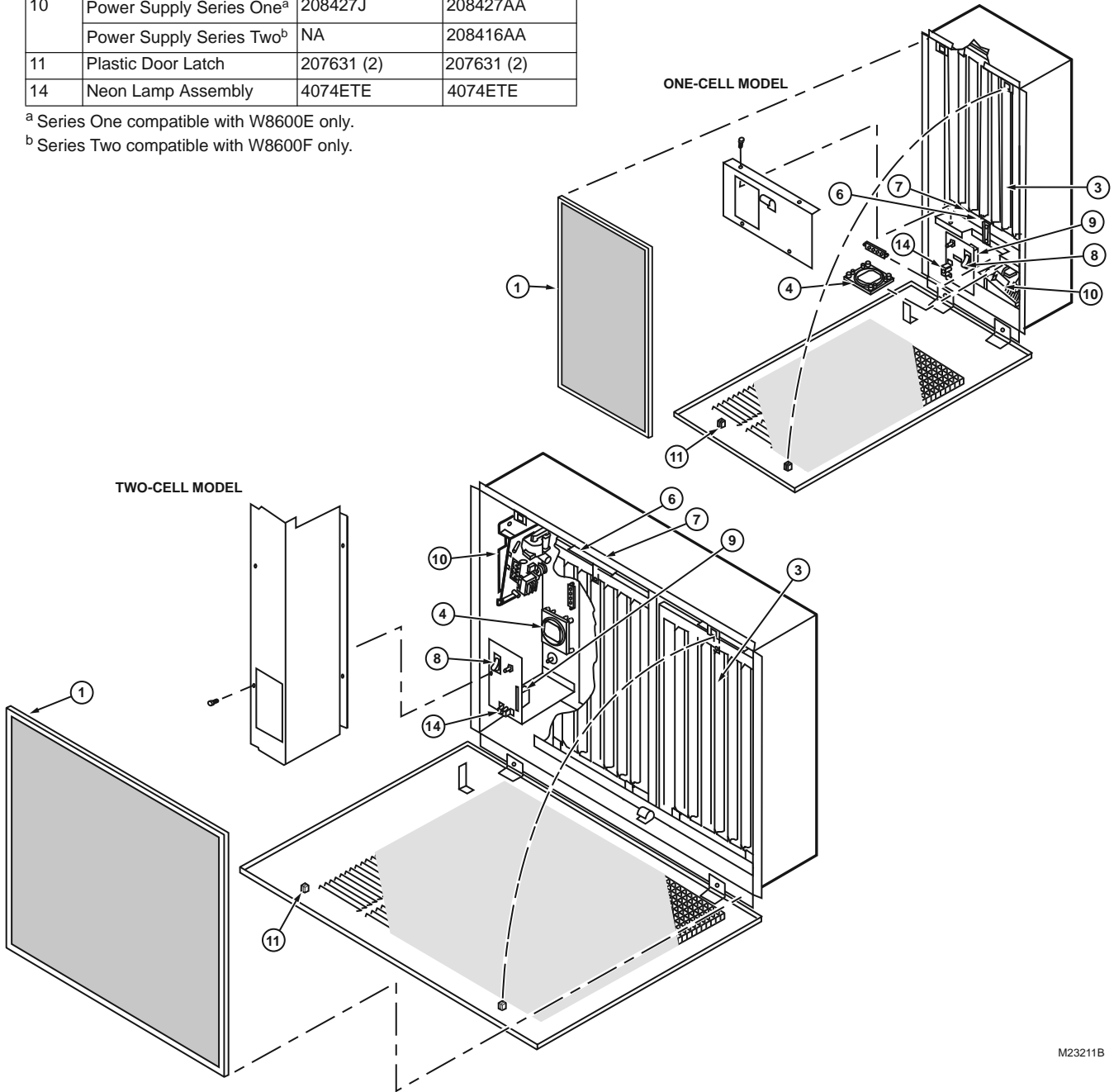
No.	Description	Part Number	
		120 Vac Model	
		F52F1048 1-Cell	52F1055 2-Cell
1	Prefilter	208536	208537
3	Electronic Cell	FC37A1171	FC37A1171 (2)
4	Air Flow Switch	4074ETH	4074ETH
6	Cell Contact Board	4074EHG	4074EHG (2)
7	Cabinet Contact Board	190912A	190912A (2)
8	On/Off Switch	203321	203321
9	Interlock Switch	208543	208543
10	Power Supply Series One ^a	208427J	208427AA
	Power Supply Series Two ^b	NA	208416AA
11	Plastic Door Latch	207631 (2)	207631 (2)
14	Neon Lamp Assembly	4074ETE	4074ETE

^a Series One compatible with W8600E only.

^b Series Two compatible with W8600F only.

Parts and Accessories not Illustrated

No.	Description	Part Number
		120 Vac Model
16	Cell Handle	137266
17	Ionizer Wires (Must be ordered in multiples of 5.)	136434AA (9/cell)
21	Air Cleaner Monitor, Premier White®	W8600F1014



M23211B

F500 Whole House HEPA Air Cleaner



passes through the filter. The F500 Whole House Filtration System includes HEPA filter, 2 in. pleated prefilter, carbon-odor filter and motor/blower. Isolation mounting straps and HEPA AIRWATCH Indicator are also included. F500A: Standard cabinet for mounting in conditioned spaces. F500B: Insulated cabinet for mounting in unconditioned spaces.

- HEPA media captures at least 99.97% of 0.3 micron particles that pass through it.
- Application for forced air systems or stand-alone.
- Power cord plugs into grounded 120 Vac electrical outlet.
- Requires no maintenance except periodic media filter replacement.
- Quiet operation.
- Quick and easy media filter replacement.
- Wall-mounted AIRWATCH Indicator (included) provides filter change reminders for each of the three filters.
- Easy installation.
- Three-filter system:
 - Activated carbon filter for odors.
 - High-efficiency pleated pre-filter extends HEPA filter life.
 - HEPA filter traps at least 99.97% of 0.3 micron particles that pass through it.
- Rugged steel cabinet.

The F500 Whole House HEPA Air Cleaner connects to the return air duct of a forced air system or can be independently ducted. The HEPA filter captures 99.97% of the particles from the air that

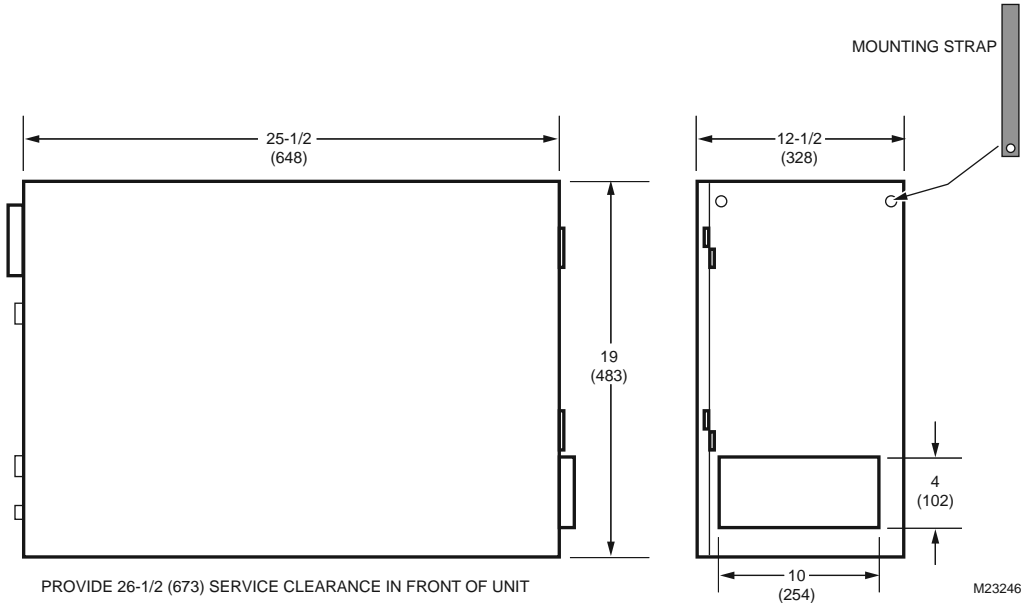
Type of Air Cleaner: HEPA Air Cleaner
Application: Bypass Stand Alone
Efficiency Standard: HEPA rating is based on IEST-RP-CC001.4 standard for testing HEPA filters.

Fractional Efficiency: 99.97% (at 0.3 microns)
Approvals:
Canadian Standards Association: Certified

Product Number	Airflow Max.-Capacity		Electrical Ratings	Frequency	Replacement Filters
	(cfm)	(m ³ /hr)			
* F500A1000	400 cfm nominal	680 m ³ /hr nominal	120 Vac, 1.98A max.	60 Hz	32006026-001 Carbon Odor Filter (4 Pack), 32006027-001 2 inch Prefilter, 32006028-001 HEPA Filter
* F500B1009	400 cfm nominal	680 m ³ /hr nominal	120 Vac, 1.98A max.	60 Hz	32006026-001 Carbon Odor Filter (4 Pack), 32006027-001 2 inch Prefilter, 32006028-001 HEPA Filter

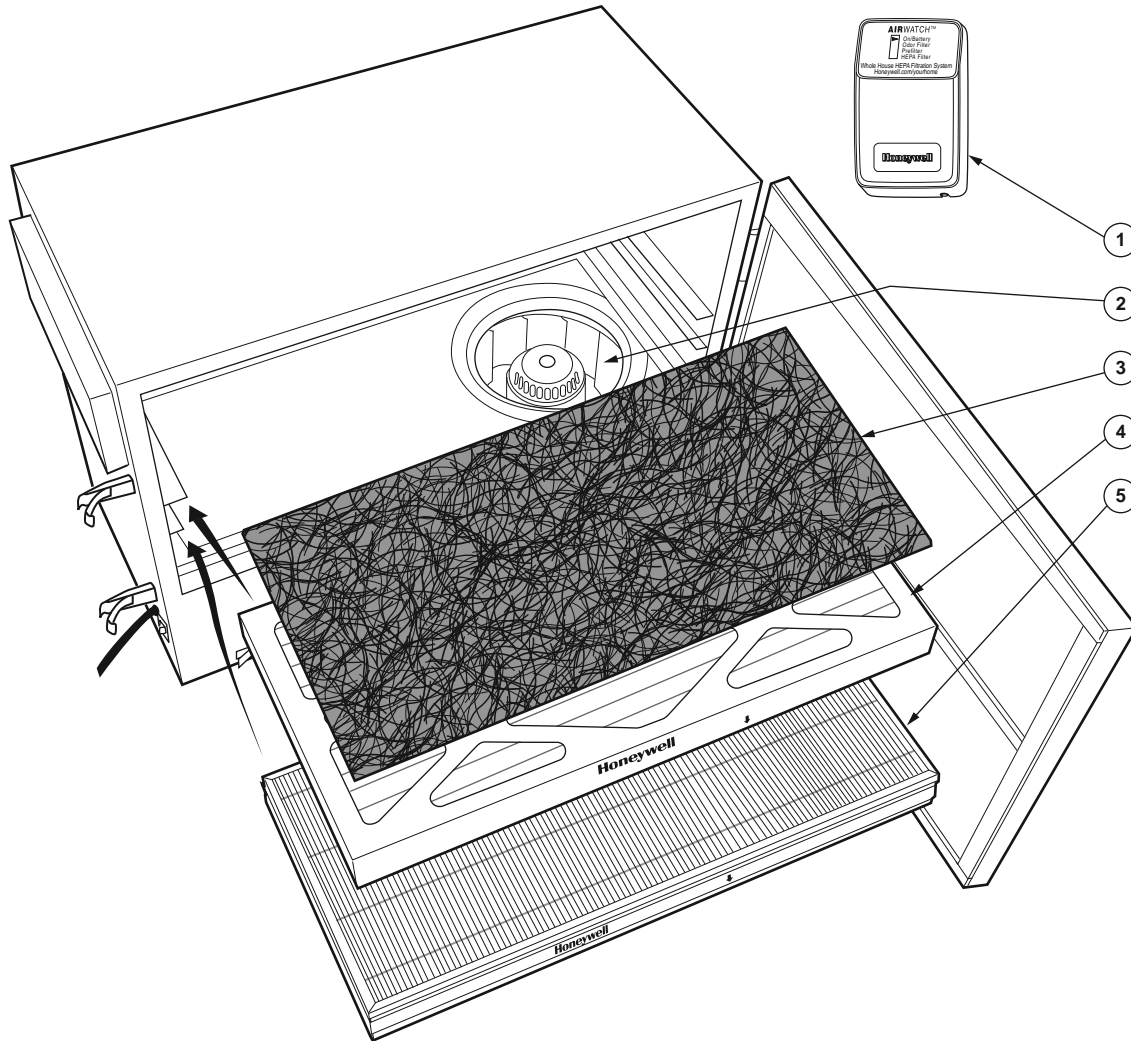
* TRADELINE models • SUPER TRADELINE models

Dimensions in inches (millimeters)



HEPA Air Cleaners

F500 Exploded View



No.	Description	Part Number
1	HEPA AIRWACH™ Indicator	32005012-001
2	Blower Motor Assembly	32006670-001
3	Carbon-Odor Filter	32006026-001
4	Pleated Prefilter	32006027-001
5	HEPA Filter	32006028-001

M23212

HEPA Replacement Media

HEPA stands for high-efficiency particulate arresting. Honeywell HEPA air cleaners offer powerful filtration: They capture 99.97% of particles that are 0.3 microns in size from the air that passes through the filter.

Type of Air Cleaner: HEPA Air Cleaner
Application: Replacement Filter

Product Number	Description	Used With
32006026-001	Carbon Filter for Whole House HEPA Air Cleaner	F500
32006027-001	2 inch Prefilter for Whole House HEPA Air Cleaner	F500
32006028-001	HEPA Filter for Whole House HEPA Air Cleaner	F500

Replacement Media Filters

Residential Air Cleaner POPUP Replacement Media Filter



- Save space on the truck.
- Less damage during storage.
- Save time on assembly.
- So easy you can sell over-the-counter to homeowners without worry of mistakes.
- Compact shape makes PopUP easy to ship.
- No combs, pleat spacers or end caps.

Type of Air Cleaner: Media Air Cleaner

Application: Replacement Filter

Efficiency Standard: Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

Minimum Efficiency Reporting Value (Media Filters Only): MERV 11

Indoor Air Quality

Product Number	Air Cleaner Size Dimensions, Approximate		Description	Used With
	(inch)	(mm)		
POPUP1620	16 in. x 20 in.	406 mm x 508 mm	16X20 Media Air Filter	Honeywell 16X20 F100 and F200 Media Air Cleaners
POPUP1625	16 in. x 25 in.	406 mm x 635 mm	16X25 Media Air Filter	Honeywell 16X25 F100 and F200 Media Air Cleaners
POPUP2020	20 in. x 20 in.	508 mm x 508 mm	20X20 Media Air Filter	Honeywell 20X20 F100 and F200 Media Air Cleaners
POPUP2025	20 in. x 25 in.	508 mm x 635 mm	20X25 Media Air Filter	Honeywell 20X25 F100 and F200 Media Air Cleaners. Does not work with 25X20 or 25X22 Media Air Cleaners.
* POPUP2200	20 1/4 in. x 24 1/4 in. x 5 7/8 in.	514 mm x 616 mm x 149 mm	Replacement Filter for Space-Guard model 201	SpaceGard 2200, 2120, 2250, Lennox PMAC20, GeneralAire AC-1
* POPUP2400	16 in. x 27 1/8 in. x 5 7/8 in.	406 mm x 689 mm x 149 mm	Replacement Filter for Space-Guard model 401	SpaceGard 2400, 2140, Lennox PMAC12

* TRADELINE models • SUPER TRADELINE models

Replacement Media Filters

Residential Air Cleaner Replacement Media Filter



Honeywell cartridge filters provide high efficiency, low pressure drop and long life. The filters capture a significant amount of the airborne particles in the air that circulate through the filter.

- High filtration efficiency.
- Low pressure drop.
- Easy to install.
- Long life.
- UL listed.
- Replacement filter for Space-Gard or Aprilaire Models 2200 or 2400.

Type of Air Cleaner: Media Air Cleaner

Application: Replacement Filter

Efficiency Standard: Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Static Pressure Drop (in. w.c.): 0.25 at 500 FPM

Product Number	Air Cleaner Size Dimensions, Approximate		Fractional Efficiency	Static Pressure Drop (in. w.c.)	Minimum Efficiency Reporting Value (Media Filters Only)	Used With
	(inch)	(mm)				
CF100A1017	20 in. x 24 in.	508 mm x 610 mm	—	0.25 at 500 FPM	MERV 8	Air Bear Media Air Cleaners
FC100A1003	16 in. x 20 in.	406 mm x 508 mm	E1=25%, E2=62%, E3=85%	0.23 at 500 FPM	MERV 10	Honeywell 16X20 F100 and F200 Media Air Cleaners
FC100A1011	20 in. x 20 in.	508 mm x 508 mm	E1=25%, E2=62%, E3=85%	0.23 at 500 FPM	MERV 10	Honeywell 20X20 F100 and F200 Media Air Cleaners
FC100A1029	16 in. x 25 in.	406 mm x 635 mm	E1=25%, E2=62%, E3=85%	0.23 at 500 FPM	MERV 10	Honeywell 16X25 F100 and F200 Media Air Cleaners
FC100A1037	20 in. x 25 in.	508 mm x 635 mm	E1=25%, E2=62%, E3=85%	0.23 at 500 FPM	MERV 10	Honeywell 20X25, 25X20, 25X22 F100 and F200 Media Air Cleaners, SpaceGard 2200
FC100A1045	21 1/2 in. x 27 1/2 in.	546 mm x 699 mm	E1=25%, E2=62%, E3=85%	0.23 at 500 FPM	MERV 10	F27F1057
FC100A1052	20 in. x 12 1/2 in.	508 mm x 318 mm	E1=25%, E2=62%, E3=85%	0.23 at 500 FPM	MERV 10	F27F1032
FC200E1003	16 in. x 20 in.	406 mm x 508 mm	E1=63%, E2=90%, E3=97%	0.28 at 500 FPM	MERV 13	Honeywell 16X20 F100 and F200 Media Air Cleaners
FC200E1011	20 in. x 20 in.	508 mm x 508 mm	E1=63%, E2=90%, E3=97%	0.28 at 500 FPM	MERV 13	Honeywell 20X20 F100 and F200 Media Air Cleaners
FC200E1029	16 in. x 25 in.	406 mm x 635 mm	E1=63%, E2=90%, E3=97%	0.28 at 500 FPM	MERV 13	Honeywell 16X25 F100 and F200 Media Air Cleaners
FC200E1037	20 in. x 25 in.	508 mm x 635 mm	E1=63%, E2=90%, E3=97%	0.28 at 500 FPM	MERV 13	Honeywell 20X25, 25X20, 25X22 F100 and F200 Media Air Cleaners, SpaceGard 2200
* FC2200A1009	20 1/4 in. x 24 1/4 in. x 5 7/8 in.	514 mm x 616 mm x 149 mm	E1=19%, E2=54%, E3=86%	0.21 at 500 FPM	MERV 10	SpaceGard 2200
* FC2400A1005	16 in. x 27 1/8 in. x 5 7/8 in.	406 mm x 689 mm x 149 mm	E1=19%, E2=54%, E3=86%	0.21 at 500 FPM	MERV 10	SpaceGard 2400

* TRADELINE models • SUPER TRADELINE models

Return Grille Media Air Filter



The Return Grille Filter provides high efficiency, long life alternative to a 1 in. filter. It captures a significant amount of the airborne particles in the air that circulates through the filter.

- Mounts in most return filter grilles.
- Pleated for greater media capacity.
- Low pressure drop provides a comfortable air flow.
- Maintains equipment efficiency longer than standard filters.
- FC40 is MERV 10.
- FC20 is MERV 8.

Type of Air Cleaner: Media Air Cleaner

Application: Return Grill

Efficiency Standard: Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

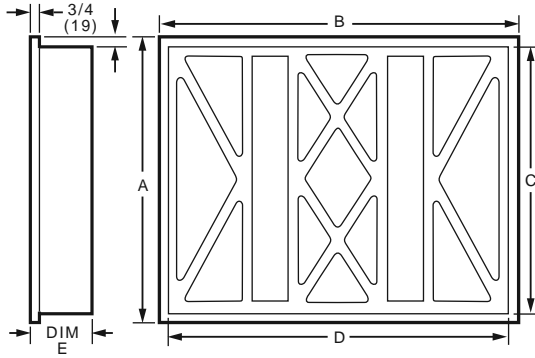
Fractional Efficiency: E1=18%, E2=57%, E3=75%

Static Pressure Drop (in. w.c.): 0.18 at 300FPM

Product Number	Air Cleaner Size Dimensions, Approximate		Airflow Max.-Capacity		Fractional Efficiency	Static Pressure Drop (in. w.c.)	Minimum Efficiency Reporting Value (Media Filters Only)
	(inch)	(mm)	(cfm)	(m ³ /hr)			
FC20R1625	16 in. x 25 in.	406 mm x 635 mm	1150 cfm	1950 m ³ /hr	E1=18%, E2=57%, E3=75%	0.18 at 300FPM	MERV 8
FC20R2020	20 in. x 20 in.	508 mm x 508 mm	1150 cfm	1950 m ³ /hr	E1=18%, E2=57%, E3=75%	0.18 at 300FPM	MERV 8
FC20R2025	20 in. x 25 in.	508 mm x 635 mm	1450 cfm	2460 m ³ /hr	E1=18%, E2=57%, E3=75%	0.18 at 300FPM	MERV 8
FC20R2030	20 in. x 30 in.	508 mm x 762 mm	1800 cfm	3060 m ³ /hr	E1=18%, E2=57%, E3=75%	0.18 at 300FPM	MERV 8
FC40R1003	20 in. x 20 in.	508 mm x 508 mm	1150 cfm	1950 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1011	20 in. x 25 in.	508 mm x 635 mm	1450 cfm	2460 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1029	20 in. x 30 in.	508 mm x 762 mm	1800 cfm	3060 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1037	12 in. x 24 in.	305 mm x 610 mm	800 cfm	1360 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1045	14 in. x 25 in.	356 mm x 635 mm	1000 cfm	1700 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1052	16 in. x 20 in.	406 mm x 508 mm	900 cfm	1530 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1060	16 in. x 25 in.	406 mm x 635 mm	1150 cfm	1950 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1078	24 in. x 24 in.	610 mm x 610 mm	1700 cfm	2890 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1094	12 in. x 12 in.	305 mm x 305 mm	350 cfm	590 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1102	14 in. x 14 in.	356 mm x 356 mm	500 cfm	850 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1110	14 in. x 20 in.	356 mm x 508 mm	750 cfm	1270 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1128	14 in. x 24 in.	356 mm x 610 mm	950 cfm	1610 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1136	18 in. x 24 in.	457 mm x 610 mm	1250 cfm	2120 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1144	20 in. x 24 in.	508 mm x 610 mm	1400 cfm	2380 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1169	14 in. x 30 in.	356 mm x 762 mm	1200 cfm	2040 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1177	24 in. x 30 in.	610 mm x 762 mm	2050 cfm	3480 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1185	18 in. x 18 in.	457 mm x 457 mm	950 cfm	850 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10
FC40R1830	18 in. x 30 in.	457 mm x 762 mm	1550 cfm	2610 m ³ /hr	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10

Replacement Media Filters

Dimensions in inches (millimeters)



DIMENSIONS IN. (MM)

Product Numbers	Size	A	B	C	D	E
FC40R1003	20 X 20 (508 x 508)	19-3/4 (502)	19-3/4 (502)	18-1/2 (470)	18-1/2 (470)	4-3/8 (111)
FC40R1011	20 X 25 (508 x 635)	19-3/4 (502)	24-3/4 (629)	18-1/2 (470)	23-1/2 (597)	4-3/8 (111)
FC40R1029	20 X 30 (508 x 762)	19-3/4 (502)	29-3/4 (756)	18-1/2 (470)	28-1/2 (724)	4-3/8 (111)
FC40R1037	12 X 24 (305 X 610)	11-3/4 (298)	23-3/4 (603)	10-1/2 (266)	22-1/2 (571)	4-3/8 (111)
FC40R1045	14 X 25 (356 X 635)	13-3/4 (349)	24-3/4 (629)	12-1/2 (317)	23-1/2 (596)	4-3/8 (111)
FC40R1052	16 X 20 (406 X 508)	15-3/4 (400)	19-3/4 (502)	14-1/2 (368)	18-1/2 (470)	4-3/8 (111)
FC40R1060	16 X 25 (406 X 635)	15-3/4 (400)	24-3/4 (629)	14-1/2 (368)	23-1/2 (596)	4-3/8 (111)
FC40R1078	24 X 24 (610 X 610)	23-3/4 (603)	23-3/4 (603)	22-1/2 (571)	22-1/2 (571)	4-3/8 (111)
FC40R1094	12 X 12 (305 X 305)	11-3/4 (298)	11-3/4 (298)	10-1/2 (266)	10-1/2 (266)	4-3/8 (111)
FC40R1102	14 X 14 (356 X 356)	13-3/4 (349)	13-3/4 (349)	12-1/2 (317)	12-1/2 (317)	4-3/8 (111)
FC40R1110	14 X 20 (356 X 508)	13-3/4 (349)	19-3/4 (502)	10-1/2 (266)	18-1/2 (470)	4-3/8 (111)
FC40R1128	14 X 24 (356 X 610)	13-3/4 (349)	23-3/4 (603)	12-1/2 (317)	22-1/2 (571)	4-3/8 (111)
FC40R1136	18 X 24 (457 X 610)	17-3/4 (451)	23-3/4 (603)	16-1/2 (419)	22-1/2 (571)	4-3/8 (111)
FC40R1144	20 X 24 (508 X 610)	19-3/4 (502)	23-3/4 (603)	18-1/2 (470)	22-1/2 (571)	4-3/8 (111)
FC40R1169	14 X 30 (356 X 762)	13-3/4 (349)	29-3/4 (756)	12-1/2 (317)	28-1/2 (724)	4-3/8 (111)
FC40R1177	24 X 30 (610 X 762)	23-3/4 (603)	29-3/4 (756)	22-1/2 (571)	28-1/2 (724)	4-3/8 (111)
FC40R1185	18 X 18 (457 X 457)	17-3/4 (451)	17-3/4 (451)	16-1/2 (419)	16-1/2 (419)	4-3/8 (111)
FC40R1830	18 X 30 (457 X 762)	17-3/4 (451)	29-3/4 (756)	16-1/2 (419)	28-1/2 (724)	4-3/8 (111)
FC20R1625	16 X 25 (406 X 635)	15-3/4 (400)	24-3/4 (629)	14-1/2 (368)	23-1/2 (596)	2 (51)
FC20R2020	20 X 20 (508 X 508)	19-3/4 (502)	19-3/4 (502)	18-1/2 (470)	18-1/2 (470)	2 (51)
FC20R2025	20 X 25 (508 X 635)	19-3/4 (502)	24-3/4 (629)	18-1/2 (470)	23-1/2 (597)	2 (51)
FC20R2030	20 X 30 (508 X 762)	19-3/4 (502)	29-3/4 (756)	18-1/2 (470)	28-1/2 (724)	2 (51)

M18953C

Replacement Media Filters

Replacement Filter for Perfect Fit



The replacement filter is a high-efficiency, long-life filter for Perfect Fit media air cleaners. It captures a significant amount of airborne particles in the air that circulates through the filter.

- Higher efficiency and lower pressure drop than OEM filter.
- Captures particles as small as 0.3 microns.
- Pleated filter for greater media capacity.
- Low pressure drop reduces strain on equipment, provides a comfortable air flow, and helps maintain equipment efficiency.
- Easy installation. Angled edge fits neatly into offset side of air cleaner frame.

Type of Air Cleaner: Media Air Cleaner

Application: Replacement Filter

Efficiency Standard: Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

Minimum Efficiency Reporting Value (Media Filters Only): MERV 10

Fractional Efficiency: E1=22%, E2=61%, E3=87%

Static Pressure Drop (in. w.c.): 0.17 at 500 FPM

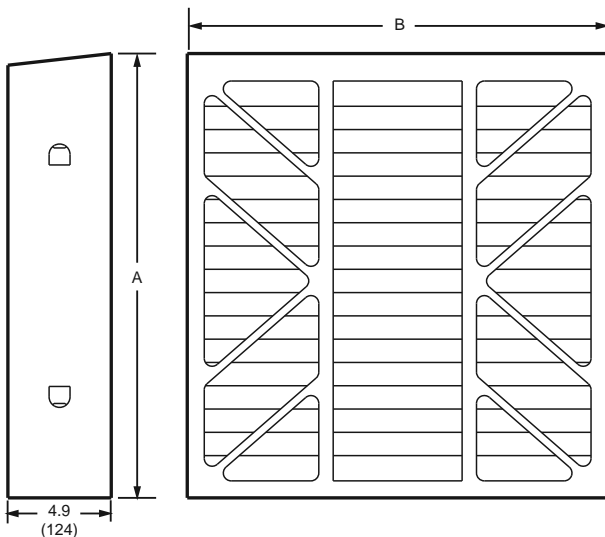
Used With: Trane Perfect Fit Media Air Cleaners

Approvals:

Underwriters Laboratories, Inc. Filter Element: UL Listed, UL900, Class 2

Product Number	Air Cleaner Size Dimensions, Approximate		Description
	(inch)	(mm)	
TRN1427T1	14 1/2 in. X 27 in. X 5 in.	360 mm x 670 mm x 120 mm	14 1/2 X 27 X 5 Replacement Filter for Perfect Fit. Replaces BAYFTFR14M.
TRN1727T1	17 1/2 in. X 27 in. X 5 in.	440 mm x 670 mm x 120 mm	17 1/2 X 27 X 5 Replacement Filter for Perfect Fit. REplaces BAYFTFR17M.
TRN2121T1	21 1/2 in. x 21 in. x 5 in.	540 mm x 510 mm x 120 mm	21 1/2 X 21 X 5 Replacement Filter for Perfect Fit. Replaces BAYFTAH21M.
TRN2127T1	21 in. x 27 in. x 5 in.	530 mm x 670 mm x 120 mm	21 X 27 X 5 Replacement Filter for Perfect Fit. Replaces BAYFTFR21M.
TRN2321T1	23 1/2 in. x 21 in. x 5 in.	590 mm x 51 mm x 120 mm	23 1/2 X 21 X 5 Replacement Filter for Perfect Fit. Replaces BAYFTAH23M.
TRN2427T1	24 in. x 27 in. x 5 in.	620 mm x 670 mm x 120 mm	24 X 27 X 5 Replacement Filter for Perfect Fit. Replaces BAYFTFR24M.
TRN2621T1	26 in. X 21 in. X 5 in.	660 mm x 510 mm 120 mm	26 X 21 X 5 Replacement Filter for Perfect Fit. REplaces BAYFTAH26M.

Dimensions in inches (millimeters)



SIZE INCHES (MM)	DIM A INCHES (MM)	DIM B INCHES (MM)
21-1/2 X 21 X 5 (546 X 533 X 127)	21.2 (538)	20.1 (511)
23-1/2 X 21 X 5 (597 X 533 X 127)	23.3 (592)	20.1 (511)
26 X 21 X 5 (660 X 533 X 127)	25.8 (655)	20.1 (511)
14-1/2 X 27 X 5 (368 X 686 X 127)	14.3 (363)	26.2 (665)
17-1/2 X 27 X 5 (445 X 686 X 127)	17.3 (439)	26.2 (665)
21 X 27 X 5 (533 X 686 X 127)	20.8 (528)	26.2 (665)
24 X 27 X 5 (610 X 686 X 127)	24.3 (617)	26.2 (665)

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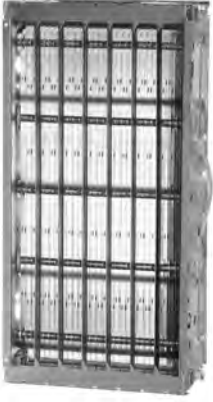
Air Cleaner Parts and Accessories

Residential Air Cleaner Parts and Accessories

Product Number	Description	Used With
136414A	Terminal Board Assembly, F50E.	F50
136434AA	20 in. Replacement Ionizer wire for F50A, F50E, F50F, F57A, B, F58F and F70C	—
136434BA	16 in. Replacement Ionizer wire for F50A, F50E, F50F, F59A	—
136518	F50F, F58C,F Cell Key	—
137266	F50F and F58F Cell Handle	—
137980A	Test Button Assembly for F50A, F50E, F50F, or F58C,F	F50
138621A	Contact Board Assembly, F50A	F50
138889A	Contact Board Assembly for F58C, F59A, F70C, F90, or F50E	F50, F59
190912A	F52C,D,E,F or F57A,B Contact Board Assembly	F52
202668	20 inch Ionizer Grid	—
203305AB	F58F, F50F Door Assembly for 20 inch door, includes Test Button	F50
203305AH	20 inch F100 Door	F100
203306AB	F50F Door Assembly, includes Test Button, 16 in	F50
203306AH	Door Assembly for 16 in. F100	F100
203321	ON/OFF Switch for F50F, F52F, or F58F	F52
203329A	F50F, F58F Rear Terminal Board Assembly	F50
203329B	F50F, F58F Front Terminal Board Assembly	F50
203366	Round insulator for FC37A,B Cells	FC37
203368	Prefilter for 16X25 - F50F, F300, no spring clips	F300, F50
203369	Prefilter for 20X25 inch and 20X12-1/2 inch F50F, F300, no spring clip	F300, F50
203370	Prefilter for 20X20 - F50F, F300, no spring clip	F300, F50
203371	Prefilter for 16X25 - F50, F300	F300, F50
203372	Washable Prefilter for 20X25 inch and 20X12-1/2 inch F50, F300, or F58C,F	F300, F50
203373	Prefilter for 20X20 - F50, F300	F300, F50
203638	Carbon Filter, Series 1,2,3	F59
207631	Door Latch, F52F	F52
208536	Prefilter for F52F 1-Cell	F52
208537	Prefilter for F52F 2-Cell	F52
208543	interlock Switch, F52F	F52
209989	Prefilter for 16X20 F50, F300	F300, F50
32004876-001	20 inch F200E Door, RF transmitter	F200
32004876-002	16 inch F200E Door, RF transmitter	F200
32004930-001	25 inch Power Pack Cover, White - F300E	F300
32005012-001	HEPA Air Watch indicator	F500
32006670-001	Blower Assembly for F500	F500
32007528-002	F300E Door Assembly, includes Test Button, 20 in	F300
32007528-003	F300E Door Assembly, includes Test Button, 16 in	F300
4074EHG	FC37A Terminal Board Repair Kit. Contains 2 connector clips, 1 Terminal Board and instruction sheet	—
4074ETD	Line Cord and Strain Relief	F50
4074ETE	F50F, F52F, F58F Neon Light Assembly, includes lens and wire tie	F50, F52
4074ETG	F50F and F58F Interlock bracket and switch	F50
4074ETH	Air Flow Switch Bag Assembly, with pin connections, for F50 air cleaners	F50
4074EYS	F50F Neon Light Assembly	F50
4074EZB	Air Flow Switch Bag Assembly with molex plug connection. F300E, F50F, AFS	F300, F50F

Air Cleaner Parts and Accessories

Indoor Air Quality

Product Number	Description	
FC37A1049	Electronic Air Cleaner Cell, 9.8 x 20	
FC37A1064	Electronic Air Cleaner Cell, 12.4 x 20	
FC37A1114	Electronic Air Cleaner Cell, 9.8 x 16	
FC37A1130	Electronic Air Cleaner Cell, 12.4 x 16	
FC37A1171	Electronic Air Cleaner Cell, 12.4 x 20	
FC37B1030	Electronic Air Cleaner Cell, 12.4 x 20	

W8600A,B AIRWATCH Indicator



Reminds you when to change your air filter, ultraviolet lamp and humidifier pad.

- Mounts in any convenient location.
- Easily mounted with two screws through holes in base.
- No wiring needed.
- Free with Honeywell Media Air Cleaner or sold separately for other products.
- Indicator light flashes when batteries need changing. (CR-123 Lithium Battery available separately.)
- Indicator light flashes when media filter needs replacing or electronic filter needs washing.
- Indicator light flashes when UV Air Treatment system lamp needs replacing.
- Indicator light flashes when humidifier pad needs replacing.

Application: Accessory

	Product Number	Description	Used With
*	W8600A1007	AIRWATCH indicator for use with F100F, F200 or F300A,E	F300, F200, F50, F100, F150
	W8600B1005	RF AIRWATCH indicator F200E	F200
* TRADELINE models • SUPER TRADELINE models			

Air Cleaner Parts and Accessories

Residential Air Cleaners Replacement Power Supply

Product Number	Description	Used With
203365A	Conversion Kit for changing 120V Power Supply to 240V.	—
208045G	F50F, F300 SSPS with W8600F capability and SSAFS. 120V 20X25, 16X25, 20X20, 20X12.5.	F300, F50
208045J	F50F, F300 SSPS with W8600F capability and SSAFS. 120V 16X20.	F300, F50
208414A	F50F SSPS with W8600E,F capability and SSAFS, 120V, 20X25. Replaces 203101A. Replaced by 208414H.	F50
208414B	F50F Power Supply Assembly	F50F
208414C	F50F SSPS with W8600E,F capability and SSAFS, 120V, 20X12.5. Replaces 203101C.	F50
208416L	F52E SSPS, 120V, 20X12.5.	F52
208417Q	F58F, F50F 120V 60 Hz Solid State Power Supply Assembly with W8600E,F capability and SSAFS (Replaces 203314A)	F50
208417R	F300E Power Box Assembly, SSPS with W8600F capability and SSAFS. 120V, 20X25.	F300
208417S	F300E Power Box Assembly, SSPS with W8600F capability and SSAFS. 120V, 16X25.	F300
208418F	F50F Power Box Assembly, SSPS with W8600E,F capability and SSAFS. 120V, 20X20. Replaces 203315A.	F50
208418G	F50F Power Box Assembly, SSPS with W8600E,F capability and SSAFS. 120V, 16X20. Replaces 203315F.	F50
208418H	F300E Power Box Assembly, SSPS with W8600F capability and SSAFS. 120V, 20X20.	F300
208418J	F300E Power Box Assembly, SSPS with W8600F capability and SSAFS. 120V, 16X20.	F300
208419D	F50F Power Box Assembly, SSPS with W8600E,F capability and SSAFS. 120V, 20X12.5.	F50
208420A	F50E Power Box Assembly, SSPS with W8600E,F capability and SSAFS, 120V, 16X25, 20X20, 20X25. Replaces 202228A AND 202228B.	F50
208420B	F50E Power Box Assembly, SSPS with W8600E,F capability and SSAFS, 240V, 16X25, 20X20, 20X25. Replaces 202228C AND 202228D.	F50
208421C	F50F Power Box Assembly	F50F
208422A	F50A,E Power Box Assembly, SSPS with W8600E,F capability and SSAFS. 120V, 20X12.5. Replaces 203247A.	F50
208422B	F50A,E Power Box Assembly, SSPS with W8600E,F capability and SSAFS. 240V, 20X12.5. Replaces 203247B.	F50
208425A	EAC Power Supply for F50A, E	F50
208425G	F50A,E, F52C,D, F58A,E SSPS. 120V, 20X12.5. REPLACES 220429QXB, 220429AXB, 220429BXB.	F50
208427AA	F52F SSPS with W8600E,F capability and SSAFS. 120V, 20X25. Replaces 203327H.	—
208427AB	F50E SSPS with W8600E,F capability. 120V, 20X25, 16X25.	F50
208427B	F50E SSPS. 120V, 20X25 (Replaces 203327A)	F50
208427C	120V Power Supply with Led and SSPI (Replaces 203361A)	—
208427D	Power Supply with Led and SSPI (Replaces 203361E)	—
208427F	F50E SSPS. 120V, 16X25, 20X20. Replaces 203327F.	F50
208427H	F52E SSPS. 120V, 20X12.5. Replaces 203350A.	—
208427J	F52F SSPS with W8600E capability. 120V, 20X12.5 (Replaces 203327R)	—

TrueDRY Dehumidification System

TrueDRY Dehumidification Systems



TrueDRY Dehumidification Systems are integrated, which means they're more effective and can be less expensive than putting multiple single-room units in a home. Plus, TrueDRY can be installed "out of sight/out of mind" in the central heating and cooling system to provide dehumidification to all rooms in the home.

TrueDRY can also be used as a standalone solution to quietly remove moisture from specific problem areas, improve comfort and eliminate the need for maintenance (such as emptying collection buckets) — all while using less energy compared to most portable dehumidifiers.

The Honeywell TrueDRY ensures the home is maintained at proper humidity levels through its high performance and efficiency.

- Removes up to 65, 90 or 150 pints of water per day from the indoor air.
- Built-in fresh air supply

Application: Dehumidifier
Color: White

Voltage: 120 V
Electrical Ratings: 6.9 A

Indoor Air Quality

Product Number	Capacity			Plenum Opening (Diameter)		Description	Weight (lb)
	(pints per day)	(gal. per day)	(liter per day)	(inch)	(mm)		
DH150A100	150 pints per day	18 3/4 gal per day	70 L per day	10 in. collars; 6 in. ventilation collar	254 mm collars; 152 mm vent collar	TrueDRY 150-pint dehumidifier. No control included.	134 lb
DH150A105	150 pints per day	19 3/4 gal per day	70 L per day	10 in. collars; 6 in. ventilation collar	254 mm collars; 152 mm vent collar	TrueDRY 150-pint dehumidifier with VisionPRO IAQ control	134 lb
DR65A1000	65 pints per day	8 3/25 gal per day	30 L per day	8 in. collars	203 mm collar	TrueDRY R-420A 65-pint dehumidifier with no control	—
DR65VPIAQ	65 pints per day	8 3/25 gal per day	30 L per day	8 in. collars	203 mm collar	TrueDRY R-410A 65-pint dehumidifier with VisionPRO IAQ control.	—
DR90A1000	90 pints per day	11 1/4 gal per day	45 L per day	10 in. collars; 6 in. ventilation collar	254 mm collars; 152 mm vent collar	TrueDRY 90-pint dehumidifier with no control.	92 lb
DR90VPIAQ	90 pints per day	11 1/4 gal per day	45 L per day	10 in. collars; 6 in. ventilation collar	254 mm collars; 152 mm vent collar	TrueDRY 90-pint dehumidifier with VisionPRO IAQ control.	92 lb

TrueDRY Parts and Accessories

Product Number	Application	Description	Used With
50035445-001	Replacement Part	DH150 enclosure	DH150
50035445-002	Replacement Part	DH150 heat exchanger	DH150
50035445-003	Replacement Part	DH150 capillary tubes	DH150
50035445-004	Replacement Part	DH150 compressor	DH150
50035445-005	Replacement Part	DH150 accumulator	DH150
50035445-006	Replacement Part	DH150 filter/drier	DH150
50035445-007	Replacement Part	DH150 tube -cond to filter	DH150
50035445-008	Replacement Part	DH150 tube -discharge line	DH150
50035445-009	Replacement Part	DH150 condenser	DH150
50035445-010	Replacement Part	DH150 impeller	DH150
50035445-012	Replacement Part	DH150 45 MFD capacitor -compressor	DH150
50035445-015	Replacement Part	DH150 15 MFD capacitor-impeller	DH150
50035445-016	Replacement Part	DH150 collar 10 inch	DH150
50035445-017	Replacement Part	DH150 collar oval 10 inch	DH150
50035445-018	Replacement Part	DH150 collar w/damper 6 inch	DH150
50035445-019	Replacement Part	DH150 leveling foot	DH150
50035445-020	Replacement Part	DH150 MERV 11 filter	DH150
50049537-001	Replacement Part	Compressor overload	DR65

TrueDRY Dehumidification System

Product Number	Application	Description	Used With
50049537-002	Replacement Part	Compressor relay, DPDT 24 VAC, 30A	DR65
50049537-003	Replacement Part	Run capacitor, 35 MFD	DR65
50049537-004	Replacement Part	8 in. Duct Collar	DR65
50049537-005	Replacement Part	Filter	DR65
50035445-011	Replacement Part	DR90 transformer 120/24 Vac, 40 VA	DR90
50035445-014	Replacement Part	DR90 compressor relay, SPST, 24 Vac, 30A	DR90
50049536-001	Replacement Part	DR90 compressor run capacitor	DR90
50049536-003	Replacement Part	DR90 Filter	DR90
50049536-004	Replacement Part	DR90 6 in. duct collar	DR90
50049536-005	Replacement Part	DR90 10 in. duct collar	DR90
50049536-006	Replacement Part	DR90 magnetic door	DR90

TrueSTEAM Humidification System

TrueSTEAM Humidification System



Steam provides the highest and most consistent levels of humidity.

- Application flexibility - Mount directly to the duct or remotely up to 20 feet away into tight-fitting or unconditioned air spaces.
- Installs in minutes - Limited duct cutting and bracket-mount design takes less than 5 minutes to complete.
- Easy maintenance - Self-regulates cleaning cycles throughout the year. Annual maintenance requires no tools to access and clean, saving time and money on annual contractor service calls.
- 5-year warranty

Application: Humidification

Type: Steam

Dimensions, Approximate: 19 in. high x 11 1/4 in. wide x 9 in. deep (482.6 mm H x 285.75 mm L x 228.6 mm D)

Mounting: Duct or Remote Mount (up to 20 feet/6 meters)

Temperature Range: 34 F to 104 F (1.1C-40C)

Voltage: 120 Vac

Color: Dark Empire Gray

Product Number	Capacity		Plenum Opening		Description	Includes
	gal. per day	liter per day	(inch)	(mm)		
HM506DG115	6 gal per day	23 L per day	1 3/4 in. diameter	44.45 mm diameter	TrueSTEAM 6-gallon with TrueIAQ control.	Humidifier, TrueIAQ digital control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM506H8908	6 gal per day	23 L per day	1 3/4 in. diameter	44.45 mm diameter	TrueSTEAM 6-gallon with H8908 control.	Humidifier, H8908 manual humidistat, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM506VPIAQ	6 gal per day	23 L per day	1 3/4 in. diameter	44.45 mm diameter	TrueSTEAM 6-gallon with VisionPRO IAQ control.	Humidifier, VisionPRO IAQ control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM506W1005	6 gal per day	23 L per day	1 3/4 in. diameter	44.45 mm diameter	TrueSTEAM 6-gallon model. Does not include control.	Humidifier, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve. Does not include humidistat.
HM509DG115	9 gal per day	34 L per day	1 3/4 in. diameter	44.45 mm diameter	TrueSTEAM 9-gallon with TrueIAQ control.	Humidifier, TrueIAQ digital control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM509H8908	9 gal per day	34 L per day	1 3/4 in. diameter	44.45 mm diameter	TrueSTEAM 9-gallon with H8908 control.	Humidifier, H8908 manual humidistat, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM509VPIAQ	9 gal per day	34 L per day	1 3/4 in. diameter	44.45 mm diameter	TrueSTEAM 9-gallon with VisionPRO IAQ control.	Humidifier, VisionPRO IAQ control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM509W1005	9 gal per day	34 L per day	1 3/4 in. diameter	44.45 mm diameter	TrueSTEAM 9-gallon model. Does not include control.	Humidifier, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve. Does not include humidistat.
HM512DG115	12 gal per day	46 L per day	1 3/4 in. diameter	44.45 mm diameter	TrueSTEAM 12-gallon with TrueIAQ control.	Humidifier, TrueIAQ digital control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM512VPIAQ	12 gal per day	46 L per day	1 3/4 in. diameter	44.45 mm diameter	TrueSTEAM 12-gallon with VisionPRO IAQ control.	Humidifier, VisionPRO IAQ control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM512W1005	12 gal per day	46 L per day	1 3/4 in. diameter	44.45 mm diameter	Wireless TrueSTEAM 12-gallon model.	Humidifier, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve. Does not include humidistat.
HM512WTHX9	12 gal per day	46 L per day	1 3/4 in. diameter	44.45 mm diameter	TrueSTEAM 12-gallon model with Prestige HD control and RedLINK wireless adaptor.	Humidifier, Prestige control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.

TrueSTEAM Installation Accessories

Product Number	Description
50024917-001	TrueSTEAM 10-Foot Remote Mount Kit. Compatible with all TrueSTEAM models.
50024917-002	TrueSTEAM 20-Foot Remote Mount Kit. Compatible with HM512 and HM509 TrueSTEAM models.
50027910-001	Duct or Remote Mount Differential Pressure Switch

TrueIAQ Control

TrueIAQ® Automatic Digital IAQ Control



Integrate control of you home's humidification, dehumidification, ventilation and even bathroom fans into a single device with Honeywell's TrueIAQ control. TrueIAQ allows you to program your air quality and fan settings individually, or as a system for increased comfort and energy savings. Plus, TrueIAQ will automatically adjust settings for changes in outside temperature and humidity, and provides maintenance reminders to help keep your equipment operating at peak efficiency. For true indoor air quality control, choose TrueIAQ.

- Setting changes can be made easily with the touch of a button.
- Manages humidification, dehumidification, ventilation and bathroom fans from a central point in your home.
- Simultaneously displays both indoor and outdoor temperature and humidity levels on-screen. Automatically adjusts inside settings based on outdoor conditions.
- Include individual air quality enhancements to your system with TrueIAQ®, or integrate them all as part of a total air quality system.
- Intuitive digital backlit display.

Application: Provides humidity control for ducts, greenhouses, computer rooms, printing and photographic laboratories, and other applications where electronic accuracy, as well as remote sensing, is desired.

Type: Steam

Dimensions, Approximate: 19 in. high x 11 1/4 in. wide x 9 in. deep

Mounting: Duct or Remote Mount (up to 20 feet)

Temperature Range: (1.1C-40C)

Voltage: 120 Vac

Color: White

Product Number	Electrical Ratings (120 Vac, Full Load)	Operating Humidity Range (% RH)	Description	Includes	Used With
DG115EZIAQ	2.0A at 24 Vac, humidifier, dehumidifier, vent contacts	95% RH at 95 F, non-condensing	Digital control for IAQ equipment	TrueIAQ control and outdoor sensor for temperature and humidity	Outdoor temp/humidity sensor (included)

HE225; HE265 Bypass Flow-through Humidifier



Bypass Flow-through Humidifiers use the warm air furnace blower to provide whole house humidification.

- Humidifier pad is coated with AGION antimicrobial agent.
- Pre-assembled for quicker installation.
- Small footprint, light weight and reversible components allow for easy mounting on either warm air supply or cold air return of any forced air furnace.
- Interior components designed for quick maintenance and service.
- Option of automatic humidity control or standard humidistat.
- Standard tested per ARI Standard 610.

Application: Humidification

Type: Bypass Flow-Through

Mounting: Duct mount

Voltage: 24 Vac

Frequency: 60 Hz

Electrical Ratings: 0.5A

Color: White and Blue

Approvals:

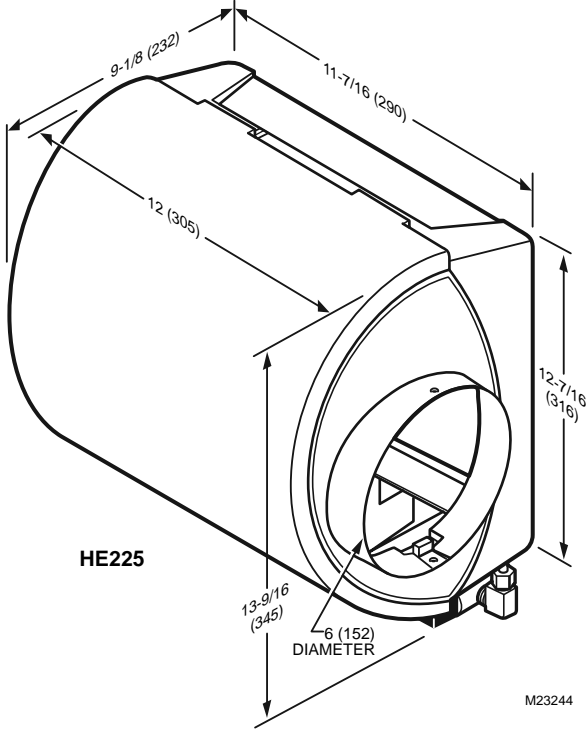
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Product Number	Capacity		Plenum Opening		Description	Includes
	gal. per day	liter per day	(inch)	(mm)		
HE225A1014	12 gal per day	46 L per day	9 7/16 in. high x 9 5/18 in. wide	241 mm high x 238 mm wide	Bypass flow-through humidifier with H8908 control. Includes installation hardware.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, standard humidistat and bypass installation materials.
HE225B1234	12 gal per day	46 L per day	9 7/16 in. high x 9 5/18 in. wide	241 mm high x 238 mm wide	Bypass Flow Through Humidifier with TruelAQ Control. Includes installation hardware.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, automatic humidistat, and bypass installation materials
* HE225DG115	12 gal per day	46 L per day	9 7/16 in. high x 9 5/18 in. wide	241 mm high x 238 mm wide	Bypass flow-through humidifier with TruelAQ digital control.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, automatic humidistat
* HE225VPIAQ	12 gal per day	46 L per day	9 7/16 in. high x 9 5/18 in. wide	241 mm high x 238 mm wide	Bypass flow-through humidifier with VisionPRO IAQ	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, automatic humidistat
HE265A1234	17 gal per day	64 L per day	12 5/8 in. high x 9 3/4 in. wide	321 mm high x 248 mm wide	Bypass Flow Through Humidifier with H8908 Humidistat. Includes installation hardware.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, standard humidistat, and bypass installation materials
HE265B1234	17 gal per day	64 L per day	12 5/8 in. high x 9 3/4 in. wide	321 mm high x 248 mm wide	Bypass Flow Through Humidifier with TruelAQ Control. Includes installation hardware.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, automatic humidistat, and bypass installation materials
* HE265DG115	17 gal per day	64 L per day	12 5/8 in. high x 9 3/4 in. wide	321 mm high x 248 mm wide	Bypass flow-through humidifier with TruelAQ digital control.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, automatic humidistat
* HE265H8908	17 gal per day	64 L per day	12 5/8 in. high x 9 3/4 in. wide	321 mm high x 248 mm wide	Bypass flow-through humidifier with H8908A humidistat.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, standard humidistat
* HE265VPIAQ	17 gal per day	64 L per day	12 5/8 in. high x 9 3/4 in. wide	321 mm high x 248 mm wide	Bypass flow-through humidifier with VisionPRO IAQ	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, automatic humidistat

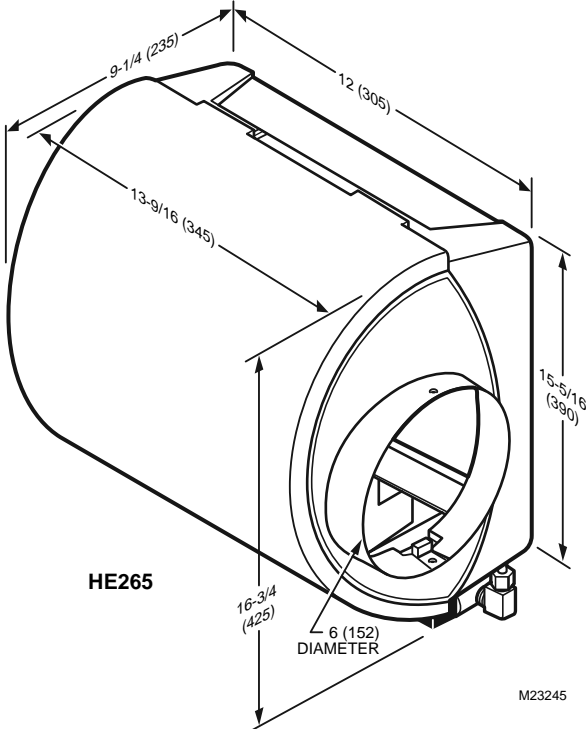
* TRADELINE models • SUPER TRADELINE models

Bypass Humidifiers

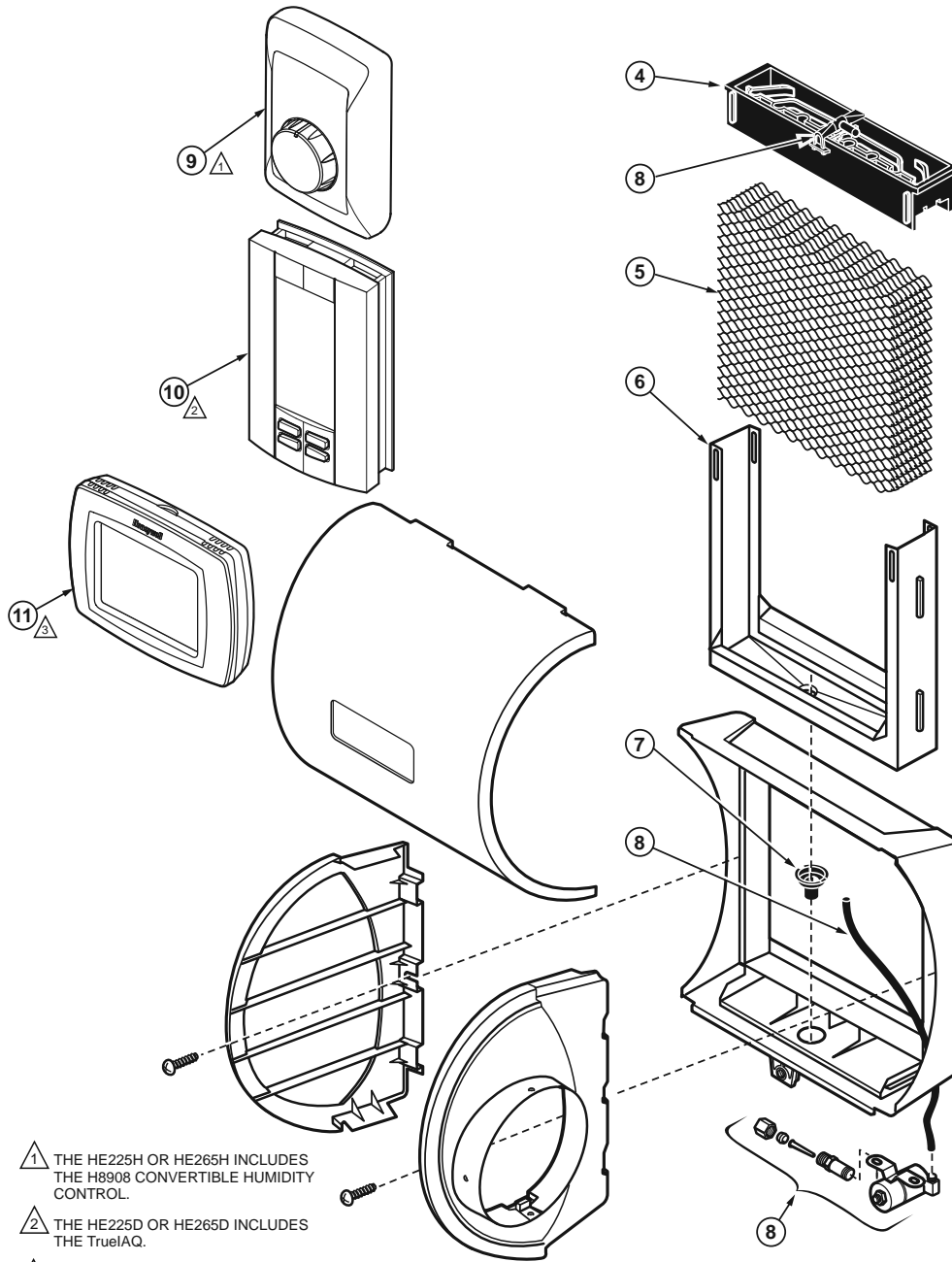
HE225 Dimensions in inches (millimeters)



HE265 Dimensions in inches (millimeters)



HE225 and HE265 Exploded View



- 1 THE HE225H OR HE265H INCLUDES THE H8908 CONVERTIBLE HUMIDITY CONTROL.
- 2 THE HE225D OR HE265D INCLUDES THE TrueIAQ.
- 3 THE HE225V AND HE265V INCLUDES THE VisionPRO IAQ.

No.	Description	HE225 Part Number	HE265 Part Number
4	PerfectFlo™ water distribution tray	32001619-001	32001630-001
5	Humidifier Pad (pad has antimicrobial coating)	HC22E1003	HC26E1004
6	Humidifier Pad Frame	32001621-001	32001632-001
7	Drain fitting	32001615-001	32001615-001
8	Solenoid valve assembly (includes nozzle)	32001639-002	32001639-002
9	H8908 Humidity Control	H8908ASPST	H8908ASPST
10	TrueIAQ Digital Automatic Control with Outdoor Enthalpy Sensor	DG115EZIAQ	DG115EZIAQ
11	VisionPRO IAQ with outdoor temp sensor	YTH9421C1010	YTH9421C1010
—	Hardware Kit for Solenoid Assembly (same as Solenoid valve assembly without the solenoid valve)	32001752-001	32001752-001
—	Current Sensing Relay	32001754-001	32001754-001

M23213A

Indoor Air Quality

Fan Humidifiers

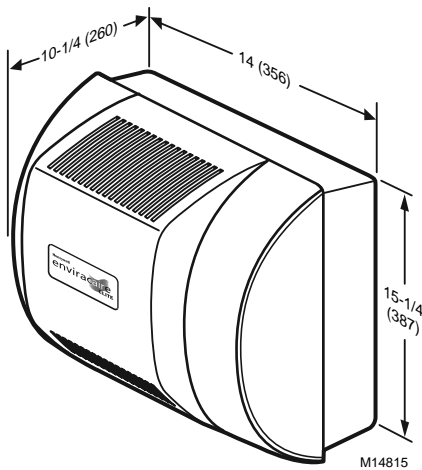
HE365 Fan Flow-through Humidifier



Fan-powered flow-through humidifier uses the warm air furnace blower to provide whole house humidification.

- Humidifier pad is coated with AGION antimicrobial agent.
- Capable of humidifying large areas, up to 3,000 sq. ft.
- Interior components designed for quick maintenance and service.
- Option of automatic humidity control or standard humidistat.
- Standard tested per ARI Standard 610.

Dimensions in inches (millimeters)



Application: Humidification

Type: Fan Powered Flow-Through

Dimensions, Approximate: 15 in. high x 14 in. wide x 10 1/4 in. deep
(387 mm high x 356 mm wide x 260 mm deep)

Mounting: Duct mount

Voltage: 120 Vac

Frequency: 60 Hz

Electrical Ratings: 0.7 A

Color: White and Blue

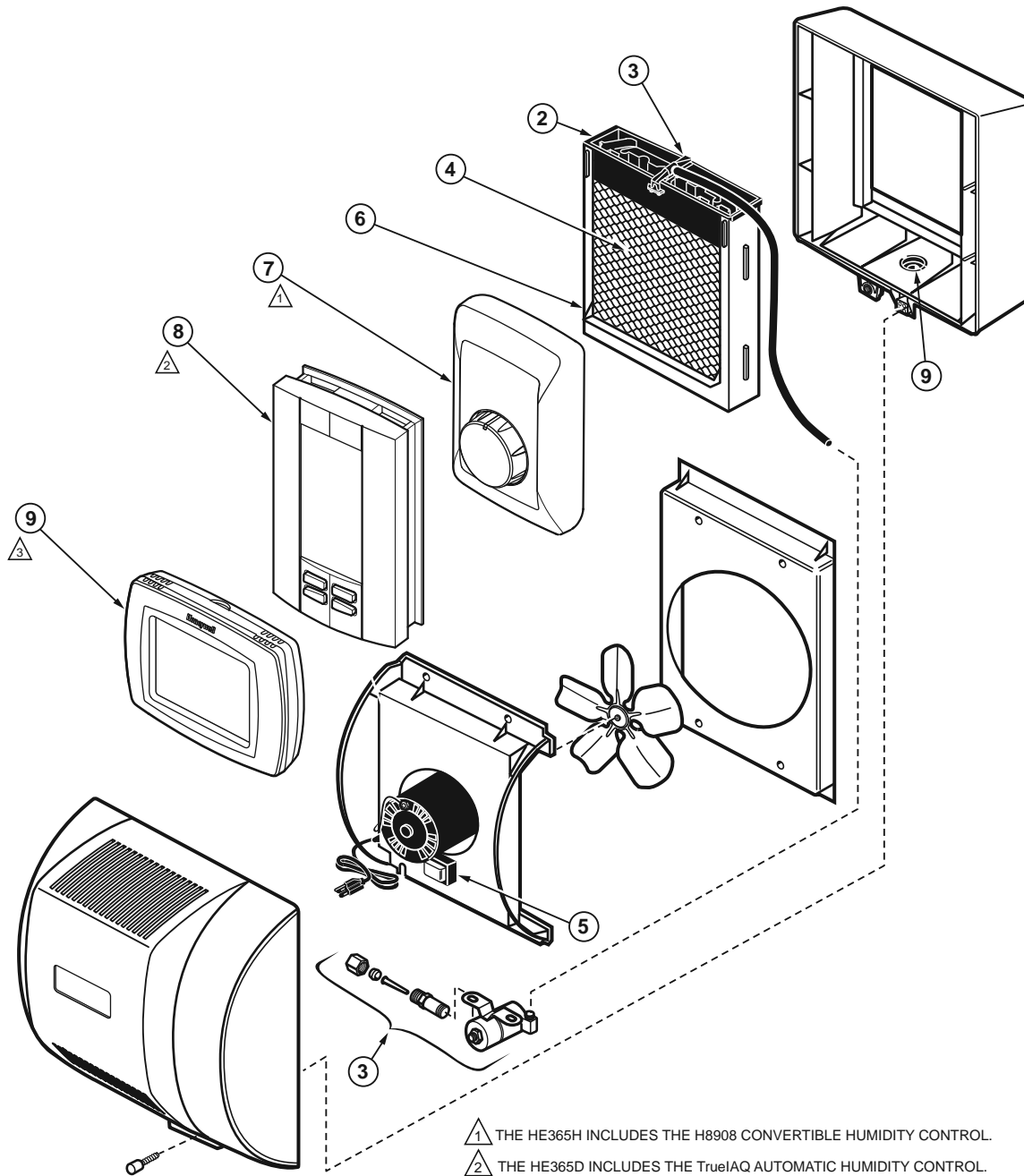
Approvals:

Underwriters Laboratories, Inc. UL/cUL Listed Report E185662

Product Number	Capacity		Plenum Opening		Description	Includes
	gal. per day	liter per day	(inch)	(mm)		
HE365A1234	18 gal per day	68 L per day	14 1/16 in. high x 13 1/2 in. wide	357 mm high x 343 mm wide	Fan-powered flow-through humidifier with H8908 Humidistat. Includes installation hardware.	Humidifier, mounting template, humidifier pad, self-piercing saddle valve, standard humidistat, and installation materials
HE365B1234	18 gal per day	68 L per day	14 1/16 in. high x 13 1/2 in. wide	357 mm high x 343 mm wide	Fan-powered flow-through humidifier with TruelAQ digital control. Includes installation hardware.	Humidifier, mounting template, humidifier pad, self-piercing saddle valve, automatic humidistat, and installation materials
* HE365DG115	18 gal per day	68 L per day	14 1/16 in. high x 13 1/2 in. wide	357 mm high x 343 mm wide	Fan-powered flow-through humidifier with TruelAQ digital control	Humidifier, mounting template, humidifier pad, self-piercing saddle valve, automatic humidistat.
* HE365H8908	18 gal per day	68 L per day	14 1/16 in. high x 13 1/2 in. wide	357 mm high x 343 mm wide	Fan-powered flow-through humidifier with H8908 Humidistat	Humidifier, mounting template, humidifier pad, self-piercing saddle valve, standard Humidistat.
HE365VPIAQ	18 gal per day	68 L per day	14 1/16 in. high x 13 1/2 in. wide	357 mm high x 343 mm wide	Fan-powered flow-through humidifier with VisionPRO IAQ control	Humidifier, mounting template, humidifier pad, self-piercing saddle valve, standard Humidistat.

* TRADELINE models • SUPER TRADELINE models

HE365 Exploded View



- △ 1 THE HE365H INCLUDES THE H8908 CONVERTIBLE HUMIDITY CONTROL.
- 2 THE HE365D INCLUDES THE TrueIAQ AUTOMATIC HUMIDITY CONTROL.
- △ 3 THE HE365V INCLUDES THE VisionPRO IAQ.

No.	Description	HE365 Part Number
2	Water Distribution Tray	32001630-001
3	Solenoid Valve Assembly (includes nozzle)	32001876-001
4	Humidifier Pad (pad has antimicrobial coating)	HC26E1004
5	PWB Assembly (includes transformer)	32001676-001
6	Humidifier Pad Frame	32001632-001
7	H8908 Humidity Control	H8908ASPST
8	TrueIAQ Automatic Humidity Control	DG115EZIAQ
9	VisionPRO IAQ with Outdoor Temp Sensor	YTH9421C1010
10	Drain Fitting	32001615-001
Not shown	Hardware Kit for Solenoid Assembly (same as Solenoid Valve Assembly without the solenoid valve)	32001752-001
—	Current Sensing Relay	32001754-001

M23214A

Humidifier Replacement Pads and Filters

Humidifier Replacement Pads and Filters

Type: Humidifier Replacement Pad
Application: Replacement Pads and Filters



Product Number	Description	Includes	Used With
32000146-001	HE120 Replacement Humidifier Pad (includes clips)	—	HE120
50028044-001	Plumb in-line scale and sediment filter with quick-connect fittings.	1 filter	All Honeywell steam and evaporative humidifiers. Also fits AprilAire evaporative models.
* HC22A1007	HE220 Humidifier Pad	Standard Humidifier Pad	Honeywell HE220, HE225, Aprilaire Models 110, 220, 550, 558
* HC22E1003	HE225 Humidifier Pad with AglON™ Coating	AglON Antimicrobial Humidifier Pad	Honeywell HE220, HE225, Aprilaire Models 110, 220, 550, 558
* HC26A1008	HE260 Humidifier Pad	Standard Humidifier Pad	Honeywell HE260, HE265, HE360, HE365, Aprilaire 350, 360, 560, 568, 600, 700, 760, 768
* HC26E1004	HE265 Humidifier Pad with AglON™ Coating	AglON Antimicrobial Humidifier Pad	Honeywell HE260, HE265, HE360, HE365, Aprilaire 350, 360, 560, 568, 600, 700, 760, 769

* TRADELINE models • SUPER TRADELINE models

Humidifier Parts

Product Number	Description	Used With
32000132-001	HE120 24 Vac Motor	HE120
32000136-001	HE120 Float Valve	HE120
32000149-001	HE420 Safety Float Switch	HE420
32000156-001	HE420 Fan Wiring Assembly	HE420
32000159-001	HE420 Thermal Fan Switch	HE420
32000164-001	HE420 Heating Element	HE420
32000166-001	HE420 Float for Water Fill Valve	HE420
32000167-001	HE420 Water Fill Valve	HE420
32000408-001	HE360, HE365 Feed Tube Nozzle	HE360, HE365
32000429-001	HE360, HE365 Fan Blade	HE360, HE365
32001615-001	HE220, HE225, HE260, HE265, HE360, HE365 Drain Fitting	HE220, HE225, HE260, HE265, HE360, HE365
32001616-001	HE120, HE220, HE225, HE260, HE265, HE360, HE365 Saddle Valve Assembly	HE120, HE220, HE225, HE260, HE265, HE360, HE365
32001619-001	HE220, HE225, HE360A1001 PerfectFlo™ Water Distribution Tray	HE220, HE225, HE360
32001621-001	HE220, HE225 Humidifier Pad Frame	HE220, HE225
32001630-001	HE260, HE265, HE360, HE365 PerfectFlo™ Water Distribution Tray	HE260, HE265, HE360, HE365
32001632-001	HE260, HE265, HE360, HE365 Humidifier Pad Frame	HE260, HE265, HE360, HE365
32001639-002	HE220, HE225, HE260, HE265 Solenoid Valve Assembly (includes water feed tube and nozzle)	HE220, HE225, HE260, HE265
32001652-001	HE220, HE225, HE260, HE265 Transformer (10VA)	HE260, HE265, HE360, HE365
32001676-001	HE360, HE365 Printed Wiring Board Assembly	HE360, HE365

Humidifier Replacement Pads and Filters

Product Number	Description	Used With
32001676-001	HE360, HE365 Printed Wiring Board Assembly	HE360, HE365
32001752-001	HE220, HE225, HE260, HE265, HE360, HE365 Hardware Kit for Solenoid Assembly (does not include solenoid valve)	HE220, HE225, HE260, HE265, HE360, HE365
32001754-001	Current Sensing Relay	HE220, HE225, HE260, HE265, HE360, HE365
32001876-001	HE360, HE365 Solenoid Valve Assembly (includes water feed tube)	HE360, HE365
32006450-001	HE440 Filter Pack	HE440
32006451-001	HE440 Chlorine Filter	HE440
50000240-001	Seasonal damper for bypass humidifier	HE225, HE265
50018841-001	Mounting Bracket for HE420	HE420
50018842-001	Auto Flush Timer for the HE420	HE420
50018844-001	DPST 24V Control Relay for HE420	HE420
50018846-001	Safety Control Shut off for the HE420	HE420
50018847-001	SPDT Relay for HE420	HE420
50019240-001	In-line Chlorine Filter used with a HE420	HE420
50020012-001	Mounting Bracket for TrueSTEAM	—
50027997-001	Solenoid Valve for TrueSTEAM	—
50027998-001	Water Level Sensor Assembly for TrueSTEAM	—
50028001-001	Remote-Mount Nozzles for TrueSTEAM	—
50028003-001	TrueSTEAM Duct Nozzle	—
50028004-001	TrueSTEAM Cover	—
50030142-001	Backflow Prevention Valve for TrueSTEAM	—
50033181-001	Large water Tank for TrueSTEAM HM509 and HM512	—
50033182-001	Small Water Tank for TrueSTEAM HM506	—

Humidity Controllers

H46 Humidity Controller



Provide automatic control of a humidifier or dehumidifier for dehumidification in air conditioning systems.

- Positive ON-OFF settings permit manual operation of controlled equipment.
- Impact-resistant, molded plastic cover mounts on wall.
- Fully enclosed, dust free, SPST, snap-acting switch.
- Sensing element of thin, moisture sensitive nylon ribbon provides reliable operation even when ambient temperature conditions change.

Type: Humidity Control

Dimensions, Approximate:

4 11/16 in. high x 2 15/16 in. wide x 2 1/8 in. deep
(119 mm high x 75 mm wide x 54 mm deep)

Mounting: Wall mount

Temperature Range: 50 F to 125 F (10 C to 52 C)

Differential: 4% to 6% RH

Voltage: 24 Vac; 120 Vac 240 Vac

Product Number	Application	Operating Humidity Range (% RH)	Electrical Ratings						Color	Description
			120 Vac			240 Vac				
			Full Load	Locked Rotor	Resistive	Full Load	Locked Rotor	Resistive		
* H46C1166	Dehumidification	20 to 80% RH	7.5A	30.0A	6.0A	3.8A	15.0A	6.0A	Premier White®	Wall mounted Dehumidistat
* H46D1214	Humidification	10 to 60% RH	4.4A	26.4A	6.0A	2.2A	13.2A	6.0A	Premier White®	Wall mounted Humidistat
* H46E1013	Dehumidification	20 to 80% RH	7.5A	30.0A	6.0A	3.8A	15.0A	6.0A	Beige	Dehumidistat with plug for window Air Conditioner or portable dehumidifier

* TRADELINE models • SUPER TRADELINE models

H600 Humidity Controllers



Operates humidification equipment on RH fall or dehumidification equipment on RH rise.

- Sensing element of thin, moisture sensitive nylon ribbon provides reliable operation even when ambient temperature conditions change.
- Fully enclosed, dust free, SPDT, snap-acting switch.
- Removable setting knob prevents tampering.
- Mount vertically on 2 x 4 in. junction box (not to be duct mounted).
- Includes alternate scale and faceplate for horizontal mounting.

Application: Humidification or Dehumidification

Type: Humidity Control

Dimensions, Approximate:

6 3/16 in. high x 3 3/8 in. wide x 2 1/4 in. deep
(157 mm high x 86 mm wide x 57 mm deep)

Mounting: Wall mount

Temperature Range: 50 F to 125 F (10 C to 52 C)

Differential: 5% RH

Voltage: 24 Vac; 120 Vac; 240 Vac

Color: Gray

Product Number	Operating Humidity Range (% RH)	Electrical Ratings					
		120 Vac			240 Vac		
		Full Load	Locked Rotor	Resistive	Full Load	Locked Rotor	Resistive
* H600A1014	20 to 80% RH	Dehumidifier Contacts 7.5A Humidifier Contacts 4.4 A	Dehumidifier Contacts 30A Humidifier Contacts 26.4 A	Dehumidifier Contacts 6 A Humidifier Contacts 6 A	Dehumidifier Contacts 3.8A Humidifier Contacts 2.2 A	Dehumidifier Contacts 15A Humidifier Contacts 13.2 A	Dehumidifier Contacts 6 A Humidifier Contacts 6 A

* TRADELINE models • SUPER TRADELINE models

H8908 Humidistat/Dehumidistat



The H8908A Humidistat and H8908D Dehumidistat (humidity controllers) provide automatic low voltage control of humidifiers and dehumidifiers or ventilators, respectively, in central heating and air conditioning systems. They have a SPST, snap-acting, dust-proof switch and are designed for wall or surface duct mounting.

- SPST, snap-acting, dust-proof switch and are designed for wall or surface duct mounting.
- Positive ON and OFF settings.
- Twelve-inch ribbon of thin, moisture-sensitive nylon ribbon wound around three bobbins effectively gives optimum control for reliable operation under changing ambient conditions.
- Mounts in duct or on wall surface.

Type: Steam
Dimensions, Approximate: 19 in. high x 11 1/4 in. wide x 9 in. deep (482.6 mm H x 285.75 mm L x 228.6 mm D)
Mounting: Duct or Remote Mount (up to 20 feet/6 meters)
Temperature Range: (1.1C-40C)
Voltage: 24 Vac

Indoor Air Quality

Product Number	Application	Color
H8908ASPST	Provides humidity control for ducts, greenhouses, computer rooms, printing and photographic laboratories, and other applications where electronic accuracy, as well as remote sensing, is desired.	White
H8908DSPST	Provides humidity control for ducts, greenhouses, computer rooms, printing and photographic laboratories, and other applications where electronic accuracy, as well as remote sensing, is desired.	White

* TRADELINE models • SUPER TRADELINE models

Ultraviolet Air Treatment Systems

UV100 Ultraviolet Air Treatment Systems



Airborne pathogens can be circulated and spread in the airflow of residential ductwork. The high intensity energy from Honeywell UV air treatment system has been proven to kill up to 87% of certain airborne bacteria passing by the lamp in a single pass.

- SnapLamp™ features replacement lamp handle with detachable replacement bulb, UC18W or UC36W, to make replacement more economical.
- UV-C light kills airborne bacteria or surface mold.
- Continuously emits ultraviolet energy.
- UV lamp does not produce ozone.
- Sealed unit design prevents accidental installer and homeowner contact with the voltage and with the ultraviolet rays.
- Safe design prevents lamps from lighting unless the base is correctly mounted on the HVAC duct.
- Lamp light indicator to safely view the lamp operation.
- Power cord that plugs into electrical outlet.
- Quick and easy bulb replacement.
- Easy lamp maintenance.
- Optional AIRWATCH™ Indicator can be installed to remind customers when to change bulb.
- To capture and minimize micro-organism pass-through in residential heating, ventilation and air conditioning (HVAC) systems, combine the Ultraviolet System with a high-efficiency air filtration system that includes an electronic air cleaner.

Operating Temperature (inside Duct): 30 F to 140 F (-2 C to +60 C)
Operating Temperature (outside Duct): 30 F to 104 F (-2 C to +40 C)

Replacement Parts:

UC10W1 Replacement Bulb for TrueUV Coil Treatment Systems

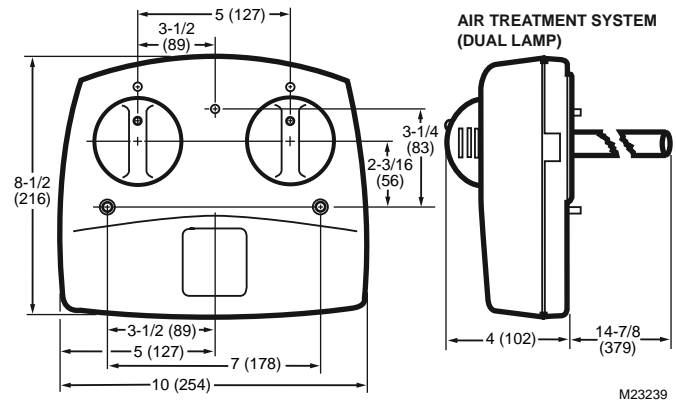
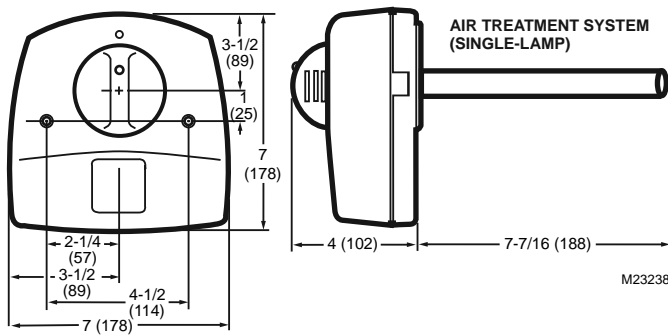
UC18W1004 Replacement Bulb for 18W Single Lamp Return Air Models

UC36W1006 Replacement Bulb for 36W Dual Lamp Return Air Models and Coil Irradiation Models

Product Number	Application Type	Contaminants Reduced	Electrical Ratings		Description
			(Vac)	(Watts)	
UV100A1059	Return Air or Coil Irradiation Application	Airborne Bacteria, Surface Mold	120 Vac	36W	Ultraviolet Surface Treatment or Air Treatment System, Coil Plus Model
UV100A2008	Return Air or Coil Irradiation Application	Airborne Bacteria, Surface Mold	240 Vac	36W	Ultraviolet Surface Treatment or Air Treatment System, Coil Plus Model, 240V
UV100E1043	Return Air Application	Airborne Bacteria	120 Vac	18W	SmartLamp Ultraviolet Air Treatment System, Single Lamp Return Air Model
UV100E2009	Return Air Application	Airborne Bacteria	120 Vac	36W each	SmartLamp Ultraviolet Air Treatment System, Dual Lamp Return Air Model
UV100E3007	Coil Irradiation Application	Surface Mold	120 Vac	36W	SmartLamp Ultraviolet Surface Treatment System, Coil Irradiation Model
UV100RM1	Coil Irradiation Application	Surface Mold	24 Vac/dc, 15 VA	10W	Low voltage ultraviolet treatment system with remote mount capability

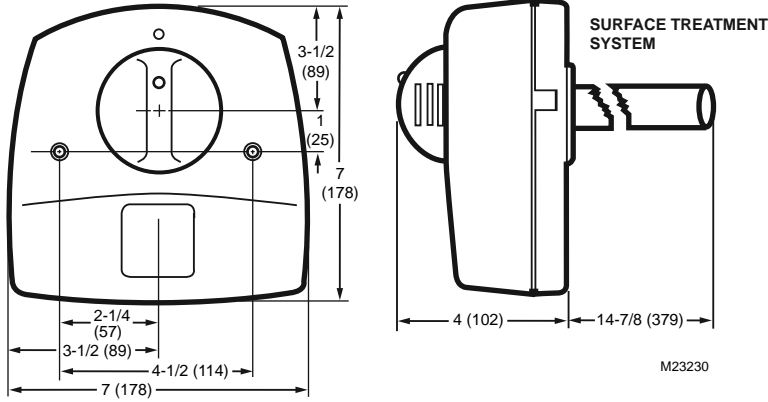
Dimensions in inches (millimeters) for single bulb models

Dimensions in inches (millimeters) for dual bulb models

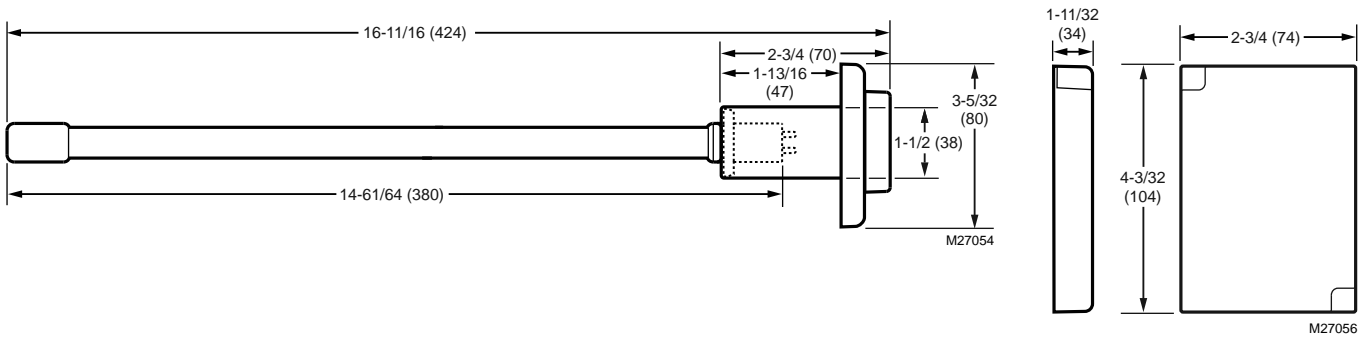


Ultraviolet Air Treatment Systems

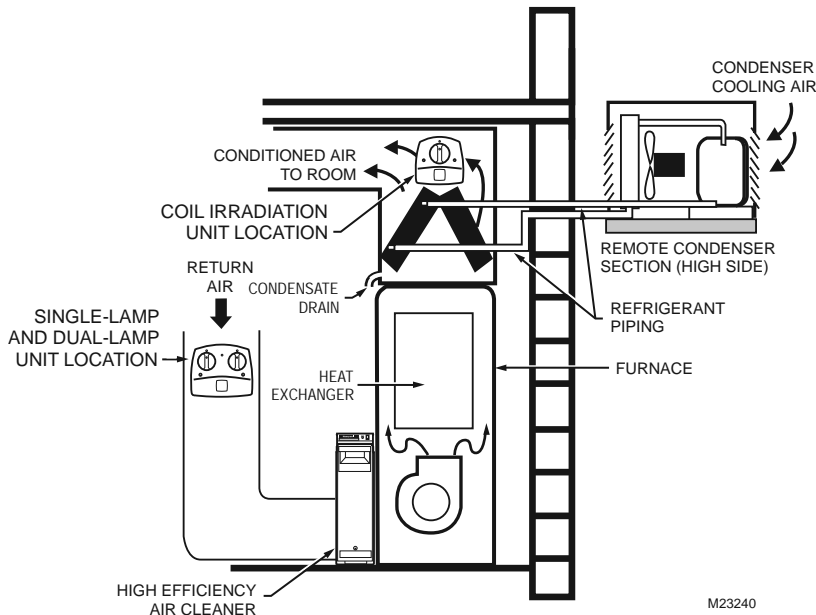
Dimensions in inches (millimeters) for long bulb models



Dimensions in inches (millimeters) for low voltage models



Possible mounting locations for Ultraviolet Air Treatment Systems



Ultraviolet Air Treatment Systems

Replacement Lamp Ultraviolet Air Treatment System

The UC100 Ultraviolet Air Treatment System Replacement Lamp is for use with the UV100 Ultraviolet Air Treatment System.



Product Number	Application Type	Electrical Ratings (Watts)	Description	Used With
UC100A1005	Replacement Lamp	18W	Replacement SnapLamp for UV100A1000, brown handle	UV100A1000
UC100A1054	Replacement Lamp	36W	Replacement SnapLamp for UV100A1059 and UV100A2008, brown handle.	UV100A1018, UV100A1059
UC100E1006	Replacement Lamp	18W	Replacement SnapLamp for UV100E1001 and UV100E1043, blue handle.	UV100E1001, UV100E1043
UC100E1030	Replacement Lamp	36W	Replacement SnapLamp for UV100E3007, UV100E1035, UV100A1059 and UV100A2008, blue handle.	UV100A1018, UV100E3007, UV100E1035, UV100A2009, UV100A1059, UV100A2008
UC10W1	Replacement Bulb	10W	Replacement bulb for TrueUV	UV100RM1
UC18W1004	Replacement Bulb	18W	Replacement Bulb for 18W SnapLamp Models	UC100A1005, UC100E1006, UV100A1000, UV100E1043
UC36W1006	Replacement Bulb	36W	Replacement Bulb for 36W SnapLamp Models	UC100A1013, UC100A1054, UC100E1014, UC100E1030, UV100A1018, UV100A1059, UV100A2008, UV100E2009, UV100E3007

Fresh Air Ventilation Systems

ER150; ER200 Energy Recovery Fresh Air Ventilation Systems



Perfect Window® Fresh Air Energy Recovery Ventilation Systems Energy Recovery Ventilators provide proper levels of ventilation with energy savings by transferring heat and moisture between the exhaust and fresh air streams.

- Includes heat/energy transfer core, pre-filters, and fan and blower assembly.
- Provides ventilation that helps contractors meet ASHRAE 62-89.
- Electronic ventilation fan timer option.
- Low voltage, high-speed override.
- Variable fan speed control.
- Easy-to-clean with a vacuum, cross-flow enthalpic core assures years of trouble-free operation.
- Insulated cabinet.
- Rugged steel cabinet.
- Quiet operation.
- Permanent (washable) pre-filters.
- Integral balancing dampers.
- Includes vibration isolation hardware and duct collars.

Application: Energy Recovery Ventilator

Type of Core: Enthalpy cross flow core

Electrical Ratings: 120 Vac

Frequency: 60 Hz

Moisture Transfer Ratio: 0.26

Temperature Recovery: 0.79

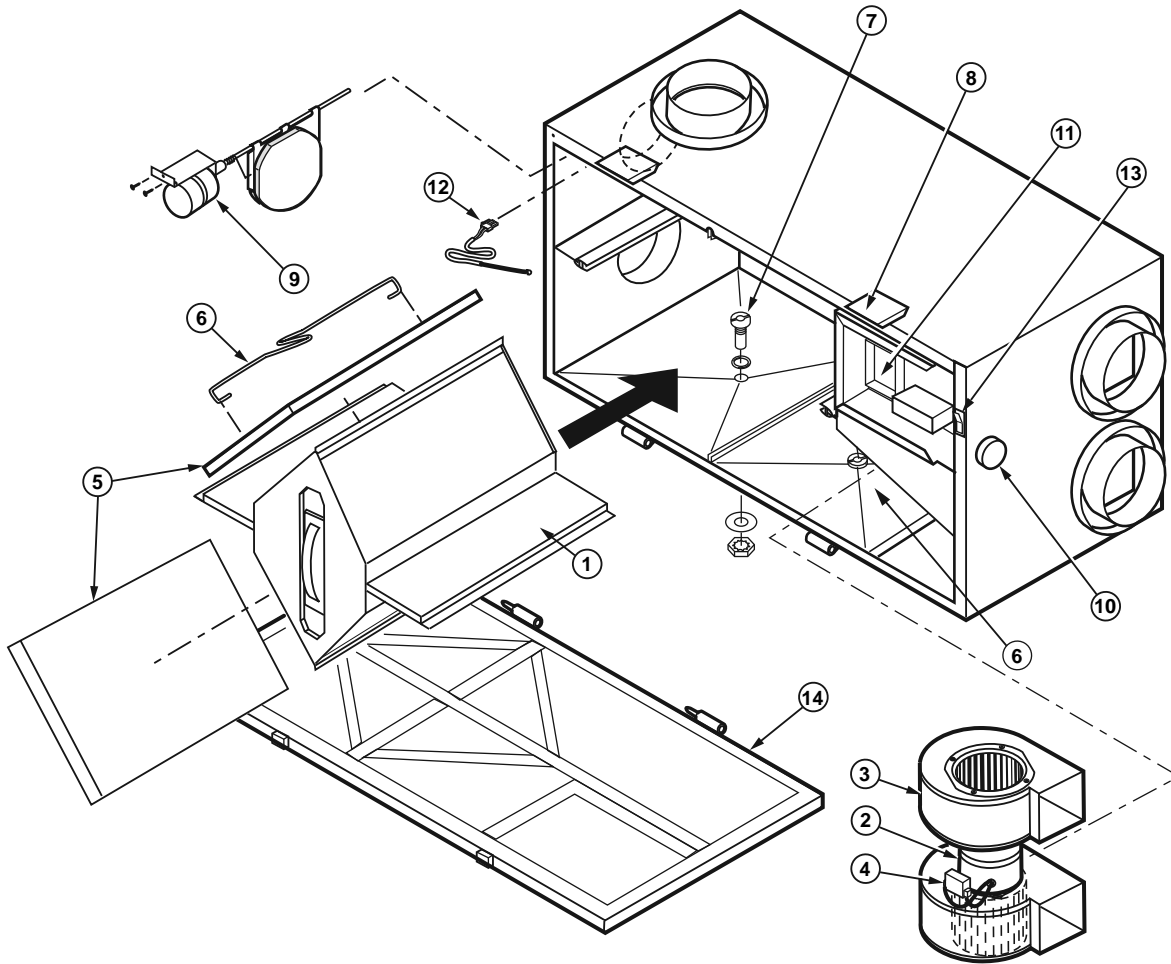
Indoor Air Quality

	Product Number	Airflow Capacity (external static pressure)	Characteristics	Current Draw, Nominal		Defrost Control
				(maximum speed)	(minimum speed)	
*	ER150B2006	150 cfm (0.1 in. wc)	Energy Recovery Ventilator 150 CFM	1.7 A	0.7 A	Built-in Defrost
*	ER150C2004	150 cfm (0.1 in. wc)	Energy Recovery Ventilator 150 CFM, no defrost	1.7 A	0.7 A	No Defrost
*	ER200B2006	208 cfm (0.2 in. wc)	Energy Recovery Ventilator 200 CFM	1.7 A	0.8 A	Built-in Defrost
*	ER200C2004	208 cfm (0.2 in. wc)	Energy Recovery Ventilator 200 CFM, no defrost	1.7 A	0.8 A	No Defrost

* TRADELINE models • SUPER TRADELINE models

Fresh Air Ventilation Systems

ER150 and ER200 Exploded View and Replacement parts



No.	Description	Part Number for ER150 or ER200
1	Cross-Flow Enthalpy Core, with Guide Channels	32002074-001
2	Blower Motor	208359
3	Blower Housing Kit	50002341-001
4	Motor Capacitor	209711
5	Foam Prefilter, Set of two	32002114-001
6	Clip for Foam Prefilter	209722
7	Drain Spout	208514
8	Door Latch, Complete	208520
9	Defrost Damper Motor, Bi-directional	209715
10	Manual Speed Control, 5-Position	208383
11	Electronic Control Kit (Control Board, Transformer)	50002342-001
12	Thermistor Assembly	208365
13	Door Interlock Switch	208368
14	Door	50002340-001

Parts and Accessories Not Illustrated

Part Number	Description
208374	Diffuser—5 in. diameter
208375	Diffuser—6 in. diameter
208379	Installation Parts Kit
208372	Airflow Balancing Kit*
W8150A1001	Fresh Air Ventilation Control
32003487-001	Digital Fan Timer, 20-minute

Obsolete (available while supplies last)

M23217A

Fresh Air Ventilation Systems

HR150; HR200 Perfect Window® Fresh Air Ventilation Systems



Perfect Window® Fresh Air Heat Recovery Ventilation Systems is a heat recovery ventilator that provide proper levels of ventilation with energy savings by transferring heat between the exhaust and fresh air streams.

- Includes heat transfer core, pre-filters, fan and blower assembly, and defrost.
- Provides ventilation that helps contractors meet ASHRAE 62-89.
- Automatic, economical, built-in defrost for operation to design temperatures of -40F.
- Electronic ventilation fan timer option.
- Low voltage, high-speed override.
- Variable fan speed control.
- Easy-to-clean cross-flow aluminum core assures years of trouble-free operation.
- Insulated cabinet.
- Rugged steel cabinet.
- Quiet operation.
- Permanent (washable) pre-filters.
- Integral balancing dampers.
- Includes vibration isolation hardware and duct collars.

Application: Heat Recovery Ventilator
Type of Core: Aluminum cross flow core
Electrical Ratings: 120 Vac

Frequency: 60 Hz
Temperature Recovery: 0.8

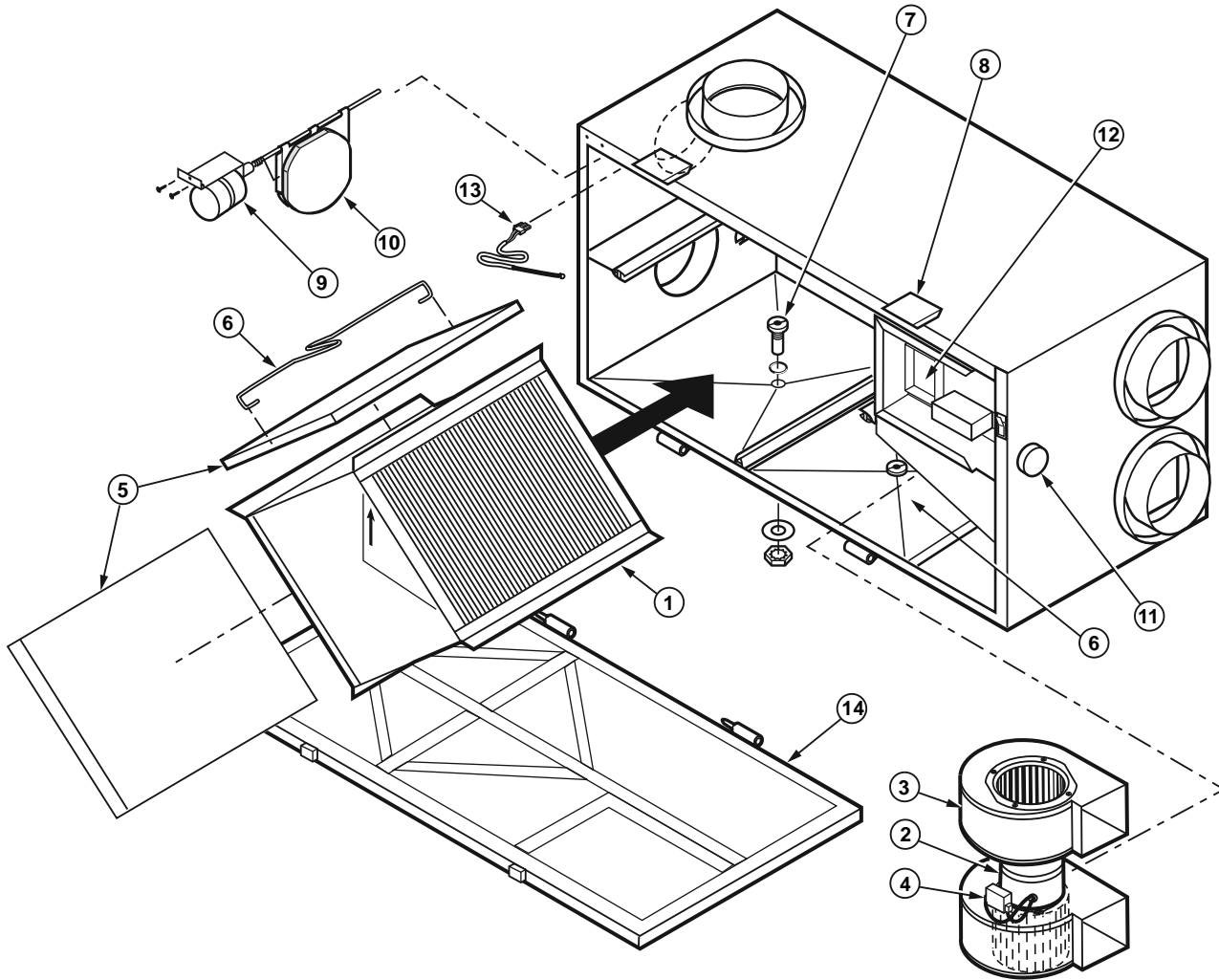
Indoor Air Quality

	Product Number	Airflow Capacity (external static pressure)	Characteristics	Current Draw, Nominal		Defrost Control
				(maximum speed)	(minimum speed)	
*	HR150B1005	188 cfm (0.2 in. wc)	Heat Recovery Ventilator 150 CFM	1.7 A	0.7 A	Built-in Defrost
*	HR200B1005	206 cfm (0.2 in. wc)	Heat Recovery Ventilator 200 CFM	1.7 A	0.8 A	Built-in Defrost

* TRADELINE models • SUPER TRADELINE models

Fresh Air Ventilation Systems

Perfect Window Fresh Air Ventilation System Exploded View



No.	Description	Part Number for
		HR150B or HR200B
1	Heat Transfer Core, Aluminum with Plastic Frame	209746
2	Blower Motor	208359
3	Blower Housing Kit	50002341-001
4	Motor Capacitor	209711
5	Foam Prefilter, Set of 2	209723
6	Clip for Foam Prefilter	209722
7	Drain Spout	208514
8	Door Latch, Complete	208520
9	Defrost Damper Motor, Bi-directional	209715
10	Manual Speed Control, 5-Position	208383
12	Electronic Control Kit (Control Board, Transformer)	50002342-001
13	Thermistor Assembly	208365
14	Door	50002340-001

Parts and Accessories Not Illustrated

Part Number	Description
208374	Diffuser—5 in. diameter
208375	Diffuser—6 in. diameter
208379	Installation Parts Kit
208372	Airflow Balancing Kit*
W8150A1001	Fresh Air Ventilation Control
32003487-001	Digital Fan Timer, 20-minute

*Includes magnehelic pressure gauge and two 6 in. flow measuring stations.

Obsolete (available while supplies last)

M23216A

Bath Fan Control/Fresh Air Ventilation

Digital Bath Fan Control



Every home can benefit from proper ventilation. Honeywell's new Digital Bath Fan Control can operate a bath fan to meet ASHRAE 62.2 ventilation standards, allowing you to offer increased ventilation control that is smart, affordable and efficient.

- Installs in place of a normal switch.
- Manually turn fan on/off or program to run at certain times of day for increased energy efficiency and convenience.
- Can run in timer mode up to 60 minutes.
- Meets ASHRAE 62.2 Ventilation Standard, required or recommended in most states and provinces for new construction or whenever a permit is required.
- Easy-to-see backlit display shows current time to keep you on schedule when getting ready.

Indoor Air Quality

Application: Fresh Air Ventilation Control

	Product Number	Characteristics
*	HVC0001	Color White
*	HVC0002	Color Biscuit
* TRADELINE models • SUPER TRADELINE models		

Y8150, W8150 Fresh Air Ventilation



The Y8150 Fresh Air Ventilation System provides fresh air to a home. The control operates a fresh air intake damper and, when necessary, activates the main HVAC blower to efficiently meet ASHRAE ventilation rates.

- Designed to help meet local ventilation codes and standards, including ASHRAE 62.2-2003 standard, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.
- Microcontroller optimizes the air delivery schedule to make efficient use of normal HVAC run times.
- Easy-to-use input dials allow customized ventilation for each installation.
- Test mode that includes immediate feedback to installer to confirm that air delivery requirements of selected ventilation standard are being met.
- Economical supply-only ventilation; works with forced air system.
- Can be used with other equipment, such as an HRV/ ERV, for balanced ventilation.

Application: Fresh Air Ventilation System

Electrical Ratings: 24 Vac

Product Number	Airflow Capacity (external static pressure)	Characteristics	Current Draw, Nominal	Used With
			(minimum speed)	
* W8150A1001	50 to 160 cfm	Includes W8150A Fresh Air Ventilation Control, mounting hardware, homeowner information label	0.6 A	EARD6, ER200B, ER200C, ER150C, ER150B, HR200B, HR150B
* Y8150A1009	50 to 160 cfm	Includes W8150A Fresh Air Ventilation Control, EARD6 normally closed 6 inch damper, AT120B 120Vac/24Vac 20VA transformer, mounting hardware for control, homeowner information label	0.6 A	—
* TRADELINE models • SUPER TRADELINE models				

Fresh Air Ventilation

Residential Ventilation Accessories

Product Number	Description	Used With
208379	Installation Parts Kit for HR150B, HR200B, ER150B, ER200B, ER150C	HR150B; HR200B; ER150B; ER150C; ER200C; ER200B;
209718	Auto Transformer	HR150B; HR200B; ER150B; ER150C; ER200C; ER200B;
32003214-001	Weather Hood Kit	HR150B; HR200B; ER150B; ER150C; ER200C; ER200B;
32003248-001	Blower Interface Kit	HR150B; HR200B; ER150B; ER150C; ER200C; ER200B;
32003487-001	20 Minute Digital Fan Timer	HR150B; HR200B; ER150B; ER150C; ER200C; ER200B;
50002342-001	Electronic Control Kit (includes Control Board and Transformer) for ER150, ER200, HR150, HR200	HR150B; HR200B; ER150B; ER150C; ER200C; ER200B;

Residential Ventilation Replacement Parts

Product Number	Description	Used With
208359	Blower Motor for HR150B, HR200B, ER150B, ER200B, ER150C	HR150B; HR200B; ER150B; ER150C; ER200C; ER200B;
208369	Auto Transformer	HR150C; HR200C;
208383	Manual Speed Control, 5-position, for HR150B, HR200B, ER150B, ER200B, ER150C	HR150B; HR200B; ER150B; ER150C; ER200C; ER200B;
208515	Drain "T" Fitting HR150B, HR200B, ER150B, ER200B	HR150B; HR200B; ER150B; ER150C; ER200C; ER200B;
208521	Defrost Damper Motor, Spring Return	HR150C; HR200C;
209711	Motor Capacitor for HR150B, HR200B, ER150B, ER200B, ER150C	HR150B; HR200B; ER150B; ER150C; ER200C; ER200B;
209715	Defrost Damper Motor, Power Return	HR150B; HR200B; ER150B; ER200B;
209719	Manual Control Circuit Board	HR150B; HR200B; ER150B; ER150C; ER200C;
209722	Filter Clip	HR150B; HR200B; ER150B; ER150C; ER200C;
209723	Foam Filter	HR150B; HR200B;
209746	Aluminum heat transfer core for Fresh Air Ventilation systems	HR150; HR200;
32002074-001	Cross Flow Enthalpy Core	ER150B; ER150C; ER200C;
32002114-001	Foam Prefilter	ER150B; ER150C; ER200C;

S688 Sail Switch



The Sail Switch activates an electronic air cleaner, a humidifier, or other equipment in response to airflow from the system fan. The S688A is mounted in the return air duct where the sail will be in the direct path of an unrestricted air stream.

- Simplified installations with multi-speed fans, in-accessible air handlers, fan motors with voltage or phase different from controlled equipment; eliminated wiring to system fan.
- Polyester film sail mounted on a micro switch snap switch.
- Removable spring counterbalances sail to allow mounting in either vertical (up or down) or horizontal air flow.
- Top and bottom conduit knockouts for wiring convenience.
- Low air velocity switch operation makes at 250 fpm and breaks at 75 fpm.

Indoor Air Quality

Dimensions, Approximate: 2 15/16 in. high x 3 3/4 in. wide x 2 in. deep (59 mm high x 95 mm wide x 51 mm deep)

Sail Dimensions: 5 in. wide (max), 26.2 sq. in. of area (127 mm wide (max), 16,903 mm²)

Insertion Length: 10 in (254 mm)

Maximum Ambient Temperature: At switches: 125 F; At sail: 170 F (At switches: 52C; At sail: 77 C)

Approvals:

Canadian Standards Association: Certified

Underwriters Laboratories, Inc. UL Listed: File No. E4436, Guide No. XAPX. For use in ambient temperatures normally prevailing in occupiable spaces, which usually are not higher than 77 F (25 C) but occasionally may be as high as 104 F (40 C) for brief periods.

Product Number	Contact Ratings			Switching	Operating Velocity	
	(ALR)	(AFL)	(Resistive)		(fpm)	(m/s)
S688A1007	N.O.Contacts: 12.0 A @ 24 Vac, 120 Vac N.O.Contacts: 6.0 A @ 240 Vac N.C.Contacts: 6.0 A @ 24 Vac, 120 Vac N.C.Contacts: 3.0 A @ 240 Vac	N.O.Contacts: 2.0 A @ 24 Vac, 120 Vac N.O.Contacts: 1.0 A @ 240 Vac N.C.Contacts: 1.0 A @ 24 Vac, 120 Vac N.C.Contacts: 0.5 A @ 240 Vac	N.O.Contacts: 5.0 A @ 24 Vac, 120 Vac N.O.Contacts: 2.5 A @ 240 Vac N.C.Contacts: 2.5 A @ 24 Vac, 120 Vac, 240 Vac	SPDT	75 fpm-250 fpm	0.4 m/s-22.9 m/s

Sail Switch Accessories

Product Number	Description	Used With
123773A	Sail assembly for S688A	S688A

Carbon Monoxide Alarm

C8600 Carbon Monoxide Alarm



Mounting: Wall, Ceiling Mounted
Color: Premier White®

Residential Carbon Monoxide Alarm with the most reliable detection technology available.

- The only biotechnology-based infrared-gas sensor that mimics the human response to carbon monoxide.
- Detects low levels of carbon monoxide (70 parts per million).
- Detects toxic CO gas resulting from incomplete combustion such as emitted from appliances, furnaces, fireplaces and auto exhaust.
- Quick recovery-Rapidly returns to its original state when carbon monoxide is eliminated from the environment.
- Every unit is 100% gas-tested to ensure accurate, timely response.
- Microprocessor intelligence-Self-tests every 10 minutes.
- Supervises sensor and alarm circuit status to ensure protection.
- Easy to install-no wiring, battery operation lets you locate the unit almost anywhere.
- Energy easing design extends battery life to more than one year under normal use.
- Low battery warning, chirps, and LED double flashes.
- Test/Retest button.

Approvals:
Underwriters Laboratories, Inc. 2034 Standard, c-UL Standard

	Product Number	Dimensions, Approximate		LEDs	Includes
		(inch)	(mm)		
*	C8600A1000	4 3/4 in. diameter x 1 1/2 in. high	121 mm diameter x 38 mm high	Status and Diagnostic	9 volt alkaline battery
* TRADELINE models • SUPER TRADELINE models					

Combination Gas Controls

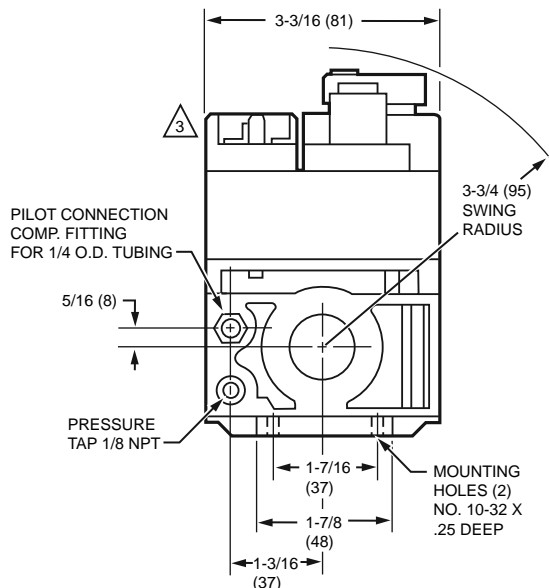
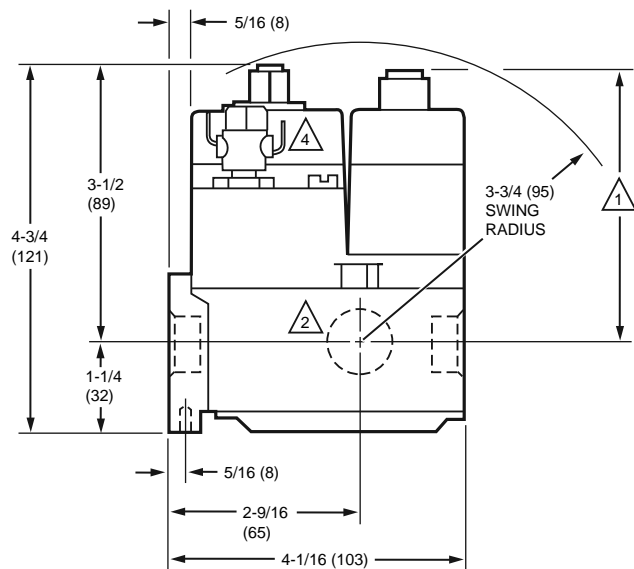
V400 Line Voltage; V800 Low Voltage Combination Gas Controls



Used on gas fired standing pilot appliances with 30 mV thermocouple. These gas controls include a manual gas valve, safety shutoff, single millivoltage automatic operator, and pressure regulator, pilot gas filter and flow adjustment, pressure tapping, and thermocouple connector. V800 is used on 24V systems.

- Include pilot flow adjustment screw.
- Easy to install, adjust and service; all adjustments and connections are accessible from top of control.
- Add separate energy cutoff (ECO) where codes call for dual safety shutoff.
- Complete safety shutoff on pilot flame failure.
- LITE-RITE (OFF-PILOT-ON) lighting sequence.
- ECO connector for V800 models. Part No. 392451-1.

Dimensions in inches (millimeters)



1 WITH V5306 (ILLUSTRATED), V5307 OR 5390 PRESSURE REGULATOR: 24V MODELS-3-1/2 (89), 120V MODEL-3-5/8 (92) MANUAL MODELS-2-13/16 (71), FOR V5308 ADD 5/8 (16) TO DIMENSIONS GIVEN.

2 SIDE OUTLETS-LEFT AND RIGHT HAND. STANDARD ONLY ON TRADELINE MODELS.

3 CONTROL WITH 24V VALVE OPERATOR SHOWN. LINE VOLT MODEL HAS COVER FOR CONDUIT CONNECTION (TOP SURFACE).

M16547A

4 ECO CONNECTOR ON STANDARD CAPACITY V800 ONLY.

Type: Single Stage

Body Pattern: Straight-through, multi-tapped with 1/2 in. right and left outlets plugged

Capacity @ 1 in. p.d. 335,000 BTU/hr; 295,000 BTU/hr minimum

Ignition Type: Standing Pilot

Ambient Temperature Range: 32 F to 175 F (0 C to 79 C)

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. NPT with plug

Frequency: 60 Hz

Pilot Gas Outlet: Compression fitting for 1/4 in. OD tubing

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Approvals:

American Gas Association: AGA Design Certified; File No. L2025003, CGA Design Certified; File No. L2025003, UL Component Recognized.

Underwriters Laboratories, Inc. UL Component Recognized.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Electrical Ratings	Includes
				(psi)	(kPa)		
• V400A1095	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa	120 Vac	Two 3/4 x 1/2 in.; One 1/2 x 3/8 in. Reducer Bushing/Adapters
V400C1036	Natural	Step Opening	3/4 in. x 3/4 in.	Full Rate: 3.5 in. wc; Step Setting: 0.7 in. wc	Full Rate: 0.87 kPa; Step Setting: 0.17 kPa	120 Vac	—
* V800A1070	Natural or LP	Standard	1/2 in. x 3/4 in.	3.5 in. wc	0.87 kPa	24 Vac	One 1/2 in. x 3/8 in. reducer bushing, One 3/4 in. x 1/2 in. reducer bushing, Q340 Thermocouple, Natural to LP Conversion Kit

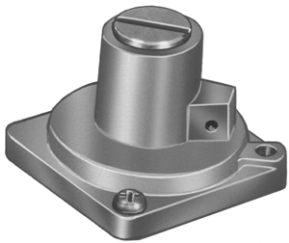
* TRADELINE models • SUPER TRADELINE models

Combination Gas Controls

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Electrical Ratings	Includes
				(psi)	(kPa)		
* V800A1088	Natural or LP	Standard	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa	24 Vac	One 1/2 in. x 3/8 in. reducer bushing, One 3/4 in. x 1/2 in. reducer bushing, Q340 Thermocouple, Natural to LP Conversion Kit
* V800A1476	Natural or LP	Standard	1/2 in. x 3/4 in.	3.5 in. wc	0.87 kPa	24 Vac	Natural to LP Conversion Kit
* V800A1591	Natural or LP	Standard	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa	24 Vac	Natural to LP Conversion Kit, Two 3/4 x 1/2 in. reducer bushings
* V800C1052	Natural	Step Opening	3/4 in. x 3/4 in.	Full Rate: 3.5 in. wc; Step Setting: 0.9 in. wc	Full Rate: 0.87 kPa; Step Setting: 0.22 kPa	24 Vac	Two 3/4 x 1/2 in.; One 1/2 x 3/8 in. Reducer Bushing/Adapters

* TRADELINE models • SUPER TRADELINE models

Pressure Regulators—Standard and Step Opening



Servo gas pressure regulator for add-on or replacement use on Honeywell V400, V800, VR400, VR800 and VR8440 Combination gas controls. Utilizing the servo principle of operation, it controls burner manifold pressure by repositioning the main valve diaphragm.

- Interchangeable and adapt to all pipe sizes and capacities.
- Mount on top surface of control. Installation and adjustment readily accomplished with a screwdriver.

Mounting: Top surface of combination gas control (two mounting screws and a gasket).

Pressure Ratings: 1/2 psi (3.5 kPa)

Temperature Range: -40 F to +175 F (-40 C to +79 C)

Product Number	Type of Gas	Opening Characteristics (standard, step)	Pressure Regulator Setting
* V5306B1009	Natural	Standard Opening	3.5 in. wc; adj. range 3-5 in. wc
V5306B1033	LP	Standard Opening	11.0 in. wc; adj. range 8-12 in. wc

* TRADELINE models • SUPER TRADELINE models

Combination Gas Controls

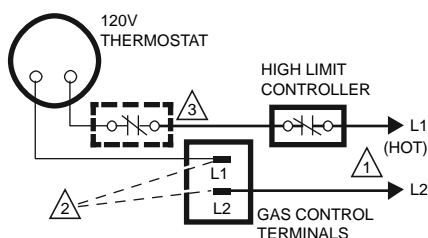
VR4300 Continuous Pilot Dual Automatic Valve Combination Gas Control



Combination gas control for use in 120 Vac, gas-fired, standing pilot appliances with capacities from 30 to 300 cfh.

- Control includes safety shutoff, manual valve, two automatic operators, pressure regulator and pilot adjustment.
- Compact size.
- Provides two automatic valves.
- Solenoid operated first automatic valve opens on thermostat call for heat, closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meets codes requiring dual safety shut-off.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- All adjustments, wiring connections and pilot outlet are accessible from top of control.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- Compatible with ECO connector.
- LITE-RITE (OFF-PILOT-ON) lighting sequence.

Wiring connections for 120 volt control



1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 DO NOT JUMPER THESE TERMINALS. THIS SHORTS VALVE COIL AND MAY BURN OUT ANTICIPATOR IN THERMOSTAT.

3 OPTIONAL HIGH LIMIT.

M3092B

Type: Single Stage

Body Pattern: Straight-through with flange

Capacity @ 1 in. p.d. 300,000 BTU/hr; 30,000 BTU/hr minimum

Anticipator Setting: 0.13 A

Ignition Type: Standing Pilot

Ambient Temperature Range: 0 F to 175 F (-18 C to +79 C)

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. NPT with plug

Electrical Ratings: 120 Vac

Frequency: 60 Hz

Pilot Gas Outlet: Compression fitting for 1/4 in. OD tubing

Electrical Connections: 1/4 in. male quick connects; 24 in. (610 mm) leadwire.

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Includes: One 1/2 in. x 3/8 in. reducer bushing, Two 3/4 x 1/2 in. reducer bushings, 393691 Natural to LP gas conversion kit.

Approvals:

American Gas Association: AGA Design Certified: File No. L2025006; CGA Design Certified: File No. L2025006

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Electrical Ratings
				(psi)	(kPa)	
* VR4300A4502	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa	120 Vac

* TRADELINE models • SUPER TRADELINE models

Combination Gas Controls

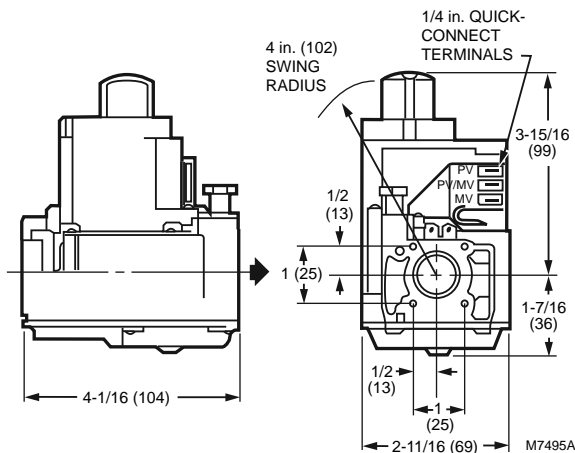
VR8200 Continuous Pilot Dual Automatic Valve Combination Gas Controls



Combination gas controls for use in 24 Vac, gas-fired, standing pilot appliances with capacities from 20 to 200 cfh.

- Controls include manual valve, two automatic operators, servo pressure regulator and pilot adjustment.
- Compact size.
- Provide two automatic valves.
- Solenoid-operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meet codes requiring dual safety shutoff.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- LITE-RITE (OFF-PILOT-ON) lighting sequence.
- All adjustments, wiring connections and pilot outlet are accessible from top of control.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- Compatible with ECO connector.

Dimensions in inches (millimeters)



Type: Single Stage

Body Pattern: Straight-through

Capacity @ 1 in. p.d. 130,000 BTU/hr; 20,000 BTU/hr minimum

Anticipator Setting: 0.5 A

Ignition Type: Standing Pilot

Ambient Temperature Range: 0 F to 175 F (-18 C to +79 C)

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. NPT with plug

Electrical Ratings: 24 Vac

Frequency: 60 Hz

Pilot Gas Outlet: Compression fitting for 1/4 in. OD tubing

Electrical Connections: Combination screw and 1/4 in. male quick connects.

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Approvals:

American Gas Association: AGA Design Certificate: L2025006

Australian Gas Association: Australian Gas Assoc. Design

Certificate: 4214; Approved for Delta C Applications

Canadian Gas Association: CGA Design Certificate: L2025006

Underwriters Laboratories, Inc. UL Component Recognized: MH5323

	Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Includes
					(psi)	(kPa)	
•	VR8200A2124	Natural	Standard	1/2 in. x 1/2 in.	3.5 in. wc	0.87 kPa	One 3/4 in. straight flange One 1/2 in. x 3/8 in. reducer bushing Q340 Thermocouple Natural to LP Conversion Kit
*	VR8200A2132	Natural	Standard	1/2 in. x 1/2 in.	3.5 in. wc	0.87 kPa	One 3/4 in. straight flange One 1/2 in. x 3/8 in. reducer bushing Natural to LP Conversion Kit
*	VR8200H1251	Natural	Slow Opening	1/2 in. x 1/2 in.	3.5 in. wc	0.87 kPa	One 3/4 in. straight flange One 1/2 in. x 3/8 in. reducer bushing Natural to LP Conversion Kit

* TRADELINE models • SUPER TRADELINE models

VR8300 Continuous Pilot Dual Automatic Valve Combination Gas Control

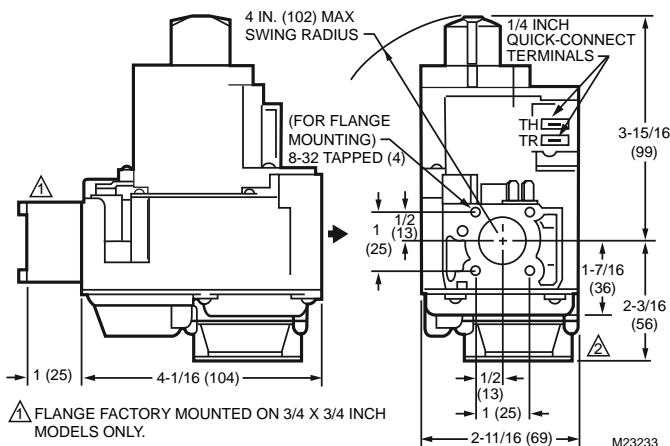


Combination gas control for use in 24 Vac, gas-fired, standing pilot appliances with capacities from 30 to 300 cfh.

- Controls include safety shutoff, manual valve, two automatic operators, pressure regulator and pilot adjustment.
- Compact size.
- Provide two automatic valves.
- Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meets codes requiring dual safety shutoff.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- All adjustments, wiring connections and pilot outlet are accessible from top of control.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- Compatible with ECO connector.
- LITE-RITE (OFF-PILOT-ON) lighting sequence.

Residential
Combustion Controls

Dimensions in inches (millimeters)



▲ FLANGE FACTORY MOUNTED ON 3/4 X 3/4 INCH MODELS ONLY.

▲ STEP-OPEN MODELS ONLY.

Type: Single Stage

Body Pattern: Straight through with integral tapping; with flange
Capacity @ 1 in. p.d. 190,000 BTU/hr; 30,000 BTU/hr minimum

Anticipator Setting: 0.7 A

Ignition Type: Standing Pilot

Ambient Temperature Range: 0 F to 175 F (-18 C to +79 C)

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. NPT with plug

Electrical Ratings: 24 Vac

Frequency: 60 Hz

Pilot Gas Outlet: Compression fitting for 1/4 in. OD tubing

Electrical Connections: 1/4 in. quick-connect male terminals

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Approvals:

American Gas Association: AGA Design Certified: File No. L2025006.

Canadian Gas Association: CGA Design Certified: File No. L2025006.

Underwriters Laboratories, Inc. UL Component Recognized.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Includes
				(psi)	(kPa)	
* VR8300A3500	Natural	Standard	1/2 in. x 3/4 in.	3.5 in. wc	0.87 kPa	One 3/4 x 1/2 in. reducer bushing 393691 Natural to LP gas conversion kit.
• VR8300A3518	Natural	Standard	1/2 in. x 3/4 in.	3.5 in. wc	0.87 kPa	One 3/4 x 1/2 in. reducer bushing 393691-14 bag assembly, 3/4 in. straight flange with O ring, screws and wrench 393200 ECO adapter Q340 (36 in.) thermocouple with adapters 393691 Natural to LP gas conversion kit.
VR8300A3567	Natural	Standard	1/2 in. x 3/4 in.	3.5 in. wc	0.87 kPa	One 3/4 x 1/2 in. reducer bushing 393691 Natural to LP gas conversion kit.
* VR8300A4508	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa	Two 3/4 x 1/2 in. reducer bushing 393691 Natural to LP gas conversion kit.
• VR8300A4516	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa	Two 3/4 x 1/2 in. reducer bushing 393200 ECO adapter Q340 (36 in.) thermocouple with adapters 393691 Natural to LP gas conversion kit.
VR8300A4557	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa	Two 3/4 x 1/2 in. reducer bushing 393691 Natural to LP gas conversion kit.
VR8300A4565	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa	Two 3/4 x 1/2 in. reducer bushing 393200 ECO adapter Q340 (36 in.) thermocouple with adapters 393691 Natural to LP gas conversion kit.

* TRADELINE models • SUPER TRADELINE models

Combination Gas Controls

	Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Includes
					(psi)	(kPa)	
*	VR8300C4506	Natural	Step Opening	3/4 in. x 3/4 in.	Full Rate: 3.5 in. wc; Step Setting: 0.9 in. wc	Full Rate: 0.87 kPa; Step Setting: 0.22 kPa	Two 3/4 x 1/2 in. reducer bushings
	VR8300H2109	Natural	Slow Opening	1/2 in. x 1/2 in.	3.5 in. wc	0.87 kPa	—
	VR8300H4501	Natural	Slow Opening	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa	—

* TRADELINE models • SUPER TRADELINE models

VR4304 Intermittent Pilot Dual Automatic Valve Combination Gas Controls



Type: Single Stage
Dimensions, Approximate: 5 3/8 in. high x 4 1/16 in. wide x 2 11/16 in. deep (135 mm high x 104 mm wide x 69 mm deep)
Body Pattern: Straight-through
Capacity @ 1 in. p.d. 300,000 BTU/hr; 30,000 BTU/hr minimum
Anticipator Setting: 0.1 A
Ignition Type: Intermittent Pilot
Ambient Temperature Range: -40 F to +175 F (-40 C to +79 C)
Pressure Ratings: 1/2 psi (3.5 kPa)
Pressure Tapping: 1/8 in. NPT with plug
Electrical Ratings: 120 Vac

Combination gas control for use in 120 Vac, gas-fired, intermittent pilot appliances with capacities from 30 to 415 cfh.

- Controls include safety shutoff, manual valve, two automatic operators, pressure regulator and pilot adjustment.
- Use with S86F,H; S860D; S8600F,H; S8610 and S90A,B Control Modules.
- Compact size. Provide two automatic valves.
- Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meet codes requiring dual safety shutoff.
- Standard and slow opening natural gas models include natural to LP gas conversion kit; LP to natural gas conversion kit also available.
- All adjustments, wiring connections and pilot outlet are accessible from top of control.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- Compatible with ECO connector.
- ON-OFF lighting sequence.

Frequency: 60 Hz

Pilot Gas Outlet: Compression fitting for 1/4 in. OD tubing

Electrical Connections: 1/4 in. quick-connect male terminals

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Includes: One 1/2 in. x 3/8 in. reducer bushing, Natural to LP Conversion Kit, Two 3/4 x 1/2 in. reducer bushings

Approvals:

American Gas Association: AGA Design Certified: File No. L2025007; CGA Design Certified: File No. L2025007

	Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Electrical Ratings
					(psi)	(kPa)	
*	VR4304M4519	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa	120 Vac

* TRADELINE models • SUPER TRADELINE models

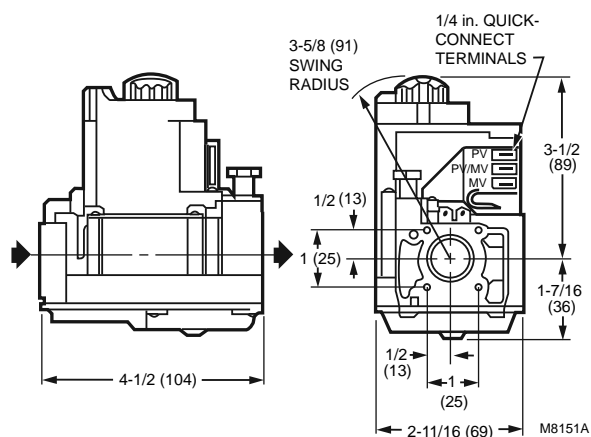
VR8204 Intermittent Pilot Dual Automatic Valve Combination Gas Controls



Combination gas controls for use in 24 Vac, gas-fired, intermittent pilot appliances with capacities from 20 to 200 cfh.

- Controls include manual valve, two automatic operators, servo pressure regulator and pilot adjustment.
- Use with S86F,H; S8600F,H and S8610 Control Modules.
- Compact size.
- Provide two automatic valves.
- Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meet codes requiring dual safety shutoff.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- All adjustments and wiring connections are accessible from top of control.
- ON-OFF lighting sequence.

Dimensions in inches (millimeters)



Type: Single Stage

Body Pattern: Straight-through

Capacity @ 1 in. p.d. 150,000 BTU/hr; 20,000 BTU/hr minimum

Anticipator Setting: 0.5 A

Ignition Type: Intermittent Pilot

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. NPT with plug

Electrical Ratings: 24 Vac

Frequency: 60 Hz

Pilot Gas Outlet: Compression fitting for 1/4 in. OD tubing

Electrical Connections: 1/4 in. quick-connect male terminals

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Approvals:

American Gas Association: AGA Design Certificate: L2025006

Australian Gas Association: Australian Gas Assoc. Design

Certificate: 4214; Approved for Delta C Applications

Canadian Gas Association: CGA Design Certificate: L2025006

Underwriters Laboratories, Inc. UL Component Recognized: MH5323

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Ambient Temperature Range		Includes
				(psi)	(kPa)	(F)	(C)	
* VR8204A2076	Natural	Standard	1/2 in. x 1/2 in.	3.5 in. wc	0.87 kPa	0 F to 175 F	-18 C to +79 C	One 3/4 in. straight flange One 1/2 in. x 3/8 in. reducer bushing Natural to LP Conversion Kit
VR8204C1019	Natural	Step Opening	1/2 in. x 1/2 in.	Full Rate: 3.5 in. wc; Step Setting: 0.9 in. wc	Full Rate: 0.87 kPa; Step Setting: 0.22 kPa	0 F to 175 F	-18 C to +79 C	—
VR8204H1006	Natural	Slow Opening	1/2 in. x 1/2 in.	3.5 in. wc	0.87 kPa	0 F to 175 F	-18 C to +79 C	—
* VR8204M1091	Natural	Standard	1/2 in. x 1/2 in.	3.5 in. wc	0.87 kPa	-40 F to +175 F	-40 C to +79 C	One 3/4 in. straight flange One 1/2 in. x 3/8 in. reducer bushing Natural to LP Conversion Kit

* TRADELINE models • SUPER TRADELINE models

Combination Gas Controls

VR8245 Intermittent Pilot Combination Gas Control



These universal electronic ignition gas controls are used in gas-fired appliances with capacities up to 150 cu ft/hour at 1 inch wc pressure drop (4.2 cu m/hour at 0.25 kPa) for natural gas. The VR8245M will operate with a direct spark (DSI), hot surface (HSI) or intermittent pilot ignition. The control includes a manual valve, two automatic operators, a pressure regulator, pilot adjustment, pilot plug and ignition adapter.

Type: Single Stage
Body Pattern: Straight-through
Capacity @ 1 in. p.d. 150,000 BTU/hr
Ignition Type: Intermittent Pilot
Ambient Temperature Range: -40 F to +175 F (-40 C to +79 C)

Pressure Ratings: 1/2 psi (3.5 kPa)
Electrical Ratings: 24 Vac
Frequency: 60 Hz, 50 Hz
Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Includes
				(psi)	(kPa)	
VR8245M2530	Natural or LP	Standard	1/2 in. x 1/2 in.	3.5 in. wc	0.9 kPa	One 1/2 in. x 3/8 in. reducer bushing Natural to LP Conversion Kit

VR8304 Intermittent Pilot Dual Automatic Valve Combination Gas Control

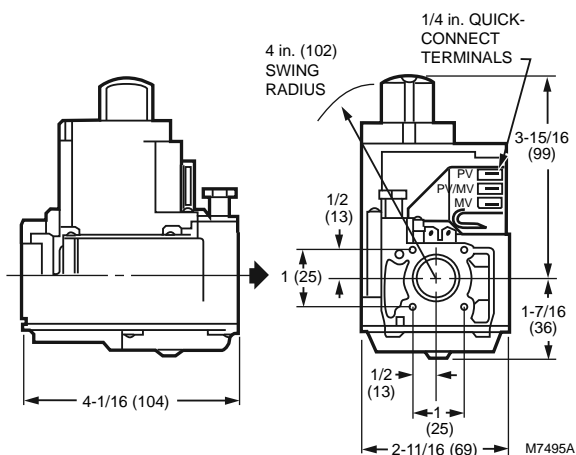


Combination gas control for use in 24 Vac, gas-fired, intermittent pilot appliances with capacities from 30 to 415 cfh.

- Controls include safety shutoff, manual valve, two automatic operators, pressure regulator and pilot adjustment.
- Use with S86F,H; S860D; S8600F,H; S8610 and S90A,B Control Modules.
- Compact size.
- Provide two automatic valves. Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meet codes requiring dual safety shutoff.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- All adjustments, wiring connections and pilot outlet are accessible from top of control.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- Compatible with ECO connector.
- ON-OFF lighting sequence.

Residential
Combustion Controls

Dimensions in inches (millimeters)



Type: Single Stage

Body Pattern: Straight-through

Capacity @ 1 in. p.d. 300,000 BTU/hr; 30,000 BTU/hr minimum

Anticipator Setting: 0.7 A

Ignition Type: Intermittent Pilot

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. NPT with plug

Electrical Ratings: 24 Vac

Frequency: 60 Hz

Pilot Gas Outlet: Compression fitting for 1/4 in. OD tubing

Electrical Connections: 1/4 in. quick-connect male terminals

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Approvals:

American Gas Association: AGA Design Certified: File No. L2025007.

Canadian Gas Association: CGA Design Certified: File No. L2025007.

Underwriters Laboratories, Inc. UL Component Recognized.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Ambient Temperature Range		Includes
				(psi)	(kPa)	(F)	(C)	
VR8304H4503	Natural	Slow Opening	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa	0 F to 175 F	-18 C to +79 C	393691 Natural to LP gas conversion kit.
VR8304M2501	Natural	Standard	1/2 in. x 1/2 in.	3.5 in. wc	0.87 kPa	-40 F to +175 F	-40 C to +79 C	393691 Natural to LP gas conversion kit.
* VR8304M3509	Natural	Standard	1/2 in. x 3/4 in.	3.5 in. wc	0.87 kPa	-40 F to +175 F	-40 C to +79 C	One 3/4 in. x 1/2 in. reducer bushing; 393691 Natural to LP gas conversion kit.
* VR8304M4507	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa	-40 F to +175 F	-40 C to +79 C	Two 3/4 in. x 1/2 in. reducer bushing; 393691 Natural to LP gas conversion kit.
VR8304P4330	LP	Step Opening	3/4 in. x 3/4 in.	Full Rate: 10.0 in. wc; Step Setting: 2.5 in. wc	Full Rate: 2.49 kPa; Step Setting: 0.62 kPa	-40 F to +175 F	-40 C to +79 C	—
VR8304P4504	Natural	Step Opening	3/4 in. x 3/4 in.	Full Rate: 3.5 in. wc; Step Setting: 0.9 in. wc	Full Rate: 0.87 kPa; Step Setting: 0.22 kPa	-40 F to +175 F	-40 C to +79 C	—
VR8304Q4511	Natural	Standard	3/4 in. x 3/4 in.	1.7 in. wc low; 3.5 in. wc high	0.48 kPa low; 0.87 kPa high	-40 F to +175 F	-40 C to +79 C	Natural to LP Conversion Kit Two 3/4 x 1/2 in. reducer bushings

* TRADELINE models • SUPER TRADELINE models

Combination Gas Controls

VR4305 Direct Ignition Dual Automatic Valve Combination Gas Control



Type: Single Stage
Body Pattern: Straight-through
Capacity @ 1 in. p.d. 300,000 BTU/hr; 30,000 BTU/hr minimum
Anticipator Setting: 0.13 A
Ignition Type: Direct Ignition
Ambient Temperature Range: -40 F to +175 F (-40 C to +79 C)
Pressure Ratings: 1/2 psi (3.5 kPa)
Pressure Tapping: 1/8 in. NPT with plug
Electrical Ratings: 120 Vac
Frequency: 60 Hz

Combination gas control for use with hot surface/direct spark systems in 120 Vac, gas-fired appliances, with capacities from 30 to 415 cfh.

- Controls include manual valve, two automatic operators and pressure regulator.
- Compact size.
- Provides two automatic valves.
- Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meets codes requiring dual safety shut-off.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- ON/OFF lighting sequence.

Electrical Connections: 1/4 in. male quick-connects; 24 in. (610 mm) leadwires.

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Includes: One 1/2 in. x 3/8 in. reducer bushing, Natural to LP Conversion Kit, Two 3/4 x 1/2 in. reducer bushings

Approvals:

American Gas Association: AGA Design Certified: File No. L2025007.

Canadian Gas Association: CSA Design Certified: File No. L2025007.

Underwriters Laboratories, Inc. UL Component Recognized.

	Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Electrical Ratings
					(psi)	(kPa)	
*	VR4305M4532	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa	120 Vac
* TRADELINE models • SUPER TRADELINE models							

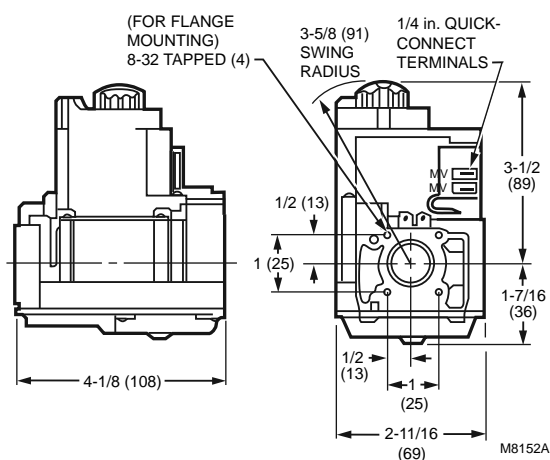
VR8205 Direct Ignition Dual Automatic Valve Combination Gas Controls



Combination gas controls for use with hot surface/direct spark systems in 24 Vac, gas-fired appliances with capacities from 20 to 200 cfh.

- Controls include manual valve, two automatic operators, and pressure regulator.
- Provide two automatic valves.
- Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm operated second automatic valve opens under control of the regulator; closes if gas or power supply is interrupted.
- Meet codes requiring dual safety shutoff.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- Adjustments and wiring connections are accessible from top of the control.
- ON-OFF lighting sequence.

Dimensions in inches (millimeters)



Body Pattern: Straight-through

Capacity @ 1 in. p.d. 150,000 BTU/hr; 20,000 BTU/hr minimum

Anticipator Setting: 0.5 A

Ignition Type: Direct Ignition

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. NPT with plug

Electrical Ratings: 24 Vac

Frequency: 60 Hz

Electrical Connections: 1/4 in. quick-connect male terminals

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Approvals:

American Gas Association: AGA Design Certified: File No. L2025006.

Canadian Gas Association: CGA Design Certified: File No. L2025006.

Underwriters Laboratories, Inc. UL Component Recognized.

Residential
Combustion Controls

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Ambient Temperature Range		Type	Includes
				(psi)	(kPa)	(F)	(C)		
* VR8205A2024	Natural	Standard	1/2 in. x 1/2 in.	3.5 in. wc	0.87 kPa	0 F to 175 F	-18 C to +79 C	Single Stage	One 3/4 in. straight flange One 1/2 in. x 3/8 in. reducer bushing Natural to LP Conversion Kit
VR8205C1024	Natural	Step Opening	1/2 in. x 1/2 in.	Full Rate: 3.5 in. wc; Step Setting: 1.2 in. wc	Full Rate: 0.87 kPa; Step Setting: 0.30 kPa	0 F to 175 F	-18 C to +79 C	Single Stage	—
VR8205H1003	Natural	Slow Opening	1/2 in. x 1/2 in.	3.5 in. wc	0.87 kPa	0 F to 175 F	-18 C to +79 C	Single Stage	—
VR8205Q2555	Natural	Standard	1/2 in. x 1/2 in.	1.7 in. wc low; 3.5 in. wc high		-40 F to +175 F	-40 C to +66 C	Two Stage	One 1/2 in. x 3/8 in. reducer bushing Natural to LP Conversion Kit

* TRADELINE models • SUPER TRADELINE models

Combination Gas Controls

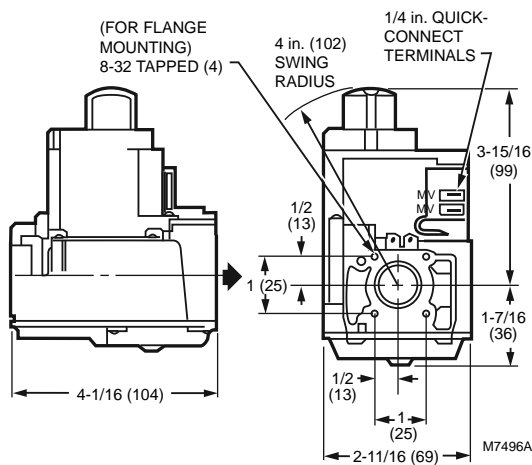
VR8305 Direct Ignition Dual Automatic Valve Combination Gas Control



Combination gas control for use with hot surface/direct spark systems in 24 Vac, gas-fired appliances, with capacities from 30 to 415 cfh.

- Controls include manual valve, two automatic operators, and pressure regulator.
- Use with S89C,E,F and S87 series 5 and later.
- Compact size.
- Provide two automatic valves.
- Solenoid-operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meet codes requiring dual safety shut-off.
- All adjustments, wiring connections and pilot outlet are accessible from top of control.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- ON-OFF lighting sequence.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.

Dimensions in inches (millimeters)



Body Pattern: Straight-through

Capacity @ 1 in. p.d. 240,000 BTU/hr; 30,000 BTU/hr minimum

Anticipator Setting: 0.62 A

Ignition Type: Direct Ignition

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. NPT with plug

Electrical Ratings: 24 Vac

Ambient Temperature Range: -40 F to +175 F (-40 C to +79 C)

Frequency: 60 Hz

Electrical Connections: 1/4 in. quick-connect male terminals

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Approvals:

American Gas Association: AGA Design Certificate: L2025006

Australian Gas Association: Australian Gas Assoc. Design Certificate: 4214; Approved for Delta C Applications

Canadian Gas Association: CGA Design Certificate: L2025006

Underwriters Laboratories, Inc. UL Component Recognized: MH8191

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Type	Includes
				(psi)	(kPa)		
VR8305M2102	Natural	Standard	1/2 in. x 1/2 in.	3.5 in. wc	0.87 kPa	Single Stage	—
* VR8305M3506	Natural	Standard	1/2 in. x 3/4 in.	3.5 in. wc	0.87 kPa	Single Stage	One 3/4 in. straight flange One 3/4 in. x 1/2 in. reducer bushing Natural to LP Conversion Kit
VR8305P2224	LP	Step Opening	1/2 in. x 1/2 in.	Full Rate: 10.0 in. wc; Step Setting: 4.0 in. wc	Full Rate: 2.49 kPa; Step Setting: 1.0 kPa	Single Stage	—
VR8305P4279	Natural	Step Opening	3/4 in. x 3/4 in.	Full Rate: 3.5 in. wc; Step Setting: 0.9 in. wc	Full Rate: 0.87 kPa; Step Setting: 0.22 kPa	Single Stage	—
VR8305Q4500	Natural	Standard	3/4 in. x 3/4 in.	1.7 in. wc low; 3.5 in. wc high	0.48 kPa low; 0.87 kPa high	Two Stage	Natural to LP Conversion Kit Two 3/4 x 1/2 in. reducer bushings

* TRADELINE models • SUPER TRADELINE models

Combination Gas Controls

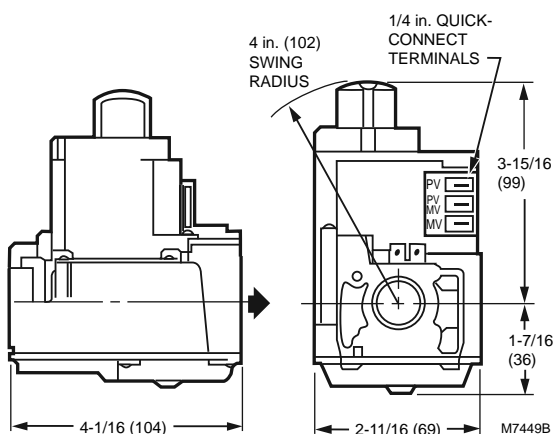
VR8345 Universal Electronic Ignition Combination Gas Control



Universal electronic ignition combination gas control for use with direct spark ignition, hot surface ignition or intermittent pilot ignition in 24 Vac, gas-fired appliances, with capacities from 30 to 415 cfh.

- Control includes manual valve, two automatic operators, pressure regulator, pilot adjustment, pilot plug and ignition adapter.
- Replaces virtually any IP, HSI, or DSI gas control.
- For use with natural or manufactured gas or LP gas.
- Includes converter kit to adapt from natural to LP gas.
- Compact size.
- All adjustments and wiring connections accessible from top of control.
- Four-inch swing radius allows easy rotation into position inside the tightest furnace vestibules.
- Clearly marked, keyed terminal block allows quick attachment of wires and IP/DSI/HSI jumper.
- Internal inlet screen blocks contaminants in gas line from entering valve.

Dimensions in inches (millimeters)



Type: Single Stage

Body Pattern: Straight-through

Capacity @ 1 in. p.d. 300,000 BTU/hr; 30,000 BTU/hr minimum

Ignition Type: Direct Ignition; Intermittent Pilot

Ambient Temperature Range: -40 F to +175 F (-40 C to +79 C)

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. NPT with plug

Electrical Ratings: 24 Vac

Frequency: 60 Hz

Electrical Connections: 1/4 in. quick-connect male terminals

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Includes: Natural to LP Conversion Kit, Two 3/4 x 1/2 in. reducer bushings

Approvals:

American Gas Association: AGA Design Certified: File No. L2025007.

Canadian Gas Association: CGA Design Certified: File No. L2025007.

Underwriters Laboratories, Inc. UL Component Recognized.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	
				(psi)	(kPa)
• VR8345H4555	Natural	Slow Opening	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa
VR8345M4302	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa
VR8345M4336	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	0.87 kPa
• VR8345Q4563	Natural	Standard	3/4 in. x 3/4 in.	1.7 in. wc low; 3.5 in. wc high	0.48 kPa low; 0.87 kPa high

* TRADELINE models • SUPER TRADELINE models

Residential
Combustion Controls

Millivoltage Combination Gas Controls

VS820 Millivoltage Combination Gas Controls



These gas controls combine a Lite-Rite manual gas cock, safety shutoff Pilotstat assembly, millivoltage automatic valve operator, and optional gas pressure regulator. They require the use of a 750 mv Powerpile generator (thermopile). The generator, heated by the pilot burner flame, provides the electrical energy to operate the combination gas control. A millivoltage thermostat with suitable accessory controls completes the automatic control system for the heating appliance.

- Include pilot flow adjustment screw.
- Easy to install, adjust and service; all adjustments and connections are accessible from top of control.
- Add separate energy cutoff (ECO) where codes call for dual safety shutoff.
- Complete safety shutoff on pilot flame failure.
- LITE-RITE (OFF-PILOT-ON) lighting sequence.
- ECO connector for V800 models, Part No. 392451-1.

Application: Self-powered automatic control. Use with 750 mV pilot generator.

Dimensions, Approximate: 4 3/4 in. high x 4 1/16 in. wide x 3 3/16 in. deep (121 mm high x 103 mm wide x 81 mm deep)

Body Pattern: Straight-through. multi-tapped with 1/2 in. right and left outlets plugged, except as noted.

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. npt with plug.

Temperature Range: 32 F to 175 F (0 C to 79 C)

Electrical Ratings: 750 mV

Pilot Gas Outlet: Compression fitting for 1/4 in. OD tubing.

Electrical Connections: Terminal block has 3 combination screw and 1/4 in. quick connect terminals.

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Approvals:

American Gas Association: AGA Design Certified: File no. L2025003

Canadian Gas Association: CGA Design Certified: File no. L2025003

Underwriters Laboratories, Inc. UL Component Recognized

	Product Number	Type of Gas	Inlet/Outlet Size (in.)	Pressure Regulator	Pressure Regulator Setting		Includes
					(psi)	(kPa)	
*	VS820A1047	Natural	1/2 in. NPT x 3/4 in. NPT with 1/2 in. NPT side outlets	Standard	3.5 in. wc Reg. Set/ 3-5 in. Adj. Range	0.87 kPa	One 3/4 in. x 1/2 in. reducer bushing; one 1/2 in. x 3/8 in. reducer bushing One 1/2 in. x 3/8 in. reducer bushing One 3/4 in. x 1/2 in. reducer bushing
*	VS820A1054	Natural	3/4 in. NPT x 3/4 in. NPT with 1/2 in. NPT side outlets	Standard	3.5 in. wc Reg. Set/ 3-5 in. Adj. Range	0.87 kPa	Two 3/4 in. x 1/2 in. reducer bushings One 1/2 in. x 3/8 in. reducer bushing
•	VS820A1088	Natural	3/4 in. NPT x 3/4 in. NPT with 1/2 in. NPT side outlets	Standard	3.5 in. wc Reg. Set/ 3-5 in. Adj. Range	0.87 kPa	Remote Rod Adapter One Natural to LP Conversion Kit Two 3/4 in. x 1/2 in. reducer bushings One 1/2 in. x 3/8 in. reducer bushing
*	VS820A1336	LP	3/4 in. NPT x 3/4 in. NPT with 1/2 in. NPT side outlets	Standard	10.0 in. wc Reg. Set/ 8-12 in. Adj. Range	2.49 kPa	One 1/2 in. x 3/8 in. reducer bushing One 3/4 in. x 1/2 in. reducer bushing
*	VS820C1100	Natural	3/4 in. NPT x 3/4 in. NPT with 1/2 in. NPT side outlets	Step Opening	Step: 0.9 in. wc non-adjustable; Full rate: 3.5 in. wc, 3-5 in. adjustable	Step: 0.22 kPa; Full rate: 0.87 kPa	One 1/2 in. x 3/8 in. reducer bushing One 3/4 in. x 1/2 in. reducer bushing

* TRADELINE models • SUPER TRADELINE models

Gas Valve Selection Guide

Trade Replacements (Double-Check Specifications Before Replacement)		Specifications				Accessories (Includes)					
Universal Service Part	Direct Service Part Replacement	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting (in. wc)	Temperature Range	Q340 Thermocouple	3/4 in. x 1/2 in. Reducer Bushing	Natural to LP Conversion Kit	3/4 in. Straight Range	1/2 in. x 3/8 in. Reducer Bushing	Remote Rod Adapter
VR8300A4516	VR8300A4508	Standard	3/4 x 3/4	3.5 in. wc (0.87 kPa)	0 to 175 F (-18 to 79 C)	None	Two	One	None	None	None
	VR8300A3500	Standard	1/2 x 3/4	3.5 in. wc (0.87 kPa)	0 to 175 F (-18 to 79 C)	None	One	One	None	None	None
	VR8300A4516	Standard	3/4 x 3/4	3.5 in. wc (0.87 kPa)	0 to 175 F (-18 to 79 C)	One	Two	One	None	None	None
VR8245M2530	VR8204A2076	Standard	1/2 x 1/2	3.5 in. wc (0.87 kPa)	0 to 175 F (-18 to 79 C)	None	None	One	One	One	None
	VR8204M1091	Standard	1/2 x 1/2	3.5 in. wc (0.87 kPa)	-40 to 175 F (-40 to 79 C)	None	None	One	One	One	None
	VR8205A2024	Standard	1/2 x 1/2	3.5 in. wc (0.87 kPa)	0 to 175 F (-18 to 79 C)	None	None	One	One	One	None
	VR8245M2530	Standard	1/2 x 1/2	3.5 in. wc (0.87 kPa)	-40 to 175 F (-40 to 79 C)	None	None	One	None	One	None
VR8345H4555	VR8205H1003	Slow	1/2 x 1/2	3.5 in. wc (0.87 kPa)	0 to 175 F (-18 to 79 C)	None	None	None	None	None	None
	VR8304H4503	Slow	3/4 x 3/4	3.5 in. wc (0.87 kPa)	0 to 175 F (-18 to 79 C)	None	None	One	None	None	None
	VR8345H4555	Slow	3/4 x 3/4	3.5 in. wc (0.87 kPa)	0 to 175 F (-18 to 79 C)	None	Two	One	None	None	None
VR8345M4302	VR8304M3509	Standard	1/2 x 3/4	3.5 in. wc (0.87 kPa)	-40 to 175 F (-40 to 79 C)	None	One	One	None	None	None
	VR8304M4507	Standard	3/4 x 3/4	3.5 in. wc (0.87 kPa)	-40 to 175 F (-40 to 79 C)	None	Two	One	None	None	None
	VR8305M3506	Standard	1/2 x 3/4	3.5 in. wc (0.87 kPa)	-40 to 175 F (-40 to 79 C)	None	One	One	One	None	None
	VR8345M4302	Standard	3/4 x 3/4	3.5 in. wc (0.87 kPa)	-40 to 175 F (-40 to 79 C)	None	Two	One	None	None	None
VR8345Q4563	VR8205Q2555	2-Stage	1/2 x 1/2	1.7 in. wc Low Fire; 3.5 in. wc High Fire	-40 to 175 F (-40 to 79 C)	None	None	One	None	One	None
	VR8304Q4511	2-Stage	3/4 x 3/4	1.7 in. wc Low Fire; 3.5 in. wc High Fire	-40 to 175 F (-40 to 79 C)	None	Two	One	None	None	None
	VR305Q4500	2-Stage	3/4 x 3/4	1.7 in. wc Low Fire; 3.5 in. wc High Fire	-40 to 175 F (-40 to 79 C)	None	One	One	None	None	None
	VR8345Q4563	2-Stage	3/4 x 3/4	1.7 in. wc Low Fire; 3.5 in. wc High Fire	-40 to 175 F (-40 to 79 C)	None	Two	One	None	None	None
VR8200A2744	VR8200A2124	Standard	1/2 x 1/2	3.5 in. wc (0.87 kPa)	0 to 175 F (-18 to 79 C)	One	None	One	One	One	None
	VR8200A2132	Standard	1/2 x 1/2	3.5 in. wc (0.87 kPa)	0 to 175 F (-18 to 79 C)	None	None	One	One	One	None
	VR8200A2744	Standard	1/2 x 1/2	3.5 in. wc (0.87 kPa)	0 to 175 F (-18 to 79 C)	None	None	One	One + One Elbow	One	None
VS820A1088	VS820A1054	Standard	3/4 x 3/4	3.5 in. wc (0.87 kPa)	32 to 175 F (0 to 79 C)	None	Two	None	None	One	None
	VS820A1336	Standard	3/4 s 3/4	10.0 in. wc (2.49 kPa)	32 to 175 F (0 to 79 C)	None	Two	None	None	One	None
	VS820A1088	Standard	3/4 x 3/4	3.5 in. wc (0.87 kPa)	32 to 175 F (0 to 79 C)	None	Two	One	None	One	Yes

Notes:

All piloted valves have a 1/4 in. compression fitting.
 All the VR valves come set for natural gas, but can be converted to LP gas.
 The VS820A1054 is for natural gas. The VS820A1336 is for LP gas.
 All the VR valves have inlet and outlet pressure taps. The VS820 valves have just an outlet pressure tap

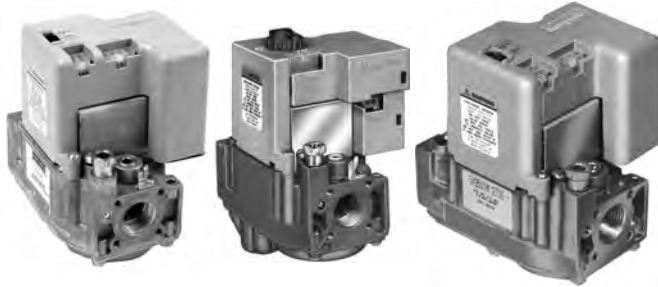
Gas Valve Selection Guide

Competitive Replacement			
Universal Service Part	Honeywell	White-Rodgers	Robertshaw
VR8300A4516	VR8300A4003, VR8300A4011, VR8300A4037, VR8300A4045, VR8300A4557, VR8300A4565	36C01-405	720-406 (7200ER)
	VR8300A3104, VR8300A3120, VR8300A3153, VR8300A3161, VR8300A3203, VR8300A3559, VR8300A3567, VR8300A3575	36C03-300, 36C03-400, 36C03-433, 36C03-258	720-404 (7200ER)
	VR8300A4003, VR8300A4011, VR8300A4037, VR8300A4045, VR8300A4557, VR8300A4565	—	700-400
VR8245M2530	VR8204A1201, VR8204A1219, VR8204A2001, VR8204A2175, VR8204A2803, VR8300A4565	—	—
	VR8204M1075	36E01-204, 36E01-205, 36E01-206, 36E01-305, 36E93-304	722-079 (2000IPERHC)
	—	36G22-214	722-051 (2000DERHC)
	VR8205M1106, VR8205M2310, VR8205M2443, VR8205M2450, VR8205M2476	36E36-304, 36E22-214	720-079 (7200IPER), 720-080 (7200IPER-LP)
VR8345H4555	VR8205H2605, VR8305H4013, VR8305H4039	—	—
	VR8204H1006, VR8204H1055	—	720-070 (7200IPER-S7C), 720-071 (7200IPER-S7C), 720-072 (7200IPER-S7C), 720-073 (7200IPER-LP-S7C)
	—	36E98-304, 36E24-214, 36E52-214	700-052
VR8345M4302	—	—	—
	VR8304M4002	—	—
	VR8305M4066, VR8305M4165, VR8305M4231	36G22-214, 36C68-423	720-051 (7200DER)
	—	36E36-304, 36C68-423	—
VR8345Q4563	VR8205Q2662, VR8205Q2746, VR8205Q2787, VR8205Q2381	36E54-214	—
	VR8304Q4453	36C76-406, 36C76-420 36C76-463	—
	VR8305Q4146	36D13-208, 36D13-405, 36G54-214	—
	—	36E96-314	720-082 (7200IPER2-4)
VR8200A2744	VR8200A2116, VR8200A2264, VR8200A2322*	—	720-400 (7200ER), 720-402 (7200ER)
	VR8200A2116, VR8200A2264, VR8200A2322*	—	720-400 (7200ER), 720-402 (7200ER)
	VR8200A2322*	—	—
VS820A1088	VS820A1005, VS820A1013, VS820A1047, VS820A1278, VS820A5204, VS820A1922	36C03U-300, 36C03U-333, 36C03U-400, 36C03U-433	—
	VS820A1211, VS820A1740, VS820A1120, VS820A1898, VS820A1872, VS820A1906	—	—
	VS820A1807, VS820A2003, VS820A1815, VS820A1039, VS820A2011	—	—

*Canadian Numbers

For a complete cross-reference, visit www.customer.honeywell.com

SV9501; SV9502 SmartValve® System



Body Pattern: Straight-through
Maximum Capacity at 1 in. P.D. 150 ft³/hr (4.2 m³/hr)
Maximum Capacity: 200 ft³/hr (5.7 m³/hr)
Minimum Capacity: 20 ft³/hr (0.6 m³/hr)
Pilot Gas Outlet: Yes
Electrical Ratings: 24 Vac
Frequency: 60 Hz, 50 Hz
Flame Failure Response Time (sec): 1.6 sec @ 3 µA
Flame Sense: Electrode
Ignition Sequence: Intermittent Pilot

The SmartValve System Controls provide easy field replacement of a wide range of SV9500, SV9501, SV9502 and SV9602 SmartValve System models. Gas appliance manufacturers use these models in many types of gas fired heating appliances including central furnaces, residential boilers, rooftop furnaces, commercial cooking appliances, and unit heaters. These controls provide intermittent pilot gas ignition sequencing, pilot flame sensing, and both pilot and main gas control functions in a single control. They are directly compatible with the Q3450 or Q3480 Intermittent Pilot burners used with the original controls on the appliance.

- Suitable for a wide range of gas-fired appliances including residential furnaces, roof-top furnaces, residential boilers, unit heaters, infrared heaters, space heaters and commercial cooking units.
- Replaces SV9500, SV9501 and SV9502 controls as noted below.
- Ignition sequence includes timed trial for ignition.

Ignition Source: Pilot
Ignition System Type: Intermittent Hot Surface Pilot Ignition
Ignition Trial Time: 90 sec
Ignition Trials To Lockout: continuous retry
Pressure Ratings: 1/2 psi (3.45 kPa)
Ambient Temperature Range: -40 F to +175 F (-40 C to +79 C)
Typical Ignition Hardware: Q3450

Approvals:
American Gas Association: IAS Design Certified: C2030017

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		PrePurge
				(psi)	(kPa)	
SV9501M2528	Natural	Standard Opening	1/2 in. NPT x 1/2 in. NPT	0.87 kPa	3.5 in. wc	None
SV9501M8129	Natural	Fast-Fast Opening	1/2 in. NPT x 1/2 in. NPT	0.87 kPa	3.4 in. wc	None
SV9502H2522	Natural	Slow Opening	1/2 in. NPT x 1/2 in. NPT	0.80 kPa	3.2 in. wc	15 seconds

SmartValve® System Controls

SV9510 SmartValve® System



The SV9510 SmartValve System Controls combine gas flow control and electronic direct main burner ignition sequencing functions into a single unit. The ignition source is 120V hot surface igniter lighting the main burner flame. Provides all gas ignition safety functions by controlling gas flow, ignition source, and a 120 Vac

Dimensions, Approximate: 3.2 in. wide x 4.9 in. high x 4.1 in. long
(81 mm wide x 124 mm high x 104 mm long.)

Body Pattern: Straight-through

Maximum Capacity at 1 in. P.D. 150 ft³/hr (4.2 m³/hr)

Maximum Capacity: 200 ft³/hr (5.7 m³/hr)

Minimum Capacity: 20 ft³/hr (0.6 m³/hr)

Electrical Ratings: 24 Vac

Frequency: 60 Hz, 50 Hz

Control Voltage (Thermostat or other call for heat): 24 Vac, 60 Hz.

Flame Failure Response Time (sec): 2 sec @ 5 µA

combustion air blower. The control also monitors the appliance airflow proving switch circuit and limit string to assure proper appliance operation. The SmartValve System Controls provide prepurge, postpurge and timed trial for ignition with multiple ignition trials and auto reset from lockout. Diagnostic LED indicates system status.

- The control communicates directly with the ST9160 Electronic Fan Timer (EFT) in typical forced warm air furnace applications.
- It will also interface with the 208907 Terminal Board, providing compatibility with power-stealing thermostats. Or, it directly interfaces with the appropriate power supplies and a system thermostat for additional appliance applications.
- When controlled directly by a thermostat, the control does not provide a postpurge function, as power to the control is removed when the thermostat call for heat ends.
- This system is suitable for a wide range of fan-assisted combustion, gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, water heaters and commercial cooking appliances.

Flame Sense: Two Rod

Ignition Sequence: 17/27 sec

Ignition System Type: Direct Hot Surface Ignition

Ignition Trials To Lockout: 4 trials

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. - NPT

Ambient Temperature Range: -40 F to +175 F (-40 C to +79 C)

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		PrePurge	Ignition Trial Time	Includes
				(psi)	(kPa)			
• SV9510K2539	Natural	Slow Opening	1/2 in. NPT x 1/2 in. NPT	0.87 kPa	3.5 in. wc	15 seconds	9 sec	LP Conversion Kit
• SV9510M2511	Natural	Standard Opening	1/2 in. NPT x 1/2 in. NPT	0.87 kPa	3.5 in. wc	15 seconds	7 sec	LP Conversion Kit

* TRADELINE models • SUPER TRADELINE models

SV9520 SmartValve® System



The SV9520 SmartValve System Controls combine gas flow control and electronic direct main burner ignition sequencing functions into a single unit. The ignition source is 120V hot surface igniter lighting the main burner flame. Provides all gas ignition safety functions by controlling gas flow, ignition source, and a 120 Vac

Dimensions, Approximate: 3.2 in. wide x 4.9 in. high x 4.1 in. long
(81 mm wide x 124 mm high x 104 mm long.)

Body Pattern: Straight-through

Maximum Capacity at 1 in. P.D. 150 ft³/hr (4.2 m³/hr)

Maximum Capacity: 200 ft³/hr (5.7 m³/hr)

Minimum Capacity: 20 ft³/hr (0.6 m³/hr)

Electrical Ratings: 24 Vac

Frequency: 60 Hz, 50 Hz

Control Voltage (Thermostat or other call for heat): 24 Vac, 60 Hz.

Flame Failure Response Time (sec): 2 sec @ 5 µA

Flame Sense: Two Rod

Ignition Sequence: 7/12 sec

combustion air blower. The control also monitors the appliance airflow proving switch circuit and limit string to assure proper appliance operation. The SmartValve System Controls provide prepurge, postpurge and timed trial for ignition with multiple ignition trials and auto reset from lockout. Diagnostic LED indicates system status.

- The control communicates directly with the ST9160 Electronic Fan Timer (EFT) in typical forced warm air furnace applications.
- It will also interface with the 208907 Terminal Board, providing compatibility with power-stealing thermostats. Or, it directly interfaces with the appropriate power supplies and a system thermostat for additional appliance applications.
- When controlled directly by a thermostat, the control does not provide a postpurge function, as power to the control is removed when the thermostat call for heat ends.
- This system is suitable for a wide range of fan-assisted combustion, gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, water heaters and commercial cooking appliances.

Ignition System Type: Direct Hot Surface Ignition

Ignition Trial Time: 7 sec

Ignition Trials To Lockout: 4 trials

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. - NPT

Ambient Temperature Range: 0 F to 175 F (-18 C to +79 C)

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Approvals:

Canadian Standards Association: CSA International: 158158-10592145

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		PrePurge	Includes
				(psi)	(kPa)		
• SV9520H8513	Natural	Fast-Slow Opening	1/2 in. NPT x 1/2 in. NPT	0.87 kPa	3.5 in. wc	15 seconds	LP Conversion Kit
• SV9520M2536	Natural	Standard Opening	1/2 in. NPT x 1/2 in. NPT	0.87 kPa	3.5 in. wc	15 seconds	LP Conversion Kit

* TRADELINE models • SUPER TRADELINE models

SmartValve® System Controls

SV9541 SmartValve® System



The TRADELINE/E SV9541 SmartValve System Controls combine gas flow control and electronic intermittent pilot sequencing functions into a single unit. The Q3450 or Q3480 Pilot hardware supplies the low voltage igniter, flame sensor and pilot burner. These ignition system controls provide all gas ignition safety

Dimensions, Approximate: 3.2 in. wide x 4.9 in. high x 4.1 in. long
(81 mm wide x 124 mm high x 104 mm long.)

Body Pattern: Straight-through

Maximum Capacity at 1 in. P.D. 150 ft³/hr (4.2 m³/hr)

Maximum Capacity: 200 ft³/hr (5.7 m³/hr)

Minimum Capacity: 20 ft³/hr (0.6 m³/hr)

Pilot Gas Outlet: Yes

Electrical Ratings: 24 Vac

Frequency: 60 Hz, 50 Hz

Control Voltage (Thermostat or other call for heat): 24 Vac, 60 Hz.

Flame Failure Response Time (sec): 1.6 sec @ 3 µA

Flame Sense: Two Rod

Ignition Sequence: Intermittent Pilot

functions by controlling gas flow, ignition source, and a 120 Vac or 240 Vac combustion air blower. The controls also monitor the appliance airflow proving switch and limit string to assure proper appliance operation, and provide prepurge, postpurge, and timed trial for pilot ignition with 100 percent shutoff and continuous retry. A diagnostic LED indicates system status.

- These controls communicate directly with an electronic fan timer (ST9160 Electronic Fan Timer for single stage applications; ST9162 Electronic Fan Timer for two-stage applications) in typical forced warm air furnace applications.
- They also interface with the 208907 Terminal Board, providing compatibility with power stealing thermostats. Or, they directly interface with the appropriate power supplies and a system thermostat for additional appliance applications.
- When controlled directly by a thermostat, these controls do not provide a postpurge function, because power to the control is removed when the thermostat call for heat ends.
- The SV9541 Systems are suitable for a wide range of fan-assisted combustion gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, water heaters and commercial cooking appliances.

Ignition Source: Pilot

Ignition System Type: Intermittent Hot Surface Pilot Ignition

Ignition Trial Time: 90 sec

Ignition Trials To Lockout: continuous retry

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. - NPT

Ambient Temperature Range: -40 F to +175 F (-40 C to +79 C)

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Approvals:

Canadian Standards Association: CSA-International, Design Certified

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		PrePurge	Includes
				(psi)	(kPa)		
• SV9541Q2561	Natural	Standard Opening 2-stage	1/2 in. NPT x 1/2 in. NPT	0.42 kPa low; 0.80 kPa high	1.7 in. wc low; 3.2 in. wc high	15 seconds	LP Conversion Kit

* TRADELINE models • SUPER TRADELINE models

SV9601 SmartValve® System



The SV9601 SmartValve System Controls combine gas flow control and electronic intermittent pilot sequencing functions into a single unit. This product family offers several different intermittent pilot sequences for a wide range of applications. This system is suitable for application in a wide range of gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, space heaters, water heaters, decorative appliances, and commercial cooking units. The specific application of the SmartValve System is the responsibility of the appliance manufacturer.

Dimensions, Approximate: 3.2 in. wide x 4.9 in. high x 4.1 in. long
(81 mm wide x 124 mm high x 104 mm long.)
Body Pattern: Straight-through
Maximum Capacity at 1 in. P.D. 300 ft³/hr (8.5 m³/hr)
Maximum Capacity: 415 ft³/hr (11.8 m³/hr)
Minimum Capacity: 30 ft³/hr (0.8 m³/hr)
Electrical Ratings: 24 Vac
Frequency: 60 Hz, 50 Hz
Control Voltage (Thermostat or other call for heat): 24 Vac, 60 Hz.
Flame Failure Response Time (sec): 1.6 sec @ 3 µA
Flame Sense: Two Rod

Ignition Sequence: Intermittent Pilot
Ignition Source: Pilot
Ignition System Type: Intermittent Hot Surface Pilot Ignition
Ignition Trial Time: 90 sec
Ignition Trials To Lockout: continuous retry
Pressure Ratings: 1/2 psi (3.5 kPa)
Pressure Tapping: 1/8 in. - NPT
Ambient Temperature Range: -40 F to +175 F (-40 C to +79 C)
Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Residential
Combustion Controls

	Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		Includes
					(psi)	(kPa)	
•	SV9601M4571	Natural	Standard Opening	3/4 in. NPT x 3/4 in. NPT.	0.87 kPa	3.5 in. wc	Two 3/4 in. x 1/2 in. reducer bushings and an LP conversion kit.

* TRADELINE models • SUPER TRADELINE models

SmartValve® System Controls

SV9602 SmartValve® System



The SV9602 SmartValve System Controls combine gas flow control and electronic intermittent pilot sequencing functions into a single unit. This product family offers several different intermittent pilot sequences for a wide range of applications. This system is suitable for application in a wide range of gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, space heaters, water heaters, decorative appliances, and commercial cooking units. The specific application of the SmartValve System is the responsibility of the appliance manufacturer.

Dimensions, Approximate: 3.2 in. wide x 4.9 in. high x 4.1 in. long
 (81 mm wide x 124 mm high x 104 mm long.)
Body Pattern: Straight-through
Maximum Capacity at 1 in. P.D. 300 ft³/hr (8.5 m³/hr)
Maximum Capacity: 415 ft³/hr (11.8 m³/hr)
Minimum Capacity: 30 ft³/hr (0.8 m³/hr)
Electrical Ratings: 24 Vac
Frequency: 60 Hz, 50 Hz
Control Voltage (Thermostat or other call for heat): 24 Vac, 60 Hz.
Flame Failure Response Time (sec): 1.6 sec @ 3 µA
Flame Sense: Two Rod
Ignition Sequence: Intermittent Pilot

Ignition Source: Pilot
Ignition System Type: Intermittent Hot Surface Pilot Ignition
Ignition Trial Time: 90 sec
Ignition Trials To Lockout: continuous retry
Pressure Tapping: 1/8 in. - NPT
Ambient Temperature Range: -40 F to +175 F (-40 C to +79 C)
Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.
Approvals:
Canadian Standards Association: CSA-International, Design Certified

	Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		PrePurge
					(psi)	(kPa)	
*	SV9602P4816	Natural	Step Opening	3/4 in. NPT x 3/4 in. NPT.	Full Rate: 0.87 kPa; Step Setting: 0.17 kPa	Full Rate: 3.5 in. wc; Step Setting: 0.7 in. wc	30 seconds
*	SV9602P4824	Natural	Step Opening	3/4 in. NPT x 3/4 in. NPT.	Full Rate: 0.87 kPa; Step Setting: 0.62 kPa	Full Rate: 3.5 in. wc; Step Setting: 2.5 in. wc	30 seconds
*	SV9602P4832	LP	Step Opening	3/4 in. NPT x 3/4 in. NPT.	Full Rate: 2.49 kPa; Step Setting: 0.62 kPa	Full Rate: 10.0 in. wc; Step Setting: 2.5 in. wc	30 seconds
*	SV9602P4840	LP	Step Opening	3/4 in. NPT x 3/4 in. NPT.	Full Rate: 2.49 kPa; Step Setting: 0.35 kPa	Full Rate: 10.0 in. wc; Step Setting: 1.4 in. wc	30 seconds

* TRADELINE models • SUPER TRADELINE models

SV9641 SmartValve® System



The TRADELINE® SV9641 SmartValve System Controls combine gas flow control and electronic intermittent pilot sequencing functions into a single unit. The Q3450 or Q3480 Pilot hardware supplies the low voltage igniter, flame sensor and pilot burner. These ignition system controls provide all gas ignition safety functions by controlling gas flow, ignition source, and a 120 Vac or

Dimensions, Approximate: 3.2 in. wide x 4.9 in. high x 4.1 in. long
(81 mm wide x 124 mm high x 104 mm long)

Body Pattern: Straight-through

Maximum Capacity at 1 in. P.D. 300 ft³/hr (8.5 m³/hr)

Maximum Capacity: 415 ft³/hr (11.8 m³/hr)

Minimum Capacity: 30 ft³/hr (0.8 m³/hr)

Pilot Gas Outlet: Yes

Electrical Ratings: 24 Vac

Frequency: 60 Hz, 50 Hz

Control Voltage (Thermostat or other call for heat): 24 Vac

Flame Failure Response Time (sec): 1.6 sec @ 3 µA

240 Vac combustion air blower. The controls also monitor the appliance airflow proving switch and limit string to assure proper appliance operation, and provide prepurge, postpurge, and timed trial for pilot ignition with 100 percent shutoff and continuous retry. A diagnostic LED indicates system status.

- These controls communicate directly with an electronic fan timer (ST9160 Electronic Fan Timer for single stage applications; ST9162 Electronic Fan Timer for two-stage applications) in typical forced warm air furnace applications.
- They also interface with the 208907 Terminal Board, providing compatibility with power stealing thermostats. Or, they directly interface with the appropriate power supplies and a system thermostat for additional appliance applications.
- When controlled directly by a thermostat, these controls do not provide a postpurge function, because power to the control is removed when the thermostat call for heat ends.
- The SV9641 Systems are suitable for a wide range of fan-assisted combustion gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, water heaters and commercial cooking appliances.

Flame Sense: Two Rod

Ignition Sequence: Intermittent Pilot

Ignition Source: Pilot

Ignition System Type: Intermittent Hot Surface Pilot Ignition

Ignition Trial Time: 90 sec

Ignition Trials To Lockout: continuous retry

Pressure Ratings: 1/2 psi (3.5 kPa)

Pressure Tapping: 1/8 in. - NPT

Ambient Temperature Range: -40 F to +175 F (-40 C to +79 C)

Mounting: 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting		PrePurge	PostPurge	Includes
				(psi)	(kPa)			
• SV9641M4510	Natural	Standard Opening	3/4 in. NPT x 3/4 in. NPT.	0.87 kPa	3.5 in. wc	15 seconds	30 seconds	Two 3/4 in. x 1/2 in. reducer bushings and an LP conversion kit.

* TRADELINE models • SUPER TRADELINE models

SmartValve® Selection Guide

SmartValve® Control Systems Selection Guide

		Specifications							Cross-Reference
Ignition/ Application	Universal Service Part	Gas Type	Opening Characteristics	Ambient Temperature Range	Natural to LP Conversion Kit (Included)	3/4 in. x 1/2 in. Reducer Bushings (Included)	Extension Harness (Included)	OEM Brands	Replaces
HSI Water Heaters	SV9570A2518	Natural	Standard Opening	0 to 150 F (-18 to 66 C)	No	None	No	A.O Smith	SV9570A2054, SV9570A2070, SV9570A2096
	SV9570A2526	LP						A.O. Smith	SV9570A2062, SV9570A2088, SV9570A2187
Intermittent HSI Pilot with Combustion Air Control and Limit Monitoring Forced Air Furnace	SV9541Q2561	Natural	2-Stage	-40 to 175 F (-40 to 79 C)	Yes	None	No	ICP, Heil, Tempstar, Arcoaire, Comfortmaker, KeepRite	SV9540Q2464, SV9541Q3098
	SV9641M4510		Standard Opening		Yes	Two		ICP, Heil, Tempstar, Arcoaire, Comfortmaker, KeepRite, Mestek, Sant Fin	SV9541M2094, SV9540M2229, SV9540M2260, SV9640M4116, SV9640M4124, SV9540M2278, SV9540M2245, SV9640M3126, SV9640M4132
Direct Ignition, General Application	SV9510M2511	Natural	Standard Opening	-40 to 175 F (-40 to 79 C)	Yes	None	No	Modine	SV9510M2347, SV9510M2362, SV9410M2902, SV9510M2412, SV9510M2354, SV9410M2910, SV9510M2388, SV9510M2420
	SV9520M2536			-40 to 175 F (-40 to 79 C)				—	SV9420M2331, SV9520M2403, SV9420M2323
	SV9510K2539		Slow Opening	-40 to 175 F (-40 to 79 C)				Roberts Gordon	SV9510H2228, SV9510K2133, SV9510K2158, SV9510K2141, SV9510K2166
	SV9520H8513		Fast-Slow Opening	0 to 175 F (-18 to 79C)				Armstrong, Concord, AirEase	SV9520H8042, SV9520H8034, SV9520H8067, SV9520H8026

SmartValve® Selection Guide

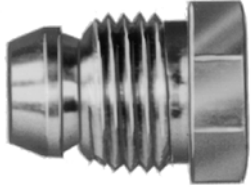


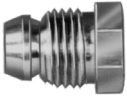



		Specifications						Cross-Reference		
Ignition/ Application	Universal Service Part	Gas Type	Opening Characteristics	Ambient Temperature Range	Natural to LP Conversion Kit (Included)	3/4 in. x 1/2 in. Reducer Bushings (Included)	Extension Harness (Included)	OEM Brands	Replaces	
Intermittent HSI Pilot, General Application	SV9601M4571	Natural	Standard Opening	-40 to 175 F (-40 to 79C)	Yes	Two	No	—	SV9601M4167, SV9601M3003, SV9601M4225	
	SV9501M2528							ICP, Heil, Tempstar, Arcoaire, Comfortmaker, KeepRite	SV9501M2056, SV9501M2080, SV9501M2726, SV9501M2031, SV9501M2049, SV9501M2239, SV9501M2700, SV9501M2718, SV9501M2734, SV9501M2742, SV9501M2064	
	SV9501M8129		Fast-Fast						—	SV9501M8103
	SV9502H2522		Slow Opening	0 to 175 F (-18 to 79)				Yes	Laars, Utica, Armstrong, Concord, AireEase	SV9501H3415, SV9501H2417, SV9501H2409, SV9502H1706, SV9502H2704, SV9501H3423, SV9501H2425
	SV9602P4816		Step Opening	-40 to 175 F (-40 to 79 C)	None	Two	Yes	Burnham, ICP, Heil, Tempstar, Arcoaire, Comfortmaker, KeepRite	SV9501P2004, SV9601P4107, SV9501P2053, SV9502P2101, SV9602P4105	
	SV9602P4824							Burnham	SV9501P2087, SV9601P4172, SV9502P2127, SV9602P4121	
	SV9602P4832							Burnham	SV9501P2020, SV9501P2046, SV9601P4149, SV9601P4164, SV9502P2119, SV9502P2135, SV9602P4113, SV9602P4139	
	SV9602P4840							—	SV9601P4115	

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Combustion Controls


For a complete cross-reference, visit www.customer.honeywell.com

Gas Valves Parts and Accessories

Parts and Accessories for Combination Gas Controls

Product Number	Description	Used With	
386449	Compression fitting for 1/4 inch OD pilot tubing, 0.65 inch total overall length	All Honeywell Combination Gas Controls	
386449-1	Compression fitting for 1/4 inch OD pilot tubing, 0.78 inch total overall length	All Honeywell Combination Gas Controls	
386449-4	Compression fitting for 1/4 inch OD pilot tubing, 1.15 inch total overall length	All Honeywell Combination Gas Controls	
390427A	3/4 inch x 1/2 inch reducer bushing for valves	All Honeywell Combination Gas Controls	
390427B	1/2 inch x 3/8 inch reducer bushing for valves	All Honeywell Combination Gas Controls	
390427D	Envelope Assembly, includes one each of 3/4 inch x 1/2 inch, 1/2 inch x 3/8 inch, 3/4 inch x 3/8 inch reducer bushing	All Honeywell Combination Gas Controls	
390427E	Envelope Assembly, includes two 3/4 in. NPT x 1/2 in. NPT reducer bushings	All Honeywell Combination Gas Controls	
391936	LP to Natural Gas Conversion kit, including regulator spring, O-ring, screw and cap	V800, VS821, VS820	
391937	Natural Gas to LP Conversion kit, including regulator spring, O-ring, screw and cap	V800, VS821, VS820	
392449	Compression fitting for 1/8 inch OD pilot tubing, 0.65 inch total overall length	VR8200, VR8300	
392449-1	Compression fitting for 1/8 inch OD pilot tubing, 0.78 inch total overall length	VR8200, VR8300	
392449-4	Compression fitting for 1/8 inch OD pilot tubing, 1.15 inch total overall length	VR8200, VR8300	
392451-1	ECO (energy cutoff) connector for 1/4 inch (6 mm) quick-connects	V800, VS821, VS820	
392877	1/4 inch barbed vent fitting	VR8200, VR8300	
393200-1	ECO connector bag assembly, includes ECO adapter with 1/4 inch (6 mm) quick-connects	VR8200, VR8300, VR4200, VR4300	
393690-11	Flange Kit bag assembly, includes 3/8 inch straight flange, O-ring, 9/64 inch hex screws and 9/64 inch hex wrench	VR8200, VR8300, VR4200, VR4300, SV9500, VR8305, VR4204, VR4304, VR4305, VR8204, VR8205, VR8304	

Gas Valves Parts and Accessories

Product Number	Description	Used With	
393690-13	Flange Kit bag assembly, includes 1/2 inch angle flange, O-ring, 9/64 inch hex screws and 9/64 inch hex wrench	VR8200, VR8300, VR4200, VR4300, SV9500, VR8305, VR4204, VR4304, VR4305, VR8204, VR8205, VR8304	
393690-4	Flange Kit bag assembly, includes 3/4 in. straight flange, O-ring, and hex screws.	VR8200, VR8300, VR4200, VR4300, SV9500, VR8305, VR4204, VR4304, VR4305, VR8204, VR8205, VR8304	
393691	Natural Gas to LP Conversion kit, including regulator spring, screw and cap	VR8200, VR8300, VR4200, VR4300, SV9500, VR8305, VR4204, VR4304, VR4305, VR8204, VR8205, VR8304	
394537	1/8 inch barbed vent fitting	VR8200, VR8300, VR4200, VR4300, SV9500, VR8305, VR4204, VR4304, VR4305, VR8204, VR8205, VR8304	
394588	LP to Natural Gas Conversion kit, including regulator spring, screw and cap	VR8200, VR8300, VR4200, VR4300, SV9500, VR8305, VR4204, VR4304, VR4305, VR8204, VR8205, VR8304	
396021	2 Stage LP Conversion Kit	VR8305, VR8204, VR8205, VR8304, SV9540	
396025	2 Stage LP to Nat. Conversion Kit	SV9540, VR8305, VR8204, VR8205, VR8304	
396087-1	Natural Gas Conversion Kit	VS8510, VS8410, VS8420, VS8520	
396087-2	LP Gas Conversion Kit	VS8510, VS8410, VS8420, VS8520	

Thermocouples and Thermopiles

Q313 Replacement Thermopile Generators



Q313 Thermopile Generator contains multiple thermocouples connected in series to increase the millivoltage output. The power generated is sufficient to operate an automatic millivolt gas control system, independent of any outside power source.

- Push-in clip, split nut, and adapter assembly for easy pilot burner installation.
- Spade or quick-connect terminals available for millivolt gas control connections.
- Male nut connector for Pilotstat® safety control power units.
- Available in a variety of lead lengths.

Open Circuit Output: 600 mV to 750 mV

Voltage: 750 mV

Temperature Ratings Cold Junction: 780 F (416 C)

Temperature Ratings Hot Junction: 1400 F (760 C)

Connection Type: Spade Terminals

Product Number	Lead Length		Resistance	Includes	Used With
	(inch)	(mm)			
Q313A1022	35 in.	889 mm	2.89 ohms	1/2 in. thermopile attaching nut	Q314, Q324, Q327, Q377, Q379, Q382 Pilot Burners
Q313A1055	47 in.	1194 mm	2.90 ohms	1/2 in. thermopile attaching nut.	Q314, Q324, Q327, Q377, Q379, Q382 Pilot Burners
* Q313A1139	35 in.	889 mm	2.89 ohms	push-in clip	Q314, Q324, Q327, Q377, Q379, Q382 Pilot Burners
* Q313A1170	35 in.	889 mm	2.89 ohms	PG9 adapter (part no. 393948) and 1/2 in. thermopile attaching nut	Q314, Q324, Q327, Q377, Q379, Q382 Pilot Burners
* Q313A1188	35 in.	889 mm	2.89 ohms	push-in clip, 1/2 in. thermopile attaching nut.	Q314, Q324, Q327, Q377, Q379, Q382 Pilot Burners
Q313A1402	35 in.	889 mm	2.89 ohms	PG9 adapter (part no. 393948) and 1/2 in. thermopile attaching nut	Q314, Q324, Q327, Q377, Q379, Q382 Pilot Burners
Q313B1005	35 in.	889 mm	2.89 ohms	Junction box for series hookup with high limit switch and 1/2 in. thermopile attaching nut	Q314, Q324, Q327, Q377, Q379, Q382 Pilot Burners

* TRADELINE models • SUPER TRADELINE models

Q340 Universal 30 mV Thermocouple



Thermocouples generate a thermoelectric current that senses a pilot flame on gas-fired heating systems. The pilot flame heats the tip of the thermocouple, producing a temperature differential between it and the base. This temperature difference generates a small amount of DC power, measured in millivolts.

- Push-in clip, split nut, and adapter assembly for easy pilot burner installation.
- Spade or quick-connect terminals available for millivolt gas control connections.
- Male nut connector for Pilotstat® safety control power units.
- Available in a variety of lead lengths.

Open Circuit Output: 26 mV to 32 mV

Voltage: 30 mV

Temperature Ratings Cold Junction: 780 F (416 C)

Temperature Ratings Hot Junction: 1400 F (760 C)

Product Number	Lead Length		Connection Type	Resistance	Includes	Used With
	(inch)	(mm)				
* Q340A1066	18 in.	457 mm	11/32 32 Male Connector Nut	0.02 ohms	Adapter and Push In Clip	—
• Q340A1074	24 in.	610 mm	11/32 32 Male Connector Nut; Push-in Clip	0.02 ohms	Adapter and Push In Clip	—
* Q340A1082	30 in.	762 mm	11/32 32 Male Connector Nut	0.02 ohms	Adapter and Push In Clip	—
• Q340A1090	36 in.	914 mm	11/32 32 Male Connector Nut	0.02 ohms	Adapter and Push In Clip	—
* Q340A1108	48 in.	1219 mm	11/32 32 Male Connector Nut	0.03 ohms	Adapter and Push In Clip	—
Q340A1504	18 in.	457 mm	Push-in Clip	0.02 ohms	Adapter and Push In Clip	Q303, Q308, Q314, Q324, Q333
Q340A1512	24 in.	610 mm	11/32 32 Male Connector Nut	0.02 ohms	Adapter and Push In Clip	Q314
Q340A1520	30 in.	762 mm	Push-in Clip	0.02 ohms	Adapter and Push In Clip	Q303, Q308, Q314, Q324, Q335
Q340A1538	36 in.	914 mm	11/32 32 Male Connector Nut	0.02 ohms	Adapter and Push In Clip	Q314
Q340A1546	48 in.	1219 mm	Push-in Clip	0.03 ohms	Adapter and Push In Clip	Q303, Q308, Q314, Q324, Q337

* TRADELINE models • SUPER TRADELINE models

Thermocouples and Thermopiles

Q390 Thermocouple



Thermocouples generate a thermoelectric current that senses a pilot flame on gas-fired heating systems. The pilot flame heats the tip of the thermocouple, producing a temperature differential between it and the base. This temperature difference generates a small amount of DC power, measured in millivolts.

- Push-in clip, split nut, and adapter assembly for easy pilot burner installation.
- Spade or quick-connect terminals available for millivolt gas control connections.
- Male nut connector for Pilotstat® safety control power units.
- Available in a variety of lead lengths.

Open Circuit Output: 26 mV to 32 mV
Voltage: 30 mV



Temperature Ratings Cold Junction: 780 F (416 C)
Temperature Ratings Hot Junction: 1400 F (760 C)

Product Number	Lead Length		Connection Type	Resistance	Includes
	(inch)	(mm)			
* Q390A1046	24 in.	610 mm	11/32 32 Male Connector Nut	0.02 ohms	Adapter and Push In Clip
* Q390A1053	30 in.	762 mm	11/32 32 Male Connector Nut	0.02 ohms	Adapter and Push In Clip
* Q390A1061	36 in.	914 mm	11/32 32 Male Connector Nut	0.02 ohms	Adapter and Push In Clip
* Q390A1095	18 in.	457 mm	11/32 32 Male Connector Nut	0.02 ohms	Adapter and Push In Clip
* Q390A1103	48 in.	1219 mm	11/32 32 Male Connector Nut	0.03 ohms	Adapter and Push In Clip

* TRADELINE models • SUPER TRADELINE models

Residential
Combustion Controls

Thermocouple and Thermopile Accessories

Product Number	Description	
393948	PG9 Adapter Assembly	
394530	Thermocouple Tester Assembly	

Thermopiles and Thermocouples Selection Guide

Thermopiles/Thermocouples



Contractors depend on Honeywell for easy installation and reliable performance. Built for long service life, the Honeywell Q313A, Q340A and Q390A will meet your service needs.

When selecting a thermocouple or thermopile for your next job, look for these Honeywell features:

- Variety of lead lengths
- Easy installation
- Many accessories included
- Durability

Thermopiles and Thermocouples Selection Guide

Thermocouples							
Lead Length (in.)	Canada Tradeline	US Super Tradeline	Tradeline	White-Rodgers	Robertshaw	Husky	Johnson Controls
18	Q340A1405	Q340A1066/U	Q390A1095/U	H06E-518, H06E-18	—	K16BT-18	K19AT-18
24	Q340A1413	Q340A1074/U	Q390A1046/U	H06E-524, H06E-24	1970-24, 1980-24	K16BT-24	K19AT-24
30	Q340A1421	Q340A1082/U	Q390A1053/U	H06E-530, H06E-30	1970-30	K16BT-30	K19AT-30
36	Q340A1439	Q340A1090/U	Q370A1061/U	H06E-536, H06E-36	1970-36, 1980-36	K16BT-36	K19AT-36
48	Q340A1447	Q340A1108/U	Q390A1103/U	H06E-548, H06E-48	—	K16BT-48	K19AT-48

Thermopiles					
Model	Item	Lead Length (in.)	Connections	Tradeline/Super Tradeline	Notes
Q313	Q313A1022/U	35	Nut & Spade Terminal	Tradeline	—
	Q313A1139/U	35	Clip & Spade Terminal	Super Tradeline	Push-In Clip
	Q313A1170/U	35	Clip & Spade Terminal	Super Tradeline	PG9 Adapter (393948)
	Q313A1188/U	35	Nut & Spade Terminal	Super Tradeline	Push-In Clip, 1/2 in. Attaching Nut
	Q313A1055/U	47	Nut & Spade Terminal	Tradeline	1/2 in. Attaching Nut
	Q313A1105/B	75	Nut & Spade Terminal	Tradeline	1/2 in. Attaching Nut

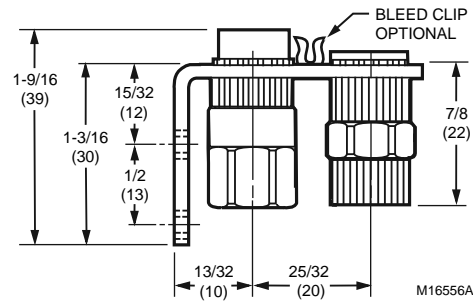
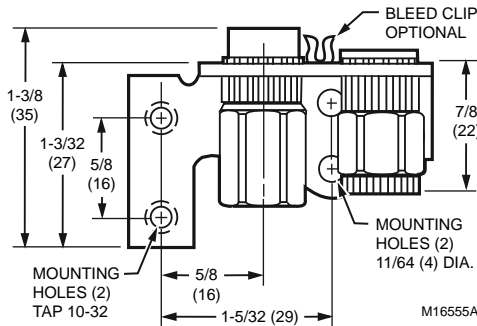
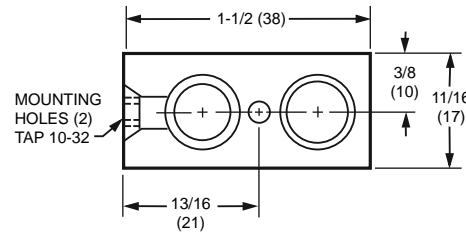
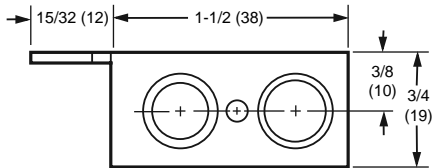
Q314 Pilot Burner



Nonprimary-aerated, insert orifice type pilot burner for main burner ignition with Q340 or Q390 Thermocouple for Pilotstat safety control operation.

- Use with Q313 Thermopile Generator for 750 mV powerpile applications.
- Variety of mounting brackets available.
- Variety of tip styles to provide desired flame pattern.
- Interchangeable, color-coded orifice and inlet fittings can be ordered to convert between natural and LP gas.
- Single tip style.

Dimensions in inches (millimeters)



Type of Gas: Natural
Aeration: Non-primary

Approvals:
American Gas Association: IAS Certified File No. L2025001

Product Number	Compression Fitting Size	Mounting Bracket	Tip Style	Direction of Front Tip	Orifice	Includes
Q314A3513	1/4 in.	A	Single	(F) Front	BCR-18 (0.018 in.)	—
Q314A3547	1/4 in.	A	Single	(L) Left	BCR-18 (0.018 in.)	—
• Q314A4586	1/4 in.	B	Single	(F) Front	BBR-10 (0.010 in.); BCR-18 (0.018 in.)	Special mounting bracket with screws to convert "B" bracket to "A" bracket.
* Q314A6094	1/4 in.	B	Single	(L) Left	BBR-10 (0.010 in.); BCR-18 (0.018 in.)	Special mounting bracket with screws to convert "B" bracket to "A" bracket.
* Q314A6102	1/4 in.	B	Single	(K) Right	BBR-10 (0.010 in.); BCR-18 (0.018 in.)	Special mounting bracket with screws to convert "B" bracket to "A" bracket.

* TRADELINE models • SUPER TRADELINE models

Pilot Burners

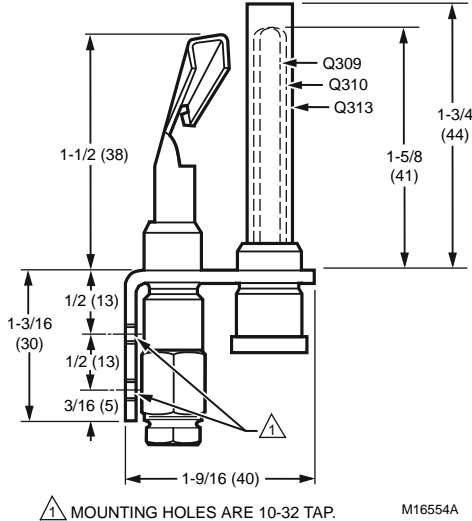
Q327 Pilot Burner



Primary-aerated, spud orifice-type pilot burner for main burner ignition with Q340 or Q390 Thermocouple for Pilotstat safety control operation.

- Use with Q313 Thermopile Generator for 750 mV powerpile applications.
- Variety of mounting brackets available.
- Variety of tip styles to provide desired flame pattern.
- Interchangeable, color-coded orifice and inlet fittings can be ordered to convert between natural and LP gas.
- Batwing tip style.

Dimensions in inches (millimeters)



Type of Gas: Natural; LP

Aeration: Primary

Approvals:

American Gas Association: IAS Certified File No. L2025001

Product Number	Compression Fitting Size	Mounting Bracket	Tip Style	Orifice
* Q327A1626	1/4 in.	B	Batwing	K14 (0.014 in.)A26 (0.026 in.)
* TRADELINE models • SUPER TRADELINE models				

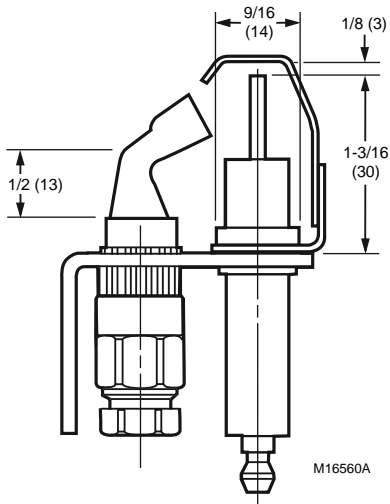
Q345 Igniter-Burner



Nonprimary-aerated combination pilot burner and ignitor. Used with the S86, S860, S8610, or S8670 in intermittent pilot systems.

- Includes pilot burner with bracket, ceramic-insulated Kanthal flame rod/spark igniter and ground strap.
- Single tip style.

Dimensions in inches (millimeters)



Type of Gas: Natural

Aeration: Non-primary

Leadwire Temperature Ratings: (Max. at electrode tip: 968 C)

Accessories:


390686-1 LP Orifice for Q314, Q345, Q3450, Q3451, Q3452 Pilot Burners. Orifice stamped: BBR10

Product Number	Compression Fitting Length	Compression Fitting Size	Mounting Bracket	Tip Style	Direction of Front Tip	Orifice	Includes
* Q345A1305	0.78 in.	1/4 in.	B	Single	(F) Front	BCR-18 (0.018 in.)	Special mounting bracket with screws to convert "B" bracket to "A" bracket.
* Q345A1313	0.78 in.	1/4 in.	B	Single	(L) Left	BCR-18 (0.018 in.)	Special mounting bracket with screws to convert "B" bracket to "A" bracket.
* Q345A1321	0.78 in.	1/4 in.	B	Single	(K) Right	BCR-18 (0.018 in.)	Special mounting bracket with screws to convert "B" bracket to "A" bracket.





* TRADELINE models • SUPER TRADELINE models

Pilot Burner Parts and Accessories



Residential Combustion Pilot Burner Accessories

Product Number	Description	
392431	Pilot Hardware for Y8610	

Residential Combustion Pilot Burner Parts

Product Number	Description	Used With	
Q3400A1024	30 in. Igniter Flame Rod Assembly	SV9500, SV9600, Field replacement for Q3450, Q3480 hot surface pilot burner	
Q3400A1081	36 in. Igniter Flame Rod Assembly	SV9500, SV9600, Field replacement for Q3450, Q3480 hot surface pilot burner	
388146AG	Natural Gas Orifice for Q327 Pilot Burner. Orifice is stamped: A 26	Q327	
388146KP	LP Orifice for Q348 and Q3480 Pilot Burners. Orifice is stamped: KR 14	Q348; Q3480	
388146KR	LP Orifice for Q327 Pilot Burner. Orifice stamped: K14	Q327	
388146NE	Natural Gas Orifice for Q348 and Q3480 Pilot Burners. Orifice stamped: NE22	Q348; Q3480	
388256B	Orifice Assembly: Orifice stamped: 9	CS82	
388468H	LP Orifice for Q324 Pilot Burners. Orifice stamped: N18	Q324	

Pilot Burner Parts and Accessories

Product Number	Description	Used With	
390686-1	LP Orifice for Q314, Q345, Q3450, Q3451, Q3452 Pilot Burners. Orifice stamped: BBR10	Q314; Q345; Q3450; Q3451; Q3452	
390686-23	0.008 LP Pilot Orifice for Q350, Q380. Orifice stamped: GAF8	Q350, Q380	
390686-25	0.012 LP Pilot Orifice for Q345 and Q379. Orifice stamped BBR12	Q345, Q379	
390686-36	LP Orifice for Q314, Q345, Q3450, Q3451, Q3452 Pilot Burners. Orifice stamped: BBR11	Q314; Q345; Q3450; Q3451; Q3452	
390686-4	Natural Gas Orifice for Q314, Q345, Q382, Q3450, Q3451, Q3452 pilots burners. Orifice stamped: BCR18	Q314; Q345; Q3450; Q3451; Q3452; Q382	
390686-5	Natural Gas Orifice for Q314, Q345, Q382, Q3450, Q3451, Q3452 pilot burners. Orifice stamped: BCR20	Q314; Q345; Q3450; Q3451; Q3452; Q382	
391959A1	BBR10, Replacement Orifice Assembly 388146AA (A11)	—	
391959A2	BCR18, Replacement Orifice Assembly 388146AC (A18)	—	
391959A4	CAR24, Replacement Orifice Assembly 388146JE (A18)	—	

Ignition Pilot Modules

S87 Direct Spark Ignition Modules



Provide electronic control of direct spark ignition systems used on gas fire furnaces, boilers, and other heating appliances.

- Control ignition sequence and gas control operation.
- Generate high voltage potential for main burner ignition.
- Lockout after one trial for ignition if main burner fails to ignite.
- Reset from thermostat after lockout.
- Use modules (except S87C) with any combination gas control designed for direct spark applications and rated 2.0A or less.

Application: Provide electronic control of direct spark ignition systems used on gas fired furnaces, boilers, and other heating appliances.

Dimensions, Approximate: 5 1/4 in. high x 4 1/16 in. wide x 1 15/16 in. long (133 mm high x 103 mm wide x 49 mm deep)

Type of Gas: Natural or LP

Electrical Ratings: 24 Vac

Frequency: 60 Hz

Flame Failure Response Time (sec): 0.8 sec. @ 5.0 microamp

Flame Failure Re-ignition Time (sec): 0.8 sec. maximum

Ignition Sequence: Single trial for main burner ignition (then shut down and lockout)

Ignition Source: Internal high voltage spark generator

Ignition System Type: Direct Spark Ignition

Maximum Valve Load @ 24 Vac (Amps): 2A

Typical Gas Control: VR8205, VR8305

Typical Ignition Hardware: Q347A

Maximum Ambient Temperature: -40 F to +175 F (-40 C to +79 C)

Product Number	Flame Sense	Ignition Trial Time (sec)	Ignition Trials To Lockout	PrePurge	Includes
S87B1008	Single Rod	6 sec.	1	None	Alarm terminal
S87B1016	Single Rod	11 sec.	1	None	Alarm terminal
S87B1024	Single Rod	21 sec.	1	None	Alarm terminal
S87B1065	Single Rod	4 sec.	1	None	Alarm terminal
S87C1006	Two Rod	6 sec.	1	None	—
S87C1030	Two Rod	21 sec.	1	None	—
S87D1004	Two Rod	6 sec.	1	None	Alarm terminal
S87D1012	Two Rod	11 sec.	1	None	Alarm terminal
S87D1020	Two Rod	4 sec.	1	None	Alarm terminal
S87D1038	Two Rod	21 sec.	1	None	Alarm terminal
S87J1026	Single Rod	11 sec.	1	30 sec. minimum	—
S87J1034	Single Rod	21 sec.	1	30 sec. minimum	—
S87K1008	Two Rod	4 sec.	1	30 sec. minimum	—

S89C Hot Surface Ignition Module



Application: Provide electronic control of direct hot surface ignition systems used on gas fired furnaces, boilers, and other heating appliances.

Dimensions, Approximate: 5 1/4 in. high x 4 1/16 in. wide x 1 15/16 in. long (133 mm high x 103 mm wide x 49 mm deep)

Type of Gas: Natural or LP

Electrical Ratings: 24 Vac

Frequency: 60 Hz

Flame Failure Response Time (sec): 2.0 sec. @ 2.5 microamp

Ignition Sequence: Single trial for main burner ignition (then shut down and lockout)

Provide operating control and system shutdown on loss of main burner flame in direct ignition central heat furnaces and heating appliances with hot surface igniter.

- S89C,G,J are for systems with a combination igniter- sensor.
- S89C lock out after one try for ignition. S89G,H provide three tries for ignition before lockout, with 30 sec. min. purge before second and third tries.
- Compatible with Norton 201 and 271 or equivalent hot surface igniters.
- Available with leadwires for line voltage connections.
- Modules can be used on either natural or LP gas; they provide 100 percent shutoff of gas on lockout.
- Modules have relay contacts for use with any direct ignition gas control with max. 2.0 A, 24 Vat rating.
- Modules use rectification principle for flame sensing. -40 F to +175 F (-40 C to +79 C) temperature rating.

Ignition Source: Line Voltage (120 VAC) Hot Surface Element (Norton Model 201)

Ignition System Type: Direct Hot Surface Ignition

Maximum Valve Load @ 24 Vac (Amps): 2A

Typical Gas Control: VR8205, VR8305

Typical Ignition Hardware: Norton 201

Maximum Ambient Temperature: -40 F to +175 F (-40 C to +79 C)

Approvals:

Canadian Standards Association: Design Certified

Product Number	Flame Sense	Ignition Trial Time (sec)	Ignition Trials To Lockout	PrePurge
S89C1087	Single Rod	6 sec.	1	None
S89C1095	Single Rod	15 sec.	1	None

S89E,F Direct Spark Ignition Modules



Application: Provide electronic control of direct spark ignition systems used on gas fired furnaces, boilers, and other heating appliances.

Dimensions, Approximate: 5 1/4 in. high x 4 1/16 in. wide x 1 15/16 in. long (133 mm high x 103 mm wide x 49 mm deep)

Type of Gas: Natural or LP

Electrical Ratings: 24 Vac

Frequency: 60 Hz

Flame Failure Response Time (sec): 2.0 sec. @ 2.5 microamp

Flame Failure Re-ignition Time (sec): 0.8 sec. maximum

Ignition Sequence: Single trial for main burner ignition (then shut down and lockout)

Provide electronic control of direct spark ignition systems, with external spark transformers, used on gas-fired furnaces, boilers, conversion burners and other heating appliances.

- Controls ignition sequence and gas control operation in direct spark ignition systems.
- Control separate 120 Vac spark generator that provides high voltage potential for main burner ignition.
- Lockout after one trial for ignition if main burner fails to ignite.
- Reset from thermostat after lockout. Use separate electrodes for spark ignition and flame sensing.
- Use any 24 Vac combination gas control designed for direct spark applications and rated at 2.0A or less.

Ignition Source: External (120 VAC powered) High Voltage Spark Generator

Ignition System Type: Direct Spark Ignition

Maximum Valve Load @ 24 Vac (Amps): 2A

Typical Gas Control: VR8205, VR8305

Typical Ignition Hardware: Q652, Q345

Maximum Ambient Temperature: -40 F to +175 F (-40 C to +79 C)

Approvals:

Canadian Standards Association: Design Certified

Product Number	Flame Sense	Ignition Trial Time (sec)	Ignition Trials To Lockout	PrePurge
S89E1058	Two Rod	4 sec.	1	—
S89F1098	Two Rod	4 sec.	1	30 sec. minimum
S89F1106	Two Rod	4 sec.	1	30 sec. minimum

Ignition Pilot Modules

S8610U Universal Intermittent Pilot Module



Field service replacement for most Honeywell, Robertshaw, Johnson, and UTEC (HSC) Intermittent Pilot Ignition Modules. Provides electronic control of most intermittent pilot ignition systems used on gas-fired furnaces, boilers, and other heating appliances.

- Provides ignition sequence, flame monitoring and safety shutoff for intermittent pilot central furnaces and heating appliances.
- Provides 100 percent pilot gas shutoff if pilot fails to light; after 6-minute delay, trial for ignition is repeated. Ignition trial/delay sequence is repeated until the appliance lights or call for heat is removed.
- For use with Natural or LP gas.
- For use in single rod or dual rod/remote sense applications. Includes relay contacts for use with any intermittent pilot gas control string with maximum 1.0A pilot or 2.0A main valve rating; Honeywell VR8204, VR8304 or VR8345M combination gas control recommended.
- Functional equivalent of S86, S8600, S8610 and S90 modules.
- Includes spark cable adapters to allow field replacement of both Honeywell and competitive controls without replacing existing spark cable.

Application: One or Two Rod Intermittent Pilot Control with continuous retry trial time with configurable lockout timing of 15 or 90 seconds and configurable prepurge of 30 seconds or no prepurge

Dimensions, Approximate: 3 15/16 in. high x 5 7/16 in. wide x 2 5/8 in. deep (100 mm high x 138 mm wide x 67 mm deep)

Type of Gas: Natural or LP

Electrical Ratings: 24 Vac

Frequency: 60 Hz; 50 Hz

Flame Failure Response Time (sec): 2 seconds maximum

Ignition Sequence: Continuous retry, after trial for ignition, pilot gas shuts off for 5 minutes, then another trial for pilot ignition takes place

Ignition Source: Internal high voltage spark generator

Ignition System Type: Intermittent Pilot

Maximum Valve Load @ 24 Vac (Amps): 1A Pilot, 2A Main @ 165 F; 1A Pilot, 1A Main @ 175 F

Typical Gas Control: VR8204, VR8304

Typical Ignition Hardware: Q345, Q3451, Q3452

Maximum Ambient Temperature: -40 F to +165 F (-40 C to +74 C)

Approvals:

Canadian Standards Association: Design Certified

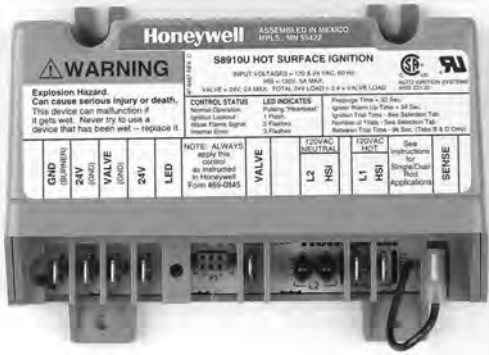
Accessories:

394800-30 30 in. Ignition Cable with Right Angle Boot for use with S8600 family

394801-30 30 in. Ignition Cable Assembly with straight boot for use with S8600 family

Product Number	Flame Sense	Ignition Trial Time (sec)	Between Trial Time (sec)	Ignition Trials To Lockout	PrePurge	Includes
• S8610U3009	Single Rod or Two Rods	continuous retry	5 minute delay after failed trial for ignition.	continuous retry	Configurable to 30 seconds or no prepurge	Damper connection with automatic vent damper plug
* TRADELINE models • SUPER TRADELINE models						

S8910 Universal Hot Surface Ignition Module



Application: Provide electronic control of direct hot surface ignition systems used on gas fired furnaces, boilers, and other heating appliances.

Dimensions, Approximate: 5 1/4 in. high x 4 1/16 in. wide x 1 15/16 in. long (133 mm high x 103 mm wide x 49 mm deep)

Type of Gas: Natural or LP

Electrical Ratings: 24 Vac

Frequency: 60 Hz

Flame Failure Response Time (sec): 1.5 sec.

Ignition Sequence: The number of trials for ignition and trial time is determined by the selection tab. If a selection tab is not installed, the module will operate at four seconds trial time and one ignition trial.

Universal Hot Surface Ignition Module is designed to provide easy field replacement of a wide range of hot surface ignition modules manufactured by Honeywell, Robertshaw and White-Rodgers. The S8910U Module provides operating control of a direct ignition system using a 120 Vac hot surface igniter.

- Replaces many White-Rodgers, Robertshaw and Honeywell hot surface ignition models.
- For 120 Vac (up to 5.0A) surface igniter (Norton 201/271 or equivalent).
- For local (single rod) or remote (dual rod) rectification type flame sensing.
- Contains easy-to-use instructions plus the accessories required to adapt the existing hot surface ignition module.
- Provides one or three ignition trials (four-second or seven-second trials) per call for heat; prepurge of 32 seconds or less; up to 96 seconds between purge trial times.
- Temperature range is -40 to +175 F (-40 to +79 C).

Ignition Source: Line Voltage (120 VAC) Hot Surface Element (Norton Model 201 or 270)

Ignition System Type: Direct Hot Surface Ignition

Maximum Valve Load @ 24 Vac (Amps): 2A

Typical Gas Control: VR8205, VR8305

Typical Ignition Hardware: Norton 201, Norton 271, Q354

Maximum Ambient Temperature: -40 F to +175 F (-40 C to +79 C)

Approvals:

Canadian Standards Association: Design Certified

Product Number	Flame Sense	Ignition Trial Time (sec)	Between Trial Time (sec)	Ignition Trials To Lockout	PrePurge
• S8910U1000	Single Rod or Two Rods	4 sec. or 7 sec.	(2) 96 sec.- 3 trial mode only	1 or 3	32 seconds

* TRADELINE models • SUPER TRADELINE models

Y8610U Universal Retrofit Intermittent Pilot Gas Burner Ignition Systems



Application: Provide electronic control of intermittent pilot ignition systems used on gas fired furnaces, boilers, and other heating appliances.

Dimensions, Approximate: 3 15/16 in. high x 5 7/16 in. wide x 2 5/8 in. deep (100 mm high x 138 mm wide x 67 mm deep)

Type of Gas: Natural or LP

Electrical Ratings: 24 Vac

Frequency: 60 Hz

Flame Failure Response Time (sec): 2.0 sec

Complete kits converting conventional standing pilot system to intermittent pilot system. For use with 24 Vac gas-fired atmospheric furnaces, boiler and heating appliances.

- Y8610U kits are for use with natural or LP gas; provides 100 percent pilot gas shutoff if pilot fails to light; after 6-minute delay, trial for ignition is repeated.
- Ignition trail/delay sequence is repeated until the appliance lights or call for heat is removed.

Ignition Sequence: Continuous retry, after trial for ignition, pilot gas shuts off for 5 minutes, then another trial for pilot ignition takes place

Ignition Source: Internal high voltage spark generator

Ignition System Type: Intermittent Pilot

Maximum Valve Load @ 24 Vac (Amps): 1A Pilot, 2A Main @ 24Vac

Typical Gas Control: VR8204, VR8304

Typical Ignition Hardware: Q345, Q3451

Maximum Ambient Temperature: -40 F to +165 F (-40 C to +74 C)

Product Number	Flame Sense	Ignition Trial Time (sec)	Ignition Trials To Lockout	PrePurge	Includes
Y8610U4001	Single Rod or Two Rods	15 or 90 seconds	continuous retry	0 or 30 seconds	VR8204A2142 valve (1/2 x 1/2; 3.5 in. WC setting; 150 kBtu/hr at 1 in. p.d.)
Y8610U6006	Single Rod or Two Rods	15 or 90 seconds	continuous retry	0 or 30 seconds	VR8304M3558 (1/2 x 3/4; 3.5 in. setting; 270kBtu/hr at 1 in. p.d.)

Ignition Pilot Modules Selection Guide

Ignition Pilot Modules Selection Guide

Universal Service Part	Applications			Timings				
	Ignition System	Flame Sensor	Ignition Sequence (Note 1)	Ignition Trials To Lockout (Note 1)	Ignition Trial Time	Between Trial Time	Pre-Purge	Flame Failure Response Time
S8910U1000	Line Volt Hot Surface Ignition	1 or 2 Rods	P	1 or 3 Field Selectable	4 sec. or 7 sec. Field Selectable	96 sec., 3 Trial Mode Only	32 sec.	1.5 sec
S8610U3009	Intermittent Pilot	1 or 2 Rods	C	C	15 sec. or 90 sec. Field Selectable	5 Minute Delay After Failed Trial for Ignition	0 sec. or 30 sec. Field Selectable	2.0 sec. max.
Y8610U6006	Intermittent Pilot	Single Rod	C	C	15 sec. or 90 sec. Field Selectable	5 Minute Delay After Failed Trial for Ignition	0 sec.	2.0 sec. max.

Features and Functions					Cross-Reference			
Universal Service Part	Type of Gas	Ignition Source	Typical Ignition Hardware	Includes	Honeywell	White-Rodgers	Robertshaw	Johnson Controls
S8910U1000	Nat or LP	Switched Line Voltage	Norton 201, Norton 271, Hot Surface Elements, Q354 Flame Rod	—	S89C1004, S89C1007, S89C1012, S89C1046, S89C1087, S89C1103, S89D1002, S89G1005, S89F1011, S89G1013, S89G1021, S89G1029, S89G1047, S89H1003, S89H1011, S89H1029, S89J1008, S89D1006, S89G1003, S89G1037, S89H1002, S89H1010	50E47 1-79, 101-179, 201-279, 301-379; 5047F1-79, 101-179, 201-279, 301-379	HS780-17NL 104A, 306A, 308A; HS780-17NR 104A, 306A, 308A; HS780-34NL 108A, 304A, 306A, 308A, 312A; HS780-34NR 104A, 306A, 308A, 312A; HS780-34PL 308A	—
S8610U3009	Nat or LP	Internal	Q345, Q3451, Q3452	Internal Damper Connector	S86 Series, S90 Series, S8600 Series, S8610 Series, S8620 Series, S8660 Series, S8670 Series, S8680J1004	50D49-350, 50D49-360, 50D49-361, 50D50-843, 50D-401	710-713, 710-715, 735-737, 780-002, 780-003, 780-701, 780-715, 780-735, 780-736, 780-737, 780-845, SP710, SP715, SP720, SP730, SP735, SP750 Series	CSA42, 43, 44, 45, 46, 48, 49; G60, G65, G67, G770 Series
Y8610U6006	Nat or LP	Internal	Adapter for Pilot Burner Included	—	Y8610U3003	—	—	—

Notes:

1. Ignition Sequence







C = Continuous retry - After trial for ignition, pilot gas shuts off for 5 minutes, then another trial for pilot ignition takes place.

P = The number of trials for ignition and trial time is determined by the selection tab. If a selection tab is not installed, the module will operate at four seconds trial time and one ignition trial.

For a complete cross-reference, visit www.customer.honeywell.com

Gas Ignition Module Accessories

Gas Ignition Module Accessories

Product Number	Description	
392125-1	25 in. ignition cable assembly with a right angle boot on the igniter end and a straight boot on the module end. For use with the S86/S87 family.	
392125-2	36 in. ignition cable assembly with a right angle boot on the igniter end and a straight boot on the module end. For use with the S86/S87 family.	
392125-5	18 in. ignition cable assembly with a right angle boot on the igniter end and a straight boot on the module end. For use with the S86/S87 family.	
393044	Y86 Wiring Harness Assembly	
394800-30	30 in. Ignition Cable with Right Angle Boot for use with S8600 family	
394801-30	30 in. Ignition Cable Assembly with straight boot for use with S8600 family	
394803-2	36 in. High Temperature right angle boot and cable Assembly for S8600 family	
4074EPM	Male Rajah to 1/4 in. Female Quick Connect adapter for use with S8600 family	

Igniter Bracket Replacement Cross Reference

Q3200U Igniter Bracket Replacement Cross Reference^a

Manufacturer	OEM Part Number	Q3200U Bracket ^b	
American Road Equip.	201W	A	
Arco Air	1096048	D	
	1380680		
Armstrong Air	38322B001	A	
Carrier/Bryant/Payne	LH33ZS001	B or E ^c	
	LH33ZS001A		
	LH33ZS002		
	LH33ZS002A		
	LH33ZS003		
	LH33ZS003A		
Claire Bros.	C-238	A	
	C242		
Coleman	1474-051	A	
	1474-052		
Comfort Maker	1096048	D	
Detroit Radiant	201D	A	
DMO Industries	20834	A	
Dornback Furnace	271W	A	
Ducane	20015201	B	
Enero Tech	10399	A	
Evcon	1474-051	A	
	1474-052		
Evcon Coleman	025-32625-000	B	
Goodman	B1401009	D	
	B1401018	C	
	B1401018S	D	
HB Smith	50018	A	
Heil	1096048	D	
Hupp Industries	09050	A	
Intercity	1009604	D	
	1096048		
Majestic	75-92-104	A	
	75-92-105		
Metzger	201N	A	
	201W		
Modine	5H76032A	C	
Mor-Flo	3200618	A	
	511-330-193	B	
Nordyne	105141000	A	
	632-0770		
	632-0880		
Norton/St Gobain	201	B	
	271		
	201D	A	
	201K		
	201L		
	201N		
	201R		
	201W		
	271N		
	271NM		D
	271P		A
	271W		
Raypak	600915	B	
Rheem	62-22441-01	A	

a Table data is correct to the best of Honeywell's knowledge as of this publication's date. However, some appliances may have igniter applications that are beyond the capabilities of this kit.

b For igniters that require bracket A, use the template to determine the tab to be removed.

c For Carrier sealed combustion furnaces, you must use bracket E and retain the existing orange gasket for use with bracket E.

Manufacturer	OEM Part Number	Q3200U Bracket ^b
Roberts Gordon	90434300	B
	90436600	A
Robert-shaw	41-402	A
	41-403	B
	41-404	
	41-405	A
	41-407	B
	41-408	A
	41-409	B
	41-410	A
	41-412	D
	41-418	C
Snyder General	1380654	B
	1380672	
	1380680	
Superior Fireplace	94851	A
Tempstar	1096048	D
Trane	340039P01	A
	B138196P01	B
	B144676P01	A
	B144676P02	B
	B340039P01	A
	IGN23	
	IGN26	B
IGN30		
IGN34	A	
Viessman	9302-094	A
Wayne Home Equip.	62821-001	A
	62821-002	
Weil McLain	511-330-139	B
	511-330-190	
	511-330-193	
White LB	120-07549	A
White-Rodgers	767A-301	A
	767A-303	F
	767A-306	A
	767A-311	
	767A-350	
	767A-353	F
	767A-354	A
	767A-357	F
	767A-361	A
	767A-364	
	767A-366	
	767A-370	B
	767A-371	
	767A-372	A
	767A-373	D
767A-376	B	
767A-377	A	
767A-382	B	
Williamson	9050	A
York	025-27766-000	A
	025-27774-000	A
	025-29043-000	A
	025-29050-000	A

a Table data is correct to the best of Honeywell's knowledge as of this publication's date. However, some appliances may have igniter applications that are beyond the capabilities of this kit.

b For igniters that require bracket A, use the template to determine the tab to be removed.

c For Carrier sealed combustion furnaces, you must use bracket E and retain the existing orange gasket for use with bracket E.

Q3200 Glowfly™ Universal Hot Surface Igniter Kit



The Q3200U Universal Hot Surface Igniter Kit is designed to provide a robust field service replacement igniter in gas fired appliances with Norton/St Gobain 120 VAC silicon carbide hot surface igniters. The Q3200U uses a 120 volt silicon nitride igniter design with long life and high resistance to damage or burn out in the appliance.

The kit includes the specially designed silicon nitride igniter and six different bracket configurations to adapt the igniter to the specific appliance application along with accessory parts to allow mounting and wiring the igniter. Clear instructions and application templates are provided to simplify selection of the proper bracket and ease installation of the replacement.

Mounting Bracket: Multiple brackets to adapt as field replacement of Norton/St. Gobain silicon carbide igniters

Product Number	Description
Q3200U1004	Glowfly™ Universal Hot Surface Igniter. Single Kit
Q3200U2002	Glowfly™ Universal Hot Surface Igniter. Service Pack of 6 kits

Q347 Spark Igniter



Produces spark for direct ignition of main burner.

- Includes inner Kanthal electrode with ceramic insulator, bracket and Kanthal ground strap.
- Use with S87C, D, K; S89E,F and Q354A.

Ignitor, Sensor, Combination: Ignitor Only

Mounting Bracket: Bracket Style D

Product Number	Length		Mounting		Rod Angle	Description
	(inch)	(mm)	(inch)	(mm)		
Q347A1004	2 1/32 in.	52 mm	One 3/16 in. slot, three 3/16 in. untapped screw holes.	One 5 mm slot, three 5 mm untapped screw holes.	standard orientation	Spark Ignitor Sensor with style D mounting bracket
Q347A1012	2 1/32 in.	52 mm	One 3/16 in. slot, three 3/16 in. untapped screw holes.	One 5 mm slot, three 5 mm untapped screw holes.	90½ angle	Spark Ignitor Sensor with style D mounting bracket

Q354 Flame Rectification Sensor



Detects the presence of main burner flame.

- Includes Kanthal rod supported by ceramic insulator and mounting bracket.
- Use with S825, S87C,D,K or S89E,F.

Ignitor, Sensor, Combination: Sensor Only

Mounting Bracket: One 3/16 in. slot, three 3/16 in. untapped screw holes.

Product Number	Length		Mounting		Rod Angle	Description
	(inch)	(mm)	(inch)	(mm)		
Q354A1018	6 3/8 in.	162 mm	One 3/16 in. slot, three 3/16 in. untapped screw holes.	One 5 mm slot, three 5 mm untapped screw holes.	straight	Flame Sensor with 6.37 in. rod height used with S825 or S87

Pressure Switches

Airflow Differential Pressure Switch



Airflow Differential Pressure Switches are used to sense positive, negative, or differential air pressure in HVAC systems. They provide high or low limit with alarm or high limit shutdown with manual reset.

- Models available with compression or barb fittings.
- SPDT contacts on automatic reset models SPST n.c. contacts on manual reset models.
- Electrical switch enclosed in metal box with cover.
- Reliable pneumatic operation. UL and CSA Listed, FM approved.
- Adjustable setpoint.

Dimensions, Approximate: 5.0 in. Diameter (127 mm Diameter)
Electrical Ratings: 278 Va @ 24Vac; 300Va @ 120 to 277Vac
Electrical Connections: #6-32 Screw terminal with cup washers
Ambient Temperature Range: -40 F to +190 F (-40 C to +88 C)

Approvals:

Canadian Standards Association: CSA file No. LR45785

Factory Mutual: Listed: J.I. 1H3A6.AF

Underwriters Laboratories, Inc. Listed: MP2168

Product Number	Connection Type	Electrical Switch	Pilot Duty Ratings	Maximum Operating Pressure	Setpoint	Additional Features
AP5027-30	1/4 in. Compression	SPDT	Gold Flash Contacts; 10 Milliamps @ 5Vdc; 15 Amps resistive to 277Vac	1/2 psi	.05"±.02 in. wc to 12.0 in. wc PR	Switching Differential: .02"±.01 in. wc @ minimum set point to approximately .80 in. wc @ maximum set point
AP5208-30	1/4 in. Barbed	SPDT	Gold Flash Contacts; 10 Milliamps @ 5Vdc; 15 Amps resistive to 277Vac	1/2 psi	.05"±.02 in. wc to 12.0 in. wc PR	Switching Differential: .02"±.01 in. wc @ minimum set point to approximately .80 in. wc @ maximum set point
AP5210-30	1/4 in. Compression	SP N.C.	—	1/2 psi	.30"±.20 in. wc to 12.0 in. wc PR	Manual Reset

ST9103 Electronic Fan Timers



ST9103A integrates control of burner and circulating fan operations in an oil furnace.

- Central appliance wiring point simplifies appliance assembly and service.
- Fixed or field-adjustable heat fan on delay; field adjustable heat fan off delay.

Application: A single circuit board providing combustion air blower control, two speed circulating air blower control, oil primary control, limit circuit inputs, thermostat wiring terminations, & a central appliance wiring point for an oil fixed furnace.

Electrical Ratings: 18 to 30 Vac

Frequency: 60 Hz; 50 Hz

Approvals:

Canadian Standards Association: Certified: File No. LR95329-17
Underwriters Laboratories, Inc. Listed: Report MP466

Product Number	Heat Fan On Delay	Heat Fan Off Delay	Cool Fan On Delay	Cool Fan Off Delay	Ambient Temperature Range		Replaces
					(F)	(C)	
ST9103A1002	fixed, 45 sec	adj. 60, 90, 120, 150 sec (set at 150 sec)	fixed 0 sec	fixed 0 sec	-40 F to +150 F	-40 C to +66 C	ST9103A1002

ST9120 Electronic Fan Timers



The ST9120U Universal Electronic Fan Timers integrate control of all combustion blower and circulating fan operations in a gas warm air appliance. This control is the central wiring point for most of the electrical components in the furnace. The basic purposes of the ST9120U are to monitor the thermostat for heat, cool and fan demands, run the induced draft blower motor and run a circulating fan (up to two speeds) as required. The ST9120U also monitors limit switch strings and energizes separate ignition control systems through pressure switches. The ST9120U can replace any ST9101, ST9120, ST9141 or ST9160 listed in Table 3 below. The ST9120U features a field-adjustable heat fan-on delay, a field-adjustable heat fan-off delay, a field adjustable cool fan-on delay and a field-adjustable cool fan-off delay.

Electronic air cleaner (EAC) and humidifier (HUM) convenience terminal connections and continuous low speed indoor air circulation are provided.

Application: Integrates control of combustion blower and circulating fan operations for a gas warm air appliance

Electrical Ratings: 18 to 30 Vac

Frequency: 60 Hz; 50 Hz

Approvals:

Canadian Standards Association: Certified: File No. LR95329-17
Underwriters Laboratories, Inc. Listed: Report MP466

Product Number	Heat Fan On Delay	Heat Fan Off Delay	Cool Fan On Delay	Cool Fan Off Delay	Ambient Temperature Range		Replaces
					(F)	(C)	
* ST9120U1011	adj. 30, 60 sec (set at 30 sec)	adj. 60, 120, 150, 180 sec (set at 120 sec)	adj. 4, 30 sec (set at 4 sec)	adj. 30, 60 sec (set at 30 sec)	-40 F to +175 F	-40 C to +79 C	all ST9101's, all ST9120's, all ST9141's, and all ST9160's

* TRADELINE models • SUPER TRADELINE models

Contactors

PowerPro Definite Purpose Contactors



The Tougher Contactors

We're tougher than ever. Honeywell PowerPro, a line of definite purpose contactors, outfeatures, outperforms and is destined to soon outsell the competition.

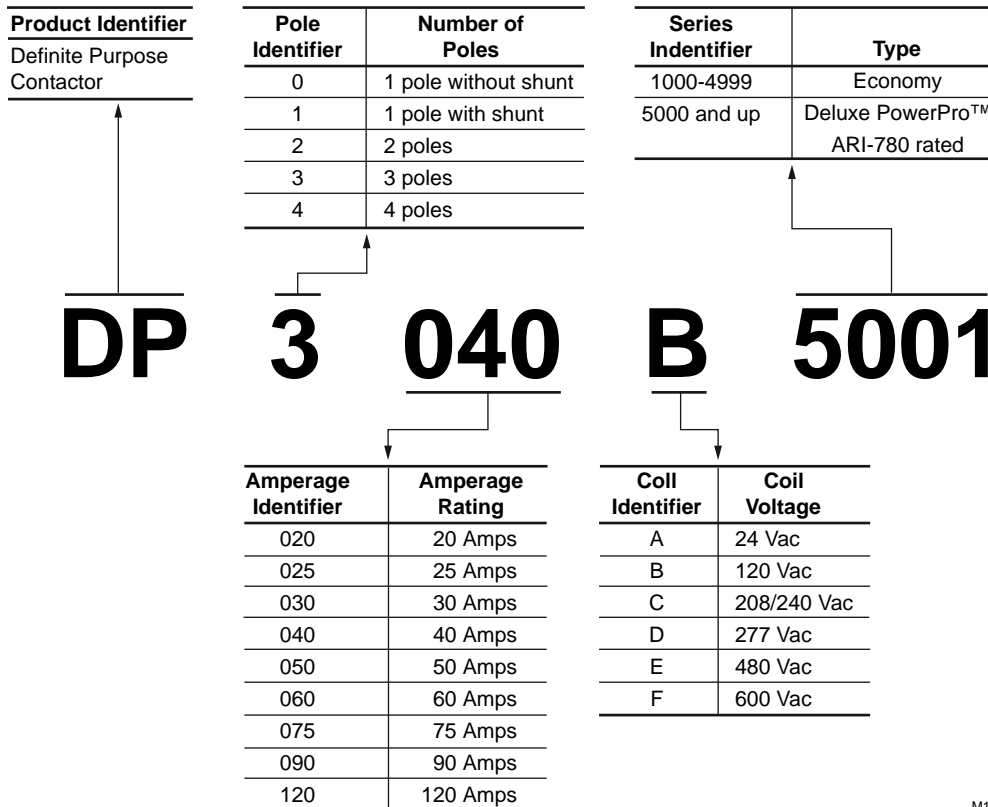
Once you compare the features of Honeywell PowerPro definite purpose contactors against what you're using now, we predict you'll soon standardize on PowerPro for all your applications. Especially in 'high stakes' situations where you can't afford to gamble on anything less.

Honeywell PowerPro definite purpose contactors will surprise you in more ways than one. Once you try them you'll be amazed at how these compact contactors easily fit in tight spaces while leaving maneuvering room for hands and tools; how easily contactor accessories snap on or off; how you view the operation of the contactor with the user-friendly button; plus many other installer-friendly features

- **Honeywell PowerPro Contactors Meet ARI Standard 780**—Meeting the ARI Standard 780 means that the contactors stand up to tests that simulate harsh, real-world conditions—500,000 cycle mechanical life test, 200,000 cycle endurance life test and 10,000 cycle recycle life test.
- **Contactors are shorter and sweeter than the competition**—Their small size makes them ideal for replacement inside today's compact equipment.
- **Advanced class H insulated contactor coil design protects against high heat conditions**—Class H contactor coils are standard on 5000 Series 3-pole, 25A through 60A models.
- **Convenient button for easy testing**—Use it to safely check for proper electrical functioning of the contactor.

DP Contactors Order Number Guide

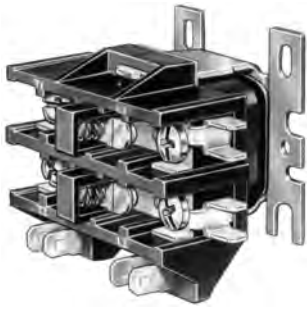
It's easy to select the order number that you need for your application. Depending on your application, determine the number of poles, amp rating, coil voltage, and whether you need an economy or deluxe model. Then, simply follow this Order Number Guide:



M14500

NOTE: Super Tradeline Contactors contain extra mounting hardware.

Deluxe Honeywell PowerPro DP-Series Definite Purpose Contactors - 1 Pole



These electromagnetically-operated Definite Purpose Contactors provide switching for starting induction motors.

- Meets ARI-780 Standard at started ratings (500,000 cycle mechanical life, 200,000 cycle electrical life and 10,000 cycle recycle life); the most demanding ARI requirement.
- Silver cadmium oxide contacts provide long life under demanding duty cycles.
- Low profile design allows for more wiring room.
- Multiple mounting holes and slots for convenient, interchangeable mounting with most competitive devices.

Application: PowerPro Definite Purpose Contactor
Temperature Range: -4 F to +149 F (-20 C to +65 C)

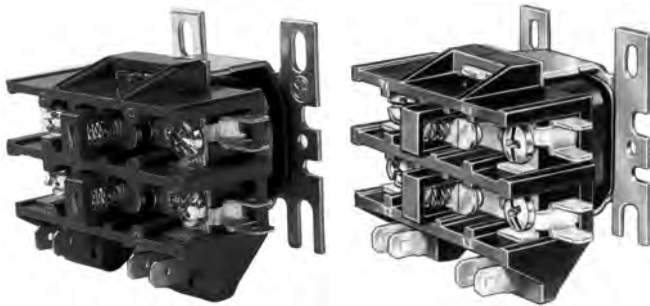
Approvals:
Canadian Standards Association: Certified: File No. LR6535
Underwriters Laboratories, Inc. Component Recognized: File No. 14480, Guide No. NLDX2

Product Number	Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)	Contact Electrical Ratings		Dimensions, Approximate	
					AFL @ 277, 480, 600 Vac	Resistive @ 277, 480, 600 Vac	(inch)	(mm)
* DP1025A5005	1 with shunt	24 Vac	1/4 in. quick-connects	#10-32 combination head screws	25 A @ 240/277 Vac	30 A @ 240/277 Vac, 480 Vac, 600 Vac	2.2 in. high x 2.5 in. wide x 3.31 in. deep	56 mm high x 59 mm wide x 84 mm deep
* DP1030A5013	1 with shunt	24 Vac	1/4 in. quick-connects	#10-32 combination head screws	30 A @ 240/277 Vac	48 A @ 240/277 Vac	2.2 in. high x 2.5 in. wide x 3.31 in. deep	56 mm high x 59 mm wide x 84 mm deep
* DP1040A5004	1 with shunt	24 Vac	1/4 in. quick-connects	#10-32 combination head screws	40 A @ 240/277 Vac	55 A @ 240/277 Vac	2.36 in. high x 3.2 in. wide x 2.0 in. deep	60 mm high x 81 mm wide x 51 mm deep

* TRADELINE models • SUPER TRADELINE models

Contactors

Deluxe Honeywell PowerPro DP-Series Definite Purpose Contactors - 2 Pole



These electromagnetically-operated Definite Purpose Contactors provide switching for starting induction motors.

- Meets ARI-780 Standard at started ratings (500,000 cycle mechanical life, 200,000 cycle electrical life and 10,000 cycle recycle life); the most demanding ARI requirement.
- Silver cadmium oxide contacts provide long life under demanding duty cycles.
- Low profile design allows for more wiring room.
- Multiple mounting holes and slots for convenient, interchangeable mounting with most competitive devices.

Application: PowerPro Definite Purpose Contactor
Temperature Range: -4 F to +149 F (-20 C to +65 C)

Approvals:

Canadian Standards Association: Certified: File No. LR6535

Underwriters Laboratories, Inc. Component Recognized: File No. 14480, Guide No. NLDX2

Product Number	Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)	Contact Electrical Ratings		Dimensions, Approximate	
					AFL @ 277, 480, 600 Vac	Resistive @ 277, 480, 600 Vac	(inch)	(mm)
* DP2020A5021	2	24 Vac	1/4 in. quick-connects	#10-32 combination head screws	20 A @ 240, 277, 480, 600 Vac	30 A @ 240/277 Vac, 480 Vac, 600 Vac	2.2 in. high x 2.5 in. wide x 3.31 in. deep	56 mm high x 59 mm wide x 84 mm deep
* DP2020B5038	2	120 Vac	1/4 in. quick-connects	#10-32 combination head screws	20 A @ 240, 277, 480, 600 Vac	30 A @ 240/277 Vac, 480 Vac, 600 Vac	2.2 in. high x 2.5 in. wide x 3.31 in. deep	56 mm high x 59 mm wide x 84 mm deep
* DP2030A5004	2	24 Vac	1/4 in. quick-connects	#10-32 combination head screws and sems screws	30 A @ 240/277 Vac	48 A @ 240/277 Vac	3.25 in. high x 3.63 in. wide x 3.8 in. deep	83 mm high x 67 mm wide x 95 mm deep
* DP2030A5012	2	24 Vac	1/4 in. quick-connects	#10-32 combination head screws and sems screws	30 A @ 240/277 Vac	48 A @ 240/277 Vac	3.25 in. high x 3.63 in. wide x 3.8 in. deep	83 mm high x 67 mm wide x 95 mm deep
* DP2030B5003	2	120 Vac	1/4 in. quick-connects	#10-32 combination head screws and sems screws	30 A @ 240/277 Vac	48 A @ 240/277 Vac, 480 Vac, 600 Vac	2.2 in. high x 2.5 in. wide x 3.31 in. deep	56 mm high x 59 mm wide x 84 mm deep
* DP2030B5011	2	120 Vac	1/4 in. quick-connects	#10-32 combination head screws and sems screws	30 A @ 240/277 Vac	48 A @ 240/277 Vac, 480 Vac, 600 Vac	2.2 in. high x 2.5 in. wide x 3.31 in. deep	56 mm high x 59 mm wide x 84 mm deep
* DP2030C5002	2	208 Vac/240 Vac	1/4 in. quick-connects	sems screws	30 A @ 240/277 Vac	48 A @ 240/277 Vac, 480 Vac, 600 Vac	2.2 in. high x 2.5 in. wide x 3.31 in. deep	56 mm high x 59 mm wide x 84 mm deep
* DP2030C5010	2	208 Vac/240 Vac	1/4 in. quick-connects	#10-32 combination head screws and sems screws	30 A @ 240/277 Vac	48 A @ 240/277 Vac, 480 Vac, 600 Vac	2.2 in. high x 2.5 in. wide x 3.31 in. deep	56 mm high x 59 mm wide x 84 mm deep
* DP2030D5001	2	277 Vac	1/4 in. quick-connects	sems screws	30 A @ 240/277 Vac	48 A @ 240/277 Vac, 480 Vac, 600 Vac	2.2 in. high x 2.5 in. wide x 3.31 in. deep	56 mm high x 59 mm wide x 84 mm deep
* DP2040A5003	2	24 Vac	1/4 in. quick-connects	lug connectors	40 A @ 240/277 Vac	50 A @ 240/277 Vac	2.36 in. high x 3.2 in. wide x 2.0 in. deep	60 mm high x 81 mm wide x 51 mm deep
* DP2040B5002	2	120 Vac	1/4 in. quick-connects	lug connectors	40 A @ 240/277 Vac	50 A @ 240/277 Vac	2.36 in. high x 3.2 in. wide x 2.0 in. deep	60 mm high x 81 mm wide x 51 mm deep
* DP2040C5001	2	208 Vac/240 Vac	1/4 in. quick-connects	#10-32 combination head screws	40 A @ 240/277 Vac	50 A @ 240/277 Vac	2.36 in. high x 3.2 in. wide x 2.0 in. deep	60 mm high x 81 mm wide x 51 mm deep

* TRADELINE models • SUPER TRADELINE models

Deluxe Honeywell PowerPro DP-Series Definite Purpose Contactors - 3 Pole



These three pole definite purpose electromagnetically operated contactors provide switching for starting of induction motors.

- Shrouded coils on 3 pole (25A to 60A) models protect the coil from harsh environment factors.
- Moisture proof epoxy is used to encapsulate the 3 pole 75A through 120A coils.
- Multiple mounting holes and slots for convenient, interchangeable mounting with most competitive devices.
- Traditional design meets many needs.
- Full array of replacement coils, contact sets and accessories available.

Application: PowerPro Definite Purpose Contactor
Temperature Range: -4 F to +149 F (-20 C to +65 C)

Approvals:

Canadian Standards Association: Certified: File No. LR6535
Underwriters Laboratories, Inc. Component Recognized: File No. 14480, Guide No. NLDX2

Product Number	Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)	Contact Electrical Ratings		Dimensions, Approximate	
					AFL @ 277, 480, 600 Vac	Resistive @ 277, 480, 600 Vac	(inch)	(mm)
* DP3030A5003	3	24 Vac	1/4 in. quick-connects and #6 screws	#10-32 combination head screws	30 A @ 240/277 Vac, 480 Vac, 600 Vac	40 A @ 240/277 Vac, 480 Vac, 600 Vac	3.1 in. high x 3.62 in. wide x 2.4 in. deep	79 mm high x 92 mm wide x 61 mm deep
* DP3030B5002	3	120 Vac	1/4 in. quick-connects and #6 screws	#10-32 combination head screws	30 A @ 240/277 Vac, 480 Vac, 600 Vac	40 A @ 240/277 Vac, 480 Vac, 600 Vac	3.1 in. high x 3.62 in. wide x 2.4 in. deep	79 mm high x 92 mm wide x 61 mm deep
* DP3030C5001	3	208 Vac/240 Vac	1/4 in. quick-connects and #6 screws	#10-32 combination head screws	30 A @ 240/277 Vac, 480 Vac, 600 Vac	40 A @ 240/277 Vac, 480 Vac, 600 Vac	3.1 in. high x 3.62 in. wide x 2.4 in. deep	79 mm high x 92 mm wide x 61 mm deep
* DP3040A5002	3	24 Vac	1/4 in. quick-connects and #6 screws	lug connectors	40 A @ 240/277 Vac, 480 Vac, 600 Vac	50 A @ 240/277 Vac, 480 Vac, 600 Vac	3.1 in. high x 3.62 in. wide x 2.4 in. deep	79 mm high x 92 mm wide x 61 mm deep
* DP3040B5001	3	120 Vac	1/4 in. quick-connects and #6 screws	lug connectors	40 A @ 240/277 Vac, 480 Vac, 600 Vac	50 A @ 240/277 Vac, 480 Vac, 600 Vac	3.1 in. high x 3.62 in. wide x 2.4 in. deep	79 mm high x 92 mm wide x 61 mm deep
* DP3040C5000	3	208 Vac/240 Vac	1/4 in. quick-connects and #6 screws	lug connectors	30 A @ 240/277 Vac, 480 Vac, 600 Vac	40 A @ 240/277 Vac, 480 Vac, 600 Vac	3.1 in. high x 3.62 in. wide x 2.4 in. deep	79 mm high x 92 mm wide x 61 mm deep
* DP3050A5001	3	24 Vac	1/4 in. quick-connects and #6 screws	lug connectors	50 A @ 240/277 Vac, 480 Vac, 600 Vac	63 A @ 240/277 Vac, 480 Vac, 600 Vac	3.1 in. high x 3.62 in. wide x 2.4 in. deep	79 mm high x 92 mm wide x 61 mm deep
* DP3050B5000	3	120 Vac	1/4 in. quick-connects and #6 screws	lug connectors	50 A @ 240/277 Vac, 480 Vac, 600 Vac	63 A @ 240/277 Vac, 480 Vac, 600 Vac	3.1 in. high x 3.62 in. wide x 2.4 in. deep	79 mm high x 92 mm wide x 61 mm deep
* DP3050C5009	3	208 Vac/240 Vac	1/4 in. quick-connects and #6 screws	lug connectors	50 A @ 240/277 Vac, 480 Vac, 600 Vac	63 A @ 240/277 Vac, 480 Vac, 600 Vac	3.1 in. high x 3.62 in. wide x 2.4 in. deep	79 mm high x 92 mm wide x 61 mm deep
* DP3060A5000	3	24 Vac	1/4 in. quick-connects and #6 screws	lug connectors	60 A @ 240/277 Vac, 480 Vac, 600 Vac	75 A @ 277 Vac, 480 Vac, 600 Vac	3.1 in. high x 3.62 in. wide x 2.4 in. deep	79 mm high x 92 mm wide x 61 mm deep
* DP3060B5009	3	120 Vac	1/4 in. quick-connects and #6 screws	lug connectors	60 A @ 240/277 Vac, 480 Vac, 600 Vac	75 A @ 277 Vac, 480 Vac, 600 Vac	3.1 in. high x 3.62 in. wide x 2.4 in. deep	79 mm high x 92 mm wide x 61 mm deep
* DP3060C5008	3	208 Vac/240 Vac	1/4 in. quick-connects and #6 screws	lug connectors	60 A @ 240/277 Vac, 480 Vac, 600 Vac	75 A @ 277 Vac, 480 Vac, 600 Vac	3.1 in. high x 3.62 in. wide x 2.4 in. deep	79 mm high x 92 mm wide x 61 mm deep
* DP3075A5016	3	24 Vac	1/4 in. quick-connects and #6 screws	lug connectors	75 A @ 240/277 Vac, 480 Vac, 600 Vac	95 A @ 240/277 Vac, 480 Vac, 600 Vac	4.4 in. high x 5 in. wide x 3.7 in. deep	112 mm high x 127 mm wide x 94 mm deep
* DP3075B5015	3	120 Vac	1/4 in. quick-connects and #6 screws	lug connectors	75 A @ 240/277 Vac, 480 Vac, 600 Vac	95 A @ 240/277 Vac, 480 Vac, 600 Vac	4.4 in. high x 5 in. wide x 3.7 in. deep	112 mm high x 127 mm wide x 94 mm deep

* TRADELINE models • SUPER TRADELINE models

Contactors

Product Number	Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)	Contact Electrical Ratings		Dimensions, Approximate	
					AFL @ 277, 480, 600 Vac	Resistive @ 277, 480, 600 Vac	(inch)	(mm)
* DP3075C5014	3	208 Vac/240 Vac	1/4 in. quick-connects and #6 screws	lug connectors	75 A @ 240/277 Vac, 480 Vac, 600 Vac	95 A @ 240/277 Vac, 480 Vac, 600 Vac	4.4 in. high x 5 in. wide x 5 in. deep	112 mm high x 127 mm wide x 94 mm deep
* DP3090B5006	3	120 Vac	1/4 in. quick-connects and #6 screws	lug connectors	90 A @ 240/277 Vac, 480 Vac, 600 Vac	120 A @ 240/277 Vac, 480 Vac, 600 Vac	4.4 in. high x 5 in. wide x 3.7 in. deep	112 mm high x 127 mm wide x 94 mm deep
* DP3090C5005	3	208 Vac/240 Vac	1/4 in. quick-connects and #6 screws	lug connectors	90 A @ 240/277 Vac, 480 Vac, 600 Vac	120 A @ 240/277 Vac, 480 Vac, 600 Vac	4.4 in. high x 5 in. wide x 3.7 in. deep	112 mm high x 127 mm wide x 94 mm deep

* TRADELINE models • SUPER TRADELINE models

Deluxe Honeywell PowerPro DP-Series Definite Purpose Contactors - 4 Pole



Definite purpose four (40A) pole contactors provide switching for across-the-line starting of induction motors.

- Shrouded coils on 3 pole (25A to 60A) models protect the coil from harsh environment factors.
- Moisture proof epoxy is used to encapsulate the 3 pole 75A through 120A coils.
- Multiple mounting holes and slots for convenient, interchangeable mounting with most competitive devices.
- Traditional design meets many needs.
- Full array of replacement coils, contact sets and accessories available.

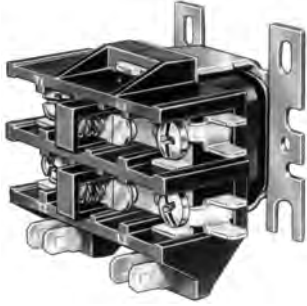
Application: PowerPro Definite Purpose Contactor
Temperature Range: -4 F to +149 F (-20 C to +65 C)

Approvals:

Canadian Standards Association: Certified: File No. LR6535
Underwriters Laboratories, Inc. Component Recognized: File No. 14480, Guide No. NLDX2

Product Number	Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)	Contact Electrical Ratings		Dimensions, Approximate	
					AFL @ 277, 480, 600 Vac	Resistive @ 277, 480, 600 Vac	(inch)	(mm)
DP4040A5001	4	24 Vac	1/4 in. quick-connects and #6 screws	lug connectors	40 A @ 240/277 Vac, 480 Vac, 600 Vac	50 A @ 240/277 Vac, 480 Vac, 600 Vac	2.76 in. high x 3.75 in. wide x 3.43 in. deep	70 mm high x 95 mm wide x 97 mm deep
DP4040B5000	4	120 Vac	1/4 in. quick-connects and #6 screws	lug connectors	40 A @ 240/277 Vac, 480 Vac, 600 Vac	50 A @ 240/277 Vac, 480 Vac, 600 Vac	2.76 in. high x 3.75 in. wide x 3.43 in. deep	70 mm high x 95 mm wide x 97 mm deep
DP4040C5009	4	120 Vac	1/4 in. quick-connects and #6 screws	lug connectors	40 A @ 240/277 Vac, 480 Vac, 600 Vac	50 A @ 240/277 Vac, 480 Vac, 600 Vac	2.76 in. high x 3.75 in. wide x 3.43 in. deep	70 mm high x 95 mm wide x 97 mm deep

Economy DP-Series Definite Purpose Contactors - 1 Pole



These electromagnetically-operated Definite Purpose Contactors provide switching for starting induction motors.

- Silver cadmium oxide contacts provide long life under demanding duty cycles.
- Low profile design allows for more wiring room.
- Multiple mounting holes and slots for convenient, interchangeable mounting with most competitive devices.

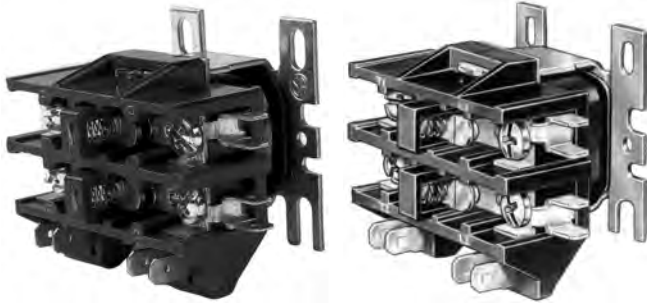
Application: Economy Definite Purpose Contactor
Temperature Range: -4 F to +149 F (-20 C to +65 C)

Approvals:

Canadian Standards Association: Certified: File No. LR6535
Underwriters Laboratories, Inc. Component Recognized: File No. 14480, Guide No. NLDX2

Product Number	Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)	Contact Electrical Ratings	
					AFL @ 277, 480, 600 Vac	Resistive @ 277, 480, 600 Vac
DP1030A1000	1 with shunt	24 Vac	1/4 in. quick-connects	#10-32 combination head screws	30 amps @ 240, 277, 480, 600 Vac	48 amps @ 240, 277, 480, 600 Vac

Economy DP-Series Definite Purpose Contactors - 2 Pole



These electromagnetically-operated Definite Purpose Contactors provide switching for starting induction motors.

- Silver cadmium oxide contacts provide long life under demanding duty cycles.
- Low profile design allows for more wiring room.
- Multiple mounting holes and slots for convenient, interchangeable mounting with most competitive devices.

Application: Economy Definite Purpose Contactor
Temperature Range: -4 F to +149 F (-20 C to +65 C)

Approvals:

Canadian Standards Association: Certified: File No. LR6535
Underwriters Laboratories, Inc. Component Recognized: File No. 14480, Guide No. NLDX2

Product Number	Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)	Contact Electrical Ratings		Dimensions, Approximate	
					AFL @ 277, 480, 600 Vac	Resistive @ 277, 480, 600 Vac	(inch)	(mm)
DP2030A1003	2	24 Vac	double 1/4 in. quick-connects	#10 combination head screws	30 A @ 240/277 Vac	48 A @ 240/277 Vac, 480 Vac, 600 Vac	3.25 in. high x 3.63 in. wide x 3.8 in. deep	83 mm high x 92 mm wide x 97 mm deep
DP2030B1002	2	120 Vac	double 1/4 in. quick-connects	#10 combination head screws	30 A @ 240/277 Vac, 480 Vac, 600 Vac	40 A @ 240/277 Vac, 480 Vac, 600 Vac	2.2 in. high x 3.31 in. wide x 2.17 in. deep	56 mm high x 84 mm wide x 55 mm deep
DP2030C1001	2	208 Vac/240 Vac	double 1/4 in. quick-connects	#10 combination head screws	30 A @ 240/277 Vac, 480 Vac, 600 Vac	40 A @ 240/277 Vac, 480 Vac, 600 Vac	2.2 in. high x 2.5 in. wide x 3.31 in. deep	56 mm high x 59 mm wide x 84 mm deep
DP2040A1002	2	24 Vac	double 1/4 in. quick-connects	#10-32 combination head screws	40 A @ 240/277 Vac, 480 Vac, 600 Vac	55 A @ 240/277 Vac, 480 Vac, 600 Vac	2.37 in. high x 3.3 in. wide x 2 in. deep	60 mm high x 84 mm wide x 51 mm deep
DP2040B1001	2	120 Vac	double 1/4 in. quick-connects	#10-32 combination head screws	40 A @ 240/277 Vac, 480 Vac, 600 Vac	55 A @ 240/277 Vac, 480 Vac, 600 Vac	2.37 in. high x 3.3 in. wide x 2 in. deep	60 mm high x 84 mm wide x 51 mm deep
DP2040C1000	2	120 Vac	double 1/4 in. quick-connects	#10-32 combination head screws	40 A @ 240/277 Vac, 480 Vac, 600 Vac	55 A @ 240/277 Vac, 480 Vac, 600 Vac	2.37 in. high x 3.3 in. wide x 2 in. deep	60 mm high x 84 mm wide x 51 mm deep

Contactors

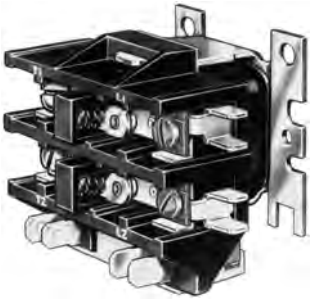
Auxiliary Switches



Application: Auxiliary Interlock
Contact Ratings (resistive): 10.0 A
Maximum (Inrush) Current at 120V/240V/480V/600V: 60/30/15/12 Amps
Dimensions, Approximate: 2 13/16 in. x 2 1/2 in. x 7/16 in. (77 mm x 64 mm x 11 mm)
Used With: DP3030; DP3040; DP3050; DP3060; DP3075; DP3090

Product Number	Circuits	Configuration	Description
DP3AUX-1NC	1	Normally Open snap-on	1 N.C. Snap-on side mounted auxiliary interlock
DP3AUX-1NO	1	Normally Closed snap-on	1 N.O. Snap-on side mounted auxiliary interlock
DP3AUX-1NO-1NC	2	Normally Open/Normally Closed snap-on	1 N.O. and 1 N.C. Snap-on side mounted auxiliary interlock
DP3AUX-2NC	2	Normally Closed snap-on	2 N.C. Snap-on side mounted auxiliary interlock
DP3AUX-2NO	2	Normally Open snap-on	2 N.O. Snap-on side mounted auxiliary interlock

R8246 Electric Heat Contactor



Provide conventional on-off control of heating elements and fan in an electric furnace.

- Designed for quiet operation. R8246A and R8229A replace over 50 Honeywell and competitive electric heat primaries, including the Honeywell R8330 Electric Furnace Sequencer.
- Use on furnaces with a line voltage or pilot duty limit.
- Simple ON-OFF switching - readily understood and easily serviced- Eliminates cold drafts on system startup.

Application: Electric Heat Contactor
Temperature Range: -4 F to +149 F (-20 C to +65 C)
Contact Electrical Ratings: 48 A @ 240/277 Vac 1st pole resistive only

Product Number	Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)	Dimensions, Approximate	
					(inch)	(mm)
* R8246A1038	2	24 Vac	No. 10 terminal clamp screws and double male 1/4 inch quick-connects	Male 1/4 in. (6 mm) quick-connects plus terminal clamp screws	2 3/16 in. high x 2 5/16 in. wide x 3 5/16 in. deep	56 mm high x 58 mm wide x 84 mm deep

* TRADELINE models • SUPER TRADELINE models

Contractors Selection Guide

Economy Contactors									
Poles	Contact Ratings (AFL @ 240, 277, 480, 600 Vac)	Input Voltage/Coil Voltage	Product Number	Dimensions (in.) H x W x D	Main Connections	Coil Connections	Contact Ratings (Resistive @ 240/277, 480, 600 Vac)	Special Features	
1 with shunt	30	24 Vac	DP1030A1000	2.2 x 2.5 x 3.3	CHS	Q	48A	—	
2		24 Vac	DP2030A1003	3.25 x 3.63 x 3.8	CHS	Q	48A	—	
		120 Vac	DP2030B1002	2.2 x 3.3 x 2.16	CHS	Q	40A	—	
		208 Vac/240 Vac	DP2030C1001	2.2 x 2.5 x 3.3	CHS	Q	40A	—	
		40	24 Vac	DP2040A1002	2.37 x 3.3 x 2	LC	Q	50A	—
			120 Vac	DP2040B1001	2.37 x 3.3 x 2	LC	Q	50A	—
			208 Vac/240Vac	DP2040C1000	2.37 x 3.3 x 2	LC	Q	50A	—

PowerPro Contactors - ARI 780/790 Rated								
Poles	Contact Ratings (AFL @ 240, 277, 480, 600 Vac)	Input Voltage/Coil Voltage	Product Number	Dimensions (in.) H x W x D	Main Connections	Coil Connections	Contact Ratings (Resistive @ 240/277, 480, 600 Vac)	Special Features
1 with shunt	25	24 Vac	DP1025A5005	2.2 x 2.5 x 3.3	CHS	Q	30A	—
	30	24 Vac	DP1030A5013	2.2 x 2.5 x 3.3	CHS	Q	48A	—
	40	24 Vac	DP1040A5004	2.36 x 3.2 x 2.0	LC	Q	50A	—
2	20	24 Vac	DP2020A5021	2.2 x 2.5 x 3.3	CHS	Q	30A	—
		120 Vac	DP2020B5038	2.2 x 2.5 x 3.3	CHS	Q	30A	—
	30	24 Vac	DP2030A5004	3.25 x 3.63 x 3.8	CHS	Q	48A	—
		24 Vac	DP2030A5012	3.25 x 3.63 x 3.8	CHS	Q	48A	Extra Mounting HDW
		120 Vac	DP2030B5003	2.2 x 3.3 x 2.16	CHS	Q	48A	—
		120 Vac	DP2030B5011	2.3 x 3.3 x 2.16	CHS	Q	48A	Extra Mounting HDW
		208 Vac/240 Vac	DP2030C5002	2.2 x 2.5 x 3.3	CHS	Q	48A	—
		208 Vac/240 Vac	DP2030C5010	2.2 x 2.5 x 3.3	CHS	Q	48A	Extra Mounting HDW
	40	277 Vac	DP2030D5001	2.2 x 2.5 x 3.3	CHS	Q	48A	—
		24 Vac	DP2040A5003	2.36 x 3.2 x 1.96	LC	Q	50A	—
		120 Vac	DP2040B5002	2.36 x 3.2 x 1.96	LC	Q	50A	—
	208 Vac/240 Vac	DP2040C5001	2.36 x 3.2 x 1.96	LC	Q	50A	—	

Contractors Selection Guide

PowerPro Contactors - ARI 780/790 Rated								
Poles	Contact Ratings (AFL @ 240, 277, 480, 600 Vac)	Input Voltage/Coil Voltage	Product Number	Dimensions (in.) H x W x D	Main Connections	Coil Connections	Contact Ratings (Resistive @ 240/277, 480, 600 Vac)	Special Features
3	30	24V	DP3030A5003	3.1 x 3.62 x 2.4	CHS	Q,S	40A	—
		120v	DP3030B5002	3.1 x 3.62 x 2.4	CHS	Q,S	40A	—
		208 Vac/240 Vac	DP3030C5001	3.1 x 3.62 x 2.4	CHS	Q,S	40A	—
	40	24Vac	DP3040A5002	3.1 x 3.62 x 2.4	LC	Q,S	50A	—
		120Vac	DP3040B5001	3.1 x 3.62 x 2.4	LC	Q,S	50A	—
		208 Vac/240 Vac	DP3040C5000	3.1 x 3.62 x 2.4	LC	Q,S	50A	—
	50	24Vac	DP3050A5001	3.1 x 3.62 x 2.4	LC	Q,S	63A	—
		120Vac	DP3050B5000	3.1 x 3.62 x 2.4	LC	Q,S	63A	—
		208 Vac/240 Vac	DP3050C5009	3.1 x 3.62 x 2.4	LC	Q,S	63A	—
	60	24Vac	DP3060A5000	3.1 x 3.62 x 2.4	LC	Q,S	75A	—
		120 Vac	DP3060B5009	3.1 x 3.62 x 2.4	LC	Q,S	75A	—
		208 Vac/240 Vac	DP3060C5008	3.1 x 3.62 x 2.4	LC	Q,S	75A	—
	75	24Vac	DP3075A5016	4.4 x 5 x 3.7	LC	Q,S	95A	—
		120 Vac	DP3075B5015	4.4 x 5 x 3.7	LC	Q,S	95A	—
		208 Vac/240 Vac	DP3075C5014	4.4 x 5 x 3.7	LC	Q,S	95A	—
	90	120 Vac	DP3090B5006	4.4 x 5 x 3.7	LC	Q,S	120A	—
		208 Vac/240 Vac	DP3090C5005	4.4 x 5 x 3.7	LC	Q,S	120A	—
	4	40	24 Vac	DP4040A5001	2.63 x 3.75 x 3.1	LC	Q,S	50A
120 Vac			DP4040B5000	2.63 x 3.75 x 3.1	LC	Q,S	50A	—
208 Vac/240 Vac			DP4040C5009	2.63 x 3.75 x 3.1	LC	Q,S	50A	—

Connectors:	CHS - #10-32 Combination Head Screw
	LC - Lug Connector
	Q - Quick Connect
	S - # 6 Screw
	SS - Sems Screw
	TCS - Terminal Clamp Screw
Temp Rating:	-4F to 149F
Approvals:	UL, CSA
ARI -780:	500,000 cycle mechanical life; 200,000 cycle electrical life; 10,000 cycle recycle life

Contractors Selection Guide

Electric Heat Contactor								
Poles	Contact Ratings (AFL @ 240, 277, 480, 600 Vac)	Input Voltage/Coil Voltage	Product Number	Dimensions (in.) H x W x D	Main Connections	Coil Connections	Contact Ratings (Resistive @ 240/277, 480, 600 Vac)	Special Features
2	30	24 Vac	R8246A1038	2.2 x 2.3 x 3.3	Q,S	TCS,Q	48A @ 240/277 Vac	First Pole Resistive Only, Second Pole Resistive/ Inductive Combined. ARI 780/790 rated.

Connectors:	CHS - #10-32 Combination Head Screw
	LC - Lug Connector
	Q - Quick Connect
	S - # 6 Screw
	SS - Sems Screw
	TCS - Terminal Clamp Screw
Temp Rating:	-4F to 149F
Approvals:	UL, CSA
ARI -780:	500,000 cycle mechanical life; 200,000 cycle electrical life; 10,000 cycle recycle life

Relays

Q633 Plate-Mounted Relay Receptacle



For installing R4222, R8222 and R4228, R8228 relays on junction boxes.

- Use with appropriate relay and AT72D1683 or AT72D1691 SUPER TRADELINE Transformer.
- Includes relay receptacle, cover and eight leadwires.

Dimensions, Approximate: 4 in. x 4 in. plate (102 x102 mm plate)

Approvals:

CE: Approved

Canadian Standards Association: Recognized

Underwriters Laboratories, Inc. UL Component Recognized

Product Number	Description
* Q633A1007	Plate Mounted Relay Receptacle
* TRADELINE models • SUPER TRADELINE models	

R24 Heat Sequencer



Honeywell R24 Series Heat Sequencers are solid-state positive temperature coefficient (PTC) heaters that mount in any position. Quick-connect terminals speed up installation. In addition to the fact that, the R24 Series Heat Sequencers replace a wide range of models.

- Solid-state PTC Heaters
- Quick-connect terminals
- Shock and vibration resistant
- Mounts in any position
- Contact ratings - to 25 Amps at 120 or 240 Volts, and 12.5 Amps at 480 Volts
- Full-load rating auxiliary contacts
- Standard operating ambience temperature between -40 F and 165 F (-40 C and 73.8 C)
- UL approved, CSA/CUR approval pending

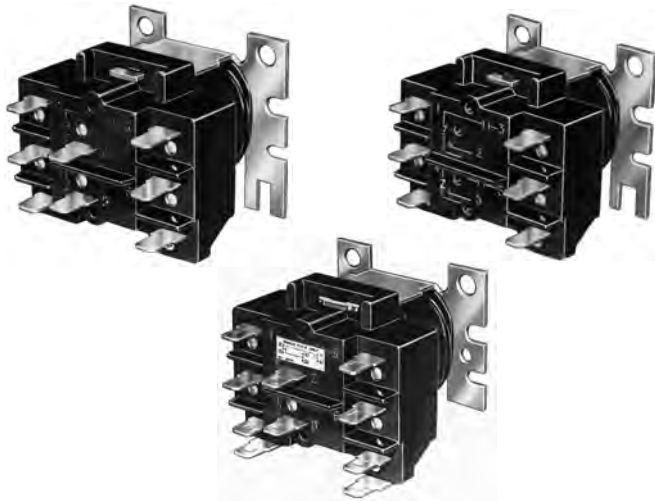
Electrical Connections (main): Solder or screw type 1/4 in. quick connect

Approvals:

Underwriters Laboratories, Inc. UL File 237660

Product Number	Application	Input/Control Voltage	Number of Switches/Devices	Number of On-Timings	Off-Timing Delay (sec)	On-Timing Delay (sec)	Electrical Ratings, Contacts (Resistive)
R24AA1008	Electric Heat	24V	1	1	40 - 110 sec	1 - 20 sec	25A Resistive and 14A Inductive at 120Vac
R24AA2006	Heat Pump - Air Handler	24V	1	1	65-115: Cool	1-25: Heat	25A Resistive and 14A Inductive at 120Vac
R24AA3004	Electric Heat	24V	1	1	1 - 30 sec	30 - 90 sec	25A Resistive and 14A Inductive at 120Vac
R24BA1006	Electric Heat	24V	2	1	40 - 110 sec (1st and 2nd switch)	1 - 20 sec (1st and 2nd switch)	25A Resistive and 14A Inductive at 120Vac
R24BA3002	Electric Heat	24V	2	1	1 - 30 sec (1st and 2nd switch)	30 - 90 sec (1st and 2nd switch)	25A Resistive and 14A Inductive at 120Vac
R24CB4007	Electric Heat	24V	3	2	1 - 110 sec (1st, 2nd and 3rd switch)	1 - 110 sec (1st, 2nd and 3rd switch)	25A Resistive and 14A Inductive at 120Vac
R24DB4005	Electric Heat	24V	4	2	1 - 110 sec (1st, 2nd, 3rd and 4th switch)	1 - 110 sec (1st, 2nd, 3rd and 4th switch)	25A Resistive and 14A Inductive at 120Vac
R24ED5007	Electric Heat	24V	5	4	1 - 160 sec (1st, 2nd, 3rd and 4th switch)	1 - 160 sec (1st, 2nd, 3rd and 4th switch)	25A Resistive and 14A Inductive at 120Vac

R4222; R8222 General Purpose and R8228 Heavy Duty Switching Relays



Provide heavy duty switching for refrigeration and air conditioning equipment, appliances, vending machines and similar applications.

- Molded terminal numbers and circuit diagram on top of relay provide easy identification for wiring and checking system operation.
- Untaped coil assures cooler operation.
- Laminated magnet construction for higher efficiency.
- Base designed for easy replacement of competitive relays.
- Double quick-connect coil terminals.
- Plug compatible with Stevco 90-340 and Mars 90340.

Dimensions, Approximate: 1 7/8 in. high x 2 5/32 in. wide x 2 3/8 in. deep (48 mm high x 55 mm wide x 60 mm deep.)

Electrical Connections (main): 1/4 in. quick-connect terminals

Temperature Rating: -20 F to +150 F (-29 C to +66 C)

Approvals:

CE: Approved

Canadian Standards Association: Approved

Underwriters Laboratories, Inc. UL Component Recognized

Accessories:

129384A Case and Cover Assembly

	Electrical Ratings, Contacts			Pilot Duty Ratings
	(Full Load)	(Locked Rotor)	(Resistive)	
R4222B, R4222D, R4222N, R8222B, R8222D, R8222N, R8222U, R8222V	12 A @ 120 Vac; 6 A @ 208 Vac, 240 Vac, 277 Vac; 3 A @ 480 Vac	60 A @ 120 Vac; 35 A @ 208 Vac, 240 Vac, 277 Vac; 18 A @ 480 Vac	20.8 A @ 120 Vac, 208 Vac, 240 Vac, 277 Vac; 10 A @ 480 Vac	Minimum: 3 VA @ 24 Vac, 120 Vac, & 480 Vac; Maximum: 25 VA @ 24 Vac, 125 VA @ 120 Vac, 240 Vac, & 480 Vac; Resistive: 3 A @ 277 Vac (0.75 power factor); Powerpile: (Normally Open Contacts Only) 0.25 A @ 0.25 to 12 Vdc
R8228A	16 A @ 120 Vac; 12 A @ 277 Vac; 18 A @ 208 Vac, 240 Vac; 5 A @ 480 Vac	96 A @ 120 Vac; 72 A @ 208 Vac, 240 Vac, 277 Vac; 30 A @ 480 Vac	25 A @ 120 Vac, 208 Vac, 240 vac, 277 Vac; 15 A @ 480 Vac	—
R8228B	16/18 A @ 120 Vac; 18 A @ 208 Vac, 240 Vac; 12 A @ 277 Vac; 5 A @ 480 Vac	96/72 A @ 120 Vac; 72 A @ 208 Vac, 240 Vac, 277 Vac; 30 A @ 480 Vac	25 A @ 120 Vac; 208 Vac, 240 Vac, 277 Vac; 12.5 A @ 480 Vac	—
R8228D	5.5 A @ 120 Vac, 208 Vac, 240 Vac, 277 Vac; 3.0 A @ 480 VaC	15 A @ 120 Vac, 208 Vac, 240 Vac, 277 Vac; 8 A @ 480 Vac	25 A @ 120 Vac; 208 Vac, 240 Vac, 277 Vac; 12.5 A @ 480 Vac	—

* Product Number	Coil Ratings Voltage	Frequency	Switching
* R4222B1082	120 V	50 Hz; 60 Hz	SPDT
* R4222D1013	120 V	50 Hz; 60 Hz	DPDT
* R4222D1021	208V; 240 V	50 Hz; 60 Hz	DPDT
* R4222N1002	120 V	50 Hz; 60 Hz	DPDT - Pilot Duty
* R8222B1067	24 Vac	50 Hz; 60 Hz	SPDT
* R8222D1014	24 Vac	50 Hz; 60 Hz	DPDT
* R8222N1011	24 Vac	50 Hz; 60 Hz	DPDT - Pilot Duty
* R8222U1079	24 V	50 Hz; 60 Hz	DPST N.O. (1 P&1 P-duty)
* R8222V1003	24 Vac	50 Hz; 60 Hz	DPDT (1 P&1 PDuty)
R8228A1006	24 V	50 Hz; 60 Hz	SPST N.O.
* R8228B1012	24 Vac	50 Hz; 60 Hz	SPDT
R8228D1018	24 Vac	50 Hz; 60 Hz	DPST N.O.

* TRADELINE models • SUPER TRADELINE models

Relays

R4225; R8225 Fan Relay



Dimensions, Approximate: 2 11/16 in. high x 2 1/2 in. wide x 3 7/16 in. deep (68 mm high x 64 mm wide x 87 mm deep)

Electrical Connections (main): Leadwires

Temperature Rating: 115 F (46 C)

Provide general purpose and heavy duty switching for refrigeration and air conditioning equipment, appliances, vending machines and similar applications.

- Molded terminal numbers and circuit diagram on top of relay provide easy identification for wiring and checking system operation.
- Untaped coil assures cooler operation.
- Laminated magnet construction for higher efficiency.
- Base designed for easy replacement of competitive relays.
- Double quick-connect coil terminals.
- Plug compatible with Steveco 90-340 and Mars 90340.

Approvals:

Canadian Standards Association: Certified: File No. LR95329-1
Underwriters Laboratories, Inc. UL Listed: File No. E14480, Vol. 1, Sec. 3, Guide No. NLDX

Accessories:

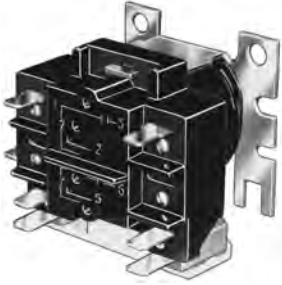
129384A Case and Cover Assembly

Electrical Ratings, Contacts			
	(Full Load)	(Locked Rotor)	(Resistive)
R4225A, R8225A	N.O. 14.0A, N.C. 14.0A, Aux. 3.0A @ 120 Vac; N.O. 8.0A, N.C., 7.0A, Aux. 2.0A @ 240 Vac	N.O. 84.0 A, N.C. 84.0 A, Aux. 18.0 A @ 120 Vac; N.O. 48.0 A, N.C. 42.0 A, Aux. 12.0 A @ 240 Vac	N.O. 16.0 A, N.C. 14.0 A, Aux. 3.0 A @ 120 Vac; N.O. 8.0 A, N.C. 7.0 A, Aux. 2.0 A @ 240 Vac
R8225D	N.O. 14.0 A, Aux. 3.0 A @ 120 Vac; N.O. 8.0 A, Aux. 2.0 A @ 240 Vac	N.O. 84.0 A, Aux. 18.0 A @ 120 Vac; N.O. 48.0 A, Aux. 12.0 A @ 240 Vac	N.O. 16.0 A, Aux. 3.0 A @ 120 Vac N.O. 8.0 A, Aux. 2.0 A @ 240 Vac

Product Number	Coil Ratings Voltage	Frequency	Switching
R4225A1008	120 V	60 Hz	SPDT, 1 N.O., 1 N.C.
* R8225A1017	24 Vac	60 Hz	SPDT
R8225D1003	24 Vac	60 Hz	DPST N.O.

* TRADELINE models • SUPER TRADELINE models

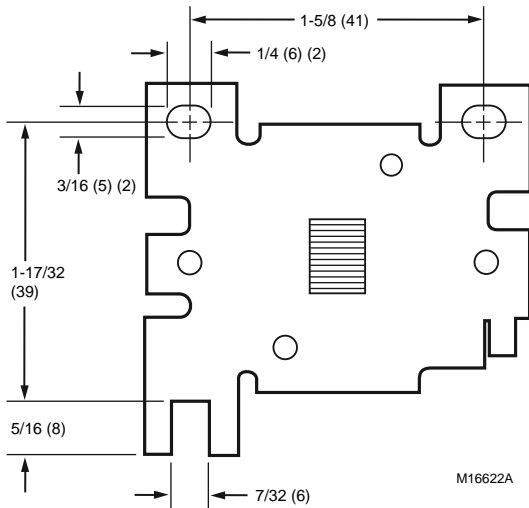
R8229 Electric Heat Relay



Normally Closed Relays And Contactors For Load Control Systems.

- Close and leave load operating in case of wiring or control problem, or relay malfunction.
- Consume no power while load is powered; require power only to shed load.
- Operate directly from a pilot duty rated relay in the load control system.

Dimensions in inches (millimeters)



Dimensions, Approximate: 2 3/16 in. high x 2 3/32 in. wide x 2 1/4 in. deep (56 mm high x 53 mm wide x 57 mm deep.)

Electrical Connections (main): #10 combination head screws

Temperature Rating: -40 F to +165 F (-40 C to +74 C)

Approvals:

CE: Approved

Canadian Standards Association: Recognized

Underwriters Laboratories, Inc. UL Component Recognized

Electrical Ratings, Contacts

(Full Load)	(Locked Rotor)	(Resistive)
7.0 A @ 120 Vac, 208 Vac, 240 Vac, 277 Vac 2.8 A @ 600Vac; 3.5 A @ 480 Vac	35 A @ 120 Vac, 208 Vac, 240 Vac, 277 Vac; 14 A @ 600 Vac; 17.5 A @ 480 Vac	25 A @ 120 Vac, 208 Vac, 240 Vac, 277 Vac; 10.0 A @ 600 Vac; 12.5 A @ 480 Vac

Product Number	Coil Ratings Voltage	Frequency	Switching	Includes
R8229A1005	24 Vac	60 Hz	DPST	—
• R8229A1021	24 Vac	60 Hz	DPST	Extra Mounting Hardware

* TRADELINE models • SUPER TRADELINE models

Relays

R8330 Electric Furnace Sequencer



One control switches a fan and up to three elements on and off in sequence.

- Isolated fan switch has positive interlock to assure fan is on when the element is on, and fan is off when the element is off.
- Replaces any of the ten models in our line and many competitive devices.
- Combination rating on the first element switch allows replacing devices having fan and first element controlled by the same switch without rewiring the furnace.
- Auxiliary switch controls a second R8330 in application with more than three elements.
- Cycles ON within two minutes, OFF within four minutes.
- Ten-second minimum delay between stages (makes sequence and break sequence.)
- Timings meet EEL-NEMA and ARI 280 Standards.

Dimensions, Approximate: 3 1/16 in. high x 4 13/16 in. wide x 2 11/32 in. deep (78 mm high x 122 mm wide x 60 mm deep.)

Electrical Connections (main): terminals

Temperature Rating: -20 F to +150 F (-29 C to +66 C)

Approvals:

Canadian Standards Association: Certified

Underwriters Laboratories, Inc. UL Listed

Electrical Ratings, Contacts		
(Full Load)	(Locked Rotor)	
3/4 hp; 6.9 A @ 120 Vac, 208 Vac, 240 Vac; 1/3 hp; 7.2 A @ 120 vac; 4.9 A @ 277 Vac	3/4 hp; 41.4 A @ 120 Vac, 208 Vac, 240 Vac 1/3 hp; 43.2 a @ 120 Vac; 29.4 A @ 277 Vac	

	Product Number	Coil Ratings Voltage	Frequency
*	R8330D1039	24 Vac	60 Hz

* TRADELINE models • SUPER TRADELINE models

R841 Electric Heating Relay



Use with two-wire, 24 Vac thermostat to control electric heating equipment such as baseboard, ceiling cable and duct heaters.

- Operate with each cycle of the thermostat (4 to 6 cycles per hour).
- Each relay switches up to a 5,000 W load.
- Contacts make and break in about 75 seconds.
- Mount in any position.
- Includes 1/2 in. (13 mm) male conduit bushing.

Dimensions, Approximate: 3 7/8 in. high x 2 13/16 in. wide x 1 1/2 in. deep (98 mm high x 71 mm wide x 38 mm deep)

Temperature Rating: -20 F to +150 F (-29 C to +66 C)

Approvals:

Canadian Standards Association: Certified

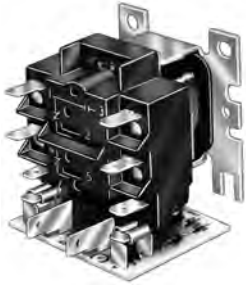
Underwriters Laboratories, Inc. UL Listed

Electrical Ratings, Contacts		
(Full Load)	(Locked Rotor)	(Resistive)
14 A @ 120 Vac; 7.0 A @ 208 Vac, 240 Vac, 277 Vac	84 A @ 120 Vac; 42 A @ 208 Vac, 240 Vac, 277 Vac	22 A @ 120 Vac, 208 Vac, 240 Vac; 19 a @ 277 Vac

	Product Number	Coil Ratings Voltage	Frequency	Switching	Electrical Connections (main)	Includes
	R841C1029	240 V	50 Hz; 60 Hz	SPST	Terminals	Enclosure w/conduit bushing.
	R841C1151	600 Vac	50 Hz; 60 Hz	SPST	Leadwires	Enclosure w/ conduit bushing and an integral transformer.
*	R841C1169	208 V; 240 Vac	50 Hz; 60 Hz	SPST	Leadwires	Enclosure w/ conduit bushing and an integral transformer.
*	R841C1227	24 V	50 Hz; 60 Hz	SPST	Leadwires	—
*	R841D1036	24 V	50 Hz; 60 Hz	SPST	Leadwires	Enclosure w/conduit bushing.
*	R841E1068	24 V	50 Hz; 60 Hz	SPST	Leadwires	Enclosure w/conduit bushing and integral transformer; dual load.

* TRADELINE models • SUPER TRADELINE models

ST82 Fan Manager



Use in compressor-run air conditioning, heat pump systems and heating-cooling systems. Delays the indoor blower shutoff after the compressor has shut off.

- Eighty-second delay on break.
- Combination electronic time delay board and R8222 relay saves wiring time.
- Molded terminal numbers and circuit diagram on top of relay and letter-coded terminals on time delay board provide easy identification for wiring and system checkout.
- Laminated magnet construction for high efficiency.
- Reduces stratification and saves energy.

Dimensions, Approximate: 2 7/32 in. high x 2 1/16 in. wide x 2 9/16 in. deep (56 mm high x 52 mm wide x 65 mm deep)

Electrical Connections (main): 1/4 in. quick-connect terminals

Temperature Rating: -20 F to +150 F (-29 C to +66 C)

Approvals:

CE: Approved

Canadian Standards Association: Certified: File No. LR95329-17

Underwriters Laboratories, Inc. UL Listed: File No. MP466, Vol. 22, Sec. 1, Guide No. MBPR2

Electrical Ratings, Contacts		
(Full Load)	(Locked Rotor)	(Resistive)
12 A @ 120 Vac; 3 A @ 480 Vac; 6 A @ 208 Vac, 240 Vac, 277 Vac	60 A @ 120 Vac; 18 A @ 480 Vac; 35 A @ 208 Vac, 240 Vac, 277 Vac	15 A @ 120 Vac; 15 A @ 208 Vac, 240 Vac, 277 Vac; 10 A @ 480 Vac

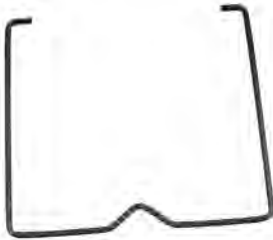

Product Number	Coil Ratings Voltage	Frequency	Delay Timing	Switching
* ST82D1004	24 Vac	50 Hz; 60 Hz	80 sec	DPDT
* TRADELINE models • SUPER TRADELINE models				

Relays Parts and Accessories

Relay Accessories

Product Number	Description	
129384A	Case and Cover Assembly	

Relay Parts

Product Number	Description	
135887	Bail Lock Down Assembly	
135959	Relay Receptacle	

Relays Selection Guide

Relays							
Input Voltage/ Coil Voltage	Switching	Product Number	Full Load Amp Rating	Frequency	Dimensions (in.) H x W X D	Electrical Connections (main)	Special Features
24 V	DPST N.O.	R8228D1018	5.5	A	1 7/8 x 2 5/32 x 2 3/8	Q	—
	DPDT (1 P&1PDuty)	R8222V1003		A	1 7/8 x 2 5/32 x 2 3/8	Q	—
	DPDT - Pilot Duty	R8222N1011		A	1 7/8 x 2 5/32 x 2 3/8	Q	Pilot Duty
	DPDT	R8222D1014		A	1 7/8 x 2 5/32 x 2 3/8	Q	—
	DPDT	ST82D1004		A	2 7/32 x 2 1/16 x 2 9/16	Q	80 sec shut off delay
	SPDT	R8222B1067		A	1 7/8 x 2 5/32 x 2 3/8	Q	—
120 V	DPDT - Pilot Duty	R4222N1002	12	A	1 7/8 x 2 5/32 x 2 3/8	Q	—
	DPDT	R4222D1013		A	1 7/8 x 2 5/32 x 2 3/8	Q	—
	SPDT	R4222B1082		A	1 7/8 x 2 5/32 x 2 3/8	Q	—
208V/240V	DPDT	R4222D1021		A	1 7/8 x 2 5/32 x 2 3/8	Q	—
24V	SPDT	R8225A1017	14	B	2 11/16 x 2 1/2 x 3 7/16	L	—
	DPST N.O.	R8225D1003		B	2 11/16 x 2 1/2 x 3 7/16	L	—
120 V	SPDT, 1 N.O., 1 N.C.	R4225A1008		B	2 11/16 x 2 1/2 x 3 7/16	L	—
24 V	SPDT	R8228B1012	18	A	1 7/8 x 2 5/32 x 2 3/8	Q	—

Frequency:	A - 60Hz/50Hz; B - 60Hz, C - 50 Hz	SPST	Single Pole Single Throw
Approvals:	UL, CSA	DPST	Double Pole Single Throw
Temp Rating:	-20 F to +150 F; 115 F max for R8225	DPDT	Double Pole Double Throw
Connectors:	CHS - Combination Head Screw; L - Leadwires; Q - Quick connect; T - Terminals	SPDT	Single Pole Double Throw

Electric Heat Sequencer Selection Guide

Electric Heat Sequencer Selection Guide

Electric Heat Relays							
Input Voltage/Coil Voltage	Switching	Product Number	Full Load Amp Rating	Frequency	Dimensions (in.) H x W X D	Electrical Connections (main)	Special Features
24V	DPST	R8229A1005	7	B	2 3/16 x 2 3/32 x 2 1/4	CHS	—
		R8229A1021		B	2 3/16 x 2 3/32 x 2 1/4	CHS	Extra Mounting Hardware
24V	SPST	R841D1036	14	A	3 7/8 x 2 13/16 x 1 1/2	L	18A resistive @ 120/208/240VAC. Requires Transformer. Canada - replaces R841D1028
208/240V	SPST	R841C1169		A	3 7/8 x 2 13/16 x 1 1/2	L	18A resistive @ 120/208/240VAC. Integral Transformer. Canada - replaces R841C1029
240V	SPST	R841E1068		A	3 7/8 x 2 13/16 x 1 1/2	L	22A resistive @ 120/208/240VAC. Dual Load/integral transformer
347V	SPST	R841C1144		A	3 7/8 x 2 13/16 x 1 1/2	L	18A resistive @ 120/208/240VAC. Integral Transformer. Canada
600V	SPST	R841C1151		A	3 7/8 x 2 13/16 x 1 1/2	L	18A resistive @ 120/208/240VAC. Integral Transformer. Canada

Electric Furnace Sequencer					
Input Voltage/Coil Voltage	Product Number	Full Load Amp Rating	Frequency	Dimensions (in.) H x W X D	Electrical Connections (main)
24V	R8330D1039	7.2	B	3 1/16 x 4 13/16 x 2 11/32	T

Electric Heat Contactor					
Input Voltage/Coil Voltage	Switching	Product Number	Full Load Amp Rating	Dimensions (in.) H x W X D	Electrical Connections (main)
24V	DPST	R8246A1038	30	2-3/16 x 2-1/4 x 3-5/16	Q,S

Frequency:	A - 60Hz/50Hz; B - 60Hz, C - 50 Hz	SPST	Single Pole Single Throw
Approvals:	UL, CSA	DPST	Double Pole Single Throw
Temp Rating:	-20 F to +150 F; 115 F max for R8225	DPDT	Double Pole Double Throw
Connectors:	CHS - Combination Head Screw; L - Leadwires; Q - Quick connect; T - Terminals	SPDT	Single Pole Double Throw

Electric Heat Sequencer Selection Guide

Electric Heat Sequencer Selection Guide

Electric Heat Sequencers												
Product Number	Switches	Timings	Timings - ON					Timings - OFF				
			M1-M2	M3-M4	M5-M6	M7-M8	M9-M10	M1-M2	M3-M4	M5-M6	M7-M8	M9-M10
R24AA1008	1	1	1-20	—	—	—	—	40-110	—	—	—	—
R24AA3004	1	1	—	—	30-90	—	—	—	—	1-30	—	—
R24BA1006*	2	1	1-20	1-20	—	—	—	40-110	40-110	—	—	—
R24BA3002*	2	1	—	—	30-90	30-90	—	—	—	1-30	1-30	—
R24CB4007*	3	2	1-110	1-110	1-110	—	—	1-110	1-110	1-110	—	—
R24DB4005*	4	2	1-110	1-110	1-110	1-110	—	1-110	1-110	1-110	1-110	—
R24ED5007*	5	4	1-160	1-160	1-160	1-160	1-160	1-160	1-160	1-160	1-160	1-160

Heat Pump-Air Handler Model					
WR Xref	Product Number	Switches	Timings	Heat	Cool
24A34-15	R24AA2006	1	1	1-25	75-95

Temperature:	-50F to 165F
Terminations:	[Solder or screw type 1/4" quick connect]
Ratings:	Estimate - 25A Resistive and 14A Inductive at 120Vac
SPST:	Single Pole Single Throw
DPST:	Double Pole Single Throw
SPDT:	Single Pole Double Throw
DPDT:	Double Pole Double Throw
Agency:	UL/CSA
Table Notes:	
*M1-M2 and M3-M4 are always first switches to turn ON and last to turn OFF. All other switches are random ON and random OFF	
*R24ED5007 Switch contacts designated F1 - F2 instead of M1 - M2	
*R24BB3428 is Double Pole Double Throw model.	
*R24AA2006 is a Single Pole Double Throw model for Heat Pump Applications	
* • These contacts switch simultaneously	
ON Time:	Elapsed time (min. to max.) to make contact after heater is energized
OFF Time:	Elapsed time (min. to max.) to break contact after heater is de energized

Electric Heat Sequencer Cross Reference

Honeywell	White-Rodgers	SUPCO	GEMLINE	A1	T-O-D	Mars
R24AA1008	24A34-1	Q101	GS101	TDR10	12S20	33841
R24AA3004	24A34-2	Q102	GS102	TDR15	12S20	33842
R24BA1006	24A34-3	Q103	GS103	TDR20	12S22	33844
R24BA3002	24A34-4	Q104	GS104	TDR25	12S22	33845
R24CB4007	24A34-5	Q105	GS105	TDR30	15S21	33832
R24DB4005	24A34-6	Q106	GS106		15S22	33833
R24ED5007	24A34-14				15S241	33848
R24AA2006	24A34-15					

Fan Centers

R8239 Control Center



Include NEMA standard transformer for excellent voltage control. Provide low voltage control of line voltage fan motors and auxiliary circuits in heating, cooling or heating-cooling circuits.

- NEMA standard Type D transformer (included) powers low voltage control systems.
- Provide overload protection for transformer.
- Convenient connections for thermostat, and heating-cooling equipment wiring.
- Mount on standard 4 x 4 junction box.
- Can be mounted in any indoor location without additional enclosure.
- Relay is easily replaced without disturbing wiring.
- Include relay enclosures.

Dimensions, Approximate: 4 1/2 in. high, 4 3/16 in. wide, 3 3/32 in. deep (114 mm high, 106 mm wide, 79 mm deep)

Electrical Ratings (W): 12 W maximum

Coil Ratings (inrush): 20 VA maximum, 17 VA nominal.

Coil Ratings (sealed): 10 VA maximum, 9 VA nominal

Approvals:

Canadian Standards Association: Certified

NEMA Standard: NEMA Standard DC20-1992

Underwriters Laboratories, Inc. UL Listed

Electrical Ratings			
120 Vac		240 Vac	
Full Load	Locked Rotor	Full Load	Locked Rotor
12A	72A	6.9A	41.4A

	Product Number	Application	Frequency	Horsepower	Voltage	Power Supply (Vac)	Power Supply (Secondary)	Switching Action	Includes
*	R8239A1052	For single-or two speed fan.	50 Hz; 60 Hz	3/4 HP	120 Vac	40 VA	26.5 V	SPDT	R8222B
•	R8239B1076	For system with F50 Electronic Air Cleaner humidifier and blower motor.	50 Hz; 60 Hz	3/4 HP	120 Vac; 208 Vac; 240 Vac	50 VA	26.5 V	DPDT	R8222D

* TRADELINE models • SUPER TRADELINE models

R8285 Control Center



Provides low voltage control of line voltage fan motors and auxiliary circuits in heating, cooling, or air conditioning systems.

- Transformer powers low voltage control systems and provides overload protection.
- Low voltage terminal board provides convenient connections for thermostat and heating/cooling equipment wiring.
- Mounts on standard 4 x 4 in. junction box.
- Relay is easily replaced without disturbing wiring.

Dimensions, Approximate: 4 3/16 in. high, 4 1/2 in. wide, 2 13/16 in. deep (106 mm high, 114 mm wide, 71 mm deep)

Electrical Ratings (W): 11 W maximum

Approvals:

Canadian Standards Association: Certified: File No. LR95329-17

Underwriters Laboratories, Inc. UL Component Recognized; File No.

E4436, Vol.15, Sec.1, Guide No.XAPX2

Electrical Ratings			
120 Vac		240 Vac	
Full Load	Locked Rotor	Full Load	Locked Rotor
12A	72A	6A	35A

	Product Number	Application	Frequency	Horsepower	Voltage	Power Supply (Vac)	Power Supply (Secondary)	Switching Action	Includes
*	R8285A1048	For single-or two speed fan.	60 Hz	3/4 HP	120 Vac	40 VA	26.5 V	SPDT	R8222B
*	R8285B1053	For "Total Comfort" applications with electronic air cleaner, humidifier and blower motor.	60 Hz	3/4 HP	120 Vac; 208 Vac; 240 Vac	40 VA	26.5 V	DPDT	R8222D
	R8285D5001	For Hydronic Applications; use with SV9600 SmartValve™ System and other systems that require 50 VA capacity.	60 Hz	3/4 HP	120 Vac	50 VA	26.5 V	DPST (One Power Rated, One Pilot Duty)	R8222U

* TRADELINE models • SUPER TRADELINE models

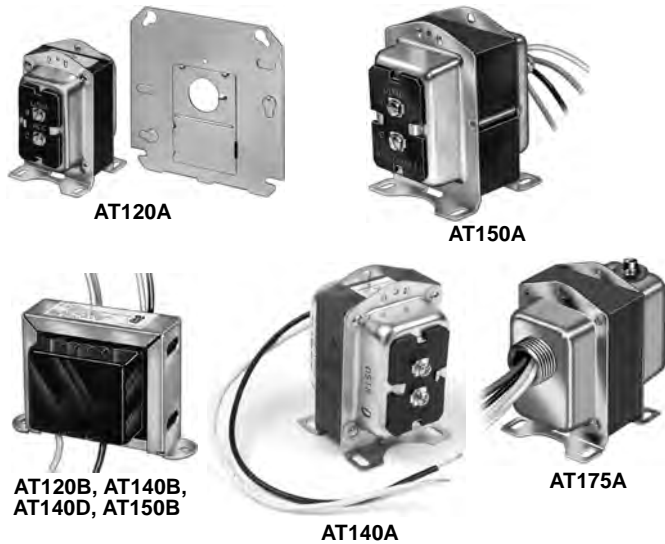
Fan Center Selection Guide

Fan Centers									
Electrical Ratings- VA	Electrical Ratings - Input Voltage	Switching	Product Number	NEMA	Dimensions (in.) H x W X D	Main Connections	Secondary Connections	Frequency	Special Features
40VA	120 Vac	DPDT	R8239B1043	Yes	4 1/2 x 4 3/16 x 3 3/32	L	L	A	Super Tradeline
		DPST	R8239D1007	Yes	4 1/2 x 4 3/16 x 3 3/32	L	L	A	—
		DPST (1 Power, 1 Pilot)	R8239D1015	Yes	4 1/2 x 4 3/16 x 3 3/32	L	L	A	Tradeline
		SPDT	R8239A1052	Yes	4 1/2 x 4 3/16 x 3 3/32	L	L	A	Tradeline
		SPDT	R8239A1003	Yes	4 1/2 x 4 3/16 x 3 3/32	L	L	A	—
50VA	120 Vac 240 Vac 208 Vac	DPDT	R8239B1076	Yes	4 1/2 x 4 3/16 x 3 3/32	L	L	A	Super Tradeline
40VA	120 Vac	SPDT	R8285A1048	No	4 3/16 x 4 1/2 x 2 13/16	L	L	A	Tradeline
	120 Vac 240 Vac 208 Vac	DPDT	R8285B1053	No	4 3/16 x 4 1/2 x 2 13/16	L	L	A	Tradeline
50VA	120 Vac	SPDT	R8285A1006	No	4 3/16 x 4 1/2 x 2 13/16	L	L	A	—
		DPDT	R8285D5001	No	4 3/16 x 4 1/2 x 2 13/16	L	L	A	—
Frequency:	A - 60Hz/50Hz; B - 60Hz								
Approvals:	UL, CSA								
Temp Rating:	-20 F to +105 F								
Connectors:	L - Leadwires								
Mounting:	Standard 4 X 4 in. junction box								
Supertradeline models include extra hardware.									

Residential
Combustion Controls

Transformers

AT120; AT140; AT150A,B; AT175A General Purpose Transformer



Provide power to 24 Vac circuits in heating/cooling control systems. Intended for use in systems with predictable, uniform loads. Can be used in any application that does not exceed the listed ratings.

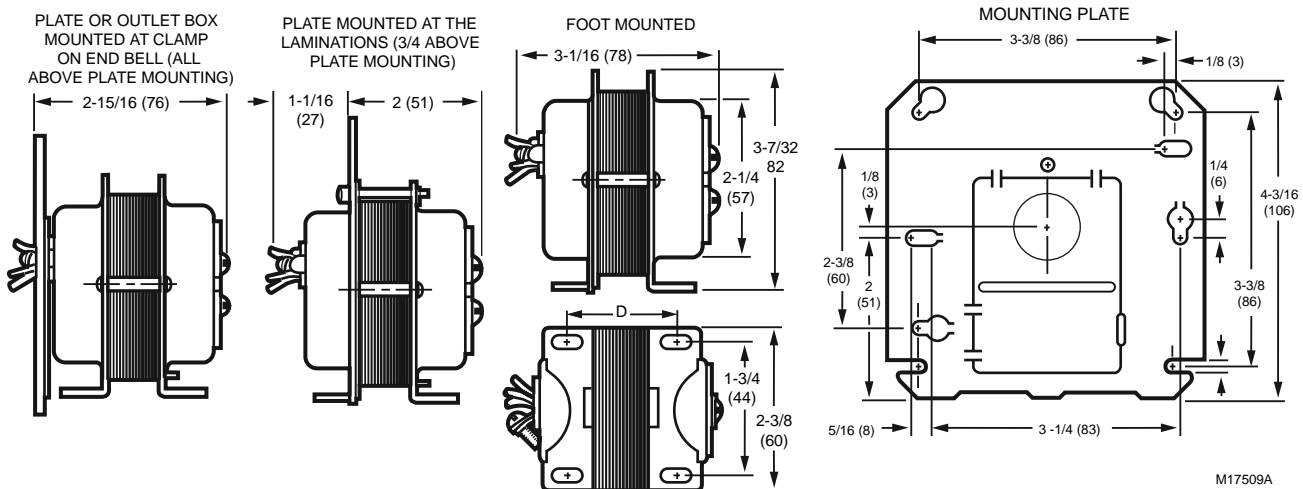
- Color-coded leadwires for primary connections and screw terminals for secondary connections, fixed 1/4 inch (6 mm) male quick-connects or color-coded leadwires for both primary and secondary, are standard.
- Meet NEC Class 2 requirements.
- Meet Underwriters Laboratories Inc. Standard UL 1585 and are identified. Class 2 not wet, Class 3 wet.

Temperature Rating: -20 F to +105 F (-29 C to +41 C)
Frequency: 60 Hz

NEMA Rating
AT175A1008 only: NEMA type E

Approvals:
Canadian Standards Association: CSA Certified: A & B models.
Underwriters Laboratories, Inc. UL Listed: A,C,F models. File # E14881

Dimensions in inches (millimeters)



Product Number	Electrical Ratings			Electrical Connections (main)		Mounting	Dimensions, Approximate		Includes
	Primary	Secondary	Output	Primary	Secondary		(inch)	(mm)	
AT120A1004	120 Vac, 208 Vac, 240 Vac	27 V.O.C.	24 Vac at 20 VA	9 in. leadwires	(2) screw terminals	Foot mounted, plate mounted on 2x4 in. or 4x4 in. outlet box, clamp mounted using outlet box knockout, or panel mounted	2 7/8 in. high x 1 7/8 in. wide x 2 15/16 in. deep	73 mm high x 48 mm wide x 75 mm deep	—
AT120B1028	120 Vac	27 V.O.C.	24 Vac at 20 VA	9 in. leadwires	9 in. leadwires	Foot-mounted	1 11/16 in. high x 3 3/16 in. wide x 1 3/4 in. deep	43 mm high x 81 mm wide x 75 mm deep	Metal end bells
AT140A1000	120 Vac	27 V.O.C.	24 Vac at 40 VA	9 in. leadwires	(2) screw terminals	Foot mounted, plate mounted on 2x4 in. or 4x4 in. outlet box, clamp mounted using outlet box knockout, or panel mounted	3 3/16 in. high x 2 3/8 in. wide x 3 1/8 in. deep	81 mm high x 60 mm wide x 79 mm deep	Metal end bells
AT140A1018	120 Vac, 208 Vac, 240 Vac	27 V.O.C.	24 Vac at 40 VA	9 in. leadwires	(2) screw terminals	Foot mounted, plate mounted on 2x4 in. or 4x4 in. outlet box, clamp mounted using outlet box knockout, or panel mounted	3 3/16 in. high x 2 3/8 in. wide x 3 1/8 in. deep	81 mm high x 60 mm wide x 79 mm deep	Metal end bells

Transformers

Product Number	Electrical Ratings			Electrical Connections (main)		Mounting	Dimensions, Approximate		Includes
	Voltage		Output	Primary	Secondary		(inch)	(mm)	
	Primary	Secondary							
AT140B1016	120 Vac	27 V.O.C.	24 Vac at 40 VA	1/4 in. male quick-connects	1/4 in. male quick-connects	Foot-mounted	1 11/16 in. high x 3 1/2 in. wide x 1 3/4 in. deep	43 mm high x 89 mm wide x 75 mm deep	Plastic end caps
AT140B1206	120 Vac	27 V.O.C.	24 Vac at 40 VA	9 in. leadwires	9 in. leadwires	Foot-mounted	1 11/16 in. high x 3 1/2 in. wide x 1 3/4 in. deep	43 mm high x 89 mm wide x 75 mm deep	Plastic end caps
AT140B1214	120 Vac, 208 Vac, 240 Vac	27 V.O.C.	24 Vac at 40 VA	9 in. leadwires	9 in. leadwires	Foot-mounted	1 11/16 in. high x 3 1/2 in. wide x 1 3/4 in. deep	43 mm high x 89 mm wide x 75 mm deep	Plastic end caps
AT140D1012	120 Vac	27 V.O.C.	24 Vac at 40 VA	9 in. leadwires	9 in. leadwires	integral 4 x 4 in. mounting plate fits 2 x 4 in. or 4 x 4 in. outlet box.	2 5/8 in. high x 2 1/4 in. wide x 1 15/16 in. deep	67 mm high x 57 mm wide x 49 mm deep	Metal end bells
AT150A1007	120 Vac, 208 Vac, 240 Vac	27.5 V.O.C.	24 Vac at 50 VA	9 in. leadwires	(2) screw terminals	Foot mounted, plate mounted on 2x4 in. or 4x4 in. outlet box, clamp mounted using outlet box knockout, or panel mounted	1 11/16 in. high x 3 3/16 in. wide x 1 3/4 in. deep	43 mm high x 81 mm wide x 75 mm deep	Metal end bells
AT150B1146	120 Vac, 208 Vac, 240 Vac	—	24 Vac at 50 VA	9 in. leadwires	9 in. leadwires	Foot-mounted	1 11/16 in. high x 3 1/2 in. wide x 1 3/4 in. deep	43 mm high x 89 mm wide x 75 mm deep	—
AT150B1252	277 Vac	27.5 V.O.C.	24 Vac at 50 VA	9 in. leadwires with 1/4 in. male quick-connects	9 in. leadwires with 1/4 in. male quick-connects with plastic (2) end covers	Foot-mounted	1 11/16 in. high x 3 1/2 in. wide x 1 3/4 in. deep	43 mm high x 89 mm wide x 75 mm deep	Plastic end caps
AT175A1008	120 Vac, 208 Vac, 240 Vac	27.5 V.O.C.	24 Vac at 75 VA	9 in. leadwires	(2) screw terminals	Foot mounted, plate mounted on 2x4 in. or 4x4 in. outlet box, clamp mounted using outlet box knockout, or panel mounted	3 3/16 in. high x 2 3/8 in. wide x 3 5/8 in. deep	81 mm high x 60 mm wide x 92 mm deep	Metal end bells

Residential
Combustion Controls

AT150F Circuit Breaker Transformer



Provide power to 24 Vac circuits in heating/cooling control systems. Intended for use in systems with predictable, uniform loads. Can be used in any application that does not exceed the listed ratings.

- Rated at 50 VA.
- Color-coded leadwires for primary connections and screw terminals for secondary connections, fixed 1/4 inch (6 mm) male quick-connects or color-coded leadwires for both primary and secondary, are standard.
- Meet NEC Class 2 requirements.
- Meet Underwriters Laboratories Inc. Standard UL 1585 and are identified. Class 2 not wet, Class 3 wet.

Temperature Rating: -20 F to +105 F (-29 C to +41 C)

Frequency: 60 Hz

Includes: Button for manually resetting the circuit breaker and metal end bells.

Electrical Connections (main)

Primary: 9 in. leadwires

Secondary: 9 in. leadwires

Approvals:

Canadian Standards Association: Certified: File No. LR95329-18

Underwriters Laboratories, Inc. UL Listed: File no. E14881, Guide no. XOKV.

Product Number	Electrical Ratings			Mounting	Dimensions, Approximate	
	Voltage		Output		(inch)	(mm)
	Primary	Secondary				
* AT150F1022	120 Vac, 208 Vac, 240 Vac	27.5 V.O.C.	24 Vac at 50 VA	Includes 1/2 14 NPSM conduit connector and lock nut for mounting on plate or panel (not included) with 7/8 in. knockout, and feet for surface mount.	3 3/16 in. high x 2 3/16 in. wide x 3 5/8 in. deep	81 mm high x 56 mm wide x 93 mm deep
* AT150F1030	208 Vac, 277 Vac, 480 Vac	27.5 V.O.C.	24 Vac at 50 VA	Includes 1/2 14 NPSM conduit connector and lock nut for mounting on plate or panel (not included) with 7/8 in. knockout, and feet for surface mount.	3 3/16 in. high x 2 3/16 in. wide x 3 5/8 in. deep	81 mm high x 56 mm wide x 93 mm deep

* TRADELINE models • SUPER TRADELINE models

Transformers

AT175F Circuit Breaker Transformer



Provide power to 24 Vac circuits in heating/cooling control systems. Intended for use in systems with predictable, uniform loads. Can be used in any application that does not exceed the listed ratings.

- Rated at 75 VA.
- Color-coded leadwires for primary connections and screw terminals for secondary connections, fixed 1/4 inch (6 mm) male quick-connects or color-coded leadwires for both primary and secondary, are standard.
- Meet NEC Class 2 requirements.
- Meet Underwriters Laboratories Inc. Standard UL 1585 and are identified. Class 2 not wet, Class 3 wet.

Temperature Rating: -20 F to +105 F (-29 C to +41 C)
Frequency: 60 Hz

Electrical Connections (main)

Primary: 9 in. leadwires
Secondary: 9 in. leadwires

Includes: Button for manually resetting the circuit breaker and metal end bells.

Approvals:

Canadian Standards Association: CSA Certified: A & B models.
Underwriters Laboratories, Inc. UL Listed: A,C,F models. File # E14881

Product Number	Electrical Ratings			Mounting	Dimensions, Approximate	
	Primary	Secondary	Output		(inch)	(mm)
* AT175F1023	120 Vac, 208 Vac, 240 Vac	27.5 V.O.C.	24 Vac at 75 VA	Includes 1/2 14 NPSM conduit connector and lock nut for mounting on plate or panel (not included) with 7/8 in. knockout, and feet for surface mount.	3 3/16 in. high x 2 3/16 in. wide x 3 15/16 in. deep	81 mm high x 56 mm wide x 102 mm deep
* AT175F1031	208 Vac, 277 Vac, 480 Vac	27.5 V.O.C.	24 Vac at 75 VA	Includes 1/2 14 NPSM conduit connector and lock nut for mounting on plate or panel (not included) with 7/8 in. knockout, and feet for surface mount.	3 3/16 in. high x 2 3/16 in. wide x 3 15/16 in. deep	81 mm high x 56 mm wide x 102 mm deep

* TRADELINE models • SUPER TRADELINE models

AT20; AT40 NEMA Standard Universal Stripped-Down Transformer



Power a 24V control system; for direct mounting, or horizontal or vertical foot-mounting.

- Channel frame mounting feet and slots allow for the three mounting positions.
- Color-coded leadwires for primary connections.
- Overload protection provided.
- Energy limiting, meet NEMA DC20-1992 Standard.
- Meet NEC Class 2 not wet, Class 3 wet and U.L. 1585 requirements.
- Mount within proper enclosure.

Temperature Rating: -20 F to +105 F (-29 C to +41 C)
Frequency: 50 Hz; 60 Hz

Electrical Connections (main)

Primary: 9 in. color coded primary and secondary leadwires
Secondary: 9 in. color coded primary and secondary leadwires

Approvals:

Canadian Standards Association: Certified
Underwriters Laboratories, Inc. UL Component Recognized.

Product Number	Electrical Ratings			NEMA Rating	Mounting	Dimensions, Approximate	
	Primary	Secondary	Output			(inch)	(mm)
* AT20A1123	120 Vac	26.5 V.O.C.	24 Vac at 19 VA	NEMA type B	Channel Frame Mounting allows for Direct, Horizontal, or Vertical Foot mounting.	2 in. high x 2 1/4 in. wide x 1 7/8 in. deep	50.8 mm high x 57 mm wide x 47.6 mm deep
* AT40A1121	120 Vac	26.5 V.O.C.	24 Vac at 40 VA	NEMA type D	Channel Frame Mounting allows for Direct, Horizontal, or Vertical Foot mounting.	2 3/32 in. high x 2 5/8 in. wide x 2 3/16 in. deep	53 mm high x 67 mm wide x 56 mm deep
* AT40A1139	240 Vac	26.5 V.O.C.	24 Vac at 40 VA	NEMA type D	Channel Frame Mounting allows for Direct, Horizontal, or Vertical Foot mounting.	2 3/32 in. high x 2 5/8 in. wide x 2 3/16 in. deep	53 mm high x 67 mm wide x 56 mm deep

* TRADELINE models • SUPER TRADELINE models

AT72 NEMA Standard Transformer



24V control circuit step-down transformer designed to power any 24V control system, including thermostats, gas valves and relays.

- Override protection provided.
- Color-coded leadwires for primary connections.
- Energy limiting, meets NEMA Standard DC20-1992.
- Transformer is marked NEMA Type D.
- Meets NEC Class 2 not wet, Class 3 wet and U.L. 1585 requirements.
- Mount within proper enclosure.

Temperature Rating: -20 F to +105 F (-29 C to +41 C)

Frequency: 50 Hz; 60 Hz

NEMA Rating: Type D

Approvals:

Canadian Standards Association: Certified

N.E.C. NEC Approved.

Underwriters Laboratories, Inc. UL Component Recognized.

Product Number	Electrical Ratings			Electrical Connections (main)		Mounting	Dimensions, Approximate	
	Voltage		Output	Primary	Secondary		(inch)	(mm)
	Primary	Secondary						
AT72D1006	120 Vac	26.5 V.O.C.	24 Vac at 40 VA	9 in. leadwires	(2) screw terminals	4 x 4 in. plate-mounted, protruding into junction box	3 7/32 in. high x 2 7/32 in. wide x (1 1/16 into plate x 2 in. above plate) deep	81.8 mm high x 56.4 mm wide x (27 mm into box x 50.8 mm above box) deep
AT72D1188	120 Vac	26.5 V.O.C.	24 Vac at 40 VA	9 in. leadwires	9 in. leadwires	4 x 4 in. plate mounted without protruding into junction box.	3 7/32 in. high x 2 7/32 in. wide x 2 15/16 in. deep	81.8 mm high x 56.4 mm wide x 74.6 mm deep
• AT72D1683	120 Vac	26.5 V.O.C.	24 Vac at 40 VA	9 in. leadwires	(2) screw terminals	Can be foot mounted, plate mounted on 4 x 4 in., 4 in. octagon, or 2 x 4 in. electrical boxes (transformer all above plate or 3/4 above plate); or clamp mounted via a junction box knockout.	3 7/32 in. high x 2 7/32 in. wide x 3 1/16 in. deep	81.8 mm high x 56.4 mm wide x 77.8 mm deep
• AT72D1691	208 Vac, 240 Vac	26.5 V.O.C.	24 Vac at 40 VA	9 in. leadwires	(2) screw terminals	Can be foot mounted, plate mounted on 4 x 4 in., 4 in. octagon, or 2 x 4 in. electrical boxes (transformer all above plate or 3/4 above plate); or clamp mounted via a junction box knockout.	3 7/32 in. high x 2 7/32 in. wide x 3 1/16 in. deep	81.8 mm high x 56.4 mm wide x 77.8 mm deep

* TRADELINE models • SUPER TRADELINE models

Transformers

AT87 NEMA Standard Transformer



Used primarily for powering 24V air conditioning circuits. Can also be used in other applications that do not exceed the listed ratings.

- Meets NEC Class 2 not wet, Class 3 wet and UL 1585 requirements.
- Transformer marked NEMA Type E.
- Overload protection provided.
- Color-coded leadwires for primary connections.

Temperature Rating: -20 F to +105 F (-29 C to +41 C)

Frequency: 50 Hz; 60 Hz

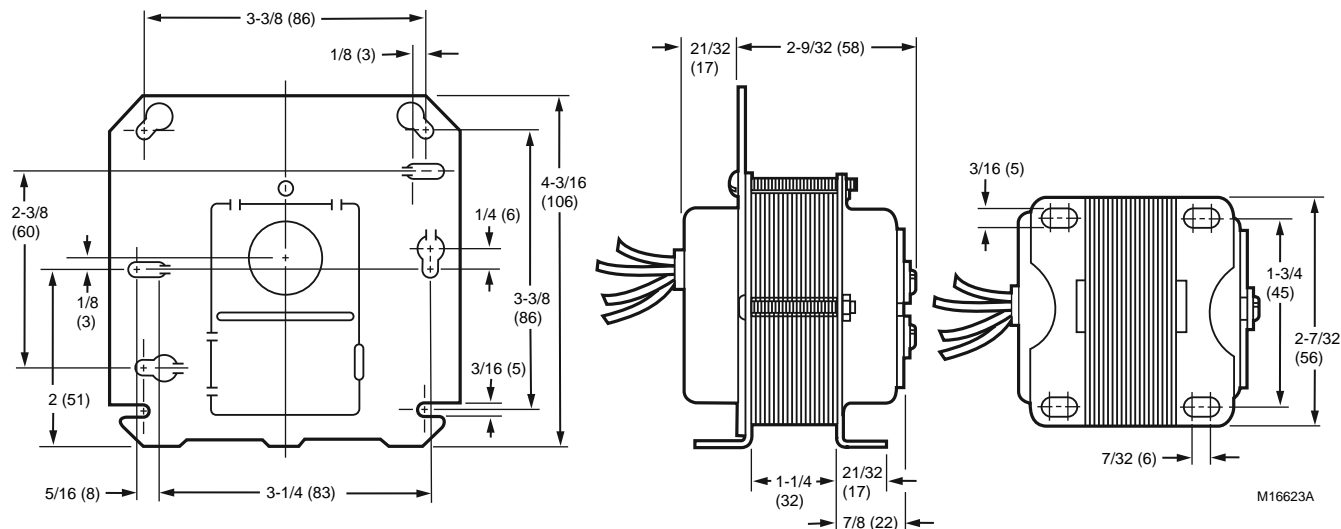
NEMA Rating: NEMA type E

Approvals:

Canadian Standards Association: Certified

Underwriters Laboratories, Inc. UL Component Recognized.

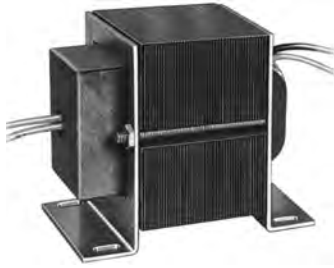
Dimensions in inches (millimeters)



Product Number	Electrical Ratings		Output	Electrical Connections (main)		Mounting	Dimensions, Approximate		Includes
	Voltage			Primary	Secondary		(inch)	(mm)	
	Primary	Secondary							
AT87A1049	120 Vac	26.5 V.O.C.	24 Vac at 48 VA	12 in. leadwires	12 in. leadwires	Foot-mounted	2 15/16 in. deep x 2 7/32 wide	74.6 mm deep x 65.4 mm wide	Energy limiting overload protection
• AT87A1106	120 Vac, 208 Vac, 240 Vac	26.5 V.O.C.	24 Vac at 48 VA	13 in. leadwires	(2) screw terminals	Foot mounted or 4x4 in plate.	2 15/16 in. deep x 2 7/32 wide	74.6 mm deep x 65.4 mm wide	Built-in protection. Primary winding burnout.
AT87A1155	480 Vac	26.5 V.O.C.	24 Vac at 48 VA	12 in. leadwires	12 in. leadwires	Foot-mounted	2 15/16 in. deep x 2 7/32 wide	74.6 mm deep x 65.4 mm wide	Energy limiting overload protection
AT87A1189	277 Vac	26.5 V.O.C.	24 Vac at 48 VA	12 in. leadwires	12 in. leadwires	Foot-mounted	2 15/16 in. deep x 2 7/32 wide	74.6 mm deep x 65.4 mm wide	Energy limiting overload protection

* TRADELINE models • SUPER TRADELINE models

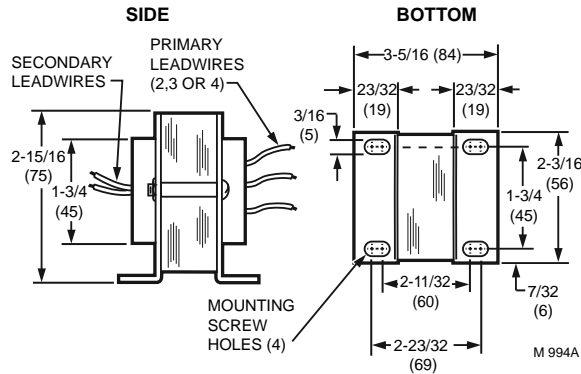
AT88 Transformer



Powers 24 Vac air conditioning circuits and other applications that do not exceed the listed ratings.

- Meets NEC Class 2 not wet, Class 3 wet and U.L. 1585 requirements.
- Overload protection provided.
- Color-coded leadwires for primary connections.

Dimensions in inches (millimeters)



Temperature Rating: -20 F to +105 F (-29 C to +41 C)

Frequency: 50 Hz; 60 Hz

Electrical Connections (main)

Primary: 12 in. leadwires

Secondary: 12 in. leadwires

Approvals:

Canadian Standards Association: Certified

Underwriters Laboratories, Inc. UL Component Recognized.

Product Number	Electrical Ratings			Mounting	Dimensions, Approximate		Includes
	(Primary Voltage)	(Secondary Voltage)	(Output)		(inch)	(mm)	
AT88A1005	120 Vac	26.5 V.O.C.	24 Vac at 75 VA	Foot-mounted	2 15/16 in. high x 2 3/16 in. wide x 3 5/16 in. deep	75 mm high 56 mm wide x 84 mm deep	Internally fused secondary for overload protection.
* AT88A1021	208 Vac, 240 Vac	26.5 V.O.C.	24 Vac at 75 VA	Foot-mounted	2 15/16 in. high x 2 3/16 in. wide x 3 5/16 in. deep	75 mm high 56 mm wide x 84 mm deep	Internally fused secondary for overload protection.
AT88A1047	480 Vac	26.5 V.O.C.	24 Vac at 75 VA	Foot-mounted	2 15/16 in. high x 2 3/16 in. wide x 3 5/16 in. deep	75 mm high 56 mm wide x 84 mm deep	Internally fused secondary for overload protection.

* TRADELINE models • SUPER TRADELINE models

Transformer Selection Guide

Transformer Selection Guide

Transformers (NEMA Rated)								
Electrical Ratings-VA	Electrical Ratings - Input Voltage	Product Number	Mounting	Main Connections	Secondary Connections	Frequency	Dimensions (in.) H x W X D	Special Features
19VA	120 Vac	AT20A1123	F	L	L	A	2 x 2 1/4 x 1 7/8	
40VA	120 Vac	AT40A1162	F	L	L	A	2 3/32 x 2 5/8 x 2 3/16	
	120 Vac	AT72D1006	P	L	S	A	3 7/32 x 2 7/32 x (1 1/16 into x 2 in. above plate)	
	120 Vac	AT72D1089	F	L	S	A	3 7/32 x 2 7/32 x 3 1/1	
	120 Vac	AT72D1188	P	L	L	A	3 7/32 x 2 7/32 x 2 15/1	
	120 Vac	AT72D1683	M	L	S	A	3 7/32 x 2 7/32 x 3 1/16	
	120 Vac	AT72D1956	M	L	L	A	3 7/32 x 2 7/32 x 3 1/16	Canada
	208 Vac, 240 Vac	AT72D1691	M	L	S	A	3 7/32 x 2 7/32 x 3 1/16	
	208 Vac, 240 Vac	AT72D1733	M	L	S	A	3 7/32 x 2 7/32 x 3 1/16	Canada
48VA	277 Vac	AT87A1189	F	L	L	A	2 15/16 x 2 7/32 x 2 1/4	
	480 Vac	AT87A1155	F	L	L	A	2 15/16 x 2 7/32 x 2 1/4	
50VA	120 Vac, 208 Vac, 240 Vac	AT87A1106	M	L	S	A	2 15/16 x 2 7/32 x 2 1/4	

Transformers (Not NEMA Rated)								
Electrical Ratings-VA	Electrical Ratings - Input Voltage	Product Number	Mounting	Main Connections	Secondary Connections	Frequency	Dimensions (in.) H x W X D	Special Features
20VA	120 Vac	AT120B1028	F	L	L	B	1 11/16 x 3 3/16 x 1 3/4	
	120 Vac, 208 Vac, 240 Vac	AT120A1004	M	L	S	B	2 7/8 x 1 7/8 x 2 15/16	
40VA	120 Vac	AT140A1000	M	L	S	B	3 3/16 x 2 3/8 x 3 1/8	
	120 Vac	AT140B1206	F	L	L	B	1 11/16 x 3 1/2 x 1 3/4	
	120 Vac, 208 Vac, 240 Vac	AT140A1018	M	L	S	B	3 3/16 x 2 3/8 x 3 1/8	
	120 Vac, 208 Vac, 240 Vac	AT140B1214	F	L	L	B	1 11/16 x 3 1/2 x 1 3/4	
	208 Vac, 240 Vac	AT140B1024	F	L,Q	L	B	1 11/16 x 3 1/2 x 1 3/4	
50VA	120 Vac, 208 Vac, 240 Vac	AT150A1007	M	L	S	B	1 11/16 x 3 3/16 x 1 3/4	
	120 Vac, 208 Vac, 240 Vac	AT150B1146	F	L	L	B	1 11/16 x 3 1/2 x 1 3/4	
	120 Vac, 208 Vac, 240 Vac	AT150F1022	M	L	L	B	3 3/16 x 2 3/16 x 3 5/8	Button for resetting circuit breaker & metal end bells
	208 Vac, 277 Vac, 480 Vac	AT150F1030	M	L	L	B	3 3/16 x 2 3/16 x 3 5/8	Button for resetting circuit breaker & metal end bells
	277 Vac	AT150B1252	F	L,Q	L,Q	A	1 11/16 x 3 1/2 x 1 3/4	
75VA	120Vac	AT175B1055	F	L	L	B	2 1/3 x 3 9/16 x 2 1/3	
	120 Vac, 208 Vac, 240 Vac	AT175A1008	M	L	S	B	3 3/16 x 2 3/8 x 3 5/8	
	120 Vac, 208 Vac, 240 Vac	AT175F1023	M	L	L	B	3 3/16 x 2 3/16 x 3 15/16	Button for resetting circuit breaker & metal end bells
	208 Vac, 277 Vac, 480 Vac	AT175F1031	M	L	L	B	3 3/16 x 2 3/16 x 3 15/16	Button for resetting circuit breaker & metal end bells
	120 Vac	AT88A1005	F	L	L	A	2 15/16 x 2 3/16 x 3 5/16	
	208 Vac, 240 Vac	AT88A1021	F	L	L	A	2 15/16 x 2 3/16 x 3 5/16	
	480 Vac	AT88A1047	F	L	L	A	2 15/16 x 2 3/16 x 3 5/16	

Oil Primaries Cross Reference

Oil Primaries Cross Reference

Ignition Type	Valve On Delay (Sec)	Blower Off Delay (Min)	Lock-out Time (Sec.)	Alarm Contacts	Manual Trip Lever w/ LED Indicator	OEM Product	Carlin Product	White-Rodgers Product	Direct Service Part	Universal Service Part
Interrupted			15			R7184A1075, R7184A1000	40200-02S	669-640,669-670	R7184A1026	R7184U1004
			30			R7184A1018	42230-02S	669-440,669-445, 669-470,669-540	R7184A1034	R7184U1012
			45						R7184A1042	R7184U1020
	15		15			R7184B1032, R7184B1016			R7184B1024	R7184U1004
	15	0.25	15			R7184P1080			R7184P1098	R7184U1004
	15	0.5/ 2/4/6	15	Yes		R7184P1031, R7184P1049, R7184P1056, R7184P1064, R7184P1072	50200-02S, 602000-2S, 6020002S015120, 6020002S030015, 6020002S030015, 6020002S030030, 6020002S030120, 6020002S030300, 6020002S030010		R7184U1004	
	30	0.5/ 2/4/6	30	Yes					R7184U1012	
	45	0.5/ 2/4/6	45	Yes					R7184U1020	
Intermittent			15	Yes	Yes	R8184G1294		668-601, 668-670	R8184G4066	R7184U1004
			30	Yes	Yes	R8184G1393		668-501	R8184G4074	R7184U1012
			45		Yes	R8184G1286, R8184G1427	48245-S	668-401, 6680415	R8184G4009	R7184U1020
				Yes	Yes			668-430	R8184G4025	R7184U1020
				Yes	Yes (No LED)				R8184G4082	R7184U1020
						R8184M1002		668-441, 668-451, 668-454	R8184M1051	

Residential
Combustion Controls

Oil Primaries

R7184A,B,U Interrupted Electronic Oil Primary



with a cad cell flame sensor, operates an oil burner and optional oil valve. Can be used with both hydronic and forced air systems.

- Compatible with hydronic and forced air applications.
- Patented cad cell resistance readout.
- Available in 15-, 30-, and 45-second lockout times.
- Safe start check.
- Indicator light monitors burner flame status and system lockout.
- Uses proven flame detection and monitoring systems.
- Optional valve-on delay, blower-off delay models: 15 second, or selectable 0 or 15 second valve-on delay.
- Zero time or selectable 0-, 2-, 4-, 6-minute blower-off delay.
- Oil valve control.
- Compatible with power venters without integral timers.
- Oil-resistant plastic cover for electronics.

Dimensions, Approximate: 4 5/32 in. long x 4 11/32 in. wide x 2 1/2 in. high (105.4 mm long x 110.5 mm wide x 63.5 mm high)

Ignition Type: Interrupted

Temperature Range: -40 F to +147 F (-40 C to +64 C)

Approvals:

Underwriters Laboratories, Inc. UL and cUL Component Recognized

Line voltage, safety rated, control for residential oil fired burners used in boilers, forced air furnaces and water heaters. When used

	Electrical Rating, Contacts		Alarm Load Ratings	
	(Full Load)	(Locked Rotor)	(Pilot Duty)	(Resistive)
R7184A,B	7.4 A @ 120 Vac; 3.7 a @ 240 Vac	44.4 A @ 120 Vac; 22.2 A @ 240 Vac	—	—
R7184U	7.4 A @ 120 Vac; 3.7 a @ 240 Vac	44.4 A @ 120 Vac; 22.2 A @ 240 Vac	2 A @ 30 Vac	2A @ 30 Vac

Product Number	Lead Length		Electrical Connections	Timing, Safety Switch	Mounting Bracket
	(inch)	(mm)			
R7184A1026	10 in.	254 mm	Burner motor, oil valve, ignition, cad cell, limit, thermostat, alarm	15 sec.	Junction box on main burner
R7184A1034	10 in.	254 mm	Burner motor, oil valve, ignition, cad cell, limit, thermostat, alarm	30 sec.	Mounts on standard 4 x 4 in. junction box
R7184A1042	10 in.	254 mm	Burner motor, oil valve, ignition, cad cell, limit, thermostat, alarm	45 sec.	Mounts on standard 4 x 4 in. junction box
R7184B1024	10 in.	152 mm	Burner motor, oil valve, ignition, cad cell, limit, thermostat, alarm	15 sec.	Junction box on main burner
R7184U1004	10 in.	254 mm	Burner motor, oil valve, ignition, cad cell, limit, thermostat, alarm	15 sec.	Junction box on main burner
R7184U1012	10 in.	254 mm	Burner motor, oil valve, ignition, cad cell, limit, thermostat, alarm	30 sec.	Junction box on main burner
R7184U1020	10 in.	254 mm	Burner motor, oil valve, ignition, cad cell, limit, thermostat, alarm	45 sec.	Mounts on standard 4 x 4 in. junction box

R8184G Protectorelay® Oil Burner Control



Dimensions, Approximate: 4 3/8 in. high x 4 1/8 in. wide x 2 1/2 in. deep (111 mm high x 104 mm wide x 64 mm deep)

Ignition Type: Intermittent

Temperature Range: -40 F to +130 F (-40 C to +54 C)

Mounting Bracket: For mounting on a standard 4 in. X 4 in. junction box or direct mounting on burner housing.

Electrical Rating, Contacts: full load: 7.4 A @ 120 Vac; 3.7 a @ 240 Vac; locked rotor: 44.4 A @ 120 Vac; 22.2 A @ 240 Vac

Provides automatic, nonrecycling control of an intermittent ignition oil burner system.

- Controls oil burner, oil valve (if desired) and the ignition transformer in response to a call for heat.
- Solid state flame sensing circuit.
- LED on terminal strip indicates system lockout.
- Remote lockout indication available on some models.
- Enclosed safety switch with external reset button.
- Manual trip lever opens safety switch for system maintenance.
- Mounts on standard 4 x 4 in. junction box; select models may be mounted directly on burner housing.
- C554A Cadmium Sulfide Flame Detector and 24 Vac thermostat required.

Alarm Load Ratings: pilot duty: 75 VA @ 120/240 Vac, 50-60 Hz; 25 VA @ 24V, 50-60 Hz; resistive: 1.5 A @ 120/240V, 50-60Hz; 3 A @ 24 V, 50-60 Hz

Approvals:

Canadian Standards Association: CSA Certified; File no. LR95329-1
Underwriters Laboratories, Inc. UL Component Recognized; File no. MP268, Vol. 35 Sec. 1,3

	Product Number	Timing, Safety Switch	Comments	Includes
*	R8184G4009	45 sec.	With LED for lockout indication, and manual trip lever on safety switch to assure burner shutdown during servicing.	—
*	R8184G4025	45 sec.	With LED for lockout indication, and manual trip lever on safety switch to assure burner shutdown during servicing.	Remote Alarm Power
*	R8184G4066	15 sec.	With LED for lockout indication, and manual trip lever on safety switch to assure burner shutdown during servicing.	—
*	R8184G4074	30 sec.	With LED for lockout indication, and manual trip lever on safety switch to assure burner shutdown during servicing.	—
*	R8184G4082	45 sec.	With LED for lockout indication, and manual trip lever on safety switch to assure burner shutdown during servicing. Includes remote alarm dry contacts.	Alarm

* TRADELINE models • SUPER TRADELINE models

R8184M Protectorelay® Oil Burner Control



Dimensions, Approximate: 4 3/8 in. high x 4 1/8 in. wide x 2 1/2 in. deep (111 mm high x 104 mm wide x 64 mm deep)

Ignition Type: Intermittent

Temperature Range: -40 F to +130 F (-40 C to +54 C)

Operates the oil burner and oil valve (if desired) in response to a call for heat from a low voltage control circuit.

- Ignition is on whenever the burner is on (intermittent ignition-also called constant ignition).
- Solid state flame sensing circuit.
- External button to manually reset safety switch after lockout.
- Enclosed safety switch must be manually reset after safety shutdown.
- R8184M includes 40 VA transformer and Y and G terminals for connection of cooling equipment.
- Mounts on standard 4 x 4 in. junction box.
- C554A Cadmium Sulfide Flame Detector and a 24 Vac thermostat required.

Electrical Rating, Contacts:

Full Load: 7.4 A @ 120 Vac; 3.7 a @ 240 Vac;
Locked Rotor: 44.4 A @ 120 Vac; 22.2 A @ 240 Vac

Approvals:

Underwriters Laboratories, Inc. UL Component Recognized; File no. MP268, guide no. MCCZ2

	Product Number	Timing, Safety Switch	Mounting Bracket	Description
*	R8184M1051	45 sec.	Mounts on standard 4 x 4 in. junction box	Protectorelay® Oil Burner Control with 45 seconds lock out timing

* TRADELINE models • SUPER TRADELINE models

Oil Primaries

RA116; RA117 Protectorelay® Controls



One-piece, stack-mounted oil burner primary controls that cycle the burner on and shut down the burner on flame loss or system malfunction.

- Combine a Protectorelay® unit for cycling the burner and a Pyrostat® flame detector for sensing temperature changes of flue gases up to 1000 F (556 C).
- Manual reset of safety switch required after ignition failure completely shuts off main burner.
- Include manual trip safety switch to assure burner shutdown during servicing.
- Mount with flange for mounting on curved or flat surfaces.
- Use with line voltage or 24 Vac Control Circuit.

Dimensions, Approximate: 6 in. high x 5 3/16 in. wide x 3 3/16 in. deep (152 mm high x 132 mm wide x 81 mm deep)

Ignition Type: Intermittent

Approvals:

Canadian Standards Association: CSA Certified; File no. LR95329-1
Underwriters Laboratories, Inc. UL Listed; File no. MP268, Guide no. MCCZ

	Product Number	Timing, Safety Switch	Mounting Bracket
*	RA116A1055	75 sec. Nominal	Mount with flange for mounting on curved or flat surfaces.
*	RA117A1047	75 sec. Nominal	Mount with flange for mounting on curved or flat surfaces.

* TRADELINE models • SUPER TRADELINE models

Oil Primary Control Parts

Product Number	Description
120320	Replacement Cell Assembly, 400-1600 Ohm Sensitivity
130367	Replacement Cell Assembly, 400-1000 Ohm Sensitivity
32611	Grommet (Bulk Mdse)
4074BJS	Oil line mounting bracket assembly, including nut and screw

QS7100 Cad Cell Tester



The QS7100F Flame Quality Monitor (FQM) is designed to be used with any of the Honeywell Electronic Oil Primary Controls, such as the R7184A,B,P, or U by simply connecting the devices together with the communications cable supplied.

- When these two devices are installed as a system, the burner properly adjusted and the Flame Quality Monitor (FQM) initialized, the FQM provides continuous monitoring of the flame and gives warning when the combustion process has changed from its original operational state.
- This warning normally occurs three to five days before the primary control would shut down on safety lockout after the FQM alarm. Depending on the specific cause of the warning, the actual time may be shorter or longer. Alarm contacts are un-powered and provided both normally open (NO) and normally closed (NC) contacts to match the alarm system, tank monitoring system or phone dialer to which the FQM is connected.
- Typically, the FQM is attached as a zone to the home security system or can be connected to a small alarm in the home. In either case, the person responsible for monitoring the alarm function is provided with directions on how to contact the appropriate oil service dealer so that service can be scheduled at a mutually convenient time.

Product Number	Color	Description	Used With
QS7100D1003	Black	Cad Cell Primary Tester	R7184G, R8184 Cad Cell Primaries

QS7100T Portable Tester/Analyzer

The QS7100F Flame Quality Monitor (FQM) is designed to be used with any of the Honeywell Electronic Oil Primary Controls, such as the R7184A,B,P, or U by simply connecting the devices together with the communications cable supplied.

- When these two devices are installed as a system, the burner properly adjusted and the Flame Quality Monitor (FQM) initialized, the FQM provides continuous monitoring of the flame and gives warning when the combustion process has changed from its original operational state.
- This warning normally occurs three to five days before the primary control would shut down on safety lockout after the FQM alarm.

Depending on the specific cause of the warning, the actual time may be shorter or longer. Alarm contacts are un-powered and provided both normally open (NO) and normally closed (NC) contacts to which the FQM is connected.

- Typically, the FQM is attached as a zone to the home security system or can be connected to a small alarm in the home. In either case, the person responsible for monitoring the alarm function is provided with directions on how to contact the appropriate oil service dealer so that service can be scheduled at a mutually convenient time.

Product Number	Application	Description	Used With
QS7100T1004	Testing R8184 and R7184 Cad Cell Primaries.	Portable Tester/Analyzer	R7184G, R8184 Cad Cell Primaries

Flame Detectors

C554 Cadmium Sulfide Flame Detector



Photoconductive flame sensing device for sequencing oil burner systems.

- On flame failure, the light sensitive cadmium sulfide cell, in conjunction with flame sensing circuitry, causes the Protectorelay® control to shutdown the main oil burner.
- Glass-to-metal hermetic seal in plug-in cell prevents deterioration by humidity, soot or oil fumes.

Dimensions, Approximate: 1 7/8 in. high x 1 in. long x 1/2 in. wide (47 mm high x 25 mm long x 13 mm wide)

CAD Cells: 130367 High Sensitivity CAD Cell 12 MA minimum sensitivity at 2 ft. candles

Temperature Range: 140 F (60 C)

Mounting Bracket: Type R

Approvals:

Canadian Standards Association: CSA Component Listed: File no. LR95329-1

Underwriters Laboratories, Inc. UL Listed: File no. MP268, Vol. 39, Sec. 1, Guide MCCZ

Accessories:

4074BJS Oil line mounting bracket assembly, including nut and screw

Replacement Parts

120320 Replacement Cad Cell. 7.5 mA minimum sensitivity at 2 ft. candles

130367 Replacement Cad Cell. 12.0 mA minimum sensitivity at 2 ft. candles.

Product Number	Lead Length		Electrical Connections	Includes	Used With
	(inch)	(mm)			
• C554A1463	60 in.	1524 mm	leadwires: NEC Class 1; Includes 2 flag 1/4 in. quick connects.	A, B, E, J and P mounting brackets and fuel line adaptor	R4166, R4184, R8182, R8184, R8185, R8404, R8991, R7997
* C554A1794	60 in.	152.4 cm	leadwires: NEC Class 1	Type "E" mounting bracket and fuel line adaptor	R4166, R4184, R8182, R8184, R8185, R8404, R8991, R7997

* TRADELINE models • SUPER TRADELINE models

A7184 Cad Cell Primary Tester



The A7184 Cad Cell Primary Tester is a convenient on-the-job tester that can be used for all R8184 and R7184 Cad Cell Primaries. It lets the service technician check out the primary quickly and easily by simply connecting it to the tester and plugging the tester into a standard 120 or 240 volt ac electrical outlet. This is an extremely rugged instrument with a minimum of electrical components and switches to use. It's an ideal carry-around that should be in every service person's tool kit.

Product Number	Description	Comments	Used With
A7184A1008	Cad Cell Primary Tester	120 Vac	R7184, R8184 Cad Cell Primaries.

V4046A,B Magnetic Valves



For ON-OFF control of oil flow to domestic oil burner equipment.

- Power interruption closes the valve immediately.
- Mount directly to pipeline or on support bracket.

Description: For controlling the flow of oil in an oil line. Valve opens with a time delay being energized. Valve closes on power failure.

Body Pattern: Straight through

Dimensions, Approximate: 2 3/4 in. high x 1 5/8 in. wide x 2 5/8 in. deep (70 mm high x 41 mm wide x 67 mm deep)

Current (max amps at rated Vac/Hz): 0.115 amps

Power Consumption: 8 W

Electrical Ratings: 120 Vac

Frequency: 60 Hz

Electrical Connections: Two 36-in. (914 mm) leadwires, 1/2 in. conduit bushing

Connection Type: NPT

Materials (Body): Aluminum

Mounting: Directly in pipe or on support bracket

Pressure Ratings: 150 psi (1034.2 kPa); 300 psi (2068.4 kPa)

Temperature Range: 32 F to 115 F (0 C to 46 C); 125 F max Fluid (54 C max Fluid)

Type of Fuel: #2 fuel oil

Approvals:

Canadian Standards Association: File no. LR95329-1

Factory Mutual: Listed: Report 16960

Underwriters Laboratories, Inc. Listed: File no. MH1639, vol. 3, sec. 3, Guide no. YIOZ

Product Number	Pipe Size		Maximum Operating Pressure		Valve Opening Time	Valve Closing Time	Replacement Parts
	(inch)	(mm)	(psi)	(kPa)			
V4046A1074	1/8 in.	3 mm	2068 kPa	300 psi	3 sec to 8 sec	1 sec maximum	116649A Coil Assembly
V4046B1049	1/8 in.	3 mm	2068 kPa	300 psi	Open Immediately	1 sec maximum	116671A Coil Assembly

Magnetic Valve Accessories

Product Number	Description
116671A	Replacement Coil Assembly for 120V, 60 Hz V4046

Pressuretrol Controller

PA404 Pressuretrol Controller



Dimensions, Approximate: 4 15/32 in. high x 3 3/8 in. wide x 2 1/4 in. deep (114 mm high x 86 mm wide x 58 mm deep)

Electrical Ratings: 0.25 A @ 0.25 to 12 Vdc

120 Vac, Full Load: 8.0A

120 Vac, Locked Rotor: 48.0A

120 Vac, Resistive: 8.3A

240 Vac, Full Load: 5.1A

240 Vac, Locked Rotor: 30.6A

240 Vac, Resistive: 8.3A

277 Vac, Resistive: 7.2A

sealed: 150 VA @ 277 Vac

Differential Pressure Range: Additive or Subtractive: 1 to 5 psi Adj. (Additive or Subtractive: 7 to 35 kPa Adj.)

Maximum Operating Pressure: 20 psi (137 kPa)

The PA404 is a series 40 (2-wire, SPST) pressuretrol controller for use in 24, 120, 240 or 277 volt control circuits or in self powered (millivoltage) applications.

- The PA404A is a pressure actuated high limit, safety control for steam heating boilers; it breaks an electrical circuit to shut down the burner if steam pressure rises above a safe level.
- The PA404B is used with suspension-type unit heaters to make the fan circuit when a pressure rise indicates the presence of steam.
- Each model contains an SPST MICRO SWITCH snap-acting switch.
- Sensitive pressure-actuated diaphragm expands or contracts with pressure variations, moving a lever mechanism which operates the snap switch.
- A screw on top of the case allows set point adjustment without removing the cover.
- Differential is adjusted by means of a dial located inside the case.

Pressure Ratings (Set Point): Recommended minimum set point is differential setting plus 1 1/2 psi.

Pressure Surge (max.): 50 psi (345 kPa)

Pressure Sensing Element: Stainless Steel diaphragm

Adjustable Scale Range: 0.5 psi to 9 psi (3 kPa to 62 kPa)

Materials (Case): Gray enamel finish

Pipe Connections: 1/4 in. female pipe threads

Operating Humidity Range (% RH): 95% RH, non-condensing

Maximum Ambient Temperature: 150 F (66 C)

Approvals:

Canadian Standards Association: CSA Listed: File no. LR1620.

Underwriters Laboratories, Inc. UL Listed: File no. MP466, Guide no. MBPR.

Product Number	Application	Adjustable Operating Pressure Range		Switching Action	Switch Type
		(psi)	(kPa)		
PA404A1025	Safety control for steam heating boilers	3 psi to 15 psi	21 kPa to 103 kPa	Makes at set point minus differential on pressure fall; Breaks at set point on pressure rise.	SPST snap-acting switch
* PA404A1033	Safety control for steam heating boilers	0.5 psi to 9.0 psi	3 kPa to 62 kPa	Makes at set point on pressure fall; Breaks at set point plus differential on pressure rise.	SPST snap-acting switch
* PA404B1023	Used with suspension type unit heaters	0.5 psi to 9.0 psi	3 kPa to 62 kPa	Breaks at set point on pressure fall; Makes at set point plus differential on pressure rise.	SPST snap-acting switch

* TRADELINE models • SUPER TRADELINE models

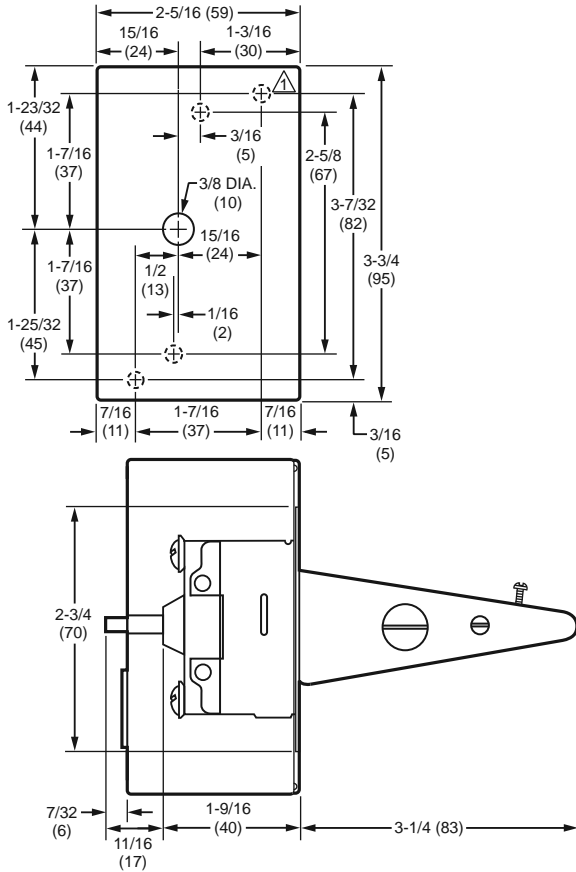
L4029 High Limit Controller



L4029E Reset Limit Control opens a line or low voltage circuit if the air temperature reaches a critical level at controller location. The primary usage of the L4029E is as a fire thermostat in the duct work of air conditioning and ventilating systems. If the circulated air reaches a temperature indicative of fire, the limit control shuts off the fan, preventing the fan from contributing to the spread of fire. It is also suitable for use with any warm air furnace to provide positive lockout of the burner in the event of fan failure.

- Shuts off the fan when air temperature is indicative of fire.
- Internal snap-acting switch actuated by a bimetal strip inserted directly into the air stream responds rapidly to temperature changes.
- Requires manual reset.

Dimensions in inches (millimeters)



△ 3/16 (5) DIAMETER MOUNTING HOLES L4029E WITH CASE AND COVER.
M27077

Dimensions, Approximate:

3 3/4 in. high x 2 5/16 in. wide x 2 in. deep excluding element.
(95 mm high x 59 mm wide x 51 mm deep excluding element.)

Maximum Ambient Temperature:

Switch: 190F; Sensing Element: 350 F
(Switch: 88 C; Sensing Element: 177 C)

Element Insertion Length: 3 in. (76 mm)

Electrical Rating Limit:

Full Load: 5 A @ 240 Vac; 10 A @ 120 Vac; 2 A @ 30 Vac

Locked Rotor: 30 A @ 240 Vac; 60 A @ 120 Vac

Pilot Duty: 0.25 A @ 0.25 to 12 Vdc

Approvals:

Canadian Standards Association: Certified: File No. LR95329-5

Underwriters Laboratories, Inc. Listed: File No. MP466, Vol. 8, Guide No. MBPR2

Product Number	High Limit Stop	Switching Action
L4029E1011	135 F	Normally closed SPST switch opens on temperature rise to the set point. Switch must be manually reset to operate.
L4029E1029	200 F	Normally closed SPST switch opens on temperature rise to the set point. Switch must be manually reset to operate.
L4029E1045	240 F	Normally closed SPST switch opens on temperature rise to the set point. Switch must be manually reset to operate.
* L4029E1219	165 F	Normally closed SPST switch opens on temperature rise to the set point. Switch must be manually reset to operate.
* L4029E1227	125 F	Normally closed SPST switch opens on temperature rise to the set point. Switch must be manually reset to operate.

* TRADELINE models • SUPER TRADELINE models

Fan and Limit Controllers

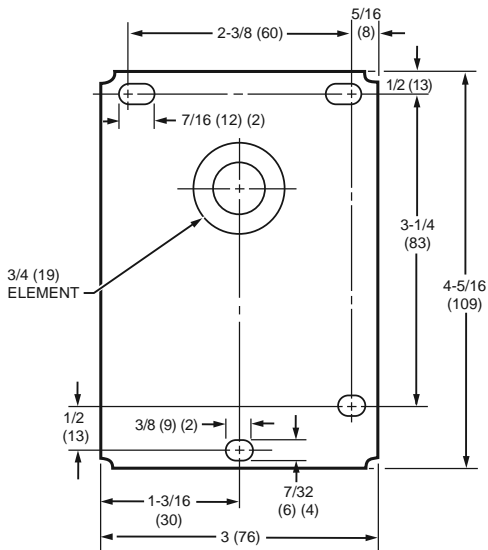
L4064 Fan and Limit Controllers



For control of high limit and fan motor in all types of forced air heating systems.

- Three wiring terminal options available for easy installation:
 - Push-in receptacles for stripped wire.
 - Female receptacles for 1/4 in. male flag connectors.
 - Field add-on screw terminals.
- Controls adapt to many competitive mounting holes in replacement applications.
- Available in a variety of fan and high limit setting ranges.
- L4064B,W models have manual fan switch that overrides fan control to keep fan running continuously.
- TRADELINE models with mounting adapters for easy installation and strain relief bushings to protect wiring from field abuse.

Dimensions in inches (millimeters)



NOTE: OVERALL DEPTH WITH FAN SWITCH IS 2 INCHES (51MM); MODELS LESS FAN SWITCH ARE 1-5/8 INCHES (41MM).

Application: Forced warm air heating systems

Operating Temperature Range: -40 F to +190 F (-40 C to +88 C)

Maximum Ambient Temperature: Switch: 190 F; Sensing Element:

350 F (Switch: 88 C; Sensing Element: 177 C)

Differential Temperature: High limit 25 F (High limit 14 C)

High Limit Temperature Range: 100 F to 250 F (38 C to 121 C)

Fan-off Stop: 100 F

Fan-on Stop: 125 F

High Limit Stop: 200 F

Switching Action: Fan switch makes and high limit switch breaks on temperature rise.

Pilot Duty: 0.25 A @ 0.25 to 12 Vdc; 2 A @ 24 Vac

Electrical Rating Fan

Full Load: 14 A @ 120 Vac; 7 A @ 240 Vac

Locked Rotor: 84 A @ 120 Vac; 42 A @ 240 Vac

Electrical Rating Limit

Full Load: 8 A @ 120 Vac; 4 A @ 240 Vac

Locked Rotor: 48 A @ 120 Vac; 24 A @ 240 Vac

Approvals:

Canadian Standards Association: Certified: File No. LR1622

Underwriters Laboratories, Inc. Listed File LR1322-336 and -323

Accessories:

129250AA Double wing mounting flange assembly for Fan and Limit Control L4064

Product Number	Element Insertion Length		Fan-off Range		Fan-on Range		Timing	Mounting	Comments
	(inch)	(mm)	(F)	(C)	(F)	(C)			
• L4064B1451	11 1/2 in.	292 mm	50 F to 200 F	10 C to 93 C	65 F to 215 F	18 C to 102 C	—	Rigid bracket	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). With manual fan switch. Deluxe cover. Replaces L4064A,B,E.
• L4064B1469	5 in.	127 mm	50 F to 200 F	10 C to 93 C	65 F to 215 F	18 C to 102 C	—	Rigid bracket	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). With manual fan switch. Deluxe cover. Replaces L4064A,B,E.
* L4064B2210	11 1/2 in.	292 mm	50 F to 200 F	10 C to 93 C	65 F to 215 F	18 C to 102 C	—	Surface	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). With manual fan switch. Small case and cover. Replaces L4064A,B,E.
* L4064B2228	5 in.	127 mm	50 F to 200 F	10 C to 93 C	65 F to 215 F	18 C to 102 C	—	Surface	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). With manual fan switch. Small case and cover. Replaces L4064A,B,E.
* L4064B2236	8 in.	203 mm	50 F to 200 F	10 C to 93 C	65 F to 215 F	18 C to 102 C	—	Surface	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). With manual fan switch. Small case and cover. Replaces L4064A,B,E.

* TRADELINE models • SUPER TRADELINE models

Fan and Limit Controllers

Residential
Combustion Controls

Product Number	Element Insertion Length		Fan-off Range		Fan-on Range		Timing	Mounting	Comments
	(inch)	(mm)	(F)	(C)	(F)	(C)			
* L4064W1080	5 in.	127 mm	50 F to 200 F	10 C to 93 C	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). Jumper in. With timed on fan feature and manual fan switch. Replaces L4064T, Y.
* L4064W1098	8 in.	203 mm	50 F to 200 F	10 C to 93 C	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). Jumper in. With timed on fan feature and manual fan switch. Replaces L4064T, Y.
* L4064W1106	11 1/2 in.	292 mm	50 F to 200 F	10 C to 93 C	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). Jumper in. With timed on fan feature and manual fan switch. Replaces L4064T, Y.

* TRADELINE models • SUPER TRADELINE models

L4064K Airstat Fan Safety Cutoff Controller



The L4064K is a manual reset fan safety cutoff switch used in all types of heating, ventilating and air conditioning system to shut down fan operation.

- Three wiring terminal options available for easy installation:
- Push-in receptacles for stripped wire.
- Female receptacles for 1/4 in. male flag connectors.*Field add-on screw terminals.
- Controls adapt to many competitive mounting holes in replacement applications.
- Must be manually reset before the fan can resume operation.

Application: Heating, ventilating and air conditioning systems

Dimensions, Approximate:

4 9/32 in. high x 3 in. wide x 13 3/32 in. deep excluding element
(109 mm high x 76 mm wide x 333 mm deep excluding element)

Operating Temperature Range: 50 F to 165 F (10 C to 74 C)

Maximum Ambient Temperature:

Switch: 190 F; Sensing Element: 350 F
(Switch: 88 C; Sensing Element: 177 C)

Mounting: Flush mount, or rigid bracket, or swivel

Electrical Rating Limit

Full Load: 8 A @ 120 Vac; 4 A @ 240 Vac

Locked Rotor: 48 A @ 120 Vac; 24 A @ 240 Vac

Pilot Duty: 0.25 A @ 0.25 to 12 Vdc; 2 A @ 24 Vac

Approvals:

Canadian Standards Association: Certified: File No. LR1622

Underwriters Laboratories, Inc. Listed File MP466, Guide MBPR

Accessories:

129250AA Double wing mounting flange assembly for Fan and Limit Control L4064

Product Number	Element Insertion Length		High Limit Stop	Switching Action	Comments
	(inch)	(mm)			
L4064K1006	11 1/2 in.	292 mm	167 F	SPST fan safety cutoff switch breaks on temperature rise and requires a manual reset to remake.	Turns fan off according to high limit stop temperature. High limit stop set at 167F (75 C). Jumper out.
L4064K1014	11 1/2 in.	292 mm	165 F	SPST fan safety cutoff switch breaks on temperature rise and requires a manual reset to remake.	Turns fan off according to high limit stop temperature. High limit stop set at 167F (75 C). Jumper out.

Fan and Limit Control Accessories

Product Number	Description	Used With
110265A	Mounting Flange Assembly for Fan and Limit Control	Limit stop Tool
196722	Limit stop adjusting tool for L4064	

Aquastat Controllers

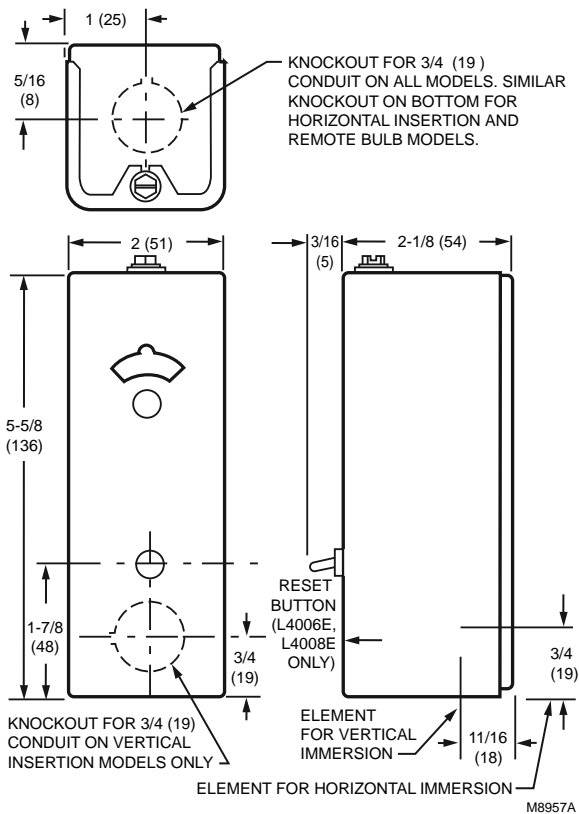
L4006; L6006 Aquastat® Controller



Aquastat® Controllers are immersion type devices for limiting or regulating the temperature of liquids in boilers, storage tanks, and other applications where temperature control is required.

- Totally enclosed Micro Switch® snap-acting switches operate on temperature rise to setpoint.
- Visible control point scale and external adjustment screw permit easy setting.
- Horizontal or vertical insertion of the sensing element.
- Direct or well immersion of the sensing element.
- Models available for strap-on mounting.
- Remote bulb model may be used to sense air temperature in ducts and in outside air sensing applications.
- TRADELINE models include heat-conductive compound.
- Select models have wells.

Dimensions in inches (millimeters)



Case Dimensions: 5 5/8 in. high x 2 in. wide x 2 1/8 in. deep
(143 mm high x 51 mm wide x 54 mm deep)

Bulb Size: 3/8 in. x 2 7/8 in. (10 mm x 73 mm) copper

Maximum Ambient Temperature: 150 F (66 C)

Approvals:

American Gas Association IAS: AGA Certified

Canadian Standards Association: Certified: File No. LR95329-1

Underwriters Laboratories, Inc. UL Component Recognized: File No. MP466, Vol. 6, Sec.1, Guide No. MBPR2

Product Number	Electrical Ratings		
	(Full Load)	(Locked Rotor)	(Millivolt)
L4006A1009	8A @ 120 Vac;	48A @ 120 Vac;	0.25 A @ 0.25 to 12 Vdc
L4006A1017	5.1A @ 240 Vac	30.6A @ 240 Vac	
L4006A1132			
L4006A1678			
L4006A1959	2.6A @ 120 Vac;	15.6A @ 120 Vac;	—
	1.3A @ 240 Vac	7.8A @ 240 Vac	
L4006A1967	8A @ 120 Vac;	48A @ 120 Vac;	0.25 A @ 0.25 to 12 Vdc
L4006A2007	5.1A @ 240 Vac	30.6A @ 240 Vac	
L4006B1007			
L4006B1155			
L4006B1163			
L4006E1067	8A @ 120 Vac;	48A @ 120 Vac;	—
L4006E1091	1.3A @ 240 Vac	30.6A @ 240 Vac	
L4006E1109			
L4006E1117			
L4006E1125	8A @ 120 Vac;	48A @ 120 Vac;	0.25 A @ 0.25 to 12 Vdc
L4006H1004	1.3A @ 240 Vac	30.6A @ 240 Vac	
L6006A1004	8A @ 120 Vac;	48A @ 120 Vac;	0.25 A @ 0.25 to 12 Vdc
L6006A1012	5.1A @ 240 Vac	30.6A @ 240 Vac	
L6006A1145			
L6006A1244			
L6006C1018			
L6006C1059			

Product Number	Application	Operating Temperature Range		Differential Temperature		Well Spud Size		Capillary Length		Switching Action	Mounting	Includes
		(F)	(C)	(F)	(C)	(inch)	(mm)	(inch)	(mm)			
L4006A1009	High or Low limit	100 F to 240 F	38 C to 116 C	5 F Fixed	3 C fixed	1/2 in. NPT	13 mm NPT	1 1/2 in.	38 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	1/2 in. well - 123869A
L4006A1017	High or Low limit	100 F to 240 F	38 C to 116 C	5 F to 30 F adj.	3 C to 17 C adj.	1/2 in. NPT	13 mm NPT	1 1/2 in.	38 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	1/2 in. well - 123869A
L4006A1132	High or Low limit	100 F to 240 F	38 C to 116 C	5 F Fixed	3 C fixed	3/4 in. NPT	19 mm NPT	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	Stop factory-set at 160 F (71 C); 3/4 in. well - 123871A

* TRADELINE models • SUPER TRADELINE models

Aquastat Controllers

Product Number	Application	Operating Temperature Range		Differential Temperature		Well Spud Size		Capillary Length		Switching Action	Mounting	Includes
		(F)	(C)	(F)	(C)	(inch)	(mm)	(inch)	(mm)			
* L4006A1678	High or Low limit	100 F to 240 F	38 C to 116 C	5 F to 30 F adj.	3 C to 17 C adj.	—	—	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	Heat-conductive compound; Stop factory-set at 240 F (116 C)
* L4006A1959	High or Low limit	40 F to 180 F	4 C to 82 C	5 F Fixed	3 C fixed	—	—	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	Heat-conductive compound
* L4006A1967	High or Low limit	100 F to 240 F	38 C to 116 C	5 F to 30 F adj.	3 C to 17 C adj.	1/2 in.	13 mm	1 1/2 in.	38 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	Stop factory-set at 240 F (116 C); 1/2 in. well - 123869A
L4006A2007	High or Low limit	100 F to 240 F	38 C to 116 C	5 F to 30 F adj.	3 C to 17 C adj.	—	—	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal	—
L4006B1007	Circulator	100 F to 240 F	38 C to 116 C	5 F Fixed	3 C fixed	1/2 in.	13 mm	1 1/2 in.	38 mm	SPST, contacts make on temperature rise.	Horizontal or Vertical	1/2 in. well - 123869A
* L4006B1155	Circulator	100 F to 240 F	38 C to 116 C	5 F to 30 F adj.	3 C to 17 C adj.	—	—	3 in.	76 mm	SPST, contacts make on temperature rise.	Horizontal or Vertical	Heat-conductive compound; Stop factory-set at 240 F (116 C)
L4006B1163	Circulator	100 F to 240 F	38 C to 116 C	5 F to 30 F adj.	3 C to 17 C adj.	—	—	3 in.	76 mm	SPST, contacts make on temperature rise.	Horizontal or Vertical	—
* L4006E1067	High Limit; Manual Reset	130 F to 270 F	54 C to 132 C	Manual Reset	Manual Reset	—	—	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	Well adapter; Stop factory-set at 250 F (121 C); Heat-conductive compound
L4006E1091	High Limit; Manual Reset	130 F to 270 F	54 C to 132 C	Manual Reset	Manual Reset	—	—	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	—
L4006E1109	High Limit; Manual Reset	130 F to 270 F	54 C to 132 C	Manual Reset	Manual Reset	—	—	1 1/2 in. to 3 in.	38 mm to 76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	—
L4006E1117	High Limit; Manual Reset	100 F to 240 F	38 C to 116 C	Manual Reset	Manual Reset	3/4 in. - 14 NPT	19 mm - 14 NPT	1 1/2 in.	38 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	3/4 in. well - 123870A
L4006E1125	High Limit; Manual Reset	100 F to 200 F	38 C to 93 C	Manual Reset	Manual Reset	—	—	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	—
* L4006H1004	High Limit; strap-on mounting on well mount.	100 F to 240 F	38 C to 116 C	Manual Reset	Manual Reset	—	—	1 1/2 in.	38 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	Bracket for strap-on mounting; Heat-conductive compound; Stop factory-set at 240 F (116 C)
L6006A1004	Circulator Control and High Limit or Low Limit	100 F to 240 F	38 C to 116 C	5 F	3 C	1/2 in.	13 mm	1 1/2 in.	38 mm	SPDT	Horizontal or Vertical	1/2 in. well - 123869A
L6006A1012	Circulator Control and High Limit or Low Limit	100 F to 240 F	38 C to 116 C	5 F to 30 F adj.	3 C to 17 C adj.	1/2 in.	13 mm	1 1/2 in.	38 mm	SPDT	Horizontal or Vertical	1/2 in. well - 123869A
* L6006A1145	Circulator Control and High Limit or Low Limit	100 F to 240 F	38 C to 116 C	5 F to 30 F adj.	3 C to 17 C adj.	—	—	3 in.	76 mm	SPDT	Horizontal	Heat-conductive compound; Stop factory-set at 240 F (116 C)
L6006A1244	Circulator Control and High Limit or Low Limit	100 F to 240 F	38 C to 116 C	5 F to 30 F adj.	3 C to 17 C adj.	—	—	3 in.	76 mm	SPDT	Horizontal or Vertical	—
* L6006C1018	Circulator Control and High Limit or Low Limit	65 F to 200 F	18 C to 93 C	5 F to 30 F adj.	3 C to 17 C adj.	—	—	—	—	SPDT	Horizontal or Vertical or Strap-on-mounting	Stop factory-set at 200 F (93 C)
L6006C1059	Circulator Control and High Limit or Low Limit	65 F to 200 F	18 C to 93 C	5 F to 30 F adj.	3 C to 17 C adj.	—	—	—	—	SPDT	Horizontal or Vertical	Stop factory-set at 200 F (93 C)

* TRADELINE models • SUPER TRADELINE models

Aquastat Controllers

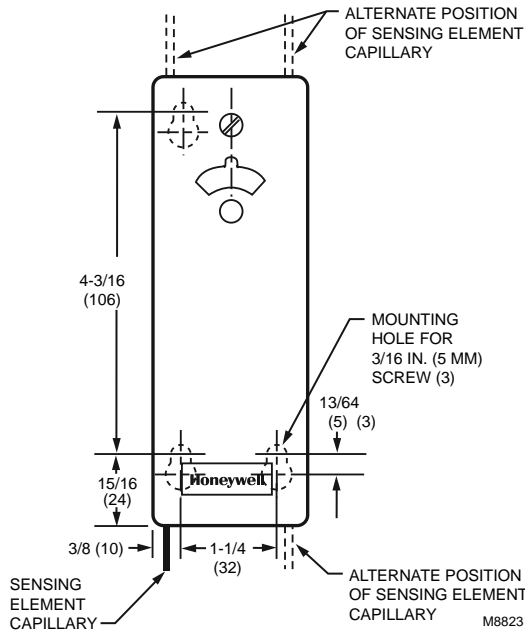
L4008; L6008 Remote Bulb Controller



Aquastat® Controllers are immersion type devices for limiting or regulating the temperature of liquids in boilers, storage tanks, and other applications where temperature control is required.

- Remote temperature sensing element detects and responds rapidly to temperature changes.
- Totally enclosed Micro Switch® snap-acting switch.
- Visible control point scale and external adjustment screw permit easy setting.
- Horizontal or vertical mounting of the remote element into boiler, tank, or other container.
- Case mounts to a vertical surface.

Dimensions in inches (millimeters)



Case Dimensions: 5 5/8 in. high x 2 in. wide x 2 1/8 in. deep
(143 mm high x 51 mm wide x 54 mm deep)

Bulb Size: 3/8 in. x 2 7/8 in. (10 mm x 73 mm) copper

Mounting: Horizontal or Vertical

Maximum Ambient Temperature: 150 F (66 C)

Electrical Ratings

Full Load: 8A @ 120 Vac; 5.1A @ 240 Vac

Locked Rotor: 48A @ 120 Vac; 30.6A @ 240 Vac

Millivolt: 0.25 A @ 0.25 to 12 Vdc

Approvals:

Canadian Standards Association: Certified: File No. LR95329-1

Underwriters Laboratories, Inc. UL Component Recognized: File No. MP466, Vol. 6, Sec.1, Guide No. MBPR2

Product Number	Application	Operating Temperature Range		Differential Temperature		Capillary Length (inch)	Switching Action	Includes
		(F)	(C)	(F)	(C)			
L4008A1015	High or Low limit	100 F to 240 F	38 C to 116 C	5 F to 30 F adj.	3 C to 17 C adj.	66 in.	SPST, contacts break on temperature rise.	5 1/2 ft (1.7 m) capillary
L4008A1130	High or Low limit	130 F to 270 F	54 C to 132 C	5 F to 30 F adj.	3 C to 17 C adj.	120 in.	SPST, contacts break on temperature rise.	Stop factory-set at 200 F (93 C); 10 ft (3.04 m) capillary
L4008B1013	Circulator	100 F to 240 F	38 C to 116 C	5 F to 30 F adj.	3 C to 17 C adj.	66 in.	SPST, contacts make on temperature rise.	5 1/2 ft (1.7 m) capillary
* L4008E1156	High Limit; Manual Reset	130 F to 270 F	54 C to 132 C	Manual Reset	Manual Reset	66 in.	SPST, contacts break on temperature rise.	5 1/2 ft (1.7 m) capillary; Stop factory-set at 250 F (121 C); Heat-conductive compound
* L4008E1305	High Limit; Manual Reset	100 F to 240 F	38 C to 116 C	Manual Reset	Manual Reset	66 in.	SPST, contacts break on temperature rise.	Stop factory-set at 240 F (116 C)
L4008E1313	High Limit; Manual Reset	100 F to 200 F	38 C to 116 C	Manual Reset	Manual Reset	66 in.	SPST, contacts break on temperature rise.	—
* L6008A1192	Circulator Control and Low Limit	100 F to 240 F	38 C to 116 C	5 F to 30 F adj.	3 C to 17 C adj.	—	SPDT	66 in. capillary; Stop factory-set at 240 F (116 C)
L6008A1242	Circulator Control and Low Limit	100 F to 200 F	38 C to 93 C	5 F to 30 F adj.	3 C to 17 C adj.	—	SPDT	66 in. capillary

* TRADELINE models • SUPER TRADELINE models

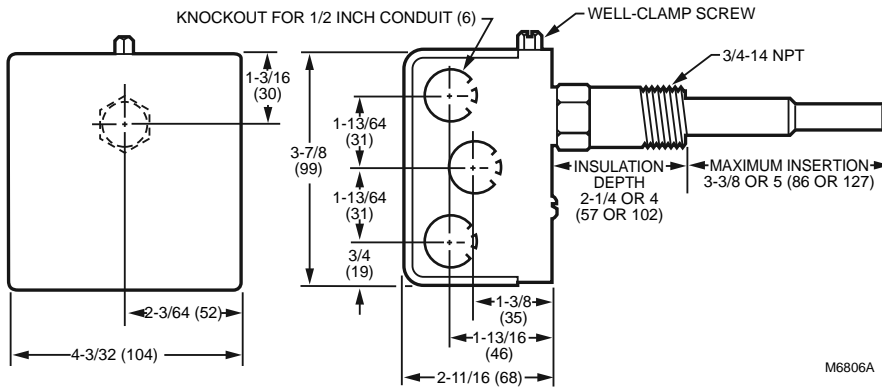
L4103 Combination Aquastat® and High Limit Controller



The L4103A,B is an immersion-type controller for oil-fired water heaters. The Aquastat® Controller senses water temperature and cycles the burner through the oil primary. The high-limit controller breaks the circuit to the burner on a temperature rise past the factory-set setpoint. The L4103C is an immersion-type controller for gas systems that provides water temperature regulation. The high-limit controller breaks the circuit to the burner on a temperature rise past the factory-set setpoint.

- L4103A,B,C have a sensing element and a high limit sensor with automatic reset.
- Mounts on a horizontal immersion well in water heater wall.
- Adjustable temperature setting scale.
- Fluid-filled element operates SPST, Micro Switch™ snap-acting switch.
- Integral, nonadjustable high limit. L4103C is an immersion controller for gas systems.
- L4103A,B is an immersion controller for oil systems.

Dimensions in inches (millimeters)



M6806A

Case Dimensions: 4 3/32 in. wide x 3 7/8 in. high x 2 11/16 in. deep (104 mm wide x 99 mm high x 68 mm deep.)

Operating Temperature Range: 100 F to 240 F stop set at 150 F (Scale marked- Hot-Normal-Warm) (38 C to 116 C stop set at 66 C (Scale marked- Hot-Normal-Warm))

Electrical Ratings:

Full Load: 5A @ 240 Vac; 8A @ 120 Vac

Locked Rotor: 30A @ 240 Vac; 48A @ 120 Vac

Approvals:

Underwriters Laboratories, Inc. UL Component Recognized: File No. MP466, Guide No. MBPR2.

Product Number	Application	Differential Temperature		Well Spud Size		Insulation Depth		Switching Action	Mounting
		(F)	(C)	(inch)	(mm)	(inch)	(mm)		
L4103A1019	High Limit	7 F ± 4 F	3.9 C ± 2 C	3/4 in. NPT	19 mm NPT	4 in.	102 mm	SPST, contacts break on temperature rise.	Mounts on a horizontal immersion well in water heater wall.
L4103A1100	High Limit	7 F ± 4 F	3.9 C ± 2 C	3/4 in. NPT	19 mm NPT	2 1/4 in.	57 mm	SPST, contacts break on temperature rise.	Mounts on a horizontal immersion well in water heater wall.

Aquastat Controllers

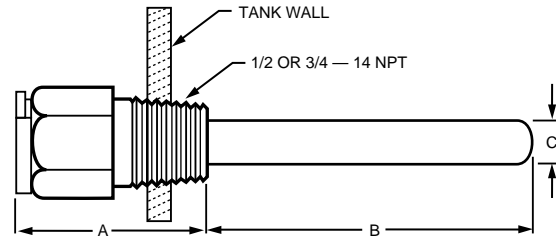
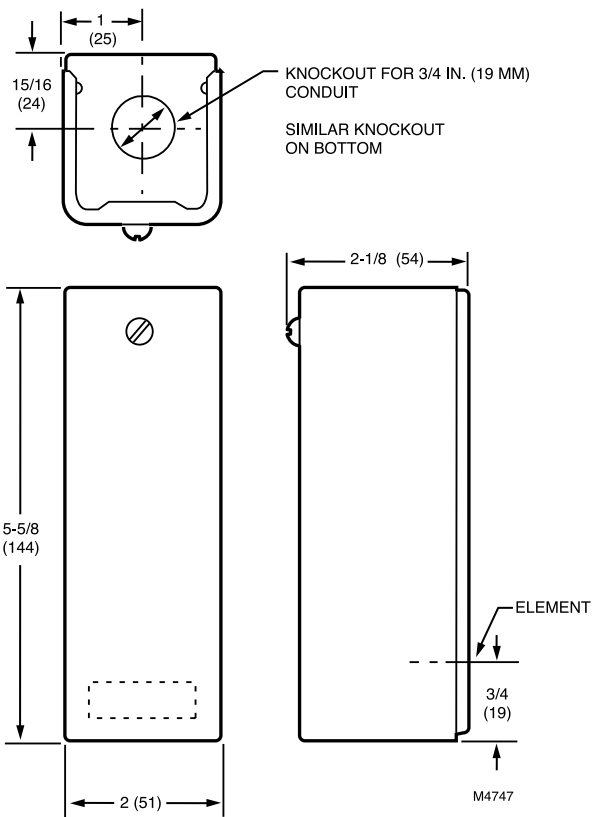
L8100 Aquastat® Controller



L8100A,B, and C are immersion type controllers for regulating and limiting the tank temperature in water heaters. As the water temperature rises past the setpoint, the controller switches off the gas valve.

- Regulates temperature and provides energy cutoff (ECO) action on a temperature rise past the setpoint.
- Includes a second sensing element that senses average water temperature to minimize stacking.
- Fluid-filled element operates Micro Switch™ SPST snap-acting switch.
- ECO switch interrupts the thermocouple circuit or main valve before tank reaches 210 F (99 C) maximum temperature.
- Includes factory-installed immersion well on controller.
- Internal adjustment screw.
- Special switch terminal provides three-wire hookup from Aquastat® controller to gas valve.

Dimensions in inches (millimeters)



	CONTROLLER WELL		REMOTE WELL	
	IN.	MM	IN.	MM
A INSULATION DEPTH	2-1/4	57	1-1/2 OR 2-1/2	38 OR 64
B INSERTION DEPTH	5	127	3	76
C WELL DIAMETER	7/16	11	7/16	11

M4746

Bulb Size: 3/8 in. (10 mm)

Differential Temperature: Controller: 5 F, fixed. Energy Cutoff Switch: 20 F, fixed. (Controller: 3 C fixed; Energy Cutoff Switch: 11 C fixed.)

Temperature Rating (ECO) Energy Cutoff: 190 F

Maximum Ambient Temperature: Maximum Tank: 210 F (Maximum Tank: 99 C)

Operating Temperature Range: 100 F to 180 F (38 C to 82 C)

Electrical Ratings:

Millivolt: 2A maximum at 24 Vac.

Approvals:

American Gas Association IAS: Design Certified: Report Number 23-11B

Underwriters Laboratories, Inc. UL Component Recognized: File No. MP466, Guide No. MBPR2

Product Number	Application	Capillary Length	Insulation Depth		Switching Action	Mounting	Includes
		(inch)	(inch)	(mm)			
L8100B1037	High Limit	42 in.	controller well: 2 1/4 in. remote well: 1 1/2 or 2 1/2 in.	controller well: 57 mm, remote well: 38 mm or 64 mm	SPST, contacts break on temperature rise.	Immersion Well	—
L8100B1094	High Limit	54 in.	controller well: 2 1/4 in. remote well: 1 1/2 or 2 1/2 in.	controller well: 57 mm, remote well: 38 mm or 64 mm	SPST, contacts break on temperature rise.	Immersion Well	Two zinc plated wells and one well clamp for remote well.
L8100B1128	High Limit	39 in.	1 1/2 in.	38 mm	SPST, contacts break on temperature rise.	Immersion Well	—

L4081; L6081 Multiple Aquastat® Controllers



Cover



Controller

High limit, low limit and/or circulator controllers used to regulate boiler water temperature in gas- or oil-fired hydronic heating systems.

- An immersion type liquid-filled sensing element actuates two snap switches.
- One switch operates as a high limit control.
- The other switch operates as a low limit and/or circulator control, depending on the model.
- Controller may be mounted in any positioning and needs no leveling.
- Separate, easy-to-read, calibrated dial and setpoint adjustments for each switch.
- Differential adjustment on low limit or circulator switch.
- All adjustments accessible inside front cover.
- Push-in terminals for quick connecting.
- Single sensing element for easy installation.
- One SPST and one SPDT snap switches act independently at respective temperature settings.

Maximum Ambient Temperature: 150 F at switches; 265 F at sensing element (66 C at switches; 129 C at sensing element)

Operating Range, High Limit: 130 F to 240 F (54 C to 116 C)

Operating Range, Low Limit: 110 F to 220 F (43 C to 104 C)

Operating Humidity Range (% RH): 0 to 95% RH, non-condensing

Electrical Ratings

Ignition: Transformer Load: 360 VA

Full Load: 5.1A @ 240 Vac; 8A @ 120 Vac

Locked Rotor: 30.6A @ 240 Vac; 48A @ 120 Vac

Millivolt: 0.25 A @ 0.25 to 12 Vdc

Approvals:

Canadian Standards Association: Certified: File No. LR95329-1

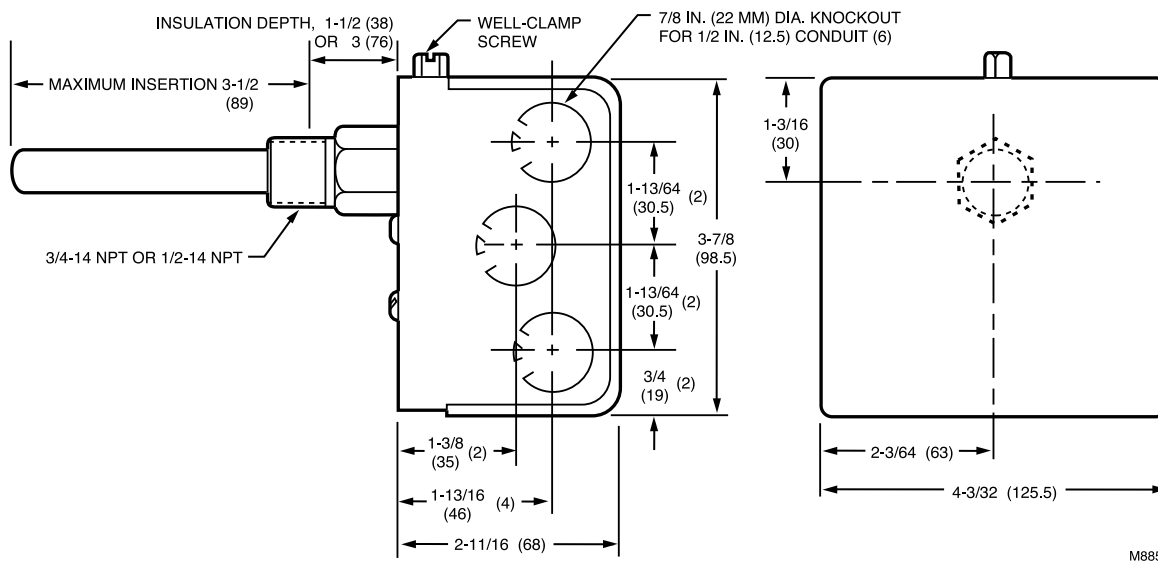
Underwriters Laboratories, Inc. UL Listed: File No. MP466, Vol. 12, Sec. 4, Guide No. MBPR2

Residential
Combustion Controls

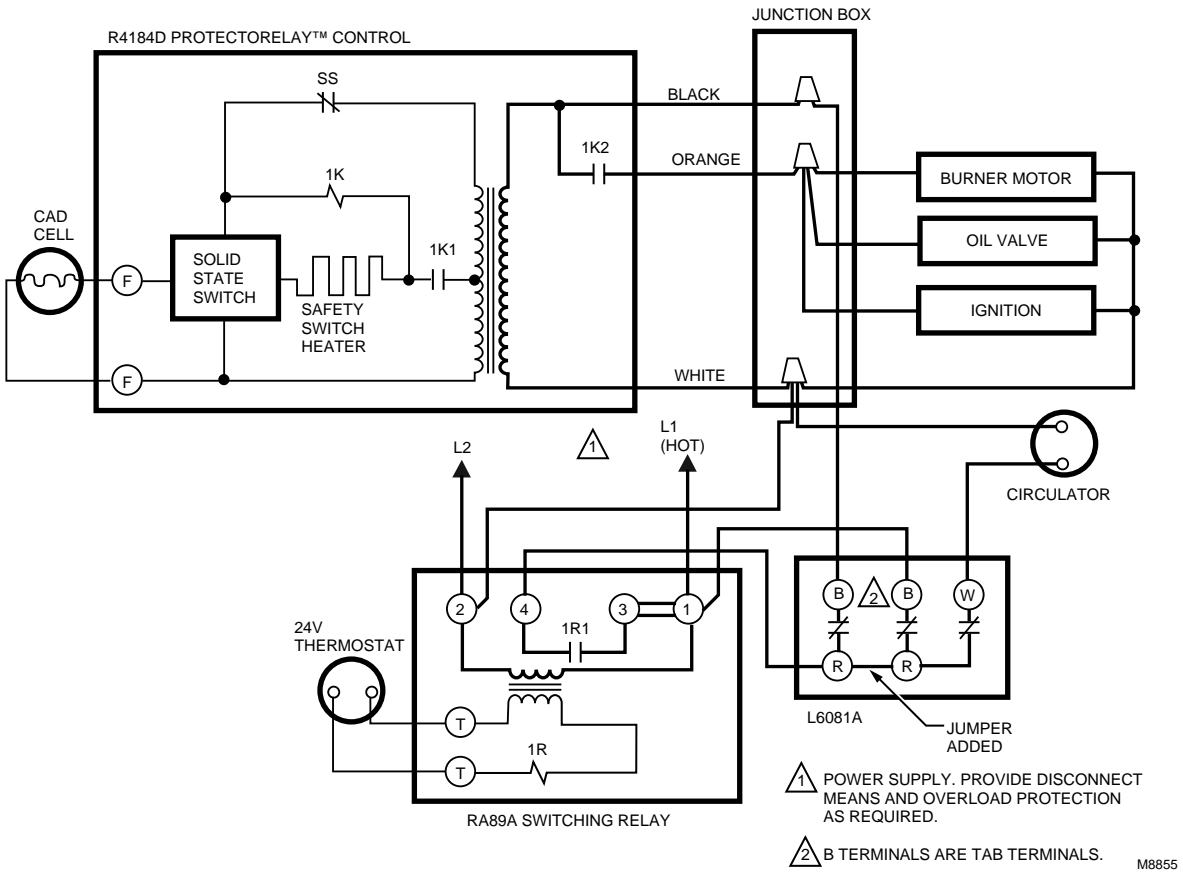
Product Number	Application	Differential Temperature	Insulation Depth		Well Spud Size	Switching Action	Mounting	Includes
		(F)	(inch)	(mm)	(inch)			
L4081A1023	High and Low limit	High limit: 10 F fixed; low limit: 10-25 F adj.	1 1/2 in.	38 mm	3/4 in. - 14 NPT	SPST: High & Low Limit	Horizontal	—
L4081B1013	High Limit and Circulator	10 F fixed	3 in.	76 mm	3/4 in. - 14 NPT	SPST: High Limit & Circulator	Horizontal	—
L4081B1047	High Limit and Circulator	High limit: 10 F fixed; low limit: 10-25 F adj.	1 1/2 in.	38 mm	3/4 in. - 14 NPT	SPST: High Limit & Circulator	Horizontal	—
L4081B1096	High Limit and Circulator	10 F fixed	3 in.	76 mm	—	SPST: High Limit & Circulator	Horizontal	—
* L6081A1010	High and Low limit	10 F fixed	3 in.	76 mm	3/4 in. - 14 NPT	—	Horizontal	3 in. insertion well.
* L6081A1036	High and Low limit	High limit: 10 F fixed; low limit: 10-25 F adj.	1 1/2 in. to 4 in.	38 mm	3/4 in. - 14 NPT	—	Horizontal	—

* TRADELINE models • SUPER TRADELINE models

Dimensions in inches (millimeters)



Aquastat Controllers



L8124 Triple Aquastat® Relay



Immersion-type controllers that combine high limit protection with low limit and circulator control in forced hydronic heating systems, including domestic hot water service.

- Immersion-type controllers that combine high limit protection with low limit and circulator control in forced hydronic heating systems.
- Provide multizone control by using a separate circulator and R845 Relay for each zone.
- Include diaphragm powerhead and Micro Switch™ assembly that respond to temperature changes in boiler water.
- Mount directly to boiler.
- Select models include large transformers and extra terminals for supplying power to low voltage zone valves.
- Require 24 Vac thermostat with heat anticipator set at 0.2 A (plus current draw of gas valve on L8124E).
- TRADELINE models include tube of heat conductive compound and range stops.

Voltage: 120 Vac

Maximum Ambient Temperature: 150 F at switches, 265 F at sensing element. (66 C at switches, 129 C at sensing element.)

Operating Range, High Limit: 130 F to 240 F adj. (54 C to 116 C adj.)

Operating Range, Low Limit: 110 F to 220 F adj. (43 C to 104 C adj.)

Maximum Operating Pressure: 200 psi on outside of immersion well, 100 psi on capsule if inserted directly. (1378 kPa on outside of immersion well, 690 kPa on capsule if inserted directly.)

Operating Humidity Range (% RH): 0 to 95% RH, non-condensing

Approvals:

Canadian Standards Association: Certified: File No. LR1620, Guide No. 400-E-O

Underwriters Laboratories, Inc. UL Listed (models with well): File No. MP466, Guide No. MBPR; UL Component Recognized (models without well): File No. MP466, Guide No. MBPR2

	Electrical Ratings			
	burner		circulator	
	AFL	ALR	AFL	ALR
L8124A	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.2 A @ 240 Vac; 44.4 A @ 120 Vac	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.2 A @ 240 Vac; 44.4 A @ 120 Vac
L8124B, C, E, G, L	Line Voltage: 7.4 A @ 120 Vac; 3.7 A @ 240 Vac	Line Voltage: 44.4 A @ 120 Vac; 22.7 A @ 240 Vac	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.7 A @ 240 Vac; 44.4 A @ 120 Vac

Replacement Parts:

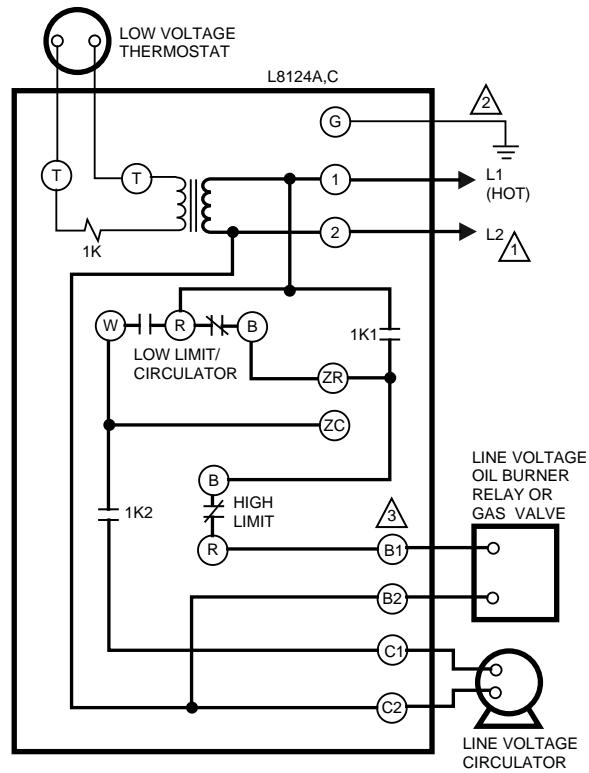
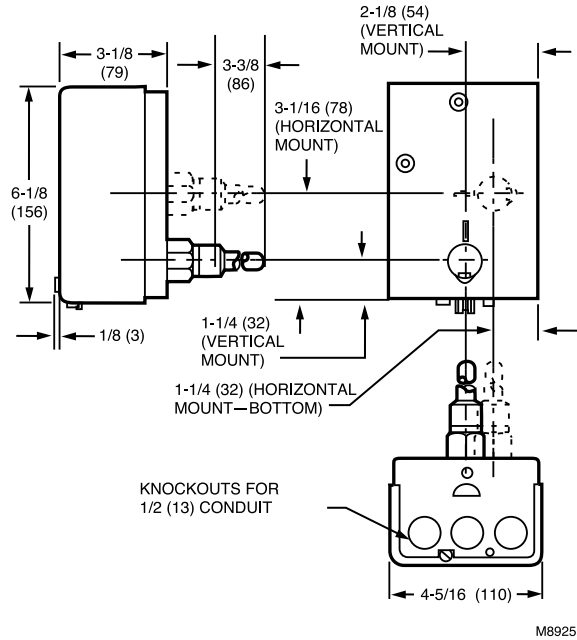
L7224U1002 120 Vac Oil Electronic Aquastat® Controller with Enviracom communication and troubleshooting Leds

Product Number	Application	Differential Temperature	Insulation Depth		Switching Action	Mounting	Includes
		(F)	(inch)	(mm)			
L8124A1007	High Limit Protection, Low Limit and Circulation Control	High limit: 10 F fixed; low limit: 10-25 F adj.	1 1/2 in.	38 mm	—	Vertical Mount	3 in. insertion well.
L8124A1015	High Limit Protection, Low Limit and Circulation Control	High limit: 10 F fixed; low limit: 10-25 F adj.	3 in.	76 mm	—	Vertical Mount	3 in. insertion well and ground screw.
* L8124B1039	Triple Aquastat Relay with High limit	High limit: 10 F fixed; low limit: 10-25 F adj.	—	—	SPST: High & Low Limit	Vertical Mount	—
L8124C1003	Triple Aquastat Relay with High limit	High limit: 10 F fixed; low limit: 10-25 F adj.	—	—	SPST: High & Low Limit	Horizontal	—
L8124C1102	High Limit Protection, Low Limit and Circulation Control	High limit: 10 F fixed; low limit: 10-25 F adj.	1 1/2 in. to 3 in. less well.	38 mm to 76 mm less well	—	Horizontal	—
* L8124E1016	Triple Aquastat Relay with High limit	High limit: 10 F fixed; low limit: 10-25 F adj.	—	—	SPST: High & Low Limit	Vertical Mount	—
L8124G1020	Triple Aquastat Relay with High limit	High limit: 10 F fixed; low limit: 10-25 F adj.	—	—	SPST: High & Low Limit	Vertical Mount	—
L8124L1011	Triple Aquastat Relay with High limit	High limit: 10 F fixed; low limit: 10-25 F adj.	—	—	SPST: High & Low Limit	Horizontal	—

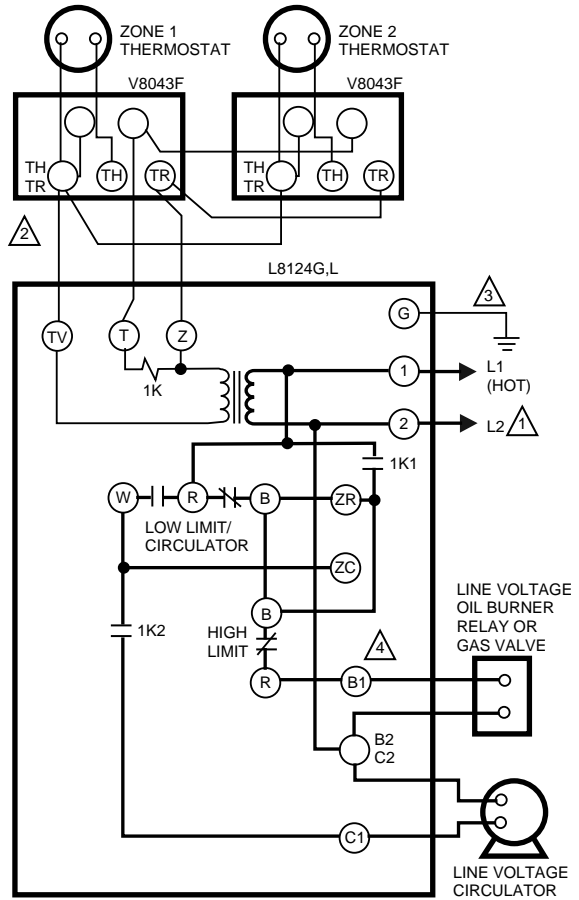
* TRADELINE models • SUPER TRADELINE models

Aquastat Controllers

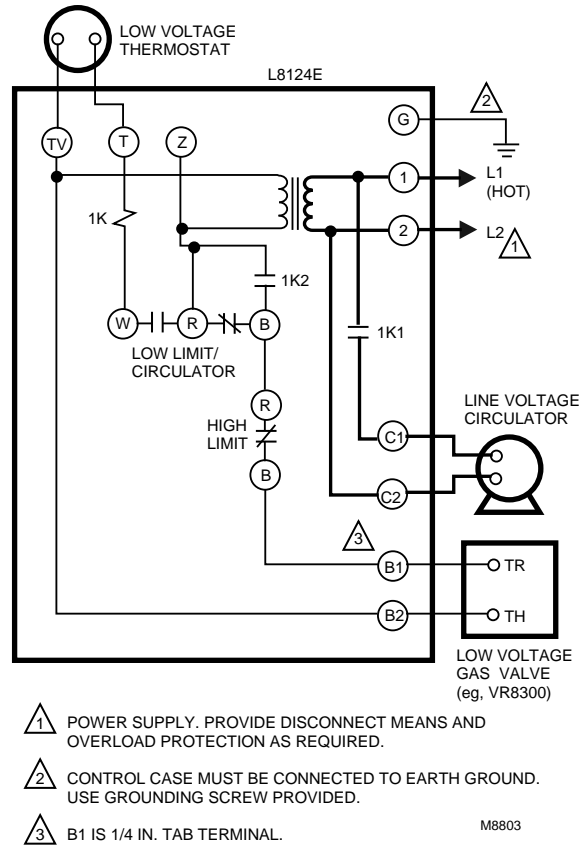
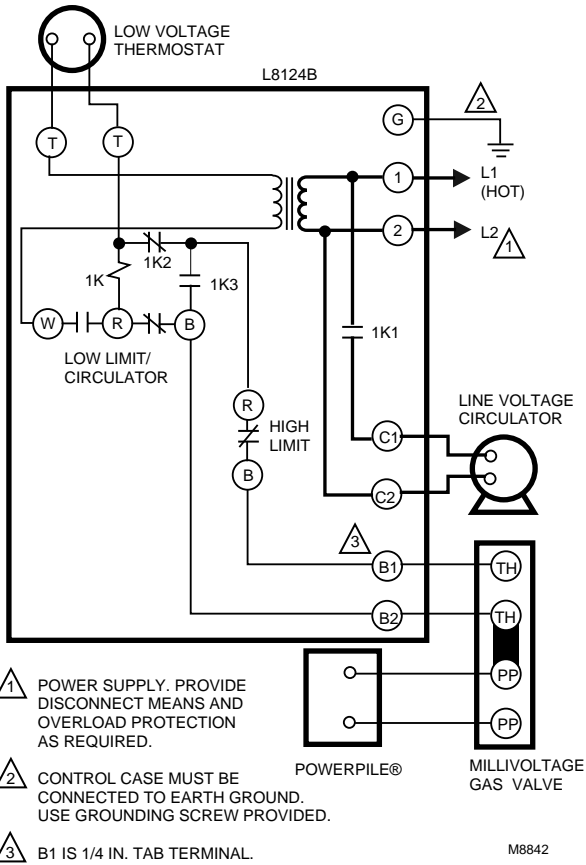
Dimensions in inches (millimeters)



- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
 - 2 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
 - 3 B1 IS 1/4 IN. TAB TERMINAL.
- M8802



- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
 - 2 UP TO TWO V8043F ZONE VALVES CAN BE POWERED WITH L8124G,L. ADD ADDITIONAL TRANSFORMER FOR EVERY TWO OR LESS VALVES.
 - 3 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
 - 4 B1 IS 1/4 IN. TAB TERMINAL.
- M1795B



Residential
Combustion Controls

Aquastat Controllers

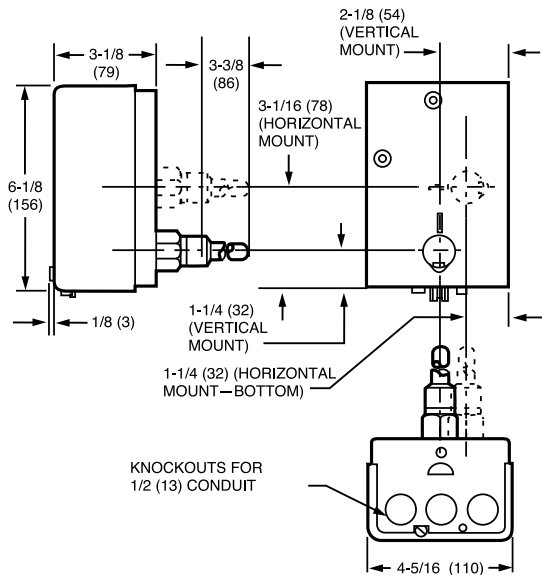
L8148 Aquastat® Relay



Immersion-type controllers that combine high limit protection with switching relay control of burner and circulator motors.

- High limit opens burner circuit only.
- Include transformer and accessory terminals for adding a remote low limit controller.
- Case available for horizontal or vertical mounting.
- Requires a 24 Vac thermostat with heat anticipator set at 0.2A.
- TRADELINE models include well adapter, tube of heat conductive compound and range stops.

Dimensions in inches (millimeters)



M8925

Anticipator Setting: 0.2 A

Voltage: 120 Vac

Frequency: 60 Hz

Electrical Connections: Quick-Connect/Screw

Maximum Ambient Temperature: 150 F with 1.2 A 24 V load; 77 F with 1.4 A 24 V load (66 C with 1.2 A 24 V load; 25 C with 1.4 A 24 V load)

Setpoint Temperature Range: 240 F (116 C)

Operating Range, High Limit: 120 F to 240 F (54 C to 116 C)

Maximum Operating Pressure: Immersion Well: 255 psi (Immersion Well: 1757 kPa)

Operating Humidity Range (% RH): 0 to 95% RH, non-condensing

Approvals:

Canadian Standards Association: Certified: File No. LR1620, Guide No. 400-E-O

Underwriters Laboratories, Inc. UL Listed: File No. MP466, Vol. 13, Sec. 2, Guide No. MBPR2.

Electrical Ratings							
		(AFL)	(burner AFL)	(burner ALR)	(burner millivolt)	(circulator AFL)	(circulator ALR)
L8148A	—	—	Line Voltage: 7.4 A @ 120 Vac; 3.7 A @ 240 Vac	Line Voltage: 44.4 A @ 120 Vac; 22.7 A @ 240 Vac	0.25 A @ 1/4 to 12 Vdc	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.2 A @ 240 Vac; 44.4 A @ 120 Vac
L8148E	0.25 A @ 0.25 to 12 Vdc	22.2A @ 240 Vac; 44.4A @ 120 Vac	Low Voltage: 0.8 A max. @ 24 Vac; Line Voltage: 7.4 A @ 120 Vac; 3.7 A @ 240 Vac	Line Voltage: 44.4 A @ 120 Vac; 22.7 A @ 240 Vac	0.25 A @ 1/4 to 12 Vdc	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.7 A @ 240 Vac; 44.4 A @ 120 Vac
L8148J	—	—	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.2 A @ 240 Vac; 44.4 A @ 120 Vac	0.25 A @ 1/4 to 12 Vdc	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.2 A @ 240 Vac; 44.4 A @ 120 Vac

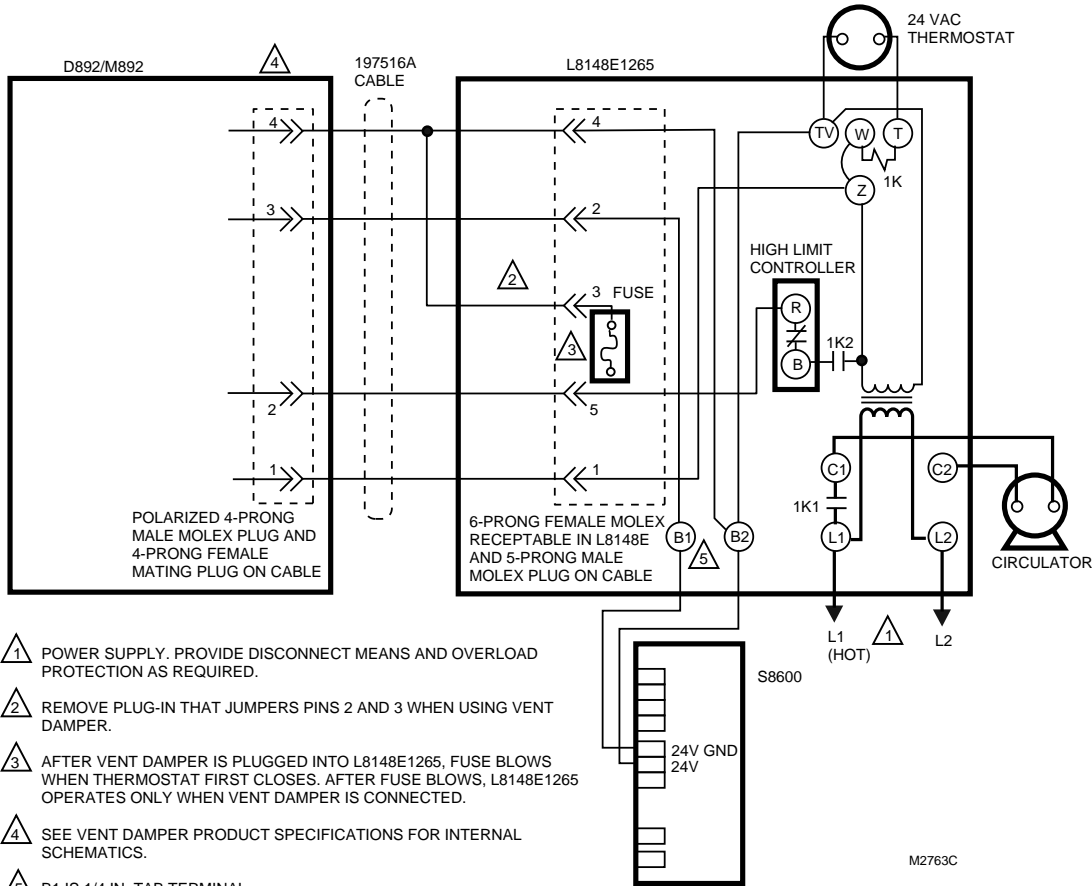
Product Number	Application	Differential Temperature (F)	Capillary Length		Insulation Depth		Switching Action	Mounting	Includes
			(inch)	(mm)	(inch)	(mm)			
* L8148A1017	High Limit	8 F fixed	4 1/2 in.	114 mm	1 1/2 in. to 3 in. less well	38 mm to 76 mm less well	SPST: High Limit & Circulator	Horizontal	—
* L8148E1265	High Limit	15 F fixed	4 1/2 in.	114 mm	1 1/2 in. to 3 in. less well	38 mm to 76 mm less well	SPST: High Limit & Circulator	Vertical Mount	Molex® plug for use with vent damper, includes heat-conductive compound. Molex® plug for use with vent damper, includes heat-conductive compound.

* TRADELINE models • SUPER TRADELINE models

Aquastat Controllers

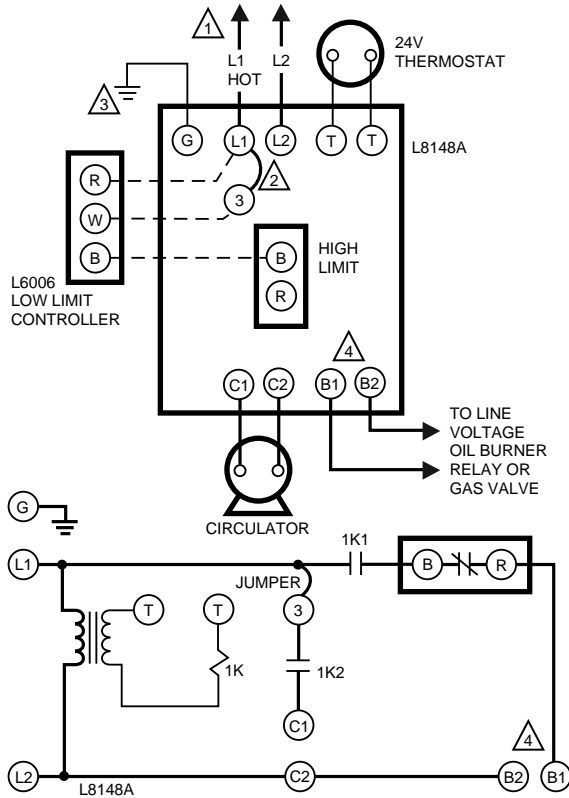
Product Number	Application	Differential Temperature	Capillary Length		Insulation Depth		Switching Action	Mounting	Includes
		(F)	(inch)	(mm)	(inch)	(mm)			
L8148E1299	High Limit	15 F fixed	4 1/2 in.	114 mm	1 1/2 in. to 3 in. less well	38 mm to 76 mm less well	SPST: High Limit & Circulator	Vertical Mount	50 VA transformer and heat conductive compound.
* L8148J1009	Aquastat Relay	8 F fixed	4 1/2 in.	114 mm	1 1/2 in. to 3 in. less well.	38 mm to 76 mm less well	SPST: High Limit & Circulator	Horizontal or Vertical	—

* TRADELINE models • SUPER TRADELINE models



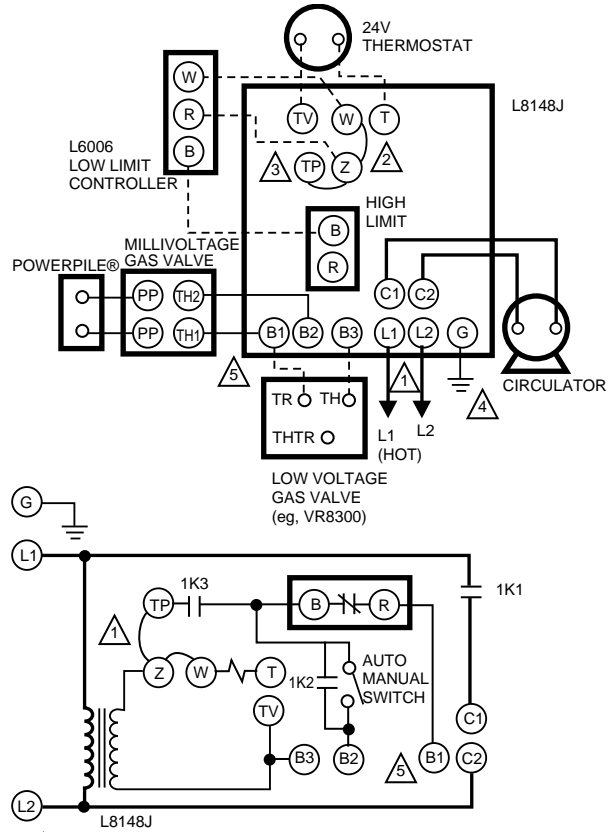
Residential
Combustion Controls

Aquastat Controllers



- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 REMOVE JUMPER WHEN ADDING L6006 LOW LIMIT CONTROLLER.
- 3 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
- 4 B1 IS 1/4 IN. TAB TERMINAL.

M2842A



- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 REMOVE Z-W JUMPER IF SERIES 60 LOW LIMIT IS USED. WIRE LOW LIMIT CONTROLLER OR ZONE VALVES AS SHOWN. USE WITH 24V (B1-B3) CIRCUIT ONLY.
- 3 FOR 24V BURNER, WIRE B1-B3 AND USE JUMPER Z-W AND TP-Z. FOR POWERPILE® (MILLIVOLTAGE) GAS VALVES, REMOVE JUMPER TP-Z AND WIRE BURNER B1-B2. JUMPER Z-W REMAINS IN POSITION.
- 4 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
- 5 B1 IS 1/4 IN. TAB TERMINAL.

M1793B

L7224U Oil Electronic Aquastat® Controller



The L7224U Oil Electronic Aquastat® Controller provides electronic temperature sensing in a UL limit-rated controller with a single sensing probe. The L7224U controls the circulator, oil burner and boiler temperature. The L7224U replaces the L8124A, L8124C, L7124U, L7148A, L7248A,C, L7224A,C, and L8148A Controllers. The Aquastat Controller is intended for use in residential-type applications. The L7224U provides status and diagnostic information through an LED display combined with LED lights to enhance the diagnostic process.

The L7224U is “Outdoor Temperature Reset” ready, which is enabled when connected to the 50022037-002 Outdoor Reset Module and C7089U Outdoor Temperature Sensor. The L7224U can also interface with the 50022037-005 Domestic Hot Water Module for prioritization of a domestic hot water call for heat. Ideal for indirect tank applications.

Dimensions, Approximate: 7 1/8 in. high x 4 1/4 in. wide x 2 5/8 in. deep (181 mm high x 109 mm wide x 67 mm deep)

Maximum Power Consumption: 2000 VA

Voltage: 120 Vac

Frequency: 60 Hz

Maximum Ambient Temperature: 150 F (66 C)

Minimum Ambient Temperature: -30 F (-9 C)

Operating Range, High Limit: 130 F to 240 F (54 C to 116 C)

Operating Range, Low Limit: 110 F to 220 F (43 C to 104 C)

Operating Humidity Range (% RH): 0 to 95% RH, non-condensing

Electrical Ratings

(burner AFL): 7.4 A @ 120 Vac

(burner ALR): 44.4 A inrush

(circulator AFL): 7.4 A @ 120 Vac

(circulator ALR): 44.4 A inrush

Approvals:

Underwriters Laboratories, Inc. Recognized

Residential
Combustion Controls

Product Number	Application	Differential Temperature	Mounting	Includes
		(F)		
L7224R1000	Oil Aquastat Controller with Outdoor Reset Module	High limit: 5-20 F adj.; low limit: 10-25 F adj.	Well mount, horizontal or vertical position, or flush mounted remote from the well.	W8735S1000
L7224U1002	Oil Aquastat Controller	High limit: 5-20 F adj.; low limit: 10-25 F adj.	Well mount, horizontal or vertical position, or flush mounted remote from the well.	—

Aquastat Controllers

R8182 Combination Protectorelay® and Hydronic Heating Controllers

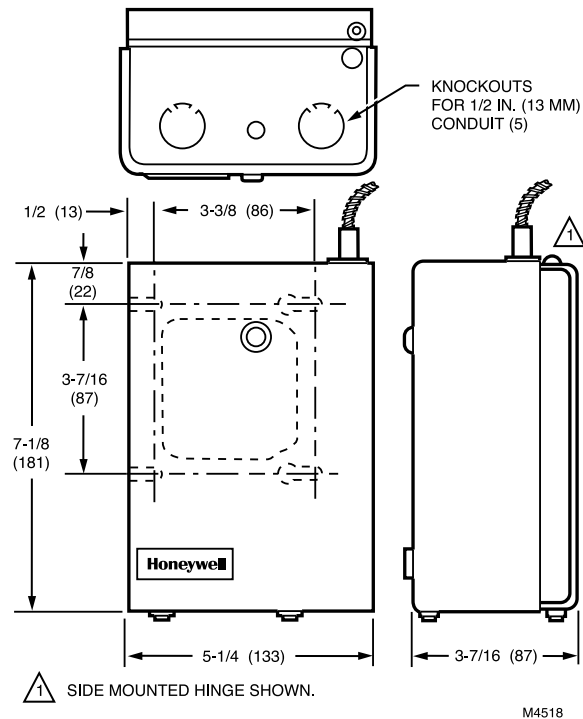
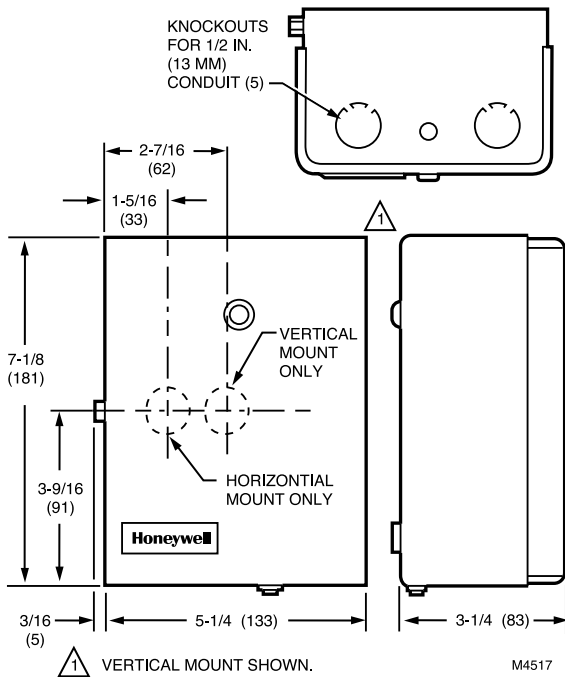


Junction Box Mount

Immersion type Aquastat controller and oil burner primary control provides high limit and low limit/circulator control for oil-fired hydronic heating systems.

- Use in intermittent ignition applications.
- Capable of zone control with zone valves.
- Circulator zone control with ZC and ZR terminals on R8182D,E,H,J.
- 8*Flame failure during the running cycle results in a 45 second attempt to restart.
- If unsuccessful, safety shutoff occurs, requiring manual reset before burner can be restarted.
- R8182D,E,F mount directly on burner; R8182H,J mount on 4 x 4 in. junction box and include 5 ft (1.5 m) armored capillary with remote sensor.
- C554A Cadmium Sulfide Flame Detector and a 24 Vac thermostat required.

Dimensions in inches (millimeters)



Anticipator Setting: 0.2 A
Maximum Power Consumption: 9 W
Voltage: 120 Vac
Frequency: 60 Hz
Timing Safety Switch: 45 sec
Maximum Ambient Temperature: 250 F at element (121 C at element)
Operating Range, High Limit: 130 F to 240 F (54 C to 116 C)
Operating Range, Low Limit: 110 F to 220 F (43 C to 104 C)
Maximum Operating Pressure: 200 psi on immersion well; 100 psi direct immersion. (1378 kPa on immersion well; 90 kPa direct immersion.)

Operating Humidity Range (% RH): 0 to 95% RH, non-condensing

Electrical Ratings
(ignition): 360 VA
(burner AFL): 4.4 A @ 120 Vac
(burner ALR): 26.4 A inrush

Approvals:
Canadian Standards Association: Certified: File No. LR95329-1
Underwriters Laboratories, Inc. UL Listed: File No. listed: MP268, Vol. 3,4 (R8182D,E,F), Vol. 37 (R8182H,J), Sec. 1.

Aquastat Controllers

Product Number	Differential Temperature	Insulation Depth		Mounting	Includes
	(F)	(inch)	(mm)		
* R8182D1079	High limit: 10 F fixed; Low limit/circulator: 10 F to 25 F adj.	1 1/2 in.	38 mm	Vertical Mount	Auxiliary ZC and ZR terminals may be used to provide circulator zone control through an R845A Switching Relay. Heat-conductive compound and vertical case.
* R8182D1111	High limit: 10 F fixed; Low limit/circulator: 10 F to 25 F adj.	1 1/2 in.	38 mm	Horizontal	Auxiliary ZC and ZR terminals may be used to provide circulator zone control through an R845A Switching Relay. Heat-conductive compound and vertical case.
* R8182H1070	High limit: 10 F fixed; Low limit/circulator: 10 F to 25 F adj.	1 1/2 in.	38 mm	Junction box mount	Auxiliary ZC and ZR terminals may be used to provide circulator zone control through an R845A Switching Relay. Heat-conductive compound and horizontal case.

* TRADELINE models • SUPER TRADELINE models

Outdoor Reset



The AquaReset™ Outdoor Reset Module, when connected to the C7089U Outdoor Sensor, works with any AquaReset enabled Aquastat® such as the L7224/48 via the EnviraCOM™ 3-wire bus to optimize boiler efficiency. The Outdoor Reset Module enables efficiency Aquastat functionality, such as Outdoor Temperature Reset, a Boost function, and a Warm Weather Shutdown function to generate average operational savings of up to 15%.

- Enables Boiler Outdoor Temperature Reset
- Enables Warm Weather Shutdown
- Enables Boost Override
- Easy push wire terminals that provide a secure lock with no need to screw in wires.
- Simple low-voltage, 5-wire installation (3 EnviraCOM, 2 temperature sensor)
- EnviraCOM™ Enabled

Dimensions, Approximate:

2.410 in. high x 3.385 in. wide x .920 in deep

Electrical Ratings: 24 Vac, 60 Hz

Maximum Ambient Temperature: 150 F (66 C)

Minimum Ambient Temperature: -30 F (-9 C)

Operating Humidity Range (% RH): 0 to 95% RH, non-condensing



Product Number	Mounting	Includes
W8735S1000	Wall Mounted in any orientation	C7089U1006 Outdoor Sensor, Outdoor Reset Module
W8735S1008	Wall Mounted in any orientation	Water Pipe Temperature Sensor, Domestic Hot Water Module

Single and Multi-function Aquastat® Parts

Product Number	Type	Description	Bulb Diameter (inch)	Lead Length (inch)	Leadwire Ending	Leadwire Temperature	Used With
120650	—	Heat Conductive Grease 1/2 oz.	—	—	—	—	Well Assembly
198799Z	Sensor	Outdoor or Supply sensor with 42 in. lead for AQ475, AQ675 or AQ775	3/8 in.	42 in.	Strip & Retain	125 C	—
32004955-005	Sensor	Sensor Assembly for use with L71XX series of Electronic Aquastats	—	48 in.	—	—	—

Well Assemblies

Well Assemblies

Product Number	Description	Materials	Insertion Length	Shell (internal diameter)	Spud Thread Size	Includes	
121371A	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. NPT. Includes mounting clamp.	Copper	1 1/2 in.	3/8 in.	1/2 in. x 14 NPT	121371 Mounting Clamp	
121371AA	Well clamp assembly with clamp capillary 21371 (1) screws 804644 and nuts 60156	—	—	—	—	121371 Mounting Clamp, Spud Set screw for armored capillary, Plug, and Nut.	
121371B	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 3/4 in. NPT. Includes mounting clamp.	Copper	1 1/2 in.	3/8 in.	3/4 in. x 14 NPT	121371 Mounting Clamp	
121371E	Stainless steel. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 1/2 in. (13 mm) NPT. Includes mounting clamp.	Stainless Steel	1 1/2 in.	3/8 in.	1/2 in. x 14 NPT	121371 Mounting Clamp	
121371L	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 3 in. (76 mm) insulation, 1/2 in. NPT. Includes mounting clamp.	Copper	3 in.	3/8 in.	1/2 in. x 14 NPT	121371 Mounting Clamp	
121371M	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 3/4 in. NPT. Includes mounting clamp.	Copper	3 in.	3/8 in.	3/4 in. x 14 NPT	121371 Mounting Clamp	
123869A	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 1/2 in. NPT.	Copper	1 1/2 in.	3/8 in.	1/2 in. x 14 NPT	125975 Well Clamp	
123870A	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 3/4 in. NPT.	Copper	1 1/2 in.	3/8 in.	3/4 in. x 14 NPT	—	
123871A	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 3 in. (76 mm) insulation, 3/4 in. NPT.	Copper	3 in.	3/8 in.	3/4 in. x 14 NPT	—	
123872A	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 3 in. (76 mm) insulation, 1/2 in. NPT.	Copper	3 in.	3/8 in.	1/2 in. NPT	—	
124299AA	Copper. Bulb size: 3/8 in. (10 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 3/4 in. NPT. Includes set screw with spud for armored capillary with plug.	Copper	1 1/2 in.	3/8 in.	3/4 in. x 14 NPT	Set screw in spud for armored capillary with plug	
138134B/0021	Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 3/4 in. NPT	Zinc plated	4 1/2 in.	—	3/4 in. x 14 NPT	—	

AQUATROL Zoning System

AQ250 Electronic Relay Boiler Control Panel for Hydronic Zoning System



The AQ250 family of AQUATROL Boiler Controls provides simplified, energy-efficient control of single temperature, residential hydronic heating systems. The AQ250 easily converts a single zone heating system into a room-by-room comfort control system, or upgrades a basic, relay-logic zoning system to intelligent Zone of Greatest Demand control for increased energy efficiency with reduced boiler cycling. AQ250 boiler controls can ensure ample supply of hot water for both space heating and priority generation of domestic hot water for bathing, dishes and laundry.

- Controls up to 2 stages of heat from a single thermostat.
- Use with AQ1000 2-wire communicating thermostats, or most dry contact digital thermostats.
- Zoning Control for up to 4 zones as shipped; can be expanded to a total of 16 zones with AQ255 or AQ257 expansion zoning panels and up to 64 zones when used with AQ254 Add-A-Temp panels.
- Line or low-voltage output for zoning equipment (pumps or valves).
- Zone synchronization through Zone or Greatest Demand control.
- Domestic hot water priority and priority override protection.
- Boiler short cycling protection.
- Boiler post purge.
- Freeze protection.
- Pump/valve exercise.
- Boiler shock prevention from cold water returning to boiler.
- Automated test feature for quick start-up and simplified troubleshooting.
- Integral 38 VA transformer with self-resetting electronic fuse.

Application: Boiler control for zoned hydronic systems
Dimensions, Approximate: 13 in wide x 8 in. high x 3 3/8 in deep (33 cm wide x 20.3 cm high x 8.5 cm deep)
Power Supply: 120V/60Hz
User Interface (Setting, Programming): (DIP Switches)
Electrical Connections (Line Voltage): Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals
Control and Zoning Panel Temperature Rating: 32 F to 130 F (0 C to 55 C)
Thermostat Compatibility: AQ1000 Series 2-wire communicating thermostats and most digital thermostats
Zone Module Thermostat input: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating with power link to AQ1000 series thermostat.
Boiler Heat Post Purge: 30 seconds (sent to DHW tank or Zone of Greatest Demand - selectable)
Boiler (T-T) Output Rating: 24 Vac, 0.5A, 12VA
DHW Demand Input: External dry contacts connection only
Pump/Valve exercise: 30 seconds per 2 weeks of space heating inactivity

Auxiliary Pump Output Rating: Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP

Zone Output Contact Rating: Pumps: 120 Vac/250 Vac, 5A, 1/3 HP
 Valves: 24 Vac, 0.5 A, 12 VA

ZR-ZC Contact Rating: 120 to 240 Vac, 1/3 HP

Sensor Temperature Rating: -58 F to +230 F (-50 C to +110 C)

Supply/Return Sensor: Lead Length: 10 ft. (3050 mm). 10 kilohm NTC thermistor at 25 C (77 F) ±0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire

Heat Demand (Thermostat R-W) Input: External dry contacts connection only

B-B Communication Bus Terminals: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

R-C Input (on Control and Zoning Modules): 24 Vac Class II

R-C Output (on transformer): 38 VA, 24 Vac Class II

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Weight: 4.9 lbs (2.3 kg)

Approvals:

Canadian Standards Association: CSA C/US Certified to CSA and UL Standards, File No. LR76030

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Boiler Pump Output Rating	DHW Pump/ Valve Output Rating	Replacement Parts
AQ25042B	Zone pumps or 2-wire valves (line voltage)	4	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15000B boiler control module AQ12C11 supply/return/mixed loop sensor AQ10X38 24 Vac 38 VA transformer AQ15540B 4-zone pump expansion module
AQ25044B	Zone valves with end switches	4	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15000B boiler control module AQ15740B 4-zone valve with end switch expansion module AQ12C11 supply/return/mixed loop sensor AQ10X38 24 Vac 38 VA transformer

AQUATROL Zoning System

AQ25A Programmable Relay Control Panel for Hydronic Zoning System



The AQ25A family of AQUATROL Programmable Relay Boiler Controls provides simplified, energy-efficient control of single-temperature, residential hydronic heating systems. The AQ25A easily converts a single zone heating system into a room-by-room comfort control system, or upgrades a basic, relay-logic zoning system to intelligent Zone of Greatest Demand control for increased energy efficiency with reduced boiler cycling. AQ25A boiler controls can ensure ample supply of hot water for both space heating and priority generation of domestic hot water for bathing, dishes and laundry.

- Use with AQ1000 2-wire dry contact communicating thermostats and most digital thermostats.
- 0-10 Vdc modulating output for driving a modulating/condensing boiler.

Application: Boiler control for zoned hydronic systems

Dimensions, Approximate: 16 1/2 in wide x 8 in. high x 3 3/8 in deep (42 cm wide x 20.3 cm high x 8.5 cm deep)

Power Supply: 120V/60Hz

User Interface (Setting, Programming): (LCD Display and a 7 button Key Pad) (DIP Switches on zoning modules)

Electrical Connections (Line Voltage): Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

Control and Zoning Panel Temperature Rating: 32 F to 130 F (0 C to 55 C)

Thermostat Compatibility: AQ1000 Series 2-wire communicating thermostats and most digital thermostats

Zone Module Thermostat input: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating with power link to AQ1000 series thermostat.

Setback Program: 7 day, up to 2 setback periods/day.

Boiler Heat Post Purge: Off, 10 seconds to 30 minutes (factory default is 30 seconds)

Boiler (T-T) Output Rating: 24 Vac, 0.5A, 12VA

Boiler Differential: 2F to 41F (1C to 23C), or Auto (minimum 2 minutes on time)

DHW Demand Input: External dry contacts connection only

Pump/Valve exercise: 30 seconds per 2 weeks of space heating inactivity

- Displays outdoor temperature on all AQ1000 Series thermostats when used with an AQ12C10 outdoor sensor (included).
- Intuitive programming interface and armchair programming (can be programmed at your desk and taken to the job site "ready-to-install").
- Customizable control settings and schedules allow for greater level of control and comfort.
- Controls up to 2 stages of heat from a single thermostat.
- Central programming of zone set points and setbacks
- Zoning Control for up to 4 zones as shipped; can be expanded to a total of 16 zones with AQ255 or AQ257 expansion zoning panels, and up to 64 zones when used with AQ254 Add-a-Temperature panels.
- Zone synchronization through Zone of Greatest Demand control.
- Domestic hot water priority and priority override protection.
- Line or low-voltage output for zoning equipment (pumps or valves).
- Boiler short cycling protection.
- Boiler post purge.
- Freeze protection.
- Pump/valve exercise.
- Boiler shock prevention from cold water returning to boiler.
- Automated test and purge feature for quick start-up and simplified troubleshooting.
- Integral 38 VA transformer with self resetting electronic fuse.
- 2 hour power supply (super-capacitor) to retain day and time settings during power outage.
- Non-volatile EPROM memory retains program settings during power outage.

Auxiliary Pump Output Rating: Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP

Auxiliary Low Voltage Output Rating: 24 Vac, 0.5A, 12VA

Auxiliary (Demand) Input: External dry contacts connection only

Zone Output Contact Rating: Pumps: 120 Vac/250 Vac, 5A, 1/3 HP
Valves: 24 Vac, 0.5 A, 12 VA

Sensor Temperature Rating: -58 F to +230 F (-50 C to +110 C)

Supply/Return Sensor: Lead Length: 10 ft. (3050 mm). 10 kilohm NTC thermistor at 25 C (77 F) ±0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire

Heat Demand (Thermostat R-W) Input: External dry contacts connection only

B-B Communication Bus Terminals: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

R-C Input (on Control and Zoning Modules): 24 Vac Class II (input on Control and Zoning Modules)

R-C Output (on transformer): 38 VA, 24 Vac Class II

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Weight: 5.7 lbs (2.6 kg)

Approvals:

Canadian Standards Association: CSA C/US Certified to CSA and UL Standards, File No. LR76030

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Boiler Pump Output Rating	DHW Pump/ Valve Output Rating	Replacement Parts
AQ25A42B	Zone pumps or 2-wire valves (line voltage)	4	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15A00B boiler control module AQ12C11 supply/return/mixed loop sensor AQ12C10 outdoor sensor AQ10X38 24 Vac 38 VA transformer AQ15540B 4-zone pump expansion module
AQ25A44B	Zone valves with end switches	4	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15A00B boiler control module AQ15740B 4-zone valve with end switch expansion module AQ12C11 supply/return/mixed loop sensor AQ12C10 outdoor sensor AQ10X38 24 Vac 38 VA transformer

AQ251 Electronic Boiler Reset Control Panel for Hydronic Zoning System



The AQ251 family of AQUATROL Boiler Reset Controls provides simplified, energy-efficient outdoor temperature compensated control of single temperature, residential hydronic heating systems. The AQ251 easily converts a single zone heating system into a room-by-room comfort control system, or upgrades a basic, relay-logic zoning system to intelligent Zone of Greatest Demand control with outdoor reset for increased energy efficiency with reduced boiler cycling. AQ251 boiler controls can ensure ample supply of hot water for both space heating and priority generation of domestic hot water for bathing, dishes and laundry.

Application: Boiler reset control for hydronic zoning system

Dimensions, Approximate

AQ25110B: 13 in wide x 8 in. high x 3 3/8 in deep
(33 cm wide x 20.3 cm high x 8.5 cm deep)

AQ25142B and AQ25144B: 16 1/2 in wide x 8 in. high x 3 3/8 in deep
(42 cm wide x 20.3 cm high x 8.5 cm deep)

Power Supply: 120V/60Hz

User Interface (Setting, Programming): (LCD Display and a 7 button Key Pad)

Electrical Connections (Line Voltage): Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

Control and Zoning Panel Temperature Rating: 32 F to 130 F (0 C to 55 C)

Thermostat Compatibility: AQ1000 Series 2-wire communicating thermostats and most digital thermostats

Setback Program: 7 day, up to 2 setback periods/day.

Boiler Design Temperature: 80F to 210F (26C to 99C)

Boiler (Supply) Min. Control Temperature: OFF, 59F to 180F (OFF, 15C to 82C)

Boiler (Supply) Max. Control Temperature: (OFF, 120F to 225 F)
OFF, 49C to 107 C

Boiler Heat Post Purge: Off, 10 seconds to 30 minutes (factory default is 30 seconds)

Boiler (T-T) Output Rating: 24 Vac, 0.5A, 12VA

Boiler Differential: 2F to 41F (1C to 23C), or Auto (minimum 2 minutes on time)

DHW Demand Input: External dry contacts connection only

Outdoor Low Design Control Temperature: -60F to 32F
(-51 C to 0 C)

- Use with AQ1000 2-wire communicating thermostats (AQ25142B and AQ25144B) or most digital dry contact thermostats (AQ25110B, AQ25142B, and AQ25144B).
- 0-10 Vdc modulating output for driving a modulating/condensing boiler.
- Displays outdoor temperature on all AQ1000 thermostats when used with an AQ12C10 outdoor sensor (included).
- Intuitive programming interface and armchair programming (can be programmed at your desk and taken to the job site "ready-to-install")
- Customizable control settings and schedules allow for greater level of control and comfort.
- Central programming of zone set points and setback.
- Controls up to 2 stages of heat from a single thermostat.
- Zoning Control for up to four zones as shipped; can be expanded to a total of 16 zones with AQ255 or AQ257 expansion zoning panels, and up to 64 zones by using AQ254 Add-a-Temperature expansion panels.
- Outdoor temperature compensation (reset), or Load reset based on indoor temperature feedback.
- Zone synchronization through Zone of Greatest Demand control.
- Domestic hot water priority and priority override protection.
- Line or low-voltage output for zoning equipment (pumps or valves).
- Boiler short cycling protection.
- Boiler post purge.
- Freeze protection.
- Pump/valve exercise.
- Boiler shock prevention from cold water returning to boiler.
- Automated test and purge feature for quick start-up and simplified troubleshooting.
- Integral 38 VA transformer with self resetting electronic fuse.
- 2 hour power supply (super-capacitor) to retain day and time settings during power outage.
- Non-volatile EPROM memory retains program settings during power outage.

Return Minimum Control Temperature: 80 F to 180 F (27C to 82C)

Pump/Valve exercise: 30 seconds per 2 weeks of space heating inactivity

Auxiliary Pump Output Rating: Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP

Auxiliary Low Voltage Output Rating: 24 Vac, 0.5A, 12VA

Auxiliary (Demand) Input: External dry contacts connection only

WWSD (Warm Weather Shut Down) Temperature: Off, 35 F to 100 F (Off, 1 C to 38 C)

Sensor Temperature Rating: -58 F to +230 F (-50 C to +110 C)

Supply/Return Sensor: Lead Length: 10 ft. (3050 mm). 10 kilohm NTC thermistor at 25 C (77 F) ±0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire

Heat Demand (Thermostat R-W) Input: External dry contacts connection only

B-B Communication Bus Terminals: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

R-C Input (on Control and Zoning Modules): 24 Vac Class II (input on Control and Zoning Modules)

R-C Output (on transformer): 38 VA, 24 Vac Class II

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Weight

AQ25110B: 4.9 lbs (2.3 kg)

AQ25142B and AQ25144B: 5.7 lbs (2.6 kg)

Approvals:

Canadian Standards Association: CSA C/US Certified to CSA and

UL Standards, File No. LR76030

Hydronic Controls

AQUATROL Zoning System

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Boiler Pump Output Rating	DHW Pump/Valve Output Rating	Replacement Parts
AQ25110B	None	1 (Non-communicating)	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15100B boiler reset module AQ12C11 supply/return/mixed loop sensor AQ12C10 outdoor sensor AQ10X38 24 Vac 38 VA transformer
AQ25142B	Pumps or 2-wire valves	4	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15100B boiler reset module AQ12C11 supply/return/mixed loop sensor AQ12C10 outdoor sensor AQ10X38 24 Vac 38 VA transformer AQ15540B 4-zone pump expansion module
AQ25144B	Zone valves with end switches	4	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15100B boiler reset module AQ15740B 4-zone valve with end switch expansion module AQ12C11 supply/return/mixed loop sensor AQ12C10 outdoor sensor AQ10X38 24 Vac 38 VA transformer

AQ252 Universal Injection/Mixing Boiler Reset Control Panel for Hydronic Zoning System



The AQ252 family of AQUATROL Universal Injection/Mixing Boiler Reset Controls provides simplified, energy-efficient outdoor temperature compensated control of single-temperature, residential hydronic heating systems. The AQ252 easily converts a single zone heating system into a room-by-room comfort control system, or upgrades a basic, relay-logic zoning system to intelligent Zone of Greatest Demand control with outdoor reset for increased energy efficiency with reduced boiler cycling. AQ252 boiler controls can ensure ample supply of hot water for both space heating and priority generation of domestic hot water for bathing, dishes and laundry.

Application: Controls one boiler and one mixing (either variable speed injection or floating valve mixing) loop in a hydronic zoning system.

Dimensions, Approximate: 16 1/2 in wide x 8 in. high x 3 3/8 in deep (42 cm wide x 20.3 cm high x 8.5 cm deep)

Power Supply: 120V/60Hz

User Interface (Setting, Programming): (LCD Display and a 7 button Key Pad)

Electrical Connections (Line Voltage): Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

Control and Zoning Panel Temperature Rating: 32 F to 130 F (0 C to 55 C)

Thermostat Compatibility: AQ1000 Series 2-wire communicating thermostats and most digital thermostats

Zone Module Thermostat input: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating with power link to AQ1000 series thermostat.

Setback Program: 7 day, up to 2 setback periods/day.

Boiler Design Temperature: 80F to 210F (26C to 99C)

Boiler (Supply) Min. Control Temperature: OFF, 59F to 180F (OFF, 15C to 82C)

Boiler (Supply) Max. Control Temperature: (OFF, 120F to 225 F) OFF, 49C to 107 C

Boiler Heat Post Purge: Off, 10 seconds to 30 minutes (factory default is 30 seconds)

Boiler (T-T) Output Rating: 24 Vac, 0.5A, 12VA

Boiler Differential: 2F to 41F (1C to 23C), or Auto (minimum 2 minutes on time)

DHW Demand Input: External dry contacts connection only

Outdoor Low Design Control Temperature: -60F to 32F (-51 C to 0 C)

Return Minimum Control Temperature: 80 F to 180 F (27C to 82C)

Variable Speed Injection Pump Output: Triac modulated; 120 Vac, 2.1A, 1/6HP

Pump/Valve exercise: 30 seconds per 2 weeks of space heating inactivity

- Use with AQ1000 2-wire communicating thermostats or most digital dry contact thermostats.
- Controls one boiler loop and one mixed temperature loop.
- Use of variable speed injection pump or motorized mixing valve for mixed temperature loop control.
- 0-10 Vdc modulating output for driving a modulating/condensing boiler or a modulating mixing valve.
- Displays of outdoor temperature on all AQ1000 thermostats when used with an AQ12C10 outdoor sensor (included).
- Intuitive programming interface and armchair programming (can be programmed at your desk and taken to the job site "ready-to-install")
- Customizable control settings and schedules allow for greater level of control and comfort.
- Central programming of set points and setback.
- Controls up to 2 stages of heat from a single thermostat.
- Zoning Control for up to four zones as shipped; can be expanded to a total of 16 zones with AQ255 or AQ257 expansion zoning panels, and up to 64 zones by using AQ254 Add-a-Temperature expansion panels.
- Outdoor temperature compensation (reset), or Load reset based on indoor temperature feedback.
- Zone synchronization through Zone of Greatest Demand control.
- Domestic hot water priority and priority override protection.
- Line or low-voltage output for zoning equipment (pumps or valves).
- Boiler short cycling protection.
- Boiler post purge.
- Freeze protection.
- Pump/valve exercise.
- Boiler shock prevention from cold water returning to boiler.
- Automated test and purge feature for quick start-up and simplified troubleshooting.
- Integral 38 VA transformer with self resetting electronic fuse.
- 4 hours power supply (super capacitor) to retain day and time settings during power outage.
- Non-volatile EPROM memory retains program settings during power outage.

Secondary Pump Output Rating: 120 Vac 5A, 1/3HP

Auxiliary Pump Output Rating: Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP

Auxiliary Low Voltage Output Rating: 24 Vac, 0.5A, 12VA

Auxiliary (Demand) Input: External dry contacts connection only

WWSD (Warm Weather Shut Down) Temperature: Off, 35 F to 100 F (Off, 1 C to 38 C)

Zone Output Contact Rating: Pumps: 120 Vac/250 Vac, 5A, 1/3 HP
Valves: 24 Vac, 0.5 A, 12 VA

Sensor Temperature Rating: -58 F to +230 F (-50 C to +110 C)

Supply/Return Sensor: Lead Length: 10 ft. (3050 mm). 10 kilohm NTC thermistor at 25 C (77 F) $\pm 0.5F$ ($\pm 0.3C$) up to 500 ft (150 M) using 18 AWG or larger wire

Heat Demand (Thermostat R-W) Input: External dry contacts connection only

Secondary Loop Mixing (Supply) Design Temp Range: 70 F to 210 F (21 C to 99 C)

Secondary Loop Mixing (Supply) Max Control Temp Range: 80 F to 210 F (27 C to 99 C)

Secondary Loop Return Min Control Temp Range: 80 F to 180 F (27 C to 82 C)

Secondary Loop Mixing (Supply) Min Control Temp Range: 35 F to 150 F (2 C to 66 C)

B-B Communication Bus Terminals: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

R-C Input (on Control and Zoning Modules): 24 Vac Class II (input on Control and Zoning Modules)

R-C Output (on transformer): 38 VA, 24 Vac Class II

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Weight: 6.0 lbs (2.7 kg)

Approvals:

Canadian Standards Association: CSA C/US Certified to CSA and UL Standards, File No. LR76030

AQUATROL Zoning System

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Mixing Valve Floating Output (Com,O,C)	Mixing Valve Modulating Output	Boiler Pump Output Rating	DHW Pump/ Valve Output Rating	Replacement Parts
AQ25242B	Zone pumps or 2-wire valves (line voltage)	4	24Vac rated dry contacts	0-10 Vdc	120 Vac/250 Vac 5A, 1/3HP	120 Vac 5A, 1/3HP	AQ15200B universal injection/mixing boiler reset module AQ12C11 supply/return/mixed loop sensor AQ12C10 outdoor sensor AQ10X38 24 Vac 38 VA transformer AQ15540B 4-zone pump expansion module
AQ25244B	Zone valves with end switches	4	24Vac rated dry contacts	0-10 Vdc	120 Vac/250 Vac 5A, 1/3HP	120 Vac 5A, 1/3HP	AQ15200B universal injection/mixing boiler reset module AQ15740B 4-zone valve with end switch expansion module AQ12C11 supply/return/mixed loop sensor AQ12C10 outdoor sensor AQ10X38 24 Vac 38 VA transformer

AQ254 Add-a-Temperature Injection/Mixing Expansion Control Panel for Hydronic Zoning System



The AQ254 Add-a-Temperature Expansion Control Panel is used in conjunction with an AQ250, AQ25A, AQ251 or AQ252 Control Panel. It provides one additional loop temperature control capability for the AQ2000 control panel it is connected to and expands the total network capacity by up to 16 zones when used with AQ255 and/or AQ257 zoning panels.

Application: Expanded zone control and mixed loop temperature control in a hydronic zoning system

Mixed loop target temperature is reset by either outdoor temperature or calculated system load based on indoor temperature feedback
Mixing is target controlled by a variable speed injection pump or motorized mixing valve

Dimensions, Approximate: 9 1/2 in wide x 8 in. high x 3 3/8 in. deep (24 cm wide x 20.3 cm high x 8.5 cm deep)

Power Supply: 120V/60Hz

Electrical Connections (Line Voltage): Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

Control and Zoning Panel Temperature Rating: 32 F to 130 F (0 C to 55 C)

Thermostat Compatibility: AQ1000 Series 2-wire communicating thermostats and most digital thermostats

Variable Speed Injection Pump Output: Triac modulated; 120 Vac, 2.1A, 1/6HP

Secondary Pump Output Rating: 120 Vac 5A, 1/3HP

Auxiliary Pump Output Rating: Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP

Sensor Temperature Rating: -58 F to +230 F (-50 C to +110 C)

- Acts as an add-on Control panel to the Main (AQ250, AQ25A, AQ251, AQ252) Control panel.
- Allows each of the 16 zones connected to it to be assigned to the system's primary or secondary loop.
- Up to 3 AQ254 panels can be added to a Main (AQ250, AQ25A, AQ251 or AQ252) Control panel.
- Mixed loop temperature is controlled by a variable speed injection pump or motorized mixing valve connected to the AQ254.
- Intuitive programming interface and armchair programming (can be programmed at your desk and taken to the job site "ready-to-install")
- Customizable mixing control settings allow for greater level of control and comfort.
- Zone synchronization through Zone of Greatest Demand control.
- Integral 38 VA transformer with self resetting electronic fuse.

Secondary Loop Mixing (Supply) Design Temp Range: 70 F to 210 F (21 C to 99 C)

Secondary Loop Mixing (Supply) Max Control Temp Range: 80 F to 210 F (27 C to 99 C)

Secondary Loop Return Min Control Temp Range: 80 F to 180 F (27 C to 82 C)

Secondary Loop Mixing (Supply) Min Control Temp Range: 35 F to 150 F (2 C to 66 C)

B-B Communication Bus Terminals: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

R-C Input (on Control and Zoning Modules): 24 Vac Class II (input on Control and Zoning Modules)

R-C Output (on transformer): 38 VA, 24 Vac Class II

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Weight: 3.9 lbs (1.8 kg)

Approvals:

Canadian Standards Association: CSA C/US Certified to CSA and UL Standards, File No. LR76030

Product Number	Mixing Valve Floating Output (Com,O,C)	User Interface (Setting, Programming)	Replacement Parts
AQ25400B	24Vac rated dry contacts	LCD Display and a 3 button Key Pad	AQ15400B Add-A-Temperature expansion control module; AQ12C11 supply/return/mixed loop sensor; AQ10X38 24 Vac 38 VA transformer

AQ255 and AQ257 Zoning Expansion Panel for Hydronic Zoning System



The AQ255 and AQ257 family of AQUATROL Expansion Zoning panels work with AQ2000 Boiler Control Panels and AQ1000 Communicating Thermostats to control up to 4 space heating zones (or 8, for the AQ25582B Panel). Can be combined with additional expansion zoning panels and an AQ2000 control panel for a total of 16 space heating zones.

- AQ257 for zoning with zone valves with end switches
- Auto test function to test zones at system start up. It allows for operator controlled testing of zones; includes pause/restart capability.
- LED lights for visual diagnostic of zone operation.
- Allows zoning with either "Normally Open" or "Normally Closed" zone valves.
- Adjacent zoning panels can operate different zone equipment - one panel may control 4 pumps while another may control 4 zone valves.
- Easily switch from zone valves to pumps with same zoning module - just flip one DIP switch. Ensure correct voltage is applied to all zone equipment on a panel (120 Vac for pumps, 24 Vac for valves)
- R-C transformer and B-B data bus terminal connections (network communication) for easy expansion.
- Zones can be set to energize a group pump via Aux Out dry contacts on main control panel (AQ250, AQ25A, AQ251, AQ252) or expansion control panel (AQ254).
- Zone synchronization through Zone of Greatest Demand control.
- 38 VA Transformer with self resetting electronic fuse.

Application: Zoning control for hydronic zoning system

Dimensions, Approximate: 9 1/2 in wide x 8 in. high x 3 3/8 in. deep (24 cm wide x 20.3 cm high x 8.5 cm deep)

User Interface (Setting, Programming): (DIP Switches)

Electrical Connections (Line Voltage): Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

Control and Zoning Panel Temperature Rating: 32 F to 130 F (0 C to 55 C)

Thermostat Compatibility: AQ1000 Series 2-wire communicating thermostats and most digital thermostats

Zone Module Thermostat input: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating with power link to AQ1000 series thermostat.

Zone Output Contact Rating: 120 Vac/250 Vac, 5A, 1/3 HP

B-B Communication Bus Terminals: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

R-C Input (on Control and Zoning Modules): 24 Vac Class II (input on Control and Zoning Modules)

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing
Weight: 2.1 lbs (1 kg)

Approvals:

Canadian Standards Association: CSA C/US Certified to CSA and UL Standards, File No. LR76030

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Weight		Replacement Parts
			(kg)	(lb)	
AQ25542B	Zone pumps or 2-wire valves (line voltage)	4	1 kg	2.1 lbs	AQ15540B 4-zone pump expansion module
AQ25582B	Zone pumps or 2-wire valves (line voltage)	8	1.3 kg	2.6 lbs	AQ15540B 4-zone pump expansion module
AQ25742B	2-wire valve (24 Vac)	4	1.8 kg	3.9 lbs	AQ10X38 24 Vac 38 VA transformer; AQ15540B 4-zone pump expansion module
AQ25744B	Zone valves with end switches (24 Vac)	4	1.8 kg	3.9 lbs	AQ15740B 4-zone valve with end switch expansion module; AQ10X38 24 Vac 38 VA transformer

AQUATROL Zoning System

AQ2000 Series Replacement Control Modules



Replacement control modules for AQ2000 panels

Dimensions, Approximate

AQ15000B and AQ15400B: 3 1/2 in wide x 2 1/2 in high x 4 1/4 in wide
(9 cm wide x 94 cm high x 10.09 cm deep)

AQ15100B, AQ15200B and AQ15A00B:

7 1/8 in wide x 2 1/2 in high x 4 1/4 in deep
(18 cm wide x 94 cm high x 10.09 cm deep)

Electrical Connections (Line Voltage): Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

Control and Zoning Panel Temperature Rating: 32 F to 130 F (0 C to 55 C)

Boiler Heat Post Purge: Off, 10 seconds to 30 minutes (factory default is 30 seconds)

Boiler (T-T) Output Rating: 24 Vac, 0.5A, 12VA

Boiler Differential: 2F to 41F (1C to 23C), or Auto (minimum 2 minutes on time)

DHW Demand Input: External dry contacts connection only

Pump/Valve exercise: 30 seconds per 2 weeks of space heating inactivity

Slab/Floor Sensor: Heat Demand (Thermostat R-W) Input: External dry contacts connection only

B-B Communication Bus Terminals: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

R-C Input (on Control and Zoning Modules): 24 Vac Class II (input on Control and Zoning Modules)

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Weight

AQ15000B: 0.5 lbs (0.23 kg)

AQ15400B: 0.7 lbs (0.3 kg)

AQ15100B, AQ15200B and AQ15A00B: 1.0 lbs (0.5 kg)

Approvals:

Canadian Standards Association: CSA C/US Certified to CSA and UL Standards, File No. LR76030

Product Number	Mixing Valve Floating Output (Com,O,C)	Mixing Valve Modulating Output	User Interface (Setting, Programming)
AQ15000B	—	—	DIP Switches
AQ15100B	—	0-10 Vdc to boiler	LCD Display and a 7 button Key Pad
AQ15200B	24Vac rated dry contacts	0-10 Vdc to boiler or mixing valve	LCD Display and a 7 button Key Pad
AQ15400B	24Vac rated dry contacts	0-10 Vdc to mixing valve	LCD Display and a 3 button Key Pad
AQ15A00B	—	0-10 Vdc to boiler	LCD Display and a 7 button Key Pad

AQ2000 Series Replacement Zoning Modules



Replacement Zoning Modules for AQ2000 panels

Dimensions, Approximate: 3 1/2 in wide x 2 1/2 in high x 4 1/4 in deep
(9 cm wide x 94 cm high x 10.09 cm deep)

Electrical Connections (Line Voltage): Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

Control and Zoning Panel Temperature Rating: 32 F to 130 F (0 C to 55 C)

Thermostat Compatibility: AQ1000 Series 2-wire communicating thermostats and most digital thermostats

Zone Module Thermostat input: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating with power link to AQ1000 series thermostat.

Zone Output Contact Rating: 120 Vac/250 Vac, 5A, 1/3 HP

B-B Communication Bus Terminals: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

R-C Input (on Control and Zoning Modules): 24 Vac Class II (input on Control and Zoning Modules)

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing








Weight: 0.6 lbs (0.3 kg)

Approvals:

Canadian Standards Association: CSA C/US Certified to CSA and UL Standards, File No. LR76030

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	User Interface (Setting, Programming)
AQ15540B	Zone pumps or 2-wire valves (line voltage)	4 (Non-communicating)	DIP Switches
AQ15740B	Zone valves with end switches	4 (Non-communicating)	DIP Switches

AQ2000 Series Accessories and Replacement Parts

Product Number	Description	
AQ10X38	Replacement transformer module for AQ250, AQ25A, AQ251, AQ252, AQ254, AQ257 and AQ25742B series control and zoning panels. It can be used to add an additional 38 VA power per transformer to drive high VA devices.	
AQ11D10	Replacement enclosure for AQ25400B, AQ25542B, AQ25742B, AQ25744B, AQ25582B panels. Consists of case, cover, and DIN rail for mounting of transformer, control or zoning modules. It can be used to add extra AQ10X38 transformers or hide system wiring and component.	
AQ11D15	Replacement enclosure for AQ25042B, AQ25044B, AQ25110B panels. Consists of case, cover, and DIN rail for mounting of transformer, control or zoning modules. It can be used to add extra AQ10X38 transformers or hide system wiring and component.	
AQ11D20	Replacement enclosure for AQ25A42B, AQ25A44B, AQ25142B, AQ25144B, AQ25242B, and AQ25244B panels. Consists of case, cover, and DIN rail for mounting of transformer, control or zoning modules.; It can be used to add extra AQ10X38 transformers or hide system wiring and component.	
AQ12C10	Outdoor Sensor with 10 feet of lead wires and a plastic mounting bracket for use with AQ2000 Series Programmable Control Panels.	
AQ12C11	Supply/Return/Mixed Loop Pipe Sensor with 10 feet of lead wires for use with AQ2000 Series Control Panels.	
AQ12C20	Slab/Floor Sensor of 15 feet lead length. It is sold separately for use with AQ1000 Series Thermostats to control floor temperatures of in-floor radiant heating applications.	

AQUATROL Zoning System

AQ1000TN2 Non-Programmable Communicating Thermostat



The AQ1000TN2 thermostat is used to control the ambient air temperature or floor temperature in hydronic heating applications. It communicates with and is powered by an AQ2000 series zoning module to provide zoning control.

- 2-wire polarity-insensitive non-programmable network communicating thermostat.
- Liquid crystal display with user buttons .
- Outdoor, indoor and floor temperature displays.
- Floor temperature sensing with minimum and maximum limits (when used with optional AQ12C20 Slab/Floor Sensor - sold separately)
- Selectable temporary and permanent backlight.

Application: Hydronic single-stage zoning heat

Network Zoning: Yes

Zones: Single or Multi-zone

Dimensions, Approximate: 2.8 in wide x 4.6 in high x 1.0 in deep
(7 cm wide x 12 cm in high x 2.5 cm deep)

Electrical Connections: Wire-clamp screw terminals

Network Bus: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to AQ2000 series zoning modules.

User Interface (Programming): LCD Display

User Interface (System Configuration): DIP Switches

Thermostat Type: 2-wire Communicating Thermostat

Sensor Element: Thermistor

Sensors (Floor) Used: 10 kilohm NTC thermistor at 25 C (77 F) ±0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire, beta=3892. Lead Length: 10 ft. (3050 mm).

Mounting: Vertical Mount

Color: Premier White®

Temperature Control Mode Selections: "A" for Ambient Air, "F" for Floor, "AF" for Ambient & Floor.

Temperatures Displayed: Indoor, Set Point, Outdoor

Temperature Display Interval: ±1.0 F (±0.5 C)

Floor Sensor Temperature Rating: -58F to 230F (-50C to 110C)

Floor Temperature Limit Range (AF Model):
40 F to 100 F (5 C to 38 C)

Outdoor Temperature Display Range: -58 F to 149 F (-50C to 65 C)

Ambient Temperature Range: 32 F to 158 F (0 C to 70 C)

Temperature Range, Storage: -20 F to 130 F (-30 C to 55 C)

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Weight: 0.2 lb (0.1 kg)

Product Number	Setting Temperature Range		Differential Temperature		Terminal Designations	Type of Control Provided	LCD Icons Displayed (Mode)	Power Method
	(F)	(C)	(F)	(C)				
AQ1000TN2	40 F to 100 F	5 C to 38 C	± 1 F	±0.5 C	TH, TH, Sensor, Sensor	Proportional Integral (PI)	Vacation Mode; Set point; Keypad Lock; Comfort/Unoccupied; Heat On	Powered (24 Vdc) by AQ zoning module

AQ1000TP2 Programmable Heat/Cool Thermostat



The AQ1000TP2 thermostat is used to control the ambient air temperature or floor temperature in hydronic heating applications. It communicates with and is powered by an AQ2000 series zoning module to provide zoning control.

- 2-wire polarity-insensitive programmable network communicating thermostat
- Liquid crystal display, with 7 user buttons for programming
- Floor temperature sensing with minimum and maximum limits (when used with optional AQ12C20 Slab/Floor Sensor - sold separately)
- 7-day programmable
- Single-stage Heating and Cooling
- Outdoor, indoor, and floor temperature display
- Selectable temporary and permanent backlight

Application: Hydronic single-stage zoning, heating and cooling

Network Zoning: Yes

Zones: Single or Multi-zone

Dimensions, Approximate: 3.0 in. wide x 4.9 in. high x 1.0 in. deep (7.8 cm wide x 12.5 cm high x 2.5 cm deep)

Electrical Connections: Wire-clamp screw terminals

Network Bus: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to AQ2000 series zoning modules.

User Interface (Programming): LCD Display and 7 user programming buttons

User Interface (System Configuration): DIP Switches

Thermostat Type: 2-wire Communicating Thermostat

Sensor Element: Thermistor

Sensors (Floor) Used: 10 kilohm NTC thermistor at 25 C (77 F) ±0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire, beta=3892. Lead Length: 10 ft. (3050 mm).

Mounting: Vertical Mount

Color: Premier White®

Temperature Control Mode Selections: "Air" for Ambient Air, "Floor" for Floor, "Air/Floor" for Ambient & Floor limits

Temperatures Displayed: Indoor, Set Point, Outdoor

Temperature Display Interval: (±0.5 C)

Floor Sensor Temperature Rating: -58F to 230F (-50C to 110C)

Floor Temperature Limit Range (Air/Floor Model): 40 F to 100 F (5 C to 38 C)

Outdoor Temperature Display Range: -58 F to 149 F (-50C to 65 C)

Ambient Temperature Range: 32 F to 158 F (0 C to 70 C)

Temperature Range, Storage: -20 F to 130 F (-30 C to 55 C)

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Weight: 0.3 lb (0.5 kg)

Product Number	Setting Temperature Range		Differential Temperature		Terminal Designations	Programmability	Type of Control Provided	LCD Icons Displayed (Mode)	Power Method
	(F)	(C)	(F)	(C)					
AQ1000TP2	40 F to 100 F	5 C to 38 C	± 1 F	±0.5 C	TH, TH, Sensor, Sensor	7-day programmable	Proportional Integral (PI)	Fan On; Vacation Mode; Cool On; Set point; Keypad Lock; Comfort/Unoccupied; Heat On	Powered (24 Vdc) by AQ zoning module

Hydronic Switching Relays

R182 Hydronic Switching Relay

Enclosed intermediate relays for 24 volt thermostat control of line voltage devices.

Application: For 24 V thermostat control of line voltage devices

Dimensions, Approximate: 5 1/4 in. long x 4 1/4 in. wide x 3 in. deep
(133 mm long x 108 mm wide x 77 mm deep)

Thermostat Compatibility: Low voltage 2 or 3-wire

Coil Ratings

Voltage: 24 Vac, 50/60 Hz

Current: 0.35A

Contact Electrical Ratings

120 Vac AFL: 7.4A

120 Vac ALR: 44.4A

240 Vac AFL: 3.7A

240 Vac ALR: 22.2A

Transformer Primary Rating: 120 Vac, 50/60 Hz

Transformer Secondary Rating: 24 Vac, 50/60 Hz

Approvals:

Canadian Standards Association: Certified

Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX

	Product Number	Electrical Connections (Control Circuit)	Electrical Ratings: Primary Voltage	Switching Action	Description
*	R182C1051	2 or 3-wire	120V, 50/60 Hz	DPDT	Switching relay with internal transformer, two line voltage SPDT relays
* TRADELINE models • SUPER TRADELINE models					

R856 Control Center



Provides 24 volt control of line voltage motors, fans, blowers, or pumps up to 1 hp.

- Integral 45 VA transformer to supply low voltage power for the system.
- Low voltage terminal strip for easy thermostat and panel connections.

Application: Fan relay and transformer in an enclosure.

Dimensions, Approximate: 7 1/8 in. high x 4 1/2 in. wide x 3 5/16 in. deep (181 mm high x 114 mm wide x 84 mm deep)

Contact Electrical Ratings

120 Vac AFL: 14.0A N.O.; 10.0A N.C.

120 Vac ALR: 84.0A N.C.; 80.0A N.C.

Horsepower: 3/4 hp N.O.; 1/2 hp N.C.

Approvals:

Canadian Standards Association: Certified: File No. LR95329-1

Underwriters Laboratories, Inc. Listed: File No. E4436, Vol. 6 Sec. 9

Product Number	Coil Ratings				Electrical Ratings: Primary Voltage	Switching Action	Description
	Voltage	Current	(Inrush)	(Sealed)			
R856B1002	24 Vac	0.22A	11 VA	6 VA	120V, 60 Hz	SPST	120V, 60 Hz Fan Relay with Spst switching

Hydronic Switching Relays

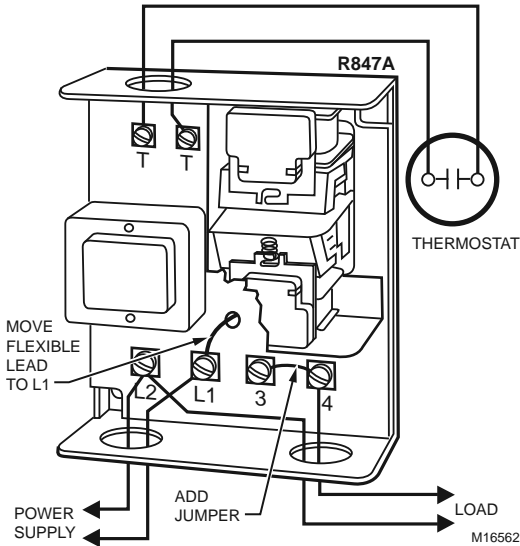
R847 Heavy Duty Relay



Designed for control of relatively heavy duty 120 or 240 Vac electrical loads such as cooling compressors.

- Internal, flexible leads permit SPST or DPST switching.

R847A wired to break one side of the circuit with SPST switching.



Application: Enclosed switching relay with internal transformer that provides 24V power for control circuit. It provides switching for high current load applications.

Dimensions, Approximate: 5 1/4 in. high x 4 1/4 in. wide x 2 3/4 in. deep (133 mm high x 108 mm wide x 70 mm deep)

Electrical Connections (main): 2-Wire

Contact Electrical Ratings

120 Vac AFL: 22A

120 Vac ALR: 100A

240 Vac AFL: 10A

240 Vac ALR: 50A

Approvals:

Canadian Standards Association: Certified: File No. LR1620

Underwriters Laboratories, Inc. Listed: File No. SA481, Guide No. SDF4

Hydronic Controls

Product Number	Coil Ratings					Electrical Ratings: Primary Voltage	Switching Action	Description
	Voltage	Current	Inrush	Sealed	Maximum Pull-in Voltage			
* R847A1085	24 Vac	0.4A	21.4 VA	8.4 VA	20	120V, 50/60 Hz	DPST or SPST	120V, 50/60 Hz Heavy Duty Switching Relay with integral transform, Dpst or Spst line voltage relays

* TRADELINE models • SUPER TRADELINE models

Hydronic Switching Relays

RA89; RA832; R845 Hydronic Switching Relay



Provide intermediate switching of a line voltage device from a low voltage controller.

- Integral transformer provides low voltage power for control circuit.

Application: Provide intermediate switching of a line voltage device from a low voltage controller.

Dimensions, Approximate: 5 1/4 in. high x 4 1/4 in. wide x 2 5/16 in. deep (133 mm high x 108 mm wide x 59 mm deep)

Electrical Connections (Control Circuit): 2-Wire

Electrical Rating: Maximum Input: 5.0 W

Transformer Primary Rating: 120 Vac, 50/60 Hz

Transformer Secondary Rating: 24 Vac

Coil Ratings:

Voltage: 24 Vac

Current: 0.4A

Thermostat Compatibility: Low voltage (Class 2) 2-wire

Temperature Range: 115 F maximum ambient for 60 Hz. 105 F Max.

Ambient for 50 Hz. (46 C maximum ambient for 60 Hz. 41 C maximum ambient for 50 Hz.)

Includes: Integral transformer, enclosure

Approvals:

Canadian Standards Association: Certified: File No. LR1620

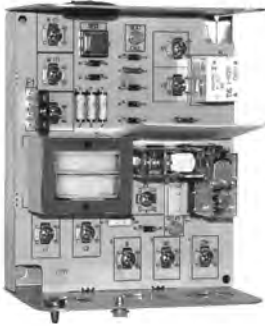
Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX

Contact Electrical Ratings								
	Contacts Maximum Connected Loaded (120-240 Vac)	Main Contacts		Secondary Contacts				
		120 Vac	240 Vac	120 Vac	240 Vac	DC Rating	Millivolt Rating	Pilot Duty Rating
R845	2000 VA	7.4A AFL; 44.4A ALR; 10A Resistive	3.7A ALF; 22.2A ALR; 6.0A Resistive	3A ALF; 18A ALR	2A AFL; 12A ALR	—	—	50 VA @ 24V
RA832	2000 VA	7.4A AFL; 44.4A ALR; 10A Resistive	3.7A ALF; 22.2A ALR; 6.0A Resistive	—	—	1A @ 12 Vdc	300 mA min. @ 750 mV	50 VA @ 24V
RA89	—	10.2A AFL; 61.2A ALR; 10A Resistive	5.1AA ALF; 30.6A ALR; 6.0A Resistive	—	—	—	—	—

Product Number	Electrical Ratings: Primary Voltage	Switching Action	Description
* R845A1030	120V, 50/60 Hz	DPST; one pole line voltage, the other line or low voltage	Switching relay with internal transformer, provides Dpst switching for hot water zone control systems, or spst control of two separate loads.
* RA832A1066	120V, 50/60 Hz	DPST; one pole line voltage, the other low voltage or millivolt	Switching Relay with internal transformer, for switching two line voltage loads having a common power source.
* RA832A1074	240V, 50/60 Hz	DPST; one pole line voltage, the other low voltage or millivolt	Switching Relay with internal transformer, for switching two line voltage loads having a common power source.
* RA89A1074	120V, 50/60 Hz	SPST	Switching Relay with internal transformer, for switching one line voltage load.

* TRADELINE models • SUPER TRADELINE models

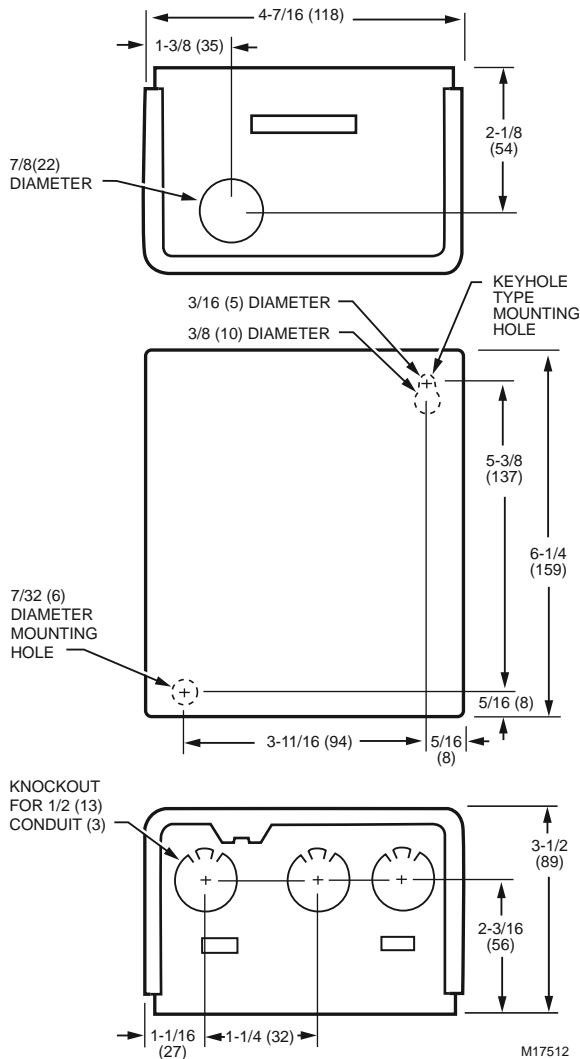
R8845U Universal Switching Relay



The R8845U Universal Switching Relay with 24 V transformer provides intermediate switching of line-and low-voltage devices from a line- or low-voltage controller and is typically applied in Hydronic heating systems.

- Replaceable socketed relays.
- Two troubleshooting LED.
- Push-to-test button.
- Replaceable transformer fuse.
- Low-voltage contact rating for Powerpile applications.
- Long-life DC relay drive control technology.
- Relay for use with external 24 Vac or 24 Vdc supply, with line-voltage control, or with internal 24 V transformer supply.
- One model replaces many competitor models.
- One model may replace many Honeywell models: R182A,B,C,J; R482A,B,C,J; R845; R882A,B,C,J and RA832.

Dimensions in inches (millimeters)



Application: Provides intermediate switching of line and low voltage devices from a line or low voltage controller

Transformer Primary Rating: 120 Vac, 60 Hz

Transformer Secondary Rating: 24 Vac, 12 VA max., 9 VA available for external load. Secondary protected by replaceable 1A automotive fuse.

Contact Electrical Rating

120 Vac AFL: 7.4A AFL, 44.4A ALR on each set of line-voltage contacts. Maximum connected load is 2000 VA.

Thermostat Compatibility: Honeywell electromechanical and electronic 2- or 3-wire

Thermostat Heat Anticipator Setting: 0.12A

Temperature Range: (Ambient) -20 F to +120 F ((Ambient) -29 C to +49 C)

Operating Humidity Range (% RH): 0 to 90% RH, non-condensing

Replacement Parts: 32002190-001 Circulator Replacement Relay

Includes: Integral transformer, enclosure

Approvals:

Canadian Underwriters Laboratories, Inc. Listed: Guide No. XAPX7.
Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX

Product Number	Coil Ratings		Electrical Connections (Control Circuit)	Electrical Ratings: Primary Voltage	Switching Action
	Voltage	Current			
R8845U1003	24 Vac	0.4A	2 or 3-wire	120V, 60 Hz	Two SPST, plus PowerPile® rated low voltage SPST relay. (If normally closed contacts are needed, use RA889A).

Hydronic Switching Relays

R8845U Replacement Cross Reference

Manufacturer	Model	Connections											Comments
		Input Line Voltage		Power Relay 1		Power Relay 2		Low Voltage Relay		Thermostat			
Honeywell	R8845U	L1	L2	COM	N.O.	A	B	X1	X2	W(T)	R(T)	C	—
Honeywell	R845A	1	2	3	4	5	6	—	—	T	T	—	—
Honeywell	RA832A	1	2	—	3	—	4	X	X	T	T	—	Jumper L1 to COM and A in R8845U.
Honeywell	R182A	1	2	7	8	—	—	—	—	<p>THREE-WIRE LOW VOLTAGE (SERIES 10) THERMOSTAT </p> <p>TWO-WIRE LOW VOLTAGE (SERIES 80) THERMOSTAT</p> <p> MAKES CONTACT ONLY ON TEMPERATURE FALL. M18268</p>			R8845U has lower output load rating. Check load requirements. Use RA889A if normally closed contacts are required.
Honeywell	R182B	1	3	6	8	—	—	—	—				
Honeywell	R182C	1	2	6	8	3	5	—	—				
Honeywell	R182J	L1	L2	—	4	—	7	—	—				If used to replace an R182J, install a jumper between L1, COM and A.
Honeywell	R482A	1	2	7	8	—	—	—	—	Jumper R(T) to W(T).	Line voltage switched inputs go to L1 and L2.	<p> WARNING! ELECTROCUTION HAZARD. POWER SUPPLY CAN CAUSE SEVERE INJURY OR DEATH. DISCONNECT POWER BEFORE WIRING OR SERVICING L1. POWERED RELAYS MUST BE WIRED AS DRY CONTACTS. M18269</p>	
Honeywell	R482B	1	2	6	8	—	—	—	—	—	—	—	Use RA889A if normally closed contacts are required. Line voltage switched inputs go to L1 and L2.
Honeywell	R482C	1	2	6	8	3	5	—	—	—	—	—	—
Honeywell	R482J	1	2	6	8	3	4	—	—	—	—	—	—
Honeywell	R882A	—	—	7	8	—	—	—	—	W	—	B	R8845U has lower output load rating. Check load requirements.
Honeywell	R882B	—	—	6	8	—	—	—	—	W	—	B	Use RA889A if normally closed contacts are required.
Honeywell	R882C	—	—	6	8	3	5	—	—	W	—	B	—
Honeywell	R882J	—	—	6	8	3	4	—	—	1	—	2	—
Argo	AR821	1	2	3	4	5	6	—	—	T	T	—	R8845U has lower output load rating. Check load requirements.
Argo	AR822	L1	L2	3	4 N.O.	5	6 N.O.	—	—	G(T)	R(T)	C	Use RA889A if normally closed contacts are required.
Erie	SR100AT	L1	N	3	4 N.O.	5	6 N.O.	—	—	G(T)	R(T)	C	—
White-Rodgers	829-189	1	2	3	4	—	—	—	—	B	R	W	R8845U has lower output load rating. Check load requirements.
White-Rodgers	829-832	1	2	—	4	—	3	X1	X2	T	T	—	—
Taco	SR501	H	N	3	4 N.O.	5	6 N.O.	—	—	W(T)	R(T)	C	Use RA889A if normally closed contacts are required.

Hydronic Switching Relays

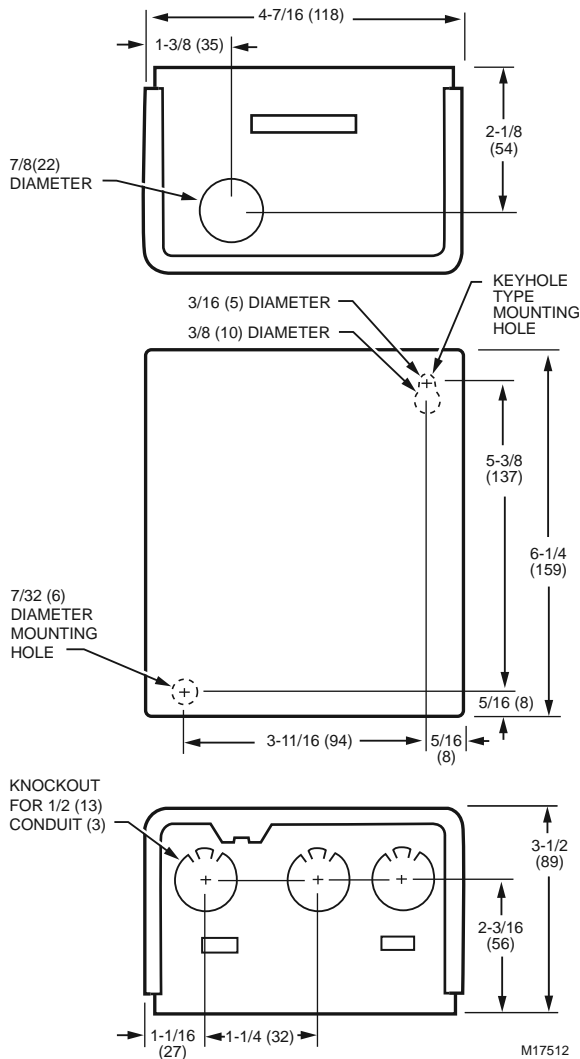
RA889A Switching Relay



The RA889A Switching Relay with 24 V controller provides intermediate switching of line- and low-voltage devices from a line- or low-voltage controller and is typically applied in Hydronic heating systems.

- High load switching capability.
- Troubleshooting LED.
- Push-to-test button.
- Replaceable transformer fuse.
- Long-life DC relay drive control technology.
- Relay for use with external 24 Vac or 24 Vdc supply, with line-voltage control, or with internal 24 V transformer supply.
- One model replaces many Honeywell models.
- Secondary of transformer protected by replaceable 1A automotive fuse.

Dimensions in inches (millimeters)



Application: For switching of line- and low-voltage devices from a line- or low-voltage controller.

Electrical Connections (main): No. 8 captive wire clamp screw terminals.

Contact Electrical Ratings

Contacts Maximum Connected Loaded (120-240 Vac): 2000 VA

120 Vac AFL: 15A

120 Vac ALR: 30A

Transformer Primary Rating: 120 Vac, 60 Hz

Transformer Secondary Rating: 24 Vac, 12 VA max., 9 VA available for external load. Secondary protected by replaceable 1A automotive fuse.

Thermostat Compatibility: Honeywell electromechanical and electronic 2- or 3-wire

Thermostat Heat Anticipator Setting: 0.12A

Temperature Range: (Ambient) -20 F to +120 F (-29 C to +49 C)

Operating Humidity Range (% RH): 0 to 90% RH, non-condensing

Includes: Integral transformer, enclosure

Approvals:

Canadian Underwriters Laboratories, Inc. Listed: Guide No. XAPX7.

Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX

Product Number	Electrical Ratings: Primary Voltage	Switching Action	Description
RA889A1001	120V, 60 Hz	SPDT, plus PowerPile® rated low voltage SPST relay	Enclosed switching relay with internal transformer, Spdt line voltage relay, plus Spst low voltage relay with Powerpile rating. 120V/60Hz 15 AFL/30 ALR ratings one line voltage contacts.

Hydronic Switching Relays

RA889A Replacement Cross Reference.

Model	Connections										Comments
	Input Line Voltage		Power Relay ^a			Low Voltage Relay		Thermostat			
RA889A	L1	L2	COM	N.O.	N.C.	X1	X2	W(T)	R(T)	C	—
RA89A ^b	1	2	3	4	—	—	—	T	T	—	—
R482B	1	2	8	6	7	—	—	Jumper R(T) to W(T).			Line voltage switched inputs go to L1 and L2.
	<p>WARNING! ELECTROCUTION HAZARD. POWER SUPPLY CAN CAUSE SEVERE INJURY OR DEATH. DISCONNECT POWER BEFORE WIRING OR SERVICING L1. POWERED RELAYS MUST BE WIRED AS DRY CONTACTS.</p> <p>M18269</p>										
R882A ^b	—	—	8	7	—	—	—	W	—	B	—
R882B	—	—	8	6	7	—	—	W	—	B	—

Transformer for Hydronic Heating Controls

AT140 General Purpose Transformer for Hydronic Heating Controls



Provide power to 24 Vac circuits in heating/cooling control systems. Intended for use in systems with predictable, uniform loads. Can be used in any application that does not exceed the listed ratings.

- Rated at 40 VA.
- Color-coded leadwires for primary connections and screw terminals for secondary connections, fixed 1/4 inch (6 mm) male quick-connects or color-coded leadwires for both primary and secondary, are standard.
- Meet NEC Class 2 requirements.
- Meet Underwriters Laboratories Inc. Standard UL 1585 and are identified. Class 2 not wet, Class 3 wet.

Temperature Rating: -20 F to +105 F (-29 C to +41 C)

Frequency: 60 Hz

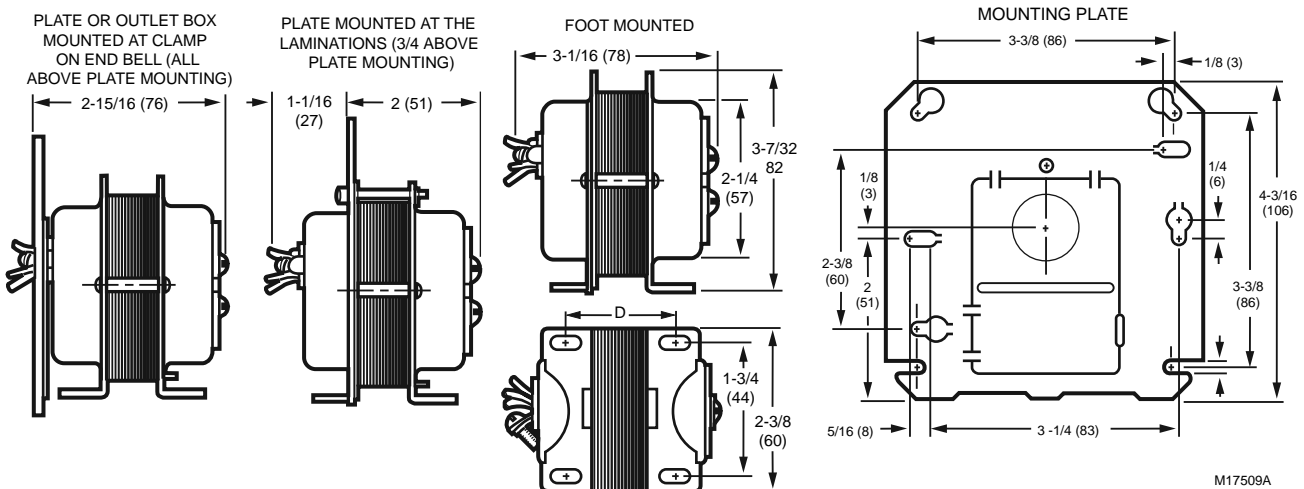
Approvals:

Canadian Standards Association: CSA Certified: A & B models.

Underwriters Laboratories, Inc. UL Listed: A,C,F models. File # E14881

Product Number	Dimensions, Approximate		Electrical Ratings			Electrical Connections (main)		Mounting
	(inch)	(mm)	Voltage			Primary	Secondary	
			Primary	Secondary	Output			
AT140A1034	3 3/16 in. high x 2 3/8 in. wide x 3 1/8 in. deep	81 mm high x 60 mm wide x 79 mm deep	120 Vac	27 V.O.C.	24 Vac at 20 VA	9 in. leadwires	(2) screw terminals	Foot mounted, plate mounted on 2x4 in. or 4x4 in. outlet box, clamp mounted using outlet box knockout, or panel mounted

Dimensions in inches (millimeters)



Hydronic Controls

Residential Heating Valves and Actuators

V5442N Rotary Valve

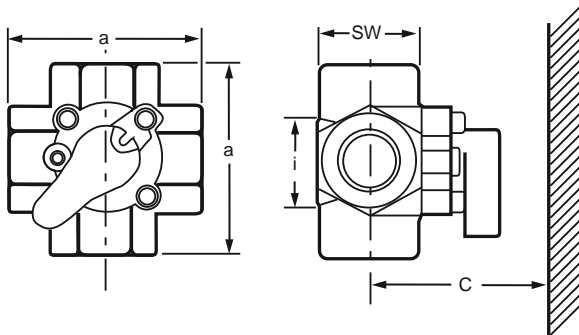


The Corona series of Compact Rotary Valves and Actuators provide integrated mixing of boiler supply, boiler return, loop supply, and loop return water in hydronic heating systems. The V5442 valve can mix both loop supply water and boiler return water simultaneously to control loop supply temperature and boiler shock or flue gas condensation protection. They may be plumbed in either a direct mixing or injection configuration. The effective Cv of the valves is increased when piped in an injection configuration.

NOTE: Valve cannot be used in open systems such as Combo heating where fresh water is present. Valve will corrode.

- Valves can be automated with M6063 actuator.
- 4-way mixing action for closed hydronic heating systems.
- Mixes loop supply with boiler supply and loop return.
- Mixes boiler return with boiler supply and loop return.
- Optimized mixing characteristics for most accurate control.
- Cast iron body; chrome plated plug.
- NPT threads.
- Suitable for manual or automatic control.
- Universal body orients either to the left or right to match piping.
- Functional replacement for Centra ZRK-series of compact 4-way mixing valves.

Dimensions in inches (millimeters)



Size [i]	[a]	[SW]	[C]	[C] with actuator
3/4"	3 3/8" (85 mm)	1 5/8" (41 mm)	13 3/8" (304 mm)	13 3/4" (350 mm)
1"	4 1/8" (105 mm)	1 13/16" (46 mm)	13 9/16" (345 mm)	

M23253

Coupling Controller: M6063A

Inlet Size: 1 1/2 in. (DN40)

Differential (close-off) Pressure Rating: 15 psi (1Bar)

Static Pressure Rating: 90 psi (6 Bar)

Median Temperature Range: 36 F to 230 F (2 C to 110 C)

Shipping Temperature Range: -40 F to +140 F (-40 C to +60 C)

Leakage: Less than 1% of Cv.

Materials

(Body): Cast Iron

(Interior Parts): Chrome-plated cast iron

(Seal): Double O-rings

Comments: Valve cannot be used in open systems such as Combo heating where fresh water is present. Valve will corrode. Use with max. 50% glycol in water solution

Product Number	Pipe Size		Body Pattern	Capacity		Pipe Connection	Used With
	(inch)	(DN)		(Cv)	(Kvs)		
V5442N1015	3/4 in.	DN20	Rotary	7.4 Cv	6 kvs	NPT (Internal Thread)	Must be used with M6063 actuator.
V5442N1023	1 in.	DN25	Rotary	11.7 Cv	10 kvs	NPT (Internal Thread)	Must be used with M6063 actuator.
V5442N1031	1 1/4 in.	DN32	Rotary	18.7 Cv	16 kvs	NPT (Internal Thread)	Must be used with M6063 actuator.

Residential Heating Valves and Actuators

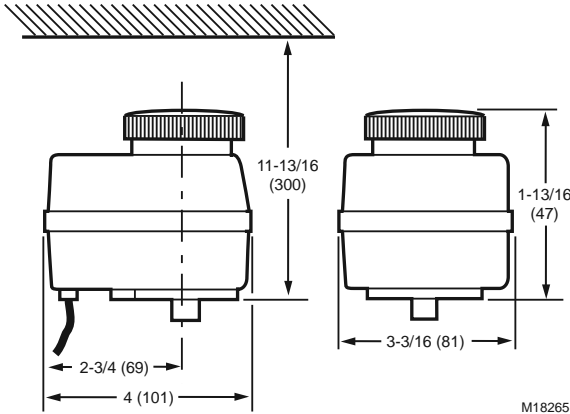
M6063 Rotary Actuator



The Corona series of M6063 Actuator and V5442 Compact Rotary Valves provide integrated mixing of boiler supply, boiler return, loop supply, and loop return water in hydronic heating systems. The M6063 actuator enables automatic mixing operation when used with an AQ675A Aquatrol Outdoor Temperature Compensator, or T6984 proportional room thermostat.

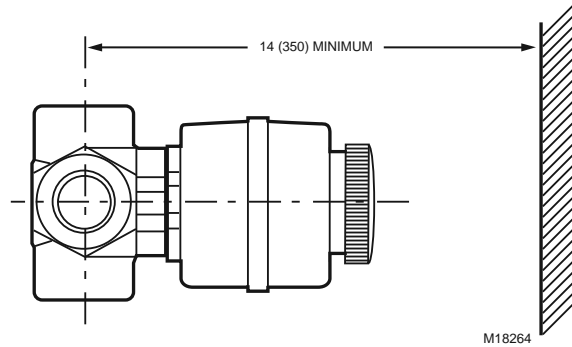
- 24 Vac floating input for automatic control.
- Single screw attachment to V5442 valve body.
- Multi-poise mounting.
- Color-coded position indicator.
- Manual valve operator.
- Auxiliary end switch for cascade control outputs.
- Sealed assembly; flylead electrical connections.

Dimensions in inches (millimeters)



M18265

Distance for installation



M18264

Timing: 100 seconds for 90 degrees (full) stroke

Electrical Connections: Color-coded 40 in. (1 meter) cable

Voltage: 24V

Frequency: 60 Hz; 50 Hz

Power Supply Rating: 3 VA, SDPT, or SP3T (tri-state) for proportional control.

Torque Rating: 60 lb-in. Manual declutch (7 Nm Manual declutch)

Cable: Blue=Common; Brown=Clockwise rotation; Black=Counter-clockwise rotation

Enclosure Rating: Double insulated. IP44 according to 60529 Standard (exceeds NEMA 3).

Aux Switch Ratings:

24 Vac, 3A, 24 VA pilot duty, Class 2, normally closed, Gray cable.

S1 (black/gray pair) opens at left (CCW) end stop.

S2 (brown/pink pair) opens at right (CW) end stop.

Operating Humidity Range (% RH): Less than 90% RH, non-condensing

Ambient Temperature Range: 32 F to 140 F (0 C to 60 C)

Shipping Temperature Range: -40 F to +140 F (-40 C to +60 C)

Product Number	Controller Compatibility	Control Signal	Comments	Used With
M6063A4007	PI or PID tri-state control signal for proportional control action, such as supplied by AQ675 Outdoor Temperature Compensator, W964F reset controller, or T6984 floating commercial thermostat.	24 Vac Floating	Cross Reference: M6063 functionally replaces Centra VRK10-24 valve actuator when used with V5442 valve body.	V5442 Four-way mixing valve

Residential Heating Valves and Actuators

VC Series Valves



Dimensions, Approximate: 3 9/16 in high x 2 3/4 in wide x 3 3/4 in long (111 mm high x 68 mm wide x 89 mm long)

Coupling Controller: Integral

Aux Switch Ratings: 24 Vac, 2.2A pilot duty, Class 2, SPDT

Timing: 120 sec

Control Signal: 24 Vac Floating

Electrical Connections: Color-coded 40 in. (1 meter) cable

Voltage: 24V

Frequency: 60 Hz; 50 Hz

Control central heating and/or cooling systems, fan coil systems, radiators and convectors. Depending on the model selected, it can be controlled by either a low or line voltage SPST or SPDT or floating controller such as a room thermostat, Aquastat control, or flow switch.

- Two-way or three-way valves.
- Minimal actuator power consumption.
- Double insulated actuator.
- Quick-connect or one-meter cable electrical connections available.
- Safe for use with potable water.
- Quick and easy replacement of moving parts.
- Actuator head installation does not require draining the system.
- On/Off models with six second nominal timing (floating/modulating models available with 120 second timing).

Power Supply Rating: 6 VA, SPDT, or SP3T (tri-state) for proportional control.

Differential (close-off) Pressure Rating: 60 psi (4 Bar)

Static Pressure Rating: 300 psi (20 Bar)

Median Temperature Range: 34 F to 203 F (1 C to 95 C)

Ambient Temperature Range: 32 F to 140 F (0 C to 60 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Materials

(Body): Bronze

Product Number	Controller Compatibility	Body Pattern	Pipe Size		Capacity		Flow Characteristic	Pipe Connection	Comments
			(inch)	(DN)	(Cv)	(Kvs)			
VC6831AA1111	PI or PID tri-state control signal for proportional control action, such as supplied by AQ675 Outdoor Temperature Compensator, W964F reset controller, or T6984 floating commercial thermostat.	Two-way	1/2 in.	DN15	3.2 Cv	2.7 kvs	Linear	Sweat	Use with max. 50% glycol in water solution
VC6831AM1111		Two-way	3/4 in.	DN20	4.6 Cv	3.9 kvs	Linear	Sweat	Use with max. 50% glycol in water solution
VC6831ML6111		Three-way	3/4 in.	DN20	5.9 Cv	5.1 kvs	Linear	Sweat	Use with max. 50% glycol in water solution
VC6831MS6111		Three-way	1 in.	DN25	6.6 Cv	5.7 kvs	Linear	Sweat	Use with max. 50% glycol in water solution
VC6831ZZ11		Two-way	—	—	—	—	Linear	—	Actuator only
VC8715AM1000	24V SPST, Series 80	Two-way	3/4 in.	—	5.8 Cv	5.0 kvs	Quick Open	Sweat	Use with max. 50% glycol in water solution
VC8715AS1000		Two-way	1 in.	DN25	7.0 Cv	6 kvs	Quick Open	Sweat	Use with max. 50% glycol in water solution
VC8715ZZ11		Two-way	—	—	—	—	Quick Open	—	Actuator only

V4043 Line Voltage Zone Valves



Flare Connection



Sweat Connection



Sweat Connection



NPT Connection

Two way on-off line voltage valves consist of an actuator motor and valve assembly for controlling the flow of hot or chilled water.

- Manual opener (on all models, except straight-through, normally open valves) for valve operation on power failure; valve returns to automatic position when power is restored.
- All models may be installed without disassembling the valve.

Application: Hydronic Control

Type: 2 position

Body Pattern: Two-way, Straight-through

Frequency: 60 Hz

Power Consumption: 9.6 VA

Nominal Timing (sec, min): 15 sec

Electrical Connections: 18 in. leads (457 mm leads)

Static Pressure: 125 psi (862 kPa)

Fluid Temperature Range: 40 F to 200 F (5 C to 93 C)

Maximum Ambient Temperature: 125 F (52 C)

Materials

(Body): Brass

(Stem): Stainless Steel

(Seat): Brass

(Packing O-Ring): EPDM rubber

(Ball Plug): Buna-N (NBR) Rubber Ball

- Compact construction for easy installation.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- Motor may be replaced without removing the valve body or draining the system.
- Suitable for heating and cooling applications.

Comments: Use this valve in closed loop hydronic systems that do not contain dissolved oxygen in system water, such as fresh water from frequent source of makeup water.
Valve designed for cycling (not constantly powered on) applications.

Approvals:

Underwriters Laboratories, Inc. UL Component Listed: File MH11826 Vol. 1

Replacement Parts:

802360LA 120V, 60 Hz Replacement motor for V4043, V4044 Zone Valves

802360MA 208V, 60 Hz Replacement motor for V4043, V4044 Zone Valves

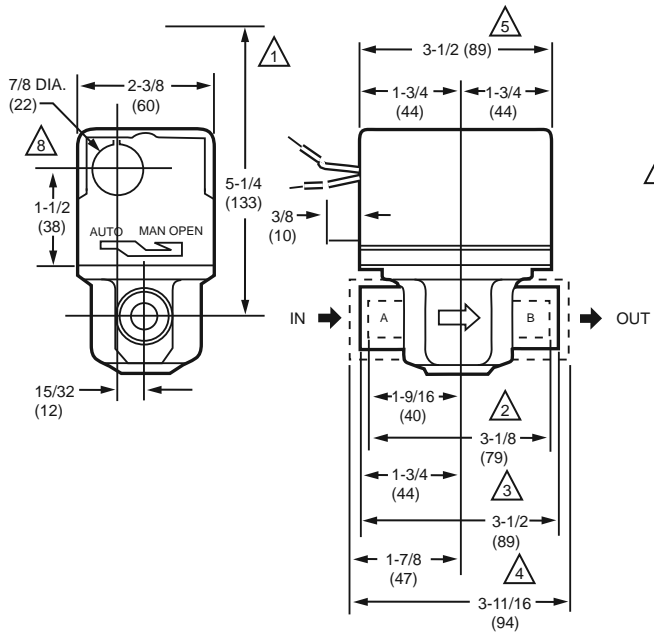
802360NA 220V/50 Hz; 240V/60 Hz Replacement motor for V4043, V4044 Zone Valves

Product Number	Pipe Size		Capacity		Connection Type	Maximum Close-off Pressure		De-energized Position	Valve Action	Voltage	Current Draw (A)	Manual Opener
	(inch)	(DN)	(Cv)	(Kv)		(psi)	(kPa)					
V4043A1002	1/2 in.	DN15	3.5 Cv	3 Kv	Flare	20 psi	138 kPa	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1010	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	20 psi	138 kPa	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1028	1/2 in.	DN15	3.5 Cv	3 Kv	Flare	20 psi	138 kPa	Normally Closed	Spring return to close	208 Vac	0.04A	Yes
V4043A1044	1/2 in.	DN15	3.5 Cv	3 Kv	Flare	20 psi	138 kPa	Normally Closed	Spring return to close	240 Vac	0.04A	Yes
V4043A1051	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	20 psi	138 kPa	Normally Closed	Spring return to close	240 Vac	0.04A	Yes
V4043A1184	1/2 in.	DN15	1 Cv	0.9 Kv	Sweat	50 psi	345 kPa	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1259	3/4 in.	DN20	8 Cv	6.9 Kv	Sweat	8 psi	55 kPa	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1317	1 in.	DN25	8 Cv	6.9 Kv	Sweat	8 psi	55 kPa	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1689	1/2 in.	DN15	3.5 Cv	3 Kv	NPT	20 psi	138 kPa	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1697	1 in.	DN25	10 Cv	8.6 Kv	NPT	6.5 psi	45 kPa	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1705	3/4 in.	DN20	3.5 Cv	3 Kv	NPT	20 psi	138 kPa	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043B1000	1/2 in.	DN15	3.5 Cv	3 Kv	Flare	20 psi	138 kPa	Normally Open	Spring return to open	120 Vac	0.08A	No
V4043B1018	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	20 psi	138 kPa	Normally Open	Spring return to open	120 Vac	0.08A	No
V4043B1059	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	20 psi	138 kPa	Normally Open	Spring return to open	240 Vac	0.04A	No

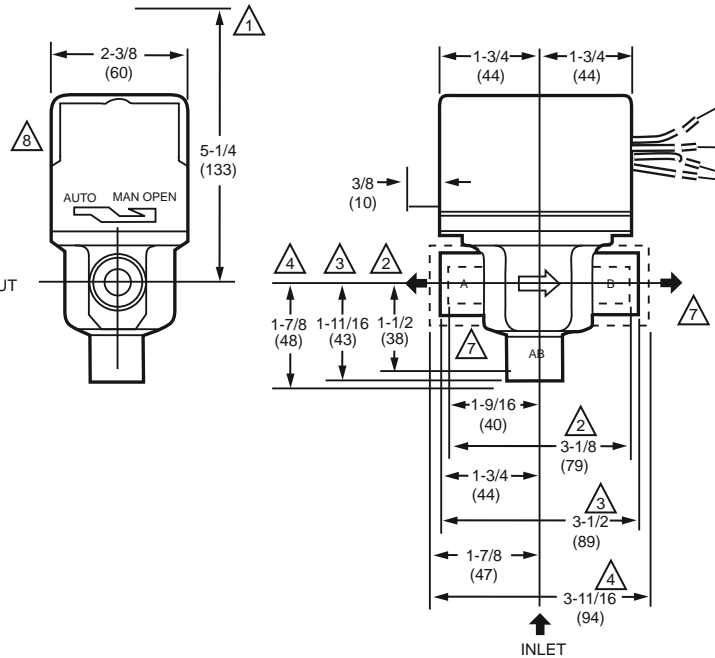
Motorized Zone Valves

Dimensions in inches (millimeters)

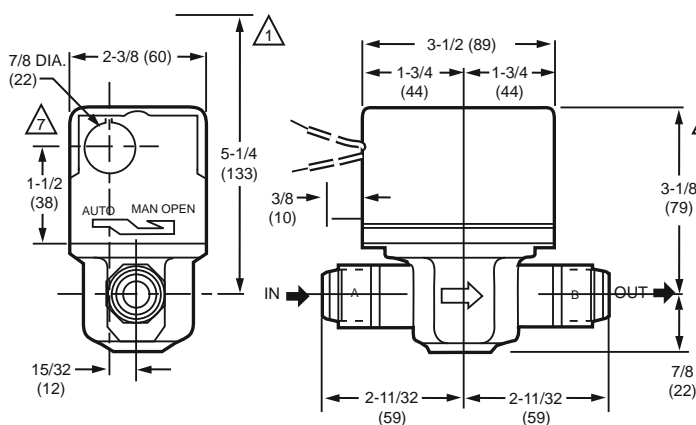
V4043, V8043 SWEAT COPPER CONNECTION MODELS ^{△6}



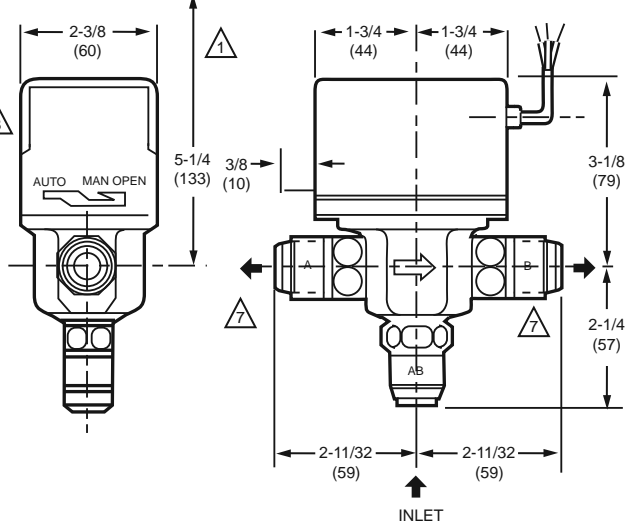
V4044, V8044 SWEAT COPPER CONNECTION MODELS



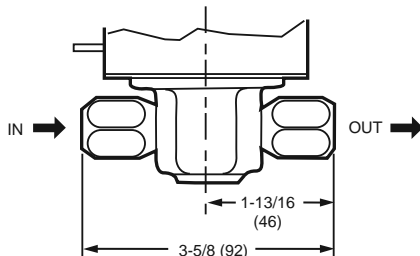
V4043, V8043 FLARE-FITTING MODELS ^{△6}



V4044, V8044 FLARE-FITTING MODELS



V8043 INVERTED FLARE MODELS



- ^{△1} HEIGHT NEEDED TO REMOVE COVER.
- ^{△2} DIMENSIONS FOR 1/2 IN. COPPER TUBING.
- ^{△3} DIMENSIONS FOR 3/4 IN COPPER TUBING.
- ^{△4} DIMENSIONS FOR 1 IN. COPPER TUBING.
- ^{△5} 4-7/8 IN. (124) MAX ON V8034F WITH TERMINAL BOARD ENCLOSURE.
- ^{△6} V4034B AND V8043B VALVES THAT ARE NORMALLY OPEN IN THE DE-ENERGIZED POSITION HAVE NO MANUAL LEVER. THE VALVES ALSO HAVE A REVERSED POWERHEAD WHERE THE LEADWIRES EXIT THE POWERHEAD ABOVE THE B (OUTLET) PORT RATHER THAN ABOVE THE A (INLET) PORT.
- ^{△7} REFER TO MOUNTING INSTRUCTIONS.
- ^{△8} OPENING FOR 1/2 IN. CONDUIT ON MANUAL LEVER SIDE FOR V4043, V8043; OPENING ON OPPOSITE SIDE FOR V4044, V8044.

M10175

Motorized Zone Valves

V4043 Line Voltage Zone Valves for Steam



Dimensions Diagram: See page 226
Application: Steam (low pressure) Control
Type: 2 position
Body Pattern: Two-way, Straight-through
Valve Action: Spring return to close
Frequency: 60 Hz
Power Consumption: 9.6 VA
Nominal Timing (sec, min): 15 sec
De-energized Position: Normally Closed
Electrical Connections: 18 in. leads (457 mm leads)
Static Pressure: 125 psi (862 kPa)
Fluid Temperature Range: 40 F to 240 F (5 C to 116 C)
Maximum Ambient Temperature: 125 F (52 C)

Two way on-off line voltage valves consist of an actuator motor and valve assembly for controlling the flow of low pressure steam.

- Manual opener (on all models, except straight-through, normally open valves) for valve operation on power failure; valve returns to automatic position when power is restored.
- All models may be installed without disassembling the valve.
- Compact construction for easy installation.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- Motor may be replaced without removing the valve body or draining the system.
- Suitable for heating applications.

Materials

(Body): Brass
(Stem): Stainless Steel
(Seat): Brass
(Packing O-Ring): EPDM rubber
(Ball Plug): EPDM Rubber Ball
Comments: For low pressure (15 psi) steam application

Approvals:

Underwriters Laboratories, Inc. UL Component Listed: File MH11826 Vol. 1

Replacement Parts:

802360LA 120V, 60 Hz Replacement motor for V4043, V4044 Zone Valves
802360MA 208V, 60 Hz Replacement motor for V4043, V4044 Zone Valves
802360NA 220V/50 Hz; 240V/60 Hz Replacement motor for V4043,

Product Number	Pipe Size		Capacity		Connection Type	Maximum Close-off Pressure		Voltage	Manual Opener
	(inch)	(DN)	(Cv)	(Kv)		(psi)	(kPa)		
V4043E1003	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	20 psi	138 kPa	120 Vac	Yes
V4043E1011	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	20 psi	138 kPa	208 Vac	Yes
V4043E1029	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	20 psi	138 kPa	240 Vac	Yes

Motorized Zone Valves

V4044 Line Voltage Diverting Valves



On-off and diverting line voltage valves consist of an actuator motor and valve assembly for controlling the flow of hot or chilled water.

- Manual opener (on all models, except straight-through, normally open valves) for valve operation on power failure; valve returns to automatic position when power is restored.
- All models may be installed without disassembling the valve.
- Compact construction for easy installation.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- Motor may be replaced without removing the valve body or draining the system.
- Suitable for heating and cooling applications.

Dimensions Diagram: See page 226

Application: Hydronic Control

Type: 2 position

Body Pattern: 3-Way, Diverting

Valve Action: Spring Return to port A

Frequency: 60 Hz

Power Consumption: 9.6 VA

Nominal Timing (sec, min): 30 sec

De-energized Position: Port A Normally Closed

Static Pressure: 125 psi (862 kPa)

Fluid Temperature Range: 40 F to 200 F (5 C to 93 C)

Maximum Ambient Temperature: 125 F (52 C)

Materials

(Body): Brass

(Stem): Stainless Steel

(Seat): Brass

(Packing O-Ring): EPDM rubber

(Ball Plug): Buna-N (NBR) Rubber Ball

Comments: Use this valve in closed loop hydronic systems that do not contain dissolved oxygen in system water, such as fresh water from frequent source of makeup water.

Valve designed for cycling (not constantly powered on) applications.

Approvals:

Underwriters Laboratories, Inc. UL Component Listed: File MH11826 Vol. 1

Replacement Parts:

802360LA 120V, 60 Hz Replacement motor for V4043, V4044 Zone Valves

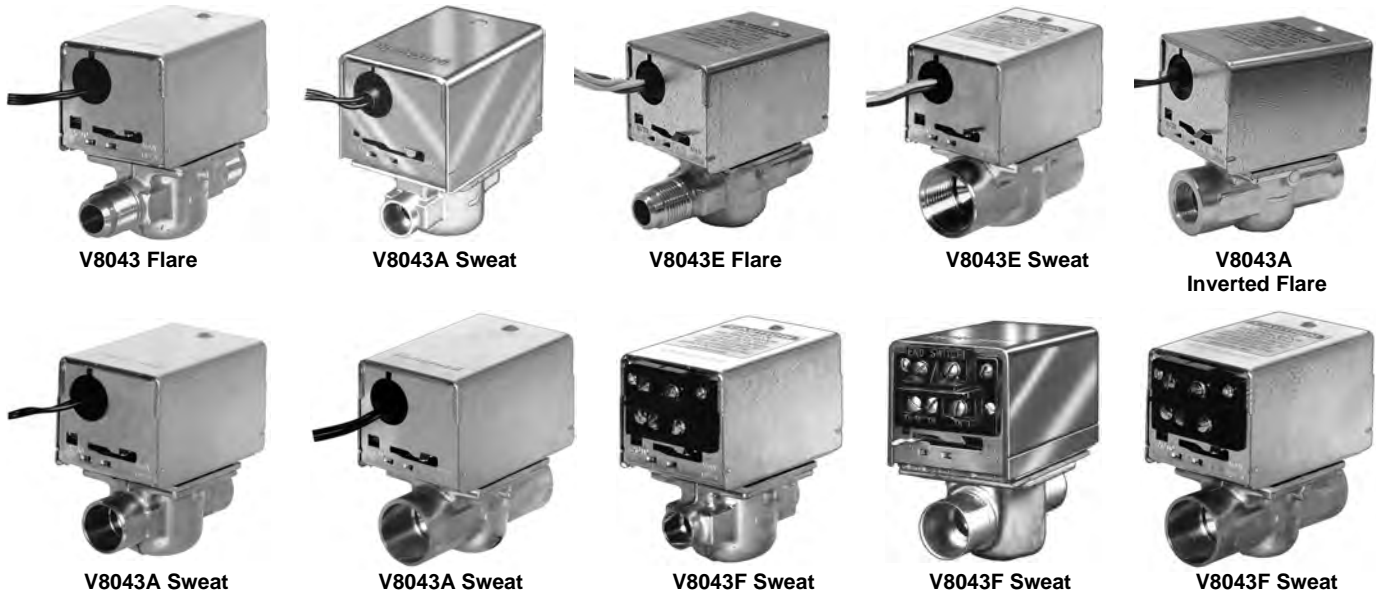
802360MA 208V, 60 Hz Replacement motor for V4043, V4044 Zone Valves

802360NA 220V/50 Hz; 240V/60 Hz Replacement motor for V4043, V4044 Zone Valves

802360QA 277V, 50/60 Hz Replacement motor for V4043, V4044 Zone Valves

Product Number	Pipe Size		Capacity		Connection Type	Maximum Close-off Pressure		Voltage	Manual Opener	Electrical Connections	Additional Comments
	(inch)	(DN)	(Cv)	(Kv)		(psi)	(kPa)				
V4044A1001	1/2 in.	DN15	4 Cv	3.4 Kv	Flare	20 psi	138 kPa	120 Vac	Yes	18 in. leads (457 mm leads)	—
V4044A1019	1/2 in.	DN15	4 Cv	3.4 Kv	Sweat	20 psi	138 kPa	120 Vac	Yes	18 in. leads (457 mm leads)	—
V4044A1035	1/2 in.	DN15	4 Cv	3.4 Kv	Sweat	20 psi	138 kPa	208 Vac	Yes	18 in. leads (457 mm leads)	—
V4044A1043	1/2 in.	DN15	4 Cv	3.4 Kv	Flare	20 psi	138 kPa	240 Vac	Yes	18 in. leads (457 mm leads)	—
V4044A1050	1/2 in.	DN15	4 Cv	3.4 Kv	Sweat	20 psi	138 kPa	240 Vac	Yes	18 in. leads (457 mm leads)	—
V4044A1191	3/4 in.	DN20	7.0 Cv	6 Kv	Sweat	10 psi	69 kPa	120 Vac	Yes	18 in. leads (457 mm leads)	—
V4044A1258	1/2 in.	DN15	4 Cv	3.4 Kv	Sweat	20 psi	138 kPa	277 Vac	Yes	24 in. leads (610 mm leads)	—
V4044A1290	1/2 in.	DN15	2.7Cv; 4 Cv	3.4 Kv	Sweat	20 psi	138 kPa	120 Vac	Yes	18 in. leads (457 mm leads)	Restricted by-pass
V4044B1009	1/2 in.	DN15	4 Cv	3.4 Kv	Flare	20 psi	138 kPa	120 Vac	Yes	18 in. leads (457 mm leads)	—
V4044B1017	1/2 in.	DN15	4 Cv	3.4 Kv	Sweat	20 psi	138 kPa	120 Vac	Yes	18 in. leads (457 mm leads)	—
V4044B1314	3/4 in.	DN20	7.0 Cv	6 Kv	Sweat	10 psi	69 kPa	120 Vac	Yes	18 in. leads (457 mm leads)	—

V8043 Low Voltage Normally Closed Zone Valves



Two-way on-off low voltage valves consist of an actuator and valve assembly for controlling the flow of hot water.

- Manual opener (on all models, except straight-through, normally open valves) for valve operation on power failure; valve returns to automatic position when power is restored.
- All models may be installed without disassembling the valve.

- Compact construction for easy installation.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- Actuator motor may be replaced without removing the valve body or draining the system.

Dimensions Diagram: See page 226

Application: Hydronic Control

Type: 2 position

Body Pattern: Two-way, Straight-through

Valve Action: Spring return to close

Voltage: 24 Vac

Frequency: 50 Hz; 60 Hz

Power Consumption: 7.7 VA

Nominal Timing (sec, min): 15 sec

De-energized Position: Normally Closed

Electrical Connections: 18 in. leads (457 mm leads)

Static Pressure: 125 psi (862 kPa)

Fluid Temperature Range: 50 F to 200 F (10 C to 93 C)

Maximum Ambient Temperature: 125 F (52 C)

Comments: Use this valve in closed loop hydronic systems that do not contain dissolved oxygen in system water, such as fresh water from frequent source of makeup water.

Valve designed for cycling (not constantly powered on) applications.

Materials

(Body): Brass

(Stem): Stainless Steel

(Seat): Brass

(Packing O-Ring): EPDM rubber

(Ball Plug): Buna-N (NBR) Rubber Ball

Approvals:

Underwriters Laboratories, Inc. UL Component Listed: File MH11826 Vol. 1

Replacement Parts:

802360JA 24V, 50/60 Hz Replacement motor for V8043, V8044 Zone Valves

802360UA 24V, 50/60 Hz Replacement motor for steam and heating Replacement Parts:

Product Number	Pipe Size		Capacity		Connection Type	Auxiliary End Switch	Maximum Close-off Pressure		Manual Opener	Electrical Connections
	(inch)	DN	(Cv)	(Kv)			(psi)	(kPa)		
V8043A1003	1/2 in.	DN15	3.5 Cv	3 Kv	Flare	—	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
V8043A1011	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	—	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
V8043A1029	3/4 in.	DN20	3.5 Cv	3 Kv	Sweat	—	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
V8043A1037	1 in.	DN25	3.5 Cv	3 Kv	Sweat	—	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
* V8043A1193	1/2 in.	DN15	3.5 Cv	3 Kv	Inverted Flare	—	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
V8043A1227	1/2 in.	DN15	3.5 Cv	3 Kv	NPT	—	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
* V8043E1004	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	SPST	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
* V8043E1012	3/4 in.	DN20	3.5 Cv	3 Kv	Sweat	SPST	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
* V8043E1020	1 in.	DN25	3.5 Cv	3 Kv	Sweat	SPST	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
V8043E1061	3/4 in.	DN20	8 Cv	6.9 Kv	Sweat	SPST	8 psi	55 kPa	Yes	18 in. leads (457 mm leads)

* TRADELINE models • SUPER TRADELINE models

Motorized Zone Valves

Product Number	Pipe Size		Capacity		Connection Type	Auxiliary End Switch	Maximum Close-off Pressure		Manual Opener	Electrical Connections
	(inch)	DN	(Cv)	(Kv)			(psi)	(kPa)		
V8043E1079	1 in.	DN25	8 Cv	6.9 Kv	Sweat	SPST	8 psi	55 kPa	Yes	18 in. leads (457 mm leads)
* V8043E1129	1/2 in.	DN15	3.5 Cv	3 Kv	Inverted Flare	SPST	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
V8043E1137	1 in.	DN25	10 Cv	8.6 Kv	NPT	SPST	6.5 psi	45 kPa	Yes	18 in. leads (457 mm leads)
V8043E1145	3/4 in.	DN20	3.5 Cv	3 Kv	NPT	SPST	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
* V8043F1028	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	SPST	20 psi	138 kPa	Yes	screw terminal block
* V8043F1036	3/4 in.	DN20	3.5 Cv	3 Kv	Sweat	SPST	20 psi	138 kPa	Yes	screw terminal block
* V8043F1051	1 in.	DN25	3.5 Cv	3 Kv	Sweat	SPST	20 psi	138 kPa	Yes	screw terminal block
V8043F1093	3/4 in.	DN20	8 Cv	6.9 Kv	Sweat	SPST	8 psi	55 kPa	Yes	screw terminal block
V8043F1101	1 in.	DN25	8 Cv	6.9 Kv	Sweat	SPST	8 psi	55 kPa	Yes	screw terminal block

* TRADELINE models • SUPER TRADELINE models

V8043 Low Voltage Normally Open Valves For Steam



On-off and two way low voltage valves consist of an actuator and valve assembly for controlling the flow low pressure steam.

- All models may be installed without disassembling the valve.
- Compact construction for easy installation.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- Actuator motor may be replaced without removing the valve body or draining the system.
- Suitable for use 15 psi low pressure steam application.

Dimensions Diagram: See page 226

Application: Steam (low pressure) Control

Type: 2 position

Body Pattern: Two-way, Straight-through

Valve Action: Spring return to open

Voltage: 24 Vac

Frequency: 50 Hz; 60 Hz

Power Consumption: 7.7 VA

Nominal Timing (sec, min): 15 sec

De-energized Position: Normally Open

Electrical Connections: 18 in. leads (457 mm leads)

Static Pressure: 125 psi (862 kPa)

Fluid Temperature Range: 50 F to 240 F (10 C to 116 C)

Maximum Ambient Temperature: 125 F (52 C)

Materials

(Body): Brass

(Stem): Stainless Steel

(Seat): Brass

(Packing O-Ring): EPDM rubber

(Ball Plug): EPDM Rubber Ball

Comments: For low pressure (15 psi) steam application

Approvals:

Underwriters Laboratories, Inc. UL Component Listed: File MH11826
Vol. 1

Replacement Parts:

802360UA 24V, 50/60 Hz Replacement motor for steam and heating
Zone Valves

Product Number	Pipe Size		Capacity		Connection Type	Maximum Close-off Pressure		Voltage	Manual Opener
	(inch)	DN	(Cv)	(Kv)		(psi)	(kPa)		
V8043J1003	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	20 psi	138 kPa	24 Vac	No
V8043J1029	1/2 in.	DN15	3.5 Cv	3 Kv	NPT	20 psi	138 kPa	24 Vac	No
V8043J1037	3/4 in.	DN20	3.5 Cv	3 Kv	NPT	20 psi	138 kPa	24 Vac	No

V8043 Low Voltage Normally Open Zone Valves



On-off and two-way low voltage valves consist of an actuator and valve assembly for controlling the flow of hot water.

- All models may be installed without disassembling the valve.
- Compact construction for easy installation.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- Actuator motor may be replaced without removing the valve body or draining the system.
- No Manual opener

Dimensions Diagram: See page 226

Application: Hydronic Control

Type: 2 position

Body Pattern: Two-way, Straight-through

Valve Action: Spring return to open

Voltage: 24 Vac

Power Consumption: 7.7 VA

Nominal Timing (sec, min): 15 sec

De-energized Position: Normally Open

Electrical Connections: 18 in. leads (457 mm leads)

Static Pressure: 125 psi (862 kPa)

Fluid Temperature Range: 40 F to 200 F (5 C to 93 C)

Maximum Ambient Temperature: 125 F (52 C)

Comments: Use this valve in closed loop hydronic systems that do not contain dissolved oxygen in system water, such as fresh water from frequent source of makeup water.

Valve designed for cycling (not constantly powered on) applications.

Materials

(Body): Brass

(Stem): Stainless Steel

(Seat): Brass

(Packing O-Ring): EPDM rubber

(Ball Plug): Buna-N (NBR) Rubber Ball

Approvals:

Underwriters Laboratories, Inc. UL Component Listed: File MH11826 Vol. 1

Replacement Parts:

802360JA 24V, 50/60 Hz Replacement motor for V8043, V8044 Zone Valves

802360UA 24V, 50/60 Hz Replacement motor for steam and heating Zone Valves

Product Number	Pipe Size		Capacity		Connection Type	Maximum Close-off Pressure		Frequency	Manual Opener
	(inch)	DN	(Cv)	(Kv)		(psi)	(kPa)		
V8043B1019	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	20 psi	138 kPa	60 Hz	No
V8043B1027	3/4 in.	DN20	3.5 Cv	3 Kv	Sweat	20 psi	138 kPa	60 Hz	No
V8043B1076	3/4 in.	DN20	3.5 Cv	3 Kv	NPT	20 psi	138 kPa	50 Hz; 60 Hz	No

Motorized Zone Valves

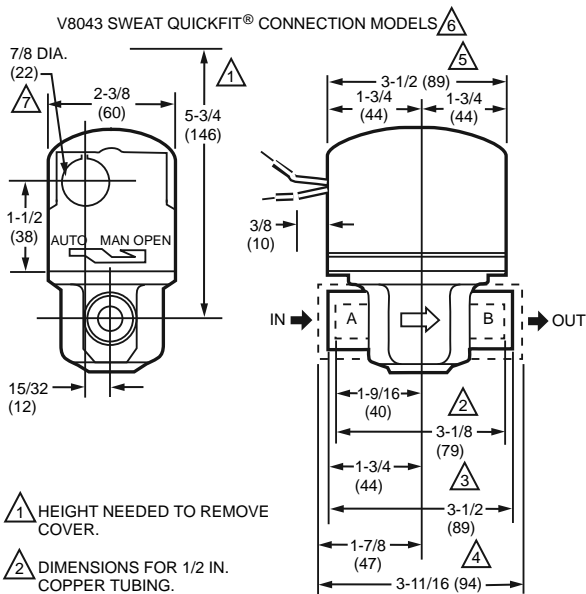
V8043 Series 5000 QuickFit® Zone Valves



Two-way on-off low voltage valves consist of an actuator and valve assembly for controlling the flow of hot water.

- All models may be installed without disassembling the valve.
- Compact construction for easy installation.
- Manual opener (on all models, except straight-through, normally open valves) for valve operation on power failure; valve returns to automatic position when power is restored.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- "Quick Fit" pushbutton powerhead makes it easy to remove for service.
- Series 5000 replacement powerhead is backward compatible with series 1000 zone valves.
- Innovative motor technology offers silent operation, water hammer resist and longer life.

Dimensions in inches (millimeters)



- 1 HEIGHT NEEDED TO REMOVE COVER.
- 2 DIMENSIONS FOR 1/2 IN. COPPER TUBING.
- 3 DIMENSIONS FOR 3/4 IN COPPER TUBING.
- 4 DIMENSIONS FOR 1 IN. COPPER TUBING.
- 5 4-7/8 IN. (124) MAX ON V8034F WITH TERMINAL BOARD ENCLOSURE.
- 6 V8043B VALVES THAT ARE NORMALLY OPEN IN THE DE-ENERGIZED POSITION HAVE NO MANUAL LEVER. THE VALVES ALSO HAVE A REVERSED POWERHEAD WHERE THE LEADWIRES EXIT THE POWERHEAD ABOVE THE B (OUTLET) PORT RATHER THAN ABOVE THE A (INLET) PORT.
- 7 OPENING FOR 1/2 IN. CONDUIT ON MANUAL LEVER SIDE FOR V8043

M23257

Application: Hydronic Control

Type: 2 position

Body Pattern: Two-way, Straight-through

Valve Action: Spring return to close

Voltage: 24 Vac

Frequency: 60 Hz

Power Consumption: 7.2 VA

De-energized Position: Normally Closed

Static Pressure: 300 psi (2068 kPa)

Fluid Temperature Range: 200 F Max. (93 C Max.)

Maximum Ambient Temperature: 125 F (52 C)

Materials

(Body): Brass

(Stem): Stainless Steel

(Seat): Brass

(Packing O-Ring): EPDM rubber

(Ball Plug): Buna-N (NBR) Rubber Ball

Comments: Use this valve in closed loop hydronic systems that do not contain dissolved oxygen in system water, such as fresh water from frequent source of makeup water.

Valve designed for cycling (not constantly powered on) applications.

Approvals:

Canadian Standards Association: CSA C/US

Underwriters Laboratories, Inc. CSA C/US

Product Number	Pipe Size		Capacity		Connection Type	Auxiliary End Switch	Maximum Close-off Pressure		Manual Opener	Electrical Connections
	(inch)	DN	(Cv)	(Kv)			(psi)	(kPa)		
V8043A5011	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	—	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
V8043A5029	3/4 in.	DN20	3.5 Cv	3 Kv	Sweat	—	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
V8043E5004	1/2 in.	DN15	3.5 Cv	3 Kv	Sweat	SPST	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
V8043E5012	3/4 in.	DN20	3.5 Cv	3 Kv	Sweat	SPST	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
V8043E5020	1 in.	DN25	3.5 Cv	3 Kv	Sweat	SPST	20 psi	138 kPa	Yes	18 in. leads (457 mm leads)
V8043E5061	3/4 in.	DN20	8 Cv	6.9 Kv	Sweat	SPST	8 psi	55 kPa	Yes	18 in. leads (457 mm leads)
V8043E5079	1 in.	DN25	8 Cv	6.9 Kv	Sweat	SPST	8 psi	55 kPa	Yes	18 in. leads (457 mm leads)
V8043F5036	3/4 in.	DN20	3.5 Cv	3 Kv	Sweat	SPST	20 psi	138 kPa	Yes	screw terminal block
V8043F5051	1 in.	DN25	3.5 Cv	3 Kv	Sweat	SPST	20 psi	138 kPa	Yes	screw terminal block
V8043F5093	3/4 in.	DN20	8 Cv	6.9 Kv	Sweat	SPST	8 psi	55 kPa	Yes	screw terminal block

V8044 Low Voltage Diverting Valves



Flare Connection

NPT Connection

Sweat Connection

Sweat Connection

Sweat Connection

On-off and diverting low voltage valves consist of an actuator and valve assembly for controlling the flow of hot water.

- Manual opener (on all models, except straight-through, normally open valves) for valve operation on power failure; valve returns to automatic position when power is restored.
- All models may be installed without disassembling the valve.

- Compact construction for easy installation.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- Actuator motor may be replaced without removing the valve body or draining the system.

Dimensions Diagram: See page 226

Application: Hydronic Control

Type: 2 position

Body Pattern: 3-Way, Diverting

Valve Action: Spring Return

Voltage: 24 Vac

Frequency: 60 Hz; 50 Hz

Power Consumption: 7.7 VA

Nominal Timing (sec, min): 30 sec

De-energized Position: Port A Normally Closed

Electrical Connections: 18 in. leads (457 mm leads)

Static Pressure: 125 psi (862 kPa)

Fluid Temperature Range: 40 F to 200 F (5 C to 93 C)

Maximum Ambient Temperature: 125 F (52 C)

Comments: Use this valve in closed loop hydronic systems that do not contain dissolved oxygen in system water, such as fresh water from frequent source of makeup water.

Valve designed for cycling (not constantly powered on) applications.

Materials

(Body): Brass

(Stem): Stainless Steel

(Seat): Brass

(Packing O-Ring): EPDM rubber

(Ball Plug): Buna-N (NBR) Rubber Ball

Approvals:

Underwriters Laboratories, Inc. UL Component Listed: File MH11826 Vol. 1

Replacement Parts:

802360JA 24V, 50/60 Hz Replacement motor for V8043, V8044 Zone Valves

802360UA 24V, 50/60 Hz Replacement motor for steam and heating Zone Valves

Product Number	Pipe Size		Capacity		Connection Type	Auxiliary End Switch	Maximum Close-off Pressure		Includes	Manual Opener
	(inch)	DN	(Cv)	(Kv)			(psi)	(kPa)		
V8044A1002	1/2 in.	DN15	4 Cv	3.4 Kv	Flare	—	20 psi	138 kPa	—	Yes
V8044A1010	1/2 in.	DN15	4 Cv	3.4 Kv	Sweat	—	20 psi	138 kPa	—	Yes
V8044A1044	3/4 in.	DN20	7.0 Cv	6 Kv	Sweat	—	10 psi	69 kPa	—	Yes
V8044A1051	1/2 in.	DN15	4 Cv	3.4 Kv	Sweat	—	20 psi	138 kPa	Restricted 2.5 Cv bypass port.	Yes
V8044A1135	1/2 in.	DN15	4 Cv	3.4 Kv	NPT	—	20 psi	138 kPa	—	Yes
V8044A1143	3/4 in.	DN20	4 Cv	3.4 Kv	NPT	—	20 psi	138 kPa	—	Yes
V8044B1018	1/2 in.	DN15	4 Cv	3.4 Kv	Sweat	—	20 psi	138 kPa	Integral SPDT changeover Aquastat controller	Yes
V8044E1003	1/2 in.	DN15	4 Cv	3.4 Kv	Sweat	SPST	20 psi	138 kPa	—	Yes
V8044E1011	3/4 in.	DN20	7.0 Cv	6 Kv	Sweat	SPST	10 psi	69 kPa	—	Yes

Motorized Zone Valves

Y496 Zone Control Builder Packs



Contain devices necessary for temperature control of a single zone in a hydronic heating system.

- Includes thermostat with special heat anticipator designed for best performance when used with the VC8715AM1000 Valve.
- Require 24 V power source.

Valve Dimensions Diagram: See page 226

Pipe Connection: Sweat

Body Pattern: Two-way

Valve Action: Spring return to close

Thermostat Electrical Rating: 24 V, 50/60 Hz

Thermostat Color: Premier White®

Comments: See valve and thermostat for more details.

Includes: (Y496B1024 and Y496B1040 only) 104456B Wallplate

Approvals:

Underwriters Laboratories, Inc. UL Listed: Models V8043A,B,E,J & V8044A,B,E; UL Component Recognized: V8043F

Product Number	Y-Pack Includes
Y496A1074	V8043E1012, T822K1018
Y496A1082	V8043E1004, T822K1018
Y496A1090	V8043E1061, T822K1018
Y496B1024	V8043E1012, T87K1007
Y496B1040	V8043F1036, T87K1007
Y496E1005	V8043A1029, TH5110D1006
Y496E1013	V8043E1004, TH5110D1006
Y496E1021	V8043E1012, TH5110D1006
Y896C1016	VC8715AM1000, T8400B1018


Product Number	Thermostat						Valve							
	Application	Anticipator Adj.		Temperature Range		Current	Capacity		Pipe Size (inch)	Maximum Close-off Pressure		Aux Switch Ratings	Electrical Connections	Electrical Rating
		Heating	Cooling	(F)	(C)		(Cv)	(Kv)		(psi)	(kPa)			
* Y496A1074	Single Stage Heating Only	0.18 to 1.0 A	—	55 to 95 F	13 to 35 C	—	3.5 Cv	3 Kv	3/4 in.	20 psi	138 kPa	50 VA pilot duty @ 24 V 4.4 A running @ 120 V	18 in. leads	24 Vac, 50/60 Hz
* Y496A1082		—	—	—	—	—	3.5 Cv	3 Kv	1/2 in.	20 psi	138 kPa		18 in. leads	
* Y496A1090		—	—	—	—	—	8 Cv	6.9 Kv	3/4 in.	8 psi	55 kPa		18 in. leads	
* Y496B1024	Single Stage Heating/Cooling	0.1 to 1.2 A	0.0 to 1.5 A	40 to 90 F	4 to 32 C	—	3.5 Cv	3 Kv	3/4 in.	20 psi	138 kPa	—	18 in. leads	Screw Terminal Block
* Y496B1040		—	—	—	—	—	3.5 Cv	3 Kv	3/4 in.	20 psi	138 kPa		18 in. leads	
* Y496E1005		—	—	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Cooling: 1.0 A running; Heating: 1.0 A running; Fan: 0.5 A running	3.5 Cv	3 Kv	3/4 in.	20 psi	138 kPa		18 in. leads	
* Y496E1013	—	—	—	—	—	—	3.5 Cv	3 Kv	1/2 in.	20 psi	138 kPa	50 VA pilot duty @ 24 V 4.4 A running @ 120 V	18 in. leads	18 in. leads
* Y496E1021	—	—	—	—	—	—	3.5 Cv	3 Kv	3/4 in.	20 psi	138 kPa	18 in. leads		
* Y896C1016	Single Stage Heating Only	—	—	40 to 99 F	4 to 39 C	—	5.8 Cv	5 Kv	3/4 in.	60 psi	97 kPa	—	Screw Terminal Block	24 Vac, 60 Hz

* TRADELINE models • SUPER TRADELINE models

Replacement Parts

Product Number	Description	Includes
40003918-006	Adaptor kit for V4043, V8043, 2-way hydronic valves	Adapter plate, ball and shaft assembly, large O-ring and four mounting screws.
40003918-007	Adaptor kit for V4044, V8044, 3-way diverting valves	Adapter plate, ball and shaft assembly, large O-ring and four mounting screws.
40003918-008	Adaptor kit for V4043E, J, V8043J, low pressure steam valves	Adapter plate, ball and shaft assembly, large O-ring and four mounting screws.

Zone Valve Replacement Parts

Product Number	Description	Voltage	Frequency	Used With Valve	Includes	
132184B	Replacement ball plug for V8043, V8044, V4043, V4044 valves (not for steam)	—	—	—	—	
272708A	1/2 in. inverted flare to 1/2 in. sweat adapter	—	—	—	—	
272708B	1/2 in. inverted flare to 3/4 in. sweat adapter	—	—	—	—	
802360JA	24V, 50/60Hz replacement motor for V8043 zone valves	24V	50 Hz; 60 Hz	V8043A,E,F	Motor mounting screw and lead connectors	
802360LA	120V, 60Hz replacement motor for V4043, V4044 zone valves	120V	60 Hz	V4043, V4044	Motor mounting screw and lead connectors	
802360MA	208, 60Hz replacement motor for V4043, V4044 zone valves.	208V	60 Hz	V4043, V4044	Motor mounting screw and lead connectors	
802360NA	220V/50Hz; 240V/60Hz replacement motor for V4043, V4044 zone valves.	220V/50 Hz 240V/60 Hz	50 Hz; 60 Hz	V4043, V4044	Motor mounting screw and lead connectors	
802360QA	277V, 60Hz replacement motor for V4043, V4044 zone valves	277V	60 Hz	V4043, V4044	Motor mounting screw and lead connectors	
802360UA	24V, 50/60 Hz Replacement motor for steam and heating Zone Valves	24V	50 Hz; 60 Hz	V8043J	Motor mounting screw and lead connectors	
803867A	Conduit case and cover for use with the V8043F when the end switch is used in line voltage application.	—	—	V8043F	Case and cover	



Motorized Zone Valves

Zone Valves Replacement Heads

Product Number	Description	Electrical Connection Location	Voltage	Frequency	Maximum Ambient Temperature		Used With Valve Action	Used With Valve
					(F)	(C)		
40003916-021	24 Vac, 50/60 Hz Replacement head for V8043A	Same side of manual lever	24 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to close	Two-way
40003916-023	240 Vac, 50 Hz Replacement head for V4043A, 240V, 50Hz	Same side of manual lever	240 Vac	50 Hz	125 F	52 C	Spring return to close	Two-way
40003916-024	120 Vac, 60 Hz Replacement head for V4043A	Same side of manual lever	120 Vac	60 Hz	125 F	52 C	Spring return to close	Two-way
40003916-025	24 Vac, 50/60 Hz Replacement head with End Switch for V8044E	Same side of manual lever	24 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to close "A" port	Diverting
40003916-026	24 Vac, 50/60 Hz Replacement head with End Switch for V8044E	Same side of manual lever	24 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to close	Two-way
40003916-027	24 Vac, 50/60 Hz, N.O. Replacement head for V8043B	Same side of manual lever	24 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to open	Two-way
40003916-030	240 Vac, 60 Hz, N.O. Replacement actuator for V4043B	Same side of manual lever	240 Vac	60 Hz	125 F	52 C	Spring return to open	Two-way
40003916-031	120 Vac, 60 Hz, N.O. Replacement head for V4043B	Same side of manual lever	120 Vac	60 Hz	125 F	52 C	Spring return to open	Two-way
40003916-032	24 Vac, 50/60 Hz Replacement head for V8044A	On opposite side of manual lever	24 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to close "A" port	Diverting
40003916-035	220/240 Vac, 50/60 Hz	On opposite side of manual lever	220 Vac; 240 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to close "A" port	Diverting
40003916-036	120 Vac, 60 Hz Replacement head for V4044	On opposite side of manual lever	120V	60 Hz	125 F	52 C	Spring return to close "A" port	Diverting
40003916-037	24 Vac, 50/60 Hz Replacement head for V8044B, With Aquastat Switch	On opposite side of manual lever	24 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to close "A" port	Diverting
40003916-040	120 Vac, 60 Hz Replacement head for V8044B, With Aquastat Switch	On opposite side of manual lever	120 Vac	60 Hz	125 F	52 C	Spring return to close "A" port	Diverting
40003916-041	120 Vac, 60 Hz Replacement head for V4043E, Steam Valve	Same side of manual lever	120 Vac	60 Hz	125 F	52 C	Spring return to close	Two-way
40003916-043	24 Vac, 50/60 Hz Replacement head with End Switch for V8044E	Same side of manual lever	24 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to close "A" port	Diverting
40003916-044	24 Vac, 50/60 Hz Replacement head for V8044B, with Aquastat	Same side of manual lever	24 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to close "A" port	Diverting
40003916-045	120 Vac, 60 Hz Replacement head for V4044B, with Aquastat	Same side of manual lever	120 Vac	60 Hz	125 F	52 C	Spring return to close "A" port	Diverting
40003916-046	24 Vac, 50/60 Hz Replacement head for V8044A	Same side of manual lever	24 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to close "A" port	Diverting
40003916-047	120 Vac, 60 Hz Replacement head for V4044A, 120V, 60Hz, with 96 in. leads	Same side of manual lever	120 Vac	60 Hz	125 F	52 C	Spring return to close "A" port	Diverting
40003916-048	24 Vac, 50/60 Hz Replacement head for V8043F, With End Switch	Same side of manual lever	24 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to close	Two-way
40003916-049	240V, 50 Hz Replacement head for V4044	—	240V	50 Hz	125 F	52 C	Spring return to close "A" port	Diverting



Motorized Zone Valves

Product Number	Description	Electrical Connection Location	Voltage	Frequency	Maximum Ambient Temperature		Used With Valve Action	Used With Valve	
					(F)	(C)			
40003916-521	24 Vac, 50/60 Hz Replacement head for V8043A 5000 series	Same side of manual lever	24 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to close	Two-way	
40003916-526	24 Vac, 50/60 Hz Replacement head with End Switch, for V8043E 5000 series	Same side of manual lever	24 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to close	Two-way	
40003916-548	24 Vac, 50/60 Hz Replacement head for V8043F, With End Switch	Same side of manual lever	24 Vac	50 Hz; 60 Hz	125 F	52 C	Spring return to close	Two-way	

Motorized Zone Valves

MZV Series Motorized Zone valves

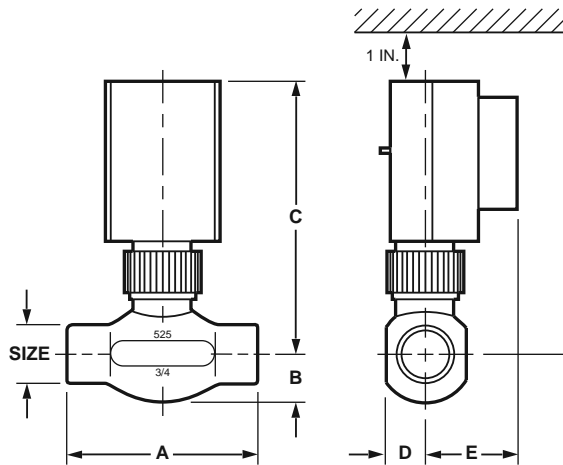


Honeywell MZV Series is the first linear zone valve with a built-in balancing plug that permits pre-balancing for each zone.

- Rack and pinion linear design.
- Fast acting, 15 seconds to open, 5 seconds to close.

- Two piece rack design to extend service life.
- Low power consumption, 8 valves, 40 VA transformer.
- External valve position indicator.
- Quiet operation, no water hammer.
- Built-in tamper resistant balancing valve for pre-balancing.
- High torque, constant speed synchronous motor.
- Cooler running, longer life motor.
- Operator can be replaced without draining system.
- Manual opening feature.
- Replaceable valve cartridge.
- Large adjustable flow, 1/2 in. 3/4 in. Cv 5.8; 1 in. 7.0 Cv; 1-1/4 in. Cv 7.0.
- Motor CSA recognized.
- 4 wire operator with auxiliary switch.
- 2 wire without switch, 24 in. leads.
- Compatible with programmable thermostats.
- Bronze casting; brass/stainless trim.
- USA Patent Nos. 5,529,282; D369,650; 5,941,500; 6,032,924.
- UK Patent No. 2,052,382. 24 VAC, 60 Hz, 0.25 ampere.
- 30 mm collar (valve/actuator interface)

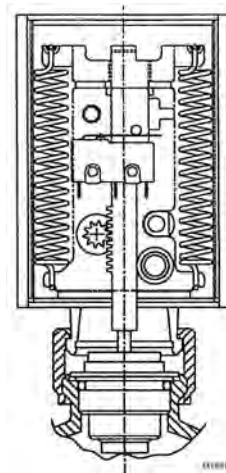
Dimensions in inches (millimeters)



MZV SERIES	SIZE	DIMENSIONS (INCHES)				
		A	B	C	D	E
524	1/2 IN.	3-5/16	1	4-13/16	11/16	1-5/8
525	3/4 IN.	3-5/16	13/16	4-13/16	11/16	1-5/8
526	1 IN.	3-13/16	1	4-13/16	13/16	1-5/8
527	1-1/4 IN.	3-13/16	1	4-13/16	13/16	1-5/8

M23259A

Patented long life rack and pinion design with built-in balancing valve



Application: Residential or Commercial Zoning for hot water heating or chilled water air conditioning systems, fan coil units or indirect water heater service.

Body Pattern: Two-way

Voltage: 24 Vac


Frequency: 60 Hz

Maximum Ambient Temperature: 125 F (52 C)

Maximum Water Pressure: 125 psi (862 kPa)

Product Number	Pipe Size		Capacity (Cv)	Connection Type	Auxiliary End Switch	Maximum Close-off Pressure (psi)
	(inch)	DN				
MZV524-T	1/2 in.	DN15	5.8 Cv	NPT	—	20 psi
MZV524E-T	1/2 in.	DN15	5.8 Cv	NPT	SPST	20 psi
MZV525	3/4 in.	DN20	5.8 Cv	Sweat	—	20 psi
MZV525-T	3/4 in.	DN20	5.8 Cv	NPT	—	20 psi
MZV525E	3/4 in.	DN20	5.8 Cv	Sweat	SPST	20 psi
MZV525E-T	3/4 in.	DN20	5.8 Cv	NPT	SPST	20 psi
MZV526	1 in.	DN25	7.0 Cv	Sweat	—	17.5 psi
MZV526-T	1 in.	DN25	7.0 Cv	NPT	—	17.5 psi
MZV526E	1 in.	DN25	7.0 Cv	Sweat	SPST	17.5 psi
MZV526E-T	1 in.	DN25	7.0 Cv	NPT	SPST	17.5 psi
MZV527	1 1/4 in.	DN32	7.0 Cv	Sweat	—	17.5 psi
MZV527E	1 1/4 in.	DN32	7.0 Cv	Sweat	SPST	17.5 psi

MZV Series Replacement Parts

Product Number	Description	Voltage	Frequency	Maximum Close-off Pressure		Maximum Water Pressure		Maximum Ambient Temperature	
				(psi)	(psi)	(kPa)	(F)	(C)	
MZV520-RP	Replacement operator for MZV 524/525/526/527 with end switch	24 Vac	60 Hz	—	—	—	240 F	115 C	
MZV521-RP	Replacement operator for MZV 524/525/526/527 without end switch	24 Vac	60 Hz	—	—	—	240 F	115 C	
MZV525-RP	Replacement valve cartridge for 1/2 in. (MZV524, MZV524E) and 3/4 in. (MZV525, MZV525E) valves	24 Vac	60 Hz	20 psi	125 psi	862 kPa	240 F	115 C	
MZV526-RP	Replacement valve cartridge for 1 in. (MZV526, MZV526E) and 1 1/4 in. (MZV527, MZV527E) valves	24 Vac	60 Hz	17.5 psi	125 psi	862 kPa	240 F	115 C	
SZ07-070	Conversion kit, telestat to Powertrack (MZV). Order with MZV520-RP. Includes adapter ring and shaft extension.	—	—	—	—	—	—	—	

Manifold Zone Valves

RAM Series Pre Assembled Radiant Manifold



Manifolds are used to control individual heating loop flow and temperature controls through both Supply and Return configurations. Individual tubing loops are connected to the manifolds through connection adapters. Manifolds can be easily grouped together in configurations of 2 Port, 3 Port and 4 Port by using built-in union nut adapters allowing different zoning configurations to meet job needs. Supply Manifolds-Without Valves are used in combination with Return manifolds that contain valves for individual loop flow and temperature control. Return Manifolds-With Valves incorporate built-in balancing valves to allow flow adjustment and balancing of individual heating loops.

Materials (Body): Bronze
Dimensions, Approximate: 7 1/2 in long x 2 5/8 in wide x 8 1/4 in. high
Flow Rate: 3.5 gpm

Maximum Differential Pressure Ratings (Close-off) (psi):
 40 ft., 17.5 psi
Maximum Safe Operating Pressure (psi): 125 psi
Maximum Temperature: 220 F (104 C)

Product Number	Number of Zones	Connection Type	Connection Size	Description	Comments	Used With
RAM200	2 Zones	Threaded	3/4 in.	Pre Assembled 2 Port Supply & Return Radiant Manifold With Valves	Without Operators	AQ2000 Controls
RAM200FM	2 Zones	Threaded	3/4 in.	Pre Assembled 2 Port Supply & Return Manifold with Flow Meters	Without Operators	AQ2000 Controls
RAM300	3 Zones	Threaded	3/4 in.	Pre Assembled 3 Port Supply & Return Radiant Manifold With Valves	Without Operators	AQ2000 Controls
RAM300FM	3 Zones	Threaded	3/4 in.	Pre Assembled 3 Port Supply & Return Manifold with Flow Meters	Without Operators	AQ2000 Controls
RAM400	4 Zones	Threaded	3/4 in.	Pre Assembled 4 Port Supply & Return Radiant Manifold With Valves	Without Operators	AQ2000 Controls
RAM400FM	4 Zones	Threaded	3/4 in.	Pre Assembled 4 Port Supply & Return Manifold with Flow Meters	Without Operators	AQ2000 Controls

RM Series Radiant Manifold



2, 3, and 4 port Radiant Manifolds without valves (WOV models)



2, 3, and 4 port Radiant Manifolds with valves (WV models)



2, 3, and 4 port Radiant Manifolds with flow meters (WFM models)

Manifolds are used to control individual heating loop flow and temperature controls through both Supply and Return configurations. Individual tubing loops are connected to the manifolds through connection adapters. Manifolds can be easily grouped together in configurations of 2 Port, 3 Port and 4 Port by using built-in union nut adapters allowing different zoning configurations to meet job needs. Supply Manifolds-Without Valves are used in combination with Return manifolds that contain valves for individual loop flow and temperature control. Return Manifolds-With Valves incorporate built-in balancing valves to allow flow adjustment and balancing of individual heating loops.

Materials (Body): Bronze

Dimensions, Approximate: 3.28 in. high x 4.87 in. long x 1.6 in. deep

Flow Rate: 3.5 gpm

Maximum Differential Pressure Ratings (Close-off) (psi):
40 ft., 17.5 psi

Maximum Safe Operating Pressure (psi): 125 psi

Maximum Temperature: 220 F (104 C)

Product Number	Number of Zones	Connection Type	Connection Size	Description	Comments
RM200WFM	2 Zones	Threaded	3/4 in.	2 Port Return Manifold With Flow Meters	Without Operators
RM200WOV	2 Zones	Threaded	3/4 in.	2 Port Supply Radiant Manifold Without Valves	Without Operators
RM200WV	2 Zones	Threaded	3/4 in.	2 Port Return Radiant Manifold With Valves	Without Operators
RM300WFM	3 Zones	Threaded	3/4 in.	3 Port Return Manifold With Flow Meters	Without Operators
RM300WOV	3 Zones	Threaded	3/4 in.	3 Port Supply Radiant Manifold Without Valves	Without Operators
RM300WV	3 Zones	Threaded	3/4 in.	3 Port Return Radiant Manifold With Valves	Without Operators
RM400WFM	4 Zones	Threaded	3/4 in.	4 Port Return Manifold With Flow Meters	Without Operators
RM400WOV	4 Zones	Threaded	3/4 in.	4 Port Supply Radiant Manifold Without Valves	Without Operators
RM400WV	4 Zones	Threaded	3/4 in.	4 Port Return Radiant Manifold With Valves	Without Operators

Manifold Zone Valves

MT4 Series Smart-T Thermal Electric Actuator



- No mounting tools required. Mounts easily to manifold with valve adapter (included)
- Waterproof housing
- Auxiliary switch models for driving pumps or fans
- Low power consumption
- Normally closed action
- Compact design - installs in tight spaces
- Visual indicator shows valve position
- Silent operation
- Reliable long-term operation

Materials (Body): Plastic

Dimensions, Approximate: 2.24 high x 1.77 long x 1.65 deep

Current Draw: < 0.1A while operating; 0.7A during first 500 milliseconds

Maximum Fluid Temperature: 248 F (120 C)

Product Number	Connection Type	Collar Diameter		Description	Used With
		(inch)	(mm)		
MT4-024S-NC	Threaded	1 3/16 in.	30 mm	MT4 Thermal Electric Actuator	RM Series Manifolds

RM Series Manifold Accessories

Product Number	Connection Type	Connection Size	Description	Comments
FM100	Threaded	—	RM Series Manifold Flow Meter Replacement Top	Replacement Parts
MA206-018	PEX	R32 x 3/4 in.	R32 x 3/4 in. Pex Adapter	—
MA206-019	PEX	R32 x 1 in.	R32 x 1 in. PEX Adapter	—
MA206-020	NPT	R32 x 1 in.	R32 x 1 in. NPT Adapter	—
MA206-021	Sweat	R32 x 1 in.	R32 x 1 in. Sweat Adapter	—
MA206-022	Sweat	R32 x 1 1/4 in.	R32 x 1 1/4 in. Sweat Adpater	—
MBKT204	—	—	RM Series Manifold Bracket	—
MC206-002	Threaded	30mm	RM & SZ Series Manifold Valve Cap	—
MC206-010	—	—	RM Series Union Coupling Gasket	—
MC206-011	Threaded	1 in	RM Series Manifold End Cap	—
MPF203-023	Threaded	3/4 in	RM Series Manifold Branch Cap	—
MTK202	Threaded	1 in	RM Series Manifold Union End Fitting with Thermometer	—
YWM03-066	Threaded	—	RM Series Manifold Replacement Cartridge	Pre-balancing feature

Differential Pressure Regulators

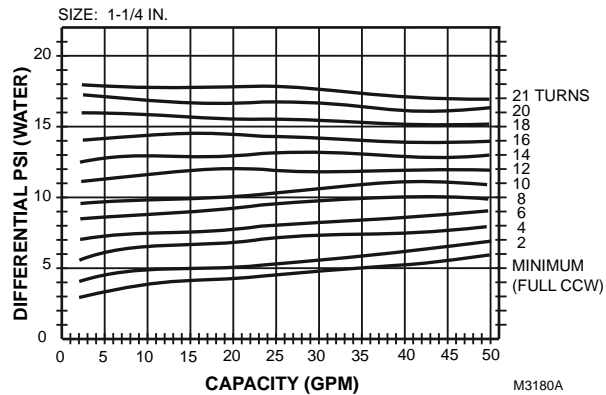
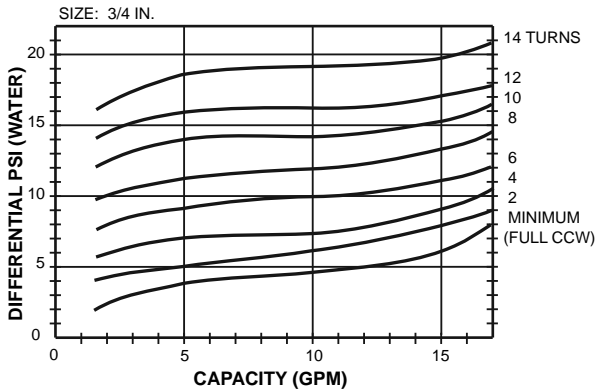
D146 Differential Pressure Regulators



Used to eliminate excessive pump head pressure when most radiator valves are closed due to reduced demand.

- Install between supply and return sides of a hydronic system to stabilize pressure differential and reduce the effects of demand changes.
- Control maintains a constant differential between the two sides by opening a bypass whenever the difference between supply and return reaches the setpoint.
- Provides silent, trouble-free service.
- Easy installation; requires no electrical hookup.
- Easy adjustment of pressure by turning regulating cap.
- Built-in differential pressure indicator.
- Brass valve body with thermoplastic and stainless steel parts.
- Diaphragm of EPDM.

D146 Capacities



Maximum Inlet Pressure Rating (psi): 85 Psi
Outlet Pressure Adjustment Range (psi): 0-17 psi
Temperature Range: 230 F (110 C)

Materials: Brass (body), Stainless steel and engineered thermoplastics.
 EPDM diaphragm.

Product Number	Pipe Size		Pipe Connection	Capacity	Dimensions, Approximate		Includes
	(inch)	DN			(inch)	(mm)	
D146M1032	3/4 in.	DN20	Angle type, female threaded NPT	18 gpm; 120,000 Btu/hr	6 1/4 in. high x 3 3/8 in. wide	160 mm high x 86 mm wide	Built-in differential pressure indicator
D146M1040	1 1/4 in.	DN32	Angle type, female threaded NPT	50 gpm; 395,000 Btu/hr	8 1/2 in. high x 4 1/4 in. wide	213 mm high x 109 mm wide	Built-in differential pressure indicator

Air Vents and Eliminators

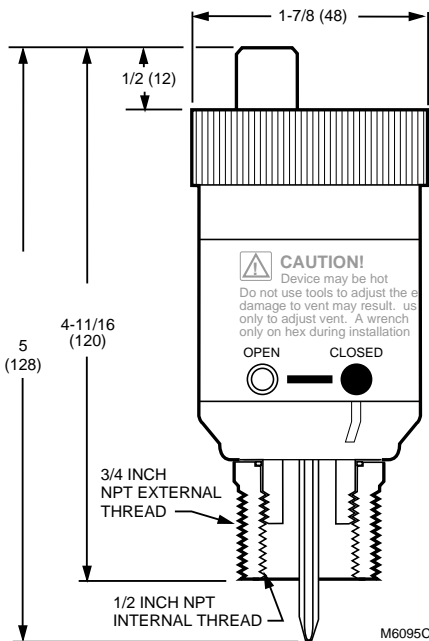
EA79 Industrial Air Vents



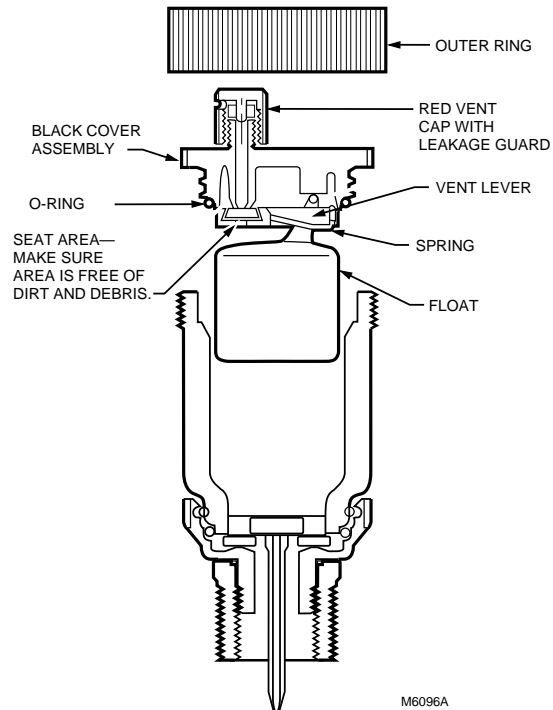
The Honeywell EA79 Industrial Air Vent purges air from high pressure mains and equipment in hot or cold closed water systems.

- Built-in shutoff valve for servicing without system shutdown.
- Built-in vacuum breaker.
- Removable float/valve assembly for easy servicing.
- Safety drain connection and vent cap with leakage guard.
- Brass shell construction.
- Internal parts made of corrosion-resistant and chemical-resistant materials for use with water systems containing propylene glycol, mineral oils, or petroleum-based oils. Replaces Hoffman # 79 or Dole # 75 Vents.
- Maintains quiet and efficient operation.

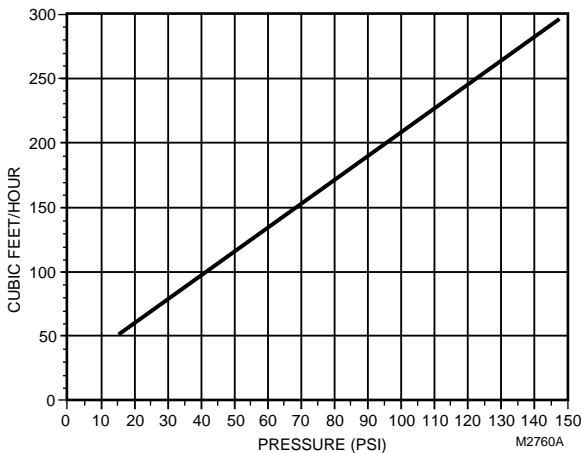
Dimensions in inches (millimeters)



EA79 construction



EA79 capabilities



Application: Hydronics

Corrosion Resistant: Internal parts made of corrosion-resistant and chemical-resistant materials for use with hydronic systems that may contain concentrations of propylene or ethylene glycol.

Maximum Operating Temperature: 250 F (120C)

Maximum Operating Pressure: 150 psi (1034 kPa)

Accessories:

Q122A1001 Safe waste connector (M20 thread connection)

Replacement Parts:

P79B1003 Replacement O-ring, cover and internals for EA79A1004

Product Number	Connection Type	Connection Size	Description
EA79A1004	3/4 in. male NPT pipe thread with 1/2 in. female NPT pipe thread	3/4 in.	Industrial automatic air vent

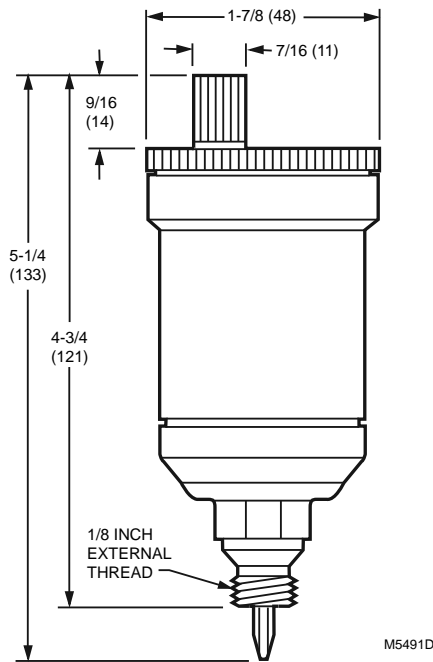
EA122A Automatic Air Vent for Heating System Applications



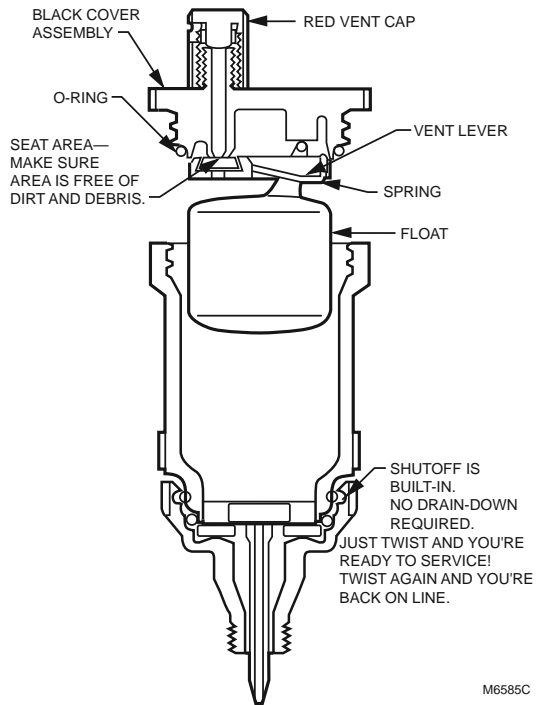
The Honeywell EA122A Automatic Air Vent purges air from high pressure mains and equipment in hot or cold closed water systems.

- Includes removable float/valve assembly for easy servicing.
- Not for use in steam systems.
- Body, cover and float assembly made of thermoplastics.
- Internal parts made of corrosion-resistant and chemical-resistant materials for use with water systems containing light concentrations of propylene glycol, mineral oils, or petroleum-based oils.
- Oil resistant seal.
- NBR seat disc and O-ring.

Dimensions in inches (millimeters)



EA122A construction



Application: Hydronic heating and cooling

Corrosion Resistant: Internal parts made of corrosion-resistant and chemical-resistant materials for use with hydronic systems that may contain concentrations of propylene or ethylene glycol.

Maximum Operating Temperature: 212 F (100 C)

Maximum Operating Pressure: 90 psi (620 kPa)

Accessories:

Q122A1001 Safe waste connector (M20 thread connection)

Replacement Parts:

P122B1002 Cover assembly including cover, float assembly and vent cap

Product Number	Connection Type	Connection Size	Description
EA122A1002	Male NPT	1/8 in.	Automatic air vent with built-in shutoff valve and leakage guard, oil resistant

Air Vents and Eliminators

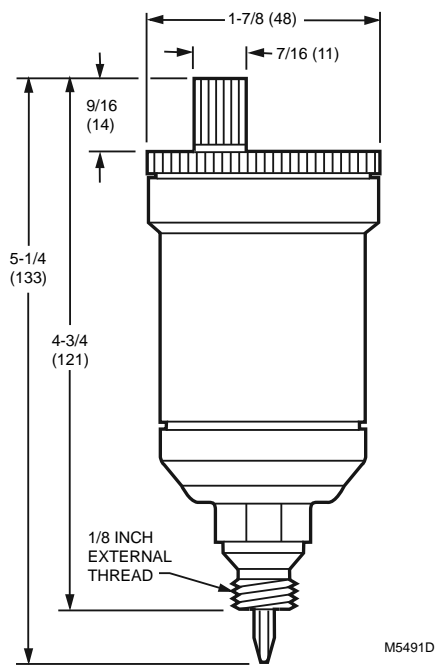
EA122A Automatic Air Vent for Non-Heating System Applications



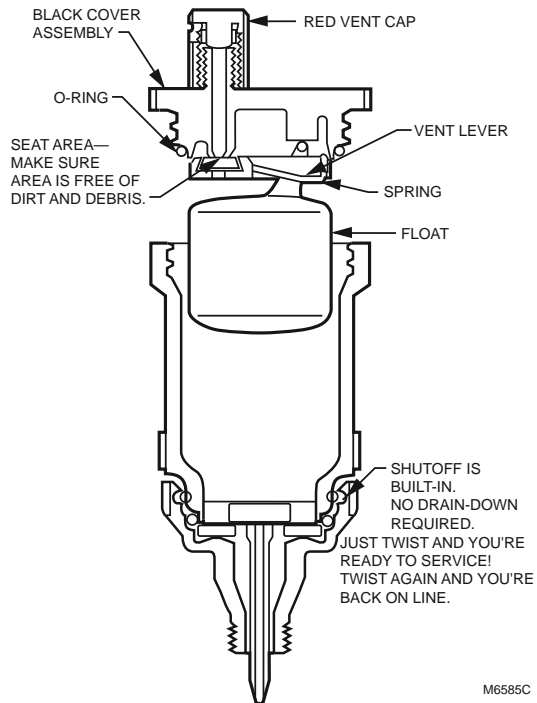
The Honeywell EA122A Automatic Air Vent purges air from high pressure mains and equipment in hot or cold potable water systems.

- Includes removable float/valve assembly for easy servicing.
- Not for use in steam systems.
- Body, cover and float assembly made of thermoplastics.
- Internal parts made of corrosion-resistant and chemical-resistant materials for use with water systems containing light concentrations of propylene glycol, mineral oils, or petroleum-based oils.
- Oil resistant seal.
- EPDM seat disc and O-ring.

Dimensions in inches (millimeters)



EA122A construction



Application: Potable water installations

Corrosion Resistant: Internal parts made of corrosion-resistant and chemical-resistant materials for use with hydronic systems that may contain concentrations of propylene or ethylene glycol.

Maximum Operating Temperature: 212 F (100 C)

Maximum Operating Pressure: 90 psi (620 kPa)

Accessories:

Q122A1001 Safe waste connector (M20 thread connection)

Replacement Parts:

P122B1002 Cover assembly including cover, float assembly and vent cap

Product Number	Connection Type	Connection Size	Description
EA122A1028	Male NPT	1/8 in.	Automatic air vent with built-in shut off valve; includes EPDM seat disc and O-ring.
EA122B117	Male NPT	1/8 in.	Automatic Air vent without built-in shutoff valve or leakage guard; includes EPDM seat disc and O-ring.

Air Vent Accessories and Replacement Parts

Product Number	Description	Used With
P79B1003	Replacement O-ring, cover and internals for EA79A1004	EA79A1004
P122B1002	Cover assembly including cover, float assembly and vent cap	EA122A1002
P122B1010	Cover assembly including cover, float assembly and vent cap	EA122A1028
Q122A1001	Safe waste connector (M20 thread connection)	EA79; EA122A

Air Vents and Eliminators

GoldTop™—Universal Air Vent for Residential and Commercial Heating and Cooling Systems.



Installers, wholesalers and OEMs can now stock one vent for all their venting needs between 1 and 150 psi systems and obtain the highest venting performance. Honeywell has reinvented the vent! Air vents have been removing air from heating and cooling systems for decades. Some were better than others. Many stopped venting after initial filling. No one has, up to now, been able to design a low cost vent that performs at both low and high pressures. It was always one or the other. Honeywell's revolutionary patented fulcrum design offers a venting rate of 3-4 times that of other products. It works when others stop venting at higher pressures. The GoldTop offers convenient, one-fits-all concept and is competitively priced.

- Patent No. 5,988,201.

Application: Residential or commercial heating and cooling systems

Materials (Body): Brass

Maximum Operating Temperature: 240 F (115 C)

Maximum Operating Pressure: 150 psi (1034 kPa)

Dimensions, Approximate: 1 27/32 in. diameter x 3 1/4 in. long
(24 mm diameter x 83 mm long)

Product Number	Connection Type	Connection Size	Weight		Description
			(lb)	(kg)	
FV180	Male NPT	1/8 in.	0.4 lb	0.18 kg	1/8 in. NPT Goldtop Universal Air Vent for heating and cooling systems
FV180A	Male NPT	1/4 in.	0.4 lb	0.18 kg	1/4 in. NPT Goldtop Universal Air Vent for heating and cooling systems
FV183	Male NPT	3/4 in.	0.4 lb	0.18 kg	3/4 in. NPT Goldtop Universal Air Vent for heating and cooling systems

Hydronic Controls

Hygrovent—Automatic Vent for Hot Water or Steam



The Honeywell Hygrovent is an automatic air vent for hot water and steam systems. Install in baseboards, radiators, convectors and high points in piping systems to remove air. The nickel-plated valve has a quick venting design and a positive shut-off ball check.

Application: Hot water or steam

Materials (Body): Nickel Plated

Maximum Operating Temperature: 240 F (115 C)

Maximum Operating Pressure: Water: 125 psi; Steam: 10 psi

Dimensions, Approximate: 1 27/32 in. diameter x 3 1/4 in. long
(24 mm diameter x 83 mm long)

Product Number	Connection Type	Connection Size	Weight		Description
			(lb)	(kg)	
HV190	Male NPT	1/8 in.	0.6 lb	0.3 kg	1/8 in. NPT Automatic Air Vent for hot water or steam

Air Vents and Eliminators

MaxiVent™—Air Vent for heating and cooling systems



The MaxiVent features a low profile, fit anywhere solid brass body and cover, and a high temperature polypropylene float.

Application: Residential or commercial heating and cooling systems

Materials (Body): Brass

Maximum Operating Temperature: 240 F (115 C)

Maximum Operating Pressure: 150 psi (1034 kPa)

Dimensions, Approximate: 2 in. high x 1 5/32 in. diameter (51 mm high x 29 mm diameter)

Product Number	Connection Type	Connection Size	Weight		Description
			(lb)	(kg)	
FV147	Male NPT	1/8 in.	0.12 lb	0.06 kg	1/8 in. NPT Air Vent for heating and cooling systems
FV147A	Male NPT	1/4 in.	0.12 lb	0.06 kg	1/4 in. NPT Air Vent for heating and cooling systems

AP400 Air Purger



Air Purgers provide efficient separation of air and water in hydronic heating systems. Heavy duty cast bronze construction with tappings for expansion tank and automatic air vent mountings. Removes entrapped air with internal baffle design through continuous recirculation of heating system water with use of air vent. Improves system efficiency, reduces noise and helps extend component life.

- Heavy Duty cast iron construction
- 1 inch, 1 1/4 and 1 1/2 inch models (inlet and outlet)
- 1/2 inch bottom tapping for expansion tank mount
- 1/8 inch top tapping for air vent mount
- Directional flow arrow for correct installation

Application: Closed heating systems

Materials (Body): Cast Iron

Maximum Operating Temperature: 275 F (135 C)

Maximum Operating Pressure: 125 psi (862 kPa)

Dimensions, Approximate: 6 in. long x 3-3/4 in. high x 2-3/8 in. wide (152 mm long x 95 mm high x 60 mm wide)

Product Number	Pipe Size	Connection Type	Connection Size	Weight		Description
				(lb)	(kg)	
AP400	1 in.	Female NPT	Bottom: 1/2 in.; Top: 1/8 in.	4.2 lb	1.9 kg	1 in. NPT Air Purger for closed heating systems
AP401	1 1/4 in.	Female NPT	Bottom: 1/2 in.; Top: 1/8 in.	3.8 lb	1.7 kg	1 1/4 in. NPT Air Purger for closed heating systems
AP402	1 1/2 in.	Female NPT	Bottom: 1/2 in.; Top: 1/8 in.	8.6 lb	3.9 kg	1 1/2 in. NPT Air Purger for closed heating systems

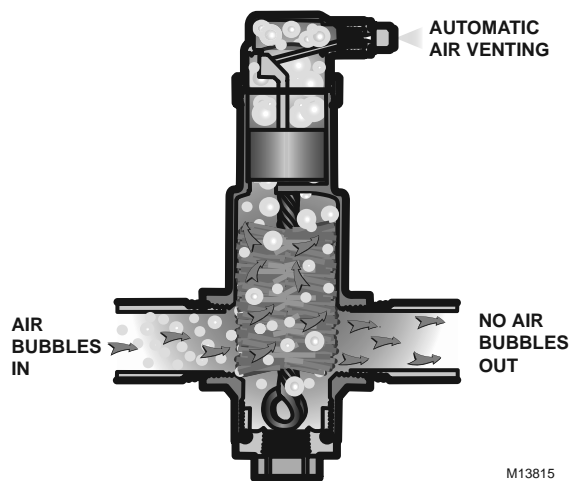
SuperVent® Air Eliminator Eliminates Air from Hydronic Heating Systems without Bleeding



Conventional automatic air vents installed in Hydronic heating systems can leak and cause inefficient system operation. To effectively eliminate air from the system without bleeding, air bubbles need to be vented. The NEW Honeywell SuperVent purges air through a no clog vent assembly that controls dirt and debris to minimize air vent fouling.

- No clog vent.
- Dirt and Debris resistant.
- 360 degree adjustable collar ring for installation flexibility.
- Stainless steel concentrator which eliminates gurgling noise.
- Bronze body for rigid construction.
- Threaded connections.

How it works



M13815

Application: Residential or Commercial closed loop hydronic heating or chilled water systems

Materials (Body): Bronze

Maximum Operating Temperature: 240 F (115 C)

Maximum Operating Pressure: 125 psi (862 kPa)

Product Number	Pipe Size	Connection Type	Maximum Diameter		Dimensions, Approximate		Connection Size	Capacity (Cv)	Weight	
			(inch)	(mm)	(inch)	(mm)			(lb)	(kg)
PV075	3/4 in.	Female NPT	1 13/16 in.	46 mm	6 29/32 in. high x 2 11/16 in. wide	176 mm high x 68 mm wide	3/4 in. bottom inlet	13 Cv	2 lb	0.9 kg
PV075S	3/4 in.	Sweat	1 13/16 in.	46 mm	6 29/32 in. long x 3 3/16 in. wide	176 mm high x 81 mm long	3/4 in. bottom inlet	13 Cv	2 lb	0.9 kg
PV100	1 in.	Female NPT	2 3/32 in.	53 mm	6 1/2 in. high x 3 3/32 in. wide	192 mm high x 79 mm long	1 in. bottom inlet	22 Cv	2.75 lb	1.2 kg
PV100S	1 in.	Sweat	2 3/32 in.	53 mm	6 1/2 in. high x 3 11/16 in. wide	192 mm long x 94 mm wide	1 in. bottom inlet	22 Cv	2.75 lb	1.2 kg
PV125	1 1/4 in.	Female NPT	2 1/2 in.	64 mm	7 27/32 in. high x 3 11/16 in. wide	199 mm high x 94 mm wide	1 1/4 in. bottom inlet	38 Cv	3.5 lb	1.6 kg
PV125S	1 1/4 in.	Sweat	2 1/2 in.	64 mm	7 27/32 in. high x 4 13/32 in. wide	199 mm high x 112 mm wide	1 1/4 in. bottom inlet	38 Cv	3.5 lb	1.6 kg
PV150	1 1/2 in.	Female NPT	3 3/32 in.	79 mm	9 5/32 in. high x 4 5/16 in. long	233 mm high x 110 mm long	1 1/2 in. bottom inlet	50 Cv	5.2 lb	2.4 kg
PV200	2 in.	Female NPT	4 in.	102 mm	10 9/32 in. high x 5 3/16 in. long	261 mm high x 132 mm long	2 in. bottom inlet	95 Cv	8 lb	3.6 kg

Air Vents and Eliminators

SuperVent® Air Eliminator Universal Models Eliminate Air from Hydronic Heating Systems without Bleeding



Conventional automatic air vents installed in Hydronic heating systems can leak and cause inefficient system operation. To effectively eliminate air from the system without bleeding, air bubbles need to be vented. The NEW Honeywell SuperVent purges air through a no clog vent assembly that controls dirt and debris to minimize air vent fouling.

- No clog vent.
- Dirt and Debris resistant.
- 360 degree adjustable collar ring for installation flexibility.
- Stainless steel concentrator which eliminates gurgling noise.
- Bronze body for rigid construction.
- Threaded connections.

Application: Residential or Commercial closed loop hydronic heating or chilled water systems

Materials (Body): Bronze

Maximum Operating Temperature: 240 F (115 C)

Maximum Operating Pressure: 125 psi (862 kPa)

Product Number	Pipe Size	Maximum Diameter		Dimensions, Approximate		Connection Type	Connection Size	Capacity (Cv)	Weight	
		(inch)	(mm)	(inch)	(mm)				(lb)	(kg)
PVU075	3/4 in.	1 13/16 in.	46 mm	7 9/32 in. long x 2 11/16 in. wide	185 mm long x 68 mm wide	Female NPT	3/4 in. bottom inlet	3.6 Cv	2.1 lb	0.9 kg
PVU100	1 in.	2 3/32 in.	53 mm	7 27/32 in. high x 4 13/32 in. wide	199 mm high x 112 mm wide	Female NPT	1 in. bottom inlet	6.2 CV	2.8 lb	1.3 kg
PVU125	1 1/4 in.	2 1/2 in.	64 mm	8 1/4 in. high x 3 11/16 in. wide	212 mm high x 94 mm long	Female NPT	1 1/4 in. bottom inlet	10.5 Cv	3.6 lb	1.6 kg
PVU150	1 1/2 in.	3 3/32 in.	79 mm	9 13/32 in. high x 4 5/16 in. wide	239 mm high x 110 mm long	Female NPT	1 1/2 in. bottom inlet	14.3 Cv	5.2 lb	2.4 kg

Typical Installation

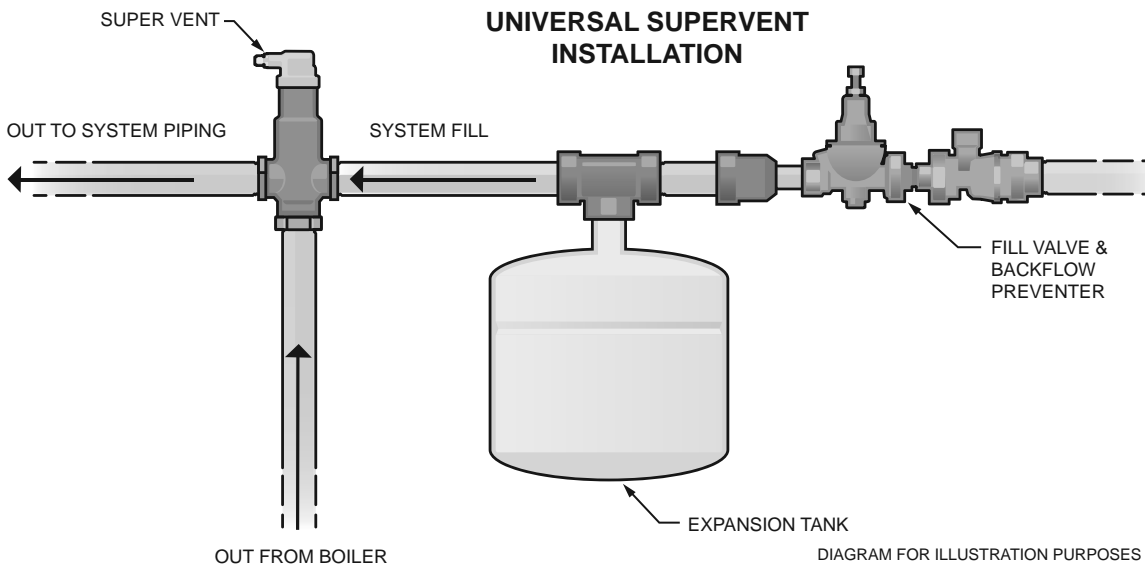


DIAGRAM FOR ILLUSTRATION PURPOSES ONLY.

M13834

SuperVent® Vent Top for Heating and Cooling Systems



The Supervent has high venting capacity and incorporates a check valve. Use with SuperVent PV Series products.

Application: Residential or commercial heating and cooling systems

Materials (Body): Brass

Maximum Operating Temperature: 240 F (115 C)

Maximum Operating Pressure: 150 psi (1034 kPa)

Dimensions, Approximate: 3 in. high x 2 in. diameter
(76 mm high x 51 mm diameter)

Product Number	Pipe Size	Connection Type	Maximum Diameter		Connection Size	Weight	
			(inch)	(mm)		(lb)	(kg)
SV173	3/8 in.	NPT	2 in.	51 mm	3/8 in.	0.43 lb	0.19 kg
SV175	1/2 in.	NPT	2 in.	51 mm	1/2 in.	0.43 lb	0.19 kg

SuperVent Replacement Parts

Product Number	Description
PV-001RP	Replacement Air Vent Assembly for PowerVent (pre 2004) size 3/4 in., 1 in., 1 1/4 in., 1 1/2 in. and 2 in.
PV-020RP	PV SuperVent Vent Top Replacement (New Style 90 Degree)

FlowCheck Valves

FlowCheck—Gravity Check Valves



Honeywell FlowChecks prevent the flow of water to any part of a system when the pump is shut off. They permit summer/winter operation of indirect water heaters. Honeywell FlowChecks are easy to clean. Just unscrew the top of the valve for inspection and cleaning. Bronze and brass construction. To allow gravity flow, the FlowCheck can be changed to manual operation by turning the hand wheel counterclockwise (open position).

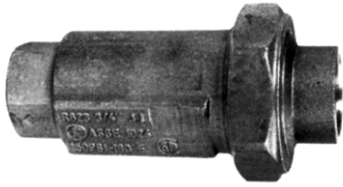
Type: Horizontal

Materials (Body): Brass

Dimensions, Approximate: 3 11/16 in. high x 3 5/16 in. long x 1 1/2 in. wide

Product Number	Size (inch)	Connection Type	Weight	
			(lb)	(kg)
FC200SB	3/4 in.	Sweat	1.1 lb	0.5 kg
FC201SB	1 in.	Sweat	1.5 lb	0.68 kg

Backflow Preventers with Dual Check for Domestic Water



Backflow Preventers-Dual Check for Domestic water

- Dual Check Valves may be installed in either a vertical or horizontal position and should be installed immediately down stream of the water meter.

Dimensions, Approximate:

4 3/8 in. long x 2 1/8 in. wide (111 mm long x 54 mm wide)

Connection Type: NPT

Maximum Ambient Temperature: 180 F (82 C)

Maximum Operating Pressure: 150 psi (1034 kPa)

Approvals:

Canadian Standards Association: Certified

Other: ASSE Certified

Product Number	Connection Size		Weight		Description
	(inch)	DN	(lb)	(kg)	
BP700	3/4 in.	DN20	1.0 lb	0.45 kg	Dual check 3/4 in. NPT
BP701	1 in.	DN25	1.4 lb	0.64 kg	Dual Check 1 in. NPT

Backflow Preventers with Intermediate Atmospheric Vent for Heating Systems



The BP900 is a double check backflow preventer with an intermediate vacuum breaker designed to prevent the backflow of contaminated water into the potable water supply. Designed for the use on small supply lines, it protects against both backflow and back siphonage for continuous pressure applications.

- It is ideal for boiler feed lines, livestock drinking fountains, trailer park water hook-ups, laboratory equipment and numerous other applications.
- Suitable for either hot or cold water service, the BP900 is designed for non-continuous backflow temperatures up to 250 F and working supply pressures up to 175 psi.

Dimensions, Approximate:

4 7/8 in. long x 2 1/2 in. wide (124 mm long x 63 mm wide)

Connection Type: NPT

Maximum Ambient Temperature: 250 F (121 C)

Maximum Operating Pressure: 175 psi (1207 kPa)

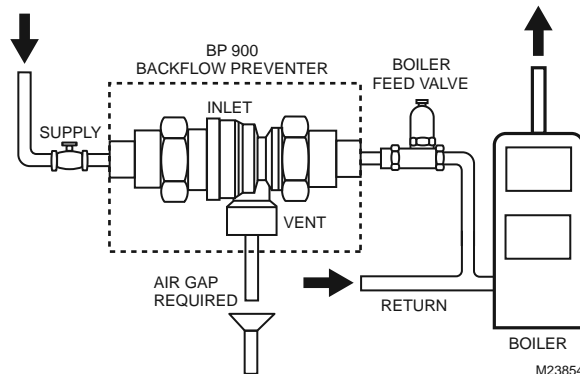
Approvals:

Canadian Standards Association: Certified

Other: ASSE Certified

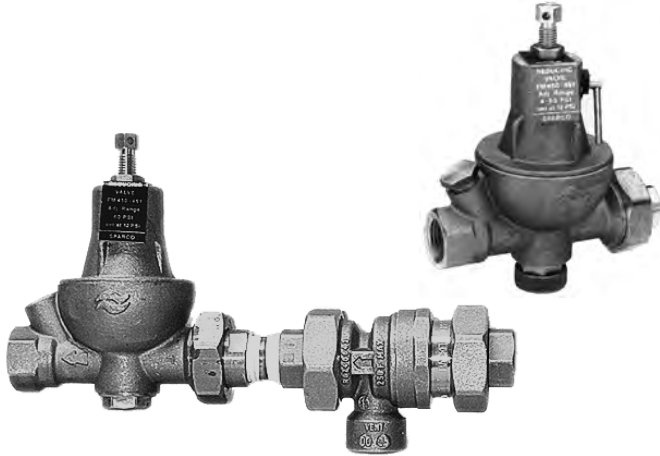
Product Number	Connection Size		Weight		Description
	(inch)	DN	(lb)	(kg)	
BP900	1/2 in.	DN15	1.2 lb	0.54 kg	Double check intermediate vacuum breaker - 1/2 in. NPT
BP901	3/4 in.	DN20	1.2 lb	0.54 kg	Double check intermediate vacuum breaker - 3/4 in. NPT

Typical Installation



Boiler Fill Valves

FM Boiler Fill Valves



Pressure regulating valve for automatic control of boiler feed water and other pressure reducing applications. Especially constructed for expansion tank mounting.

- Fast fill feature.
- Built in check valve.

Application: Fast fill pressure regulating boiler feed valve with check valve.

Connection Type: NPT

Inlet Connection Size: 1/2 in.

Inlet Connection Type: Sweat or Threaded

Pipe Size: 1/2 in.

Materials (Body): Brass

Maximum Ambient Temperature: 212 F (100 C)

Product Number	Maximum Operating Pressure		Regulating Pressure Range (psi)	Dimensions, Approximate (inch)	Weight (lb)	Description
	(kPa)	(psi)				
FM450	1034 kPa	150 psi	4 psi to 60 psi	4 1/8 in. high x 5 5/16 in. long	1.8 lb	1/2 in. sweat union pressure reducing valve, includes union nut and both sweat and NPT tailpiece
FM911	1034 kPa	150 psi	4 psi to 60 psi	—	4 lb	1/2 in. NPT Backflow preventer and boiler fill valve assembly, includes union nut and both sweat and NPT tailpiece

Thermometers and Gauges

Sweat and Threaded Thermometers with Thermowells



Thermometer with Sweat or Threaded Connection.

- Brass thermowell is included to allow the thermometer to be removed without draining the system.
- 2 inch or 2 1/2 inch Dial.

Materials: Case: steel; Well: brass

Temperature Range: 32 F to 250 F (0 C to 121 C)

Connection Size: 1/2 in.

Product Number	Connection Type	Dial Size		Length		Weight	
		(inch)	(mm)	(inch)	(mm)	(lb)	(kg)
GS200	Sweat	2 in.	51 mm	1 1/4 in.	51 mm	0.21 lb	0.095 kg
GS250	Sweat	2 1/2 in.	63.5 mm	1 1/4 in.	51 mm	0.25 lb	0.114 kg
GT161	NPT	2 in.	51 mm	1 1/2 in.	51 mm	0.21 lb	0.095 kg
GT162	NPT	2 1/2 in.	63.5 mm	1 1/2 in.	51 mm	0.25 lb	0.114 kg

Tridicators



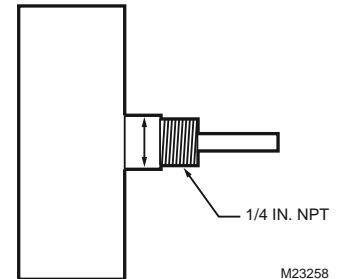
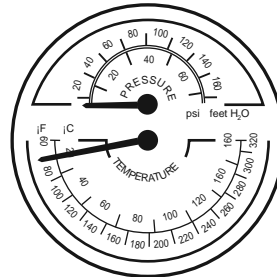
Pressure/temperature gauge with relief set point indicator for boilers and shut off valve.

Temperature Range: 60 F to 320 F (15 C to 160 C)

Connection Size: 1/4 in.

Connection Type: NPT

Maximum Operating Pressure: 75 psi



M23258

Product Number	Dial Size		Length		Weight		Comments
	(inch)	(mm)	(inch)	(mm)	(lb)	(kg)	
TD-090	3 1/8 in.	79.4 mm	1 21/32 in.	23 mm	0.3 lb	0.14 kg	Pressure/temperature gauge with relief set point indicator
TD-165	3 1/8 in.	79.4 mm	2 in.	42.1 mm	0.3 lb	0.14 kg	Pressure/temperature gauge with relief set point indicator
TDV-040	3 1/8 in.	79.38 mm	29/32 in.	23.02 mm	0.4 lb	0.18 kg	Pressure/temperature gauge with relief set point indicator and shut off valve

Residential Expansion Tanks

TX Series Expansion Tanks - Domestic Hot Water



The Honeywell Thermal Expansion Absorber is a welded, pressurized expansion tank with a butyl diaphragm to control excess pressure in potable hot water systems. The Thermal Expansion Tank controls pressure build-up in the system, eliminates relief valve spillage, protects fixtures and extends water heater life.

- Heavy duty butyl rubber diaphragm (FDA approved) isolates water from air.
- Polypropylene liner, 100% non-metallic, non-corrosive water reservoir.
- Full size range: 2-528 gals., for all water heating volumes (ASME available).
- Prevents water hammer.
- Maintenance free.
- Protects water heater from harmful pressure cycling.
- Allows storage of expanded water with no increase in system pressures.

Maximum Operating Temperature: 200 F (93 C)
Maximum Operating Pressure: 150 psi (1034 kPa)
Precharge: 40 psi
Comments: Potable

Materials
Shell: Steel
Connection: Brass
Liner: Polypropylene
Diaphragm: Butyl

Product Number	Con- nection Size (inch)	Connection Type	Diameter		Height		Volume		Maximum Acceptance Volume		Weight	
			(inch)	(mm)	(inch)	(mm)	(gal)	(L)	(gal)	(L)	(lb)	(kg)
TX-5	3/4 in.	Male NPT	8 in.	203.2 mm	12 5/8 in.	321 mm	2.0 gal	7.6 L	0.9 gal	3.41 L	5 lb	2.27 kg
TX-12	3/4 in.	Male NPT	11 in.	279 mm	12 5/8 in.	321 mm	4.4 gal	16.7 L	3.2 gal	12.1 L	5 lb	2.27 kg
TX-25V	3/4 in.	Female NPT	15 3/8 in.	390.5 mm	19 1/4 in.	489 mm	10.3 gal	39 L	10.3 gal	39 L	23 lb	10.43 kg
TX-30V	3/4 in.	Female NPT	15 3/8 in.	390.5 mm	23 7/8 in.	606 mm	14.0 gal	53.1 L	11.3 gal	42.8 L	25 lb	11.34 kg
TX-42V	3/4 in.	Female NPT	15 3/8 in.	390.5 mm	31 5/8 in.	803 mm	20.0 gal	75.7 L	11.4 gal	43.2 L	33 lb	14.97 kg
TX-60V	1 1/4 in.	Female NPT	22 in.	558.8 mm	29 5/8 in.	752.5 mm	34.0 gal	128.7 L	34.0 gal	128.7 L	61 lb	27.67 kg
TX-80V	1 1/4 in.	Female NPT	22 in.	558.8 mm	40 1/2 in.	914 mm	44.0 gal	166.5 L	33.9 gal	128.3 L	63 lb	28.58 kg
TX-180V	1 1/4 in.	Female NPT	22 in.	558.8 mm	46 3/4 in.	1187.5 mm	62.0 gal	235 L	34.1 gal	129.1 L	92 lb	41.73 kg
TX-210V	1 1/4 in.	Female NPT	26 in.	660.4 mm	47 1/4 in.	1200 mm	86.0 gal	325.5 L	46.4 gal	175.6 L	123 lb	55.79 kg

Service Check Valves



Service Check Valves for air vents and expansion tanks allow easy field service without draining system.

CAUTION

Reduce system temperature to ambient and pressure to 0 psi before servicing component. Failure to do so may result in injuries.

Maximum Operating Temperature: 240 F (115 C)
Maximum Operating Pressure: 100 psi (689 kPa)

Product Number	Connection Size (inch)	Connection Type
SCV-0125	1/8 in.	Inlet FNPT, Outlet MNPT
SCV-050	1/2 in.	Inlet FNPT, Outlet MNPT

Residential Expansion Tanks

TK300 Series Expansion Tanks - Heating



Honeywell Expansion Tanks are designed to absorb hot water expansion in closed heating systems. They are equipped with butyl diaphragms to separate the air from the system water (glycol). The tanks are a welded, not clamped design. Pre-pressurized at 12 psi, the tank keeps fluids circulating and maintains minimum system pressure. Honeywell tanks resist waterlogging, loss of pressure through relief valve spills, loss of BTUs and reduce circulator running time. Use the super efficient Honeywell PowerVent or air vents to remove air and micro-bubbles from the system for maximum performance.

- Butyl/EPDM diaphragm- 9 times better than natural rubber
- Deep-drawn steel tank
- Controls system pressure
- Air-tight cushion-factory pre-charged to 12 psig and 100% tested

Maximum Operating Temperature: 240 F (115 C)
Maximum Operating Pressure: 100 psi (689 kPa)

Materials: steel shell, heavy duty butyl diaphragm
Comments: Heating

Product Number	Connection Size (inch)	Connection Type	Diameter		Height		Volume		Maximum Acceptance Volume		Weight	
			(inch)	(mm)	(inch)	(mm)	(gal)	(L)	(gal)	(L)	(lb)	(kg)
TK300-15	1/2 in.	Male NPT	8 in.	203.2 mm	12 5/8 in.	321 mm	2.0 gal	7.6 L	1 gal	3.8 L	5 lb	2.3 kg
TK300-30	1/2 in.	Male NPT	11 in.	279 mm	15 1/2 in.	394 mm	4.4 gal	16.7 L	2.5 gal	9.5 L	9 lb	4.1 kg
TK300-60	1/2 in.	Male NPT	11 in.	279 mm	23 in.	584 mm	7.6 gal	28.8 L	2.5 gal	9.5 L	14 lb	6.4 kg
TK300-90	1/2 in.	Male NPT	15 3/8 in.	390.5 mm	21 in.	533 mm	14.0 gal	53.1 L	11.5 gal	40.1 L	23 lb	10.4 kg

Expansion Tank Sizing based on BTU's

Boiler Net Output in 1000's of BTU/Hr MBH	Type of Radiation			
	Finned Tube Baseboard or Radiant Panel	Convectors or Unit Heaters	Radiators Cast Iron	Baseboard Cast Iron
	Use Model	Use Model	Use Model	Use Model
25	TK300-15	TK300-15	TK300-15	TK300-15
50	TK300-15	TK300-15	TK300-30	TK300-30
75	TK300-30	TK300-30	TK300-30	TK300-60
100	TK300-30	TK300-30	TK300-60	TK300-60
125	TK300-30	TK300-60	TK300-60	TK300-90
150	TK300-30	TK300-60	TK300-90	TK300-90
175	TK300-60	TK300-60	XPS-030V	XPS-030V
200	TK300-60	TK300-60	XPS-030V	XPS-030V
250	TK300-60	TK300-90	XPS-030V	XPS-040V
300	TK300-90	XPS-030V	XPS-030V	XPS-040V
350	XPS-030V	XPS-030V	XPS-040V	XPS-060V
400	XPS-030V	XPS-040V	XPS-040V	XPS-060V

Residential Expansion Tank Kits

Boiler Trim Kit with SuperVent



Honeywell TK Series Combo Boiler Trim kits are a quick and convenient way to purchase the key "boiler trim" used by installers when performing a boiler change out. All Combo Trim Kits with SuperVent include expansion tank and SuperVent high performance air eliminator; selected models also include FM911 combination boiler fill valve/backflow preventer and/or service check valves for in-line servicing of the expansion tank.

Maximum Operating Temperature: 240 F (115 C)
Maximum Operating Pressure: 100 psi (689 kPA)
Diameter: 11 in. (279 mm)
Maximum Acceptance Volume: 2.5 gal. (9.5 L)

Product Number	Connection Size (inch)	Connection Type	Height		Volume		Weight		Includes
			(inch)	(mm)	(gal)	(L)	(lb)	(kg)	
TK30PV100FM	SuperVent: 1 in. Tank: 1/2 in.	SuperVent: Female NPT Tank: Male NPT	15 1/2 in.	394 mm	4.4 gal	16.7 L	16 lb	7.3 kg	TK300-30, PV100, SCV-050, FM911
TK30PV100FMNC	SuperVent: 1 in. Tank: 1/2 in.	SuperVent: Female NPT Tank: Male NPT	15 1/2 in.	394 mm	4.4 gal	16.7 L	16 lb	7.3 kg	TK300-30, PV100, FM911
TK30PV100SFM	SuperVent: 1 in. Tank: 1/2 in.	SuperVent: Sweat Tank: Male NPT	15 1/2 in.	394 mm	4.4 gal	16.7 L	16 lb	7.3 kg	TK300-30, PV100S, SCV-050, FM911
TK30PV125	SuperVent: 1 1/4 in. Tank: 1/2 in.	SuperVent: Female NPT Tank: Male NPT	15 1/2 in.	394 mm	4.4 gal	16.7 L	12.8 lb	5.8 kg	TK300-30, PV125, SCV-050
TK30PV125FM	SuperVent: 1 1/4 in. Tank: 1/2 in.	SuperVent: Female NPT Tank: Male NPT	15 1/2 in.	394 mm	4.4 gal	16.7 L	16.8 lb	7.6 kg	TK300-30, PV125, SCV-050, FM911
TK30PV125FMNC	SuperVent: 1 1/4 in. Tank: 1/2 in.	SuperVent: Female NPT Tank: Male NPT	15 1/2 in.	394 mm	4.4 gal	16.7 L	16.8 lb	7.6 kg	TK300-30, PV125, FM911
TK30PV125SFM	SuperVent: 1 1/4 in. Tank: 1/2 in.	SuperVent: Sweat Tank: Male NPT	15 1/2 in.	394 mm	4.4 gal	16.7 L	16.8 lb	7.6 kg	TK300-30, PV125S, SCV-050, FM911
TK60PV100SFMNC	SuperVent: 1 1/4 in. Tank: 1/2 in.	SuperVent: Female NPT Tank: Male NPT	23 in.	584 mm	4.4 gal	16.7 L	15.3 lb	6.9 kg	TK300-60, PV100S, FM911
TK60PV125FMNC	SuperVent: 1 1/4 in. Tank: 1/2 in.	SuperVent: Female NPT Tank: Male NPT	23 in.	584 mm	7.6 gal	28.8 L	17.5 lb	7.95 kg	TK300-60, PV125, FM911
TK60PV125SFMNC	SuperVent: 1 1/4 in. Tank: 1/2 in.	SuperVent: Sweat Tank: Male NPT	23 in.	584 mm	7.6 gal	28.8 L	17.5 lb	7.95 kg	TK300-60, PV125S, FM911

Residential Expansion Tank Kits

Boiler Trim Kit with Air Purger



Honeywell TK Series Boiler Trim kits are a quick and convenient way to purchase the key "boiler trim" used by installers when performing a boiler change out. All Trim Kits with Purgers include expansion tank, air purger and air vent; selected models also include FM911 combination boiler fill valve/backflow preventer and/or service check valves for in-line servicing of the expansion tank and air vent.

Maximum Operating Temperature: 240 F (115 C)
Maximum Operating Pressure: 100 psi (689 kPa)
Diameter: 11 in. (279 mm)
Maximum Acceptance Volume: 2.5 gal. (9.5 L)

Product Number	Connection Size (inch)	Connection Type	Height		Volume		Weight		Includes
			(inch)	(mm)	(gal)	(L)	(lb)	(kg)	
TK300-30A-1	Air Purger: 1 in. Tank: 1/2 in.	Tank: Male NPT Air Purger: Female NPT	15 1/2 in.	394 mm	4.4 gal	16.7 L	13 lb	5.9 kg	TK300-30, AP400, FV180, SCV-0125, SCV-050
TK300-30A-1FM	Air Purger: 1 in. Tank: 1/2 in.	Tank: Male NPT Air Purger: Female NPT	15 1/2 in.	394 mm	4.4 gal	16.7 L	16.6 lb	7.5 kg	TK300-30, AP400, FV180, SCV-0125, SCV-050, FM911
TK300-30A-1FMNC	Air Purger: 1 in. Tank: 1/2 in.	Tank: Male NPT Air Purger: Female NPT	15 1/2 in.	394 mm	4.4 gal	16.7 L	16.6 lb	7.5 kg	TK300-30, AP400, FV180, FM911
TK300-30A-2	Air Purger: 1 1/4 in. Tank: 1/2 in.	Tank: Male NPT Air Purger: Female NPT	15 1/2 in.	394 mm	4.4 gal	16.7 L	13 lb	5.9 kg	TK300-30, AP401, FV180, SCV-0125, SCV-050
TK300-30A-2FM	Air Purger: 1 1/4 in. Tank: 1/2 in.	Tank: Male NPT Air Purger: Female NPT	15 1/2 in.	394 mm	4.4 gal	16.7 L	16.6 lb	7.5 kg	TK300-30, AP401, FV180, SCV-0125, SCV-050, FM911
TK300-30A-2FMNC	Air Purger: 1 1/4 in. Tank: 1/2 in.	Tank: Male NPT Air Purger: Female NPT	15 1/2 in.	394 mm	4.4 gal	16.7 L	16.6 lb	7.5 kg	TK300-30, AP401, FV180, FM911

Thermostatic Radiator Valves and Actuators

V135 Thermostatic Mixing or Diverting Valves



Thermostatic Mixing or Diverting Valves for use in hydronic heating systems as a three-way mixing or diverting valve; controls loop temperature in radiant heating systems.

- Includes plastic handle for manual operation.
- Knurled ring on T100R control head for easy attachment to V135.

Application: Thermostatic mixing/diverting valve for use in hydronic heating systems. Controls loop temperature in radiant heating systems.

Materials (Body): Bronze

Differential Pressure Rating: 17 psi maximum

Pressure Ratings (Steam): 232 psi maximum (1601 kPa)

Temperature Rating: 248 F Maximum (120 C Maximum)

Collar Diameter: 1 3/16 in. (30 mm)

Used With: T100R

Replacement Parts:

0900661 Replacement cartridge for V135A 1 in. and 1 1/4 in. models

Product Number	Pipe Size		Body Pattern	Capacity (Cv)	Connection Type	Dimensions, Approximate	
	(inch)	DN				(inch)	(mm)
V135A1006	3/4 in.	DN20	Three-way	3.7 Cv	Sweat	2 9/16 in. x 5 1/8 in.	64 mm x 128 mm
V135A1014	1 in.	DN25	Three-way	5.8 Cv	Sweat	2 15/16 in. x 5 13/16 in.	74 mm x 148 mm
V135A1022	1 1/4 in.	DN32	Three-way	5.8 Cv	NPT	3 3/4 in. x 7 1/8 in.	95 mm x 180 mm
V135A1048	1 1/2 in.	DN40	Three-way	11.7 Cv	NPT	3 3/4 in. x 7 3/8 in.	95 mm x 188 mm
V135A1063	1 1/4 in.	DN32	Three-way	5.8 Cv	Sweat	3 3/8 in. x 6 3/8 in.	86 mm x 162 mm

T100R Thermostatic Mixing or Diverting Valve Actuator



For use in hydronic heating systems with V135 Valves in a three-way mixing or diverting application. Controls loop temperature in radiant heating systems.

- T100R Thermostatic Actuator includes strap-on-pipe sensor.
- Knurled ring on T100R control head for easy attachment to V135.

Application: Three-way mixing and diverting applications in hydronic heating systems requiring remote sensing

Used With Valve: V135

Collar Diameter: 1 3/16 in. (30 mm)

Replacement Parts:

0900661 Replacement cartridge for V135A 1 in. and 1 1/4 in. models

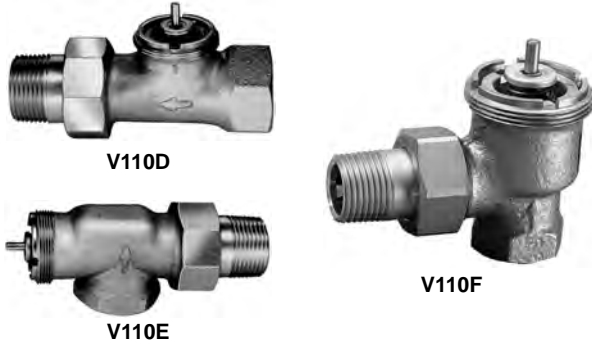
Product Number	Capillary Length		Temperature Range		Setpoint (Integral or Remote)
	(ft)	(m)	(F)	(C)	
T100R1004	6 ft. 8 in.	2 m	50 F to 122 F	10 C to 50 C	Remote
T100R1012	6 ft. 8 in.	2 m	86 F to 158 F	30 C to 70 C	Remote

V135 Thermostatic Mixing or Diverting Valves Replacement Cartridges

Product Number	Description	Used With
V135A-12VE	Replacement cartridge for V135A 1/2 in. and 3/4 in. models	V135
V135A-1VE	Replacement cartridge for V135A 1 in. and 1 1/4 in. models	V135
V135A-11/2VE	Replacement cartridge for V135A 1 1/2 in. and 2 in. models	V135

Thermostatic Radiator Valves and Actuators

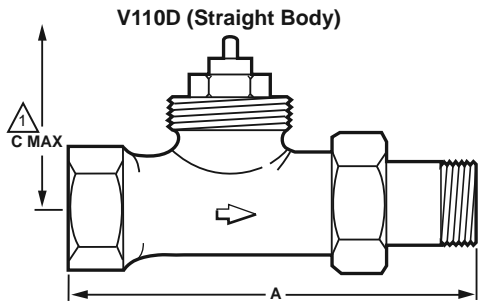
V110 High Capacity Thermostatic Radiator Valves



High Capacity Thermostatic Radiator Valves with T104 Thermostatic Actuators provide precise and automatic control of room temperature in two-pipe systems by modulating the flow of hot water or steam through free-standing radiators, convectors and other heating units with high capacity requirements.

- Designed with the higher capacity normally required by North American heating systems.
- Valve seat disc, which is made of resilient material (EPDM), ensures tight shutoff on steam or hot water systems.
- Nickel-plated bronze casted body with working parts in cartridge insert for ease of service.
- All working parts are replaceable using service tool (MT100C1011) while valve remains in service, in-line, under pressure.
- Valves normally open without control mounted.
- Valves may be used with T104 Thermostatic Actuators.
- Meet ASHRAE Standard 102-1989.

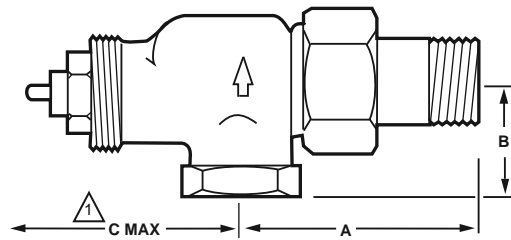
Dimensions in inches (millimeters)



PIPE SIZE	A IN. (MM)	Δ C MAX IN. (MM)
1/2 INCH	3-3/4 (95)	4-3/4 (121)
3/4 INCH	4-1/8 (105)	4-3/4 (121)
1 INCH	4-15/16 (125)	4-3/4 (121)
1-1/4 INCH	5-7/8 (149)	5 (127)

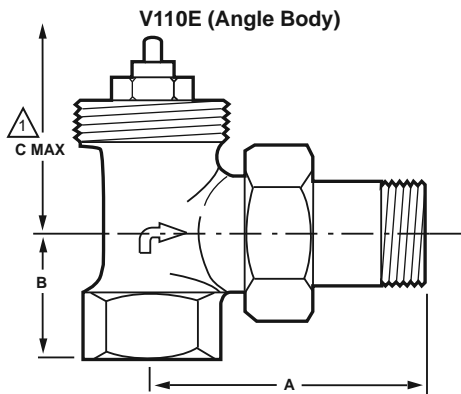
Δ C MAX DIMENSION IS WITH T104 CONTROL INSTALLED. M18959A

V110F (Horizontal Angle Body)



PIPE SIZE	A IN. (MM)	B IN. (MM)	Δ C MAX IN. (MM)
1/2 INCH	2-1/4 (57)	1 (25)	5-1/8 (130)
3/4 INCH	2-9/16 (65)	1-1/8 (29)	5-1/4 (133)
1 INCH	2-15/16 (74)	1-3/16 (30)	5-1/4 (133)
1-1/4 INCH	3-1/2 (89)	2-3/16 (56)	5-1/4 (133)

Δ C MAX DIMENSION IS WITH T104 CONTROL INSTALLED. M18961A



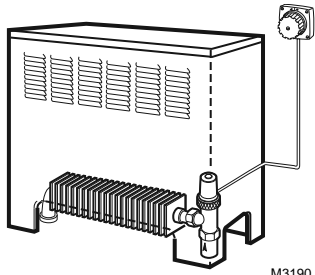
PIPE SIZE	A IN. (MM)	B IN. (MM)	Δ C MAX IN. (MM)
1/2 INCH	2-9/16 (65)	1 (25)	4-3/4 (121)
3/4 INCH	2-5/8 (67)	1-1/8 (29)	4-3/4 (121)
1 INCH	3 (76)	1-5/16 (33)	4-3/4 (121)
1-1/4 INCH	3-5/8 (90)	1-11/16 (43)	5 (127)

Δ C MAX DIMENSION IS WITH T104 CONTROL INSTALLED. M18960A

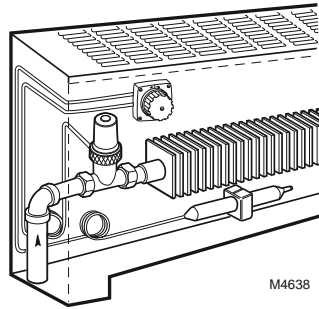
- Capacity:** high
- Materials (Body):** Nickel Plated Bronze
- Differential Pressure Rating:** 17 psi maximum
- Pressure Ratings (Hot Water):** 150 psi maximum (1034 kPa maximum)
- Pressure Ratings (Steam):** 15 psi maximum (103 kPa)
- Temperature Rating:** 248 F Maximum (120 C Maximum)
- Cartridge Change Tool:** Yes - Use MT110C1011
- Used With:** T104

Thermostatic Radiator Valves and Actuators

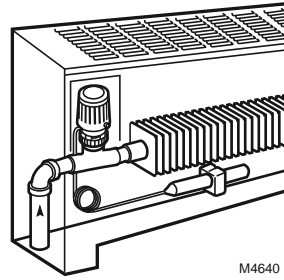
Typical Installations



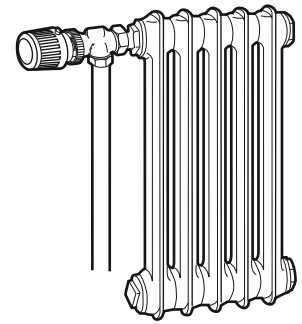
M3190



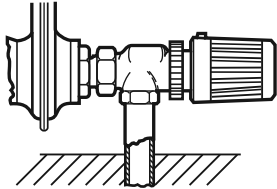
M4638



M4640



M4632



M12935

Product Number	Application	Pipe Size		Body Pattern	Capacity		Connection Type
		(inch)	DN		(Cv)	(Btu/hr-steam)	
V110D1000	Precise and automatic control of room temperature in two-pipe systems by modulating the flow of hot water or steam through high capacity heating units.	1/2 in.	DN15	Straight	4.6 Cv	127,000 Btu/hr	Threaded
V110D1008		3/4 in.	DN20	Straight	5.8 Cv	162,000 Btu/hr	Threaded
V110D1016		1 in.	DN25	Straight	7.0 Cv	193,000 Btu/hr	Threaded
V110D1024		1 1/4 in.	DN32	Straight	8 Cv	193,000 Btu/hr	Threaded
V110D5001		1/2 in.	DN15	Straight	4.6 Cv	127,000 Btu/hr	Sweat
V110D5009		3/4 in.	DN20	Straight	5.8 Cv	162,000 Btu/hr	Sweat
V110D5017		1 in.	DN25	Straight	7.0 Cv	193,000 Btu/hr	Sweat
V110E1004	Precise and automatic control of room temperature in two-pipe systems by modulating the flow of hot water or steam through high capacity heating units when used with T104 Thermostatic Actuators	1/2 in.	DN15	Angle	4.6 Cv	127,000 Btu/hr	Threaded
V110E1012		3/4 in.	DN20	Angle	5.8 Cv	162,000 Btu/hr	Threaded
V110E1020		1 in.	DN25	Angle	7.0 Cv	193,000 Btu/hr	Threaded
V110E1028		1 1/4 in.	DN32	Angle	8 Cv	193,000 Btu/hr	Threaded
V110E5005		1/2 in.	DN15	Angle	4.6 Cv	127,000 Btu/hr	Sweat
V110E5013		3/4 in.	DN20	Angle	5.8 Cv	162,000 Btu/hr	Sweat
V110F1002		1/2 in.	DN15	Horizontal Angle	4.6 Cv	127,000 Btu/hr	Threaded
V110F1010		3/4 in.	DN20	Horizontal Angle	5.8 Cv	162,000 Btu/hr	Threaded
V110F1018		1 in.	DN25	Horizontal Angle	7.0 Cv	193,000 Btu/hr	Threaded
V110F1026		1 1/4 in.	DN32	Horizontal Angle	8 Cv	193,000 Btu/hr	Threaded
V110F5003		1/2 in.	DN15	Horizontal Angle	4.6 Cv	127,000 Btu/hr	Sweat
V110F5011		3/4 in.	DN20	Horizontal Angle	5.8 Cv	162,000 Btu/hr	Sweat

Thermostatic Radiator Valves and Actuators

V200; V2000 Series Standard Capacity Thermostatic Radiator Valve Body



V200LD



V2040A, V2040E



V2040D



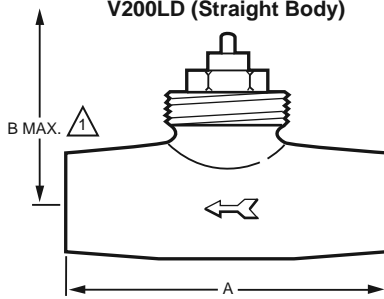
V2040E

One-Pipe Steam Thermostatic Radiator Valves - Allow automatic temperature control in one-pipe steam or hot water systems for free standing radiators, convectors and other heating units with standard capacity requirements. Provide comfort and energy savings.

- Continually monitors and adjusts room temperature for consistent comfort and relief from under-heating and overheating.
- Adjustable balancing cartridge design made from resilient material (EPDM), ensures tight shut-off on steam and hot water systems.
- Nickel plated brass casted body.
- Replaceable cartridge for easy service with service tool.
- Controls include valve body, steam air vent.
- Used with T100 set point and capillary actuators.
- No electrical connection required for non-electric actuators.
- Normally open without control mounted.

Dimensions in inches (millimeters)

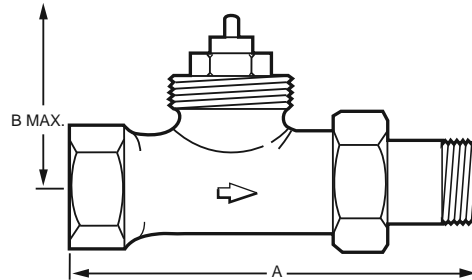
V200LD (Straight Body)



PIPE SIZE	A IN. (MM)	$\triangle 1$ B MAX IN. (MM)
1/2 INCH	2-5/8 (66)	4-1/16 (104)
3/4 INCH	2-15/16 (74)	4-1/16 (104)

$\triangle 1$ B MAX DIMENSION IS WITH T100A CONTROL INSTALLED. M12933C

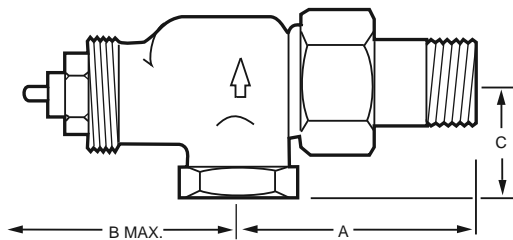
V2040D (Straight Body)



PIPE SIZE	A IN. (MM)	$\triangle 1$ B MAX IN. (MM)
1/2 INCH	3-3/4 (95)	4-1/6 (104)
3/4 INCH	4-3/16 (106)	4-1/6 (104)
1 INCH	4-1/2 (114)	4-1/2 (114)

$\triangle 1$ B MAX DIMENSION IS WITH T100A CONTROL INSTALLED. M12930D

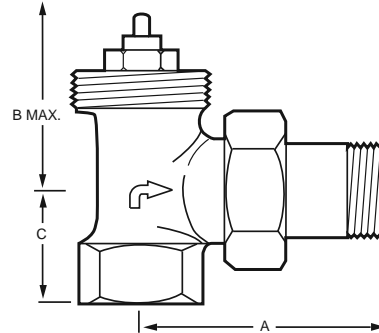
V2040A (Horizontal Angle Body)



PIPE SIZE	A IN. (MM)	$\triangle 1$ B MAX IN. (MM)	C IN. (MM)
1/2 INCH	2-1/8 (54)	4-1/2 (115)	1-1/8 (29)
3/4 INCH	2-1/2 (64)	5-3/16 (132)	1-3/16 (31)
1 INCH	2-15/16 (74)	5-3/16 (132)	1-7/16 (37)

$\triangle 1$ B MAX DIMENSION IS WITH T100A CONTROL INSTALLED. M12932C

V2040E (Angle Body)

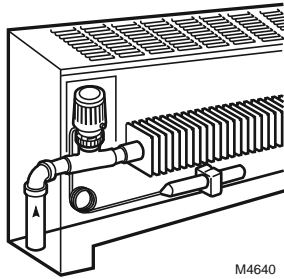


PIPE SIZE	A IN. (MM)	$\triangle 1$ B MAX IN. (MM)	C IN. (MM)
1/2 INCH	2-5/16 (58)	3-13/16 (97)	1 (25)
3/4 INCH	2-5/8 (66)	3-13/16 (97)	1-1/8 (29)
1 INCH	2-15/16 (74)	4-5/16 (110)	1-5/16 (34)

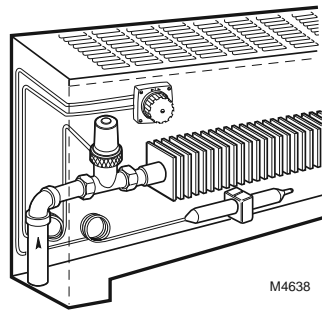
$\triangle 1$ B MAX DIMENSION IS WITH T100A CONTROL INSTALLED. M12931D

Thermostatic Radiator Valves and Actuators

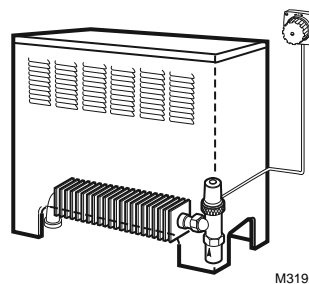
Typical Installations



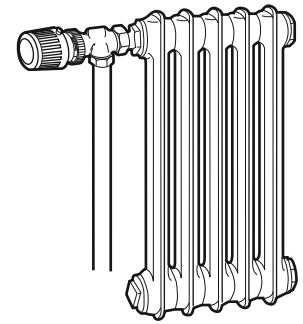
M4640



M4638



M3190



M4632

Capacity: Standard

Materials (Body): Nickel Plated Bronze

Differential Pressure Rating:

With T100 or T200: 15 psi (103 kPa)

With MV100: 36 psi (248 kPa)

For low noise: 3 psi (20 kPa)

Pressure Ratings (Hot Water): 150 psi maximum
(1034 kPa maximum)

Pressure Ratings (Steam): 15 psi maximum (103 kPa)

Temperature Rating: 248 F Maximum (120 C Maximum)

Cartridge Change Tool: Yes - Use VA8200A001

Product Number	Application	Body Pattern	Pipe Size		Outlet Connection Type	Capacity		Used With
			(inch)	DN		(Cv)	(Btu/hr-steam)	
V200LDSL15	For baseboards and other installations with copper tubing.	Straight	1/2 in.	DN15	Sweat both ends, no union	2.5 Cv	59,100 Btu/hr	T100
V200LDSL20		Straight	3/4 in.	DN20	Sweat both ends, no union	2.7 Cv	63,800 Btu/hr	T100
V2040ASL15	Replaces most manual valves with minimum piping changes.	Horizontal Angle	1/2 in.	DN15	Threaded	2.5 Cv	59,100 Btu/hr	T100A, M and V controls to conform to horizontal mounting requirements
V2040ASL20		Horizontal Angle	3/4 in.	DN20	Threaded	2.7 Cv	63,800 Btu/hr	T100A, M and V controls to conform to horizontal mounting requirements
V2040ASL25		Horizontal Angle	1 in.	DN25	Threaded	2.7 Cv	70,500 Btu/hr	T100A, M and V controls to conform to horizontal mounting requirements
V2040DSL15	Especially suited for base boards and straight runs where manual valves were not originally installed.	Straight	1/2 in.	DN15	Threaded	2.5 Cv	59,100 Btu/hr	—
V2040DSL20		Straight	3/4 in.	DN20	Threaded	2.7 Cv	63,800 Btu/hr	—
V2040DSL25		Straight	1 in.	DN25	Threaded	2.7 Cv	70,500 Btu/hr	—
V2040ESL15	Use where installation space is limited	Angle	1/2 in.	DN15	Threaded	2.5 Cv	59,100 Btu/hr	T100B; T100C; T100F
V2040ESL20		Angle	3/4 in.	DN20	Threaded	2.7 Cv	63,800 Btu/hr	T100B; T100C; T100F
V2040ESL25		Angle	1 in.	DN25	Threaded	2.7 Cv	70,500 Btu/hr	T100B; T100C; T100F
V2043ASL15	Replaces most manual valves with minimum piping changes.	Horizontal Angle	1/2 in.	DN15	Sweat	2.5 Cv	59,100 Btu/hr	T100A, M and V controls to conform to horizontal mounting requirements
V2043ASL20		Horizontal Angle	3/4 in.	DN20	Sweat	2.7 Cv	63,800 Btu/hr	T100A, M and V controls to conform to horizontal mounting requirements
V2043DSL15	For baseboards and other installations with copper tubing.	Straight	1/2 in.	DN15	Sweat both ends, no union	2.5 Cv	59,100 Btu/hr	T100
V2043DSL20	Especially suited for base boards and straight runs where manual valves were not originally installed.	Straight	3/4 in.	DN20	Sweat	2.7 Cv	63,800 Btu/hr	—
V2043ESL15	Use where installation space is limited	Angle	1/2 in.	DN15	Sweat	2.5 Cv	59,100 Btu/hr	T100B; T100C; T100F
V2043ESL20		Angle	3/4 in.	DN20	Sweat	2.7 Cv	63,800 Btu/hr	T100B; T100C; T100F

Thermostatic Radiator Valves and Actuators

V2000 Series Valve Bodies Cross Reference to V100 Series

Use T100 Actuators With New V2000 Series Valve Bodies

V2000 Series Replacement	V100 Series Product	Product Description
V2040DSL15	V100D 1056	1/2 in. TRV Straight Body, Female NPT Inlet, Male NPT Tailpiece Outlet
V2040DSL20	V100D 1064	3/4 in. TRV Straight Body, Female NPT Inlet, Male NPT Tailpiece Outlet
V2040DSL25	V100D 1072	1 in. TRV Straight Body, Female NPT Inlet, Male NPT Tailpiece Outlet
V2043DSL15	V100D 5057	1/2 in. TRV Straight Body, Female NPT Inlet, Sweat Tailpiece Outlet
V2043DSL20	V100D 5065	3/4 in. TRV Straight Body, Female NPT Inlet, Sweat Tailpiece Outlet
V2040ESL15	V100E 1055	1/2 in. TRV Vertical Body, Female NPT Inlet, Male NPT Tailpiece Outlet
V2040ESL20	V100E 1063	3/4 in. TRV Vertical Body, Female NPT Inlet, Male NPT Tailpiece Outlet
V2040ESL25	V100E 1071	1 in. TRV Vertical Body, Female NPT Inlet, Male NPT Tailpiece Outlet
V2043ESL15	V100E 5056	1/2 in. TRV Vertical Body, Female NPT Inlet, Sweat Tailpiece Outlet
V2043ESL20	V100E 5064	3/4 in. TRV Vertical Body, Female NPT Inlet, Sweat Tailpiece Outlet
V2040ASL15	V100F 1054	1/2 in. TRV Horizontal, Female NPT Inlet, Male NPT Tailpiece Outlet
V2040ASL20	V100F 1062	3/4 in. TRV Horizontal, Female NPT Inlet, Male NPT Tailpiece Outlet
V2040ASL25	V100F 1070	1" TRV Horizontal, Female NPT Inlet, Male NPT Tailpiece Outlet
V2043ASL15	V100F 5055	1/2 in. TRV Horizontal Body, Female NPT Inlet, Sweat Tailpiece Outlet
V2043ASL20	V100F 5063	3/4 in. TRV Horizontal Body, Female NPT Inlet, Sweat Tailpiece Outlet
V200LDSL15	V100G 5054	1/2 in. TRV Straight Body, Sweat Inlet, Sweat Outlet No Tailpiece
V200LDSL20	V100G 5062	3/4 in. TRV Straight Body, Sweat Inlet, Sweat Outlet No Tailpiece
V2042HSL10	V100P 1046	1/8 in. TRV (1/2 in. Body With 1/8 in. Adapter) Male NPT Inlet, Female NPT Outlet. One Pipe Steam
V2043HSL10	Y100P 1001	1/8 in. TRV (1/2 in. Body With 1/8 in. Adapter) Male NPT Inlet, Female NPT Outlet. One Pipe Steam Includes SA123A1003
VS1200SL01		Replacement Cartridge New V2000 Series
VA8200A001		Cartridge Service Tool V2000 Series Bodies

Thermostatic Radiator Valves and Actuators

V2042H; V2043H One-pipe Steam Thermostatic Radiator Valve

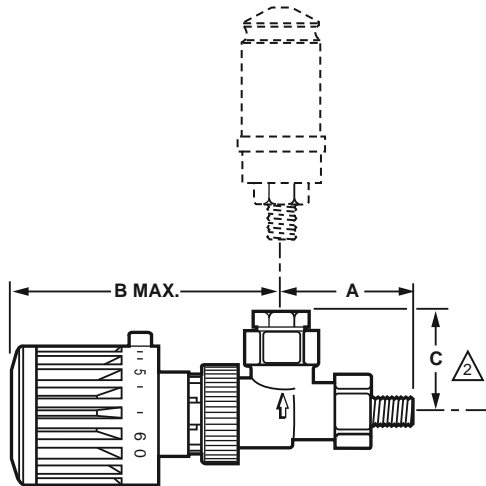


One-Pipe Steam Thermostatic Radiator Valves - Allow automatic temperature control in one-pipe steam or hot water systems for free standing radiators, convectors and other heating units with standard capacity requirements. Provide comfort and energy savings.

- Continually monitors and adjusts room temperature for consistent comfort and relief from under-heating and overheating.
- Adjustable balancing cartridge design made from resilient material (EPDM), ensures tight shut-off on steam and hot water systems.
- Nickel plated brass casted body.
- Replaceable cartridge for easy service with service tool.
- Controls include valve body, steam air vent.
- Used with T100 set point and capillary actuators.
- No electrical connection required for non-electric actuators.
- Normally open without control mounted.

Dimensions in inches (millimeters)

V2042H (Body)/V2043H (Body with Vent)



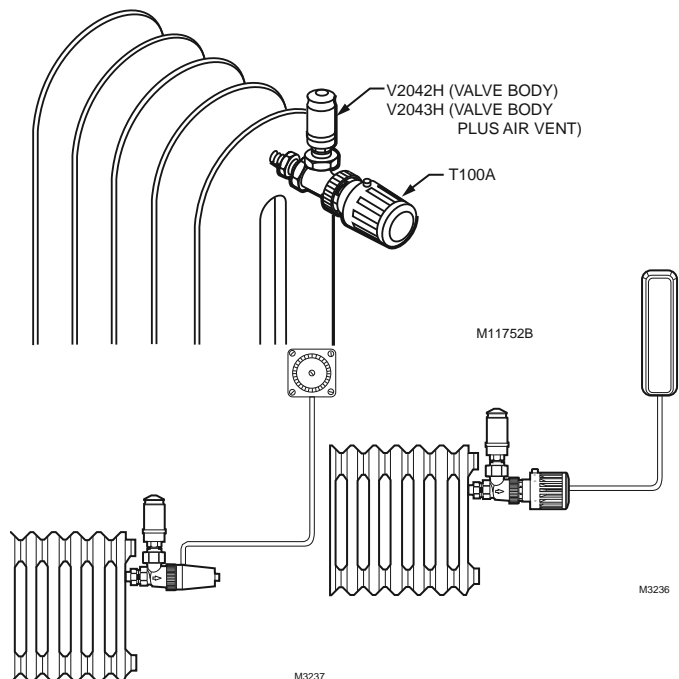
PIPE SIZE	A IN. (MM)	B MAX IN. (MM)	C IN. (MM)
3/8 INCH	1-11/16 (43)	3-13/16 (97)	1-3/16 (31)

△1 B MAX DIMENSION IS WITH T100A CONTROL INSTALLED.

△2 C DIMENSION IS WITHOUT THE STEAM/AIR VENT INSTALLED.

M17016B

Typical Installations



Capacity: Standard

Materials (Body): Nickel Plated Bronze

Differential Pressure Rating:

With T100 or T200: 15 psi (103 kPa)

With MV100: 36 psi (248 kPa)

For low noise: 3 psi (20 kPa)

Pressure Ratings (Steam): 15 psi maximum (103 kPa)

Temperature Rating: 248 F Maximum (120 C Maximum)

Body Pattern: Angle

Cartridge Change Tool: Yes - Use VA8200A001

Product Number	Application	Pipe Size (inch)	Connection Type	Description	Includes	Used With
V2042HSL10	Angle pattern valve body for one pipe steam systems	1/8 in.	Threaded	One-pipe Steam 1/8 in. Radiator valve	—	T100
V2043HSL10	Thermostatic Radiator Valve Pack. Includes V2042HSL10 body plus steam/air vent. Use for one pipe steam applications.	1/8 in.	NPT	One Pipe Steam Thermostatic Radiator valve and air vent pack	V2042HSL10 plus steam/air vent	—

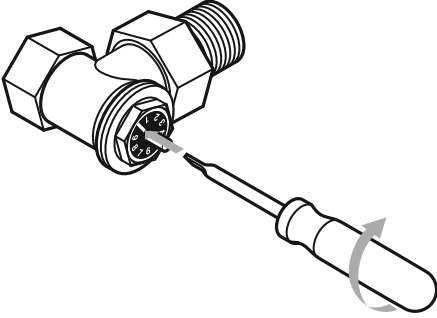
Thermostatic Radiator Valves and Actuators

V2000 Series Thermostatic Radiator Valve Accessories

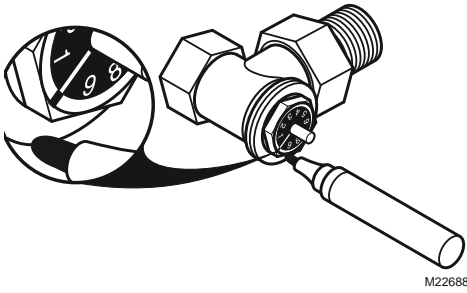


Materials (Body): Bronze
Cartridge Change Tool: VA8200A001

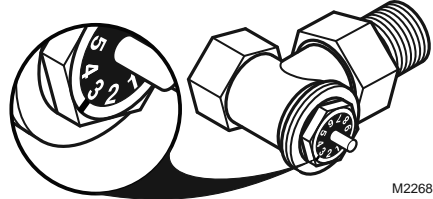
V2000 Series Cartridge Balancing Procedure Step 1



V2000 Series Cartridge Balancing Procedure Step 2

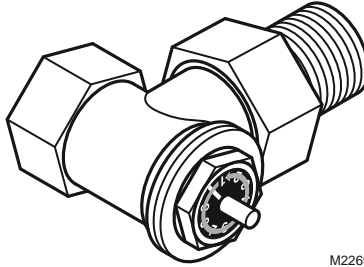


V2000 Series Cartridge Balancing Procedure Step 3



M22689

V2000 Series Cartridge Balancing Procedure Step 4



M22690

Hydronic Controls

Product Number	Application	Description	Used With
VS1200SL01	Accessory or Replacement Part	Replacement cartridge for NEW V2000 (adjustable cartridge)	T100

Thermostatic Radiator Valves and Actuators

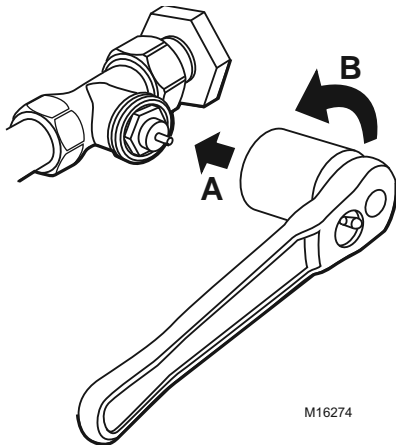
MT100; MT110 Cartridge Changing Tool



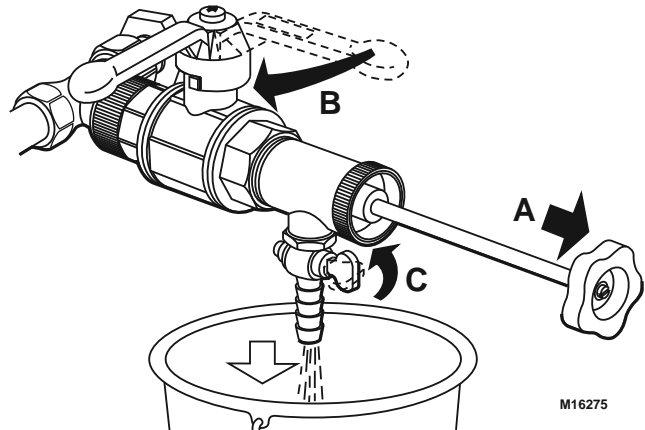
The MT110 Valve Cartridge Changing Tool enables the user to remove, and clean or replace the valve cartridge while the valve remains pressurized. Boiler shutdown is not required.

- MT110 for V110 Series valves.

Remove control and loosen valve cartridge slightly.

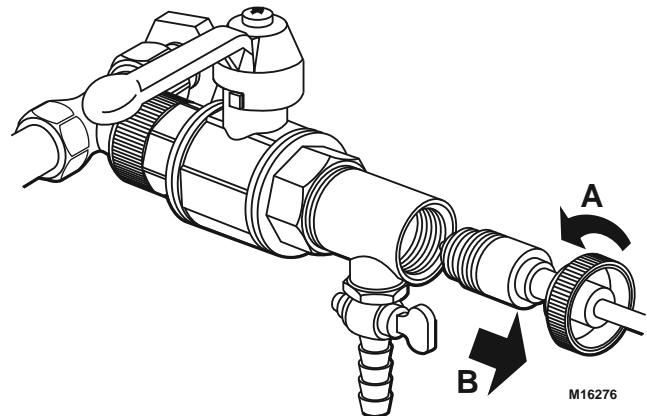
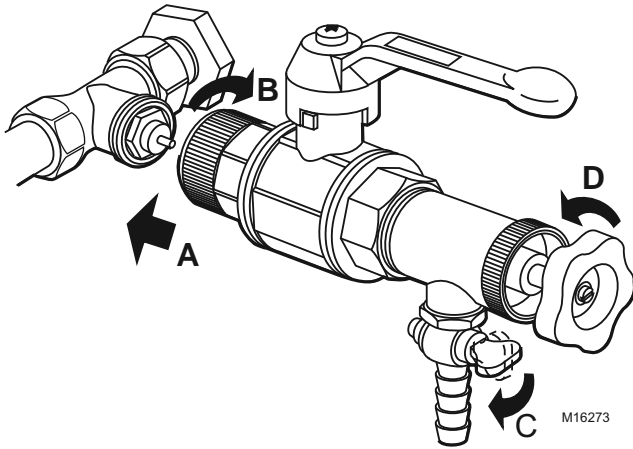


Open shut-off on drain cock, removing excess water and steam from chamber.



Tighten Cartridge Changer to valve body and close off drain cock.

Unscrew end cap and remove cartridge from chamber. Clean or replace cartridge.



Product Number	Application Type	Description	Comments	Used With
MT100L1023	Tool to remove T100M tamper resistant direct mount control from valve body.	Actuator Removal Tool	—	V100
MT110C1011	Cartridge changing tool, in service, in line, under pressure for V110 series valve.	Cartridge Changing Tool for in-line service of V110 valves	—	V100
MT110D1019	Socket to remove or replace cartridges on V110D, E, F series valves; use in combination with MT110C1011 for pre-loosening and final tightening of cartridge. Fits 3/8 in. socket driver.	Cartridge Changing tool	For CA110C Cartridge	—

Thermostatic Valve Accessories

Product Number	Description	Used With
CA100B1008	Replacement cartridge for old style V100 (metal cartridge body)	V100 Series;
CA110C1007	Replacement Cartridge for V110	V110 Series;

Thermostatic Radiator Valves and Actuators

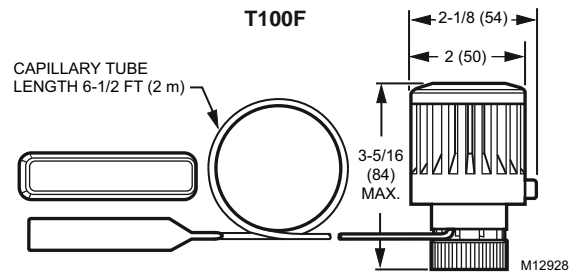
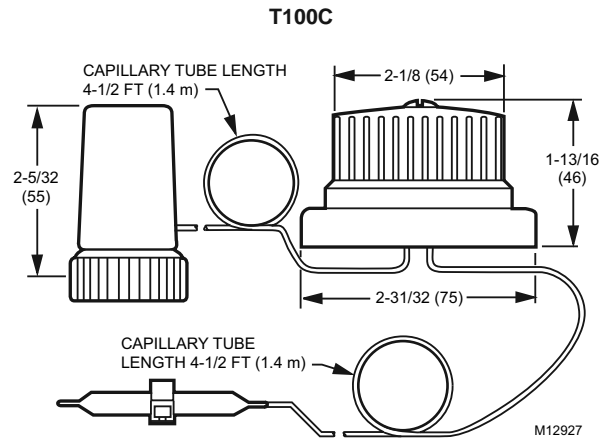
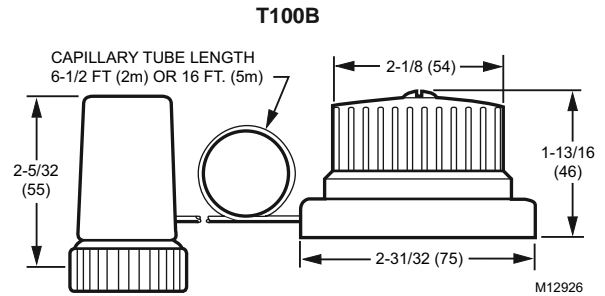
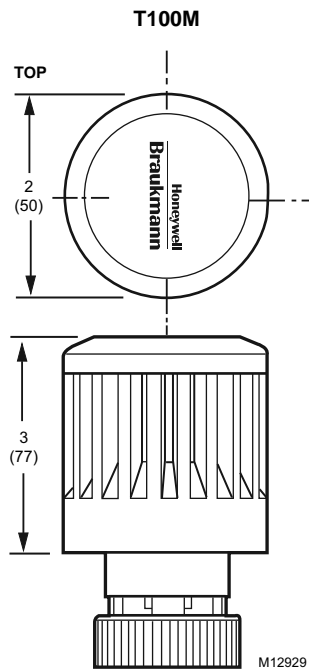
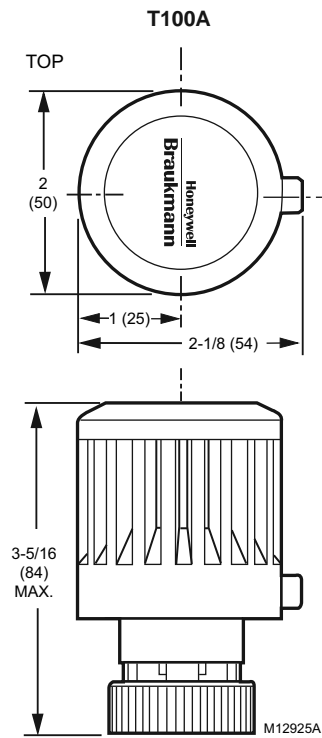
T100 Standard Capacity Thermostatic Radiator Actuators



Allow automatic temperature control in two-pipe steam or hot water systems for free standing radiators, convectors, and other heating units with standard capacity requirements. Provide comfort and energy savings at affordable prices.

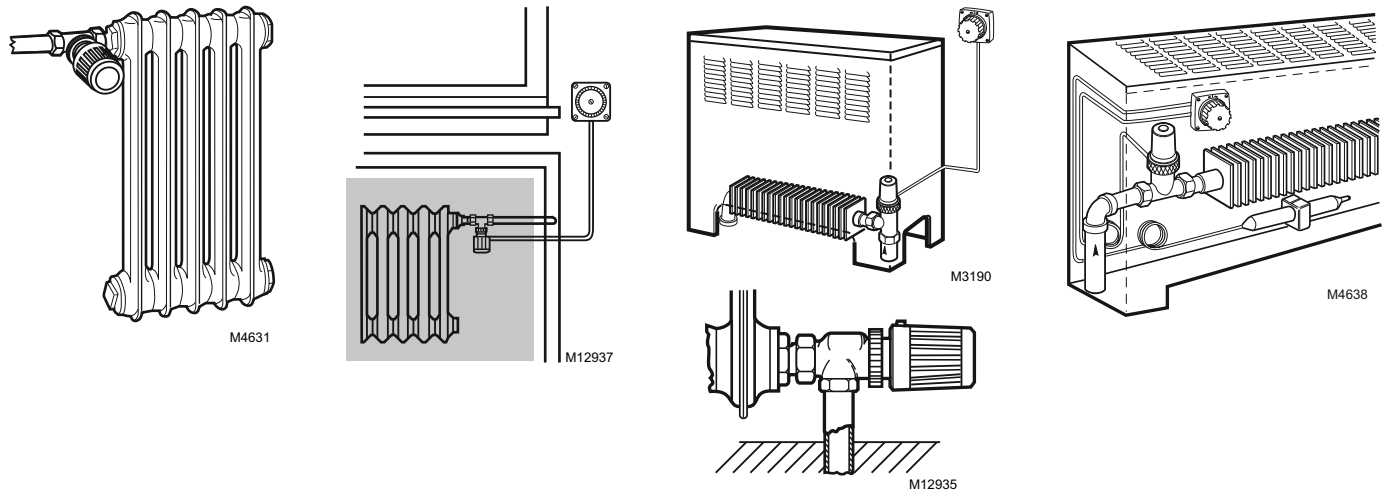
- Continually monitor and adjust room temperature for consistent comfort and relief from under-heating and overheating.
- Valve seat disc, which is made of resilient material (EPDM), ensures tight shutoff on steam or hot water systems.
- Nickel-plated brass casted body with working parts in cartridge insert for ease of service.
- Controls include sensor, setpoint dial and valve actuator; components may be integral or connected by capillary tubes.
- Require no electrical connections.
- All working parts are replaceable using service tool (MT100C1016) while valve remains in service, in-line, under pressure.
- Valves normally open without control mounted.
- Valves may also be used with MV100 Electric Zone Valve Actuator.

Dimensions in inches (millimeters)



Thermostatic Radiator Valves and Actuators

Typical Installations



Application: Standard Capacity Thermostatic Radiator Actuator
Used With Valve: V100, V2000
Collar Diameter: 1 3/16 in. (30 mm)

Product Number	Application Type	Capillary Length		Temperature Range		Sensor (Integral or Remote)	Setpoint (Integral or Remote)	Comments	Used With
		(ft)	(m)	(F)	(C)				
T1002W0NA	A self-contained control with sensor, setpoint dial and valve actuator in one unit. Mounts horizontal. Not for use inside enclosures or where airflow around sensor is restricted. Adjustable limits.	—	—	43 F to 79 F	6 C to 26 C	Integral	Integral	Adjustable Limits	V100, V2000
T100B1035	A control with combined remote setpoint and sensor mounted on wall. Connected by a capillary tube to an actuator, which is mounted on the valve body.	6 1/2 ft	2 m	48 F to 79 F	9 C to 26 C	Remote	Remote	—	V100, V2000
T100B1043		16 ft.	5 m	48 F to 79 F	9 C to 26 C	Remote	Remote	—	V100, V2000
T100C1026	A control with remote setpoint and sensor mounted with setpoint dial on outside of heating cabinet; sensor mounted beneath heating coils in cold air return. Dual capillary.	Two 4 1/2 ft.	Two 1.4 m	48 F to 79 F	9 C to 26 C	Remote	Remote	—	V100, V2000
T100F1395	A control with remote temperature sensing and integral set point. Adjustable limits.	6 ft. 8 in.	2 m	43 F to 79 F	6 C to 26 C	Integral	Integral	Adjustable Limits	V100, V2000
T100M2056	A self-contained control with sensor, setpoint dial and actuator in one unit. Use where increased durability, tamper resistance and limited adjustment range are desired. Horizontal mount. Locks onto valve body. Not for enclosures.	—	—	43 F to 79 F	6 C to 26 C	Integral	Integral	Tamper Resistant, Adjustable Limits	V100, V2000

Thermostatic Radiator Valves and Actuators

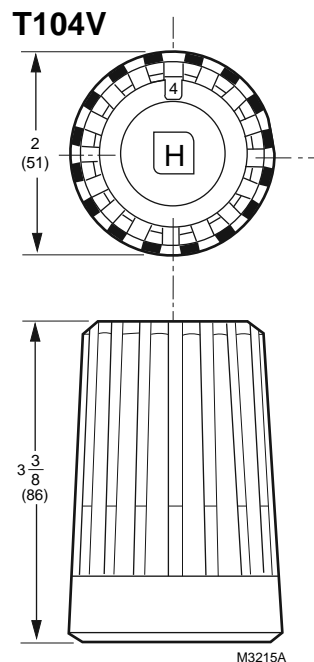
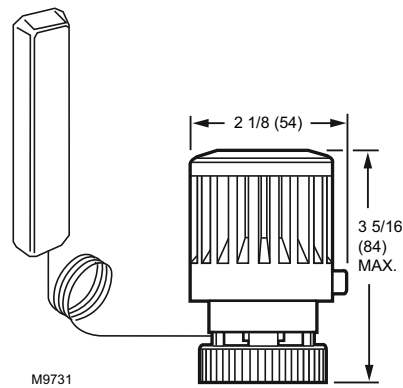
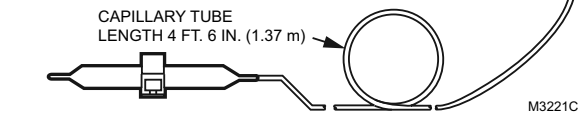
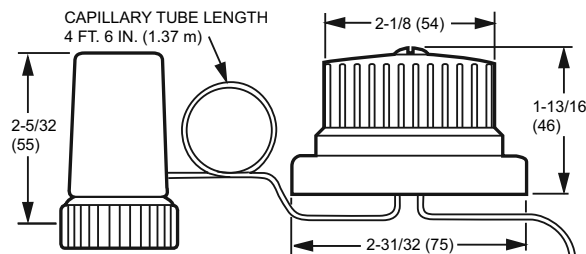
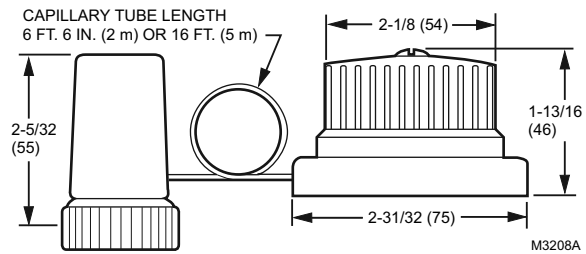
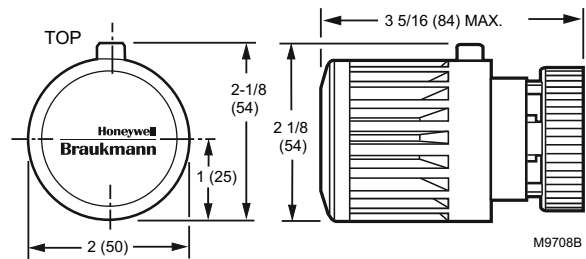
T104 High Capacity Thermostatic Radiator Valve Actuators



Provide precise and automatic control of room temperature in two-pipe systems by modulating the flow of hot water or steam through free-standing radiators, convectors and other heating units with high capacity requirements.

- Continually monitor and adjust room temperature for consistent comfort and relief from under-heating and overheating.
- Designed with the higher capacity normally required by North American heating systems.
- Valve seat disc, which is made of resilient material (EPDM), ensures tight shutoff on steam or hot water systems.
- Nickel-plated bronze casted body with working parts in cartridge insert for ease of service.
- Controls include sensor, setpoint dial and valve actuator; components may be integral or connected by capillary tubes.
- Require no electrical connections.
- Meet ASHRAE Standard 102-1989.
- 40 mm collar diameter.

Dimensions in inches (millimeters)



Hydronic Controls

Thermostatic Radiator Valves and Actuators

Application: High Capacity Thermostatic Radiator Actuator

Used With Valve: V110

Collar Diameter: 1 19/32 in. (40 mm)

Product Number	Application Type	Capillary Length		Temperature Range		Sensor (Integral or Remote)	Setpoint (Integral or Remote)	Comments	Used With
		(ft)	(m)	(F)	(C)				
T104A1040	Self-contained controller with sensor, setpoint dial and valve actuator in one unit. Adjustable limits. Mount horizontal. Not for use inside enclosures or in locations with restricted airflow around sensor. For V110 valves.	—	—	43 F to 79 F	6 C to 26 C	Integral	Integral	Adjustable Limits	V110
T104B1038	Controller with combined remote setpoint and sensor mounted on a wall. Setpoint/sensor connect with a capillary tube to an actuator, which mounts on the valve body. For V110 valves.	6 ft. 8 in.	2 m	48 F to 79 F	9 C to 26 C	Remote	Remote	—	V110
T104B1046	Controller with combined remote setpoint and sensor mounted on a wall. Setpoint/sensor connect with a capillary tube to an actuator, which mounts on the valve body. For V110 valves.	16 ft.	4.9 m	48 F to 79 F	9 C to 26 C	Remote	Remote	—	V110
T104C1036	Controller with remote setpoint and sensor normally mounted with setpoint dial mounted on outside cabinet or enclosure; sensor mounted beneath heating coils in cold air return. Double capillaries. For V110 valves.	Two 4 1/2 ft.	Two 1.4 m	48 F to 79 F	9 C to 26 C	Remote	Remote	—	V110
T104F1512	Thermostatic radiator valve controller for use with V110 series valves. With remote temperature sensing and integral set point. Adjustable limits.	6 ft. 8 in.	2 m	43 F to 79 F	6 C to 26 C	Remote	Integral	Adjustable Limits	V110
T104V1422	Self-contained controller with sensor, setpoint dial and valve actuator in one unit. Locks to valve body. Rugged design. Adjustable setpoint under locking cap. Factory set at 68 F (20 C). Mounts horizontal. Not for use in enclosures. For V110 valves.	—	—	43 F to 79 F	6 C to 26 C	Integral	Integral	Vandal Proof	V110

T104 Thermostatic Radiator Valves Parts and Accessories

Product Number	Description	Used With
G111B1053	Bulb guard to protect remote temperature sensors on T104C and T104F controls only	T104F; T104C
P110V1003	Replacement Locking Ring for T104V1422 only (package of 5)	T104V1422

Commercial Air Eliminators

SuperVent®—The Best Commercial Air Eliminator. Removes All Trapped Air, Micro Bubbles and Dirt from Heating, Cooling and Domestic Water Systems.



Conventional automatic air vents installed in Hydronic heating systems can leak and cause inefficient system operation. To effectively eliminate air from the system without bleeding, air bubbles need to be vented. The NEW Honeywell SuperVent purges air through a no clog vent assembly that controls dirt and debris to minimize air vent fouling.

- No clog vent.
- Dirt and Debris resistant.
- 360 degree adjustable collar ring for installation flexibility.
- Stainless steel concentrator which eliminates gurgling noise.
- Bronze body for rigid construction.
- Threaded connections.

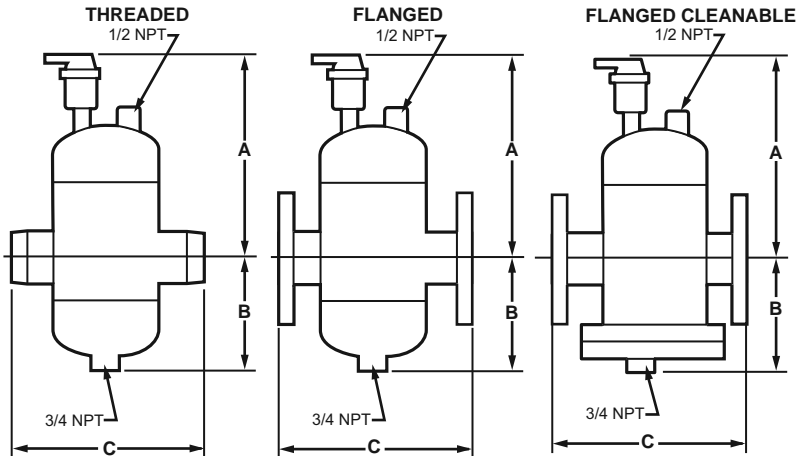
Application: Commercial Zoning for hot water heating or chilled water air conditioning systems, fan coil units or indirect water heater service.

Materials (Body): Bronze

Maximum Operating Temperature: 240 F (115 C)

Maximum Operating Pressure: 150 psi (1034 kPa)

Dimensions in inches (millimeters)



VALVE SIZE	DIMENSIONS (INCHES)		
	A	B	C
2 INCH	11-1/16	6-3/16	10-1/8
2-1/2 INCH	11-1/16	6-3/16	10-1/8
3 INCH	15-5/8	7-15/16	15-1/2
4 INCH	15-5/8	7-15/16	15-1/2
5 INCH	21	11-1/8	24
6 INCH	21	11-1/8	24
8 INCH	25-13/16	12-15/16	30

M23261B

Product Number	Size	Maximum Diameter		Connection Type	Capacity (Cv)	Weight	
		(inch)	(mm)			(lb)	(kg)
PV200F	2 in.	5 5/8 in.	142.2 mm	Flanged	95 Cv	31.5 lb	14.29 kg
PV200FC	2 in.	10 in.	254 mm	Flanged Cleanable	95 Cv	64 lb	29.03 kg
PV200T	2 in.	5 5/8 in.	142.2 mm	NPT	95 Cv	22 lb	9.98 kg
PV250F	2 1/2 in.	5 5/8 in.	142.2 mm	Flanged	140 Cv	37 lb	16.78 kg
PV250FC	2 1/2 in.	10 in.	254 mm	Flanged Cleanable	140 Cv	70 lb	31.75 kg
PV250T	2 1/2 in.	5 5/8 in.	142.2 mm	NPT	140 Cv	23 lb	10.43 kg
PV300F	3 in.	8 5/8 in.	218.4 mm	Flanged	215 Cv	66 lb	29.94 kg
PV300FC	3 in.	13 1/2 in.	342.9 mm	Flanged Cleanable	215 Cv	137 lb	62.14 kg
PV300T	3 in.	8 5/8 in.	218.4 mm	NPT	215 Cv	50 lb	22.68 kg
PV400F	4 in.	8 5/8 in.	218.4 mm	Flanged	360 Cv	78.5 lb	35.61 kg
PV400FC	4 in.	13 1/2 in.	342.9 mm	Flanged Cleanable	360 Cv	150 lb	68.04 kg
PV400T	4 in.	8 5/8 in.	218.4 mm	NPT	360 Cv	52.5 lb	23.81 kg
PV500F	5 in.	12 13/16 in.	325.1 mm	Flanged	590 Cv	147 lb	66.68 kg
PV500FC	5 in.	19 in.	482.6 mm	Flanged Cleanable	590 Cv	310 lb	140.62 kg
PV600F	6 in.	12 13/16 in.	325.1 mm	Flanged	860 Cv	158 lb	71.67 kg
PV600FC	6 in.	19 in.	482.6 mm	Flanged Cleanable	860 Cv	320 lb	145.15 kg
PV800F	8 in.	16 in.	406.4 mm	Flanged	1500 Cv	254 lb	115.21 kg
PV800FC	8 in.	23 1/2 in.	596.9 mm	Flanged Cleanable	1500 Cv	516 lb	234.06 kg

Commercial Expansion Tanks

Expansion Tank Sizing based on BTU's

Boiler	Type of Radiation			
	Finned Tube Baseboard or Radiant Panel	Convectors or Unit Heaters	Radiators Cast Iron	Baseboard Cast Iron
	MBH	Use Model	Use Model	Use Model
25	TK300-15	TK300-15	TK300-15	TK300-15
50	TK300-15	TK300-15	TK300-30	TK300-30
75	TK300-30	TK300-30	TK300-30	TK300-60
100	TK300-30	TK300-30	TK300-60	TK300-60
125	TK300-30	TK300-60	TK300-60	TK300-90
150	TK300-30	TK300-60	TK300-90	TK300-90
175	TK300-60	TK300-60	XPS-030V	XPS-030V
200	TK300-60	TK300-60	XPS-030V	XPS-030V
250	TK300-60	TK300-90	XPS-030V	XPS-040V
300	TK300-90	XPS-030V	XPS-030V	XPS-040V
350	XPS-030V	XPS-030V	XPS-040V	XPS-060V
400	XPS-030V	XPS-040V	XPS-040V	XPS-060V

Expansion Tanks—Domestic Hot Water Systems- Large Capacity



The Honeywell Thermal Expansion Absorber is a welded, pressurized expansion tank with a butyl diaphragm to control excess pressure in potable hot water systems. The Thermal Expansion Tanks controls pressure build-up in the system, eliminates relief valve spillage, protects fixtures and extends water heater life.

- Heavy Duty butyl rubber diaphragm (FDA Approved) isolates water from air.
- Polypropylene liner, 100% non-metallic, non-corrosive water reservoir.
- Prevents water hammer.
- Maintenance free.
- Protects water heater from harmful pressure cycling.
- Allows storage of expanded water with controlled increase in systems pressures.

Maximum Operating Temperature: 240 F (115 C)

Maximum Operating Pressure: 150 psi (1034 kPa)

Precharge: 40 psi

Materials:

Shell: Steel

Connection: Bronze

Bladder: Butyl

Comments: Potable

Product Number	Con- nection Size	Connection Type	Diameter		Height		Volume		Maximum Acceptance Volume		Weight	
	(inch)		(mm)	(inch)	(mm)	(inch)	(L)	(gal)	(L)	(gal)	(kg)	(lb)
TX-451	2 in.	Female NPT	762 mm	30 in.	1892 mm	74 1/2 in.	598.8 L	158.0 gal	389.86 L	103 gal	283.95 kg	626 lb
TX-452	2 in.	Female NPT	914.4 mm	30 in.	2349.5 mm	92 1/2 in.	798.64 L	211.0 gal	518.55 L	137 gal	344.74 kg	760 lb
TX-453	3 in.	Female NPT	914.4 mm	36 in.	2175 mm	85 5/8 in.	999.24 L	264.0 gal	651.02 L	172 gal	367.42 kg	810 lb
TX-454	3 in.	Female NPT	914.4 mm	36 in.	2490 mm	98 in.	1199.85 L	317.0 gal	779.71 L	206 gal	414.59 kg	914 lb
TX-455	3 in.	Female NPT	914.4 mm	36 in.	2803.5 mm	110 3/8 in.	1400.45 L	370.0 gal	912.19 L	241 gal	461.76 kg	1018 lb
TX-456	3 in.	Female NPT	1219.2 mm	48 in.	2080 mm	81 7/8 in.	1597.27 L	422.0 gal	1040.88 L	275 gal	750.71 kg	1655 lb
TX-457	3 in.	Female NPT	1219.2 mm	48 in.	2432 mm	95 3/4 in.	1998.48 L	528.0 gal	1302.04 L	344 gal	873.18 kg	1925 lb

Commercial Expansion Tanks

TAX Series Expansion Tanks - Commercial Usage



TAX Series (commercial) Expansion Tanks are designed to absorb hot water expansion in closed heating systems. TAX tanks are used in large installations. They are equipped with butyl diaphragms to separate the air from the system water (glycol). The tanks are a welded, not clamped, design. Pre-pressurized at 12 psi, the tank keeps fluids circulating and maintains minimum system pressure. Honeywell tanks resist waterlogging, loss of pressure through relief valve spills, and loss of BTUs.

- ASME construction: Horizontal TAX Series tanks.

Maximum Operating Temperature: 240 F (115 C)

Maximum Operating Pressure: 125 psi (862 kPa)

Precharge: 12 psi

Materials: steel shell, heavy duty butyl diaphragm

Comments: ASME Construction

Product Number	Con- nection Size	Diameter		Height		Volume		Maximum Acceptance Volume		Weight	
	(inch)	(inch)	(mm)	(inch)	(mm)	(gal)	(L)	(gal)	(L)	(lb)	(kg)
TAX-15	1/2 in.	12 in.	304.8 mm	19 in.	483 mm	7.8 gal	29.6 L	2.5 gal	9.5 L	46 lb	20.9 kg
TAX-20	1/2 in.	12 in.	304.8 mm	25 3/4 in.	654 mm	10.9 gal	40.2 L	2.5 gal	9.5 L	59 lb	26.8 kg
TAX-40	1/2 in.	16 1/4 in.	412.7 mm	29 1/8 in.	740 mm	21.7 gal	82.2 L	11.3 gal	42.8 L	114 lb	52.7 kg
TAX-60	1/2 in.	16 1/4 in.	412.7 mm	42 1/2 in.	1079.5 mm	33.6 gal	127.3 L	11.3 gal	42.8 L	139 lb	63.2 kg
TAX-80	1/2 in.	16 1/4 in.	412.7 mm	55 1/4 in.	1403 in.	44.4 gal	168.3 L	22.6 gal	85.6 L	196 lb	89.1 kg
TAX-100	1/2 in.	16 1/4 in.	412.7 mm	68 1/4 in.	1734 mm	55.7 gal	211 L	22.6 gal	85.6 L	231 lb	105 kg
TAX-120	1 in.	24 in.	609.6 mm	40 1/4 in.	1022 mm	68 gal	257.7 L	34 gal	128.9 L	233 lb	105.9 kg
TAX-144	1 in.	24 in.	609.6 mm	45 1/4 in.	1146 mm	77.0 gal	291.8 L	34 gal	128.9 L	256 lb	116.4 kg
TAX-180	1 in.	24 in.	609.6 mm	52 1/2 in.	1333.5 mm	90 gal	341.1 L	34 gal	128.9 L	286 lb	130 kg
TAX-200	1 in.	24 in.	609.6 mm	63 in.	1600 mm	110 gal	416.9 L	34 gal	128.9 L	326 lb	148.2 kg
TAX-240	1 in.	30 in.	762 mm	49 1/8 in.	1247.8 mm	132.0 gal	500.3 L	46 gal	174.3 L	435 lb	207.3 kg
TAX-260	1 in.	30 in.	762 mm	49 1/8 in.	1247.8 mm	158.0 gal	500.3 L	56 gal	174.3 L	435 lb	207.3 kg
TAX-280	1 in.	30 in.	762 mm	49 1/8 in.	1247.8 mm	211.0 gal	500.3 L	84 gal	174.3 L	435 lb	207.3 kg

Commercial Expansion Tanks

TAXV Series Expansion Tank- Commercial Usage



TAX Series (commercial) Expansion Tanks are designed to absorb hot water expansion in closed heating systems. TAX tanks are used in large installations. They are equipped with butyl diaphragms to separate the air from the system water (glycol). The tanks are a welded, not clamped, design. Pre-pressurized at 12 psi, the tank keeps fluids circulating and maintains minimum system pressure. Honeywell tanks resist waterlogging, loss of pressure through relief valve spills, and loss of BTUs.

- ASME construction: Horizontal TAX Series tanks.

Maximum Operating Temperature: 240 F (115 C)

Maximum Operating Pressure: 125 psi (862 kPa)

Precharge: 12 psi

Materials: steel shell, heavy duty butyl diaphragm

Comments: ASME Construction

Product Number	Con- nection Size	Diameter		Height		Volume		Maximum Acceptance Volume		Weight	
	(inch)	(inch)	(mm)	(inch)	(mm)	(gal)	(L)	(gal)	(L)	(lb)	(kg)
TAXV-015	1/2 in.	12 in.	304.8 mm	19 1/4 in.	489 mm	7.8 gal	29.6 L	2.5 gal	9.5 L	48 lb	21.8 kg
TAXV-020	1/2 in.	12 in.	304.8 mm	26 in.	660 mm	10.9 gal	40.2 L	2.5 gal	9.5 L	61 lb	27.7 kg
TAXV-040	1/2 in.	16 1/4 in.	412.7 mm	29 1/2 in.	749 mm	21.7 gal	82.2 L	11.3 gal	42.8 L	116 lb	52.7 kg
TAXV-060	1/2 in.	16 1/4 in.	412.7 mm	45 1/8 in.	1146 mm	33.6 gal	127.3 L	11.3 gal	42.8 L	145 lb	65.9 kg
TAXV-080	1/2 in.	16 1/4 in.	412.7 mm	56 in.	1422 mm	44.4 gal	168.3 L	22.6 gal	85.6 L	70 lb	89.1 kg
TAXV-100	1/2 in.	16 1/4 in.	412.7 mm	68 1/4 in.	1734 mm	55.7 gal	211 L	22.6 gal	85.6 L	231 lb	105 kg
TAXV-120	1 in.	24 in.	609.6 mm	44 1/4 in.	1124 mm	68 gal	257.7 L	34 gal	128.9 L	233 lb	105.9 kg
TAXV-144	1 in.	24 in.	609.6 mm	49 1/8 in.	1247.8 mm	77.0 gal	291.8 L	34 gal	128.9 L	256 lb	116.4 kg
TAXV-180	1 in.	24 in.	609.6 mm	56 1/2 in.	1435 mm	90 gal	341.1 L	34 gal	128.9 L	286 lb	130 kg
TAXV-200	1 in.	24 in.	609.6 mm	63 in.	1600 mm	110 gal	416.9 L	34 gal	128.9 L	326 lb	148.2 kg
TAXV-240	1 in.	30 in.	762 mm	49 1/8 in.	1368.4 mm	132.0 gal	500.3 L	46 gal	174.3 L	456 lb	207.3 kg
TAXV-260	1 in.	30 in.	762 mm	49 1/8 in.	1247.8 mm	158.0 gal	500.3 L	56 gal	174.3 L	435 lb	207.3 kg
TAXV-280	1 in.	30 in.	762 mm	49 1/8 in.	1247.8 mm	211.0 gal	500.3 L	84 gal	174.3 L	435 lb	207.3 kg

Commercial Expansion Tanks

TL Series Expansion Tanks - Commercial Usage



Expansion Tanks are designed to absorb hot water expansion in closed heating systems. TL tanks are used in large installations. They are equipped with butyl diaphragms to separate the air from the system water (glycol). The tanks are a welded, not clamped, design. Pre-pressurized at 12 psi, the tank keeps fluids circulating and maintains minimum system pressure. Honeywell tanks resist waterlogging, loss of pressure through relief valve spills, loss of BTUs and reduce circulator running time. Use the super efficient Honeywell SuperVent or air vents to remove air and micro-bubbles from the system for maximum performance.

Maximum Operating Temperature: 240 F (115 C)

Maximum Operating Pressure: 125 psi (862 kPa)

Precharge: 12 psi

Materials: steel shell, heavy duty butyl diaphragm

Comments: Commercial

Product Number	Con- nection Size	Diameter		Height		Volume		Weight	
	(inch)	(inch)	(mm)	(inch)	(mm)	(gal)	(L)	(lb)	(kg)
TL125-200-L	1 in.	24 in.	609.6 mm	38 3/8 in.	975 mm	53 gal	200.9 L	192 lb	88.6 kg
TL125-300-L	1 in.	24 in.	609.6 mm	52 3/8 in.	1330 mm	80.0 gal	303.2 L	238 lb	128.6 kg
TL125-400-L	1 in.	24 in.	609.6 mm	66 1/4 in.	1683 mm	106.0 gal	401.7 L	238 lb	128.6 kg
TL125-500-L	1 in.	24 in.	609.6 mm	80 1/4 in.	2038 mm	132.0 gal	500.3 L	328 lb	149 kg
TL125-600-L	1 1/2 in.	30 in.	762 mm	65 in.	1651 mm	158 gal	598.8 L	550 lb	250 kg
TL125-800-L	1 1/2 in.	30 in.	762 mm	83 in.	2108 mm	211 gal	799.7 L	680 lb	309 kg
TL125-1000-L	1 1/2 in.	36 in.	914.4 mm	74 in.	1880 mm	264 gal	1000.6 L	760 lb	345.4 kg
TL125-1200-L	1 1/2 in.	36 in.	914.4 mm	88 1/4 in.	2241.5 mm	317 gal	1201.4 L	864 lb	392.7 kg
TL125-1400-L	1 1/2 in.	36 in.	914.4 mm	100 5/8 in.	2556 mm	370 gal	1402.3 L	968 lb	440 kg
TL125-1600-L	1 1/2 in.	48 in.	1219.2 mm	71 in.	1803 mm	422 gal	1561.4 L	1580 lb	718.2 kg
TL125-2000-L	1 1/2 in.	48 in.	1219.2 mm	85 in.	2159 mm	528 gal	2001.1 L	1810 lb	822.7 kg
TL175-200-L	1 in.	24 in.	609.6 mm	38 3/8 in.	975 mm	53 gal	200.9 L	283 lb	128.6 kg
TL175-300-L	1 in.	24 in.	609.6 mm	52 3/8 in.	1330 mm	80.0 gal	303.2 L	358 lb	162.7 kg
TL175-400-L	1 in.	24 in.	609.6 mm	66 1/4 in.	1683 mm	106.0 gal	401.7 L	435 lb	197.7 kg
TL175-500-L	1 in.	24 in.	609.6 mm	80 1/4 in.	2038 mm	132.0 gal	500.3 L	510 lb	231.8 kg
TL175-600-L	1 1/2 in.	30 in.	762 mm	65 in.	1651 mm	158 gal	598.8 L	611 lb	277.7 kg
TL175-800-L	1 1/2 in.	30 in.	762 mm	83 in.	2108 mm	211 gal	799.7 L	729 lb	331.4 kg
TL175-1000-L	1 1/2 in.	36 in.	914.4 mm	74 in.	1880 mm	264 gal	1000.6 L	910 lb	413.6 kg
TL175-1200-L	1 1/2 in.	36 in.	914.4 mm	88 1/4 in.	2241.5 mm	317 gal	1201.4 L	1033 lb	469.5 kg
TL175-1400-L	1 1/2 in.	36 in.	914.4 mm	100 5/8 in.	2556 mm	370 gal	1402.3 L	1169 lb	531.4 kg
TL175-1600-L	1 1/2 in.	48 in.	1219.2 mm	71 in.	1803 mm	422 gal	1561.4 L	2094 lb	951.2 kg
TL175-2000-L	1 1/2 in.	48 in.	1219.2 mm	85 in.	2159 mm	528 gal	2001.1 L	2386 lb	1084.5 kg
TL250-200-L	1 in.	24 in.	609.6 mm	38 3/8 in.	975 mm	53 gal	200.9 L	379 lb	189.5 kg
TL250-300-L	1 in.	24 in.	609.6 mm	52 3/8 in.	1330 mm	80.0 gal	303.2 L	494 lb	224.5 kg
TL250-400-L	1 in.	24 in.	609.6 mm	66 1/4 in.	1683 mm	106.0 gal	401.7 L	607 lb	275.9 kg
TL250-500-L	1 in.	24 in.	609.6 mm	80 1/4 in.	2038 mm	132.0 gal	500.3 L	720 lb	327.3 kg
TL250-600-L	1 1/2 in.	30 in.	762 mm	65 in.	1651 mm	158 gal	598.8 L	85.1 lb	386.8 kg
TL250-800-L	1 1/2 in.	30 in.	762 mm	83 in.	2108 mm	211 gal	799.7 L	1030 lb	468.2 kg
TL250-1000-L	1 1/2 in.	36 in.	914.4 mm	74 in.	1880 mm	264 gal	1000.6 L	1419 lb	645 kg
TL250-1200-L	1 1/2 in.	36 in.	914.4 mm	88 1/4 in.	2241.5 mm	317 gal	1201.4 L	1613 lb	733.2 kg
TL250-1400-L	1 1/2 in.	36 in.	914.4 mm	100 5/8 in.	2556 mm	370 gal	1402.3 L	1808 lb	821.8 kg
TL250-1600-L	1 1/2 in.	48 in.	1219.2 mm	71 in.	1803 mm	422 gal	1561.4 L	2311 lb	1050.5 kg
TL250-2000-L	1 1/2 in.	48 in.	1219.2 mm	85 in.	2159 mm	528 gal	2001.1 L	2677 lb	1216.8 kg

Commercial Expansion Tanks

TX Series Expansion Tanks—ASME Construction for Potable Water



The Honeywell Thermal Expansion Absorber is a welded, pressurized expansion tank with a butyl diaphragm to control excess pressure in potable hot water systems. The Thermal Expansion Tank controls pressure build-up in the system, eliminates relief valve spillage, protects fixtures and extends water heater life.

- Heavy duty butyl rubber diaphragm (FDA approved) isolates water from air.
- Polypropylene liner, 100% non-metallic, non-corrosive water reservoir.
- Full size range: 2-528 gals., for all water heating volumes (ASME available).
- Prevents water hammer.
- Maintenance free.
- Protects water heater from harmful pressure cycling.
- Allows storage of expanded water with no increase in system pressures.

Maximum Operating Temperature: 200 F: (93 C)
Maximum Operating Pressure: 150 psi (1034 kPa)
Precharge: 40 psi
Materials:
Shell: Steel
Diaphragm: Butyl
Connection: Stainless Steel
Liner: Polypropylene
Comments: ASME Construction

Product Number	Con- nection Size	Connection Type	Diameter		Height		Volume		Maximum Acceptance Volume		Weight	
	(inch)		(inch)	(mm)	(inch)	(mm)	(gal)	(L)	(gal)	(L)	(lb)	(kg)
TX-5-C	3/4 in.	Male NPT	10 in.	254.0 mm	10 3/8 in.	263.5 mm	2.0 gal	7.6 L	0.86 gal	3.26 L	21 lb	9.53 kg
TX-20V-C	3/4 in.	Male NPT	24 in.	609.6 mm	47 3/4 in.	1213 mm	7.6 gal	28.8 L	3.2 gal	12.1 L	258 lb	117 kg
TX-30V-C	3/4 in.	Male NPT	16 1/4 in.	412.8 mm	17 1/4 in.	438 mm	12.5 gal	47.3 L	10.0 gal	37.9 L	84 lb	38.10 kg
TX-60V-C	3/4 in.	Male NPT	16 1/4 in.	412.8 mm	34 in.	864 mm	25.0 gal	94.6 L	11.3 gal	42.8 L	125 lb	56.7 kg
TX-70V-C	3/4 in.	Male NPT	16 1/4 in.	412.8 mm	45 3/4 in.	864 mm	34.0 gal	94.6 L	11.3 gal	42.8 L	125 lb	56.7 kg
TX-80V-C	1 1/4 in.	Female NPT	24 in.	609.6 mm	40 1/2 in.	1029 mm	53.0 gal	200.6 L	34.5 gal	130.6 L	190 lb	86.18 kg
TX-120V-C	—	Female NPT	24 in.	609.6 mm	47 3/4 in.	1213 mm	66 gal	249.8 L	33 gal	124.9 L	258 lb	117.1 kg
TX-180V-C	1 1/4 in.	Female NPT	24 in.	609.6 mm	52 5/8 in.	1338 mm	77.0 gal	291.5 L	33.9 gal	128.3 L	255 lb	115.67 kg
TX-210V-C	1 1/4 in.	Female NPT	24 in.	609.6 mm	60 in.	1524 mm	88.0 gal	333.1 L	34.3 gal	129.8 L	295 lb	133.81 kg
TX-42V-C	3/4 in.	Female NPT	16 1/4 in.	412.8 mm	24 1/4 in.	616 mm	17.5 gal	66.2 L	11.4 gal	43.2 L	98 lb	44.45 kg
TX-447-C	2 in.	Female NPT	24 in.	609.6 mm	60 in.	1524 mm	53.0 gal	200.6 L	34.5 gal	130.6 L	263 lb	119.4 kg
TX-448-C	2 in.	Female NPT	24 in.	609.6 mm	46 in.	1168 mm	80.0 gal	302.8 L	52 gal	196.8 L	308 lb	139.8 kg
TX-449-C	2 in.	Female NPT	24 in.	609.6 mm	60 in.	1524 mm	106.0 gal	401.2 L	69 gal	261.2 L	353 lb	160.3 kg
TX-450-C	2 in.	Female NPT	24 in.	609.6 mm	74 in.	1880 mm	132.0 gal	499.6 L	86 gal	325.5 L	391 lb	177.5 kg
TX-451-C	2 in.	Female NPT	30 in.	762 mm	74 1/2 in.	1892 mm	158.0 gal	598 L	103 gal	389.86 L	626 lb	283.95 kg
TX-452-C	2 in.	Female NPT	30 in.	762 mm	92 1/2 in.	2349.5 mm	211.0 gal	798.64 L	137 gal	518.55 L	760 lb	344.74 kg
TX-453-C	3 in.	Female NPT	36 in.	914.4 mm	85 5/8 in.	2175 mm	264.0 gal	999.24 L	172 gal	651.02 L	810 lb	367.42 kg
TX-454-C	3 in.	Female NPT	36 in.	914.4 mm	98 in.	2490 mm	317.0 gal	1199.85 L	206 gal	779.71 L	914 lb	414.59 kg
TX-455-C	3 in.	Female NPT	36 in.	914.4 mm	110 3/8 in.	2803.5 mm	370.0 gal	1400.45 L	241 gal	912.19 L	1018 lb	461.76 kg
TX-456-C	3 in.	Female NPT	48 in.	1219.2 mm	81 7/8 in.	2080 mm	422.0 gal	1597.27 L	275 gal	1040.88 L	1655 lb	750.71 kg
TX-457-C	3 in.	Female NPT	48 in.	1219.2 mm	95 3/4 in.	2432 mm	528.0 gal	1998.48 L	344 gal	1302.04 L	1925 lb	873.18 kg

Commercial Expansion Tanks

XPS Series Honeywell Expansion Tanks



XPS Series (commercial) Expansion Tanks are designed to absorb hot water expansion in closed heating systems in larger installations. They are equipped with butyl diaphragms to separate clamped design. Pre-pressurized at 12 psi, the tank keeps fluids circulating and maintains minimum system pressure. Honeywell tanks resist waterlogging, loss of pressure through relief valves spills, loss BTUs for improved system performance.

- For ASME construction consult factory.

Maximum Operating Temperature: 240 F (115 C)

Maximum Operating Pressure: 100 psi (689 kPA)

Materials: steel shell, heavy duty butyl diaphragm

Comments: Heating

Product Number	Con- nection Size	Connection Type	Diameter		Height		Volume		Maximum Acceptance Volume		Weight	
	(inch)		(inch)	(mm)	(inch)	(mm)	(gal)	(L)	(gal)	(L)	(lb)	(kg)
XPS-030V	1 in.	Female NPT	15 3/8 in.	390.5 mm	23 7/8 in.	606 mm	14.0 gal	53.1 L	11.3 gal	42.8 L	25 lb	11.4 kg
XPS-040V	1 in.	Female NPT	15 3/8 in.	390.5 mm	31 5/8 in.	803 mm	20.0 gal	75.8 L	11.3 gal	42.8 L	33 lb	15 kg
XPS-060V	1 in.	Female NPT	15 3/8 in.	390.5 mm	46 1/2 in.	584 mm	32 gal	121.3 L	11.3 gal	42.8 L	43 lb	19.5 kg
XPS-090V	1 1/4 in.	Female NPT	22 in.	558.8 mm	36 in.	914 mm	44 gal	166.8 L	34 gal	128.9 L	69 lb	31.4 kg
XPS-110V	1 1/4 in.	Female NPT	22 in.	558.8 mm	46 3/4 in.	876.3 mm	62 gal	235 L	34 gal	128.9 L	92 lb	41.8 kg
XPS-160V	1 1/4 in.	Female NPT	26 in.	660.4 mm	47 1/4 in.	1200 mm	86.0 gal	325.9 L	46 gal	174.3 L	123 lb	55.9 kg



Thermostatic Mixing Valves

AM-1 Series Thermostatic Mixing Valve



The Honeywell AM-1 series accurately adjusts, maintains and limits the hot water temperature to a desired setting selected by the user. In domestic water applications it offers scalding protection and bacteria growth control. By installing a Honeywell AM-1 mixing valve and raising water heater storage temperature setting and limiting mixed outlet water temperature to safe temperature more usable hot water is available. In heating applications it provides comfort and protects the equipment.

- Dual purpose mixing or diverting valves
- Constant water temperature under changing operating conditions
- Reliable performance at minimum flow of 0.5 gpm
- Proportional valve (simultaneous control of hot and cold water)
- Temperature limit at any point
- Flow reduction in seconds if cold water supply is interrupted
- Nickel-plated brass construction, EPDM O-rings
- High performance thermoplastic proportioning shuttle
- Straight through design (hot and cold at the same level)
- Max. pressure 150 psi (1034 kPa)
- Max temperature 212 F (100 C)
- Designed for easy maintenance and element replacement. Teflon® coating of internal valve components to prevent mineral build-up and extend life.
- Tamper resistant design
- Valve trapping not required

- AM-1 Union STD & C and AM1070 Models include check valves on both hot and cold ports
- ASSE, CSA and IAPMO listed
- U.S. Patent No. 6,079,625

Application: Domestic water, Nursing homes, Public facilities, Automatic faucets, Radiant floor heating, Space heating, Combo systems, Solar hot water, Greenhouses, Industrial applications, Photo processing

Replacement Parts:

AMCU100 Replacement Check Valve for all AM-1 Series union model valves

AMU200-RP Gasket kit for 1/2 inch, 3/4 inch and 1 inch AM and AM-1 Series valves; 3 gaskets per kit

AM-1-020RP Rebuild kit for AM-1 Series B (60 - 100F; 16-38C) or Series C (80 - 120F; 27 - 49C) range valves. Includes thermal element, spring, diffuser, spool and O-rings

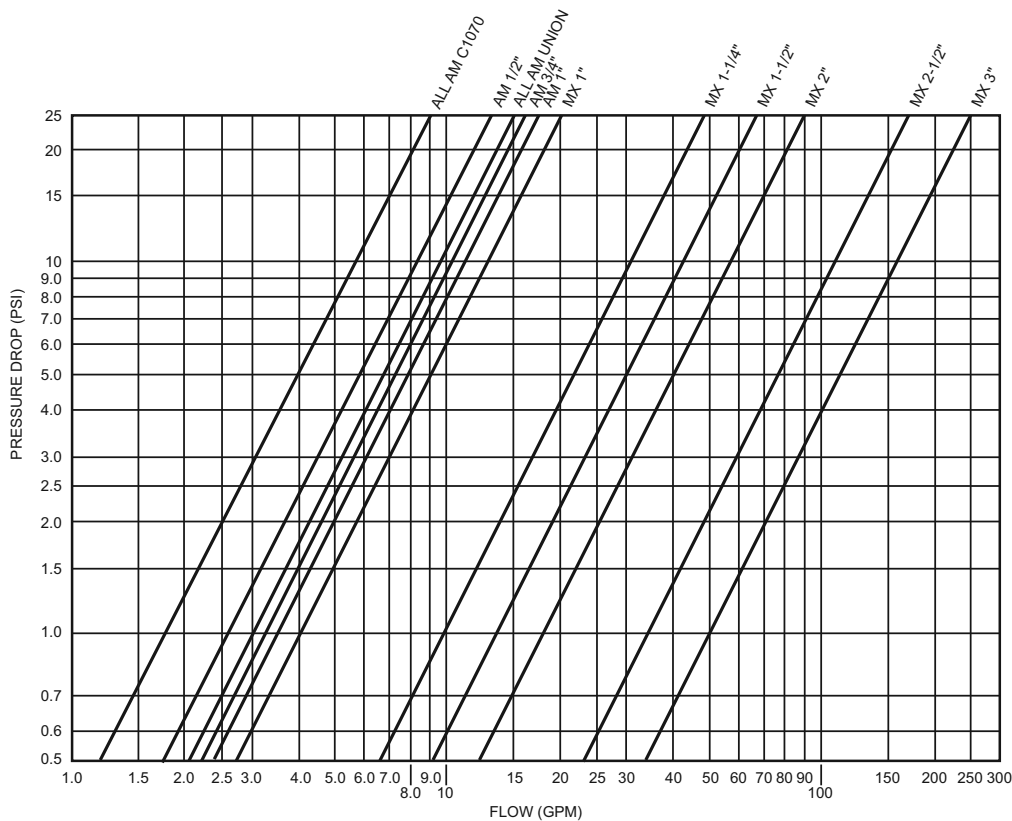
AM-1-025RP Thermal element, spring, and plug assembly. Rebuild kit for AM-1 "Standard" series and AMX300 series valves

AM-1-030RP Rebuild kit for AM-1 Series 1070 valves; (70 - 120F; 21 - 49C). Includes thermal element, spring, diffuser, spool and O-rings

Product Number	Pipe Size		Connection Type	Capacity (Cv)	Operating Temperature Range		ASSE	Comments
	(inch)	(DN)			(F)	(C)		
AM100-1	1/2 in.	DN15	NPT	3.2 Cv	70 F to 145 F	21 C to 63 C	1017	—
AM100-UCPVC-1	1/2 in.	DN15	Union CPVC	3.9 Cv	70 F to 145 F	21 C to 63 C	1017	—
AM100-UPEX-1	1/2 in.	DN15	Union PEX	3.9 Cv	70 F to 145 F	21 C to 63 C	1017	—
AM100-US-1	1/2 in.	DN15	Union Sweat	3.9 Cv	70 F to 145 F	21 C to 63 C	1017	—
AM100-UT-1	1/2 in.	DN15	Union NPT	3.9 Cv	70 F to 145 F	21 C to 49 C	1017	—
AM100C-1	1/2 in.	DN15	NPT	3.2 Cv	70 F to 120 F	21 C to 49 C	1017	—
AM100C-UCPVC-1	1/2 in.	DN15	Union CPVC	3.9 Cv	70 F to 120 F	21 C to 49 C	1017	—
AM100C-UPEX-1	1/2 in.	DN15	Union PEX	3.9 Cv	70 F to 120 F	21 C to 49 C	1017	—
AM100C-US-1	1/2 in.	DN15	Union Sweat	3.9 Cv	70 F to 120 F	21 C to 49 C	1017	—
AM100C-UT-1	1/2 in.	DN15	Union NPT	3.9 Cv	70 F to 120 F	21 C to 49 C	1017	—
AM100C1070-UCPVC-1	1/2 in.	DN15	Union CPVC	1.8 Cv	70 F to 120 F	21 C to 49 C	1070	—
AM100C1070-UPEX-1	1/2 in.	DN15	Union PEX	1.8 Cv	70 F to 120 F	21 C to 49 C	1070	—
AM100C1070-US-1	1/2 in.	DN15	Union Sweat	1.8 Cv	70 F to 120 F	21 C to 49 C	1070	—
AM100C1070-UT-1	1/2 in.	DN15	Union NPT	1.8 Cv	70 F to 120 F	21 C to 49 C	1070	—
AM100R-UPEX-1	1/2 in.	DN15	Union PEX	3.9 Cv	70 F to 180 F	21 C to 82 C	No Approval	Heating Only
AM100R-US-1	1/2 in.	DN15	Union Sweat	3.9 Cv	70 F to 180 F	21 C to 82 C	No Approval	Heating Only
AM100R-UT-1	1/2 in.	DN15	Union NPT	3.9 Cv	70 F to 180 F	21 C to 82 C	No Approval	Heating Only
AM101-1	3/4 in.	DN20	NPT	3.8 Cv	70 F to 145 F	21 C to 63 C	1017	—
AM101-UCPVC-1	3/4 in.	DN20	Union CPVC	3.9 Cv	70 F to 145 F	21 C to 63 C	1017	—
AM101-UPEX-1	3/4 in.	DN20	Union PEX	3.9 Cv	70 F to 145 F	21 C to 63 C	1017	—
AM101-US-1	3/4 in.	DN20	Union Sweat	3.9 Cv	70 F to 145 F	21 C to 63 C	1017	—
AM101-UT-1	3/4 in.	DN20	Union NPT	3.9 Cv	70 F to 145 F	21 C to 63 C	1017	—

Thermostatic Mixing Valves


Product Number	Pipe Size		Connection Type	Capacity (Cv)	Operating Temperature Range		ASSE	Comments
	(inch)	(DN)			(F)	(C)		
AM101C-1	3/4 in.	DN20	NPT	3.8 Cv	70 F to 120 F	21 C to 49 C	1017	—
AM101C-UCPVC-1	3/4 in.	DN20	Union CPVC	3.9 Cv	70 F to 120 F	21 C to 49 C	1017	—
AM101C-UPEX-1	3/4 in.	DN20	Union PEX	3.9 Cv	70 F to 120 F	21 C to 49 C	1017	—
AM101C-US-1	3/4 in.	DN20	Union Sweat	3.9 Cv	70 F to 120 F	21 C to 49 C	1017	—
AM101C-UT-1	3/4 in.	DN20	Union NPT	3.9 Cv	70 F to 120 F	21 C to 49 C	1017	—
AM101C1070-UCPVC-1	3/4 in.	DN20	Union CPVC	1.8 Cv	70 F to 120 F	21 C to 49 C	1070	—
AM101C1070-UPEX-1	3/4 in.	DN20	Union PEX	1.8 Cv	70 F to 120 F	21 C to 49 C	1070	—
AM101C1070-US-1	3/4 in.	DN20	Union Sweat	1.8 Cv	70 F to 120 F	21 C to 49 C	1070	—
AM101C1070-UT-1	3/4 in.	DN20	Union NPT	1.8 Cv	70 F to 120 F	21 C to 49 C	1070	—
AM101R-UPEX-1	3/4 in.	DN20	Union PEX	3.9 Cv	70 F to 180 F	21 C to 82 C	No Approval	Heating Only
AM101R-US-1	3/4 in.	DN20	Union Sweat	3.9 Cv	70 F to 180 F	21 C to 82 C	No Approval	Heating Only
AM101R-UT-1	3/4 in.	DN20	Union NPT	3.9 Cv	70 F to 180 F	21 C to 82 C	No Approval	Heating Only
AM102-1	1 in.	DN25	NPT	4.3 Cv	70 F to 145 F	21 C to 63 C	1017	—
AM102-US-1	1 in.	DN25	Union Sweat	3.9 Cv	70 F to 145 F	21 C to 63 C	1017	—
AM102-UT-1	1 in.	DN25	Union NPT	3.9 Cv	70 F to 145 F	21 C to 63 C	1017	—
AM102C-1	1 in.	DN25	NPT	4.3 Cv	70 F to 120 F	21 C to 49 C	1017	—
AM102C-US-1	1 in.	DN25	Union Sweat	3.9 Cv	70 F to 120 F	21 C to 49 C	1017	—
AM102C-UT-1	1 in.	DN25	Union NPT	3.9 Cv	70 F to 120 F	21 C to 49 C	1017	—
AM102C1070-US-1	1 in.	DN25	Union Sweat	1.8 Cv	70 F to 120 F	21 C to 49 C	1070	—
AM102C1070-UT-1	1 in.	DN25	Union NPT	1.8 Cv	70 F to 120 F	21 C to 49 C	1070	—
AM102R-US-1	1 in.	DN25	Union Sweat	3.9 Cv	70 F to 180 F	21 C to 82 C	No Approval	Heating Only
AM102R-UT-1	1 in.	DN25	Union NPT	3.9 Cv	70 F to 180 F	21 C to 82 C	No Approval	Heating Only



M16710C

Thermostatic Mixing Valves



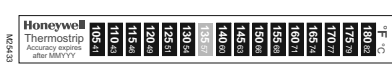
New Style AM-1 Series Valves Replacement Parts

Product Number	Description	
AM-1-020RP	Rebuild kit for AM-1 Series B (60 - 100F; 16-38C) or Series C (80 - 120F; 27 - 49C) range valves. Includes thermal element, spring, diffuser, spool and O-rings	
AM-1-025RP	Thermal element, spring, and plug assembly. Rebuild kit for AM-1 "Standard" series and AMX300 series valves	
AM-1-030RP	Rebuild kit for AM-1 Series 1070 valves; (70 - 120F; 21 - 49C). Includes thermal element, spring, diffuser, spool and O-rings	
AMCU100	Replacement Check Valve for all AM-1 Series union model valves	
AMU200-RP	Gasket kit for 1/2 inch, 3/4 inch and 1 inch AM and AM-1 Series valves; 3 gaskets per kit	

Old Style AM Series Valves (manufactured before 2001) Replacement Parts

Product Number	Description
AM100-001RP	Rebuild kit for AM C Series valves, 90-120 F (32 - 49C) range. Does not fit AM-1 Series
AM100-002RP	Rebuild kit for AM Standard Series valves, 110-145 F (43 - 63C) range. Does not fit AM-1 Series
AM100-010RP	Rebuild kit for AM R Series valves, 70 - 100F (21 - 38C) range. Does not fit AM-1 Series
AMU200-RP	Gasket kit for 1/2 inch, 3/4 inch and 1 inch AM and AM-1 Series valves; 3 gaskets per kit

Mixing Valve Accessories

Product Number	Description	
AM08-038	1/2 inch Sweat union kit. Includes tailpiece, union nut and gasket	
AM08-039	3/4 inch Sweat union kit. Includes tailpiece, union nut and gasket	
AM08-040	1 inch Sweat union kit. Includes tailpiece, union nut, gasket and retaining ring	
AM08-041	1/2 inch NPT union kit. Includes tailpiece, union nut and gasket	
AM08-042	3/4 inch NPT union kit. Includes tailpiece, union nut and gasket	
AM08-043	1 inch NPT union kit. Includes tailpiece, union nut, gasket and retaining ring	
AM206-040	3/4 inch CPVC union kit. Includes tailpiece, union nut and gasket	
AM206-041	1/2 inch PEX union kit. Includes tailpiece, union nut and gasket	
AM206-042	3/4 inch PEX union kit. Includes tailpiece, union nut and gasket	
CVT-050	3/4 in. FNPT x 3/4 in. MNPT Check Adapter for use with AM-1 NPT valves	
CVT-075	1/2 in. FNPT x 1/2 in. MNPT Check Adapter for use with AM-1 NPT valves	
MX050-RP	1/2 inch Recirculation adapter kit. Includes 1/2 inch MNPT union nut and gasket	
TS205-064	Thermostrip temperature indicator for potable mixing valves, 110-140F (43 - 60C) range Strip	
TS206-080	Thermostrip temperature indicator for R Series radiant mixing valves, 105 - 180F (41 - 82C) range	

Replacement Parts SM Series (Old Style)

Product Number	Description
SM100-004RP	SM Series Element, spring and shuttle assembly

Thermostatic Mixing Valves

AMX Series DirectConnect™ Thermostatic Mixing Valves



Patented DirectConnect™ design reduces installation time. Orientation of cold and hot ports eliminates need for elbows and tees on typical water heater installations. Added safety designed to prevent scalding. Increased user comfort for more available hot water. Designed to be directly installed on water heater hot outlet port.

- Designed to be directly installed on water heater hot outlet port.
- Constant water temperature under different operating conditions
- Proportional valve (control of hot and cold water)
- Flow reduction in seconds if cold water supply is interrupted
- Temperature adjustable using 3/16 allen wrench (supplied)
- Union nuts/tail pieces included
- Heat trapping not required
- Recirculation port option for fast response
- Integral check valve on cold port
- Brass/stainless construction
- Teflon coated wear surfaces for extended service
- ASSE 1017 certified, CSA & IAPMO listed
- U.S. Patent pending

Application: Heat Pump Systems, Domestic water, Nursing homes, Public facilities, Automatic faucets, Radiant floor heating, Space heating, Combo systems, Solar hot water, Greenhouses, Industrial applications, Photo processing

Operating Temperature Range: 90 F to 130 F (32 C to 54 C)

Capacity: 4 Cv

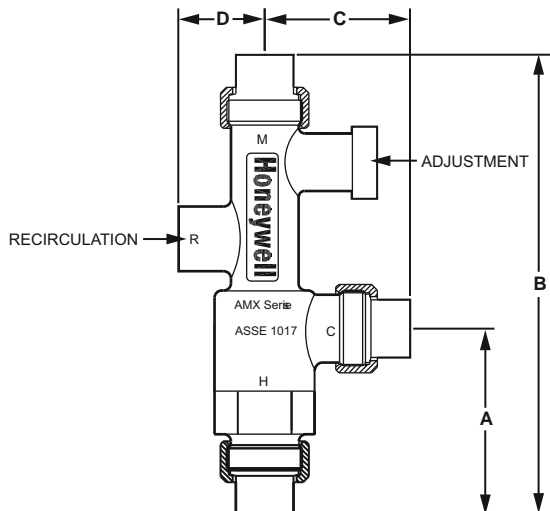
ASSE: 1017

Replacement Parts:

AMX-001RP AMX element, spring, plug assembly. For AMX100 - AMX102 series valves only

Product Number	Pipe Size		Connection Type	Comments
	(inch)	DN		
AMX100-UCPVC-1	1/2 in.	DN15	Union CPVC, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX100-UPEX-1	1/2 in.	DN15	Union PEX, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX100-US-1	1/2 in.	DN15	Union Sweat, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX100-UT-1	1/2 in.	DN15	Union NPT, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX101-UCPVC-1	3/4 in.	DN20	Union CPVC, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX101-UPEX-1	3/4 in.	DN20	Union PEX, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX101-US-1	3/4 in.	DN20	Union Sweat, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX101-USMT-1	3/4 in.	DN20	—	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX101-UT-1	3/4 in.	DN20	Union NPT, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX102-US-1	1 in.	DN25	Union Sweat, 1 in. Bottom	AMX102 Series valves include 1 in. NPT bottom connection
AMX102-UT-1	1 in.	DN25	Union NPT, 1 in. Bottom	AMX102 Series valves include 1 in. NPT bottom connection

Dimensions in inches (millimeters)



PRODUCT NUMBER	DIMENSIONS (INCHES)			
	A	B	C	D
AMX100-UCPVC-1	3-1/2	8-7/16	2-11/16	1-1/2
AMX100-UPEX-1	3-1/2	8-5/8	2-15/16	1-1/2
AMX100-US-1	3-1/2	8-3/16	2-1/2	1-1/2
AMX100-UT-1	3-1/2	8-1/2	2-13/16	1-1/2
AMX101-UCPVC-1	4-3/16	9	2-1/2	1-1/2
AMX101-UPEX-1	4-3/16	9-3/16	2-11/16	1-1/2
AMX101-US-1	4-3/16	9	2-1/2	1-1/2
AMX101-UT-1	4-3/16	9-11/16	3-1/2	1-1/2
AMX102-US-1	4-1/2	10	3-1/2	1-1/2
AMX102-UT-1	4-1/2	10.3	3-13/16	1-1/2

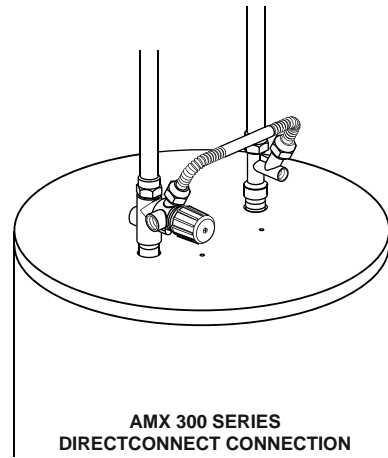
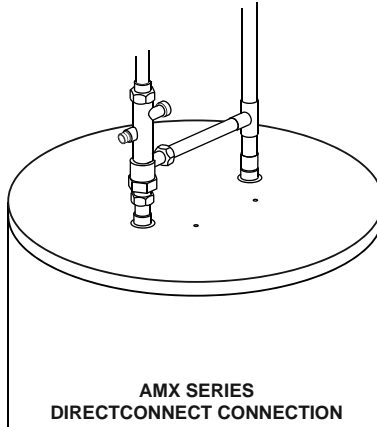
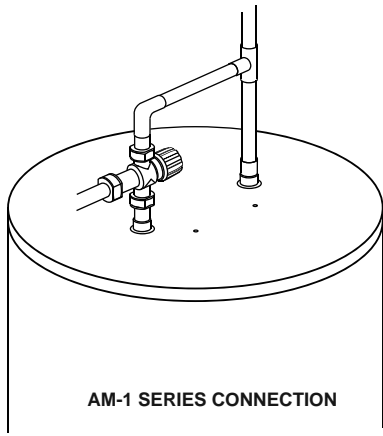
M27478A

Thermostatic Mixing Valves

AMX Series DirectConnect Replacement Part

Product Number	Description
AMX-001RP	AMX element, spring, plug assembly. For AMX100 - AMX102 series valves only

Thermostatic Mixing Valve Installation



M31168

Thermostatic Mixing Valves

AMX300 Series DirectConnect™ Thermostatic Mixing Valve and Kits



AMX300T and AMX302T Kits



- Kit includes ASSE 1017 mixing valve, cold water tee fitting and flexible stainless steel connector
- For performance specifications of the kits, please refer to data provided for the AMX300 valve
- Mixing valve and cold water tee both connect directly to water heater; flexible stainless steel connector joins the cold water tee directly to the cold inlet port of the mixing valve
- Fits virtually all water heaters up to 1 in. (all necessary adapters included)
- Increased user comfort for more available hot water.
- Constant water temperature under different operating conditions
- Proportional valve (control of hot and cold water)
- Flow reduction in seconds if cold water supply is interrupted
- Temperature adjustable with easy "Push-Twist-Release" locking hand wheel design
- Union nuts/tail pieces/adapters (for certain models) included
- Recirculation port option for fast delivery of heated water to furthest fixtures
- Alternate hot port for bypass of hot water directly from tank to nonmixed temperature applications (dishwashers, clothes washers, etc.)
- Integral check valve on cold port
- Brass/stainless construction
- Teflon coated wear surfaces for extended service
- ASSE 1017 certified, IAPMO listed (cUPCus)

New AMX300 kits reduce installation time to an minimum while still providing Honeywell's industry leading mixing valve technology

- Excellent temperature stability and control
- Effectively minimizes scalding risk to building occupants

Application: Domestic Hot Water

Valve Capacity: 2.1 Cv

Mixed Water Supply Temperature Range:
100 F to 145 F (38 C to 63 C)

Operating Temperature Range:

100 F to 212 F (hot water inlet) 33 F to 80 F (cold water inlet)
(38 C to 100 C) (hot water inlet) (0.5 C to 27 C) (cold water inlet)

Minimum Flow Rate: 0.25 gpm; Recirculation Port: 1/2 in. NPT;
Alternate Hot Port: 1/2 in. NPT
(0.95 lpm; Recirculation Port: 1/2 in. NPT; Alternate Hot Port:
1/2 in. NPT)

Maximum Working Pressure: 150 psi

ASSE: 1017 (AMX300 valve)

Replacement Parts:

AM-1-025RP Thermal element, spring, and plug assembly. Rebuild kit for AM-1 "Standard" series and AMX300 series valves

Product Number	Pipe Size		Connection Type	Description
	(inch)	(DN)		
AMX300	3/4 in.	DN20	Cold Inlet - 7/8 in.-14 SAE J513, 45 degree flare fitting; Mixed Outlet - Male NPT; Hot Inlet - Female NPT	3/4 in. ASSE 1017 mixing valve (Replacement valve for AMX300T and AMX302T DirectConnect mixing valve kits.)
AMX300T	1/2 in.	DN15	Mixed Outlet - Male NPT; Hot Inlet - Female NPT	DirectConnect water heater kit with 3/4 in. ASSE 1017 mixing valve, 3/4 in. cold water tee, and 8-in. SS flex connector
AMX302T	1 in.	DN25	Mixed Outlet - Male NPT; Hot Inlet - Female NPT	DirectConnect water heater kit with 3/4-in. ASSE 1017 mixing valve, 3/4-in. cold water tee, and 11-in. SS flex connector

AMX Series DirectConnect Replacement Part

Product Number	Description
AM-1-025RP	Thermal element, spring, and plug assembly. Rebuild kit for AM-1 "Standard" series and AMX300 series valves

Thermostatic Mixing Valves

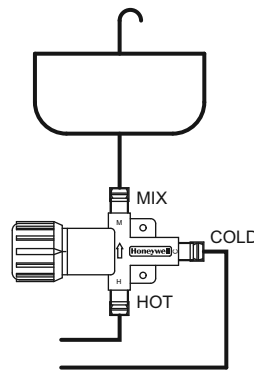
UMV Series Undersink Mixing Valves



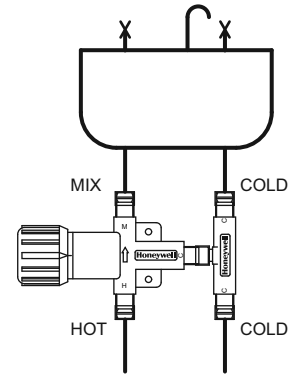
Universal 3 or 4 Port connection for 3/8 in. compression undersink applications. Includes internal check valves in hot and cold ports to prevent cross flow. Easy installation kit includes 3/8 compression nuts, ferrules and stand-offs for secure mounting. Forged brass body construction. Tamper resistant temperature control handwheel locks into desired temperature position.

- Universal adapter for 3 Port connection
- 3/8 compression connections for easy installation
- Includes internal check valves in hot and cold ports to prevent cross flow.
- Tamper resistant hand wheel locks into desired temperature position
- Temperature adjustment range 80-120F
- Controls temperature with flow as low as 0.5 gpm
- Forged brass body with pilot holes for secure mounting
- ASSE 1016 and ASSE 1070 listed

Typical Installation



THREE PORT APPLICATION



FOUR PORT APPLICATION

M25022

Application: UMV Series 3/8 in. Compression

Connection Type: Compression

ASSE: 1016, 1070

Product Number	Pipe Size		Capacity (Cv)	Operating Temperature Range		Description
	(inch)	DN		(F)	(C)	
UMV-304U	3/8 in.	DN20	0.55 Cv	70 F to 120 F	21 C to 49 C	3/8 in. compression Universal 3 or 4 Port Connection

Pressure Regulating Valves

D05T Pressure Regulating Valve—Compact Design



Compact Design pressure regulating valves for new residential and light commercial construction, drip irrigation and other applications requiring sensitive and accurate regulation.

Calibrated Adjustment Dial: No

Gauge Tap: 1/4 in. NPT

Reducing Ratio: 10:1 maximum

Maximum Inlet Pressure Rating (psi): 400 psi

Pipe Connection: Female NPT threaded inlet and outlet. Externally threaded for unions.

Outlet Pressure Adjustment Range (psi): 15-90 psi

Temperature Range: 180 F (82 C)

- Flow capacity and accuracy make D05T suitable for a variety of applications
- Bronze body construction with stainless steel and engineered thermoplastic internal parts
- One piece non-corroding unitized cartridge
- Fully balanced regulator mechanism with fabric reinforced diaphragm
- Includes balanced seat for accurate pressure output under varying inlet pressures up to 400psi
- Inlet and outlet internally and externally threaded (NPT) for union connection
- Built-in strainer and thermal by-pass
- ASSE 1003 and IAPMO listed

Materials: Bronze (body), Fabric reinforced diaphragm, Stainless steel and engineered thermoplastics.

Approvals:

Canadian Standards Association: Certified (B356)

ASSE: Certified (1003)

IAPMO: Listed

Product Number	Pipe Size		Dimensions, Approximate		Union Fittings
	(inch)	(DN)	(inch)	(mm)	
D05T1011	3/4 in.	DN20	6 5/8 in. high x 3 1/2 in. wide	168 mm high x 89 mm long	Union body, no tailpieces
D05T1029	3/4 in.	DN20	6 5/8 in. high x 5 3/16 in. long	168 mm high x 132 mm long	Double-union sweat
D05T1045	1 in.	DN25	4 1/2 in. high x 4 in. long	114 mm high x 142 mm wide	Union body, no tailpieces
D05T1052	1 in.	DN25	8 5/8 in. high x 6 1/2 in. long	218 mm high x 166 mm long	Double-union sweat
D05T1060	3/4 in.	DN20	6 5/8 in. high x 5 3/16 in. long	168 mm high x 132 mm long	Double-union threaded
D05T1078	1 in.	DN25	6 5/8 in. high x 5 3/16 in. long	168 mm high x 132 mm long	Double-union threaded
D05T1086	3/4 in.	DN20	6 5/8 in. high x 5 3/16 in. long	168 mm high x 132 mm long	Single-union sweat
D05T1094	3/4 in.	DN20	6 5/8 in. high x 4 5/16 in. wide	168 mm high x 110 mm long	Single-union threaded
D05T1102	1 in.	DN25	8 5/8 in. high x 5 in. long	218 mm high x 127 mm long	Single-union sweat
D05T1110	1 in.	DN25	8 5/8 in. high x 5 in. long	218 mm high x 127 mm long	Single-union threaded

Pressure Regulating Valves

DS05 "DialSet" Pressure Regulating Valves



Valves for new residential and light commercial construction, drip irrigation, and other applications requiring highly sensitive and accurate regulation. Easy DialSet® Adjustment (no gauge required).

Calibrated Adjustment Dial: Yes

Gauge Tap: none

Reducing Ratio: 10:1 maximum

Pipe Connection: Female NPT threaded inlet and outlet. Externally threaded for unions.

Maximum Inlet Pressure Rating (psi): 400 psi

Temperature Range: 180 F (82 C)

- Dial is calibrated in 10 psi increments to allow quick and accurate adjustment of outlet pressure.
- Flow capacity and accuracy make the DS05 suitable for potable water service and most irrigation applications.
- High pressure (400 psi) inlet rating.
- Non-corroding unitized cartridge contains all working parts and is easily replaceable.
- Bronze body with stainless steel and engineered thermoplastic internal parts.
- Balanced single seat for accurate pressure output under varying inlet pressures.
- Inlet and outlet are internally threaded female NPT, and externally threaded for use with union assemblies.
- Built-in strainer and thermal bypass.
- One model can be used in low, standard or high pressure applications.

Materials: Bronze (body), Fabric reinforced diaphragm, Stainless steel and engineered thermoplastics.

Approvals:

Canadian Standards Association: Certified (B356)

ASSE: Certified (1003)

IAPMO: Listed

Product Number	Pipe Size		Dimensions, Approximate		Outlet Pressure Adjustment Range (psi)	Union Fittings
	(inch)	(DN)	(inch)	(mm)		
DS05C1006	1/2 in.	DN15	5 1/4 in. high x 3 3/8 in. long	133 mm high x 86 mm long	15-90 psi	Union body, no tailpieces
DS05C1014	1/2 in.	DN15	5 1/4 in. high x 3 7/8 in. long	133 mm high x 98 mm wide	15-90 psi	Single-union sweat
DS05C1022	1/2 in.	DN15	5 1/4 in. high x 4 1/16 in. long	133 mm high x 103 mm wide	15-90 psi	Single-union threaded
DS05C1030	3/4 in.	DN20	5 1/4 in. high x 3 3/8 in. long	133 mm high x 86 mm long	15-90 psi	Union body, no tailpieces
DS05C1048	3/4 in.	DN20	5 1/4 in. high x 4 5/16 in. long	133 mm high x 110 mm wide	15-90 psi	Single-union sweat
DS05C1055	3/4 in.	DN20	5 1/4 in. high x 4 5/16 in. long	133 mm high x 110 mm wide	15-90 psi	Single-union threaded
DS05C1063	1 in.	DN25	5 1/4 in. high x 3 15/16 in. long	133 mm high x 100 mm wide	15-90 psi	Union body, no tailpieces
DS05C1071	1 in.	DN25	5 1/4 in. high x 5 1/4 in. long	133 mm high x 133 mm long	15-90 psi	Single-union sweat
DS05C1089	1 in.	DN25	5 1/4 in. high x 5 in. long	133 mm high x 127 mm long	15-90 psi	Single-union threaded
DS05D1005	1/2 in.	DN15	5 1/4 in. high x 5 9/16 in. long	133 mm high x 141 mm long	15-90 psi	Double-union sweat
DS05D1013	1/2 in.	DN15	5 1/4 in. high x 5 15/16 in. long	133 mm high x 125 mm long	15-90 psi	Double-union threaded
DS05D1021	3/4 in.	DN20	5 1/4 in. high x 6 1/16 in. long	133mm high x 154 mm long	15-90 psi	Double-union sweat
DS05D1039	3/4 in.	DN20	5 1/4 in. high x 5 3/16 in. long	133 mm high x 132 mm long	15-90 psi	Double-union threaded
DS05D1047	1 in.	DN25	5 1/4 in. high x 6 1/2 in. long	133 mm high x 166 mm long	15-90 psi	Double-union sweat
DS05D1054	1 in.	DN25	5 1/3 in. high x 5 3/16 in. long	133 mm high x 132 mm long	15-90 psi	Double-union threaded
DS05D1062	1 1/4 in.	DN32	8 5/8 in. high x 7 11/16 in. long	218 mm high x 195 mm long	15-150 psi	Double-union sweat
DS05D1070	1 1/4 in.	DN32	8 5/8 in. high x 7 5/16 in. long	218 mm high x 186 mm long	15-150 psi	Double-union threaded
DS05G1085	1 1/4 in.	DN32	8 5/8 in. high x 6 in. long	218 mm high x 152 mm long	15-150 psi	Single-union threaded
DS05G1093	1 1/4 in.	DN32	8 5/8 in. high x 6 3/16 in. long	218 mm high x 157 mm long	15-150 psi	Single-union sweat
DS05G1127	1 1/4 in.	DN32	8 5/8 in. high x 4 11/16 in. long	218 mm high x 119 mm long	15-150 psi	Union body, no tailpieces

Pressure Regulating Valves

DS06 "DialSet" Pressure Regulating Valves



High quality pressure regulating valve that maintains a constant outlet pressure over a wide range of inlet supply pressures. Includes calibrated outlet pressure set dial that allows outlet pressure adjustments without the use of a gauge in most applications. Easy DialSet® Adjustment (no gauge required)

- Ideally suited for potable water and irrigation applications requiring accurate regulation.
- Wide outlet pressure range, high inlet pressure, and compact design allow flexibility in installation and application.
- Non-corroding unitized cartridge contains all working parts and is easily replaceable.
- Includes built-in strainer and thermal bypass.
- Balanced seat construction provides superior pressure regulation.
- Gauge tapped.

Calibrated Adjustment Dial: Yes

Gauge Tap: 1/4 in. NPT (two, one on each side of body).

Reducing Ratio: 10:1 maximum

Pipe Connection: Female NPT threaded inlet and outlet. Externally threaded for unions.

Maximum Inlet Pressure Rating (psi): 400 psi

Outlet Pressure Adjustment Range (psi): 15-130 psi

Temperature Range: 180 F (82 C)

Materials: Bronze (body), Fabric reinforced diaphragm, Stainless steel and engineered thermoplastics.

Approvals:

Canadian Standards Association: Certified (B356)

ASSE: Certified (1003)

IAPMO: Listed

Product Number	Pipe Size		Dimensions, Approximate		Union Fittings
	(inch)	(DN)	(inch)	(mm)	
DS06D1003	1 1/2 in.	DN40	11 13/16 in. high x 9 3/8 in. long	299 mm high x 238 mm long	Double-union sweat
DS06D1011	1 1/2 in.	DN40	11 13/16 in. high x 9 3/16 in. long	299 mm high x 233 mm long	Double-union threaded
DS06D1029	2 in.	DN50	11 13/16 in. high x 10 3/16 in. long	299 mm high x 257 mm long	Double-union sweat
DS06D1037	2 in.	DN50	11 13/16 in. high x 9 5/16 in. long	299 mm high x 237 mm long	Double-union threaded
DS06G1000	1 1/2 in.	DN40	11 13/16 in. high x 7 13/16 in. long	299 mm high x 198 mm long	Single-union threaded
DS06G1018	1 1/2 in.	DN40	11 13/16 in. high x 7 7/8 in. long	299 mm high x 201 mm long	Single-union sweat
DS06G1026	2 in.	DN50	11 13/16 in. high x 7 7/8 in. long	299 mm high x 200 mm long	Single-union threaded
DS06G1034	2 in.	DN50	11 13/16 in. high x 8 5/16 in. long	299 mm high x 211 mm long	Single-union sweat
DS06G1042	1 1/2 in.	DN40	11 13/16 in. high x 6 3/8 in. long	299 mm high x 162 mm long	Union body, no tailpieces
DS06G1059	2 in.	DN50	11 13/16 in. high x 6 3/8 in. long	299 mm high x 162 mm long	Union body, no tailpieces

Pressure Regulating Valves Parts and Accessories

D05/DS05 Pressure Regulating Valves—Accessories

Product Number	Description	Used With
272840	Union gaskets for 1/2 in. D05/DS05 (package of 2)	D05; DS05
272841	Union gaskets for 3/4 in. D05/DS05 (package of 2)	D05; DS05
272842	Union gasket for 1 in. D05/DS05 (package of 2)	D05; DS05
K06U1069	Union kit for D05 for 1/2-in. NPT valves. Includes union nut, threaded tail piece, and gasket	D05
K06U1077	Union kit for D05 for 3/4-in. NPT valves. Includes union nut, threaded tail piece, and gasket	D05
K06U1085	Union kit for D05 for 1-in. NPT valves. Includes union nut, threaded tail piece, and gasket	D05
K06U1093	Union kit for D05 for 1/2-in. sweat valves. Includes union nut, sweat tail piece, and gasket	D05
K06U1101	Union kit for D05 for 3/4-in. sweat valves. Includes union nut, sweat tail piece, and gasket	D05
K06U1119	Union kit for D05 for 1-in. sweat valves. Includes union nut, sweat tail piece, and gasket	D05
K06U1135	Union kit for D05 for 1-1/4-in. NPT valves. Includes union nut, threaded tail piece, and gasket	D05
K06U1143	Union kit for D05 for 1-1/4-in. sweat valves. Includes union nut, sweat tail piece, and gasket	D05

D05/DS05 Pressure Regulating Valves—Repair Parts

Product Number	Description	Used With
203223	Bonnet kit for 1/2 in. and 3/4 in. D05 valves. Consists of bonnet and threaded insert	D05
272838	Bonnet kit for 1/2 in. and 3/4 in. DS05 valves	DS05
272839	Bonnet kit for 1 in. and 1 1/4 in. DS05 valves	DS05
K05A1009	Repair Kit for old style D05A,G; DS05G series 1/2 in. and 3/4 in. valves. Includes cartridge, screen and O-rings	D05; DS05
K05A1017	Repair Kit for old style D05A,G; DS05G 1 in. and 1-1/4 in. valves. Includes cartridge, screen and O-rings	D05; DS05
K05A1025	Repair kit for new D05T, DC05C,D,G 1/2 in., 3/4 in., and 1-in. valves. Includes cartridge, screen and O-ring	D05T; DS05
K05B1007	Repair Kit for new D05T; DS05C,D,G 1/2-in. and 3/4-in. valves. Includes screen and O-rings	D05T; DS05
K05B1015	Repair Kit for new D05T and DS05C,D,G 1-in. valves. Includes screen and O-rings	D05T; DS05
K06A1003	Cartridge kit for D05G and DS05G 1/2 and 3/4 in. valves. Includes cartridge, screen and O-rings	D05; DS05
K06A1011	Cartridge kit for D05G and DS05G 1 and 1-1/4 in. valves. Includes cartridge, screen and O-rings	D05; DS05
K06A1019	Cartridge kit for D05G and DS05G 1/2 and 3/4 in. valves. Includes screen, plug and O-rings	D05; DS05
K06B1002	Cartridge kit for D05G and DS05G 1 and 1-1/4 in. valves. Includes screen, plug and O-rings	D05; DS05
K06B1018	Cartridge kit for D05G and DS05G 1 and 1-1/4 in. valves. Includes screen, plug and O-rings	D05; DS05
K06C1036	Spring kit for D05G and DS05G 1 and 1-1/4 in. valves. 21-85 psi. Includes spring and adjustment knob (grey)	D05; DS05
K06C1044	Spring kit for D05G and DS05G 1 and 1-1/4 in. valves. 85-170 psi. Includes spring and adjustment knob (red)	D05; DS05
K06D1001	Cartridge kit for D05G and DS05G 1/2 and 3/4 in. valves. Includes cartridge and O-rings	D05; DS05
K06D1009	Cartridge kit for D05G and DS05G 1 and 1-1/4 in. valves. Includes cartridge and O-rings	D05; DS05

D06/DS06 Pressure Regulating Valves—Accessories

Product Number	Description	Used With
272858	Union Gasket for 1 1/2 in. D06 and DS06G valves	D06; DS06G
272859	Union gaskets for 2-in. D06 and DS06 valves	D06; DS06
K06U1037	Union kit for D06 for 1-1/2-in. NPT valves. Includes union nut, sweat tail piece, and gasket	D06
K06U1045	Union kit for D06 for 2-in. NPT valves. Includes union nut, sweat tail piece, and gasket	D06
K06U5034	Union kit for D06 for 1-1/2-in. sweat valves. Includes union nut, sweat tail piece, and gasket	D06
K06U5042	Union kit for D06 for 2-in. sweat valves. Includes union nut, sweat tail piece, and gasket	D06

D06/DS06 Pressure Regulating Valves—Repair Parts

Product Number	Description	Used With
272867	Bonnet kit for 1-1/2 in. and 2 in. DS06 valves	DS06
K06B1030	Cartridge kit for D06G and DS06G 1-1/2-in. and 2-in. valves. Includes strainer, support and 2 O-rings	D06; DS06
K06C1060	Spring kit for D06G and DS06G 1-1/2 and 2 in. valves. 21-85 psi. Includes spring and adjustment knob (grey)	D06; DS06
K06D1017	Cartridge kit for D06G and DS06G 1-1/2 and 2 in. valves. Includes cartridge and O-rings	D06; DS06
K06D1044	Cartridge kit for D06G,T,U and DS06G 1-1/2-in. and 2in. valves. Includes cartridge, screen and O-rings.	D06; DS06

Water Filters

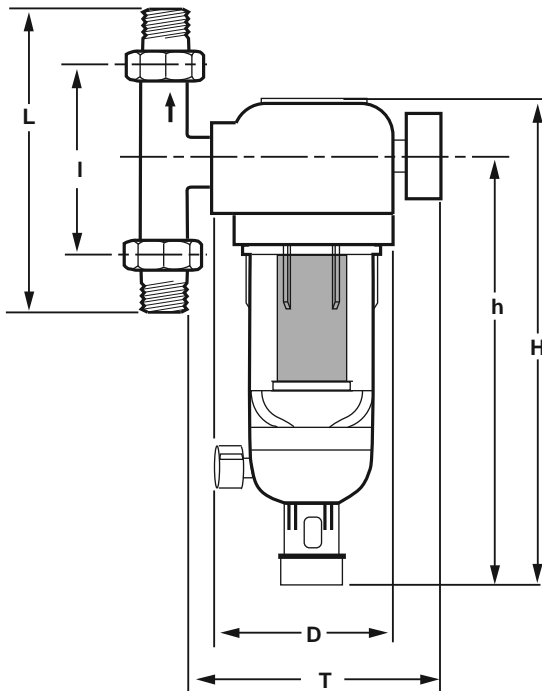
F74C Reversing Rinsing Filter



F74C Reverse Rinsing Filters ensure a continuous supply of filtered water. The fine filter prevents the ingress of foreign bodies, such as rust particle and grains of sand. Both horizontal and vertical installations are possible.

- Whole House Protection
- Filtered water supplied even during reverse rinsing. Patented reverse rinsing system.
- Fast and thorough cleaning of the filter with a small amount of water.
- Bayonet connection enables simple retro-fitting of reverse rinsing actuator.
- Large filter surface.
- Shock resistant, clear synthetic material filter bowl enables easy inspection of filter contamination.
- Filter insert fully interchangeable.
- Simple operation.
- Tested for reliability.

Dimensions in inches (millimeters)



Materials (Body): Plastic with Brass Fittings

Sump: Clear Plastic

Connection Type: Sweat and threaded

Temperature Rating: 86 F Maximum (30 C Maximum)

Weight: 6 lb (2.7 kg)

DIMENSION	IN INCHES (MM)	
	F74C1015	F74C1023
H	12-13/16 (324)	12-13/16 (324)
h	11-3/16 (285)	11-3/16 (285)
L	6-3/8 (162)	7-1/4 (184)
I	3-9/16 (90)	3-15/16 (100)
D	4-1/8 (105)	4-1/8 (105)
T	5-5/16 (150)	5-5/16 (150)

M18087B

Product Number	Pipe Size		Capacity (Cv)	Screen Size	Pressure Ratings	Includes
	(inch)	DN			(psi)	
F74C1015	3/4 in.	DN20	6.4 Cv	100 micron screen	230 psi maximum	gauge and wrench
F74C1023	1 in.	DN25	7.0 Cv	100 micron screen	230 psi maximum	gauge and wrench

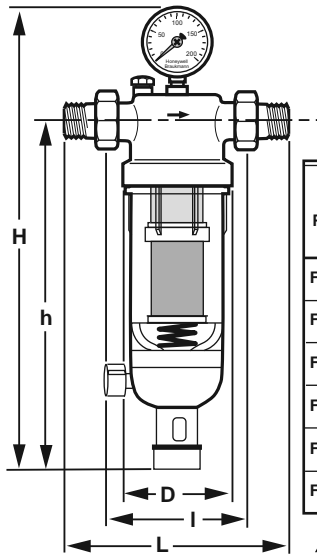
F76 Water Filters



High flow capacity water filter used to remove sediment and debris from residential or commercial water systems.

- Whole House Protection
- Ideally suited for sediment removal applications that would quickly plug and restrict the flow of normal filters.
- Used as a prefilter, the F76 protects elements of the water system, including specialized treatment devices or other common fixtures and appliances.
- The flow filtering capacity and ease of cleaning make the F76S ideal for the most demanding applications.
- Built-in secondary filter provides an uninterrupted supply of filtered water during backwashing.

Dimensions in inches (millimeters)



PRODUCT NUMBER AND SIZE	DIMENSIONS IN INCHES (MM)						WEIGHT [△]
	L	I	D	H	h		
F76S1007 1/2 IN.	6-11/16 (170)	4-5/16 (110)	3-13/16 (97)	17-11/16 (449)	13-13/16 (350)	6.4 (2.9)	
F76S1015 3/4 IN.	7 (178)	4-5/16 (110)	3-13/16 (97)	17-11/16 (449)	13-13/16 (350)	6.4 (2.9)	
F76S1023 1 IN.	8-1/4 (209)	5-1/8 (130)	3-13/16 (97)	17-7/8 (453)	13-13/16 (350)	6.8 (3.1)	
F76S1031 1-1/4 IN.	8-3/4 (222)	5-1/8 (130)	3-13/16 (97)	17-7/8 (453)	13-13/16 (350)	7.3 (3.3)	
F76S1049 1-1/2 IN.	9-11/16 (246)	5-15/16 (150)	4-3/4 (119)	20-15/16 (532)	16-7/16 (417)	8.8 (4.0)	
F76F1056 2 IN.	10-1/2 (267)	5-15/16 (150)	4-3/4 (119)	20-15/16 (532)	16-7/16 (417)	10.6 (4.8)	

[△] WEIGHT IN POUNDS (KILOGRAMS)

M18084A

Materials (Body): Brass

Sump: Clear Plastic

Connection Type: NPT External Threaded and Sweat

Temperature Rating: 104 F Maximum (40 C Maximum)

Weight: 6.4 lb (2.9 kg)

Product Number	Pipe Size		Capacity (Cv)	Screen Size	Pressure Ratings	Includes
	(inch)	DN			(psi)	
F76S1007	1/2 in.	DN15	5.6 Cv	100 micron screen	230 psi maximum	gauge and service wrench
F76S1015	3/4 in.	DN20	8.4 Cv	100 micron screen	230 psi maximum	gauge and service wrench
F76S1023	1 in.	DN25	11.4 Cv	100 micron screen	230 psi maximum	gauge and service wrench
F76S1031	1 1/4 in.	DN32	12.4 Cv	100 micron screen	230 psi maximum	gauge and service wrench
F76S1049	1 1/2 in.	DN40	24.4 Cv	100 micron screen	230 psi maximum	gauge and service wrench
F76S1056	2 in.	DN50	25.5 Cv	100 micron screen	230 psi maximum	gauge and service wrench

Water Filters

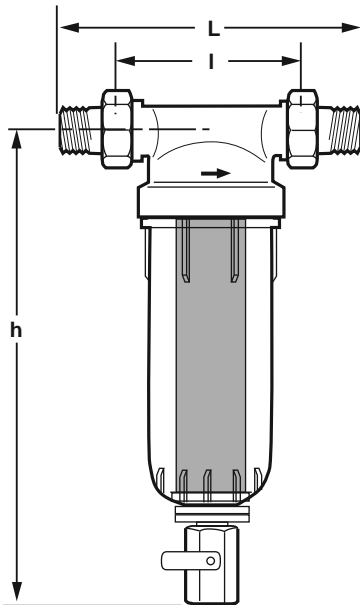
FF06 Rinseable Fine Filter



The FF06 Rinseable Fine Filter ensures a continuous supply of filtered water. The fine filter stops the flow of particulates, such as rust particles and grains of sand. Sediment collected at the bottom of the bowl can simply be removed by flushing with the turn of a knob. This compact filter was designed to fit where the space is limited.

- Easy installation.
- Same installed dimensions as F74C for easy future upgrade to a backwashable filter.
- Continuous supply of filtered water, even during rinse cycle.
- Shock resistant clear synthetic material filter bowl enables easy inspection for filter contamination.
- Stainless steel filter element.
- Filter bowl and sleeve are easily exchanged.
- Shipped with threaded and sweat union connections and service wrench.

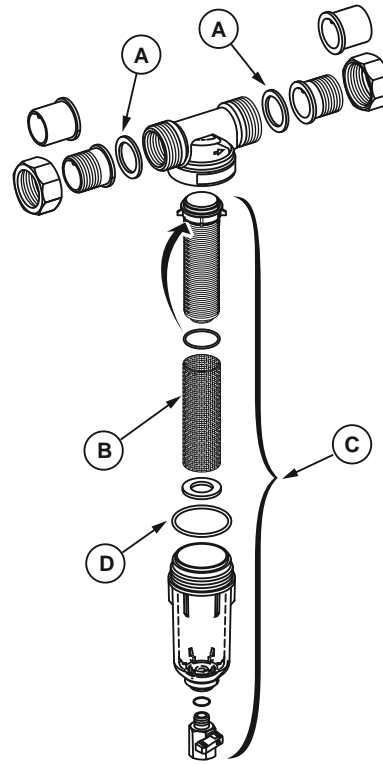
Dimensions in inches (millimeters)



DIMENSION	IN INCHES (MM)	
	FF06A1013	FF06A1021
L	6-1/4 (158)	7-1/16 (179)
I	3-9/16 (90)	3-15/16 (100)
h	7-1/16 (180)	7-1/16 (180)

M18086C

FF06 Exploded View



	PART NUMBER	DESCRIPTION
A	0901444	GASKET 3/4 IN. (10 PCS)
	0901445	GASKET 1 IN. (10 PCS)
B and D	AS 06-1A	FILTER MESH AND SUMP O-RING (5 PCS)
C	KF 06-1A	CLEAR FILTER BOWL, COMPLETE WITH FILTER MESH AND CARRIER

M17536B

Materials (Body): Dezincification-resistant (DZR) forged Brass
Sump: Clear Plastic
Connection Type: NPT External threaded and sweat

Temperature Rating: 104 F Maximum (40 C Maximum)
Weight: 2.2 lb (1.0 kg)

Product Number	Pipe Size		Capacity (Cv)	Screen Size	Pressure Ratings (psi)	Includes
	(inch)	DN				
FF06A1013	3/4 in.	DN20	7.3 Cv	100 micron screen	230 psi maximum	service wrench
FF06A1021	1 in.	DN25	8.4 Cv	100 micron screen	230 psi maximum	service wrench

Water Filter Parts and Accessories

Water Sediment Filter Parts and Accessories

Product Number	Description	Used With
0901444	Union gasket for 1/2 in. or 3/4 in. connections	F76S, FF06, F74C
0901445	Union gasket for 1 in. connections	F76S, FF06, F74C
0901446	Union gasket for 1-1/4 in. connections	F76S
0901447	Union gasket for 1-1/2 in. connections	F76S
0901448	Union gasket for 2 in. connections	F76S
AF11S-112A	100 Micron Screen kit for F76S Water Filter 1-1/2 in. to 2 in.	F76S
AF11S-112B	20 Micron Screen kit for F76S Water Filter 1-1/2 in. to 2 in.	F76S
AF11S-112C	50 Micron Screen kit for F76S Water Filter 1-1/2 in. to 2 in.	F76S
AF11S-112D	200 Micron Screen kit for F76S Water Filter 1-1/2 in. to 2 in.	F76S
AF11S-1A	100 Micron Screen kit for F76S Water Filter 1/2 in. to 1-1/4 in.	F76S
AF11S-1B	20 Micron Screen kit for F76S Water Filter 1/2 in. to 1-1/4 in.	F76S
AF11S-1C	50 Micron Screen kit for F76S Water Filter 1/2 in. to 1-1/4 in.	F76S
AF11S-1D	200 Micron Screen kit for F76S Water Filter 1/2 in. to 1-1/4 in.	F76S
AF74-1A	Insert Filter 100 Micron Screen	F74C
AS06-1A	Filter mesh and sump O-ring (5 pcs)	—
FT09RS-112A	Bronze Sump for F76S Water Filter 1-1/2 in. to 2 in.	F76S
FT09RS-1A	Bronze Sump for F76S Water Filter 1/2 in. to 1-1/4 in.	F76S
KF11S-112A	Clear Plastic Sump for F76S Water Filter 1-1/2 in. to 2 in.	F76S
KF11S-1A	Clear Plastic Sump for F76S Water Filter 1/2 in. to 1-1/4 in.	F76S

MV876 Automatic Backwash Control



The MV876B Automatic-Backwash Control is available as an accessory. This control is fitted to the drain valve and is programmed by the user to automatically perform the backwash function according to the desired interval.

- Bayonet fitting simplifies upgrade to automatic backwash.
- 16 field-selectable backwash intervals (from every four minutes to once every three months) eliminate need for external timer.
- Connections for external control on the MV876 provide for use in automated systems and differential pressure control.
- MV876 can be manually activated to initiate backwash.
- Battery (AA) backup to insure completion of backwash cycle in spite of power loss.

Dimensions, Approximate: 6 in. high, 2-3/4 in wide, 6-5/16 in. deep (152 mm high, 70mm wide, 160 mm deep)

Electrical Ratings: 24 Vac, 10 W

Product Number	Backwash Intervals	Interval Selection	Display	Electrical Connections	Cycle Time (sec)	Battery Back-up	Description
MV876B1018	16 Adjustable intervals from 4 min to 3 months.	16 field selectable via keypad	Digital	Remote Activation	20 sec	Yes, 4xAA	Automatic backwash control, fits 1/2 in. to 2 in. F76S models and F74C models.

Float Valves

VF270 Float Valves



Polystyrene Float



Stainless Steel Float

A ruggedly designed float valve for use in commercial and industrial applications.

Application: With polystyrene float: water and neutral liquids; with stainless steel float: higher temperature and corrosive liquids.

Connection Type: NPT

Dimensions, Approximate: 1 1/4 in. high x 24 in. long (32 mm high x 610 mm long)

Maximum Fluid Temperature: Polystyrene Float: 149 F, Stainless steel Float: 194 F (Polystyrene Float: 65 C, Stainless steel Float: 90 C)

Maximum Operating Pressure: With Normal Float Size 90 psi (With Normal Float Size 621 kPa); Next Larger Float: 120 psi (Next Larger Float: 827 kPa)

Product Number	Pipe Size		Capacity (Cv)	Materials			Description
	DN	(inch)		(Body)	(Float)	(Rod)	
VF270C1003	DN15	1/2 in.	2.3 Cv	Bronze and Brass	Polystyrene or Stainless Steel	Hot dip galvanized steel	1/2 inch Float Valve
VF270C1011	DN20	3/4 in.	4.2 Cv	Bronze and Brass	Polystyrene or Stainless Steel	Hot dip galvanized steel	3/4 inch Float Valve
VF270C1019	DN25	1 in.	6.4 Cv	Bronze and Brass	Polystyrene or Stainless Steel	Hot dip galvanized steel	1 inch Float Valve
VF270C1027	DN32	1 1/4 in.	10.9 Cv	Bronze and Brass	Polystyrene or Stainless Steel	Hot dip galvanized steel	1-1/4 inch Float Valve
VF270C1035	DN40	1 1/2 in.	15.1 Cv	Bronze and Brass	Polystyrene or Stainless Steel	Hot dip galvanized steel	1-1/2 inch Float Valve
VF270C1043	DN50	2 in.	20.3 Cv	Bronze and Brass	Polystyrene or Stainless Steel	Hot dip galvanized steel	2 inch Float Valve

Polystyrene Float

A float for use with VF270 float valves. Made of stainless steel or styrofoam-filled polystyrene.

Application: For water and neutral liquids

Dimensions, Approximate: 8 in. diameter (203 mm diameter)

Materials (Float): Styrofoam-filled polystyrene

Maximum Fluid Temperature: 149 F (65 C)

Product Number	Diameter		Description	Used With
	(inch)	(mm)		
F170T1/2	5 1/8 in.	130 mm	Polystyrene Float For 1/2 in., 3/4 in., 1 in. VF270 Float valves	VF270
F170T1-1/4	7 7/8 in.	200 mm	Polystyrene Float For 1-1/4 in., 1-1/2 in. & 2 in. VF270 Float valves	VF270

Stainless Steel Floats

A float for use with VF270 float valves. Made of stainless steel or styrofoam-filled polystyrene.

Application: For higher temperature or corrosive liquids

Materials (Float): Stainless steel

Maximum Fluid Temperature: 194 F (90 C)

Product Number	Diameter		Description	Used With
	(inch)	(mm)		
F170S104	6 in.	153 mm	Stainless Steel Float for VF270 1/2 in. Float Valves	VF270
F170S112	6 in.	153 mm	Stainless Steel Float for VF270 3/4 in. Float Valves	VF270
F170S120	7 1/4 in.	183 mm	Stainless Steel Float for VF270 1 in. Float Valves	VF270
F170S128	7 1/4 in.	183 mm	Stainless Steel Float for VF270 1 1/4 in. Float Valves	VF270
F170S136	9 1/4 in.	233 mm	Stainless Steel Float for VF270 1 1/2 in. Float Valves	VF270
F170S144	9 1/4 in.	233 mm	Stainless Steel Float for VF270 2 in. Float Valves	VF270

Parts and Accessories for Float Valves

OS Number	Description
2228400	Replacement seat disc for 1/2 in. VF270C.
2228500	Replacement seat disc for 3/4 in. VF270C.
2228600	Replacement seat disc for 1 in. VF270C.

Commercial Mixing Valves

MX Series Large Flow Proportional Mixing or Diverting Valve. Protects People and Equipment, Saves Energy



Threaded Valves



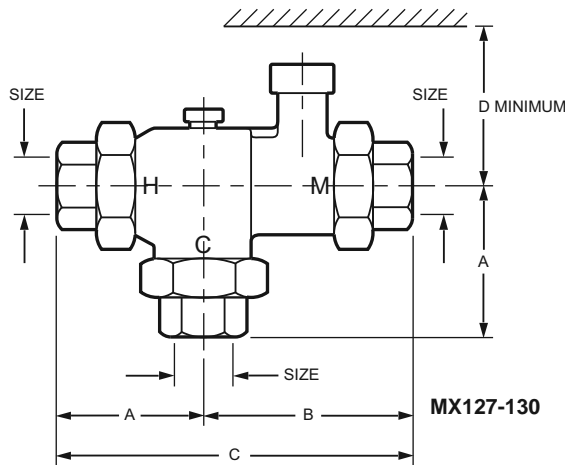
Flanged Valves



The MX Series is a state-of-the-art mixing valve with Teflon wear surfaces to prevent calcium buildup. Valve controls hot and cold supply based on control setting. If cold water is shut off, the valve will reduce the mixed flow rate in seconds (speed/residual flow rate varies by size). Accurate control of temperature provides energy savings, increased comfort and safety for the user.

- Dual purpose mixing or diverting valve.
- Constant water temperature under different operating conditions.
- Proportional valve (control of hot and cold water).
- Flow reduction in seconds if cold water supply is interrupted.
- Maintains temperature with extremely low minimum flows.
- Temperature adjustable, tamper evident.
- Install in any position, heat trapping not required.
- Recirculation connection for fast response.
- Bronze/stainless construction.
- Wear surfaces Teflon coated to prevent deposit build-up.
- Union/tailpiece connections included.
- Tapped flange connections 2-1/2 in. and 3 in.
- Allen wrench for temperature adjustment included.
- ASSE 1017 and CSA listed (Union Models)

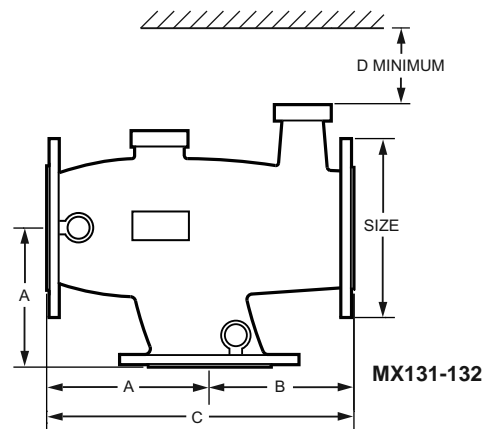
Threaded Valves dimensions in inches (millimeters)



Product Number	Size NPT	Recir Port Size	Dimensions (Inches)			
			A	B	C	D
MX127	1"	1/2 (13)	2-51/64 (71)	3-45/64 (94)	6-1/2 (165)	6 (152)
MX128	1-1/4"	1/2 (13)	3-19/64 (84)	4-13/32 (112)	7-45/64 (196)	6-29/32 (175)
MX129	1-1/2"	1/2 (13)	3-19/32 (91)	5 (127)	8-19/32 (218)	7 (178)
MX130	2"	1/2 (13)	4-13/64 (107)	5-51/64 (147)	10 (254)	7-19/64 (211)
MX127C	1"	1/2 (13)	2-51/64 (71)	3-45/64 (94)	6-1/2 (165)	6 (152)
MX128C	1-1/4"	1/2 (13)	3-19/64 (84)	4-13/32 (112)	7-45/64 (196)	6-29/32 (175)
MX129C	1-1/2"	1/2 (13)	3-19/32 (91)	5 (127)	8-19/32 (218)	7 (178)
MX130C	2"	1/2 (13)	4-13/64 (107)	5-51/64 (147)	10 (254)	7-19/64 (211)

M23243B

Flanged Valves dimensions in inches (millimeters)



Product Number	Size NPT	Recir Port Size	Dimensions Inches (mm)			
			A	B	C	D
MX131	2-1/2" Flange	1 (25)	5-45/64 (145)	5-45/64 (145)	11-13/32 (290)	4 (102)
MX132	3" Flange	1-1/4 (32)	6-7/64 (155)	6-7/64 (155)	12-13/64 (310)	4 (102)

M27479

Application: Any application requiring accurate control of hot water temperature based on the mixing of hot and cold water, such as: domestic water for homes, apartment, hotels, schools, nursing homes, offices, public facilities, space heating, radiant floor heating,

Weight: 3.6 lb

Product Number	Pipe Size		Connection Type	Capacity (Cv)	Operating Temperature Range		ASSE
	(inch)	DN			(F)	(C)	
MX127	1 in.	DN25	NPT	4 Cv	110 F to 150 F	43 C to 66 C	1017
MX127C	1 in.	DN25	NPT	4 Cv	90 F to 120 F	32 C to 49 C	1017
MX128	1 1/4 in.	DN32	NPT	9.3 Cv	110 F to 150 F	43 C to 66 C	1017
MX128C	1 1/4 in.	DN32	NPT	9.3 Cv	90 F to 120 F	32 C to 49 C	1017
MX129	1 1/2 in.	DN40	NPT	13.5 Cv	110 F to 150 F	43 C to 66 C	1017
MX129C	1 1/2 in.	DN40	NPT	13.5 Cv	90 F to 120 F	32 C to 49 C	1017
MX130	2 in.	DN50	NPT	18 Cv	110 F to 150 F	43 C to 66 C	1017
MX130C	2 in.	DN50	NPT	18 Cv	90 F to 120 F	32 C to 49 C	1017
MX131	2 1/2 in.	DN65	Flanged	34 Cv	110 F to 150 F	43 C to 66 C	—
MX132	3 in.	DN80	Flanged	50 Cv	110 F to 150 F	43 C to 66 C	—

Commercial Mixing Valves

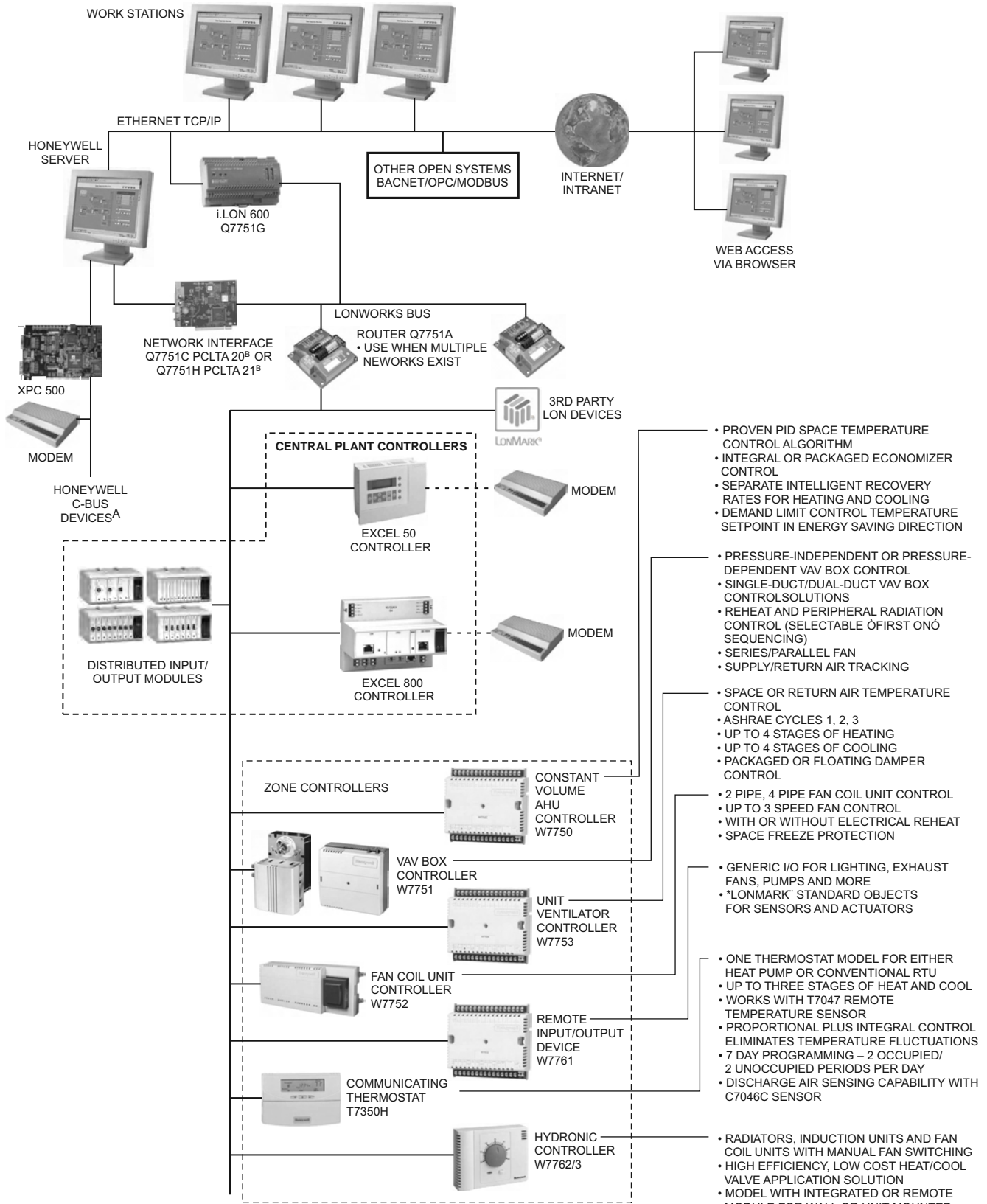
MX Series Valves Replacement Parts

Product Number	Pipe Size		Description
	(inch)	DN	
MX100-RP	1 in.	DN25	1 inch Gasket Kit for MX Series mixing valves
MX125-RP	1 1/4 in.	DN32	1 1/4 inch Gasket Kit for MX Series mixing valves
MX150-RP	1 1/2 in.	DN40	1 1/2 inch Gasket Kit for MX mixing valves
MX200-RP	2 in.	DN50	2 inch Gasket Kit for MX mixing valves
MX250-RP	2 1/2 in.	DN65	2 1/2 inch Gasket Kit for MX mixing valves
MX300-RP	3 in.	DN80	3 inch Gasket Kit for MX mixing valves

Mixing Valve Accessories

Product Number	Pipe Size		Description
	(inch)	DN	
MX050-RP	1/2 in.	DN15	1/2 inch Recirculation adapter kit. Includes 1/2 inch MNPT union nut and gasket

EXCEL 5000 SYSTEM ARCHITECTURE



^A PLANT CONTROLLERS MAY BE CONFIGURED TO COMMUNICATE ON THE LONWORKS BUS FOR OPEN SYSTEM JOBS OR THE HONEYWELL C-BUS.
^B THE SYSTEM ONLY REQUIRES THE i.LON 600 OR THE PCLTA FOR EACH APPLICATION, NOT BOTH.

M23221B

Excel 5000 System

Controller Tools



The Excel CARE and Live CARE software packages are graphic tools to easily and quickly create and simulate application programs that run controllers in EXCEL 5000® Systems. Users can perform these functions without extensive knowledge of a programming language. Users systematically select control system graphic elements such as lighting and Heating, Ventilating, and Air Conditioning (HVAC) equipment and create control sequences in a Microsoft® Windows® environment. CARE

software validates as the designer works, thus keeping the process free of errors. Work is completed quickly and efficiently. As part of the design process, CARE automatically creates comprehensive documentation and materials listings.

NOTE: All CARE products require a signed SOFTWARE LICENSE AGREEMENT prior to purchase. Ordering CARE via this website does not guarantee that you are approved for the purchase. Honeywell reserves the right to refuse shipment, if appropriate.

- Point-and-click programming
- Schematic drawing
- Control strategy
- Switching logic
- Time function
- Mathematical editor
- Standard library.
- Documentation
- Control program simulation
- Applicable to EXCEL 5000 System controllers
- Password security

Application: Tool

Application Size: Small to Large

Building Management Interface: EBI; SymmetrE; XBS

Network Communications: C-Bus; LonWorks Bus

Compatible with: Excel 5000 System Controllers

Product Number	Description	Commissioning Software	Output Type	Used With	Includes
CARE-80-LNS	CARE: Graphic Programming Tool	CARE	Graphical Interface	Excel 5000 System Controllers	USB Drive with full installation of CARE 8 with voucher number
PROTPLUG-UP	CARE: Graphic Programming Tool Upgrade	CARE	Graphical Interface	Excel 5000 System Controllers	USB Drive with CARE 8 upgrade

SymmetrE

The Honeywell SymmetrE™ building management system redefines what to expect from monitoring and control of your heating, ventilation and air conditioning equipment. The scalable, open SymmetrE™ system brings your building's occupant needs, operational issues and budget pressures into perfect balance. You get an unparalleled solution that helps simplify facility management, boost productivity and reduce costs. **NOTE:** All CARE products require a signed SymmetrE™ LICENSE AGREEMENT prior to purchase. Ordering SymmetrE™ via this website does not guarantee that you are approved for the purchase. Honeywell reserves the right to refuse shipment, if appropriate.

The Honeywell SymmetrE™ PC workstation redefines what to expect from monitoring and controlling your building management system. The scalable, open SymmetrE™ software brings your building's occupant needs, operational issues and budget pressures into perfect balance. You get an unparalleled solution that helps simplify facility management, boost productivity and reduce costs.

NOTE: All SymmetrE™ products require a signed SymmetrE™ LICENSE AGREEMENT prior to purchase. Ordering SymmetrE™ via this website does not guarantee that you are approved for the purchase. Honeywell reserves the right to refuse shipment, if appropriate.

SymmetrE™ is a highly configurable PC workstation providing an efficient and reliable way of ensuring the comfort of people and the effective operation of buildings and facilities. Used with the Excel 5000 Building Management System it provides a complete solution to access information and the control needs of one or more buildings.

SymmetrE™ integrates using Open System Standards and Internet and Intranet applications. This allows you to choose the best field solutions for your building and to integrate information into SymmetrE™ seamlessly for further processing, reporting and distribution. SymmetrE™ provides operators, supervisors, and managers with a sophisticated web-style operator interface to enable personnel to easily monitor and control buildings at one or more sites.

The SymmetrE™ Server runs on the multi-user, multi tasking, industry standard, Windows 2000 Professional and Windows XP Professional platforms. The SymmetrE™ Server runs application software that communicates to field controllers and updates a real time database. The SymmetrE™ Server can also act as the file server for displays and historical data collection and archiving.

- Total solution for Heating, Ventilation & Air conditioning Building Management Systems.
- Integration with a diverse range of devices, Internet and Intranet sources allowing intelligent management of key facility information.
- Uses Industry standard hardware and Windows® 2000 Professional and Windows XP® Professional Operating Systems
- Supports the leading open standards: BACnet®, LONMARK®, ODBC, OPC®, AdvanceDDE and Modbus®.
- Easy-to-use web-style interface reduces operator training costs and puts the user in control of every situation.
- Designed and developed to International Standard ISO® 9001:2000 for quality assurance.

Application: Workstation Software

Building Management Interface: SymmetrE

SymmetrE R410 - Software/Media

Product Number	Description
SYM-BASE01	SymmetrE R410 Base Package 1
SYM-BASE02	SymmetrE R410 Base Package 2
SYM-BASE03	SymmetrE R410 Base Package 3
SYM-ZZDVD410	SymmetrE R410 Software on DVD

SymmetrE R410 - Upgrades

Product Number	Description
SYM-UPGDR1	SYM Upgrade Unit - Release Minus 1
SYM-UPGDR2	SYM Upgrade Unit - Release Minus 2
SYM-UPGDR3	SYM Upgrade Unit - Release Minus 3
SYM-UPGDRX	SYM Upgrade Unit - Release Minus X

SymmetrE R410 - Options

Product Number	Description
SYM-DBP00250	250 Point Adder to Database Size
SYM-OPEASYMB	Easy Mobile Services
SYM-IF-BACNET	BACnet Client (R200 and later)
SYM-IF-MODBUS	Modbus Interface
SYM-IF-OPCCL	OPC Client Interface
SYM-IF-XL5DIRDIAL	EXCEL 5000 Dial-up
SYM-NW-OPCSERV	OPC Server
SYM-OP-ALMPAG	Alarm Pager
SYM-OP-BACSERV	BACnet Server (R200 and later)
SYM-OP-DTXL	OPC Data Transfer - Local
SYM-OP-LNS	LNS Server
SYM-OP-LNSUPG	LNS Database Upgrade for systems with existing LNS Database

SymmetrE R310 Workstation

Product Number	Description
SYM-DB2-5-EXP	Expansion Pack - 250 to 500 point DB
SYM-DB5-10-EXP	Expansion pack - 500 to 1000 Point DB
SYM-DB10-20-EXP	Expansion pack - 1000 to 2000 Point DB
SYM-DB20-35-EXP	Expansion pack - 2000 to 3500 Point DB
SYM-DB35-50-EXP	Expansion pack - 3500 to 5000 Point DB
SYM-DB50-75-EXP	Expansion pack - 5000 to 7500 Point DB
SYM-DB75-10K-EXP	Expansion Pack - 7500 to 10,000 point DB
SYM-DB10K-15K-EXP	Expansion Pack - 10,000 to 15,000 point DB
SYM-DB15K-20K-EXP	Expansion Pack - 15,000 to 20,000 point DB
SYM-IF-ADVDDDECL	Advance DDE Interface
SYM-IF-BAC	BACnet Client (R200 and later)

SymmetrE R310 - Options

Product Number	Description
SYM-IF-BACNET	BACnet Client (R200 and later)
SYM-IF-MODBUS	Modbus Interface
SYM-IF-OPCCL	OPC Client Interface
SYM-IF-XL5DIRDIAL	EXCEL 5000 Dial-up
SYM-NW-OPCSERV	OPC Server
SYM-OP-ALMPAG	Alarm Pager
SYM-OP-BACSERV	BACnet Server (R200 and later)
SYM-OP-DTXL	OPC Data Transfer - Local
SYM-OP-LNS	LNS Server
SYM-OP-LNSUPG	LNS Database Upgrade for systems with existing LNS Database
SYM-STB-UP-STN	Upgrade Browser client to full station client, R310 ONLY

Excel 5000 System

Excel 800 Controller



With more power and fewer pieces to buy, the new Excel 800 Controller is the plant controller you can count on for years to come. Along with easy programming and extensive memory, it offers all the flexibility you've come to depend on from the Honeywell Excel 5000 product line. Best of all, you won't have to learn any new programming, because your old Excel 500 application programs work perfectly with the Excel 800 controller.

- Double the memory
- Reduced training needs, use your current Excel 500 application programs
- Hot-swappable replacement of defective I/O modules
- Easy-Access Terminals
- Simplified Installation

Building Management Interface: EBI; SymmetrE; ACSELON

Voltage: 24 Vac/dc, ± 20%

Frequency: 50 Hz; 60 Hz

Commissioning Software: CARE 8

Operating Humidity Range (% RH): 5 to 93% RH, non-condensing

Shipping Temperature Range: -4 F to +158 F (-20 C to +70 C)

Approvals:

Underwriters Laboratories, Inc. UL 916

CPU Modules

Network Communications: C-Bus; LonWorks Bus

Power Consumption: Max 5 VA (max. 4 W)

Product Number	Application	Description	Output Type	Comments	Approvals: Underwriters Laboratories, Inc.
XCL8010A	Freely Programmable; Boiler; Discharge Air; Cooling Tower; Chiller; Hydronic; Built-up AHU	Excel 800 Control System	Analog/Modulating; Pulse Width Modulation; Floating; Staged On/Off	CPU Module	UL 916
XCL8010AU	Freely Programmable; Boiler; Discharge Air; Cooling Tower; Chiller; Hydronic; Built-up AHU	Excel 800 Control System	Analog/Modulating; Pulse Width Modulation; Floating; Staged On/Off	CPU Module	UL916 and UL864

Input Output Modules

Network Communications: Panel Bus

Used With: Excel 800 Controller

Product Number	Application	Description	I/O Count	Approvals: Underwriters Laboratories, Inc.
XF821A	Input Module	Analog Input Module	8 analog input module (Panel)	UL916
XF821AU	Input Module	Analog Input Module	8 analog input module (Panel)	UL916 and UL864
XF822A	Output Module	Analog Output Module	8 AO with override (Panel)	UL916
XF822AU	Output Module	Analog Output Module	8 AO with override (Panel)	UL916 and UL864
XF823A	Input Module	Digital Input Module	12 binary input module (Panel)	UL916
XF823AU	Input Module	Digital Input Module	12 binary input module (Panel)	UL916 and UL864
XF824A	Output Module	Digital Output Module	6 relay output module (Panel)	UL916
XF824AU	Output Module	Digital Output Module	6 relay output module (Panel)	UL916 and UL864

Excel Distributed I/O



With more power and fewer pieces to buy, the new Excel 800 Controller is the plant controller you can count on for years to come. Along with easy programming and extensive memory, it offers all the flexibility you've come to depend on from the Honeywell Excel 5000 product line. Best of all, you won't have to learn any new programming, because your old Excel 500 application programs work perfectly with the Excel 800 controller.

- Double the memory
- Reduced training needs, use your current Excel 500 application programs
- Hot-swappable replacement of defective I/O modules
- Easy-Access Terminals
- Simplified Installation

Application: Distributed I/O

Building Management Interface: EBI; SymmetrE; ACSELON

Commissioning Software: CARE 8

Used With: Excel 800 Controller

Product Number	Description	Network Communications	I/O Count	Comments	Approvals: Underwriters Laboratories, Inc.
XFL821A	Distributed I/O - Analog input module	LonWorks Bus	8 analog input module (LON)	—	UL916
XFL821AU	Distributed I/O - Analog input module	LonWorks Bus	8 analog input module (LON)	—	UL916 and UL864
XFL822A	Distributed I/O - Analog output module	LonWorks Bus	8 analog output module (LON)	—	UL916
XFL822AU	Distributed I/O - Analog output module	LonWorks Bus	8 analog output module (LON)	—	UL916 and UL864
XFL823A	Distributed I/O - Digital input module	LonWorks Bus	12 binary input module (LON)	Includes 12 LEDs	UL916
XFL823AU	Distributed I/O - Digital input module	LonWorks Bus	12 binary input module (LON)	Includes 12 LEDs	UL916 and UL864
XFL824A	Distributed I/O - Digital output module	LonWorks Bus	6 relay output module (LON)	—	UL916
XFL824AU	Distributed I/O - Digital output module	LonWorks Bus	6 relay output module (LON)	—	UL916 and UL864
XFLR822A	Analog output manual override module	LonWorks Bus	8 AO with override (LON)	The manual override module works even if the CPU is not working.	UL916
XFLR822AU	Analog output manual override module	LonWorks Bus	8 AO with override (LON)	The manual override module works even if the CPU is not working.	UL916 and UL864
XFLR824A	Digital output manual override module	LonWorks Bus	6 relays with override (LON)	The manual override module works even if the CPU is not working.	UL916
XFLR824AU	Digital output manual override module	LonWorks Bus	6 relays with override (LON)	The manual override module works even if the CPU is not working.	UL916 and UL864
XFR822A	Analog output manual override module	Panel Bus	8 AO with override (Panel)	The manual override module works even if the CPU is not working.	UL916
XFR822AU	Analog output manual override module	Panel Bus	8 AO with override (Panel)	The manual override module works even if the CPU is not working.	UL916 and UL864
XFR824A	Digital output manual override module	Panel Bus	6 relays with override (Panel)	The manual override module works even if the CPU is not working.	UL916
XFR824AU	Digital output manual override module	Panel Bus	6 relays with override (Panel)	The manual override module works even if the CPU is not working.	UL916 and UL864
XFR825A	Actuator output module	Panel Bus	Actuator output module (Panel)	—	UL916
XFR825AU	Actuator output module	Panel Bus	Actuator output module (Panel)	—	UL916 and UL864

Excel 5000 System

Excel 100 Controller



The Excel 100 Controllers are direct-digital control, microprocessor-based, programmable controllers that manage building functions.

- Stand-alone or networked operation for flexible use or expansion.
- CARE generated application programs for comprehensive control strategies.
- Analog or digital inputs and outputs for flexible point use.
- Multiple operator interface options for local or easy on-site changes.
- Point trending for timely information.
- Alarm handling facility to locally display the problem and remote dial out to act on it.
- Battery-backed RAM data to keep controller programming in place during power outage.
- Bus-Wide MMI provides local viewing/modification of point information of all controllers attached to the Communication Bus.

Dimensions, Approximate: 9.25 in. high x 7.56 in. wide x 2.83 in. deep
(235 mm high x 192 mm wide x 72 mm deep)

Application: Programmable Controller
Building Management Interface: EBI; SymmetrE; ACSELON
Commissioning Software: CARE
Voltage: 24 Vac/Vdc
Frequency: 50 Hz; 60 Hz
Power Consumption: 25 VA Max.
Operating Temperature Range: 32 F to 122 F: (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing
Shipping Temperature Range: -4 F to +140 F (-20 C to +60 C)

Approvals:
CE: Approved
Federal Communications Commission: Meets FCC Part 15, Subpart J for Class A equipment
Underwriters Laboratories, Inc. Form UL916

Product Number	Description	Network Communications	I/O Count	Output Type	Comments
XL100CU	Freely Programmable DDC controller	C-Bus	12 UO; 12 UI; 12 DI	0-10 Vdc, 20mA	—
XL100CUUKL	Freely Programmable, for Smoke & Fire (Europe)	C-Bus	12 UO; 12 UI; 12 DI	0-10 Vdc, 20mA	UUKL approval for use on fire systems

Excel 50 Controllers



A compact, programmable controller that manages small building control applications. Available with or without operator interface. Provides perfect solution for managing small building control applications and HVAC equipment control applications.

- Direct communication to C-bus & LonWorks bus and/or modems.
- DIN rail or panel door mounting.
- Available with or without operator interface.
- Stand-alone or networked operation.
- CARE-generated application programs; ability to reuse available CARE applications.
- Flash-EPROM for efficient downloads.
- Wiring simplicity: accessible and removable screw terminal blocks.
- Capacitor-backed RAM; no battery required.

Dimensions, Approximate: 5.90 in. high x 7.79 in. wide x 3.19 in. deep
(150 mm high x 198 mm wide x 81 mm deep)

Application: Built-up AHU, Chiller, Cooling Tower, Boiler, Freely Programmable
Building Management Interface: EBI; SymmetrE; ACSELON
Commissioning Software: CARE
Voltage: 24 Vac ± 20%
Frequency: 50 Hz; 60 Hz
Power Consumption: 72 VA, if fully equipped

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)
Operating Humidity Range (% RH): 5 to 93% RH, non-condensing
Shipping Temperature Range: -4 F to +158 F (-20 C to +70 C)

Approvals:
CE: Approved
Federal Communications Commission: Meets FCC Part 15, Subpart J for Class A equipment
Underwriters Laboratories, Inc. Form UL916

Product Number	Description	Network Communications	I/O Count	Output Type	Comments	Includes
XL50A-UMMIPCCBLON	Freely Programmable DDC controller, with operator interface	C-Bus; LonWorks Bus	4 DI, 8 UI, 4 UO, 6 DOs	Analog/Modulating; Pulse Width Modulation; Floating; Staged On/Off	Includes Operator Interface	C-Bus/LonWorks Bus communication card
XL50A-UPCCBLON	Freely Programmable DDC controller	C-Bus; LonWorks Bus	4 DI, 8 UI, 4 UO, 6 DOs	Analog/Modulating; Pulse Width Modulation; Floating; Staged On/Off	Does not have Operator Interface	C-Bus/LonWorks Bus communication card

Excel Smart I/O



Dimensions, Approximate: 5 in. wide x 3 in. length x 4.33 in. high
(126 mm wide x 76 mm length x 110 mm high)

Application: Configurable I/O

Building Management Interface: EBI; SymmetrE; ACSELon

Commissioning Software: CARE

Voltage: 24 Vac

Frequency: 50 Hz; 60 Hz

Excel Smart I/O modules feature a variety of software-configurable digital and analog inputs and outputs and are suitable for installation at strategic locations throughout your buildings. The modules convert physical input signals from sensors into network variables and the network variables into physical output signals for operating actuators.

- Flexible, software-configurable inputs/outputs.
- Flash memory for downloading applications.
- 2-wire FTT-10A LonWorks bus interface.
- Easily-accessible service button and a service LED.
- DIN rail mounting and wall-mounting supported.

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Shipping Temperature Range: -22 F to +158 F (-30 C to +70 C)

Approvals:

CE: CE and EN 50081-1, LonMark Application Layer Guidelines Version 3.2

Product Number	Description	Network Communications	I/O Count	Includes
XFC3A04001	Smart I/O module. Lonmark certified. Fixed terminals	LonWorks	2 UI; 2 AO; 4 DI	—
XFC3A06001	Smart I/O module. Lonmark certified. Fixed terminals	LonWorks Bus	4 UI; 2 AO; 4 DI	—
XFC3D06001	Smart I/O module with Removable terminals, Lonmark Certified	LonWorks Bus	4 UI; 2 AO; 4 DI	Six 3-position manual overrides and 10 colored status LEDs

Compact I/O



The Honeywell Compact I/O are LON modules with a certain number of digital inputs, analog inputs, digital outputs, analog outputs, and hubs used to record or control network variable points (SNVT's) on a LonWorks bus.

- Configured via LNS Plug-in.
- Easy Installation saves time and money.
- Easy to expand.
- Compact Design.

Dimensions, Approximate: 1.4 in. wide x 2.8 in. high x 2.6 in. deep
(35 mm wide x 71 mm high x 66 mm deep)

Application: Input/Output Module

Commissioning Software: LNS Plug-in

Network Communications: LonWorks Bus

Voltage: 20 - 28 V AC/DC

Operating Temperature Range: 23 F to 131 F (-5 C to 55 C)

Shipping Temperature Range: -4 F to +158 F (-20 C to 170 C)

Compatible with: Compact I/O Family

Approvals:




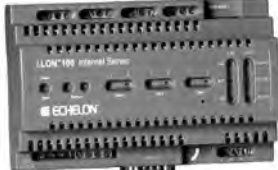

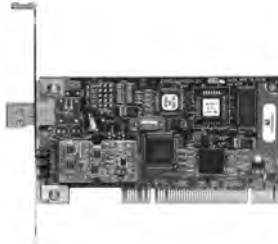
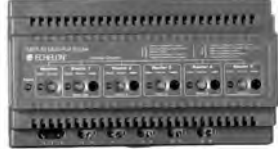
CE: Approved

Underwriters Laboratories, Inc. UL 916



Product Number	Description	I/O Count	Power Consumption
XIO-10DI	Digital Input Module with 10 Inputs	10 DI	63 mA (AC)/21 mA (DC).
XIO-10HUB	I/O Module Expander Hub	—	—
XIO-4AO	Analog Output Module with 4 Outputs	4 AO	150 mA (AC)/70 mA (DC).
XIO-4DI	Digital Input Module with 4 Inputs	4 DI	63 mA (AC)/21 mA (DC).
XIO-4DO	Digital Output Module with 4 Outputs	4 DOs	205 mA (AC)/67 mA (DC).
XIO-4NTC	Analog Input Module with 4 NTC Sensor Specific Inputs	4 NTC Sensor Specific Inputs	67 mA (AC)/24 mA (DC).
XIO-4PT1000	Analog Input Module with 4 PT1000 Sensor Specific Inputs	4 PT1000 Sensor Specific Inputs	67 mA (AC)/24 mA (DC).
XIO-8AI	Analog Input Module with 8 Inputs	8 AI	57 mA (AC)/30 mA (DC).

Excel 5000 System



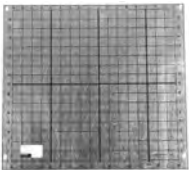
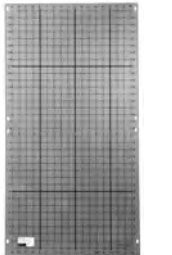


LonWorks Bus Accessories

Product Number	Description	Used With	
Q7740A1008	Two way repeater with connections for two network segments	LonMark Controllers	
Q7740B1006	Four way repeater with connections for four network segments	LonMark Controllers	
Q7750A2003	Excel 10 Zone Manager	LonMark Controllers	
Q7751A2010	Excel 10 router used for connection with four network segments, FT-10/FT-10	LonMark Controllers	
Q7751A2028	Excel 10 router used for connection with four network segments, TP-1250/FT-10	LonMark Controllers	
Q7751E1005	I.LON 10-TP/FT - 10 CHANNEL	LonMark Controllers	
Q7751F1011	I.LON 100 - TP/FT - 10 NO MODEM Firmware version e3	LonMark Controllers	
Q7751F1029	I.LON 100 - TP/FT - 10 With MODEM Firmware version e3	LonMark Controllers	
Q7751G2009	I.LON 600 FT - 10	LonMark Controllers	
Q7751G2017	I.LON 600 XF1250	LonMark Controllers	
Q7751H2007	PCLTA-21/TP-1250	—	
Q7751H2015	PCLTA-21/FT-10	—	
Q7751J2002	MPR-50 Multi-Port Router	—	

Excel 5000 System

Product Number	Description	Used With	
Q7752B2009	Serial LonTalk Adapter, FTT-10A	LonMark Controllers	
Q7752C2007	U10 - USB Network Interface with Cable	—	












Excel 5000® Accessories

Product Number	Description	Used With	
14005680-089596	XL5000 fiber optic interface for C-Bus	—	
14500087-004	Dpdt relay with 12 Vdc coil, switches 120 Vac or 28 Vdc @ 3 amps, used with 14507222 Relay for XL100 Controller	14507222	
14506747-001	sub-panel for half sized cabinet	Panels	
14506747-002	sub-panel for full sized cabinet	Panels	
14507063-002	Power Supply Cable To Connect Power To Excel Controller	Excel 5000 System Controllers	
14507063-003	Power Supply Cable (Tinned Ends) To Connect Power Module To Excel Controller	Excel 5000 System Controllers	

Excel 5000 System

Product Number	Description	Used With	
14507222-001	Relay Module, Four Relays. Includes Hand-Off-Auto Switches and LEDs	Excel 5000/600 Controller; Excel 100B	
14507222-002	Relay Module, Four Relays. Includes LEDs	14507222	
14507287-001	Power Module, 120 Vac Input, 50 VA Controller Transformer with Convertible Outlet and Breaker	Excel 5000 System Controllers	
14507287-002	Power Module, 120 Vac Input, 50 VA Controller Transformer Plus 100 VA Accessory Transformer With Convertible Outlet and Breaker	Excel 5000 System Controllers	
14507287-003	Power Module, 120 Vac Input, 50 VA Controller Transformer Plus 100 VA Accessory Transformer and 24 Vdc Accessory Transformer With Convertible Output and Breaker	Excel 5000 System Controllers	
14507287-004	Power Module, 220/240 Vac Input, 50 VA Controller Transformer, with Convertible Outlet and Breaker	Excel 5000 System Controllers	
14507287-005	Power Module, 220/240 Vac Input, 50 VA Controller Transformer Plus 100 VA Accessory Transformer with Convertible Outlet and Breaker	Excel 5000 System Controllers	
14507287-006	Power Module, 220/240 Vac Input, 50 VA Controller Transformer Plus 100 VA Accessory Transformer and 24 Vdc Accessory Transformer with Convertible Outlet and Breaker	Excel 5000 System Controllers	
14507287-007	50 VA Excel 5000 access power module for Excel 5000 applications	Excel 5000 System Controllers	



Excel 5000 System

Product Number	Description	Used With	
14507324-001	High speed, c-bus network repeater, panel mount (without cover) to extend bus length.	Excel 5000 System Controllers	
14507324-002	High speed, c-bus network repeater, field mount (with cover) to extend bus length.	Excel 5000 System Controllers	
14507547-001	C-bus to DB-25 connector cable, to connect internal RS-485 adapter board to C-bus.	Excel 5000 System Controllers	
14507549-001	External RS-485 adaptor module to directly connect a PC to a C-bus	C-Bus	
14507551-001	Cable assembly, com port to adapter module, 30 in.	14507549	
14507551-002	Cable assembly, com port to adapter module, 10 ft	14507549	
14507552-001	Cable assembly, power to adapter module, used with C-Bus and XBS, 11 inches long	14507549	
14507552-002	Cable assembly, power to adapter module, used with C-Bus and XBS, 15 inches long	14507549	
206317A	Excel 10 termination module, FTT-10	Excel 10 Controllers	
207912	Track mounting for a W7751A, B	Excel 10	
209541B	Terminator module for FTT network (1 required for T- Tap, Star, Mixed or Loop network topologies, 2 Required for Daisy chain network topology)	Excel 10 Controllers	
32000180-004	Replacement cable for use with Q7752B2009	Q7752B2009	

Excel 5000 System

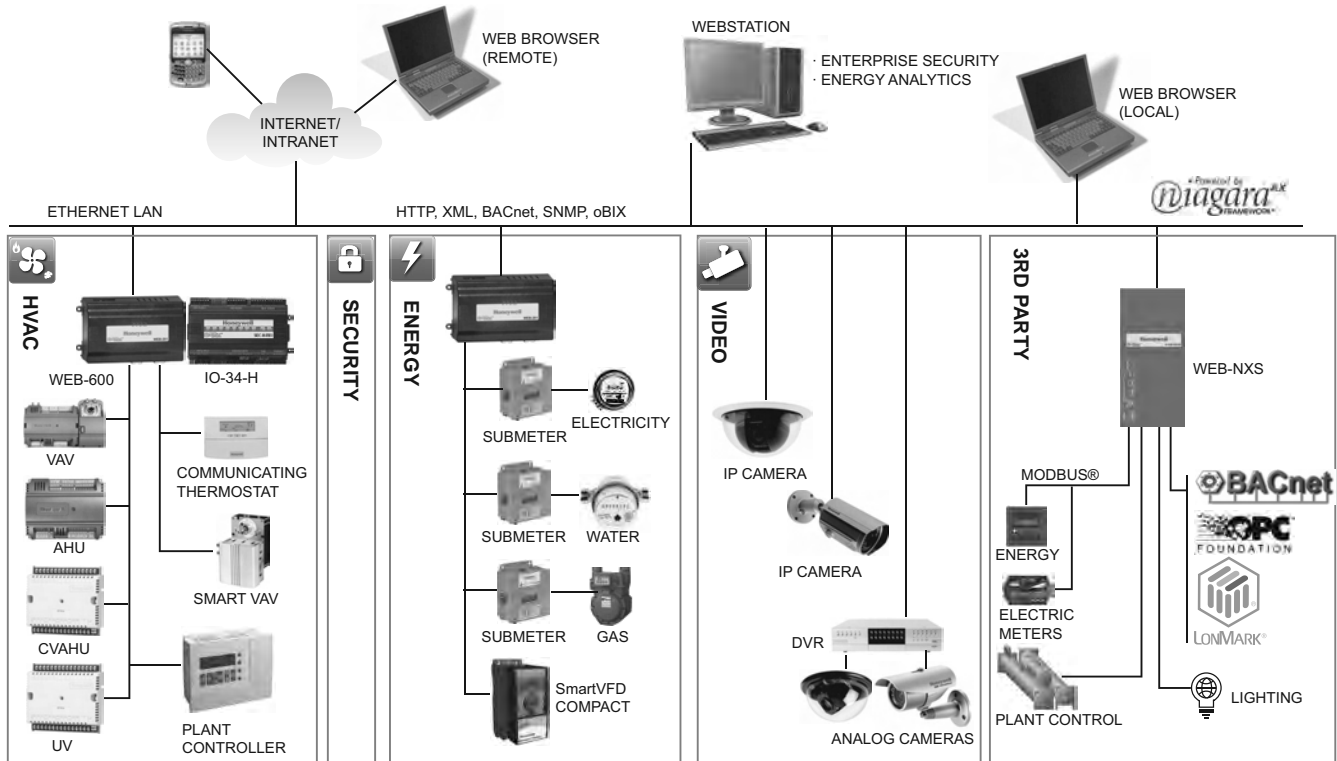
Product Number	Description	Used With	
32000180-019	Echelon power supply	Excel 10 Controllers	
32002516-001	Cable to connect Serial LonTalk adapter to Audio-type bus connection on LonMark Controller	LonMark Controllers	
32002517-001	Cable to connect serial LonTalk adaptor to a modem.	Excel 10 Controllers	
EXCELon	EXCELon LonWork Network Management Tool. Software License Required.	Excel 5000 System Controllers	
MCE3	Relay Module, Two Spdt Outputs, One Spst Output	—	
XAL10	Labels (Package Of 10)	Excel 800 Controller	
XD50B-FCL	Excel 50 Communication Card for LON and C-Bus	Excel 50 Controllers	
XI882-ACC	Excel Touch Accessory Kit	XI882	
XL-ONLINE-CD	Excel Online, Commissioning tool for EXCEL 5000 Controllers	Excel 5000 System Controllers	
XL50ACC2	Communications boards for XL50 Communications Modules	Excel 50 Controllers	
XL50ACC3	Panel Mounting Kit for XL50	Excel 50 Controllers	

Excel 5000 System




Product Number	Description	Used With	
XM500-US	Remote communication module, TCP/IP WAN Modem. Emulates a Hayes compatible phone modem to convert serial data to Ethernet - TCP/IP packets.	Excel 5000 System Controllers	
XS50	XL50 Terminal Block Set	Excel 50 Controllers	
XS812	Test Connector	Excel 800 Distributed I/O	
XS812RO	Test Connector for relay outputs	Excel 800 Distributed I/O	
XS814	Auxiliary terminal block (10)	Excel 800 Distributed I/O	
XS815	Cross Connector 6 Relays (20)	Excel 800 Distributed I/O	
XS816	Bus Bridge (10)	Excel 800 Distributed I/O	
XS817	Cross Connector 3 Relays (40)	Excel 800 Distributed I/O	
XS821-22	Terminal socket analog modules	Excel 800 Distributed I/O	
XS823	Terminal socket binary input	Excel 800 Distributed I/O	
XS824-25	Terminal socket relay output	Excel 800 Distributed I/O	
XSU821-22	Screw Terminal socket analog modules	Excel 800 Distributed I/O	
XSU823	Screw Terminal socket binary input	Excel 800 Distributed I/O	
XSU824-25	Screw Terminal socket relay output	Excel 800 Distributed I/O	
XW882	Cable from XI582 to XL800-RS232(RJ45)	Excel 800 Distributed I/O	
XW884	Adapter cable, XI582 (RJ45) to old XL500	Excel 800 Distributed I/O	
XW885	Cable from PC to XL800-RS232(RJ45)	Excel 800 Distributed I/O	








WEBS-AX System




WEBS-AX SYSTEM ARCHITECTURE



HVAC OPTIONS:

PROGRAMMABLE ZONE CONTROLLERS		
	PUL6438S PUL1012S PUL4024S PUB6438S	CONSTANT VOLUME AHU CONTROLLER
	PVL6438NS PVL4024NS PVB6438NS	VAV BOX CONTROLLER
	PVL4022AS PVL0000AS PVL6436AS PVB6436AS	VAV BOX CONTROLLER W/ACTUATOR

ZONE CONTROLLERS		
	T7350H	COMMUNICATING THERMOSTAT
	W7750	CONSTANT VOLUME AHU CONTROLLER
	W7751	VAV BOX CONTROLLER
	W7752	FAN COIL UNIT CONTROLLER
	W7753	UNIT VENTILATOR CONTROLLER
	W7761	REMOTE INPUT/OUTPUT DEVICE
	W7762 W7763	HYDRONIC CONTROLLER

CENTRAL PLANT CONTROLLERS	
	EXCEL 50 CONTROLLER
	EXCEL 800 CONTROLLER
	DISTRIBUTED INPUT/OUTPUT MODULES

M16821B

WEBS-AX™ System Integration
Software Platform

Features	Part Numbers	Description	HVAC		Enterprise Security				Combined HVAC & Security				Console	HVAC Tools	Sec. Tool							
			WEB-S-AX-SBS	WEB-S-AX	WEB-S-AX-64	Win 64	Linux	SEC-H-MYS-SBS	SEC-H-MYS	SEC-H-SQL-SBS	SEC-H-SQL	COMBO MYS	COMBO MYS SBS	COMBO SQL	COMBO SQL SBS	COMBO MYS	COMBO MYS SBS	WALARM-CONSL	WEB-S-AX-W	SEC-H-MT-AX		
Software Drivers																						
Niagara		Niagara Historical DB	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Workbench	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Security Appliance	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Communication Client		oBIX Client/Server	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	DR-NS-OBIX-AX	oBIX ^a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DR-NS-OBIX-500	Additional 500 points	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DR-NS-BAC-AX	BACnet IP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DR-NS-BAC-500	Additional 500 points	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DR-NS-MDB-AX	MODbusTCP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DR-NS-MDB-500	Additional 500 points	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DR-NS-OPC-AX	OPC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DR-NS-OPC-500	Additional 500 points	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DR-NS-SNMP-AX	SNMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DR-NS-SNMP-500	Additional 500 points	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Server	S-AX-BGSRV-AX	BACnet IP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DB Connectivity	S-DB-SQL	SQL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S-DB-MYSQL	MySQL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S-DB-ORCL	Oracle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S-DB-DB2	DB2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S-DB-ORCL	Oracle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S-DB-DB2	DB2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S-DB-CSV	CSV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy/Analytics	WES-STA-AX	Straton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	WES-PNT-AX	Point	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Video	DR-SUP-DED-AX	Dedicated Micro DVR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DR-SUP-DED-4	4 Cameras (16 max)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DR-SUP-AXS-AX	Axis Cameras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DR-SUP-AXS-4	4 Cameras (16 max)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enterprise Security	SEC-H-R-16	16 Reader Pack	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SEC-H-R-64	64 Reader Pack	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SEC-H-R-256	256 Reader Pack	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SEC-H-R-1024	1024 Reader Pack	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Upgrade Options	SUP-U-AX	Revision Upgrade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	WEB-U-AX	Revision Upgrade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SBS Upgrades	WEB-S-AX-SBS-EXUP	SBS Upgrade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SEC-H-SBS-U	Security SBS Upgrade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Combo Upgrades	SEC-H-SUP-SQL	SBS BAS to Security/SQL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SEC-H-SUP-MYS	SBS BAS to Security/MYSQL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SEC-H-SUP-SOL	HVAC + Security/SQL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SEC-H-SUP-MYS	HVAC + Security/MYSQL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SEC-H-BAS-U	SBS Security/SQL + HVAC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Security/SQL + HVAC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Security/MYSQL + HVAC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^a Resources and performance limits - no defined limit in license.
^b oBIX connectivity for controllers NOT powered by Niagara
^c Windows Server 2003, Windows XP Pro
^d Windows Server 2003, Windows XP Pro, Linux
 * = Standard (included)
 O = Optional (excluded)

WEBS-AX System

WEBS-AX™ System Integration

Integration Controller Platforms

Features	Part Numbers	Description	4XX		5XX		NXS		2XX		6XX		7XX		Soft	Security		Compact	
			WEB-403-AX	WEB-403-EZ	WEB-403-AX-E	WEB-545-AX-E	WEB-5R-AX	WNXS-FL	WNXS-HD	WEB-201	WEB-600	WEB-602-XPR	WEB-700	WS-11M-AX	SEC-H-201	SEC-H-600	SEC-H-600	SEC-H-600	
		Open License	O	O	O	O	O	O	O	O	O	O	O	O		*	*		
		Demo Available	O		O				O	O					O	O			
		Device Limit	27	27	a	a	a	a	a	a	a	a	a	a	a	a	75	75	
Hardware																			
Memory		Standard RAM	128	128	256	256	256	512	512	64	128	256	512	N/A	128	256	256	256	
		Expandable RAM Option								128	256	1GB							
Communication		Standard Flash	32	32	128	128	128	1GB	**	64	128	128	1GB	N/A	64	128	128	128	
		10/100 Ethernet Port	1	1	1	1	1	1	1	2	2	2			2	2	2	2	
		1 GB Ethernet Port										2							
		USB 2.0 Port										2							
Ports/ Slots		RS-485 Port	1	1	1	4	4	1	1	1	1	1	1		1	1	1	1	
		RS-232 Port	1	1	1	2	2	1	1	1	1	1	1		1	1	1	1	
		NDIO Port								1	1								
		NRIO Port								1	1	1	1				1	1	
		LonWorks FTT-10 Port	1	1	2	1	1	1	1										
		Option Card Slots								2	2	1	2		2	2	2	2	
ON-Board I/O		Universal Inputs	6	6	6							8							
		Supervised Inputs													6	6	6	6	
		Digital Inputs													3	3	3	3	
		Card Readers													2	2	2	2	
		Relay Outputs/ Form	4C	4C	4C							4A			4C	4C	4C	4C	
		Analog Outputs										4							
Software Drivers																			
Niagara	EC-SP-XXX	Fox Client/ Server	O	*	O	O	*	*	*	*	*	*	*	*	*	*	*	*	
	UI-SP-XXX	Web UI	O	*	O	O	*	*	*	*	*	*	*	*	*	*	*	*	
	WEB-AX-EMB	Embedded Workbench	O	O	O	O	O	O	O	O	O	O	O						
		SecurityAppliance													*	*	*	*	
Spyder	DR-SPYDER-LON	LON Spyder Prog.	O	O	O	O	O	*	*	*	*	*	*	*	*	*	*	*	
	DR-SPYDER-BAC	BACnet Spyder Prog.	O	O	O	O	O	*	*	*	*	*	*	*	*	*	*	*	
Communication		eBIX Client/Server	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	Client	BACnet IP	*	*	*	*	O	O	O	O	O	O	O				*	*	
	DR-MSTP-AX	BACnet MS/TP	*	*	*	*	O	O		O	O	O	O						
	DR-LONDRIV-AX	LonWorks FTT10	*	*	*	*	O	*	*	O	O	O	O				*	*	
	DR-LON-IP-AX	LonWorks IP	O	O	O	O	O	O	O	O	O	O	O	O					
	DR-MBUS232-AX	MODbus 232	O	O	O	O	O	O	O	O	O	O	O						
	DR-MDB-AX	MODbusRTU	O	O	O	O	O	O	O	O	O	O	O				*	*	
	DR-MDB-TCP-AX	MODbusTCP	O	O	O	O	O	O	O	O	O	O	O	O					
	DR-FLX-AX	Flex	O	O	O	O	O	O	O	O	O	O	O						
	DR-OPC-CL-AX	OPC						O	O					O					
	DR-SNMP-AX	SNMP	O	O	O	O	O	O	O	O	O	O	O	O				*	
Server	DR-BAC-SRV-AX	BACnet IP (incl client)	O	O	O	O	O	O	O	O	O	O	O	O	*	*	*	*	
	DR-MDB-S-AX	MODbusRTU	O	O	O	O	O	O	O	O	O	O	O						
	DR-MDB-TS-AX	MODbusTCP	O	O	O	O	O	O	O	O	O	O	O						
Legacy	DR-AAMPH-AX	AAuto PHP	O	O	O	O	O	O	O	O	O	O	O						
	DR-AAMPUP-AX	AAuto PUP	O	O	O	O	O	O	O	O	O	O	O						
	DR-AC256-AX	AC256	O	O	O	O	O	O	O	O	O	O	O						
	DR-GLOBAL-AX	Global Cache	O	O	O	O	O	O	O	O	O	O	O						
	DR-HELVAR-AX	Helvar Lighting	O	O	O	O	O	O	O	O	O	O	O						
	DR-HORTS-AX	Hortmann (EU)	O	O	O	O	O	O	O	O	O	O	O						
	DR-JOSAM-AX	JosamTrap Sensor	O	O	O	O	O	O	O	O	O	O	O						
	DR-LANGOVN-AX	Lang Oven	O	O	O	O	O	O	O	O	O	O	O						
	DR-SMSALRM-AX	SMSAlarm	O	O	O	O	O	O	O	O	O	O	O						
	DR-VROOT-AX	VeederRoot	O	O	O	O	O	O	O	O	O	O	O						
Video	DR-JAC-DED-AX	4 Cameras for DM DVR										O	O		O		O	O	
	DR-JAC-AXS-4	4Axis Cameras										O	O		O		O	O	
Upgrade Options																			
	WEB-U-AX	Revision Upgrade	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
	DR-SEC-LON	BAS (LON) Upgrade													O				
	DR-SEC-BAC	BAS (BACnet) Upgrade													O				

* Resources and performance limits - no defined limit in license.

** 40 GB Hard Drive





* = Standard (included)

O = Optional (excluded)

*NPM-128,NPM-256,NPM-1GB

WEBS-AX™ System HVAC Controllers Options

Programmable Field Controllers

	Controller Model	Communication Protocol	Programmable Type	Open Licence**	UI	DI	AO	DO	Velocity Pressure Sensor (Microbridge)	Series 60 Floating Actuator
	PUB6438S	BACnet MS/TP	Unitary	O	6	4	3	8	NO	NO
	PUL6438S	LonWorks	Unitary	O	6	4	3	8	NO	NO
	PVB6438NS	BACnet MS/TP	VAV	O	6	4	3	8	YES	NO
	PVL6438NS	LonWorks	VAV	O	6	4	3	8	YES	NO
	PVB6436AS	BACnet MS/TP	VAV	O	6	4	3	6	YES	YES
	PVL6436AS	LonWorks	VAV	O	6	4	3	6	YES	YES
	PUL1012S	LonWorks	Unitary	O	1*	0	1	2	NO	NO
	PUL4024S	LonWorks	Unitary	O	4*	0	2	4	NO	NO
	PVL4024NS	LonWorks	VAV	O	4*	0	2	4	YES	NO
	PVL0000AS	LonWorks	VAV	O	0	0	0	0	YES	YES
	PVL4022AS	LonWorks	VAV	O	4*	0	2	2	YES	YES








UI - Universal Input, DI - Digital Input, AO - Analog Output, and DO - Digital Output

* One Universal Input (UI-1*) is user selectable as a fast digital pulse meter

** Spyder Individually Licensed Controller (ILC) is a fully programmable controller for any NiagaraAX Framework® platform providing the greatest flexibility for expansion on any NiagaraAX platform.

Configurable Field Controllers



		Inputs							Outputs			
Model	Application	Communication Protocol	Wall Module	Resistive	Voltage	Dry Contact Digital	Bypass Button	Integrated Actuator	Relay	Triac	Analog	LED
	W7750A	CVAHU	•	1		2	•		6			1
	W7750B	CVAHU	•	4	2	4	•			8		1
	W7750C	CVAHU	•	4	2	4	•			5	3	1
	W7751H	VAV	•	1	1		•	•		4		1
	W7751B/D/F	VAV	•	2	1	3	•			8		1
	W7752	FCU	•			1	•		3			1
	W7753	Unit Ventilator	•	2	2	4	•			8		1
	W7761	Remote Input/Output		4	2							
	T7350H	Communicating Thermostat							8			
	W7762/3	Hydronic Controller	•			1			1	4		

Building Automation

WEBS-AX System

Accessories

Features	Part Numbers	Description	Standard							Security		Compact					
			4XX WEB-403-AX	4XX WEB-403-EZ	4XX WEB-403-AX-E	5XX WEB-545-AX-E	5XX WEB-5R-AX	NXS WANXS-FL	NXS WANXS-HD	2XX WEB-201	6XX WEB-600	6XX WEB-602-XPR	7XX WEB-700	SEC-H-201	SEC-H-600	SEC-H-800	SEC-H-800
Display	LCD-CT043A100	Reveal Color*	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	LCD-GT043A100	Reveal Grayscale*	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Option Cards	NPB-2X-RS485	RS 485 Card								O	O	O	O				
	NPB-BATTERY	WEB 2 and 6 Batt								O	O			O	O	O	O
	NPB-GPRS-H	GPRS Modem								O	O			O	O	O	O
	NPB-GPRS-W-H	GPRS Modem Kit								O	O			O	O	O	O
	NPB-LON	LON Card								O	O	O	O			O	O
	NPB-MDM	Modem Card								O	O	O	O			O	O
	NPB-PWR-H	24 V Power Module								O	O		O				
	NPB-PWR-UN-H	Universal Power Supply								O	O		O			O	O
	NPB-RS232	RS 232 Card								O	O	O	O			O	O
	NPB-WPM-US	Wall Adaptor (US)								O	O		O				
Input/ Output	IO-16-H	16 point I/O								O	O						
	IO-16-REM-H	16 point Remote I/O								O	O	O	O			O	O
	IO-34-H	34 point I/O								O	O						
	SEC-H-RIO	Security Remote I/O												O	O	O	O
	SEC-H-R2R	Security Remote Reader											O	O	O	O	

* Needs a dedicated RS485 port. May need optional RS485 cards in certain cases

• = Standard (included)

O = Optional (excluded)

WEB-201 Controller



Dimensions, Approximate: 6 3/8 in. wide x 4 7/64 in. high x 2.5 in. deep (16.2 cm wide x 10.5 cm high x 6.4 cm deep)

Application: Controller

Application Size: Approximately 15 - 20 nodes

Building Management Interface: WEBs-AX

Operating System: QNX RTOS; IBM J9 JVM Java Virtual Machine; NiagaraAX

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

The Honeywell WEB-201 controller is a compact, embedded controller/server platform. Its combine integrated control, supervision, data logging, alarming, scheduling and network management features in a small, compact platform. The WEB-201 controller is a member of the Honeywell WEBs-AX suite of JAVA based controller/server products.

- Runs stand-alone control, energy management, and multi-protocol integration.
- Web User Interface serves rich presentation and live data to a browser.
- Standard and optional communications boards.
- Can be expanded with optional IO-16-H and IO-34-H I/O modules.
- Small compact design is easy to install and supports multiple power options.

Shipping Temperature Range: 32 F to 140 F (0 C to 60 C)

Approvals:

Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment

CE: Approved

Federal Communications Commission: FCC part 15 Class A

Underwriters Laboratories, Inc. UL 916, cUL listed

Product Number	Description	Used With	Includes
WEB-201	WEB-201 Controller	WEBs-AX Platform	WEB User Interface, Niagara Connectivity (Fox), oBix Client/Server driver
WEB-201-O	WEB-201 Controller with Open License	WEBs-AX Platform	WEB User Interface, Niagara Connectivity (Fox), oBix Client/Server driver

WEB-600 Controller



The WEB-600 is ideal for smaller facilities, remote sites, and for distributing control and monitoring throughout large facilities. Optional I/O modules can be plugged in for applications where local control is required. The WEB-600 controller also supports a wide range of field busses for connection to remote I/O and standalone controllers. In small facility applications, the WEB-600 controller is all you need for a complete system.

Dimensions, Approximate: 6 3/8 in. wide x 4 7/64 in. high x 2.5 in. deep (16.2 cm wide x 10.5 cm high x 6.4 cm deep)

Application: Controller

Building Management Interface: WEBs-AX

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Shipping Temperature Range: 32 F to 140 F (0 C to 60 C)

The WEB-600 controller serves data and rich graphical displays to a standard web browser via an Ethernet LAN or remotely over the Internet, or dial-up modem. In larger facilities, multi-building applications and large scale control system integrations, WEBStation-AX software can be used to aggregate information (real-time data, history, alarms, etc.) from large numbers of WEBsAX controllers into a single unified application. The WEBStation-AX Supervisor can manage global control functions, support data passing over multiple networks, connect to enterprise level software applications, and host multiple, simultaneous client workstations connected over the local network, the Internet, or dial-up modem.

- Supports open and legacy protocols.
- Web User Interface (standard) serves rich presentation and live data to a browser.
- Run stand-alone control, energy management, and multi-protocol integration.
- Standard and optional communications boards.
- Can be expanded with optional 16 and 34 point I/O Modules.
- Small compact design is easy to install and supports multiple power options.
- Embedded IBM® Power PC Platform.

Approvals:

Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment

CE: Approved

Federal Communications Commission: FCC part 15 Class A

Underwriters Laboratories, Inc. UL 916, cUL listed

Product Number	Description	Used With	Includes
WEB-600	WEB-600 Controller	WEBs-AX Platform	WEB User Interface, Niagara Connectivity (Fox), oBix Client/Server driver
WEB-600-O	WEB-600 Controller with Open License	WEBs-AX Platform	WEB User Interface, Niagara Connectivity (Fox), oBix Client/Server driver

WEBS-AX System

WEB-201/WEB-600 Accessories



IO-16-H



IO-34-H



NPB-PWR-H

Building Management Interface: WEBS-AX
Operating Humidity Range (% RH): 5 to 95% RH, non-condensing
Used With: WEB-201; WEB-600

Approvals:
Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment
CE: Approved

Product Number	Application	Description	I/O Count	Operating Temperature Range		Power Input	Includes	Approvals: Underwriters Laboratories, Inc.	Approvals: CE
				(F)	(C)				
DR-LONFT10-AX	Software Driver/Accessory	LONworks FTT10 Driver and NPB-LON card bundle	—	—	—	—	—	UL 916, cUL listed	Approved
ENC-H-001	Enclosure	WEBS Small Enclosure	—	—	—	120 Vac	24 Vac Power Supply	—	—
ENC-H-002	Enclosure	WEBS Large Enclosure	—	—	—	120 Vac	24 Vac Power Supply	—	—
ENC-H-BPK-1	Enclosure	WEBS Small Enclosure Backplate (8 in. X 11 in.)	—	—	—	—	—	—	—
ENC-H-BPK-2	Enclosure	WEBS Large Enclosure Backplate (11 in. X 11 in.)	—	—	—	—	—	—	—
IO-16-H	Input/Output Expansion Module	16 Point Input/Output Expansion Module	8 UI, 4 DO (Relay), 4 AO	32 F to 122 F	0 C to 50 C	—	—	UL 916, cUL listed	Approved
IO-34-H	Input/Output Expansion Module	34 Point Input/Output Expansion Module	16 UI, 10 DO (Relay), 8 AO	32 F to 122 F	0 C to 50 C	—	Internally dedicated 24 Volt Power Supply	UL 916, cUL listed	Approved
NPB-GPRS-H	Modem Option Card	WEBS Cellular Modem w/o SIM Card	—	—	—	—	—	—	—
NPB-GPRS-W-H	Modem Option Card	WEBS Cellular Modem w/ Wyleless SIM Card	—	—	—	—	—	—	—
NPB-MDM	Optional Communications Card	56kbps Modem with one RJ-11 connector for WEB-201/600	—	32 F to 122 F	0 C to 50 C	—	—	UL 916, cUL listed	Approved
NPB-PWR-H	Power Module	24 Volt DIN mounted power module	—	32 F to 122 F	0 C to 50 C	—	—	UL 916, cUL listed	Approved
NPB-WPM-US	Power Adaptor	Wall Power Adaptor - US Plug type	—	32 F to 122 F	0 C to 50 C	—	—	UL 916, cUL listed	Approved

WEB-201/WEB-600 Drivers

Building Management Interface: WEBS

Product Number	Application	Description	Used With
NPM-128	Software-Driver	WEB-201 Memory Expansion License from 64 to 128 MB	WEB-201 Platform
NPM-256MB	Software-Driver	WEB-600 Memory Expansion License from 128 to 256 MB	WEB-600 Platform

WEB-403 Controller



The AX Platform of controllers include smarter applications that provide valuable information, stronger tools that empower users, and all with a faster time-to-market with Web-services applications. The WEB-403 AX bundles WEBs software capability in a hardware platform that can be installed in typical building control environments. Each WEB-403 AX connects to a system field bus and provides real time control functions as constant streams of data from individual systems are instantaneously transformed to a common object model. The products provide a fully distributed system when multiple units are networked together, which provides unsurpassed scalability and reliability. In this configuration, WEBs can be used to network controllers and manage enterprise-level control functions. The appropriate model is determined by connectivity and computing power requirements.

- Embedded RISC Microprocessor platform.
- 128 MB RAM/32 MB Flash
- One Lon FTT10A port for Lon device integration.
- Direct, on-board I/O with six universal inputs and 4 digital relay outputs.
- One RS-485 port for connection to open and proprietary protocol devices.
- One RS-232 port for integration or support of an optional internal modem.
- Wind River VxWorks OS with Jeode Java Virtual Machine
- Niagara Control Engine

Dimensions, Approximate: 11 in. wide x 14 in. high x 2 1/2 in. deep
(28 cm wide x 36 cm high x 6 cm deep)

Application: Controller

Building Management Interface: WEBs-AX

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Shipping Temperature Range: 32 F to 158 F (0 C to 70 C)

Used With: WEBs-AX Platform

Approvals:

Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment

CE: Approved

Federal Communications Commission: FCC part 15 Class A

Underwriters Laboratories, Inc. UL 916, cUL listed

Product Number	Description	Includes
WEB-403-AX	WEB 403 AX Controller	LONWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 128 MB RAM, 32 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector
WEB-403-AX-E	WEB-403-AX-E Controller with Expanded Memory	LonWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 256 MB RAM, 128 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector
WEB-403-AX-EO	WEB-403-AX-EO Controller with Expanded Memory and Open License	LonWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 256 MB RAM, 128 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector
WEB-403-AX-O	WEB-403-AX-O Controller w/ open license	LONWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 128 MB RAM, 32 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector
WEB-403-EZ	WEB 403 AX Controller Easy-pack bundle	LONWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 128 MB RAM, 32 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector
WEB-403-EZO	WEB 403 AX Controller Easy-pack bundle w/ Open license	LONWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 128 MB RAM, 32 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector

WEB-403 Drivers

Product Number	Application	Description	Building Management Interface	Used With
WEB-403-EXPUP-AX	Software-Driver	Upgrade of WEB-403-AX to Unlimited	WEBs	WEBs-AX Platform

WEBS-AX System

WEB-545 Controller



The AX Platform of controllers include smarter applications that provide valuable information, stronger tools that empower users, and all with a faster time-to-market with Web-services applications. Specifically designed for commercial applications, the WEB-545 AX is ideally suited for users who require a compact controller that can be wall or enclosure mounted. A single WEB-545 AX controller can support a network of devices via the LonWorks port and auxiliary devices that can be accessed directly via onboard I/O, or through the 4 RS-485 ports, or an RS-232 port (unless used by the optional internal modem). The WEB-545 AX can integrate any combination of LON®, Modbus, BACnet, or legacy devices with the appropriate optional drivers.

- Embedded RISC Microprocessor platform.
- Wind River VxWorks Operating System with Jeode Java Virtual Machine.
- Java Application Control Engine Software with I/O control objects.
- 128 MB RAM/32 MB Flash
- One Lon FTT10A port for Lon device integration.
- Four RS-485 ports (electrically isolated) for connection to open and proprietary protocol devices.
- Two RS-232 port for Integration or support of an optional internal modem.
- Optional web UI services to support many simultaneous users over the intranet or Internet via a standard web browser (WEB-545-UI only).

Dimensions, Approximate: 11 in. wide x 14 in. high x 2 1/2 in. deep
(28 cm wide x 36 cm high x 6 cm deep)

Application: Controller

Building Management Interface: WEBS-AX

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Shipping Temperature Range: 32 F to 158 F (0 C to 70 C)

Approvals:

Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment

CE: Approved

Federal Communications Commission: FCC part 15 Class A

Underwriters Laboratories, Inc. UL 916, cUL listed

Product Number	Description	Used With	Includes
WEB-545-AX-E	WEB-545 AX Expanded Memory Controller with open license	WEBS-AX Platform	LONWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 128 MB RAM, 32 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, two RJ-45 connectors for RS-232 port, four RS-485 ports, one LonWorks port - FTT-10
WEB-545-AX-EO	WEB-545 AX Expanded Memory Controller	WEBS-AX Platform	LONWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 128 MB RAM, 32 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, two RJ-45 connectors for RS-232 port, four RS-485 ports, one LonWorks port - FTT-10

WEB-403/WEB-545 Drivers

Product Number	Application	Description	Building Management Interface	Used With
EC-SP-4XX	Software-Driver	WEB 403 Enterprise Connectivity Pack	WEBS-AX	WEB-403
EC-SP-5XX	Software-Driver	WEB 545 Enterprise Connectivity Pack	WEBS-AX	WEB-545
UI-SP-4XX	Software-Driver	WEB 403-AX Web User Interface	WEBS-AX	WEB-403
UI-SP-5XX	Software-Driver	WEB 545-AX Web User Interface	WEBS-AX	WEB-545

WEB-403/WEB-545 Accessories

Product Number	Application	Description	Building Management Interface	Used With
MODEM-401	Accessory-Parts	Modem option for WEB-403-AX and WEB-545-AX controllers	WEBS	WEBS-AX Platform

WEB-5R Controller

Dimensions, Approximate: 17 in. wide X 12 in. deep X 1.75 in. high
(431.8 mm wide X 304.8 mm wide X 44.5 mm high)

Application: Controller

Building Management Interface: WEBS

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Shipping Temperature Range: 32 F to 158 F (0 C to 70 C)

Approvals:

Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment

CE: Approved

Federal Communications Commission: FCC part 15 Class A

Underwriters Laboratories, Inc. UL 916, C-UL listed

Accessories:

WEB-WMT-BKT Wall Mount Brackets for WEB-5R-AX/O Controller

Product Number	Description	Used With	Includes
WEB-5R-AX	Rack Mount WEB-545-AX-E Controller	WEBS-AX Platform	One 10/100 MB Ethernet port - RJ-45 connection, two RJ-45 connectors for RS-232 port, four RS-485 ports, one LonWorks port - FTT-10
WEB-5R-AX-O	Rack Mount WEB-545-AX-E Controller with open license	WEBS-AX Platform	One 10/100 MB Ethernet port - RJ-45 connection, two RJ-45 connectors for RS-232 port, four RS-485 ports, one LonWorks port - FTT-10

WEB-5R Accessories

Product Number	Application	Description	Building Management Interface	Used With
WEB-WMT-BKT	Accessory-Parts	Wall Mount Brackets for WEB-5R-AX/O Controller	WEBS	WEB-5R-AX

WEBs-AX System

WEB-NXS Controller



Specifically designed for commercial and light industrial applications, the WEBs NXS controllers have 512 MB RAM standard, 1 Gb Flash drive, and a 400 MHz Celeron processor - making it ideally suited for users who require more processing power, or a large amount of archives or graphics.

Because it has a PC processor platform with hard disk and embedded Microsoft® Windows XP, the NXS is ideal for organizations whose IT policies dictate Microsoft products or when applications such as OPC require a Windows-based operating system. The W-NXS-AX-FL controller includes an integral UPS.

The WEBs NXS controllers have no moving parts and can be wall or enclosure mounted. A single NXS controller can support a network of devices via the LonWorks port and auxiliary devices that can be accessed through the RS-485 port or the RS-232 port. MSTP protocols are not supported on the NXS controllers.

- High performance Intel® Celeron® Microprocessor provides fast, reliable processing
- Real-time control engine provides local closed loop control across protocols
- Integral energy management routines
- Trending, scheduling, alarm notification via email
- Distributed architecture provides scalability and reliability
- Can be integrated with other WEBs controllers for large scale systems
- Options for either a Flash memory-based or hard drive-based version

Dimensions, Approximate: 6 13/16 in. wide x 7 9/16 in. high x 10 1/16 in. deep (172 mm wide x 192 mm high x 256 mm deep)

Application: Controller

Building Management Interface: WEBs-AX

Operating System: Embedded version of Microsoft Windows™ XP, Microsoft Java Virtual, Java Application Control Engine with NiagaraAX 3.1 or later

Voltage: 100 Vac - 240 Vac

Frequency: 47 to 63 Hz

Power Input: 2A Max/115V and 1A Max/230V

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Shipping Temperature Range: 32 F to 158 F (0 C to 70 C)

Used With: WEBs-AX Platform

Comments: Construction: Heavy-duty steel chassis

Approvals:

Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment

CE: Approved

Federal Communications Commission: FCC part 15 Class A

Underwriters Laboratories, Inc. UL 916, cUL listed

Product Number	Description	Network Communications	System Requirements	Includes
W-NXS-AX-FL	NXS controller with 1 GB flash drive and NiagaraAX software version 3.1 or later, UPS power supply, embedded Windows XP, Web User Interface, oBIX Client/Server driver, Niagara Network (Fox) Client/Server driver and LON over twisted pair.	One LON FTT10 A port (78 KBps)One RS-485 Port, electrically isolated; One high-speed RS-232 serial port; DB-9 connector; One 10/100-mbit Ethernet port - RJ 45 connection	Real-time clock with lithium battery backup1 Gb Flash drive (W-NXS-AX-FL) or 40 Gb hard drive (W-NXS-AX-HD and WEB-NXS-R2)512 MB RAM; High Speed Intel Celeron CPU @ 650 MHz	512 MB RAM, 10/100 MB Ethernet Port, (1) RS-232 Ports (1) RS-485 Port, (1) LONWorks port and driver, BACnet and oBix drivers
W-NXS-AX-FLO	W-NXS-AX-FL Controller with 1GB Flash Memory and Open License			
W-NXS-AX-HD	NXS controller with 40 Gb hard drive and NiagaraAX software version 3.1 or later, embedded Windows XP, Web User Interface, oBIX Client/Server driver, Niagara Network (Fox) Client/Server driver and LON over twisted pair.	One LON FTT10 A port (78 KBps)One RS-485 Port, electrically isolated; One high-speed RS-232 serial port; DB-9 connector; One 10/100-mbit Ethernet port - RJ 45 connection	Real-time clock with lithium battery backup1 Gb Flash drive (W-NXS-AX-FL) or 40 Gb hard drive (W-NXS-AX-HD and WEB-NXS-R2)512 MB RAM; High Speed Intel Celeron CPU @ 650 MHz	512 MB RAM, 10/100 MB Ethernet Port, (2) RS-232 Ports, (1) RS-485 Port, (1) LONWorks port and driver, BACnet and oBix drivers
W-NXS-AX-HDO	W-NXS-AX-HD Controller with 40 GB Hard Drive and Open License			

WEB-NXS Accessories

Application: Power Supply

Building Management Interface: WEBs

Voltage: 100 Vac - 240 Vac

Frequency: 47 to 63 Hz

Power Input: 2A Max/115V and 1A Max/230V

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Shipping Temperature Range: 32 F to 158 F (0 C to 70 C)

Used With: W-NX-AX Platform, W-NXS-R2 Platform

Approvals:

Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment

CE: Approved

Federal Communications Commission: FCC part 15 Class A

Underwriters Laboratories, Inc. UL 916, cUL listed

Product Number	Description	Network Communications	Comments
NXS-UPS	Optional UPS upgrade for W-NXS-AXHD or WEB-NSX-R2. Provides UPS module with battery.	One LON FTT10 A port (78 KBps)One RS-485 Port, electrically isolated; One high-speed RS-232 serial port; DB-9 connector; One 10/100-mbit Ethernet port - RJ 45 connection	WEB UI Server option for WEB-NXS-R2 only

WEBs-AX Software Controller

Building Management Interface: WEBS-AX

Product Number	Application	Description	Used With
SJ-2M-UPG-AX	Software-Driver	Upgrade for WEBS-AX SoftJACE. Increases Niagara point count from 10M to 30M.	WEBS-AX Soft Controller
W-SJ-1M-AX	Controller	WEBS-AX SoftJACE software for Windows XP	WEBS-AX Platform

WEBS-AX Platform - Displays



Reveal™ is an easy-to-operate and robust operator unit for the entire range of WEBS-AX and ComfortPoint (CP) supervisory Controllers.

Reveal's touch-panel operation screens allow for easy and self-explanatory operation by finger-tip.

User-configurable fast-access lists can contain selected datapoints, time programs, and parameters, thus permitting plant oriented and customer-oriented operation.

Dimensions, Approximate: 6 9/16 in. long x 3 11/16 in. wide x 1 7/16 in. deep (167 mm long x 93 mm wide x 36 mm deep)

Application: Display

Building Management Interface: WEBS

Operating System: Windows CE

Commissioning Software: WEBS AX

Voltage: 24 Vac

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Reveal uses Honeywell's patent pending EZ-Nav™ technology to provide real-time status information on an easy-to-use, wall-mounted touch-screen LCD. Reveal has a 480 x 272, High Definition, 24-bit Full Color backlit LCD display. It is also available in a 16-level Extended Temperature gray-scale display. Both displays have a viewing area of 8 in² (51.6 cm²).

Reveal has customizable user screens, multi-language capability, and permission-based access control. With these features it provides site personnel the ability to quickly and conveniently access setpoint changes, local alarm data, and other system information.

This device can be configured through the WEBS or ComfortPoint (CP) workbench/supervisor using a software driver.

- Multi Language capable
- Password protection
- Upgrade of installed systems
- System-wide information access
- Multiple Displays for a single Controller
- Protocol independent
- Maintenance free
- Network security

Shipping Temperature Range: -4 F to +140 F (-20 C to +60 C)

Approvals:

Canadian Standards Association: Certified

CE: CE Mark

Federal Communications Commission: FCC part 15 Class B requirements

Product Number	Description	Network Communications	Output Type	Operating Temperature Range		Used With
				(F)	(C)	
LCD-CT043A100	Reveal Color Touchscreen	1 RS 485	Graphical Interface	14 F to 122 F	-10 C to +50 C	WEB-NXS; WEB-600; WEB-201; WEB-5R-AX; WEB-403; WEB-545; WEB NX Controller
LCD-GT043A100	Reveal Grayscale Touchscreen	1 RS 485	Graphical Interface	-4 F to 158 F	-20 C to 70 C	WEB-NXS; WEB-600; WEB-201; WEB-5R-AX; WEB-403; WEB-545; WEB NX Controller

WEBS-AX Platform - Drivers for Controllers

Application: Software-Driver

Building Management Interface: WEBS-AX

Used With: WEBS-AX Controllers

Product Number	Description
DR-AAMPHP-AX	American Automatrix PHP Driver over RS-232 or RS-485
DR-AAMPUP-AX	American Automatrix PUP Driver over RS-232 or RS-485
DR-AC256-AX	AC256 Driver
DR-BAC-CLI-AX	BACnet IP Client Driver over Ethernet
DR-BAC-SRV-AX	BACNet Server includes BACNet IP Client
DR-FLX-AX	Flex Driver over RS-232 or RS-485
DR-GLOBAL-AX	Enables control of IR controlled AV equipment via an RS-323 connection to a Global Cache FC module
DR-HELVAR-AX	Helvar Lighting Control Driver
DR-HORTS-AX	Driver for European Hortsmann meters

WEBS-AX System

Product Number	Description
DR-JOSAM-AX	Josam Grease Trap Sensor Driver
DR-LANGOVN-AX	Lang Oven over RS-232 or RS-485
DR-LON-IP-AX	LON over IP Driver
DR-LONDRIV-AX	LONworks FTT10 Driver
DR-MBUS232-AX	M-Bus RS-232 Driver
DR-MDB-AX	Driver for Modbus RTU or ASCII over RS-485 or RS232
DR-MDB-S-AX	Data server to Modbus Master devices over RS485
DR-MDB-TCP-AX	Driver for Modbus TCP (25 node limit recommended)
DR-MDB-TS-AX	Data server to Modbus Master devices over TCP
DR-MSTP-AX	MSTP BACnet communications via RS-485 port
DR-SMSALRM-AX	Enables SMS alarms to be sent to any mobile phone via a GSM/GPRS modem connected to the RS-232
DR-SNMP-AX	Driver for importing data from SNMP compliant devices. Also exports WEBS alarms to SNMP devices.
DR-VDROOT-AX	VeederRoot Driver
WEB-AX-EMB	Embedded WEBPro-AX tool
WEB-U-AX	Revision Upgrade for WEBS-AX Controller

WEBS-AX Platform - Software

Application Size: Software
 Building Management Interface: WEBS-AX
 Used With: WEBS-AX Platform

Product Number	Description
W-ALARM-CONSL	WEBS-AX Alarm Console software for Windows XP
WEB-S-AX-W	AX Workbench

WEBS-AX Platform - Supervisor Software

Application Size: Software
 Building Management Interface: WEBS-AX
 Used With: WEBS-AX Platform

Product Number	Description
WEB-S-AX	WEBStation-AX Workstation software for Windows XP
WEB-S-AX-64	WEBStation-AX Workstation software for 64 bit Windows Platforms
WEB-S-AX-LNX	WEBStation-AX Workstation software for Linux
WEB-S-AX-SBS	Small Building System WEBStation-AX, for 3 controllers

WEBS-AX Platform - Drivers for Supervisors

Application: Software-Driver
 Building Management Interface: WEBS-AX
 Used With: WEBS-AX Supervisors

Product Number	Description
DR-NS-BAC-500	Additional 500 point block for WEBStation-AX BACnet driver
DR-NS-BAC-AX	AX Supervisor BACnet Driver
DR-NS-MDB-500	Additional 500 point block for WEBStation-AX MDB TCP Driver
DR-NS-MDB-AX	AX Supervisor Modbus TCP Driver
DR-NS-OBIX-AX	AX Supervisor oBix Driver
DR-NS-OBIX500	Add'l 500 point block for AX Supervisor oBix Driver
DR-NS-OPC-500	Additional 500 point block for WEBStation-AX OPC Client Driver
DR-NS-OPC-AX	AX Supervisor OPC Driver
DR-NS-SNMP-500	Additional 500 point block for WEBStation-AX SNMP Driver
DR-NS-SNMP-AX	AX Supervisor SNMP Driver
S-AX-BCSRV-AX	AX Supervisor BACNet IP Server Driver
S-DB-CSV	File Network Device Driver for importing CSV files

Product Number	Description
S-DB-DB2	WEBStation-AX driver for DB2 database
S-DB-MYSQL	WEBStation-AX driver for Microsoft MySQL database
S-DB-ORCL	WEBStation-AX driver for Oracle database
S-DB-SQL	WEBStation-AX driver for Microsoft SQL database
SUP-U-AX	Revision Upgrade for WEBStation-AX Supervisor
WEB-S-AX-SBS-EXUP	Small Building System Upgrade
WES-PNT-AX	WEBs Energy Analytics Point License. Licenses one point for monitoring on a WEBs-AX Supervisor
WES-STA-AX	WEBs Energy Analytics Station License. Licenses one controller station connection to Energy Analytics with unlimited points.

WEBs-AX Platform - Accessories

Application Size: Accessory-Parts

Building Management Interface: WEBs-AX

Product Number	Description	Used With
H-GPRS-CBL-EXT	GPRS Modem Extension Cable	WEB-201; WEB-600
H-GPRS-SIM-W	Wysless SIM card for GPRS Modem	WEB-201; WEB-600
NPB-BATTERY	Replacement Battery Assembly for WEB-201 and WEB-600 Controllers	WEB-201; WEB-600

WEBs Platform - Accessories

Building Management Interface: WEBs

Product Number	Application	Description	Used With
50000276-014	Battery	Replacement Battery For WEB 4 Series and WEB 5 Series Controller	WEB-403; WEB-545
H10026	Accessory-Parts	Lon Trunk 2-position Connector Plug	WEB-201; WEB-600; WEB-403; WEB-545
H10027	Accessory-Parts	WEB5 RS-485 3-position Connector Plug	WEB-201; WEB-600; WEB-403; WEB-545
H10139	Accessory-Parts	6 Position Input/output Connector	WEB-201; WEB-600; WEB-403; WEB-545
H10140	Accessory-Parts	Weidmuller 3-position Straight Connector	WEB-201; WEB-600; WEB-403; WEB-545
H10148	Accessory-Parts	RJ-45 Adapter to DB-9 (Female Connection On both ends)	WEB-201; WEB-600; WEB-403; WEB-545
H10180	Accessory-Parts	4 foot silver satin cable (male RJ-45 both ends)	WEB-201; WEB-600; WEB-403; WEB-545
H10181	Accessory-Parts	10 Foot Silver Satin Cable (Male RJ-45 both ends)	WEB-201; WEB-600; WEB-403; WEB-545
H10182	Accessory-Parts	25 Foot Silver Satin Cable	WEB-201; WEB-600; WEB-403; WEB-545
H10429	Accessory-Parts	6 Position Connector for IO-16-H and WEB-IO-16	WEB-201; WEB-600; WEB-403; WEB-545
H10598	Accessory-Parts	2 Position Connector for IO-34-H and WEB IO-34	WEB-201; WEB-600; WEB-403; WEB-545
H10599	Accessory-Parts	12 Position Connector for IO-34-H and WEB-IO-34	WEB-201; WEB-600; WEB-403; WEB-545
H10600	Accessory-Parts	15 Position Connector for IO-34-H And WEB IO-34	WEB-201; WEB-600; WEB-403; WEB-545

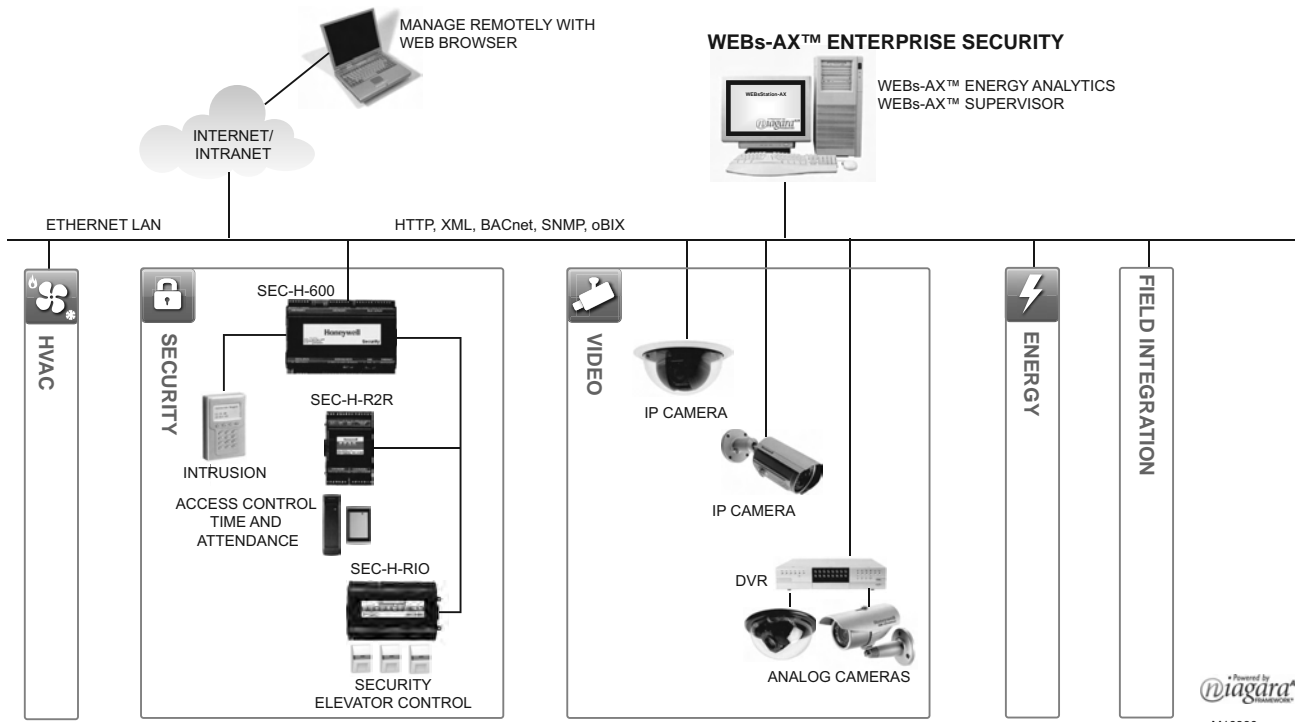
WEBs-AX Security System

Honeywell Security Portfolio

Flexibility is the key to Honeywell WEBs-AX™ Security, which is built on the Niagara^{AX} Framework®. Whether you need single site or enterprise access control, intrusion detection, video surveillance or a combination of all, WEBs-AX Security has the solution for you.

WEBs-AX Security can work as a standalone system or integrate easily with other WEBs-AX products as well as third-party devices for information-sharing on the enterprise level.

Figure 1. WEBs-AX Security Architecture Drawing



WEBs-AX Security Solution Options

- WEBs-AX Enterprise Security—A comprehensive security and access control system for one or more facilities and integration with existing building systems including HVAC, lighting, video, and energy analysis. Ideal for single medium to large facilities or multi-site facilities.
- WEBs-AX Standalone Security—An out-of-the-box, Web-enabled solution for access control, intrusion detection, and video surveillance. Ideal for small to medium sized facilities.
- WEBs-AX Compact Security—A cost effective solution for integrating access control, security, video surveillance, and building automation systems. A cost-effective solution for small to medium sized facilities.
- WEBs-AX Integrated Video—Video drivers that provide an open video framework designed to integrate with diverse manufacturer IP and analog devices and protocols.
- Energy Analytics—An enterprise energy monitoring application designed to help manage energy in one or more facilities. Energy Analytics is a software solution that provides easy to understand, easy to configure reports that identify where, when, and how energy is used and provides cost analysis scenarios to allow the facility manager to make informed buying decisions.

WEBs-AX Security Solutions

Facility	Doors	Open System Integration Capable	Solution	Selection Information
Single Facility	< 32	No	Standalone Security	See Table 2. Security Controllers on page 6
Single Facility	< 16	Yes	Compact Security	See Table 3. Security Controller with Compact Drivers on page 8.
Single Facility	32+	Yes	Enterprise Security	See Table 2. Security Controllers (page 2); Table 3. Security with Compact Drivers (page 3) and Table 4. Enterprise Security (page 4)
Multiple Facility	Unlimited	Yes	Enterprise Security	

WEBS-AX Security System

WEBS-AX Security Controllers Selection

Features and Options		SEC-H-600	SEC-H-201	More Selection Information
Controllers		SEC-H-600	SEC-H-201	See Controllers, page 6
	Card Readers	32*	16	See Readers and Keypads, page 10
	Input/Output Points	120/120*	64/64	Third party devices such as motion sensors and glass break detectors
	Remote Reader Modules	15*	7	See Controller Modules and Option Cards, page 7
	Remote I/O Modules	15*	8	See Controller Modules and Option Cards, page 7
	Intrusion Keypads	6	2	See Intrusion Keypad/Display, (SEC-H-INT-KP), page 11
	Personnel	20,000	5,000	
	Access Rights	250	100	
	Access Zones	50	10	
	Intrusion Zones	25	5	
	On-line Historical Records	50,000	10,000	
	Simultaneous System Users	10	5	
Video Drivers	DR-JAC-DED-AX	Dedicated Micros DVR & 4 cameras	N/A	See Video Drivers, page 9
	DR-JAC-AXS-4	4 Axis IP Cameras	N/A	See Video Drivers, page 9
Integration Options	Video (Cameras)	16	N/A	

* A total of 15 modules can be connected to the SEC-H-600 in any combination. Points and reader counts depend on mix of reader modules.

WEBS-AX Compact Security Selection

Features & Options		DR-SEC-LON (LON Focus)	DR-SEC-BAC (BACnet Focus)	Product Information
Controller		SEC-H-600		See Controllers, page 6
Security Capabilities	Card Readers	16*		See Readers and Keypads, page 10
	Input/Output Points	120/120*		Third party devices such as motion sensors and glass break detectors
	Remote Reader Modules	15*		See Controller Modules & Option Cards, page 7
	Remote I/O Modules	15*		See Controller Modules & Option Cards, page 7
	Intrusion Keypads	6		See Intrusion Keypad/Display, (SEC-H-INT-KP), page 11
	Personnel	10,000		
	Access Zones	50		
	Intrusion Zones	25		
	On-line Historical Records	50,000		
	Simultaneous System Users	10		
Video Drivers	DR-JAC-DED-AX	Dedicated Micros DVR & 4 cameras		See Video Drivers, page 9
	DR-JAC-AXS-4	4 Axis IP Cameras		See Video Drivers, page 9
Open Device/Points Supported	LonWorks Devices/Points	60/2000	5/100	
	BACnet Devices/Points	5/100	60/2000	
	Modbus TCP or RTU Devices & Points	5/100	5/100	
	SNMP (over Ethernet) Devices/Points	5/100	5/100	
Integration Capabilities	Video (Cameras)	16		Video Drivers, See page 9 and third party devices
	HVAC	•		Spyder®, Excel 10, & other open devices
	Lighting	•		Third party devices
	Other Open Systems	•		Third party devices

* A total of 15 modules can be connected to the SEC-H-600 in any combination. Points and reader counts depend on mix of reader modules.

WEBS-AX Security System

Enterprise Security Software

The WEBS-AX Enterprise Security solution is a combination of the WEBS-AX Enterprise Security software and SEC-H-600 controller(s) and/or Compact drivers.

Software Platform			Enterprise Security				WEBS-AX Station with Security Options		Sec. Tool
Features	Part Numbers	Description	SEC-H-MYS-SBS	SEC-H-MYS	SEC-H-SQL-SBS	SEC-H-SQL	WEB-S-AX-SBS	WEB-S-AX	SEC-H-MT-AX
		Operating System	a	a	a	a	b	b	b
		Demo Available		O		O			O
		Controller Limit ^C	6	500	6	500	3	500	NA
		Reader Limit	64	10,000	64	10,000	64	10,000	
Niagara		Niagara Historical DB	•	•	•	•	•	•	
		Workbench	•	•	•	•	•	•	
		Security Appliance	•	•	•	•	O	O	
HVAC Upgrade	SEC-H-BAS	BAS Upgrade for Security	O	O	O	O			
Security Upgrade	SEC-H-SUP-MYS	Add Security with MYS DB					O	O	
	SEC-H-SUP-SQL	Add Security with SQL DB					O	O	
SBS Upgrade	SEC-S-SBS-U	Remove 64 reader, 6 Controller Limit	O		O				
Communication		oBIX Client/Server	•	•	•	•	•	•	
Client	DR-NS-OBIX-AX	oBIX ^d					O	O	
	DR-NS-OBIX500	Additional 500 points					O	O	
	DR-NS-BAC-AX	BACnet IP					O	O	
	DR-NS-BAC-500	Additional 500 points					O	O	
	DR-NS-MDB-AX	MODbus TCP					O	O	
	DR-NS-MDB-500	Additional 500 points					O	O	
	DR-NS-OPC-AX	OPC					O	O	
	DR-NS-OPC-500	Additional 500 points					O	O	
	DR-NS-SNMP-AX	SNMP					O	O	
	DR-NS-SNMP-500	Additional 500 points					O	O	
Server	S-AX-BCSRV-AX	BACnet IP					O	O	
Video	DR-SUP-DED-AX	Dedicated Micro DVR	O	O	O	O	O	O	
	DR-SUP-DED-4	4 Cameras	O	O	O	O	O	O	
	DR-SUP-AXS-AX	Axis Cameras	O	O	O	O	O	O	
	DR-SUP-AXS-4	4 Cameras	O	O	O	O	O	O	
Energy Analytics	WES-STA-AX	Station (Controller) Connection					O	O	
	WES-PNT-AX	Point (IP) Connection					O	O	
Enterprise Security	SEC-H-R-16	16 Reader Pack	O	O	O	O	O	O	
	SEC-H-R-64	64 Reader Pack	O	O	O	O	O	O	
	SEC-H-R-256	256 Reader Pack	O	O	O	O	O	O	
	SEC-H-R-1024	1024 Reader Pack	O	O	O	O	O	O	

^a Windows Server 2003, Windows XP Pro, Linux

^b Windows Server 2003, Windows XP Pro

^c Resources and performance limits - no defined limit in license.

^d oBix connectivity for controllers NOT powered by Niagara

• = Standard (included); O = Optional

WEBS-AX™ Enterprise Security Software

WEBS-AX Enterprise Security is a comprehensive access control and security management solution, built on a truly open, IP based platform. Developed using the NiagaraAX Framework, WEBS-AX Enterprise Security provides unparalleled interoperability within traditional security environments and extends seamlessly to create a unified, intelligent building by integrating with today's diverse facility systems including environmental controls, lighting, energy management, and video

Enterprise Security provides scalability ranging from single door solutions to multi-building/multi-campus deployments. Entirely accessible from any standard web browser, the solution provides flexible access into the system any time, anywhere, while liberating end users from dedicated client workstations in the traditional client /server model. WEBS-AX Enterprise Security is open – open architecture, open framework, open distribution, and open protocol support.

- Truly open solution-connectivity via oBIX, BACnet, SNMP, Modbus, Lon, and other optional non-proprietary protocols
- Web based security application – easily managed via a standard browser anytime, anywhere
- Supports database connectivity to MS SQL Server 2003 and MySQL
- Distributed architecture for increased reliability and control at remote locations
- Centrally managed card holder and credential database
- Quick click access to video playback related to individual alarm events
- UL-294 and CE listed systems
- Advanced occupancy restriction rules through access zone functionality
- Alarm Escalation
- Scheduled unlock on first validation
- Elevator control
- Live credential enrollment from any card reader
- Intrusion detection
- Configurable Operator Access Levels
- Simultaneous support for multiple credential formats

System Capacities

Personnel	Card Readers	Access Rights	Schedules	Access Zones	On-Line History Records	Simultaneous System Users	Area Controllers	Integrated Cameras
1,000,000	10,000	25,000	25,000	25,000	25,000,000	25	500	No Limit

Product Number	Description
WEBS-AX Enterprise Security Server Software	
SEC-H-MYS	Security AX Supervisor bundled part. Includes Enterprise Security application with 32 reader license, security AX supervisor and MySQL database driver. Supervisor limited to security Controllers and drivers only. Platform for systems greater than 64 readers. Includes OBIX client/server driver for connecting to Niagara based controllers only.
SEC-H-MYS-SBS	Security AX Small Building Supervisor bundled part. Includes Enterprise Security application with 32 reader license, security AX supervisor and MySQL database driver.. SBS limited to max of 6 security Controller connections and 64 readers. Includes OBIX client/server driver for connecting to Niagara based controllers only.
SEC-H-SQL	Security AX Supervisor bundled part. Includes Enterprise Security application with 32 reader license, security AX supervisor and SQL database driver. Platform for systems greater than 64 readers. Includes OBIX client/server driver for connecting to Niagara based controllers only.
SEC-H-SQL-SBS	Security AX Small Building Supervisor bundled part. Includes Enterprise Security application with 32 reader license, security AX supervisor and SQL database driver. SBS limited to max of 6 security controller connections and 64 readers. Includes OBIX client/server driver for connecting to Niagara based controllers only.
WEBS-AX Enterprise Security Server Upgrades	
SEC-H-SBS-U	Security SBS upgrade. Removes reader limit of 64 and controller limit of 6.
SEC-H-BAS-U	Upgrade security supervisor to allow BAS driver functionality.
SEC-H-SUP-MYS	Base Enterprise security software, includes reader license for 32 readers, Enterprise security application and MySQL database driver. Part required for all instances of Security 2.0. Requires AX supervisor software or small building AX supervisor software.
SEC-H-SUP-SQL	Base Enterprise security software, includes reader license for 32 readers, enterprise security application and SQL database driver. Part required for all instances of Security 2.0. Requires AX supervisor software or small building AX supervisor software.
WEBS-AX Enterprise Security Reader Expansion Packs	
SEC-H-R-16	Expands enterprise security license by 16 readers.
SEC-H-R-64	Expands enterprise security license by 64 readers.
SEC-H-R-256	Expands enterprise security license by 256 readers.
SEC-H-R-1024	Expands enterprise security license by 1024 readers.

WEBS-AX Security System

WEBS-AX™ Security Controllers



The WEBS-AX Security Controller provides an out of the box, web-enabled solution for access control and intrusion detection with integrated reporting and alarm management. Users can assign access rights, schedules, credentials, and perform system set up and maintenance via a web browser from anywhere in the world. The easy to use security control application and user interface are embedded in the WEBS-AX Security Controller requiring no additional software to set up or operate the system. The embedded application can provide complete access control and intrusion detection functionality in a stand alone mode or it can be easily integrated into the WEBS-AX automation system to control lighting, HVAC equipment, and other building management strategies in response to access events and system alarms. WEBS-AX Security Controllers may also be joined to an Enterprise Security server to provide central database management for larger applications requiring more than one controller.

- Integrated management of access control, alarm monitoring, and credential database
- Pre-defined custom reports on-screen or exported
- Web-based security application - easily managed via a web browser anytime, anywhere
- Web User Interface serves rich presentations and live data to a browser
- No thick client software required
- Custom graphic floor plans and equipment displays
- User-definable Wiegand card formats
- Robust, modular solution for smaller facilities
- Seamlessly integrates to Video Monitoring, HVAC, Lighting, and Energy Management in the WEBS-AX Automation System or other open systems
- Connectivity to any BAS system via BACnet®, LONWORKS®, Modbus®, and oBIX
- IT connectivity includes XML, oBIX, SNMP
- Built on the NiagaraAX Framework - the industry's leading facility management software platform
- On-board I/O for 2 standard Access Controlled doors, 2 Alarm Inputs, and 2 Relay outputs
- SEC-H-201: Expandable to 16 readers and 64 input and 64 output points. Up to 10,000 personnel credentials.
- SEC-H-600: Expandable to 32 readers and up to 120 input and 120 output points depending on mix of up to 15 remote modules. Video integration with up to 16 cameras. Up to 20,000 personnel credentials. Integrates directly with Lon or BACnet remote devices using Compact Security Drivers (see controller drivers section for details).


System Capacity	SEC-H-600	SEC-H-201
Personnel	20,000	5,000
SEC-H-R2R Modules (2 Wiegand Readers, 4 supervised digital inputs, 2 relay outputs, 2 digital inputs)	15 ¹	7
SEC-H-RIO Modules (8 digital outputs, 8 supervised digital inputs, 2 digital inputs)	15 ¹	8
IO-REM-16-H (8 universal inputs, 4 relay outputs, 4 analog outputs)	15 ¹	N/A
Access Rights	250	100
Schedules	100	25
Access Zones	50	10
Intrusion Zones	25	5
Intrusion Keypads	6	2
On-line Historical Records	50,000	10,000
Simultaneous System Users*	10	5
Video (Cameras)	16	N/A

1. SEC-H-600 controller may connect to 15 SEC-H-R2R or SEC-H-RIO or IO-REM-16-H modules total in any combination.

Controller Modules and Option Cards


WEBS-AX™ Security Modules

Expand the capacity of your WEBS-AX Security Controller with the SEC-H-RIO, remote input/output module, and the SEC-H-R2R remote reader modules.

Product Number	Wiegand Card Reader Interface	Supervised Digital Inputs	Relay Outputs	Digital Inputs	
SEC-H-RIO	-	8	8	2	
SEC-H-R2R	2	4	2	2	

WEBS-AX™ IO Modules

Monitor and control building automation points with the IO-16-REM-H. These modules may not be connected to the SEC-H-201 controller.

Product Number	Universal Inputs	Analog Outputs	Relay Outputs	
IO-16-REM-H	8	4	4	

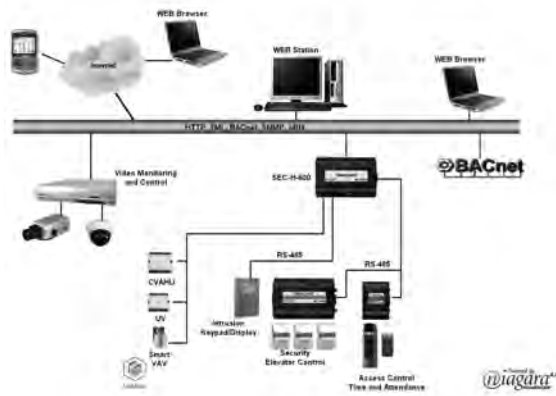
WEBS-AX™ Option Cards

Use these option cards to interface to other open systems on the SEC-H-600 when using the Compact Security Drivers. The NPB-2X-RS485 option card is required on the SEC-H-201 and SEC-H-600 controllers to interface with the Intrusion Keypad.

Product Number	Description
NPB-LON	78 Kbps FTT 10 A LON Adapter. Uses one of the two communication slots in the SEC-H-600
NPB-2X-RS485	Dual Port RS485 Option Card. Uses one of the two communication slots in the SEC-H-201 or SEC-H-600.
NPB-RS232	Single Port RS232 Option Card. Uses one of the two communication slots in the SEC-H-600.

WEBS-AX Security System

Compact Security Solution Drivers



WEBS Compact Security Solution provides a cost effective solution for integrating access control, security, video surveillance, and building automation on the SEC-H-600 platform. A Lon or BACnet Focused Driver Option Pack determines the mix of controlled devices that can be integrated onto the platform. The embedded WEBS-AX security control application allows thin-client configuration of the access control and security functions. WEBS-AX Workbench software is required for configuration of the HVAC devices. Note that card reader and personnel record capacities are reduced when using the Compact Security Drivers. Option cards to interface with BACnet, Lon, Modbus, and SNMP are ordered separately

Compact Security Solution System Capacities

	DR-SEC-LON	DR-SEC-BAC
LON Devices/Points (TP/FT-10)	60 Devices/2000 Points	5 Devices/100 Points
BACnet Devices/Points (IP or MSTP)	5 Devices/100 Points	60 Devices/2000 Points
Modbus TCP or RTU	5 Devices/100 Points	5 Devices/100 Points
SNMP (over Ethernet)	5 Devices/100 Points	5 Devices/100 Points
Remote I/O modules (SEC-H-RIO)	15 ₁	15 ₁
Remote Reader Modules (SEC-H-R2R)	15 ₁	15 ₁
Digital Input/Output Points	120 inputs/ 120 outputs ₂	120 inputs/ 120 outputs ₂
Card Readers	16 ₂	16 ₂
Intrusion Keypads (SEC-H-INT-KP)	4	4
Personnel Records	10,000	10,000
History Records	50,000	50,000

1. Maximum of 15 modules (SEC-H-RIO and SEC-H-R2R) per SEC-H-600.

2. Up to 16 readers or 120 I/O points, depending on module combination.

Video Integration Drivers

WEBS-AX Integrated Video is an open video framework solution designed to integrate diverse manufacturer devices and protocols into a unified, smart facility management system. Built on the NiagaraAX Framework®, WEBS-AX Video integrates with IP and analog based systems to create complete interoperability between video, security, lighting, energy management, and building automation for any facility.

- Bi-directional alarming interface between NiagaraAX stations and video products.
- NiagaraAX alarms can initiate events in video subsystem.
- Video system events such as video motion detection and camera loss alarms can be processed as standard Niagara alarms.
- Automatically redirect camera and start video recording based on events or alarms

- Create video system alarm record and associate recorded video for instant look-up
- Initiate control logic sequences such as lighting control, building lockdown, etc.
- Ability to view live video through NiagaraAX graphical user experience.
- Supports pan, tilt, zoom, iris, and focus camera control.
- Query video subsystem for stored video and playback by time and date.
- Integrated video playback with Niagara alarm console.
- Customizable user experience through extensive video widget library (PX pages).

WEBS-AX™ Platforms Supported for Video Integration Drivers (Requires Niagara^{AX} Build 3.4 or later)

Product Number	Product	Restrictions
SEC-H-MYS	Enterprise Security Server with MYS database	No Set Limit
SEC-H-MYS-SBS	Enterprise Security Server Small Building System with MYS Database	No Set Limit
SEC-H-SQL	Enterprise Security Server with SQL database	No Set Limit
SEC-H-SQL-SBS	Enterprise Security Server Small Building System with MYS Database	No Set Limit
W-S-AX	WEBS-AX Supervisor	No Set Limit
W-SJ-1M-AX	WEBS SoftJACE	No Set Limit
SEC-H-600	WEBS Expanded Security Controller	Maximum of 16 cameras
WEB-600, WEB-600-O	WEB 600 Controller	Maximum of 16 cameras, requires NPM-256 memory option.

Part#	Description
DR-SUP-DED-AX	Base Driver for Dedicated Micros DVR for WEBS Supervisor, WEBS SoftJACE, or Enterprise Security. Includes support for up to 16 cameras.
DR-SUP-DED-4	Additional 4 camera license for Dedicated Micros DVR on WEBS Supervisor, WEBS SoftJACE, or Enterprise Security.
DR-JAC-DED-AX	Driver for Dedicated Micros DVR and 4 cameras on SEC-H-600 or WEB-600.
DR-SUP-AXS-AX*	Base Driver for Axis IP Cameras for WEBS Supervisor, WEBS SoftJACE, or Enterprise Security. Supports for up to 16 cameras.
DR-SUP-AXS-4*	Additional 4 camera license for Axis IP cameras on WEBS Supervisor, WEBS SoftJACE, or Enterprise Security.
DR-JAC-AXS-4*	Driver for 4 Axis IP Cameras on SEC-H-600 or WEB-600.

*Note: Axis IP Camera drivers do not support video playback, they are used for live viewing only. To integrate recording of IP cameras, use a supported DVR with IP interface.

WEBS-AX Security System





Readers and Keypads

OmniProx™ Proximity Card Readers

Honeywell's OmniProx™ family is a complete line of 125 kHz HID compatible proximity readers that delivers outstanding and consistent performance in a small package with attractive styling and colors to fit any décor.

All OmniProx™ readers (except the OP90) include three bezels: black, charcoal gray and ivory and are constructed with rugged polycarbonate materials potted for both indoor and outdoor applications.

For locations that require a proximity reader able to withstand the vandal-prone environments, such as: universities, schools, elevators and prisons, the OP90 vandal resistant reader comes standard in a zinc die-cast metal housing.

Product Number	Read Range (PVC Card)	Read Range (Key Fob)	Dimensions	Max. Operating Current @ 5 VDC	Operating Voltage	
OP10HONE	2.25"	1.25"	3.15" H x 1.57" W	50 mA	5.0 -16 VDC	
OP30HONE	2.25"	1.25"	5.71" H x 1.69" W	100 mA	5.0 -16 VDC	
OP40HONE	2.25"	1.25"	4.33" H x 2.95" W	100 mA	5.0 -16 VDC	
OP90HONE	1.25"	Not recommended	4.5" H x 3.15" W	100 mA	5.0 -16 VDC	

Readers with PIN Keypads

OmniClass™ Reader/Keypad



OmniClass™ OM56BHONA reader/keypad is built upon the convenience and reliability of prox technology and reads both 125 kHz Prox and 13.56 MHz Smart cards. Keypad is backlit for easy visibility in low-light conditions. LED bar at top of reader makes ADA compliant with built-in audible beeper.

ProxPro® Reader/Keypad



The ProxPro® Hu5355AGK00 proximity card reader's weatherproof design and architecturally attractive enclosure allows easy mounting indoors or out. Reads 125kHz Prox cards. The ProxPro Reader is ideal for applications requiring a larger read range. LED and beeper indicate access card reads.

Product Number	Max Read Range	Dimensions	Max. Operating Current @ 12 VDC	Operating Voltage
OM56BHONA	4"	4.8" H x 3.3" W	253 mA	10 -16 VDC
HU5355AGK00	7"	5.0" H x 5.0" W	120 mA	10-28.5 VDC

Intrusion Keypad/Display

Smartkey Intrusion Keypad and Display.



The SEC-H-INT-KP Smartkey Intrusion Keypad and Display is used for arming and disarming areas protected by intrusion monitoring such as motion detection, glass break detection, door and window status switches and other monitoring devices.




Multiple users and zones may be controlled with a single keypad by assigning unique PIN numbers to system operators. The display warns the user if a zone is in alarm prior to arming to avoid unwanted alarms.

Requires an NPB-2X-RS485 Option card to interface with SEC-H-600 and SEC-H-201 Security Controllers.

Product Number	Max per SEC-H-600	Max per SEC-H-201	Dimensions	Max. Operating Current @ 12 VDC	Operating Voltage
SEC-H-INT-KP	6	2	5.12" H x 3.23" W	150 mA	12 -15 VDC

Credentials

125 kHz HID compatible Proximity Credentials

Product Number	Description	
PVC-H-4	HID PVC Prox Card (34-Bit). HID PVC proximity card sequentially numbered where encoded number equals printed number. Allows a video photo ID to be printed directly on the card surface. This card can be used with all PVC printers. Dimensions: 2.125 IN. H x 3.375 IN. W (5.398cm H x 8.573cm W) Minimum order quantity of 25. Must be ordered in increments of 25.	
PX-4-H	HID proximity card (34-bit) with Honeywell logo and a slot hole punch on the short side. Dimensions: 2.125 IN. H x 3.375 IN. W x 0.070 IN. T (5.398cm H x 8.573cm W x .178cm T). Minimum order quantity of 25. Must be ordered in increments of 25.	
PX-KEY-H	HID Proximity Card Key Fob (34-Bit). HID proximity key fob (34-bit) designed to be carried on a user's key ring. Read ranges may be reduced by 50% when using the fob versus a card. Dimensions: 1.87 IN. H x .925 IN. W x .395 IN. T (4.75 cm H x 2.350 cm W x 1 cm). Minimum order quantity of 10. Must be ordered in multiples of 10.	

WEBS-AX Security System




Request to Exit Devices

PIR Overhead Motion Sensors

Mount IS310BL and IS310WH PIR (passive infra-red) motion sensors over access controlled doors to inhibit alarms when exiting and/or to unlock the door. Hands-free automatic operation makes these units the ideal request to exit devices for access control systems.



Push Button

The EXB-1 is used to signal the access control panel to unlock a door and inhibit door alarms when exiting.

Product Number	Description	
IS310BL	Request-to-Exit Sensor, Standard Version - Black. Adjustable relay time (0.5 - 64 seconds), Adjustable "tamper proof" shutters, to enable precise target area detection, Two "Form C" outputs, Swivel optics – allow for offset mounting.	
IS310WH	Request-to-Exit Sensor, Standard Version - White. Adjustable relay time (0.5 - 64 seconds), Adjustable "tamper proof" shutters, to enable precise target area detection, Two "Form C" outputs, Swivel optics – allow for offset mounting.	
EXB-1	Egress Button. Exit button with a single gang stainless steel mounting plate, DPDT. Can be configured with momentary or latching contact status. Temperature range: 32° to 158° F (0° to 70° C). Dimensions: 4.5 IN. H x 2.75 IN. W x 2.13 IN. D (11.43cm H x 6.99cm W x 5.40cm D).	

Door Locks

The NS5100 Electric Strike and ML8011-LC-US28 locks work with many types of doors and applications.

Product Number	Description	
ML8011-LC-US28	UL listed magnetic door lock for a single door with 1,200lbs (544kg) holding force. Operates on 12/24VDC.2A current draw and comes with a US28 (satin stainless) finish. Lock dimensions: 2.625 IN. H x 10.5 IN. W x 1.625 IN. D (6.67cm H x 26.67cm W x 4.13cm D). Armature dimensions: 2.5 IN. H x 7 IN. W x .375 IN. D (6.35cm H x 17.78cm W x .95cm D).	
NS5100	1300lb Electric Strike, non-handed. Fail-secure/fail-safe field reversible. Maximum current draw is .38A @ 12VDC or .19A @ 24VDC. Strike includes three face plates for use with hollow metal, wood, or aluminum frames. Adjustable keeper and small back box fit almost any application. Retrofit existing doors or lock replacements with included neoprene filler. Back box: 3.375 IN. H x 1 IN. W x 1.345 IN. D. Keeper pocket: 1.4375 IN. H x .5 IN. D x .6875 IN. –.8125 IN. W (adjustable).	

Enclosures and Power Supplies

WEBs-AX™ Security Enclosures



Custom enclosures are available for secure mounting of the WEBs-AX Security controller and the Remote Reader and Input/Output modules. Three sizes are available to allow for various combinations of controllers and remote modules and all are equipped with a key lock and tamper switch. The medium and large enclosures may be ordered with a factory mounted universal voltage power supply (NPB-PWR-UN-H) covered by a protective metal shield. Knockouts are provided on top, bottom and sides for external connections. The enclosure interiors have a generous amount of space for cable management. These enclosures are required to maintain the UL access control and FCC listing. The Security controller **MUST** be mounted in a WEBs-AX Security enclosure with integral supply to properly charge the on-board NiMH batteries and maintain the controller listings.

Product Number	Description
SEC-ENC-H-1	Security panel medium enclosure with integral NPB-PWR-UN-H universal power supply. 17" W x 15" H x 4" D with DIN rail, tamper switch, key lock, and capacity for 2 user provided SLA backup batteries. Can enclose one Security Controller, or 2 reader modules or one Remote I/O module.
SEC-ENC-H-1NP	Security panel medium enclosure. 17" W x 15" H x 4" D with DIN rail, tamper switch, key lock, and capacity for 2 user provided SLA backup batteries. Can enclose 2 reader modules or one Remote I/O module plus one additional reader module in place of the integral power supply not included with this part.
SEC-ENC-H-2	Security panel large enclosure with integral NPB-PWR-UN-H universal power supply. 17" W x 22" H x 4" D with DIN rails, tamper switch, key lock, and capacity for 2 user provided SLA backup batteries. Can enclose one Security Controller and up to four Reader Modules, or two I/O modules, or two Reader Modules and one I/O Module.
SEC-ENC-H-2NP	Security panel large enclosure. 17" W x 22" H x 4" D with DIN rails, tamper switch, key lock, and capacity for 2 user provided SLA backup batteries. Can enclose up to seven Reader modules or three I/O modules plus one additional Reader module in place of the integral power supply not included with this part. Other combinations of Reader and I/O modules are possible.
SEC-ENC-H-3	WEBs-AX Security Small enclosure 6 in. W x 9 in. H x 4 in. D with DIN rail, tamper switch and key lock. Encloses one Reader module.
NPB-PWR-UN-H	90 - 263 V AC 50/60 Hz Auto sensing Power Supply Module, DIN Rail Mountable 15 VDC Output.

Auxiliary Power Supplies by Honeywell Power Products



These access control power supplies/chargers will convert 115VAC/60Hz into power limited field-selectable continuous power output. These power supplies are UL listed for access control (UL294), fire alarm (UL1481) and burglar alarm installations (UL603), and conform to NEC requirements. LED diagnostics speed troubleshooting and fused disconnects make servicing easier. Relay outputs provided for remote monitoring of AC Power fail and Battery fail. All supplies are field configurable for 12 or 24 VDC output. Dimensions: 13 in. H x 13.5 in. W x 3.25 in. D (33 cm H x 34.3 cm W x 8.3 cm D).

Product Number	Output Current	Protected Outputs
HP300ULX	2.5 A	1
HP300ULPD4CB	2.5 A	4
HP400ULX	4.0 A	1
HP400ULPD4CB	4.0	4
HP600ULX	6.0	1
HP600ULPD16CB	6.0	16

Backup Battery

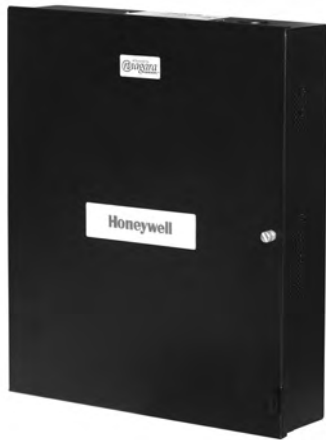


Sealed Lead-Acid 7 AH backup battery. Use these batteries to provide backup power for the WEBs-AX Security controller and auxiliary power supplies

Product Number	Description
712BNP	12V 7AH Battery

WEBs R2 System

WEB 403 R2 Controller



The WC2003B WEB-403 bundles WEBs software capability in a hardware platform that can be installed in typical building control environments. Each WEB-403 connects to a system field bus and provides real-time control functions as constant streams of data from individual systems are instantaneously transformed to a common object model. The products provide a fully distributed system when multiple units are networked together, which provides unsurpassed scalability and reliability. In this configuration, WEBs can be used to network controllers and manage enterprise-level control functions. The appropriate model is determined by connectivity and computing power requirements.

- Embedded RISC Microprocessor platform.
- One LON® FTT10A port for LON® device integration.
- Direct, on-board I/O with six universal inputs, and 4 digital relay outputs.
- One RS-485 port for connection to open and proprietary protocol devices.
- One RS-232 port for Integration or support of an optional internal modem.
- Integral Web User Interface services to support many simultaneous users over the intranet or Internet via a standard web browser.
- The WC2003B1022 can integrate up to 27 LONWORKS® devices.
- The WC2003B1048 can integrate up to 120 LONWORKS® devices.

Dimensions, Approximate: 11 in. wide x 14 in. high x 2 1/2 in. deep
(28 cm wide x 36 cm high x 6 cm deep)

Application: Controller

Building Management Interface: WEBs

Voltage: 25 VA max

Frequency: 50 Hz; 60 Hz

Power Consumption: 120 Vac

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Shipping Temperature Range: 32 F to 158 F (0 C to 70 C)

Approvals:

Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment

CE: Approved

Federal Communications Commission: FCC part 15 Class A

Underwriters Laboratories, Inc. UL 916, cUL listed

Product Number	I/O Count	Used With	Comments	Includes
WC2003B1022	4 DO relays with LED indicators, 6 UI	WEBs System	Includes Web User Interface, license restricted to 27 node max.	One 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector
WC2003B1048	4 DO relays with LED indicators, 6 UI	WEBs System	Includes Web User Interface, 120 connected device (node) limit	One 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector

WEB 403 R2 Drivers

Building Management Interface: WEBs

Product Number	Application	Description	Used With
WC2003B1055	Controller	Option to upgrade existing WEB-403 to provide unrestricted connected device limit.	WEBs System

WEB 545 R2 Controller



Honeywell WEBs® is a product suite developed on the Niagara Framework® that provides an end-to-end building automation solution. Users can seamlessly integrate LONWORKS®, BACnet®, Modbus®, OPC, and other standard protocols with legacy systems to provide a unified real-time controls network. The suite includes a browser-based graphical user interface allowing users to view and manipulate underlying systems without the need for dedicated workstations or client software.

- Embedded RISC Microprocessor platform.
- One LON® FTT10A port for LON® device integration.
- Four RS-485 ports (electrically isolated) for connection to open and proprietary protocol devices.
- Two RS-232 port for Integration or support of an optional internal modem.

Dimensions, Approximate: 11 in. wide x 14 in. high x 2 1/2 in. deep
(28 cm wide x 36 cm high x 6 cm deep)

Application: Controller

Building Management Interface: WEBs

Voltage: 25 VA max

Frequency: 50 Hz; 60 Hz

Power Consumption: 120 Vac

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Shipping Temperature Range: 32 F to 158 F (0 C to 70 C)

Approvals:

Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment

CE: Approved

Federal Communications Commission: FCC part 15 Class A

Underwriters Laboratories, Inc. UL 916, C-UL listed

Product Number	Used With	Comments	Includes
WC2003A2005	WEBs System	—	One 10/100 MB Ethernet port - RJ-45 connection, two RJ-45 connectors for RS-232 port, four RS-485 ports, one LonWorks port - FTT-10
WC2003B2004	WEBs System	Includes Web User Interface software	One 10/100 MB Ethernet port - RJ-45 connection, two RJ-45 connectors for RS-232 port, four RS-485 ports, one LonWorks port - FTT-10

WEB 545 R2 Drivers

Building Management Interface: WEBs

Product Number	Application	Description	Used With
WEB-5-UP-UI	Software-Driver	WEB User Interface for WEB-545 Controller	WEB-545

WEB-NXS R2 Controller

Dimensions, Approximate: 6 13/16 in. wide x 7 9/16 in. high x 10 1/16 in. deep (172 mm wide x 192 mm high x 256 mm deep)

Application: Controller

Building Management Interface: WEBs R2

Operating System: Embedded version of Microsoft Windows™ XP, Sun Hotspot VM, Java Application Control Engine with Niagara R2

Voltage: 100 Vac - 240 Vac

Frequency: 47 to 63 Hz

Power Input: 2A Max/115V and 1A Max/230V

Operating Temperature Range: 32 F to 104 F (0 C to 40 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Shipping Temperature Range: 32 F to 158 F (0 C to 70 C)

Comments: Construction: Heavy-duty steel chassis

Used With: WEBs R2 Platform

Approvals:

Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment

CE: Approved

Federal Communications Commission: FCC part 15 Class A

Underwriters Laboratories, Inc. UL 916, cUL listed

Product Number	Description	Network Communications	System Requirements	Includes
WEB-NXS-R2	NXS controller with 40 Gb hard drive and Niagara Release 2 (R2) software, embedded Windows SP and LON over twisted pair.	One LON FTT10 A port (78 Kbps) One RS-485 Port, electrically isolated; One high-speed RS-232 serial port; DB-9 connector; One 10/100-mbit Ethernet port - RJ 45 connection	Real-time clock with lithium battery backup 1 Gb Flash drive (W-NXS-AX-FL) or 40 Gb hard drive (W-NXS-AX-HD and WEB-NXS-R2) 512 MB RAM; High Speed Intel Celeron CPU @ 650 MHz	512 MB RAM, 10/100 MB Ethernet Port, (1) RS-232 Ports (1) RS-485 Port, (1) LONWorks port and driver, BACnet and oBix drivers, 40 GB Hard Drive

WEBs R2 System

WEBs R2 Platform - Drivers for Controllers

Application : Software-Driver

Building Management Interface: WEBs R2

Product Number	Description	Used With
32005192-004	DDE Driver for WEB controller	WEBs R2 Platform
32005192-006	Driver for Modbus TCP	WEBs R2 Platform
32005192-007	Driver for Modbus Server (WEB NP only).	WEBs R2 Platform
32005192-016	Driver for MSTP BACnet communications via RS-485 port - supports max of 31 BACnet MSTP devices. Note: 27 max. device limit on WEB 403.	WEBs R2 Platform
DRV-A256	Driver for Andover AC-8 and AC-256	WEBs R2 Platform
DRV-AINF	Driver for Andover Infinity	WEBs R2 Platform
DRV-APUP	Driver for American Automatrix	WEBs R2 Platform
DRV-CSD	Configurable Serial Driver	WEBs R2 Platform
DRV-MCQ	Driver for McQuay Open Protocol	WEBs R2 Platform
DRV-NOVUS	Driver for Novus Door Access System	WEBs R2 Platform
DRV-NOVUS-DOOR	Support for each additional Novus Door	WEBs R2 Platform
DRV-SNMP	SNMP device driver	WEBs R2 Platform
DRV-SOL	Driver for Solidyne building controller	WEBs R2 Platform
DRV-TCS	Driver for TCS-Basys	WEBs R2 Platform
DRV-TLC	Driver for GE TLC Lighting Panel	WEBs R2 Platform
WEB-U	Revision Upgrade for WEBs-R2 Controller	WEBs R2 Platform
ZW2002A1009	Modbus Driver for WEB controller	WEBs R2 Platform

WEBs R2 Platform - Software

Application: Software

Building Management Interface: WEBs R2

Product Number	Description
ZW2001A1001	Additional copies of WEBPro Software - per copy

WEBs R2 Platform - Supervisor Software

Building Management Interface: WEBs R2

Product Number	Application	Description
ZW2000A1003	Software	WEBStation Software WS-1 and first copy of WEBPro Software: for a single JACE
ZW2000B1002	Software-Driver	WEBStation Software; additional node
ZW2000C1001	Software	WEBStation Software and 20 pack of node software keys.
ZW2000D1000	Software	WEBStation Software and 50 pack of node software keys.
ZW2000E1009	Software	WEBStation Software and 100 pack of node software keys.
ZW2000F1008	Software	Master WEBStation Software for monitoring multiple WEB Supervisors.
ZW2000G1007	Software-Driver	N additional Mast WEBStation Software licenses
ZW2003A1007	Software-Driver	BACnet Supervisor, 500 additional point license block.
ZW2003A1023	Software	BACnet Supervisor base software. Includes license for 500 BACnet points.

WEBs R2 Platform - Drivers for Supervisors

Application : Software-Driver

Building Management Interface: WEBs R2

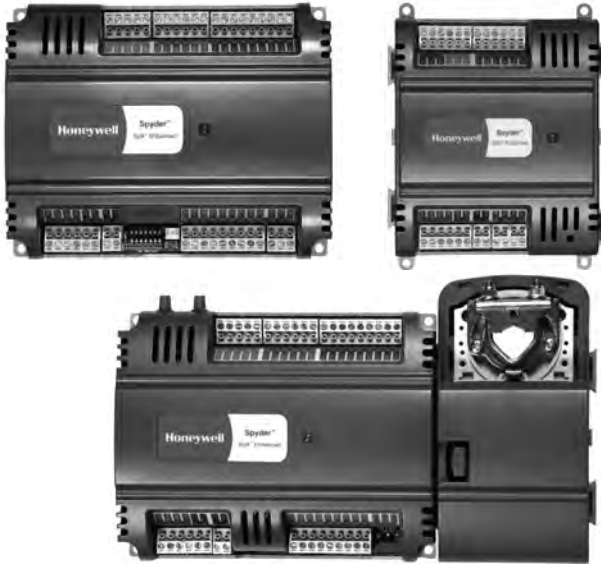
Product Number	Description	Used With
32005192-011	Service to monitor and manage alarms from multiple Niagara Systems through a single client interface.	WEBs R2 Platform
32005192-012	License for an additional client for the WEBs R2 Alarm Service.	WEBs R2 Platform
32005192-015	Proteus Alarm Service for Eagle Maintenance Management Software. Runs on any WEBs R2 Supervisor.	WEBs R2 Platform
32005192-017	SQL Driver for Web Supervisor, OPC Supervisor or BACnet Supervisor. Does not include MS SQL Server Software.	WEBs R2 Platform
32005192-021	Tenant Billing Service. Runs on any Web Supervisor.	WEBs R2 Platform
WS-MSDE	MSDE Driver for WEBStation, OPC Supervisor or BACnet Supervisor	WEBs R2 Platform

WEBs R2 System

Product Number	Description	Used With
WS-MTCP-500	Modbus 500 Point Addition	WEBs R2 Platform
WS-OPC-500	OPC 500 Point Addition	WEBs R2 Platform
WS-ORCL	Oracle Driver	WEBs R2 Platform
WS-OSD	Open System Driver	WEBs R2 Platform
WS-SNMP-500	SNMP 500 Point Addition	WEBs R2 Platform
ZW2003A1015	BACnet Supervisor node license. Enables a WEB to be connected to a BACnet Supervisor. One required per WEB.	—

Spyder Controllers

Spyder Programmable Controllers



The Spyder Family of controllers are for use in VAV (Variable Air Volume) and Unitary HVAC control applications. Each controller communicates via either LONWORKS® or BACnet MS/TP network communications. Each controller provides flexible, universal inputs (UI) for external sensors, digital inputs (DI), and a combination of analog outputs (AO) and digital Triac outputs (DO). The Sylk Bus is included in each controller which enables connection to other Sylk enabled devices. These controllers provide many options and advanced system features that allow state-of-the-art commercial building control. Each controller is programmable and configurable using the NIAGARA AX FRAMEWORK® software.

Dimensions, Approximate: 5.45 in. high x 6.85 in. wide x 2.26 in. deep
(138.4 mm high x 174 mm wide x 57.4 mm deep)

Application Size: Small to Large

Commissioning Software: WEBs AX

Voltage: 24 Vac with a valid range of 20 to 30 Vac

Frequency: 50 Hz; 60 Hz

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Setpoint Temperature Range: Programmable

Shipping Temperature Range: -40 F to 150 F (-40 C to 65.5 C)

Compatible with: WEBs AX

Comments: Onboard 20 VDC power supply

Approvals:

Canadian Standards Association: Certified

CE: Approved

Federal Communications Commission: FCC Part 15, Subpart B, Class B

Underwriters Laboratories, Inc. UL 916

Accessories:

TR70 Zio LCD Wall Module (Temperature)

TR70-H Zio LCD Wall Module (Temperature & Humidity)

Product Number	Description	Network Communications	I/O Count	Power Consumption	Output Type	Operating Temperature Range		Includes
						(F)	(C)	
PUB6438S	Spyder Programmable Unitary Controller	BACnet MS/TP	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 F to 150 F	-40 C to 65.5 C	—
PUB6438S-ILC	Spyder ILC Programmable Unitary Controller	BACnet MS/TP	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 F to 150 F	-40 C to 65.5 C	—
PUL1012S	Spyder Programmable Unitary Controller	LonWorks	1 UI, 0 DI, 1 AO, 2 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 F to 150 F	-40 C to 65.5 C	—
PUL1012S-ILC	Spyder ILC Programmable Unitary Controller	LonWorks	1 UI, 0 DI, 1 AO, 2 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 F to 150 F	-40 C to 65.5 C	—
PUL4024S	Spyder Programmable Unitary Controller	LonWorks	4 UI, 0 DI, 2 AO, 4 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 F to 150 F	-40 C to 65.5 C	—
PUL4024S-ILC	Spyder ILC Programmable Unitary Controller	LonWorks	4 UI, 0 DI, 2 AO, 4 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 F to 150 F	-40 C to 65.5 C	—
PUL6438S	Spyder Programmable Unitary Controller	LonWorks	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 F to 150 F	-40 C to 65.5 C	—
PUL6438S-ILC	Spyder ILC Programmable Unitary Controller	LonWorks	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 F to 150 F	-40 C to 65.5 C	—
PVB6436AS	Spyder Programmable VAV Controller	BACnet MS/TP	6 UI, 4 DI, 3 AO, 6 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Integrated Actuator & Pressure Sensor
PVB6436AS-ILC	Spyder ILC Programmable VAV Controller	BACnet MS/TP	6 UI, 4 DI, 3 AO, 6 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Integrated Actuator & Pressure Sensor
PVB6438NS	Spyder Programmable VAV Controller	BACnet MS/TP	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Onboard Pressure Sensor
PVB6438NS-ILC	Spyder ILC Programmable VAV Controller	BACnet MS/TP	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Onboard Pressure Sensor
PVL0000AS	Spyder Programmable VAV Controller	LonWorks	0 UI, 0 DI, 0 AO, 0 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Integrated Actuator & Pressure Sensor

Spyder Controllers

Product Number	Description	Network Communications	I/O Count	Power Consumption	Output Type	Operating Temperature Range		Includes
						(F)	(C)	
PVL0000AS-ILC	Spyder ILC Programmable VAV Controller	LonWorks	0 UI, 0 DI, 0 AO, 0 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Integrated Actuator & Pressure Sensor
PVL4022AS	Spyder Programmable VAV Controller	LonWorks	4 UI, 0 DI, 2 AO, 2 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Integrated Actuator & Pressure Sensor
PVL4022AS-ILC	Spyder ILC Programmable VAV Controller	LonWorks	4 UI, 0 DI, 2 AO, 2 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Integrated Actuator & Pressure Sensor
PVL4024NS	Spyder Programmable VAV Controller	LonWorks	4 UI, 0 DI, 2 AO, 4 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Onboard Pressure Sensor
PVL4024NS-ILC	Spyder ILC Programmable VAV Controller	LonWorks	4 UI, 0 DI, 2 AO, 4 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Onboard Pressure Sensor
PVL6436AS	Spyder Programmable VAV Controller	LonWorks	6 UI, 4 DI, 3 AO, 6 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Integrated Actuator & Pressure Sensor
PVL6436AS-ILC	Spyder ILC Programmable VAV Controller	LonWorks	6 UI, 4 DI, 3 AO, 6 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Integrated Actuator & Pressure Sensor
PVL6438NS	Spyder Programmable VAV Controller	LonWorks	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Onboard Pressure Sensor
PVL6438NS-ILC	Spyder ILC Programmable VAV Controller	LonWorks	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	32 F to 122 F	0 C to 50 C	Onboard Pressure Sensor

Spyder Accessories

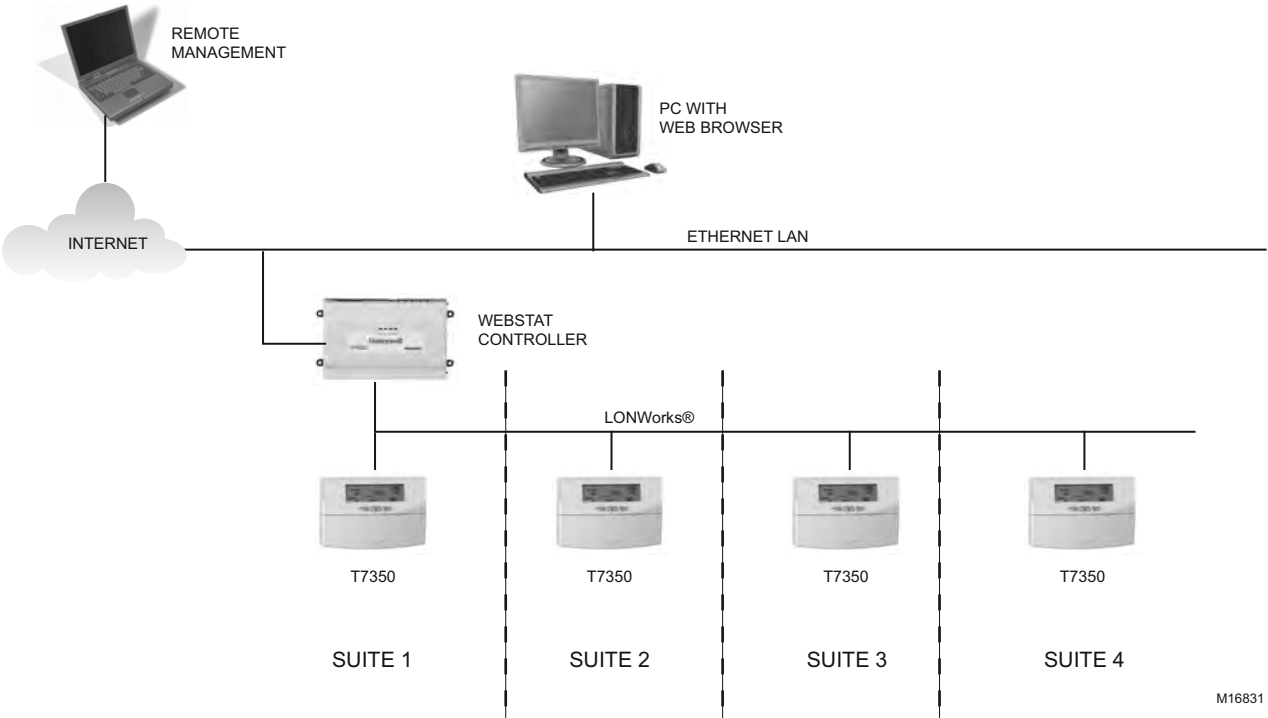
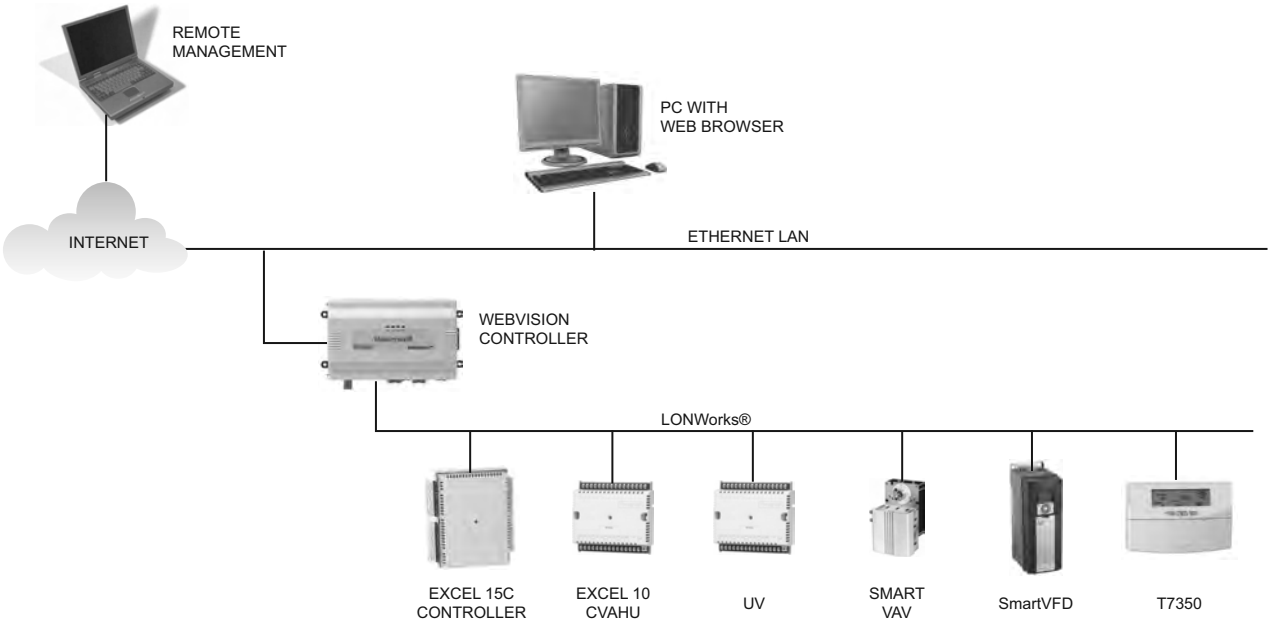


Accessories for Spyder Controllers

Dimensions, Approximate: 7.20 in. high x 7.48 in. wide x 2.30 in. deep
(183 mm high x 190 mm wide x 58 mm deep)

Product Number	Description	Used With
WB10707	Spyder Micro Wiring Box (must be ordered in multiple of 10)	Spyder Micro

Building Automation Appliances



M16831

Building Automation Appliances

WebStat Controller



Dimensions, Approximate: 6 3/8 in. wide x 4 7/64 in. high x 2.5 in. deep (16.2 cm wide x 10.5 cm high x 6.4 cm deep)

Application: Controller

Application Size: Up to 20 T7350H Thermostats with free software upgrade

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Shipping Temperature Range: 32 F to 140 F (0 C to 60 C)

WebStat allows you to step up from standalone thermostat control to the automated T7350 communicating thermostat platform without incurring any excessive direct digital control (DDC) cost or complexity. Automation features include web control, alarming, trending, scheduling, network accessibility, and floor plans. Operational savings are enabled by remote monitoring, alarming, floor plan visuals and thermostat assignment privileges for tenants, facility managers and contractors. WebStat keeps control simple by allowing Internet accessibility and flexibility for assigning user privileges.

- Remote Monitoring
- Remote Programming
- Up to 20 T7350H Thermostats
- Plug-and-Play Setup
- Universal Programming, Commissioning and Graphics Tool
- Alarm Email Notification
- Trending
- Thermostat Self-Discovery
- Wiring Diagram Generation Tool

Approvals:

Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment

CE: Approved

Federal Communications Commission: FCC part 15 Class A

Underwriters Laboratories, Inc. UL 916, cUL listed

Product Number	Description	Network Communications	Commissioning Software	Used With	Compatible with:	Includes
W7350A1000	WebStat Controller	LonWorks	WebStat	LonWorks bus	T7350H Communicating Thermostats	Lon Card and Power Supply

WebVision Controller



Dimensions, Approximate: 6 3/8 in. wide x 4 7/64 in. high x 2.5 in. deep (16.2 cm wide x 10.5 cm high x 6.4 cm deep)

Application: Building Automation Appliance; Controller

Application Size: Up to 120 LON devices, including EXCEL 10s, EXCEL 15C, T7350, and VFDs

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Shipping Temperature Range: 32 F to 140 F (0 C to 60 C)

WebVision is a low cost building manager with remote monitoring and programming that allows complete HVAC system management from a single interface. It is a step-up from WebStat to extend the scope beyond automated T7350 communicating thermostats to support HVAC zone and unitary controllers. It also adds several new features such as Demand Limit Control (DLC) for energy savings. Without incurring any excessive direct digital control (DDC) cost or complexity, WebVision offers operational savings by Internet accessibility, remote monitoring, alarming, and device assignment privileges for tenants, facility managers and contractors.

- Web-based monitoring, control, commissioning and programming of up to 120 LON devices
- Easy installation (plug-and-play setup) of embedded software
- Single universal tool for device configuration and customization of graphics
- Alarms, Schedules and Trends to completely manage building automation system
- Demand Limit Control (DLC) and VAV Balancing
- Different user profiles - Contractor, Facility Manager and Tenant to give customized access

Approvals:

Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment

CE: Approved

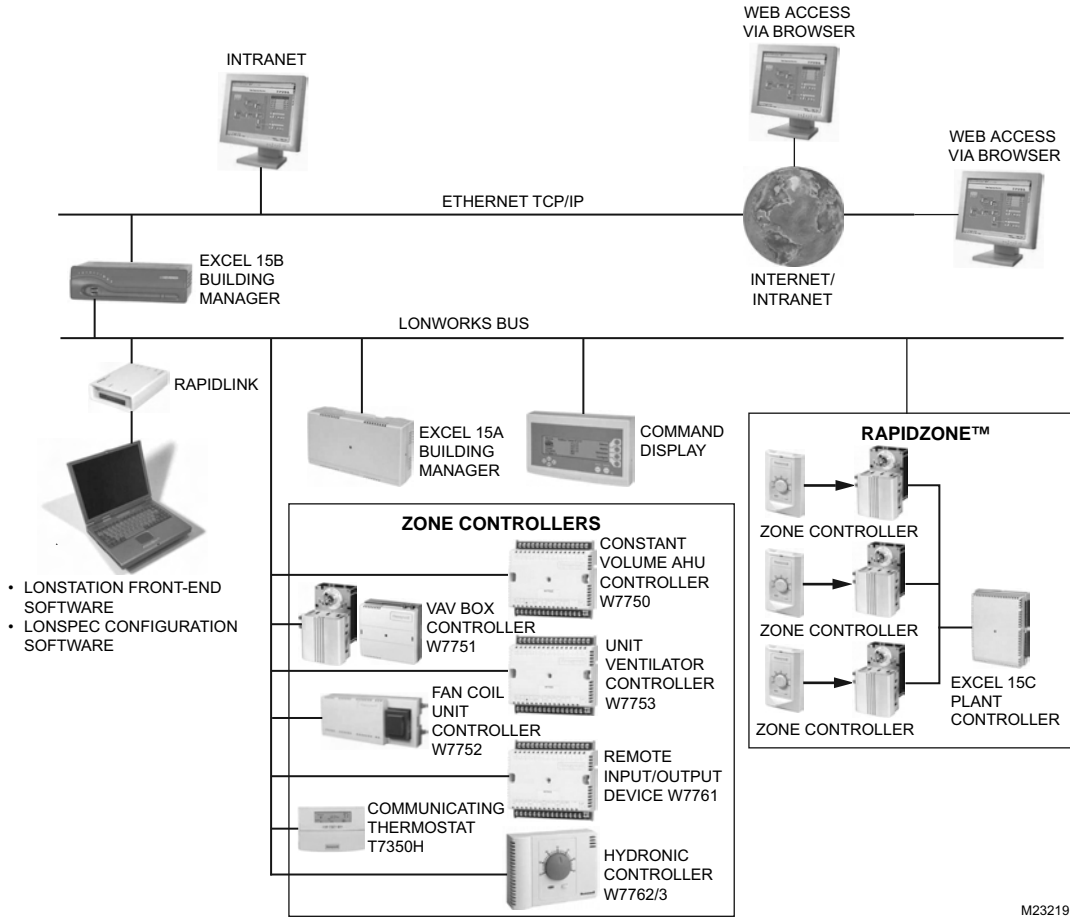
Federal Communications Commission: FCC part 15 Class A

Underwriters Laboratories, Inc. UL 916, cUL listed

Product Number	Description	Network Communications	Commissioning Software	Used With	Compatible with:	Includes
WWS-VL1A1000	WebVision Controller	LonWorks	WebVision	LonWorks bus	Excel 10s; Excel 15C; T7350H Communicating Thermostats;	Pre-installed LON card and Power Supply

Light Commercial Building Systems

LIGHT COMMERCIAL BUILDING SYSTEMS ARCHITECTURE



M23219

Light Commercial Building Systems

LonSpec Configuration Software



Excel LONSPEC is a windows based software application for the configuration, commissioning, check out, and monitoring of the Light Commercial Building Solution (LCBS). The LCBS includes the Excel 15A Building Manager, Excel 15C Plant Controller, Excel 10 Constant Volume Air Handling Unit (CVAHU), Excel 10 Variable Volume Air Handling Unit (VAV), Remote Input/Output (RIO) device, and Unit Vent (UV), Excel 15 Command Display (CD), the T7300F/ Q7300H Series 2000 Commercial Thermostats with Communicating Subbases, and T7350H Communication Thermostat, Q7790A Wireless LonWorks® Receiver with T7790C Wireless Wall Module and Honeywell Variable Frequency Drive.

- Easy-to-use drag-and-drop setup of LONWORKS® Networks and devices.
- Excel 10 application-specific controllers come pre-configured to the most common settings, yet allow quick modifications of parameters for your application.
- Easy and intuitive configuration of entire control loops.
- No line-by-line programming needed.
- Automatic and customizable data sharing between controllers on a network.
- On-line operation with monitoring and diagnostic and manual functions.
- Convenient right-click floating menus for quick access to LonSpec functions.
- On-line help includes a Quick Start tutorial for system startup.
- Quickly replicates multiple copies of controllers for repetitive applications.
- Remote access allows monitoring and diagnosis of system problems without the inconvenience and expense of service calls.
- Automatic discovery of nodes on a network reduces engineering time.

Application: Software

Building Management Interface: LonWorks Bus

Network Communications: LonWorks Bus

Product Number	Description	System Requirements	Used With	Comments
ZL7760A1020	LonSpec - Software 5.1.0	128 MB RAM, 100 MB disk drive, 500 MHz microprocessor, Microsoft Windows 2000 or XP	T7350H Thermostat, Excel 10 family of controllers, Excel 15 family of controllers	Excel LonSpec

LonStation Software



LONSTATION. Software is a Windows® based application/PC workstation used for monitoring and managing the Light Commercial Building Solution (LCBS) controllers.

- Easy-to-use drag and drop setup of LonWorks networks and devices.
- Configuration, monitoring and binding of LCBS devices.
- Familiar Windows platform user interface Training available through the Honeywell Authorized Trainer Program.

Application: Software

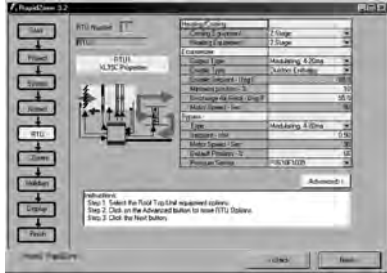
Building Management Interface: LonStation

Network Communications: LonWorks Bus

Product Number	Description	Commissioning Software	Comments
ZL7762A1026	LonStation - Software 5.1.0	LonSpec	Excel LonStation

Light Commercial Building Systems

RapidZone Software



The RapidZone Solution configures constant volume single zone HVAC equipment and a series of dampers to maintain the desired temperature for up to 18 separate zones per roof top unit (RTU). Each project can have up to 50 RTU subsystems. Each zone is capable of having an adjustable setpoint, a programmable time-of-day schedule for each day of the week, and an independent unoccupied override input. The system satisfies the space temperature setpoints by first reading the space temperature deviation from setpoint for each zone, then energizing heating or cooling in the HVAC unit and controlling the position of a supply damper ducted to each zone. Individual zone dampers modulate open and closed based on the zone temperature versus setpoint and the temperature of the RTU discharge air (heating or cooling).

- The fastest way to a commercial zoning system.
- Configure and commission an average multiple Rooftop unit job in less than 60 minutes.
- Ease of use allows a Controls 'Novice' to successfully configure a commercial zoning system.
- Produces customized wiring diagrams that clearly define the wiring of every controller input and output.
- This reduces installation mistakes in the field and improves ease of future trouble-shooting.
- Flexibility to configure up to 10 different Rooftop systems with up to 18 zones per Rooftop unit, and up to 40 single-zone controllers.
- Roll over help text aids users in the configuration process.
- Ability to replicate similar Rooftop systems and/or Zones simplifies configuration process.
- Gives a complete materials checklist after the configuration process is completed.

Application Size: Software
Building Management Interface: RapidZone
Network Communications: LonWorks Bus

Product Number	Description	System Requirements
ZL7751A1029	RapidZone 3.0	16 MB RAM, 40 MB disk drive, 90MHz Pentium microprocessor, Microsoft Windows 2000 or XP

Q7770 RapidLink



The Excel 10 Q7770A RapidLink device is a complete network interface unit for a FTT LonWorks® Bus network. RapidLink is equipped with an on-board modem that eliminates the requirement for an on-site modem for remote connections. The Q7770A uses 9 to 24 Vac or Vdc, 9 Vdc power supply using removable screw terminals or a 9 Vdc barrel connector to perform network operations. A connector cable attaches the Q7770A to the LonWorks-Bus port on Excel 10 controllers or wall modules.

- High performance communications protocol provides for faster communication of data to your LonWorks network.
- Fixed 115,200 bits per second (bps) serial bit rate with auto-baud detection.
- Uses LonTalk® LonWorks® network protocol.
- 9 to 24 Vac or Vdc power input using removable screw terminals or a 9 Vdc barrel connector.
- Color-coded, removable screw terminals for network and power wiring.

Building Management Interface: LonWorks Bus
Network Communications: LonWorks Bus

Product Number	Description	Application	Commissioning Software	Operating Temperature Range		Comments
				(F)	(C)	
Q7770A1001	RapidLink Dial Up Network Adapter	Interface	—	32 F to 100 F	0 C to 38 C	Transceiver Type: Transformer isolated, differential Manchester transceiver Display Two service LEDs indicate service request information for each segment; Status LED indicates when network traffic is occurring;
50000591-001	RapidLink Accessory Kit (U.S.)	Accessory or Replacement Part	LCBS	—	—	—

Light Commercial Building Systems

W7760A Excel 15 Controller



The Excel 15 W7760A Building Manager is a LonMark® compliant device that can be used to monitor and control HVAC equipment and other miscellaneous loads in a distributed network. The optional lithium battery (not included, purchased locally) allows continuous power so trend logs and alarms can be maintained for up to four continuous years. The W7760A Building Manager communicates via the 78 kilobaud Echelon® LonWorks® Network, using a free topology transceiver (FTT).

Dimensions, Approximate: 6 5/32 in. high x 10 19/32 in. wide x 3 7/32 in. deep (156 mm high x 259 mm wide x 82 mm deep)

Application: Heat Pump Systems; Boiler; Chiller; Packaged RTU; Built-up AHU

Application Size: 20 Nodes

Building Management Interface: LonStation

Network Communications: LonWorks Bus

Commissioning Software: RapidZone; LonSpec

Frequency: 50 Hz; 60 Hz

- Programmable control of mechanical equipment and auxiliary points.
- Configurable inputs/outputs are expandable with up to three Excel 10 Remote Input/Output (RIO) devices.
- 6 General Purpose Configurable (PID) Control Loops.
- 6 General Purpose Configurable (Non-Linear) Control Loops.
- 8 Start/Stop Control Loops (max of 6 events per day).
- Easy Programming the LonSpec Software. Two piece construction for easy installation.
- Easy access to all I/O points for checkout while operations.
- LonTalk® Network communication protocol.
- LonWorks® Free Topology Transceiver (FTT).
- Adaptive Intelligent Recovery.
- Set-Point reset.
- Remote Equipment Monitoring and Control.
- 8 schedules of five different occupancy states (when used with a W7760A Building Manager).
- Demand Limit Control (from a W7760 Building Manager).

Power Consumption: 20 VA (with no DOs), 100 VA (with DOs)

Operating Temperature Range: 32 F to 113 F (0 C to 45 C)

Shipping Temperature Range: -4 F to +158 F (-20 C to +50 C)

Approvals:

Federal Communications Commission: Listed Part 15 Subpart J.

Class A EC Conforms to European Standards

Underwriters Laboratories, Inc. UL and cUL listed UL916 as a Class 2 device

Product Number	Description	I/O Count	Output Type	Used With	Comments
W7760A2011	Excel 15 building manager	4 DI, 8 AI, 8 DO, 2 AO	Analog/Modulating, Staged On/Off, Floating, Pulse Width Modulation	S7760A Command Display; LonWorks bus	Can also be used to provide timekeeping abilities to the Excel 15C

W7760B Excel 15 Controller



The Excel 15 W7760B Building Manager is a Light Commercial Building Solution (LCBS) operator interface (network server) and LONWORKS® Bus supervisory device. As an operator interface, it connects the user to the Internet, local area network (LAN), or wide area network (WAN) providing multi-user access to web pages for Building Manager configuration and LCBS monitoring and command functions. As a building manager, it uses LONWORKS® to provide network wide alarm handling, scheduling, and trend logging for application specific XL10 controllers and Excel 15 W7760C Plant controllers. The W7760B is a network server/appliance equipped with a hard drive. The use of a hard drive greatly expands alarm handling, scheduling, and logging

Dimensions, Approximate: 6 5/32 in. high x 10 19/32 in. wide x 3 7/32 in. deep (156 mm high x 259 mm wide x 82 mm deep)

Application: Heat Pump Systems; Boiler; Chiller; Packaged RTU; Built-up AHU

Application Size: 120 nodes

Building Management Interface: Excel 15B

Network Communications: LonWorks Bus

Frequency: 50 Hz; 60 Hz

Power Consumption: 20 VA

capabilities when compared to EPROM/RAM based control devices. The W7760B is configured using built-in utilities. It queries the LONWORKS® network to determine the devices installed and self-configures display pages for each supported device.

- Internet Network appliance with hard drive.
- Supports up to 120 Excel 10 and Excel 15 W7760C controllers.
- Self-discovery of devices (nodes) on the LONWORKS® network.
- Automatically creates a Device Status List (DSL).
- Automatically creates display pages for each supported Excel 10 and Excel 15 W7760C controller.
- Automatically configures Trends Log for supported Excel 10 and Excel 15 W7760C controller.
- Up to 100 user configured Trend Logs.
- Scheduling of Excel 10 devices and Excel 15 W7760C objects.
- Reports and logs alarm data.
- E-mails reports of alarm data.
- View Excel 10 and Excel 15 W7760C data, modify setpoints and command Occupied bypass.
- Real Time Clock (RTC) for time stamping with time synchronization.
- Multi-user access.

Operating Temperature Range: 41 F to 95 F (5 C to 35 C)

Operating Humidity Range (% RH): 10% to 85% noncondensing

Shipping Temperature Range: -4 F to +149 F (-20 C to +65 C)

Approvals:

Federal Communications Commission: Listed Part 15 Subpart J.

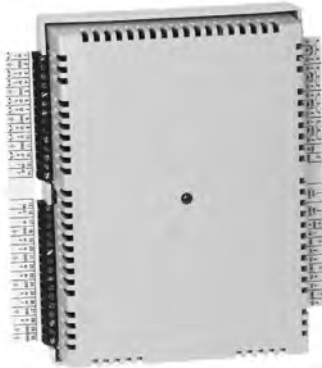
Class A EC Conforms to European Standards

Underwriters Laboratories, Inc. UL and cUL listed UL916 as a Class 2 device

Product Number	Description	System Requirements	Output Type	Used With	Comments
W7760B2001	Excel 15 building manager	Internet Explorer 5.5 or higher	Staged On/Off, Graphical Interface, Floating, Pulse Width Modulation, Analog/Modulating	S7760A Command Display; LonWorks bus	Can also be used to provide timekeeping abilities to the Excel 15C

Light Commercial Building Systems

W7760C Excel 15 Controller



The Excel 15 W7760C Plant Controller is used to monitor and control HVAC equipment and other miscellaneous loads in a distributed network. The W7760C Plant Controller communicates via the 78 kilobaud LonWorks Network, using a free topology transceiver (FTT).

- Programmable control of mechanical equipment and auxiliary points.
- Configurable inputs/outputs are expandable with up to three Excel 10 Remote Input/Output (RIO) devices.
- Eight digital inputs, eight analog inputs.
- Eight optically isolated digital outputs, six 0-20 mA analog outputs.
- Easy programming with LonSpec software.
- Two-piece construction.
- Easy access to all I/O point for check-out while operational.
- LonTalk Network communication protocol.
- LonWorks Free Topology Transceiver (FTT).

Dimensions, Approximate: 7 1/2 in. high x 5 1/4 in. wide x 1 15/16 in. deep (191 mm high x 133 mm wide x 49 mm deep)

Application: Heat Pump Systems; Boiler; Chiller; Packaged RTU; Built-up AHU

Building Management Interface: LonStation

Network Communications: LonWorks Bus

Voltage: 24 Vac

Frequency: 50 Hz; 60 Hz

Power Consumption: 18 VA max, with no DOs

Operating Temperature Range: -40 F to +150 F (-40 C to +65 C)

Shipping Temperature Range: -4 F to +122 F (-20 C to +50 C)

Approvals:

Federal Communications Commission: Listed: Part 15 Subpart J, Class A: European Community Mark: Conforms to European Consortium standards

Underwriters Laboratories, Inc. UL/cUL Listed: UL916 (E14480)

Product Number	Description	Commissioning Software	I/O Count	Output Type	Used With	Comments
W7760C2017	Excel 15C Plant Manager	RapidZone; LonSpec	8 AI, 6 AO, 8 DI, 8 DO	Analog/Modulating, Pulse Width Modulation, Staged On/Off	S7760A Command Display; LonWorks bus	Designed to be used with the Light Commercial building solution. Requires a W7760A be connected to the LonWorks bus in order to have scheduling information

S7760 Excel 15 Command Display



The S7760A Command Display provides local display of system variables and alarms in a LonWorks® network. The S7760A Command Display also allows the user to modify setpoints, schedules and basic system parameters and acknowledge alarms. Multi-level password protection prevents unauthorized access. Easy navigation between building and room views allow users to easily perform the most common tasks.

- Attractive wall-mount packaging.
- Backlit LCD display; 8 lines high by 40 characters wide.
- Two-piece construction for easy installation.
- 10-key keypad for menu-item selection.
- Audible beep when keys are pressed.
- Several layers of display screens provide different views: Buildings, Rooms, Schedules and Setpoints.
- Local display allows setpoint and schedule changes and alarm acknowledgment. Password protected with View Only, Bypass, Setpoint and Schedule levels.
- Cost-effective interface to local HVAC system.
- Low-cost LonWorks' communications wiring using a Free Topology Transceiver (FTT).

Dimensions, Approximate:

7 3/4 in. wide x 4 3/4 in. high x 1 9/16 deep; Subbase 3 3/8 in. wide x 3 3/8 in. deep (187 mm wide x 121 mm high x 40 mm deep; Subbase 86 mm wide x 86 mm high)

Application Size: Small (<20 I/O Points)

Building Management Interface: LonSpec; RapidZone

Voltage: 20-30 Vac

Frequency: 50 Hz; 60 Hz

Operating Temperature Range: 32 F to 120 F (0 C to 45 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Approvals:

CE: CE mark; EN50081-1; EN50082-1

Federal Communications Commission: Meets FCC part 15 class B requirements; Listed Part 15 Subpart J. Class A EC Conforms to European Standards

Approvals, Underwriters Laboratories Inc. UL and cUL listed UL916 as a Class 2 device

Product Number	Application	Description	Network Communications	Used With
S7760A2031	LonWorks network	Excel 15 Command Display	LonWorks Bus	Command Display; Excel 15 Controllers; Excel 10 Controllers

W7750 Constant Volume Air Handling Unit



The W7750A, B, C are LonMark® compliant Constant Volume Air Handling Unit Controllers used to control single zone and heat pump air handlers.

- High side triac switching (B and C only).
- Freezestat protection for HVAC equipment (B and C only).
- Analog outputs (C only).

Dimensions, Approximate: 5 5/8 in. high x 6 in. wide x 2 1/8 in. deep
(143 mm high x 152 mm wide x 54 mm deep)

Application: Heat Pump Systems; Packaged RTU

Application Size: 3 Heat/3 Cool

Network Communications: LonWorks Bus

Commissioning Software: LNS Plug-in; RapidZone; LonSpec; CARE

Contact Ratings: 7.5 A inrush @ 24 Vac; 1.5 A Run @ 24 Vac

Voltage: 24 Vac

Frequency: 50 Hz; 60 Hz

Operating Temperature Range: -40 F to +150 F (-40 C to +66 C)

- Factory configured via EEPROM with critical user parameter default values.
- Uses LonTalk® network (E-Bus) communications protocol.
- High-speed 78 kilobit communications network.
- Conforms with Echelon® LonMark® HVAC Interoperability standard for Roof Top Unit controllers (profile number 8030).
- Free Topology Transceiver (FTT) network technology is insensitive to polarity, simplifying installation.
- Capable of stand-alone operation and has enhanced features available when using the E-Bus network communications.
- Designed for both staged heating/cooling control and modulating heating/cooling control.
- Uses either Series 60 Floating Control or PWM (W7750B only) providing modulating control for heating/cooling equipment.
- Supports two types of economizer control: modulating control and enable/disable control.
- Provides Proportional Integral Derivative (PID) temperature control.
- Uses an adaptive algorithm (patent pending) that continuously adjusts the discharge air setpoint as needed (W7750B only).
- Motion sensor interface for enhanced energy savings.
- Window sensor input for additional energy savings.

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Setpoint Temperature Range: 45 F to 99 F (7 C to 37 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Approvals:

CE: CE Mark

Federal Communications Commission: Meets FCC part 15 Class B requirements EC Conforms to EN50081-1 (CISPR 22 Class B) and EN50082-1

Underwriters Laboratories, Inc. UL 916 (E7741) and cUL (E87741)

Product Number	Description	I/O Count	Power Consumption	Output Type	Used With
W7750A2005	Constant Volume AHU Controller	6 DOs (relay), 3 AI, 3 DI	6 VA	Staged On/Off, Floating, Pulse Width Modulation	See Application Selection Guide (63-7046)
W7750B2011	Constant Volume AHU Controller	6 AI, 5 DI, 8 DOs (triac)	12 VA	Staged On/Off, Floating, Pulse Width Modulation	See Application Selection Guide (63-7046)
W7750C2001	Constant Volume AHU Controller	3 AO, 6 AI, 5 DI, 5 DOs (triac)	12 VA	Staged On/Off, Floating, Pulse Width Modulation	See Application Selection Guide (63-7046)

Light Commercial Building Systems

W7751 Variable Air Volume Controllers



W7751B



W7751E



W7751H, J



W7751D, F

- Uses Echelon® LonWorks® protocol.
- W7751B,D,F use Free Topology Transceiver (FTT) networks and are compliant with VAV device object type number 8010 functional LonMark® profile.
- Energy saving setpoint reset for electrical demand limit control.
- Actuator included with W7751H mounts directly onto VAV box damper shaft and has up to 35 lb. in. torque, 90 degrees stroke, and 90 sec.
- Timing at 60 Hz.
- High speed 78 kilobit communications network.
- Capable of standalone operation, but uses E-Bus network communications.
- Easy user-access to the network communications jack.
- Uses enhanced microbridge-type airflow sensor with dual integral restrictor design.
- Easy user-access to airflow sensor inputs.
- Provides Proportional Integral Derivative (PID) temperature control.
- Designed for pressure independent Variable Air Volume (VAV) control.
- Floating hot water and three-stage electric or modulating hot water heat.
- Provides nonlinear floating algorithm for velocity control loops.
- Individual zone pressurization for supply and exhaust control.
- Factory configured via EEPROM with critical user parameters default values.
- Motion sensor interface for enhanced energy savings.
- Supports Terminal Regulated Air Volume (TRAV) concept.
- Pressurize and depressurize, night purge, and morning warm-up sequences supported.
- Wall module options for sensor, setpoint and bypass.
- Software selectable limits on remote setpoint adjustments.
- Three

The W7751B,D and F are VAV II Controllers in the Excel 10 family product line. These VAV controllers provide pressure independent or pressure dependent air flow control and series and parallel (induction) fan control using single and dual duct applications. VAV systems generally provide cool air only to the zones. The W7751 controllers provide additional outputs that control VAV box reheat coils. The heaters can be staged electric or modulating hot water. Supply and exhaust pressurization control are provided on a zone basis. W7751H and J Smart VAV Actuator are factory-integrated VAV Box Controllers with a 90 second ML6161B Direct-Coupled Actuator in the Excel 10 family product line.

Application: VAV Terminal Box

Network Communications: LonWorks Bus

Voltage: 24 Vac with a valid range of 20 to 30 Vac

Frequency: 50 Hz; 60 Hz

Output Type: Pulse Width Modulation, Floating, Staged On/Off

Operating Temperature Range: 32 F to 125 F (0 C to 51.66 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Setpoint Temperature Range: 45 to 99 F (7 to 37 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Compatible with: See Application Selection Guide (63-7045)

Approvals:

Canadian Standards Association: Listed: File number LR95329-3

CE: UL916

Federal Communications Commission: Meets FCC part 15 Class A requirements

Underwriters Laboratories, Inc. File number E87741

Product Number	Description	Building Management Interface	Commissioning Software	Power Consumption	Comments	Includes
W7751B2010	Excel 10 VAV II Controller Printed Wiring Board	—	LNS Plug-in; RapidZone; LonSpec; CARE	10 VA	Mountable on Snaptrack	—
W7751D2016	Excel 10 VAV II Controller	—	LNS Plug-in; RapidZone; LonSpec; CARE	10 VA	Internally wired subbase, UUKL approval for use on fire systems	—
W7751E1007	Excel 10 series 1000 VAV controller	LonStation; Excel Building Supervisor (XBS)	CARE	—	Mounted to standard 4 x 4 in. and 5 x 5 in. junction boxes or snapped to 35 by 7.5 mm EN50 022 DIN Rail. Subbase provides the slotted hole pattern for the R7450 series IRC devices (118x87 mm)	—
W7751F2011	Excel 10 VAV II Controller	—	LNS Plug-in; RapidZone; LonSpec; CARE	10 VA	Externally wired subbase, UUKL approval for use on fire systems	—
W7751G1003	Excel 10 series 1000 VAV controller	LonStation; Excel Building Supervisor (XBS)	CARE	—	Mounted to standard 4 x 4 in. and 5 x 5 in. junction boxes or snapped to 35 by 7.5 mm EN50 022 DIN Rail. Subbase provides the slotted hole pattern for the R7450 series IRC devices (118x87 mm)	—

Light Commercial Building Systems

Product Number	Description	Building Management Interface	Commissioning Software	Power Consumption	Comments	Includes
W7751H2025	Excel 10 Smart VAV Actuator	—	LNS Plug-in; RapidZone; LonSpec; CARE	6 VA	UUKL approval for use on fire systems	ML6161 Actuator mounted directly on the VAV box
W7751J2004	Excel 10 Smart VAV Actuator	—	LNS Plug-in; RapidZone; LonSpec; CARE	6 VA maximum	Does not have pressure sensor, supports pressure dependent only	ML6161 Actuator mounted directly on the VAV box

W7751 Variable Air Volume Handling Unit

Product Number	Application	Description	Used With
206168B	XL10	Controller Assembly for W7751F or D, (Bulk pack only, must be purchased in packs of 10)	Excel 10 Controllers

W7752 Fan Coil Unit Controllers



Dimensions, Approximate:

4 1/8 in. high x 10 1/8 in. wide x 2 1/2 in. deep
(101 mm high x 257 mm wide x 60 mm deep)

Application: Fan Coil Unit

Application Size: 3 Heat/3 Cool; 2-pipe; 4-pipe

Network Communications: LonWorks Bus

Commissioning Software: LNS Plug-in; RapidZone; LonSpec; CARE

Voltage: 115 Vac (+10%, -15%)

Frequency: 50 Hz; 60 Hz

Power Consumption: 30 VA maximum

The W7752 Fan Coil Unit Controllers provide room temperature control for two and four pipe fan coil units with optional electric heating coils and can control single, two or three speed fans.

Timing and inter-lock features make the W7752 suitable for systems using electric heat and compressors.

- LonMark® Fan Coil Unit HVAC profile #8020.
- Stand-alone operation or on high-speed 78 kilobit Echelon® Bus (E-Bus) network direct connection of thermal actuators, fan switch, electric heat.
- Factory-configured default parameters.
- Wide range of supported valves and actuators.
- Interlocks and time delays to protect equipment.
- Slim design fits into narrow fan coil units.
- Terminations all on one side allow controller to be positioned at back of fan coil unit.
- Integral 115 Vac or 230 Vac transformer.

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Setpoint Temperature Range: 32 F to 104 F (0 C to 40 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +70 C)

Used With: See Application Selection Guide (63-7043)

Approvals:

CE: CE mark; EN50081-1; EN50082-1

Federal Communications Commission: Meets FCC part 15 class B requirements

Product Number	Description	I/O Count	Output Type	Comments	Includes
W7752D2007	Fan Coil Unit Controllers	3 AI, 1 DI, 1 DO (3 speed fan control), 2 AO (H/C triacs), 1 DO	Staged On/Off, Floating, Pulse Width Modulation	115 Vac power with electric heat relay	250 Vac 10A electric reheat relay and 3 fan speed relays
W7752F2002	Fan Coil Unit Controllers	3 AI, 1 DI, 1 DO (3 speed fan control), 2 AO (H/C triacs), 1 DO	Staged On/Off, Floating, Pulse Width Modulation	115 Vac power with electric heat relay	250 Vac 10A electric reheat relay and 3 fan speed relays
W7752G2000	Fan Coil Unit Controllers	3 AI, 1 DI, 1 DO (3 speed fan control), 2 AO (H/C triacs), 1 DO	Staged On/Off, Floating, Pulse Width Modulation	115 Vac power without electric heat relay	3 fan speed relays

Light Commercial Building Systems

W7753 Unit Vent Controllers



W7753A is a direct digital controller for unit ventilators with staged, floating, or pulse width modulation output using pre programmed heating, cooling, economizer, and ASHRAE cycles I, II, or III algorithms.

Dimensions, Approximate: 5 5/8 in. high x 6 in. wide x 2 1/8 in. deep
(143 mm high x 152 mm wide x 54 mm deep)

Application: Unit Ventilator

Application Size: 2 Heat/2 Cool

Network Communications: LonWorks Bus

Commissioning Software: LNS Plug-in; RapidZone; LonSpec; CARE

Frequency: 50 Hz; 60 Hz

Power Consumption: 6 VA

- Uses standard Echelon® LonMark Unit Ventilator functional profile for openness and interoperability with Lon Mark devices.
- Applications include unit ventilators with up to two stages heat/cool; floating heat/cool/economizer, pulse width modulating (PWM) heat/cool/economizer; ASHRAE Cycles I, II, III.
- Two unused digital outputs can be used as free points controlled by the network for lighting, exhaust fan.
- Can be used for indoor air quality control using an external sensor/control and economizer minimum position reset.
- Provides optional energy-saving setpoints for heating/cooling in unoccupied/occupied and standby modes.
- Optional control sequence shutdown via window/door open digital input.
- On-board network jacks for quick commissioning and troubleshooting using the E-Vision configuration tool.
- On-board status LED.
- Free topology transceiver (FTT) for flexible installation.
- UL94-5V flame-retardant construction.

Setpoint Temperature Range: 55 F to 85 F (13 C to 29 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Approvals:

Federal Communications Commission: FCC part 15 Class B requirements

Underwriters Laboratories, Inc. UL 916

Product Number	Description	I/O Count	Output Type	Used With	Comments
W7753A2002	Unit Ventilator Controller	8 DOs (triac), 2 AI (resistive), 2 AI (voltage), 4 DI	Staged On/Off, Floating, Pulse Width Modulation	See Application Selection Guide (63-7044)	One T7770 wall module input

W7761 Remote Input/Output Device



Dimensions, Approximate: 5 5/8 in. high x 6 in. wide x 2 1/8 in. deep
(143 mm high x 152 mm wide x 54 mm deep)

Application: Remote I/O

Application Size: 2 Heat/2 Cool

Network Communications: LonWorks Bus

Voltage: 24 Vac with a valid range of 20 to 30 Vac

Frequency: 50 Hz; 60 Hz

Power Consumption: 6 VA maximum

Operating Temperature Range: -40 F to +150 F (-40 C to +65 C)

The W7761 extends the distribution of input and output devices across an Echelon network.

- Each input/output is individually controlled from the Zone Manager.
- Uses Echelon LonTalk® communication protocol.
- Free topology transceiver (FTT) for flexible installation.
- On-board network jacks.
- On-board status LED.
- Flame retardant construction (UL94-V5 rated).

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Approvals:

Canadian Standards Association: CSA, TUV for Safety Compliance
CE: CE Mark

Federal Communications Commission: Listed under FCC Part 15 Level B for EMI compliance

Underwriters Laboratories, Inc. Listed 1784

Product Number	Description	Commissioning Software	I/O Count	Output Type	Comments
W7761A2010	Excel 10 Remote IOD	LNS Plug-in; RapidZone; LonSpec; CARE	2 AI (voltage), 4 AI (resistive), 4 DI, 8 DOs (triac)	Staged On/Off, Floating, Pulse Width Modulation	UUKL approval for use on fire systems

Light Commercial Building Systems

W7762; W7763 Hydronic Controller



W7762



W7763

The W7763 Hydronic controllers cover a wide range of control applications including radiators, induction units, fan coil units with manual fan switching, and simple VAV. They are suitable for unit mounting or wall mounting. Controllers operate standalone or as a part of a LonWorks bus network. Has connections for humidity sensor and chilled water temperature sensor. Includes temperature setpoint knob, internal sensor, and bypass button.

- High efficiency, low cost Heat/Cool valve application solution.
- Model with integrated or remote wall module LonWorks Open protocol: flexibility now and for the future.
- LonMark profile #8020.
- Direct connection of thermal actuators.
- Wide range of supported valves and actuators.

Dimensions, Approximate: 3 5/32 in. high x 4 11/32 in. wide x 1 21/32 in. deep (80 mm high x 110 mm wide x 42 mm deep)

Application: Hydronic Controller

Application Size: 3 Heat/3 Cool; 2-pipe; 4-pipe

Network Communications: LonWorks Bus

Voltage: 24 Vac ± 20%

Frequency: 50 Hz; 60 Hz

Power Consumption: 0.5 VA maximum (no load)

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Setpoint Temperature Range: 32 F to 158 F (0 C to 70 C)

Shipping Temperature Range: -4 F to +158 F (-20 C to +70 C)

Approvals:

Canadian Standards Association: Listed: File No. LR95329-3

Underwriters Laboratories, Inc. Component Recognized: File No. SA481

Product Number	Description	Commissioning Software	Output Type	Comments	Includes
W7762B1027	Excel 10 Hydronic Controller	LNS Plug-in; RapidZone; LonSpec; CARE	Multi-stage Electric; Pulse Width Modulation; Floating; Staged On/Off	2 inputs and 2 control outputs	—
W7763C1016	Excel 10 Hydronic Controller	LNS Plug-in; RapidZone; LonSpec; CARE	Floating, Pulse Width Modulation, Staged On/Off, Multi-stage Electric	3 Inputs, 2 Control Outputs	An integral setpoint knob, sensor, bypass button, and LED
W7763C1032	Excel 10 Hydronic Controller	LNS Plug-in; CARE	Floating, Pulse Width Modulation, Staged On/Off, Multi-stage Electric	Relative Setpoint Adjustment	An integral setpoint knob, sensor, bypass button, and LED

Y7751-W7751F VAV Unit Controller and ML6161B Actuator



The W7751F2003 VAV II Controller is from the Excel 10 family product line. VAV controllers provide pressure independent or pressure dependent air flow control and series and parallel (induction) fan control using single and dual applications. The W7751F controllers provide additional outputs that control VAV box reheat coils. The ML6161B2024 is used to control dampers in VAV terminal units and for mounting on ball valves.

- Uses Echelon LonWorks Protocol.
- High Speed 78 kilobit communications network.
- Easy user-access to the network communications jack.
- Easy user-access to the airflow sensor inputs.
- Provides Proportional Integral Derivative (PID) temperature control.
- Designed for pressure independent Variable Air Volume (VAV) control.
- Floating hot water and three-stage electric or modulating hot water heat.
- Provides nonlinear floating algorithm for velocity control loops.
- Factory configured via EEPROM with critical user parameters default values.
- ML6161B2024 is a Direct Couple, General Purpose, Non-Spring Return Actuator.
- Rated at 35 lb-in. torque with a 90 degree stroke.

Building Management Interface: EBI; SymmetrE; ACSELOn

Product Number	Application	Description	Network Communications	Commissioning Software	Includes
Y7751F2001	VAV Controller with FFT base with enclosure and outward facing terminal strips	Package containing a W7751F VAV Controller and a ML6161 Actuator	LonWorks Bus	LNS Plug-in; RapidZone; LonSpec; CARE	One W7751F 2003 and one ML6161B 2024

Legacy Building Systems

Q667 Switching Subbase



Provide manual switching for T7067 Thermostat/Transmitters.

- Mount directly on wall or on vertical 2 x 4 in. outlet box.
- T7067 mounts on subbase with mounting screws which also complete electrical connections between thermostat/transmitter and subbase.
- When fan switch is set to AUTO, the fan is intermittent in HEAT and continuous in system AUTO or COOL.

Dimensions, Approximate: 4 3/4 in. high x 3 15/16 in. wide x 15/16 in. deep (121 mm high x 100 mm wide x 24 mm deep)

Power Consumption: 1A at 24 Vac Full Load

Product Number	Application	Switch Positions		Comments	Used With
		System	Fan		
Q667A1005	Heat Pump Systems, Split Systems	HEAT-OFF-COOL-AUTO	AUTO/ON	Number of stages of heating and cooling depends on the chosen Logic Panel	T7067
Q667B1004	Heat Pump Systems, Split Systems	HEAT-OFF-COOL-AUTO	AUTO/ON	Number of stages of heating and cooling depends on the chosen Logic Panel	T7067
Q667B1020	Heat Pump Systems, Split Systems	HEAT-OFF-COOL-AUTO	AUTO/ON	Provides intermittent fan operation in cooling when used with W974B	T7067
Q667C1003	Single Stage Subbase	COOL/AUTO/HEAT/EM.HT.	AUTO/OFF; OFF position shuts off entire system	—	T7067

T7067 Thermostat and Transmitter



T7067A Thermostat and T7067B Transmitter control space temperature when used with W973 Logic Panel.

- Separate heat and cool adjustable set point levers provide adjustable deadband from 3 F to 30 F (2 C to 17 C).
- Separate 1-16 Vdc voltage ramps provide independent heating and cooling signals to W973 Single Zone Logic Panel.
- Two light-emitting diodes (LEDs) under T7067 cover for system checkout.
- C7046A Discharge Air Sensor provides temperature anticipation.
- One T7067 can control up to 6 W973 panels in parallel.
- Mount on standard 2 x 4 in. vertical outlet box or on a non-conductive flat surface.
- All models include wiring plate and locking cover.

Application: Module

Application Size: Depends on Logic Panel (W973)

Control System: W973 single zone

Output Type: Voltage Ramp

Dimensions, Approximate: 4 5/8 in. high x 2 13/16 in. wide x 1 1/4 in. deep (118 mm high x 71 mm wide x 32 mm deep)

Voltage: 20 Vdc from W973 panel

Setpoint Temperature Range: 55 F to 85 F (13 C to 29 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Compatible With: Q667 subbase, W973 Logic Panel

Approvals:

ASHRAE Guidelines: Meets ASHRAE 90-75

Department of Defense Guidelines: Meets

Accessories:

S963D1001 2 Potentiometers that simulate the ramp signals of a T7067 Thermostat

Product Number	Description	Comments
T7067A1008	Solid State Thermostat designed to be used with the W973 logic panel to control the operation of single zone packaged air conditioning equipment.	Integral temperature sensor without thermometer; Number of stages of heating and cooling depends on the chosen Logic Panel
T7067B1006	Transmitter designed for use with a T7047C1025 or T7022A1010 remote temperature sensor	Must order T7047C,G remote temperature sensor or T7022A remote duct temperature sensor separately

T7080 Electronic Dual Setpoint Thermostat



Used in W7080 control system to provide modulating space temperature control.

- Separate heat and cool adjustable set point levers provide adjustable deadband from 3 F to 30 F (2 C to 17 C).
- Single 2 to 22 Vdc voltage ramp provides heating/cooling signal to W7080 Load Analyzer.
- Outputs constant 12 Vdc when sensed temperature is within deadband range.
- Ramp output decreases on call for heat; increases on call for cooling.
- C7100B or C7046B Air Temperature Sensors are used to provide heating/cooling anticipation (one required for each zone thermostat) and can also be optionally used as remote return air temperature sensors with the T7080B transmitter.
- Operates on 24 Vdc supplied by W7080A Load Analyzer.
- Mounts on standard 2 x 4 in. outlet box or on nonconductive flat surface.

Dimensions, Approximate: 4 5/8 in. high x 2 13/16 in. wide x 1 1/4 in. deep (118 mm high x 71 mm wide x 32 mm deep)

Voltage: 24 Vdc (13 C to 29 C)

Setpoint Temperature Range: 55 F to 85 F

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Approvals:

ASHRAE Guidelines: Meets ASHRAE 90-75

Department of Defense Guidelines: Meets

Product Number	Application	Application Size	Control System	Output Type
T7080A1019	Split System, Furnace, Packaged RTU	3 Heat/3 Cool	W7080 control system	Voltage Ramp
T7080B1017	Split System, Heat Pump Systems, Furnace, Packaged RTU	3 Heat/3 Cool	W7080 control system	Voltage Ramp

W7080 Load Analyzer



Controls heating, cooling and space demand oriented economizer operation in the Honeywell Electronic Dual Set point Multizone control system.

- Controls 3 stages of on/off heating, modulated heating, modulated economizer, 3 stages of on/off cooling and modulated cooling.
- Responds to highest heating and cooling demand signal from up to 12 T7080 Zone Thermostat/Transmitters.
- Analyzer is short-circuit protected source of 24 Vdc power for zone thermostat/transmitter, sensor and W7081A Limit Controller Package.
- Switches all stages off when power is interrupted; switches stages on when power is restored.
- Compressor turn-on time delays must be incorporated for each compressor.
- No adjustment or calibrations required.
- Night setback and cooling shutdown for individual or all zones by addition of time-clock.
- Mounts with 4 No. 8 Screws (not provided) through holes in base.

Dimensions, Approximate: 6 1/4 in. high x 4 1/8 in. wide x 2 5/16 in. deep (159 mm high x 105 mm wide x 59 mm deep)

Contact Ratings: NO 240 VA inrush @ 24 Vac, 60 VA running @ 24 Vac; NC 75 VA inrush @ 24 Vac, 30 VA running @ 24 Vac

Electrical Connections: 1/4 in. quick-connect male terminals

Voltage: 24 Vdc

Frequency: 60 Hz; 50 Hz

Operating Temperature Range: -40 F to +150 F (-40 C to +65 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Compatible With: T7080 Thermostat

Approvals:

ASHRAE Guidelines: Meets ASHRAE 90-75

Canadian Standards Association: Component Recognized

Department of Defense Guidelines: Meets

Underwriters Laboratories, Inc. Component Recognized

Product Number	Application	Application Size	Control System	Comments
W7080A1016	Split System, Furnace, Packaged RTU	3 Heat/3 Cool	W7080 control system	Load analyzer provides control of On/Off and modulated cooling and modulated economizer functions

Legacy Building Systems

W7081 Limit Controller



Dimensions, Approximate: 6 1/4 in. high x 4 1/8 in. wide x 2 5/16 in. deep (159 mm high x 105 mm wide x 59 mm deep)

Electrical Connections: 1/4 in. quick-connect male terminals

Power Consumption: 0.29 VA maximum

Operating Temperature Range: -40 F to +150 F (-40 C to +65 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Used with W7080A Load Analyzer to provide cold deck low limit, hot deck high limit, and economizer/mixed air low limit functions.

- Limits the maximum and minimum temperatures of the hot and cold deck and of the mixed air by supplying modified demand signals to the W7080A Load Analyzer and to the economizer.
- The positive limits stabilize deck temperatures under light load conditions providing greater comfort and reducing energy usage.
- Has jumper selectable set points for each of its 3 functions.
- Compact to fit easily in HVAC system control panel.
- Mounts with 4 No. 8 screws (not provided) through holes in base.

Approvals:

ASHRAE Guidelines: Meets ASHRAE 90-75

Canadian Standards Association: Component Recognized

Department of Defense Guidelines: Meets

Underwriters Laboratories, Inc. Component Recognized

Product Number	Application	Application Size	Control System	Compatible with:
W7081A1015	Split System, Heat Pump Systems, Furnace, Packaged RTU	Small (<20 I/O Points)	W7080 control system	W7080 Load analyzer

W7100A,C Discharge Air Temperature Controller



Dimensions, Approximate: 8 5/8 in. high x 6 1/2 in. wide x 3 in. deep (219 mm high x 161 mm wide x 76 mm deep)

Contact Ratings:

- NO 240 VA inrush @ 24 Vac, 60 VA running @ 24 Vac
- NC 75 VA inrush @ 24 Vac, 30 VA running @ 24 Vac
- NO 750 VA inrush @ 120/240 Vac, 75 VA running @ 120/240 Vac
- NC 240 VA inrush @ 40 Vac, 30 VA running @ 24 Vac

Electrical Connections: 1/4 in. quick-connect male terminals

Voltage: 20 to 30 Vac

Frequency: 60 Hz; 50 Hz

Maintain an average discharge air temperature in variable air volume (VAV) systems, or other systems requiring discharge air control of multistage cooling or heating. Reduce kilowatt demand and consumption by maintaining the minimum amount of heating or cooling capacity required to hold the discharge air set point. Utilize economizer for free cooling when available.

- W7100 Controller maintains an average discharge air temperature in variable air volume (VAV) cooling systems by modulating an economizer and sequencing stages of mechanical cooling.
- The W7100 can be applied to electric makeup air and other systems requiring discharge air control of multistage heating or cooling.
- Staging capacity of the W7100A,C can be extended six stages using a W7101A Satellite Sequencer.
- When power is interrupted, the system cycles to all stages off.
- When power is restored, the economizer will first be modulated open (if enthalpy is suitable), then stages of mechanical cooling will be sequenced on.
- If enthalpy is not suitable for economizer operation, the first stage of cooling or heating is energized within five minutes.
- Reset signal from either space sensor or outdoor air sensor.

Power Consumption: 12 VA at 24 Vac, 50/60 Hz (max).

Operating Temperature Range: 40 F to 90 F (4 C to 32 C)

Setpoint Temperature Range: 40 F to 90 F (4 C to 32 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Accessories:

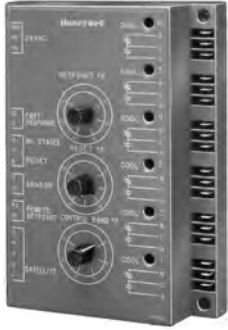
S963B1037 Manual Potentiometer (480 ohm)

S963B1078 Manual Potentiometer (500 ohm)

S963B1128 Manual Potentiometer (135 ohm)

Product Number	Application Size	Control System	Output Type	Comments
W7100A1053	0 Heat/6 Cool	W7100 family	Staged On/Off	Additional stages of heating and cooling can be achieved by adding a W7101 Satellite Sequencer
W7100C1018	2 Heat/4 Cool	W7100 family	Staged On/Off	Additional stages of heating and cooling can be achieved by adding a W7101 Satellite Sequencer

W7100G Discharge Water Temperature Controller



Controls discharge water temperature in reciprocating chiller and cooling tower applications.

- The W7100G maintains average discharge water temperature by staging on and off compressors, unloaders of water tower fans as required.
- Provides up to six stages of cooling.
- Use W7101A for expanding up to 10 cooling stages.
- Advanced proportional plus integral microprocessor control algorithm minimizes droop.
- Soft start to minimize compressor cycling during system start up.
- Adjustable minimum on/off timing and time delay between stages of either 30 or 60 seconds.
- Reset of discharge water temperature based on either outdoor air or space sensor signal.
- Use C7170 Sensor for sensing water temperature.
- LEDs indicate which stages of cooling are energized.
- Use S963B Potentiometer for remote set point capability.

Dimensions, Approximate: 8 5/8 in. high x 6 1/2 in. wide x 3 in. deep (219 mm high x 161 mm wide x 76 mm deep)

Contact Ratings:

- NO 240 VA inrush @ 24 Vac, 60 VA running @ 24 Vac
- NC 75 VA inrush @ 24 Vac, 30 VA running @ 24 Vac
- NO 750 VA inrush @ 120/240 Vac, 75 VA running @ 120/240 Vac
- NC 240 VA inrush @ 40 Vac, 30 VA running @ 24 Vac

Electrical Connections: 1/4 in. quick-connect male terminals
Voltage: 20 to 30 Vac

Frequency: 60 Hz; 50 Hz

Power Consumption: 12 VA at 24 Vac, 50/60 Hz (max).

Operating Temperature Range: -40 F to +150 F (-40 C to +150 F)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Accessories:

- S963B1037 Manual Potentiometer (480 ohm)
- S963B1078 Manual Potentiometer (500 ohm)
- S963B1128 Manual Potentiometer (135 ohm)

Product Number	Application Size	Control System	Output Type	Compatible with:	Comments
W7100G1001	0 Heat/6 Cool	W7100 family	Staged On/Off	W7101 Satellite Expansion Module	4 additional stages of cooling can be added with W7101A

W9076 Digital Temperature Indicator



The W9076 digital temperature indicator provides continuous led (light-emitting diode) digital display of temperature in commercial building applications. Display permits user selection of fahrenheit or celsius readings in the range of -40 F to 199 F (-40 C to 93 C). Several locations can be monitored on the display through suitable switching of additional remote sensors.

- Fahrenheit or Celsius display is field selectable.
- Solid state sensor provides fast response, accurate temperature readings.
- The 3-1/2 digit LED display has 0.3 inch numerals.
- Front mounting permits fast, easy installation.

Application: Monitors temperature in space or ducts, and fluid in hot or cold water pipes

Dimensions, Approximate: 4 9/16 in. high x 1 15/16 wide x 2 3/4 in. deep (116 mm high x 49 mm wide x 70 mm deep)

Contact Ratings: 49 mm dia, 70mm long

Voltage: 24 Vac, +25%, -15%. For each volt above 26 Vac, derate ambient temperature by 5 F (2.8 C)

Frequency: 60 Hz; 50 Hz

Operating Temperature Range: -40 F to +199 F (-40 C to +93 C)

Accessories:

- 107324A Capillary Holder Assembly for duct insertion, 8 3/8 in. long

121371A Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. NPT. Includes mounting clamp.

131524A Capillary Holder Assembly., 8 3/8 in. long, duct insertion

230038A Replacement Faceplate Lens for use with W9076

Replacement Parts:

107324A Capillary Holder Assembly for duct insertion, 8 3/8 in. long

121371A Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. NPT. Includes mounting clamp.

121371E Stainless steel. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 1/2 in. (13 mm) NPT. Includes mounting clamp.

131524A Capillary Holder Assembly., 8 3/8 in. long, duct insertion

Product Number	Description	Comments	Includes	Used With
W9076A1000	Digital Temperature indicator that provides a continuous LED display for temperature (includes sensor)	Solid state sensor usable up to 300 ft (91 m)	194950E Sensor	T7047C1090 Case (for wall mounting the remote sensor), 121371A Immersion Well, 131524A/107324A/311266D Holders for duct mounting sensor, 107408 Heat-inductive compound
W9076A1018	Digital Temperature indicator that provides a continuous LED display for temperature (does not include sensor)	Monitors temperature is space or ducts, and fluid in hot or cold water pipes	—	194950E Sensor, T7047C1090 Case (for wall mounting the remote sensor), 121371A Immersion Well, 131524A/107324A/311266D Holders for duct mounting sensor, 107408 Heat-inductive compound

Legacy Building Systems

W973 Logic Panel



Control heating, cooling and economizer operation in commercial air conditioning and heat pump equipment.

Dimensions, Approximate: 6 1/4 in. high x 4 1/8 in. wide x 2 5/16 in. deep (159 mm high x 105 mm wide x 59 mm deep)

Contact Ratings:

NO 24 VA inrush @ 24 Vac, 60 VA running @ 24 Vac
NC 75 VA inrush @ 24 Vac, 30 VA running @ 24 Vac

Electrical Connections: 1/4 in. quick-connect male terminals

Voltage: 24 Vac

Frequency: 60 Hz; 50 Hz

Power Consumption: 8 VA

- Proven, reliable temperature control.
- Many flexible versions to meet your application needs.
- Panels can be used with staged gas, oil, or electric heat; modulating gas, hot water, or steam heat; and direct expansion or modulating chilled water cooling.
- Control up to 3 on-off heat or cool stages or up to 10 on-off heat and/or cool stages using W975 Satellite Sequencers.
- Modulating dc current signal controls economizer heating or cooling valve motors.
- T7067 Dual Set Point Thermostat/Transmitter located in controlled space provides heating and cooling input signal based on space demand.
- C7046A sensor located in discharge air duct provides heating/cooling anticipation and economizer modulating low limit signal.
- System cycles all stages off on power interruption.
- When power is restored, system sequences required stages on with timed inter-stage delay.

Operating Temperature Range: -40 F to +150 F (-40 C to +66 C)

Shipping Temperature Range: -30 F to +150 F (-34 C to +65 C)

Compatible With: T7067 Thermostat with Q667 subbase

Approvals:

Canadian Standards Association: File No. LR95329-3

Underwriters Laboratories, Inc. Component Recognized: File No. SA481

Product Number	Application	Application Size	Control System	Output Type	Comments
W973A1017	Split System, Heat Pump Systems, Furnace, Packaged RTU	2 Heat/2 Cool	W973 single zone	Staged On/Off	—
W973B1016	Split System, Heat Pump Systems, Furnace, Packaged RTU	3 Heat/3 Cool	W973 single zone	Staged On/Off	Provides modulating heating output and modulating cooling output
W973E1005	Split System, Heat Pump Systems, Furnace, Packaged RTU	0 Heat/4 Cool	W973 single zone	Staged On/Off	—
W973J1017	Split System, Heat Pump Systems, Furnace, Packaged RTU	4 Heat/4 Cool	W973 single zone	Staged On/Off	—

Environmental Control Systems Accessories

Product Number	Description	Used With	
230038A	Replacement Faceplate Lens for use with W9076	W9076	
S963B1003	Manual Potentiometer (360 ohm)	T7022; T7023	
S963B1037	Manual Potentiometer (480 ohm)	—	
S963B1078	Manual Potentiometer (500 ohm)	—	
S963B1086	Manual Potentiometer (1000 ohm)	—	
S963B1128	Manual Potentiometer (135 ohm)	—	
S963B1136	Manual Potentiometer (270 ohm)	—	
S963B1177	Manual Potentiometer (480 ohm)	—	
S963D1001	2 Potentiometers that simulate the ramp signals of a T7067 Thermostat	—	

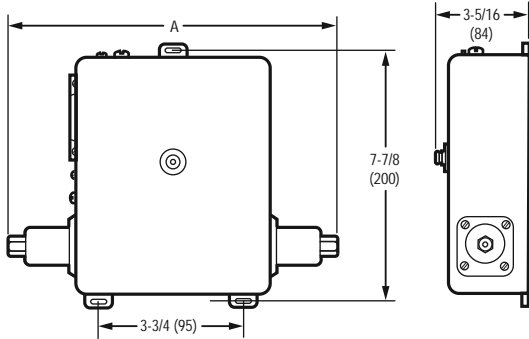
P906 Differential Pressure Controllers



The P906 controllers respond to increases and decreases in pressure difference between high and low pressures in water or steam systems. The P906 provides proportional control in low voltage circuits and can be used to control a proportional valve to maintain desired pressure difference between two points in a system.

- P906 provides proportional control using a 135-ohm potentiometer.
- Adjustable main spring determines pressure difference at which controller operates and against which difference in high and low pressure must act.
- Three mounting lugs furnished on each device to facilitate installation.
- Blank scale supplied for marking as required.

Dimensions in inches (millimeters)



DIMENSION A INCHES (MM)	PRESSURE DIFFERENCE RANGE	
	PSI	kPa
11-7/16 (291)	0-10	0-69
9-11/16 (246)	0-45, 0-50, 0-70	0-310, 0-345, 0-483
9-7/16 (240)	10-300	69-2068

M27433

Application: Water and Steam, Electric Control, Output: 135 Ohm

Connection Size: Includes (2) 1/4 x 1/2 in. NPT couplings for connecting to flexible steam hose (8 in. min)

Output: 135 Ohm

Product Number	Pressure Range		Differential Pressure Range		Comments
	(psi)	(kPa)	(psi)	(kPa)	
P906A1040	5 to 225 psi	35 to 1551 kPa	0 to 70 psi	0 to 483 kPa	Controls a proportional valve to maintain a selected pressure difference between two points.

Refrigeration Controllers

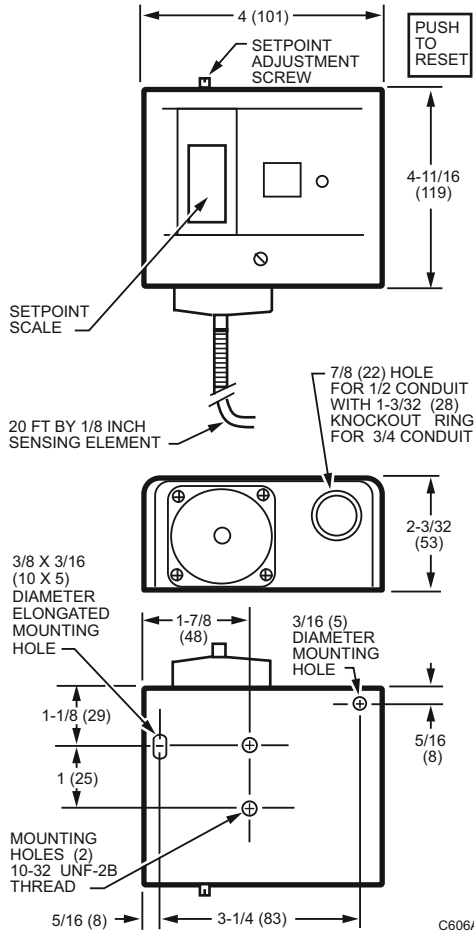
L480; L482 Refrigeration Controller



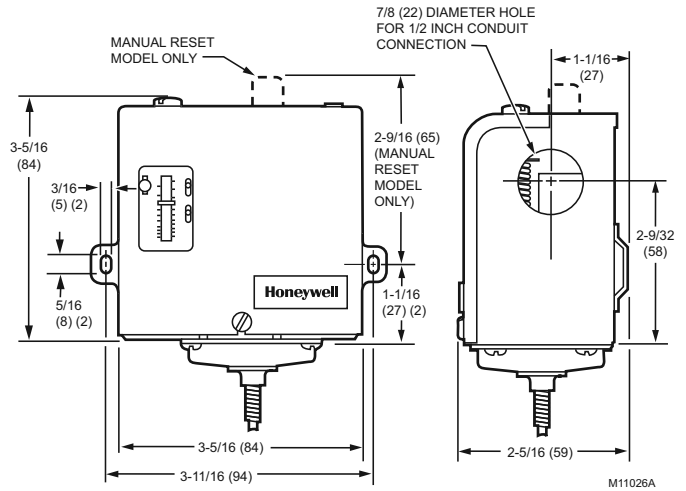
Used to limit or control temperature in air conditioning systems or refrigerated enclosures.

- Applications include freezer cabinets, display cases, beverage coolers, milk cooling tanks and air conditioners.
- Can act as a frost alarm operator in storehouses or orchards where frost would damage crops or equipment.
- Dual temperature scaleplate provided for both Fahrenheit and Celsius readings.

L482 Dimensions in inches (millimeters)



L480 Dimensions in inches (millimeters)



Type: Averaging element
Sensor Element: Coldest point on the capillary
Voltage: 120 Vac; 240 Vac
Frequency: 60 Hz; 50 Hz
Capillary Length: 20 ft. (6.1 m)

Approvals:
Canadian Standards Association: Certified: File No. LR95329-1
Underwriters Laboratories, Inc. File: SA481, Guide: SDFY

	Contact Ratings (120 Vac)	Contact Ratings (240 Vac)
L480	10.2 AFL, 61.2 ALR	6.5 AFL, 39.0 ALR
L482	Aux: 6.0 AFL, 36.0 ALR Main: 8.0 AFL, 48.0 ALR	Aux: 3.0 AFL, 18.0 ALR Main: 5.1 AFL, 30.6 ALR

Product Number	Application	Setting Temperature Range		Differential Temperature		Maximum Operating Temperature		Switching	Comments
		(F)	(C)	(F)	(C)	(F)	(C)		
L480B1239	Acts as frost alarm in storehouses, orchards, or other locations where frost could damage crops or equipment.	20 F to 60 F		10 F	5.6 C	125 F	52 C	1 SPDT	—
L480G1044	For temperature or limit control of air conditioning systems and refrigeration units.	20 F to 60 F		15 F	8 C	125 F	52 C	1 SPST	Manual reset
L482A1004	Provides temperature or limit control of air conditioning systems by operating electric motors for dampers, valves, compressors, or fans.	15 F to 55 F		5 F	2.8 C	140 F	60 C	2 SPST, one N.O., one N.C.	Manual reset

Refrigeration Controllers

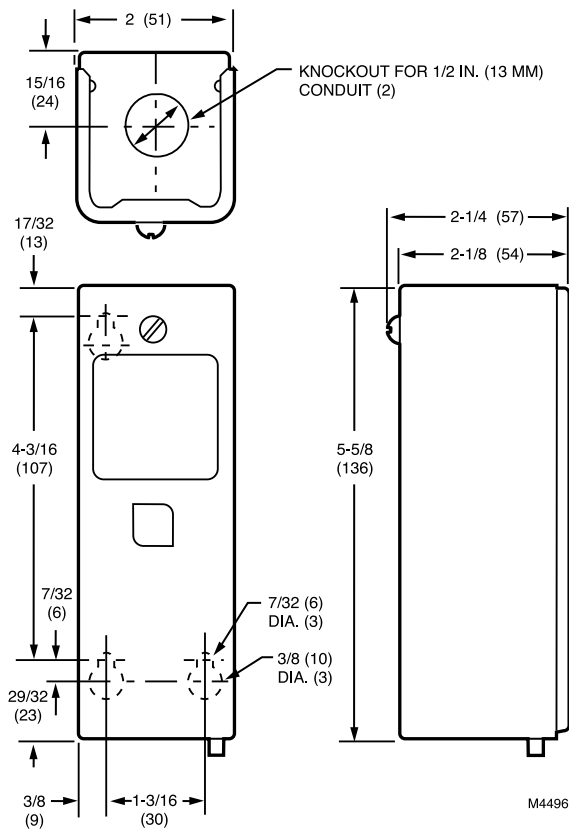
T4031A; T6031A Refrigeration Temperature Controller



Provide limit or temperature control in refrigerated areas where remote mounting of sensing element is required.

- Liquid-filled copper elements provide rapid sensing to control the compressor system.
- Control temperature in a duct, tank, freezer or cooler.
- Controller element can be directly immersed in the controlled medium.
- Adjustable control setpoint.
- Ambient temperature compensation provides good temperature control.
- Refer to T775 Electronic Remote Temperature Controller where more exact control is required and/or remote controller location is preferred.

Dimensions in inches (millimeters)



Type: Remote bulb

Bulb Size: 3/8 in. diameter x 3 in. long (10 mm diameter x 76 mm long)

Maximum Operating Temperature: 125 F (52 C)

Voltage: 120 Vac; 240 Vac

Sensor Element: Copper bulb

Contact Ratings (120 Vac): 8.0 AFL, 48.0 ALR

Contact Ratings (240 Vac): 5.1 AFL, 30.6 ALR

Approvals:

Canadian Standards Association: Certified: File No. LR95329-1

Underwriters Laboratories, Inc. File: SA481, Guide: SDFY

Product Number	Setting Temperature Range		Differential Temperature		Switching	Capillary Length		Comments
	(F)	(C)	(F)	(C)		(m)	(ft)	
T4031A1073	-30 F to +50 F	—	3.5 F	—	1 SPST	2.44 m	8 ft.	—
T6031A1011	15 F to 90 F	—	3.5 F to 16 F	—	1 SPDT	1.5 m	5 ft.	—
• T6031A1029	-30 F to +90 F	—	3.5 F to 16 F	—	1 SPDT	2.4 m	8 ft.	—
T6031A1052	-30 F to +90 F	—	3.5 F to 16 F	—	1 SPDT	1.5 m	5 ft.	—
T6031A1060	-30 F to +90 F	—	3.5 F to 16 F	—	1 SPDT	6.1 m	20 ft.	—
T6031A1086	—	-35 C to +30 C	—	1.9 C to 8.9 C	1 SPDT	2.4 m	8 ft.	Celsius model
T6031A1136	-30 F to +90 F	—	3.5 F to 16 F	—	1 SPDT	2.4 m	8 ft.	—

* TRADELINE models • SUPER TRADELINE models

Commercial Components

Sail Switches

S437; S637 Sail Switch



The S437 and S637 Sail Switches respond to the air velocity in heating or warm air ducts, such as used in farm crop dryers. The switch completes a 24V or line voltage burner control circuit only when the blower or fan has produced a predetermined air velocity.

- Micro Switch SPDT snap switch is operated by metal sail inserted in an air stream.
- Has a set of normally closed contacts which can be used to energize a signal or warning circuit when the velocity drops off.
- Sail can be trimmed to one-half the original size to double the velocity required to close the snap switch contacts.
- Switch differential can be manually adjusted by turning a knurled knob on the snap switch.
- A conduit knockout is located on each end of the case for wiring convenience.

Dimensions, Approximate: 2 15/16 in. high x 3 3/4 in. wide x 2 in. deep (59 mm high x 95 mm wide x 51 mm deep)

Insertion Length: 3 1/2 in. (89 mm)

Maximum Ambient Temperature: 150 F (66 C)

Operating Velocity: 1900 fpm-2250 fpm (9.7 m/s-11.4 m/s)

Approvals:

Canadian Standards Association: CSA: Guide: MFHZ

Underwriters Laboratories, Inc. UL: File: MP2618

Product Number	Contact Ratings		Switching	Sail Dimensions	
	(AFL)	(ALR)		(inch)	(mm)
S437A1009	15.0 A @ 6 Vdc; 7.5 A @ 12 Vdc; 2.0 A @ 24 Vac; 8.0 A @ 120 Vac; 5.1 A @ 240 Vac	48.0 A @ 120 Vac; 30.6 A @ 240 Vac	1 SPST	1 in. x 3 in.	25 mm x 76 mm
S437A1025	15.0 A @ 6 Vdc; 7.5 A @ 12 Vdc; 2.0 A @ 24 Vac; 8.0 A @ 120 Vac; 5.1 A @ 240 Vac	48.0 A @ 120 Vac; 30.6 A @ 240 Vac	1 SPST	1 1/2 in. x 4 in.	38 mm x 102 mm
S637A1004	15.0 A @ 6 Vdc; 7.5 A @ 12 Vdc; 2.0 A @ 24 Vac; 8.0 A @ 120 Vac; 5.1 A @ 240 Vac	48.0 A @ 120 Vac; 30.6 A @ 240 Vac	1 SPDT	1 in. x 3 in.	25 mm x 76 mm

Temperature Controllers

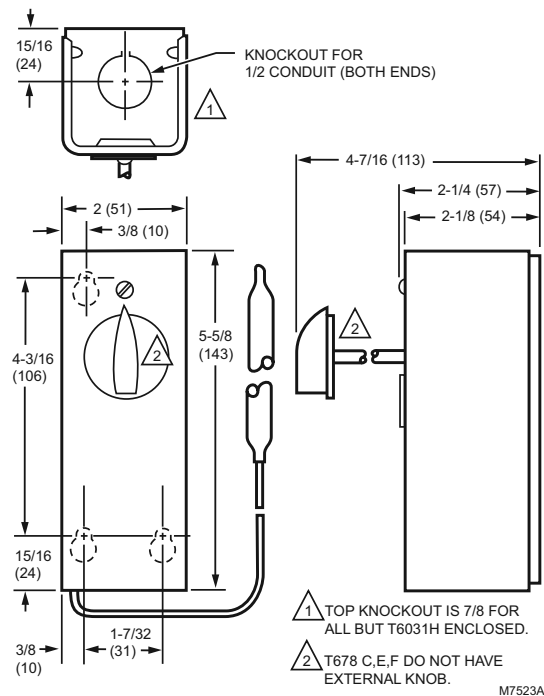
T4031C; T6031C,D,F Ambistat Controller



Ambient temperature compensated, high-limit controllers for agriculture and industrial applications.

- Suitable for line-voltage, low voltage, or millivolt (Powerpile) control of bulk milk tanks, beverage dispensing machines, ice cube machines, dishwashers, crop drying, tobacco curing, and similar applications.
- Enclosed snap action switches available with SPST or SPDT action.
- Models available that make or break on temperature rise.
- Screwdriver adjustment for temperature setting; external knob option.
- Immersion well not included.

Dimensions in inches (millimeters)



Type: Remote bulb

Application: Line-voltage, low-voltage or millivolt (Powerpile) control of bulk milk tanks, beverage dispensing machines, ice cube machines, dishwashers, crop drying, tobacco curing and similar applications.

Contact Ratings (120 Vac): 8.0 AFL, 48.0 ALR

Contact Ratings (240 Vac): 5.1 AFL, 30.6 ALR

Voltage: 120 Vac or 240 Vac

Frequency: 50 Hz; 60 Hz

Approvals:

Canadian Standards Association: Listed

Underwriters Laboratories, Inc. Component Recognized

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Differential Temperature		Sensor Element	Bulb Size		Capillary Length		Output	Includes	Comments
	(F)	(C)	(F)	(C)	(F)	(C)		(inch)	(mm)	(ft)	(m)			
T4031C1012	40 F to 180 F	4 C to 82 C	205 F	96 C	5 F	2.8 C	Copper	2 7/8 in. long x 3/8 in. diameter	73 mm long x 10 mm diameter	5.5 ft	1.7 m	1 SPST		Break on temperature rise
* T6031C1009	40 F to 180 F	4 C to 82 C	205 F	96 C	2 F	1.1 C	Copper bulb	3/8 in. diameter x 2 7/8 in. long	10 mm diameter x 73 mm long	5.5 ft	1.7 m	1 SPDT	107324A Duct Bulb holder	—
T6031C1058	100 F to 240 F	38 C to 116 C	265 F	130 C	2 F	1.1 C	Stainless steel bulb	3/8 in. diameter x 2 7/8 in. long	10 mm diameter x 73 mm long	5 ft	1.5 m	1 SPDT		—
T6031D1015	40 to 180 F	4 C to 82 C	—	—	5 F	2.8 C	Copper bulb	3/8 in. diameter x 2 7/8 in. long	10 mm diameter x 73 mm long	5.5 ft	1.7 m	1 SPDT		—
T6031D1031	0 F to 70 F	-18 C to +21 C	170 F	77 C	5 F	2.8 C	Copper bulb	3/8 in. diameter x 2 7/8 in. long	10 mm diameter x 73 mm long	5.5 ft	1.7 m	1 SPDT		—
T6031D1049	30 F to 270 F	-1 C to +132 C	305 F	152 C	7 F	3.9 C	Copper bulb	3/8 in. diameter x 2 7/8 in. long	10 mm diameter x 73 mm long	5.5 ft	1.7 m	1 SPDT		—
T6031F1010	55 F to 90 F	13 C to 32 C	150 F	66 C	1.5 F	0.8 C	Copper bulb	5/16 in. diameter x 11 11/16 in. long	8 mm diameter x 297 mm long	5.5 ft	1.7 m	1 SPDT		Does not include enclosure

* TRADELINE models • SUPER TRADELINE models

Commercial Components

Temperature Controllers

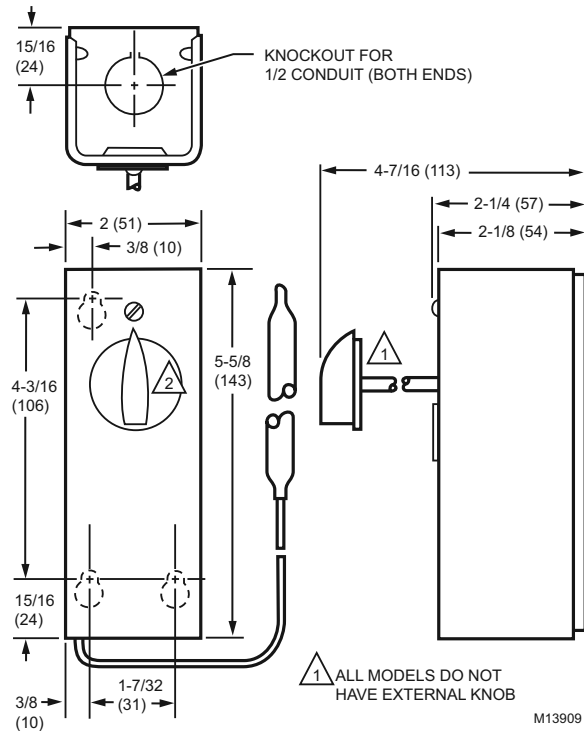
T6031E Unit Thermostat



Ambient temperature compensated, high-limit controllers for agriculture and industrial applications.

- Suitable for line-voltage, low voltage, or millivolt (Powerpile) control of bulk milk tanks, beverage dispensing machines, ice cube machines, dishwashers, crop drying, tobacco curing, and similar applications.
- Enclosed snap action switches available with SPST or SPDT action.
- Models available that make or break on temperature rise.
- Screwdriver adjustment for temperature setting; external knob option.
- Immersion well not included.

Dimensions in inches (millimeters)



Type: Remote bulb

Application: Remote bulb temperature control

Bulb Size: 5/16 in. diameter x 11 11/16 in. long
(8 mm diameter x 297 mm long)

Capillary Length: 5.5 ft (1.7 m)

Sensor Element: Copper bulb

Color: Gray

Contact Ratings (120 Vac): 3.2 AFL, 19.2 ALR

Contact Ratings (240 Vac): 1.6 AFL, 9.6 ALR

Voltage: 120 Vac or 240 Vac

Frequency: 60 Hz; 50 Hz

Maximum Operating Temperature: 150 F (66 C)

Approvals:

Canadian Standards Association: Listed

Underwriters Laboratories, Inc. Component Listed

Product Number	Setting Temperature Range		Differential Temperature		Output	Output Type	Number of Sensor Inputs
	(F)	(C)	(F)	(C)			
T6031E1004	55 F to 90 F	13 C to 32 C	1.5 F	0.8 C	1 SPDT	relay	1

T4054 Return Air Controller



Provides SPDT heavy-duty, line-voltage temperature control in ventilation, heating or cooling systems.

- Use in a variety of farm, industrial or commercial applications.
- Wall or duct mount in any position.
- Fast response, tin-plated element not affected by adverse environment.
- Rugged case.
- Mounts on flat surface with three screws.
- T6064 provides fast response with hydraulic temperature sensing elements mounted on the unit.

Type: Filled element

Application: Provides control in heating systems

Dimensions, Approximate: 7 5/8 in. high x 2 5/8 in. wide x 2 in. deep
(194 mm high x 67 mm wide x 51 mm deep)

Accuracy: ±6 F (±3.3 C)

Sensor Element: Fast response capillary

Color: Gray

Voltage: 120 Vac or 240 Vac

Frequency: 60 Hz; 50 Hz

Maximum Operating Temperature: 125 F (52 C)

Contact Ratings (120 Vac): 16.0 AFL, 96.0 ALR

Contact Ratings (240 Vac): 8.0 AFL, 48.0 ALR

Approvals:

Canadian Standards Association: CSA Listed: Report -1

Underwriters Laboratories, Inc. Listed: E4436, vol. 5, sec. 12, Guide XAPX

Product Number	Setting Temperature Range		Differential Temperature		Output	Output Type	Number of Sensor Inputs	Comments
	(F)	(C)	(F)	(C)				
T4054A1000	36 F to 100 F	2 C to 38 C	3.5 F	1.9 C	1 SPST	relay	1	Make R to B on temperature fall
T4054B1016	36 F to 100 F	2 C to 38 C	3.5 F	1.9 C	1 SPST	relay	1	Make R to W on temperature rise

Temperature Controllers

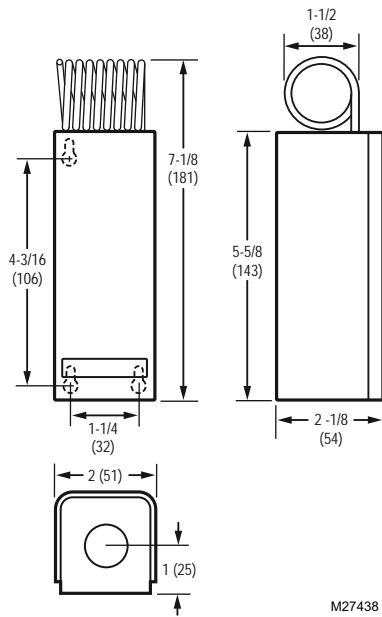
T6054 Utility Line Voltage Thermostat



Provides SPDT heavy-duty, line-voltage temperature control in ventilation, heating or cooling systems.

- Use in a variety of farm, industrial or commercial applications.
- Wall or duct mount in any position.
- Fast response, tin-plated element not affected by adverse environment.
- Rugged case.
- Mounts on flat surface with three screws.

Dimensions in inches (millimeters)



M27438

Type: Filled element

Application: Provides control in ventilation, heating, cooling or heating-cooling systems

Accuracy: ±10 F (±5.6 C)

Sensor Element: Copper filled element

Color: Gray

Contact Ratings (120 Vac): 7.4 AFL, 44.4 ALR

Contact Ratings (240 Vac): 3.7 AFL, 22.2 ALR

Voltage: 120 Vac or 240 Vac

Frequency: 60 Hz; 50 Hz

Maximum Operating Temperature: 125 F (52 C)

Approvals:

Canadian Standards Association: CSA Listed: Report -1

Underwriters Laboratories, Inc. Listed: E4436, vol. 5, sec. 12, Guide XAPX

Product Number	Setting Temperature Range		Differential Temperature		Output	Output Type	Number of Sensor Inputs	Includes
	(F)	(C)	(F)	(C)				
* T6054A1005	-30 F to +110 F	-34 C to +43 C	3.5 F	1.9 C	1 SPDT	relay	1	Case

* TRADELINE models • SUPER TRADELINE models

Temperature Controllers

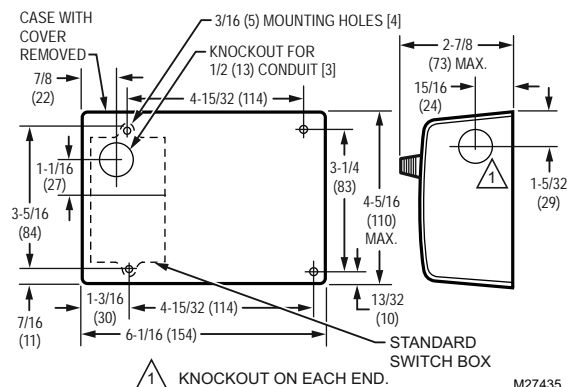
T631A,B,C Farm Controllers



Provide line voltage control of heating, cooling and ventilating systems in farm buildings or storage areas.

- Use in barns, poultry houses, hog barns, pump houses, milk houses and crop storage houses.
- Treated to resist corrosion.
- Slots in front and bottom of case provide maximum air circulation over the coiled sensing element.
- SPDT snap switches permanently sealed against corrosion.
- Easy mounting using screws through holes in back of case.

Dimensions in inches (millimeters)



Type: Agricultural Temperature Controller

Application: Provide line voltage control of heating, cooling and ventilating systems in farm buildings or storage areas

Sensor Element: Coiled Copper Tube

Color: Red finish

Approvals:

Canadian Standards Association: Certified: File No. LR1620, Guide No. 400-E-O

Underwriters Laboratories, Inc. File No. E4436 Vol.1 Sec. UL Guide XAPX

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Differential Temperature		Interstage Differential Temperature		Output	Voltage	Contact Ratings		
	(F)	(C)	(F)	(C)	(F)	(C)	(F)	(C)			(24 Vac)	(120 Vac)	(240 Vac)
T631A1006	35 F to 100 F	—	120 F	49 C	2 F	1.1 C	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631A1022	70 F to 140 F	—	150 F	67 C	2 F	1.1 C	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631A1030	0 F to 70 F	—	125 F	52 C	3 F	1.7 C	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631A1063	-10 F to +100 F	—	125 F	52 C	3 F	1.7 C	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631A1113	35 F to 100 F	—	120 F	50 C	3.5 F	1.9 C	—	—	1 SPDT (1 hp at 0.7 kW)	120 Vac or 240 Vac	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR
T631A1154	—	0 C to 40 C	120 F	50 C	2 F	1.1 C	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631B1005	35 F to 100 F	—	120 F	50 C	2 F	1.1 C	3.5 F	1.9 C	2 SPDT	120 Vac or 240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631B1054	35 F to 100 F	—	120 F	50 C	2 F	1.1 C	0 F to 7 F adj.	0 C to 4 C adj.	2 SPDT (1 hp at 0.7 kW)	120 Vac or 240 Vac	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR
T631C1012	20 F to 90 F	—	125 F	52 C	3 F	1.7 C	—	—	1 SPDT (1 hp at 0.7 kW)	120 Vac or 240 Vac	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR
T631C1020	70 F to 140 F	—	150 F	67 C	2 F	1.1 C	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631C1038	—	-10 C to +30 C	125 F	52 C	3 F	1.7 C	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631C1046	—	20 C to 60 C	150 F	67 C	2 F	1.1 C	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631C1053	35 F to 100 F	—	120 F	49 C	2 F	1.1 C	—	—	1 SPDT	120 Vac or 240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
* T631C1103	-30 F to +100 F	—	125 F	52 C	5 F	2.8 C	—	—	1 SPDT (1 hp at 0.7 kW)	24 Vac or 120/240 Vac	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR

* TRADELINE models • SUPER TRADELINE models

Commercial Components

Temperature Controllers

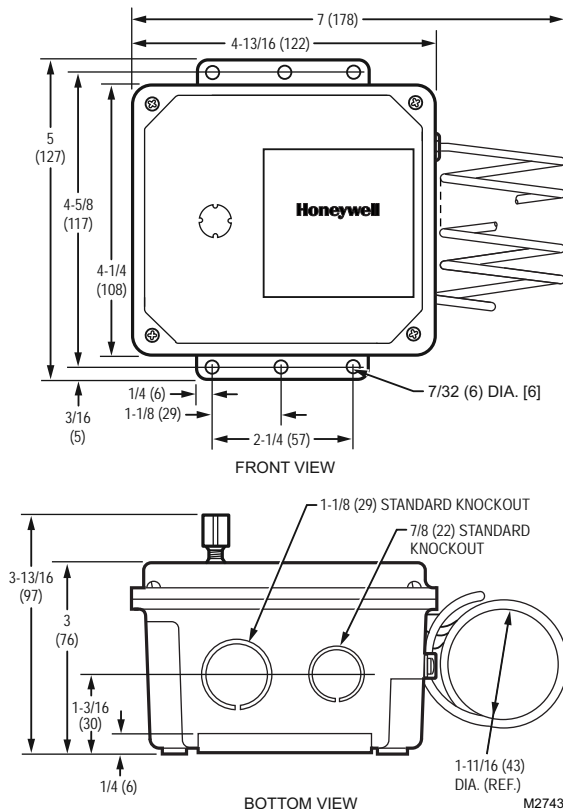
T631F,G NEMA IV Controllers



Provide line voltage control of heating, cooling and ventilating systems in farm buildings, storage areas and industrial environments; watertight, dust-proof enclosure.

- Use in barns, brooder houses, poultry houses, hog barns, pump houses, milk houses, crop storage houses and industrial environments. NEMA 4X enclosure protects thermostat and wiring connections from oil, water, dust, and corrosion.
- Clear plastic cover reveals setpoint, discourages tampering.
- Sensing element externally mounted for fast response and tin plated to resist corrosion.
- Reliable snap switches sealed against contamination.
- Insulated case has internal grounding screw for safety.
- Meet National Electrical Code Article 547-4 requirements.
- Easy mounting with screws through holes in flanges on case.

Dimensions in inches (millimeters)



Type: Agricultural Temperature Controller

Application: Provide line voltage control of heating, cooling and ventilating systems in farm buildings or storage areas

Dimensions, Approximate: 5 in. high x 6 1/2 in. wide x 3 in. deep (127 mm high x 165 mm wide x 76 mm deep)

Sensor Element: Coiled, Tin-plated Copper Tube

Color: Gray finish

Frequency: 60 Hz; 50 Hz

Maximum Operating Temperature: 145 F

Setpoint Temperature Range: 35 F to 100 F

Differential Temperature: 2 F (1.1 C)

Approvals:

Canadian Standards Association: Certified: File No. LR1620, Guide No. 400-E-O

Underwriters Laboratories, Inc. File No. E4436 Vol.1 Sec. UL Guide XAPX

	Contact Ratings		
	(24 Vac)	(120 Vac)	(240 Vac)
T631F1068	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631F1084	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631F1092	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR
T631G1059	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR

Product Number	Setpoint Temperature Range	Interstage Differential Temperature	Voltage	Output	Contact Ratings			Comments
	(F)	(F)			(24 Vac)	(120 Vac)	(240 Vac)	
T631F1068	35 F to 100 F	0 F to 7 F adjustable	24 Vac or 120/240 Vac	1 SPDT	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR	Internal Setpoint Adjustment
T631F1084	35 F to 100 F	0 F to 7 F adjustable	24 Vac or 120/240 Vac	1 SPDT	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR	External Setpoint Adjustment
T631F1092	35 F to 100 F	0 F to 7 F adjustable	120 Vac or 240 Vac	1 SPDT (1 hp)	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR	External Setpoint Adjustment
T631G1059	35 F to 100 F	0 F to 7 F adjustable	120 Vac or 240 Vac	2 SPDT (1 hp)	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR	External Setpoint Adjustment

Temperature Controllers

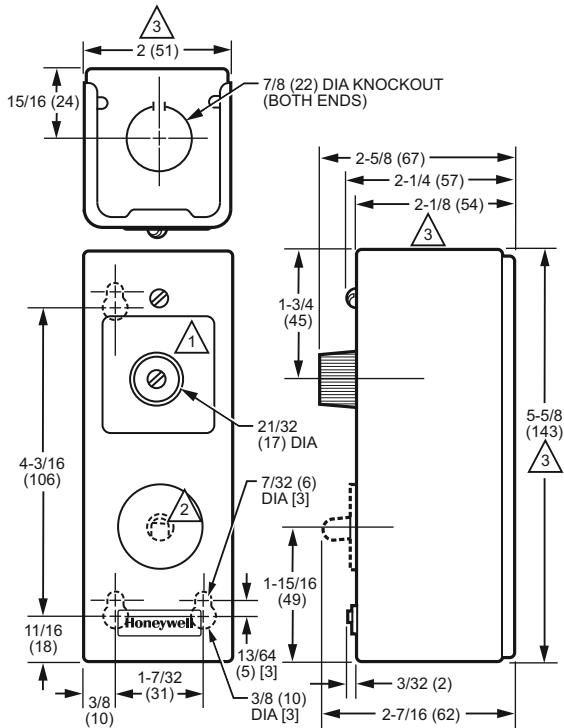
T675A,B; T678A Remote Bulb Controllers



Remote bulb thermostats regulate temperature of air or liquids in ducts, pipes, tanks and boilers.

- Suitable for applications requiring temperature control of air or liquids where controller must be placed outside the sensing area.
- Typical uses include control of dampers and valves in heating, cooling and heating-cooling systems.
- Fast response models (available for use in return air duct) operate approximately four times faster than standard models.
- Controller can be mounted in any position. Ambient temperature compensation provides good temperature control.
- Refer to T775 Electronic Remote Temperature Controller where more exact control is required and/or remote controller location is preferred.
- T678 models have a maximum connected load of 2000 VA.

Dimensions in inches (millimeters)



- 1 T675B DOES NOT HAVE AN ADJUSTMENT KNOB.
 2 T675B HAS A MANUAL RESET BUTTON (INDICATED BY DASHED LINES).
 3 TRADELINE MODELS T675A, T678A ONLY – NOREL COVER INCREASES THESE DIMENSIONS BY APPROXIMATELY 1/8 IN. (3).

M23928

Type: Remote bulb

Application: Regulates temperature of air or liquids in ducts, pipes, tanks and boilers

Voltage: 120 Vac or 240/277 Vac

Frequency: 60 Hz; 50 Hz

Output Type: Relay

Number of Sensor Inputs: 1

Approvals:

Canadian Standards Association: CSA Listed: Report -1

Underwriters Laboratories, Inc. UL Listed: E4436, Vol. 4, Sec. 11, Guide XAPX

	Contact Ratings		
	(120 Vac)	(240 Vac)	(277 Vac)
T675A with Adjustable Differential Temperature	8.0 AFL, 48.0 ALR	5.1 AFL, 30.6 ALR	4.2 AFL, 25.2 ALR
T675A, B with Fixed Differential Temperature	125 VA	125 VA	125 VA
T675B	125 VA	125 VA	125 VA
T678A	8.0 AFL, 48.0 ALR	5.1 AFL, 30.6 ALR	4.2 AFL, 25.2 ALR

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Differential Temperature		Interstage Differential Temperature		Bulb Size		Capillary Length		Output	Sensor Element	Includes	Comments
	(F)	(C)	(F)	(C)	(F)	(C)	(F)	(C)	(inch)	(mm)	(ft)	(m)				
T675A1045	0 F to 100 F	-18 C to +38 C	125 F	52 C	3 F to 10 F	1.7 C to 5.6 C	—	—	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	20 ft.	6.1 m	1 SPDT	Stainless steel bulb		Stainless Steel Bulb
T675A1102	160 F to 260 F	71 C to 127 C	280 F	138 C	3 F to 10 F	1.7 C to 5.6 C	—	—	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	20 ft.	6.1 m	1 SPDT	Copper bulb		—
T675A1136	0 F to 100 F	-18 C to +38 C	125 F	52 C	1 F fixed	0.6 C fixed	—	—	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	20 ft.	6.1 m	1 SPDT	Copper bulb		—
T675A1243	167 F to 257 F	75 C to 125 C	125 F	52 C	3 F to 10 F	1.7 C to 5.6 C	—	—	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	5 ft	1.5 m	1 SPDT	Copper bulb		Celsius model
T675A1425	55 F to 175 F	13 C to 79 C	200 F	93 C	3.6 F to 12 F	2 C to 6.7 C	—	—	1/2 in. x 3 9/16 in.	13 mm x 90 mm	20 ft.	6.1 m	1 SPDT	Copper bulb		—

* TRADELINE models • SUPER TRADELINE models

Temperature Controllers

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Differential Temperature		Interstage Differential Temperature		Bulb Size		Capillary Length		Output	Sensor Element	Includes	Comments
	(F)	(C)	(F)	(C)	(F)	(C)	(F)	(C)	(inch)	(mm)	(ft)	(m)				
T675A1458	55 F to 175 F	13 C to 79 C	125 F	52 C	1 F fixed	0.6 C fixed	—	—	1/2 in. x 3 9/16 in.	13 mm x 90 mm	5 ft	1.5 m	1 SPDT	Copper bulb		—
* T675A1508	0 F to 100 F	-18 C to +38 C	200 F	93 C	3 F to 10 F	1.7 C to 5.6 C	—	—	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	5 ft	1.5 m	1 SPDT	Copper bulb	107324A Duct Bulb holder	Includes 107324A Duct Bulb Holder
* T675A1516	0 F to 100 F	-18 C to +38 C	280 F	138 C	1 F fixed	0.6 C fixed	—	—	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	5 ft	1.5 m	1 SPDT	Copper bulb	107324A Duct Bulb holder	Includes 107324A Duct Bulb Holder
T675A1524	55 F to 175 F	13 C to 79 C	200 F	93 C	1 F fixed	0.6 C fixed	—	—	1/2 in. x 3 9/16 in.	13 mm x 90 mm	20 ft.	6.1 m	1 SPDT	Copper bulb		—
* T675A1532	160 F to 260 F	71 C to 127 C	125 F	52 C	3 F to 10 F	1.7 C to 5.6 C	—	—	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	5 ft	1.5 m	1 SPDT	Copper bulb	107324A Duct Bulb holder	Includes 107324A Duct Bulb Holder
* T675A1540	55 F to 175 F	13 C to 79 C	125 F	52 C	3.6 F to 12 F	2 C to 6.7 C	—	—	1/2 in. x 3 9/16 in.	13 mm x 90 mm	5 ft	1.5 m	1 SPDT	Copper bulb	107324A Duct Bulb holder	Includes 107324A Duct Bulb Holder
* T675A1565	0 F to 100 F	-18 C to +38 C	200 F	93 C	3 F to 10 F	1.7 C to 5.6 C	—	—	1/2 in. x 4 3/16 in.	13 mm x 90 mm	20 ft.	6.1 m	1 SPDT	Copper bulb	107324A Duct Bulb holder	Includes 107324A Duct Bulb Holder
* T675A1706	0 F to 100 F	-18 C to +38 C	125 F	52 C	3 F to 10 F	1.7 C to 5.6 C	—	—	coil 1 1/2 in. diameter x 5 in.	coil 38.1 mm x 127 mm	5 ft	1.5 m	1 SPDT	Fast response capillary	131524A duct bulb holder	Fast response model, includes 107324A Duct Bulb Holder
T675A1771	55 F to 175 F	13 C to 79 C	125 F	52 C	1 F fixed	0.6 C fixed	—	—	coil 1 1/2 in. diameter x 5 in.	coil 38.1 mm x 127 mm	5 ft	1.5 m	1 SPDT	Fast response capillary	131524A duct bulb holder	Fast response model, includes 107324A Duct Bulb Holder
T675B1002	30 F to 50 F	-1 C to +10 C	125 F	52 C	Manual Reset	Manual Reset	—	—	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	10 ft	3 m	1 SPDT	Copper bulb		—
T675B1010	30 F to 50 F	-1 C to +10 C	125 F	52 C	Manual Reset	Manual Reset	—	—	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	20 ft.	6.1 m	1 SPDT	Copper bulb		—
T675B1028	-20 F to +50 F	-29 C to +10 C	200 F	93 C	Manual Reset	Manual Reset	—	—	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	10 ft	3 m	1 SPDT	Copper bulb		—
T678A1015	0 F to 100 F	-18 C to +38 C	125 F	52 C	3 F fixed	1.7 C fixed	3 F to 10 F adj.	1.7 C to 5.6 C adj.	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	20 ft.	6.1 m	2 SPDT switch contacts	Copper bulb		maximum connected load = 2000VA
T678A1163	5 F to 95 F	-15 C to +35 C	200 F	93 C	3 F fixed	1.7 C fixed	3 F to 10 F adj.	1.7 C to 5.6 C adj.	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	20 ft.	6.1 m	2 SPDT switch contacts	Copper bulb		maximum connected load = 2000VA; Celsius model
T678A1361	55 F to 175 F	13 C to 79 C	125 F	52 C	3.6 F fixed	2.0 C fixed	3.6 F to 12 F adj.	2.0 C to 6.7 C adj.	1/2 in. x 3 9/16 in.	13 mm x 90 mm	20 ft.	6.1 m	2 SPDT switch contacts	Copper bulb		maximum connected load = 2000VA
* T678A1437	0 F to 100 F	-18 C to +38 C	200 F	93 C	3 F fixed	1.7 C fixed	3 F to 10 F adj.	1.7 C to 5.6 C adj.	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	5 ft	1.5 m	2 SPDT switch contacts	Copper bulb		maximum connected load = 2000VA
* T678A1445	55 F to 175 F	13 C to 79 C	125 F	52 C	3.6 F fixed	2.0 C fixed	3.6 F to 12 F adj.	2.0 C to 6.7 C adj.	1/2 in. x 3 9/16 in.	13 mm x 90 mm	5 ft	1.5 m	2 SPDT switch contacts	Copper bulb		maximum connected load = 2000VA
* T678A1478	0 F to 100 F	-18 C to +38 C	200 F	93 C	3 F fixed	1.7 C fixed	3 F to 10 F adj.	1.7 C to 5.6 C adj.	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	5 ft	1.5 m	2 SPDT switch contacts	Fast response capillary		maximum connected load = 2000VA; Fast response model
* T678A1494	55 F to 175 F	13 C to 79 C			3.6 F fixed	2.0 C fixed	3.6 F to 12 F adj.	2.0 C to 6.7 C adj.	1/2 in. x 3 9/16 in.	13 mm x 90 mm	5 ft	1.5 m	2 SPDT switch contacts	Fast response capillary		maximum connected load = 2000VA; Fast response model
T678A1627	0 F to 100 F	-18 C to +38 C			3.6 F fixed	2.0 C fixed	3.6 F to 12 F adj.	2.0 C to 6.7 C adj.	1/2 in. x 4 3/16 in.	13 mm dia. x 106 mm long	10 ft	3 m	2 SPDT switch contacts	Averaging capillary		maximum connected load = 2000VA
* T678A1692	—	15 C to 75 C	125 F	52 C	3.6 F	2.0 C	3.6 F to 12 F	2.0 C to 6.7 C	1/2 in. x 4 in.	13 mm diameter x 102 mm long	5 ft	1.5 m	2 SPDT switch contacts	Copper bulb		maximum connected load = 2000VA; Celsius model

* TRADELINE models • SUPER TRADELINE models

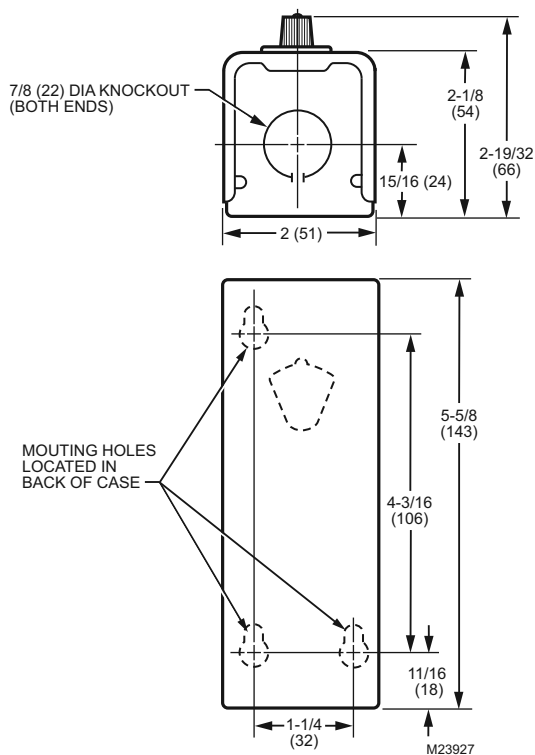
T675F Crop-Trol Controller



Used to control an oil burning, portable crop dryer.

- Suitable for line-voltage, low-voltage or millivolt (Powerpile) switching.
- Mounts directly on dryer with sensing bulb in discharge air duct.
- Knob extends through case for manual control point adjustment.
- Differential setting wheel, located under cover, adjusts difference between cut-in and cut-out temperatures.

Dimensions in inches (millimeters)



Type: Remote bulb

Application: Crop-trol, provides control of portable crop drying equipment.

Bulb Size: 3/8 in. x 3 in. (10 mm x 76 mm)

Sensor Element: Copper bulb

Contact Ratings (120 Vac): 8.0 AFL, 48.0 ALR

Contact Ratings (240 Vac): 5.1 AFL, 30.6 ALR

Contact Ratings (277 Vac): 4.2 AFL, 25.2 ALR

Voltage: 120 Vac or 240/277 Vac

Frequency: 60 Hz; 50 Hz

Maximum Operating Temperature: 245 F (118 C)

Setpoint Temperature Range: 80 F to 220 F (27 C to 104 C)

Differential Temperature: 5 F to 30 F (2.8 C to 17 C)

Approvals:

Underwriters Laboratories, Inc. Component Listed

Product Number	Bulb Size		Capillary Length		Output	Output Type	Number of Sensor Inputs
	(inch)	(mm)	(ft)	(m)			
T675F1032	3/8 in. x 3 in.	10 mm x 76 mm	10 ft	3 m	1 SPDT	relay	1

Temperature Controllers

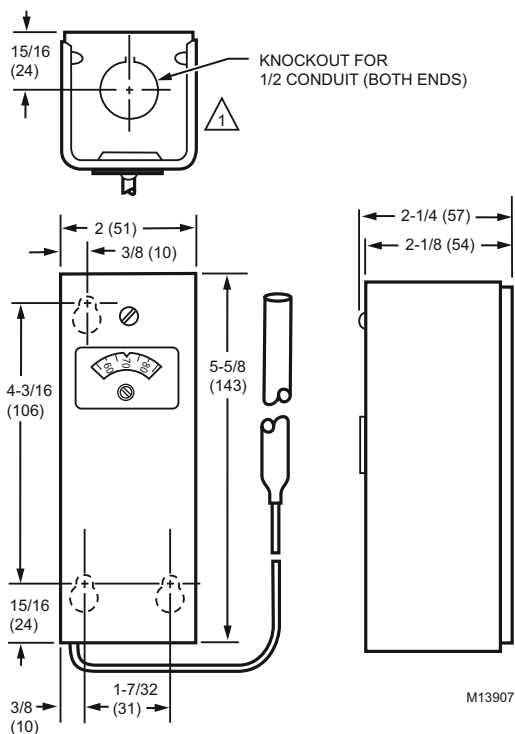
T678C,E,F Changeover Temperature Controller



Remote bulb thermostats regulate temperature of air or liquids in ducts, pipes, tanks and boilers.

- Suitable for applications requiring temperature control of air or liquids where controller must be placed outside the sensing area.
- Typical uses include control of dampers and valves in heating, cooling and heating-cooling systems.
- Fast response models (available for use in return air duct) operate approximately four times faster than standard models.
- Controller can be mounted in any position. Ambient temperature compensation provides good temperature control.
- Refer to T775 Electronic Remote Temperature Controller where more exact control is required and/or remote controller location is preferred.
- T678 models have a maximum connected load of 2000 VA.

Dimensions in inches (millimeters)



Type: Remote bulb

Application: Changeover temperature control

Dimensions, Approximate: 5 5/8 in. high x 2 in. wide x 2 5/8 in. deep (143 mm high x 51 mm wide x 67 mm deep)

Bulb Size: 3/8 in. x 3 in. (10 mm x 76 mm)

Sensor Element: Copper bulb

Voltage: 120 Vac or 240 Vac

Frequency: 60 Hz; 50 Hz

Output: 2 SPDT switch contacts

Output Type: relay

	Contact Ratings	
	(120 Vac)	(240 Vac)
T678C	8.0 AFL, 48.0 ALR	5.1 AFL, 30.6 ALR
T678E	Control: 2.6 AFL, 15.6 ALR; Hi Limit: 7.4 AFL, 44.4 ALR	Control: 1.3 AFL, 7.8 ALR; Hi Limit: 5.1 AFL, 30.6 ALR
T678F	8.0 AFL, 48.0 ALR	5.1 AFL, 30.6 ALR

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Differential Temperature		Interstage Differential Temperature		Bulb Size		Capillary Length		Number of Sensor Inputs
	(F)	(C)	(F)	(C)	(F)	(C)	(F)	(C)	(inch)	(mm)	(ft)	(m)	
T678C1005	55 F to 85 F	13 C to 29 C	205 F	96 C	5 F	2.8 C	—	—	3/8 in. x 3 in.	10 mm x 76 mm	5.5 ft	1.7 m	1
T678E1003	40 F to 180 F	4 C to 82 C	210 F	99 C	2 F	1.1 C	7 F	3.9 C	1/8 in. x 42 in.	3 mm x 1064 mm	17 ft.	5.2 m	1
T678F1002	55 F to 85 F	13 C to 29 C	130 F	54 C	2 F	1.1 C	—	—	5/16 in. x 11 11/16 in.	8 mm x 297 mm	5.5 ft	1.7 m	1

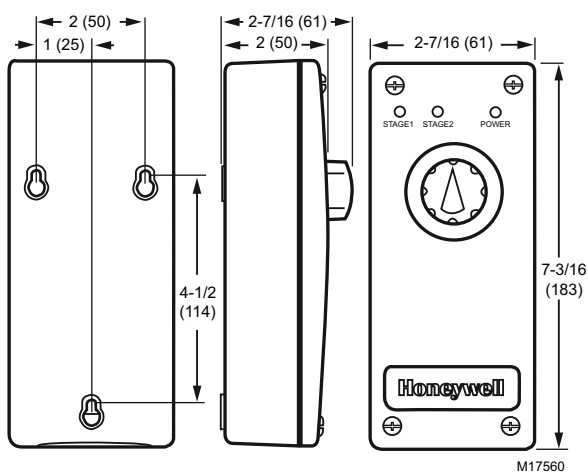
T7079 Solid State Remote Temperature Controller



The T7079 Electronic Remote Sensor Temperature Controller is capable of providing on-off temperature control for ducts, tanks, heating and refrigeration units, greenhouses, animal confinement buildings and other applications where electronic accuracy in addition to remote sensing is desired.

- Switch selection of heat or cool mode.
- Temperature sensing up to 400 feet.
- Does not require field calibration.
- 10K NTC temperature sensor.
- Wide setpoint temperature range.
- LED annunciation for both power on and relay state.
- Dual setpoint scale (F and C). Isolation transformer for 24 Vac input.
- Single- or Dual-stage output.
- Dual-stage output models can be configured as two-heat, two-cool, or one-heat/one-cool.

Dimensions in inches (millimeters)



Application: Heat or Cool

Accuracy: ± 2 F (± 3.6 C)

Maximum distance to sensor: 400 ft (122 m)

Contact Ratings (120 Vac): 9.8 AFL, 58.8 ALR, 125 VA Pilot Duty

Contact Ratings (240 Vac): 4.9 AFL, 29.4 ALR, 125 VA Pilot Duty

Frequency: 50 Hz; 60 Hz

Operating Temperature Range: -40 F to +140 F (-40 C to +60 C)

Setpoint Temperature Range: -25 F to +105 F (-32 C to +40 C)

Throttling Range: 1 F to 30 F (-17 C to +1 C)

Number of Sensor Inputs: 1

Approvals:

Underwriters Laboratories, Inc. Component Listed

Accessories

107324A Capillary Holder Assembly for duct insertion, 8 3/8 in. long

121371A Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. NPT. Includes mounting clamp

121371E Stainless steel. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm).

Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 1/2 in. (13 mm) NPT. Includes mounting clamp.

32004800-001 10K sensor for use with T7079

T7047C1090 Wall Mounted Remote Bulb Enclosure for T775 or T7079 remote sensing bulb.

Product Number	Description	Setpoint Temperature Range		Voltage	Output Type	Sensor Element	Sensors Included
		(F)	(C)				
T7079A1004	Heat or Cool Controller	-25 F to +105 F	-32 C to +40 C	24 Vac	1 SPDT	10k @ 25 C NTC sensing element	10K ohm NTC Sensor (32004800-001)
T7079A1012	Heat or Cool Controller	100 F to 240 F	38 C to 116 C	24 Vac	1 SPDT	10k @ 25 C NTC sensing element	10K ohm NTC Sensor (32004800-001)
T7079A1046	Heat or Cool Controller	-25 F to +105 F	-32 C to +40 C	120 Vac or 230 V	1 SPDT	10k @ 25 C NTC sensing element	10K ohm NTC Sensor (32004800-001)
T7079A1053	Heat or Cool Controller	100 F to 240 F	38 C to 116 C	120 Vac or 230 V	1 SPDT	10k @ 25 C NTC sensing element	10K ohm NTC Sensor (32004800-001)
T7079B1028	1 Heat and 1 Cool or 2 Heat and 2 Cool Controller,	-25 F to +105 F	-32 C to +40 C	24 Vac	2 SPDT	10k @ 25 C NTC sensing element	10K ohm NTC Sensor (32004800-001)
T7079B1036	1 Heat and 1 Cool or 2 Heat and 2 Cool Controller	100 F to 240 F	38 C to 116 C	24 Vac	2 SPDT	10k @ 25 C NTC sensing element	10K ohm NTC Sensor (32004800-001)
T7079B1044	1 Heat and 1 Cool or 2 Heat and 2 Cool Controller	-25 F to +105 F	-32 C to +40 C	120 Vac or 230 V	2 SPDT	10k @ 25 C NTC sensing element	10K ohm NTC Sensor (32004800-001)
T7079B1051	1 Heat and 1 Cool or 2 Heat and 2 Cool Controller	100 F to 240 F	38 C to 116 C	120 Vac or 230 V	2 SPDT	10k @ 25 C NTC sensing element	10K ohm NTC Sensor (32004800-001)

* TRADELINE models • SUPER TRADELINE models

Temperature Controllers

T775 Series 2000 Stand-Alone Controllers



The T775 electronic remote temperature controllers are the next generation of commercial and agricultural controls capable of remote sensing of temperature and providing switched and/or proportional outputs to various types of loads.

- Save time on installations with the easy-to-use graphical Interface, large display, and the intuitive programming.
- Use the time clock scheduler or digital input to control the setback and disable output options to help save energy.
- Protect equipment from freezing or overheating on models with the modulating high or low limit control option.
- Get pinpoint control on modulating outputs by setting the integral and derivative times (PI or PID).
- Configure models with reset in a few easy steps.
- Control floating actuators with floating outputs on select models.
- Eliminate the need for a separate time delay device and protect equipment with the minimum off time option.
- Sensor 50021579-001 included with non-NEMA 4X models.
- Sensor T775-SENS-WR included with NEMA-4X models.

Setpoint Temperature Range: -40 F to 248 F (-40 C to 120 C)

Sensor Element: 1097 ohms PTC at 77 F (25 C)

Bulb Size: 1/4 in. diameter x 2 in. long (6.35 mm diameter x 50.8 mm)

Accuracy: ±1 F at 77 F (±1 C at 25 C)

Maximum distance to sensor: Up to 1,000 ft (up to 304 m)

Voltage: 24 Vac or 120/240 Vac

Frequency: 60 Hz; 50 Hz

Operating Ambient Temperature Range:

-40 F to 140 F @ 60 Hz (-40 C to 60 C @ 60 Hz);

-40 F to 125 F @ 50 Hz (-40 C to 52 C @ 50 Hz)

Throttling Range: 1 F to 150 F (0.5 C to 66 C)

Differential Temperature: 1 F to 150 F (0.5 C to 66 C)

Analog Output Type (models with Analog Output):

2-10 Vdc or 0-10 Vdc or 4-20 mA or Electronic Series 90

Relay Contact Ratings

(24 Vac): 10.0A resistive

(120 Vac): 1/2 hp; 9.8 AFL, 58.8 ALR, 125 VA Pilot Duty

(240 Vac): 1/2 hp; 4.9 AFL, 29.4 ALR, 125 VA Pilot Duty

Approvals:

C-Tick: Approved

Underwriters Laboratories, Inc. Approved

CE: Approved

Canadian Underwriters Laboratories, Inc. Approved

Other: IP65: Approved

Accessories:

107324A Capillary Holder Assembly for duct insertion, 8 3/8 in. long

C7031D2003 5 inch immersion sensor with well

C7031J2009 1097 ohm Electronic Temperature Sensor

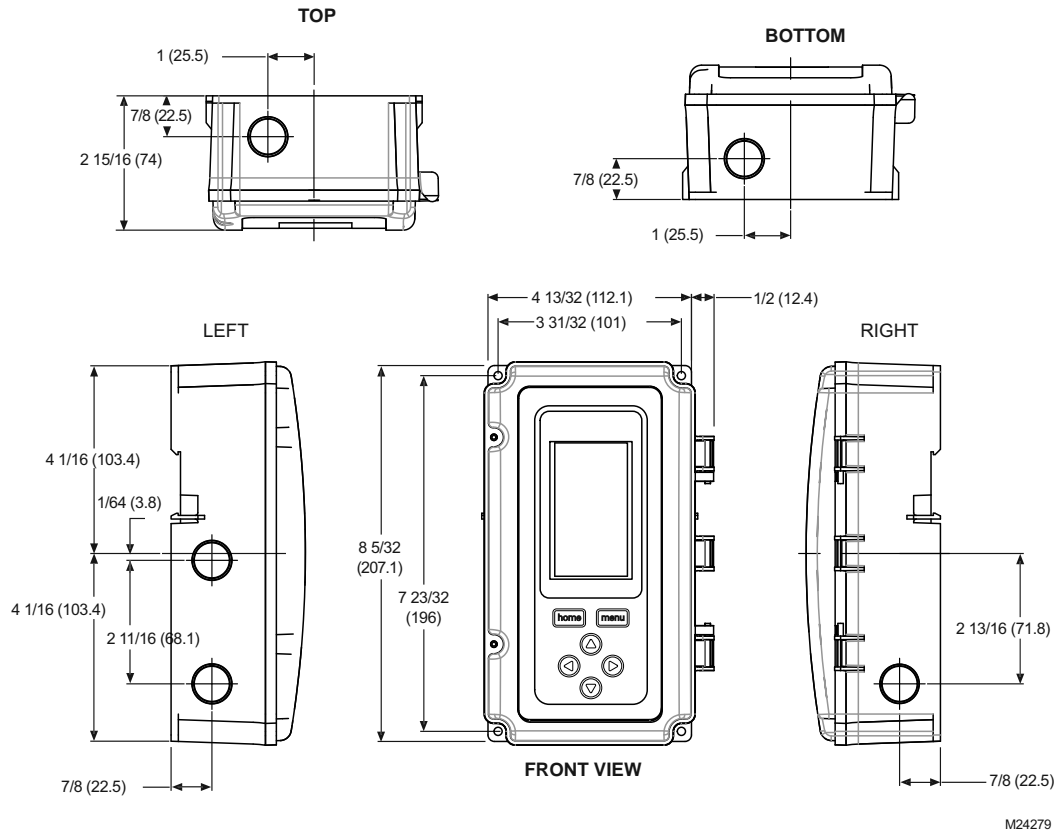
C7100D1001 12 inch Duct Averaging Temperature Sensor

C7130B1009 Wall mount Room Sensor

Product Number	Analog Output	Relay Output	Sensor Inputs	Floating Output	Output Reset	Sensors Included (Qty)	Description	Replaces
T775A2009	—	1 SPDT	1	—	—	50021579-001 (1)	Standard	T775A1001
T775B2016	—	2 SPDT	2	1	—	T775-SENS-WR (1)	Standard- NEMA 4X	—
T775B2024	—	4 SPDT	2	2	—	T775-SENS-WR (1)	Standard- NEMA 4X	T775D1008; T775C1009
T775B2032	—	2 SPDT	2	1	—	50021579-001 (1)	Standard	T775B1000; T775A1019
T775B2040	—	4 SPDT	2	2	—	50021579-001 (1)	Standard	T775B1042; T775B1026; T775B1018; T775A1035; T775A1027
T775M2006	2	None	2	—	—	50021579-001 (1)	Modulating	—
T775M2014	2	4 SPDT	2	—	—	T775-SENS-WR (1)	Modulating-NEMA 4X	T775G1039; T775G1021; T775G1013; T775G1005
T775M2022	2	2 SPDT	2	—	—	T775-SENS-WR (1)	Modulating-NEMA 4X	—
T775M2030	2	4 SPDT	2	—	—	50021579-001 (1)	Modulating	T775F1089; T775F1055; T775F1022; T775E1114
T775M2048	2	2 SPDT	2	—	—	50021579-001 (1)	Modulating	T775E1098; T775E1064; T775E1056; T775E1023; T775E1015
T775R2001	—	4 SPDT	2	2	Yes	50021579-001 (2)	Reset Option	—
T775R2019	2	4 SPDT	2	—	Yes	50021579-001 (2)	Reset Option	—
T775R2027	2	2 SPDT	2	—	Yes	50021579-001 (2)	Reset Option	T775J1068; T775J1050; T775J1043
T775R2035	—	2 SPDT	2	1	Yes	50021579-001 (2)	Reset Option	T775J1076; T775J1001
T775R2043	2	—	2	—	Yes	50021579-001 (2)	Reset Option	T775J1035; T775J1027; T775J1019

Temperature Controllers

Dimensions in inches (millimeters)



T775 Series 2000 Cross Reference

Item	Replacement	Comments
T775A1001	T775A2009	
T775A1019	T775B2032	
T775A1027	T775B2040	
T775A1035	T775B2040	
T775B1000	T775B2032	
T775B1018	T775B2040	
T775B1026	T775B2040	
T775C1009	T775B2024	
T775D1008	T775B2024	
T775E1015	T775M2048	
T775E1023	T775M2048	
T775E1056	T775M2048	
T775E1064	T775M2048	
T775E1098	T775M2048	
T775E1114	T775M2030	
T775F1022	T775M2030	
T775F1055	T775M2030	
T775F1089	T775M2030	
T775G1005	T775M2014	

Item	Replacement	Comments
T775G1013	T775M2014	
T775G1021	T775M2014	
T775J1001	T775R2035	
T775J1019	T775R2043	
T775J1027	T775R2043	
T775J1035	T775R2043	
T775J1043	T775R2027	
T775J1050	T775R2027	
T775J1068	T775R2027	
T775J1076	T775R2035	
H775A1006	T775U2006	
H775A1022	T775U2006	
H775A1048	T775U2006	T775U has only two relays, use two of them.
H775A1063	T775U2006	T775U has only two relays, use two of them.
H775B1005	T775U2006	
H775C1004	T775U2006	No duct limit reset, T775U has only two relays, use two of them.
H775D1003	T775U2006	No duct limit reset

Commercial Components

Temperature Controllers

T775 Series 2000 Special Stand-Alone Controllers



The T775 electronic remote temperature controllers are the next generation of commercial and agricultural controls capable of remote sensing of temperature, humidity, pressure, etc., and providing switched and/or proportional outputs to various types of loads.

- Universal model (T775U) can control pressure, humidity, or any variable analog input.
- Special boiler model (T775P) for boiler control.
- Special Staged Sequencing Model (T775L) for sequence staging of relays with one or two setpoints.
- Special Expansion Model (T775S) for staging up to 12 relays with two setpoints (each T775S provides 4 relays).
- Save time on installations with the easy-to-use graphical Interface, large display, and the intuitive programming.
- Use the time clock scheduler or digital input to control the setback and disable output options to help save energy.
- Provide very fast or very fast response times on modulating outputs by adjusting the integral and derivative times (PI or PID).
- Configure models with reset in a few easy steps.
- Eliminate the need for a separate time delay device and protect equipment with the minimum off time option.
- Use the T775L and T775P to stage up to 12 relays (with optional T775S) from two independent heat or cool setpoints.
- Support for digital output alarm on the T775P configurable based on minimum, maximum, or differential temperature.

Dimensions Diagram: See page 377

Setpoint Temperature Range: -40 F to 248 F (-40 C to 120 C)

Sensor Element: 1097 ohms PTC at 77 F (25 C)

Bulb Size (for T775L and T775P models):

1/4 in. diameter x 2 in. long (6.35 mm diameter x 50.8 mm)

Accuracy: ±1 F at 77 F (±1 C at 25 C)

Maximum distance to sensor: Up to 1,000 ft (up to 304 m)

Voltage: 24 Vac or 120/240 Vac

Frequency: 60 Hz; 50 Hz

Operating Ambient Temperature Range: -40 F to 140 F @ 60 Hz (-40 C to 60 C @ 60 Hz); -40 F to 125 F @ 50 Hz (-40 C to 52 C @ 50 Hz)

Throttling Range: 1 F to 150 F (0.5 C to 66 C)

Analog Output Type: 2-10 Vdc; 0-10 Vdc; 4-20 mA; Electronic Series 90

Differential Temperature: 1 F to 150 F (0.5 C to 66 C)

Analog Output Type (models with Analog Output):

2-10 Vdc or 0-10 Vdc or 4-20 mA or Electronic Series 90

Relay Contact Ratings

(24 Vac): 10.0A resistive

(120 Vac): 1/2 hp; 9.8 AFL, 58.8 ALR, 125 VA Pilot Duty

(240 Vac): 1/2 hp; 4.9 AFL, 29.4 ALR, 125 VA Pilot Duty

Approvals:

C-Tick: Approved

Underwriters Laboratories, Inc. Approved

CE: Approved

Canadian Underwriters Laboratories, Inc. Approved

Other: IP65: Approved

Accessories:

107324A Capillary Holder Assembly for duct insertion, 8 3/8 in. long

H7655A1001 Humidity Transmitter, 5% RH accuracy, wall mount, without temp output

H7655B1009 Humidity Transmitter, 5% RH accuracy, duct mount, with optional 20K ohm temp output

P7640A1000 Differential Pressure Transmitter, 0-1.0, 0-0.5, 0-0.25, or 0-0.1 in. w.c., uni- or bi-directional, panel mount, with display

P7640A1018 Differential Pressure Transmitter, 0-1.0, 0-0.5, 0-0.25, or 0-0.1 in. w.c., uni- or bi-directional, panel mount, without display

P7640A1026 Differential Pressure Transmitter, 0-10, 0-5, 0-2.5, 0-1.0 in. w.c., uni- or bi-directional, panel mount, with display

P7640B1034 Differential Pressure Transmitter, 0-1.0, 0-0.5, 0-0.25, 0-0.1 in. w.c., uni- or bi-directional, panel mount, without display

P7640B1008 Differential Pressure Transmitter, 0-1.0, 0-0.5, 0-0.25, or 0-0.1 in. w.c., uni- or bi-directional, duct mount, with display

P7640B1016 Differential Pressure Transmitter, 0-1.0, 0-0.5, 0-0.25, or 0-0.1 in. w.c., uni- or bi-directional, duct mount, without display

P7640B1024 Differential Pressure Transmitter, 0-10, 0-5, 0-2.5, 0-1.0 in. w.c., uni- or bi-directional, duct mount, with display

P7640B1032 Differential Pressure Transmitter, 0-10, 0-5, 0-2.5, 0-1.0 in. w.c., uni- or bi-directional, duct mount, without display

Product Number	Analog Output	Relay Output	Stages Loop Control	Sensor Inputs	Digital Output	Output Reset	Sensors Included (Qty)	Expandable	Description	Replaces
T775L2007	—	4 SPDT	Yes	2		Yes	50021579-001 (1)	Add 1 or 2 T775Ss (4 relays ea)	Stage sequencer with reset option	—
T775P2003	—	4 SPDT	Yes	3	1	Yes	50021579-001 (3)	Add 1 or 2 T775Ss (4 relays ea)	Special boiler with reset option	—
T775S2008	—	4 SPDT	—	—		—	None	—	Relay Expansion Module	—
T775U2006	2	2 SPDT	—	2 (Sensor B used for reset only)		Yes	None	—	Universal - humidity, pressure, etc.	H775E1002; H775D1003; H775C1004; H775B1005; H775A1063; H775A1048; H775A1022; H775A1006
T775U2016	2	2 SPDT	—	2		Yes	None	—	Universal-Control to sensor A (universal input) and Sensor B (temp) independently	—

T915 Proportional Temperature Controller



Proportional remote bulb controllers for ducts, tanks, boilers, pipes and other heat exchangers.

- Provide proportioning control of three-wire, low-voltage valve or damper motors.
- Used to regulate temperatures of either air or liquids.
- All models ambient compensated. Ambient temperature compensation provides good temperature control. Refer to T775 Electronic Remote Temperature Controller where more exact control is required and/or remote controller location is preferred.
- Temperature setting scale markings in both Fahrenheit and Celsius. Steel case has a clear plastic cover to make setting readily visible.
- Surface mount using two screws through back of case.

Type: Remote bulb

Application: Used with Series 90 Modutrol Motors for proportional control of valves and dampers

Dimensions, Approximate: 5 1/2 in. high x 4 1/2 in. wide x 2 3/4 in. deep (140 mm high x 114 mm wide x 70 mm deep)

Bulb Size: 1/2 in. diameter x 4 in. long (13 mm diameter x 102 mm long)

Number of Sensor Inputs: 1

Color: Gray

Setpoint Temperature Range: 15 F to 90 F (-10 C to +32 C)

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Throttling Range		Capillary Length		Analog Output	Output Type	Sensor Element
	(F)	(C)	(F)	(C)	(F)	(C)	(ft)	(m)			
T915C1407	15 F to 90 F	-10 C to +32 C	200 F	93 C	7 F to 38 F	3.9 C to 21.1 C	20 ft.	6.1 m	One 135 Ohm Potentiometer	analog	Copper bulb, fade-out fill
T915C1928	80 F to 210 F	27 C to 99 C	230 F	110 C	6 F to 32 F	3.3 C to 17.8 C	5 ft	1.5 m	One 135 Ohm Potentiometer	analog	Copper bulb, high temperature fill
T915C1936	80 F to 210 F	27 C to 99 C	230 F	110 C	6 F to 32 F	3.3 C to 17.8 C	20 ft.	6.1 m	One 135 Ohm Potentiometer	analog	Copper bulb, high temperature fill

Temperature Controllers

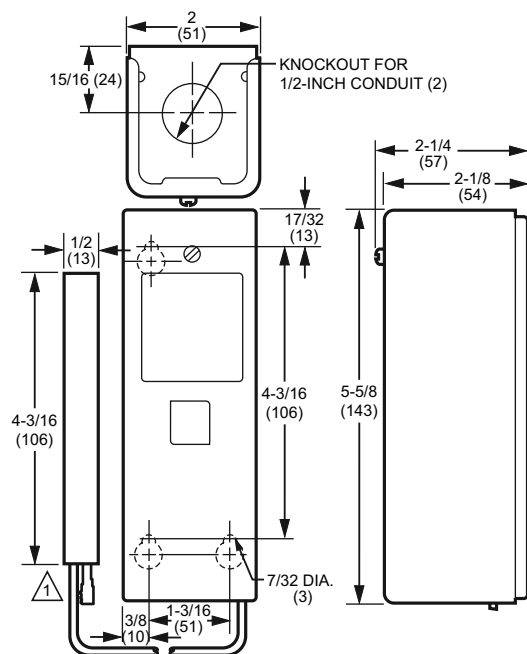
T991A Proportional Temperature Controller



For modulating control of water or air temperature in ducts, tanks and similar applications.

- Fast response models (for duct mounting) have coiled sensing element giving at least four times faster response than standard models.
- Ambient temperature compensated for the case and tubing.
- Sensing element capillary tubing allows remote mounting of sensing element.
- Setpoint may be read and adjusted through cover.
- Throttling dial inside case adjusts proportional throttling range.

Dimensions in inches (millimeters)



▲ BULB LENGTH IS 3-9/16 (91), ON 55 TO 175 F AND 15 TO 75 C RANGE.
M23881

Type: Modulating Remote bulb

Application: Provide modulating control of water or air temperature in ducts or tanks

Color: Gray

Voltage: 24 Vac to 30 Vac

Frequency: 60 Hz; 50 Hz

Number of Sensor Inputs: 1

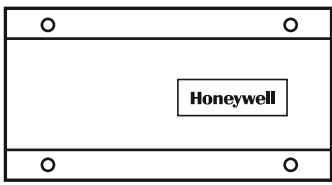
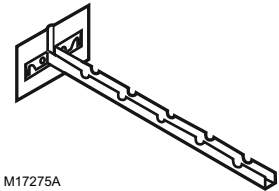
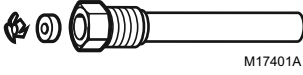
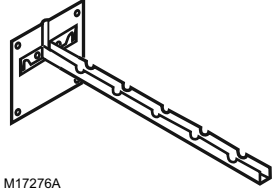
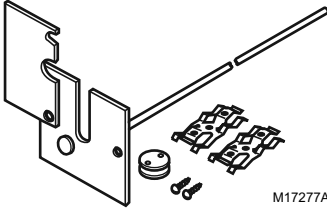
Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Throttling Range		Bulb Size		Capillary Length		Output Type	Analog Output	Output	Sensor Element	Includes
	(F)	(C)	(F)	(C)	(F)	(C)	(inch)	(mm)	(ft)	(m)					
T991A1004	0 F to 100 F	-18 C to +38 C	125 F	52 C	3 F to 30 F	1.7 C to 16.7 C	1/2 in. diameter x 4 3/16 in. long	13 mm diameter x 107 mm long	5 ft	1.5 m	analog	One 135 Ohm Potentiometer	—	Copper bulb	
T991A1012	0 F to 100 F	-18 C to +38 C	125 F	52 C	3 F to 30 F	1.7 C to 16.7 C	1/2 in. diameter x 4 3/16 in. long	13 mm diameter x 107 mm long	20 ft.	6.1 m	analog	One 135 Ohm Potentiometer	—	Copper bulb	
T991A1061	160 F to 260 F	71 C to 127 C	280 F	138 C	3 F to 30 F	1.7 C to 16.7 C	1/2 in. diameter x 4 3/16 in. long	13 mm diameter x 107 mm long	5 ft	1.5 m	analog	One 135 Ohm Potentiometer	—	Copper bulb	
T991A1079	160 F to 260 F	71 C to 127 C	280 F	138 C	3 F to 30 F	1.7 C to 16.7 C	1/2 in. diameter x 4 3/16 in. long	13 mm diameter x 107 mm long	20 ft.	6.1 m	analog	One 135 Ohm Potentiometer	—	Copper bulb	
T991A1095	5 F to 95 F	-15 C to +35 C	125 F	52 C	3 F to 30 F	1.7 C to 16.7 C	1/2 in. diameter x 4 3/16 in. long	13 mm diameter x 107 mm long	5 ft	1.5 m	analog	One 135 Ohm Potentiometer	—	Copper bulb	Celsius scale
T991A1186	55 F to 175 F	13 C to 79 C	200 F	93 C	3 F to 30 F	1.7 C to 16.7 C	1/2 in. diameter x 4 3/16 in. long	13 mm diameter x 107 mm long	5 ft	1.5m	analog	One 135 Ohm Potentiometer	—	Copper bulb	

Temperature Controllers

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Throttling Range		Bulb Size		Capillary Length		Output Type	Analog Output	Output	Sensor Element	Includes
	(F)	(C)	(F)	(C)	(F)	(C)	(inch)	(mm)	(ft)	(m)					
T991A1194	55 F to 175 F	13 C to 79 C	200 F	93 C	3.5 F to 36 F	1.9 C to 20 C	1/2 in. diameter x 3 9/16 in. long	13 mm diameter x 90 mm long	20 ft.	6.1m	analog	One 135 Ohm Potentiometer	—	Copper bulb	
T991A1210	59 F to 167 F	15 C to 75 C	200 F	93 C	3 F to 10 F	1.7 C to 16.7 C	1/2 in. diameter x 4 3/16 in. long	13 mm diameter x 107 mm long	5 ft	1.5m	analog	One 135 Ohm Potentiometer	—	Copper bulb	
T991A1244	55 F to 175 F	13 C to 79 C	200 F	93 C	3.5 F to 36 F	1.9 C to 20 C	1/2 in. diameter x 3 9/16 in. long	13 mm diameter x 90 mm long	5 ft	1.5m	analog	One 135 Ohm Potentiometer	—	Copper bulb	107324A Duct Bulb holder
T991A1269	55 F to 175 F	13 C to 79 C	200 F	93 C	3.5 F to 36 F	1.9 C to 20 C	1/2 in. diameter x 3 9/16 in. long	13 mm diameter x 90 mm long	20 ft.	6.1m	analog	One 280 Ohm Potentiometer	—	Copper bulb	
T991A1343	55 F to 175 F	13 C to 79 C	200 F	93 C	3.5 F to 36 F	1.9 C to 20 C	1/2 in. diameter x 3 9/16 in. long	13 mm diameter x 90 mm long	5 ft	1.5m	analog	One 280 Ohm Potentiometer	—	Copper bulb	107324A Duct Bulb holder
T991A1350	55 F to 175 F	13 C to 79 C	200 F	93 C	3.5 F to 36 F	1.9 C to 20 C	7/64 in. diameter x 24 ft. long	2.8 mm diameter x 7.3 m long	24 ft.	7.3 m	analog and relay	One 135 Ohm Potentiometer	1 SPST	Copper averaging element	
T991A1426	0 F to 100 F	-18 C to +38 C	125 F	52 C	3 F to 10 F	1.7 C to 16.7 C	1/2 in. diameter x 4 3/16 in. long	13 mm diameter x 107 mm long	5 ft	1.5 m	analog and relay	One 135 Ohm Potentiometer	1 SPST	Copper bulb	107324A Duct Bulb holder
T991A1715	0 F to 100 F	-18 C to +38 C	125 F	52 C	3 F to 10 F	1.7 C to 16.7 C	1/8 in. diameter x 76 3/8 in. long	3 mm diameter x 1.9 m long	5 ft	1.5 m	analog and relay	One 135 Ohm Potentiometer	1 SPST	Copper fast response element	131524A duct coil holder
T991A1756	55 F to 175 F	13 C to 79 C	200 F	93 C	3.5 F to 36 F	1.9 C to 20 C	1/8 in. diameter x 76 3/8 in. long	3 mm diameter x 1.9 m long	5 ft	1.5 m	analog	One 135 Ohm Potentiometer	—	Copper fast response element	131524A duct coil holder
T991A1764	0 F to 100 F	-18 C to +38 C	125 F	52 C	3 F to 30 F	1.7 C to 16.7 C	7/64 in. diameter x 24 ft. long	2.8 mm diameter x 7.3 m long	24 ft.	7.3 m	analog	One 135 Ohm Potentiometer	—	Copper averaging element	
T991A2069	0 F to 100 F	-18 C to +38 C	125 F	52 C	3 F to 30 F	1.7 C to 16.7 C	1/8 in. diameter x 76 3/8 in. long	3 mm diameter x 1.9 m long	20 ft.	6.1 m	analog	One 135 Ohm Potentiometer	—	Copper fast response element	131524A duct coil holder

Temperature Controllers

Remote Bulb Controller Accessories

Product Number	Description	
107323A	Remote Bulb Shield Assembly, 3/8 in. diameter bulbs, < 5 in. long	 M17284A
107324A	Capillary Holder Assembly for duct insertion, 8 3/8 in. long	 M17275A
107408	Heat Conductive Compound, 4 ounces	
112620AA	Well Assembly., 3 3/4 in. (95 mm) insertion, 3/8 in. (10 mm) diameter, copper	 M17401A
112620BB	Well Assembly., 5 1/2 in. (140 mm) insertion, 3/8 in. (10 mm) diameter, copper	
112622AA	Well Assembly., 4 in. (102 mm) insertion, 1/2 in. (13 mm) diameter, copper	
112624AA	Well Assembly., 4 3/4 in. (121 mm) insertion, 1/2 in. (13 mm) diameter, stainless steel	
112628AA	Well Assembly., 4 3/4 in. (121 mm) insertion, 1/2 in. (13 mm) diameter, stainless steel	
112630AA	Well Assembly., 4 1/4 in. (108 mm) insertion, 1/2 in. (13 mm) diameter, copper	
112632AA	Well Assembly., 4 1/4 in. (108 mm) insertion, 1/2 in. (13 mm) diameter, stainless steel	
112634AA	Well Assembly., 4 1/4 in. (108 mm) insertion, 1/2 in. (13 mm) diameter, copper	
131524A	Capillary Holder Assembly., 8 3/8 in. long, duct insertion	 M17276A
193987GA	Encapsulated platinum sensing element used with the T7075 and T775. 2 5/8 in long, 3/8 in diameter, 6 in. leads.	
198212CA	Encapsulated platinum sensing element used with the T7075 and T775. Water resistant, 60 in. leads.	
203401B	Encapsulated platinum PT3000 sensing element used with the T7075 and T775. Water tight, 20 in. leads, requires 1/2 in. diameter well.	
311266D	Bulb Holder Assembly., T4031, use with copper elements only	 M17277A
7617ABZ	Bag Assembly., Bracket	
7617M	Compression Fitting, brass 1/2 in. NPT plug	
7617P	Compression Fitting, brass 3/4 in. NPT plug	
7640HX	Mounting Kit, controller and averaging element	
Q615A1004	Splash proof enclosure	

Remote Bulb Controller Parts

Product Number	Description
112719	Packing Ring, Remote Bulb Well
203531A	Panel Mount Kit for T775A,B,E,F, or J Electronic Temperature Controller with tamper resistant window
34886A	Sun shield for remote bulb controllers,T475, T991B, T678B, T675A
7617ABY	Compression Fitting, brass 1/2 in. NPT plug
801737A	140 ohms Potentiometer and Bracket Assembly for use with T991A
801737A	140 ohms Potentiometer and Bracket Assembly for use with T991A
801737A	140 ohms Potentiometer and Bracket Assembly for use with T991A
801737A	140 ohms Potentiometer and Bracket Assembly for use with T991A

Remote Temperature Controller Accessories

Product Number	Description
32004800-001	10K sensor for use with T7079
801534/0638	Calibration wrench for T991, T631, T675, T678, T6031, T475, T4031, T4054, T6054, T6064

Commercial Rectangular Dampers

D1 Series Ultra-low Leakage Design Airfoil Control Damper

The D1 series is an extremely low leakage damper with rugged steel airfoil blades designed to meet the highest standards established. It is intended for application in medium to high pressure and velocity ratings.



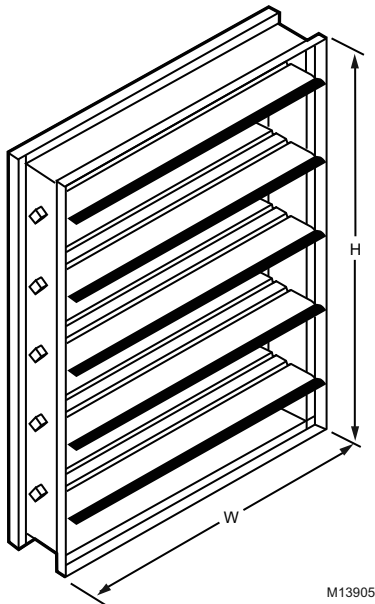
- Size Range¹:** Minimum Size: One Blade: 6 in. wide by 6 in. high
Two Blade: 6 in. wide by 10 in. high
- Maximum Size: Single Section:** 60 in. wide by 74 in. high
- Multiple Section:** unlimited
- Temperature Rating:** 180 F (82 C) maximum²
- Standard Construction³:** Blade: 14 gauge galvanized steel, airfoil shaped
- Action:** Parallel or Opposed
- Frame³:** 16 gauge galvanized steel Hat-channel
- Bearings³:** Synthetic (Acetal)
- Linkage³:** Steel Side linkage out of airstream (concealed in frame)
- Axles³:** 1/2 in. diameter plated steel
- Jamb Seals³:** 304 Stainless Steel
- Blade Edge Seals³:** Silicone

¹ Width and height dimensions furnished 1/4 in. undersized - standard

² Temperature rating with standard options

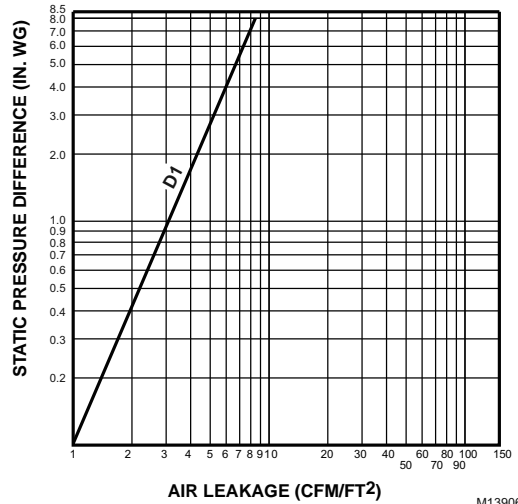
³ See Options table for customized options

Dimensions Diagram



M13905

Leakage Rate



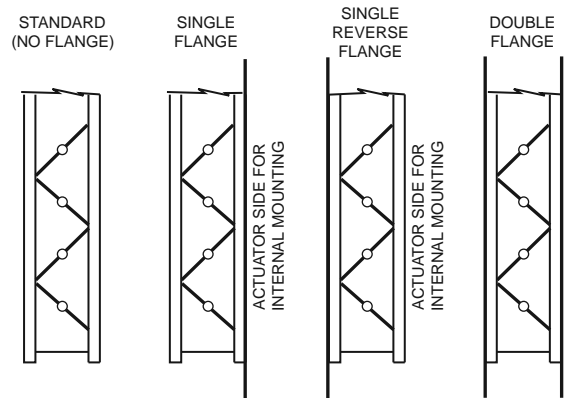
M13906

Performance Data

D1 Pressure and Velocity Limits.

Damper Size in inches.	Maximum System Pressure	Maximum System Velocity
12 x 12	8.0 in. wg	4000 fpm
24 x 24	8.0 in. wg	4000 fpm
36 x 36	6.3 in. wg	3500 fpm
48 x 48	4.7 in. wg	3000 fpm
60 x 60	2.0 in. wg	2500 fpm

Flange Options



M18986

Commercial Rectangular Dampers

D2 and D3 Series Rectangular Volume Control Dampers



D2 series is an ultra-low leakage control damper which includes blade and jamb seals. The D3 series is a general purpose damper intended for applications where low leakage performance is not necessary.

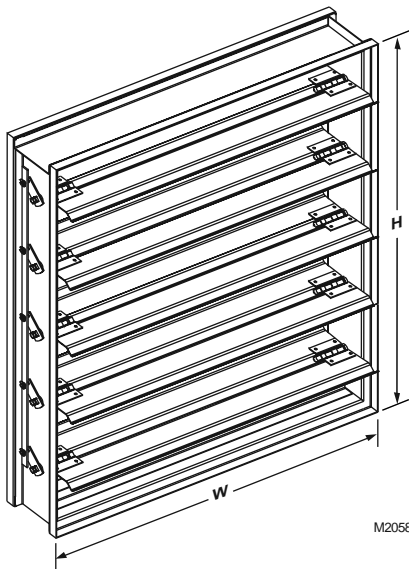


Honeywell International, Inc. certifies that the models D2, and D3 shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to air performance ratings only. March 2008.

- Size Range¹:** **Minimum Size: One Blade:** 6 in. wide by 6 in. high
- Two Blade:** 6 in. wide by 10 in. high
- Maximum Size: Single Section:** 48 in. wide by 72 in. high
- Multiple Section:** unlimited
- Temperature Rating:** 180 F (82 C) maximum
- Standard Construction²:** **Blade:** 16 gauge galvanized steel 3-V
- Action:** Parallel or Opposed
- Frame²:** 16 gauge galvanized steel Hat-channel
- Bearings²:** Synthetic (Acetal)
- Linkage:** Side linkage out of airstream (concealed in frame)
- Axles:** 1/2 in. square plated steel
- Jamb Seals³:** Compression-type Stainless Steel
- Blade Edge Seals²:** Extruded Vinyl

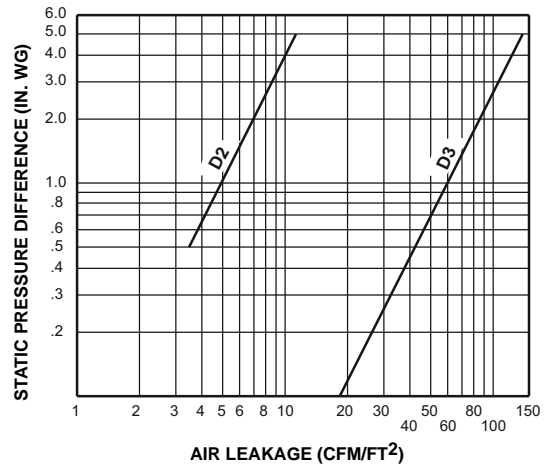
¹ Width and height dimensions furnished 1/4 in. undersized - standard
² See Options table for customized options
³ D2 Dampers only

Dimensions Diagram



M20587

Leakage Rate



M23317A

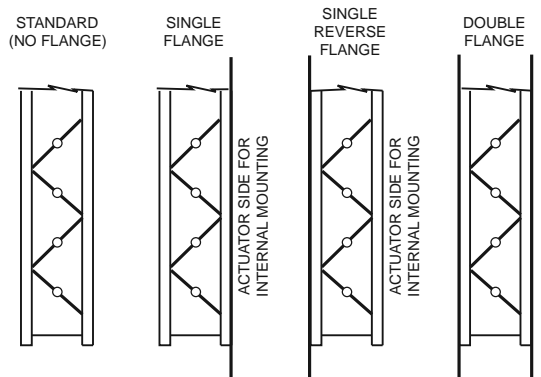
Performance Data

D2, D3 Pressure and Velocity Limits.

Damper Size in inches.	Maximum System Pressure	Maximum System Velocity
12 x 12	5.0 in. wg	3000 fpm
24 x 24	5.0 in. wg	3000 fpm
36 x 36	4.0 in. wg	2500 fpm
48 x 48	2.5 in. wg	2000 fpm

NOTE: D2 and D3 will withstand higher pressures and velocities. Displayed ratings are conservative to prevent misapplication. Consult Honeywell if you have an application outside these limitations.

Flange Options



M18986

Commercial Components

Commercial Rectangular Dampers

Standard Models

D2	D642 (Class II Leakage, 3 V blade with seals)															Product Type					
D3	D640 (Class III Leakage, 3 V blade without seals)															Blade Action					
	P	Parallel															Blade Action				
	O	Opposed																			
	A	16 gauge galvanized frame with galvanized linkages and axles															Frame				
	A	Acetal Bearings /No Seal															Axle Bearings and Seals Materials (When you select D3 you are only selecting the bearing type)				
	B	Acetal Bearings/Vinyl Seal																			
	C	Bronze Bearings/No Seal																			
	D	Bronze Bearings/Vinyl Seal																			
	(006-072)	Standard Rectangular Damper Width															Width (in 2 inch increments through 46 in. then 4 in. increments through 72 in.)				
	(006-072)	Standard Rectangular Damper Height															Height (in 2 inch increments through 46 in. then 4 in. increments through 72 in.)				
	N	Nominal Sizing															Sizing				
	A	No flange															Flange				
	A	External LH Standard without jackshaft (may include jackshaft for larger sizes)															Actuator Mounting				
	B	Internal LH Standard without jackshaft (may include jackshaft for larger sizes)																			
	C	External RH Standard without jackshaft (may include jackshaft for larger sizes)																			

D2 P B* A XXX XXX N A A Example

* Contact Customer Care for additional options and models.

Options

	Material		Frame Gauge			Blade Seals		Jamb Seals	Bearings			Axles		Linkage Materials		Flange				Sizing		
	Galv	S/S	16	14	12	Vinyl	Silicone	S/S	Synthetic	Bronze	S/S	Steel	S/S	Steel	S/S	None	Single	Double	Reverse	Nominal	Actual	
S = Standard O = Optional																						
D1 Ultra-low Leakage Airfoil Volume Control Damper	S	O	S	O	O	N/A	S	S	S	O	O	S	O	S	O	S	O	O	O	S	O	

	Material		Frame Gauge			Blade Seals		Jamb Seals	Bearings			Axles		Linkage Materials		Flange				Sizing		
	Galv	S/S	Al	16	14	12	Vinyl	Silicone	S/S	Synthetic	Bronze	S/S	Steel	S/S	Steel	S/S	None	Single	Double	Reverse	Nominal	Actual
S = Standard O = Optional																						
D3 Standard Volume Control Damper	S	O	O	S	O	O	N/A	N/A	N/A	S	O	O	S	O	S	O	S	O	O	O	S	O
D2 Ultra-low Leakage Volume Control Damper	S	O	O	S	O	O	S	O	S	S	O	O	S	O	S	O	S	O	O	O	S	O

Rectangular Damper Accessories

Product Number	Description
106783A	Damper Crank Assembly for 1/2 inch diameter axle
1400028-001	Nylon Bearing
14000644-002	Drive Bracket for D640 and D641 (included in Q605D1069)
14000644-004	Drive Bracket for D640 and D641
14004096-001	Drive Bracket Right
27514B	Damper crank arm for 3/4 in. damper shaft

Commercial Round Dampers

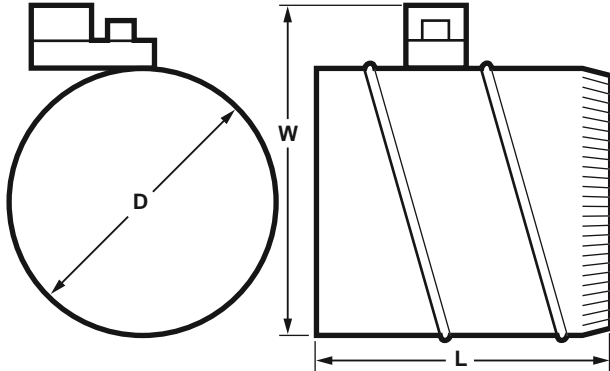
D690 Low-Leakage, Single-Blade, Round Dampers



The D690 Round Damper is used in conventional air handling systems to control airflow in a round duct. The damper is designed for use with Honeywell ML6161 and ML7161 Direct Coupled Actuators.

- Neoprene seal for tight closing and low leakage.
- Oilite bearings for long life.
- 90 degree damper travel for a variety of applications.

Dimensions in millimeters (inches)



Application: heating, cooling, ventilating

Type of Blade: Single-blade, round

Temperature Range: 32 F to 130 F (0 C to 54 C)

Integral Actuator: None

Input Signal: none

Used With: ML6161; ML7161; W7751 VAV Controller

DAMPER DIAMETER (D)		WIDTH (W)		LENGTH (L)	
in.	mm	in.	mm	in.	mm
6	152	9-1/2	241	12	305
8	203	11-1/2	292	12	305
10	254	13-1/2	343	12	305
12	305	15-1/2	394	13	330
14	356	17-1/2	445	15	381
16	406	19-1/2	495	17	432

M17412

Product Number	Diameter		Maximum Approach Velocity (ft/ min)	Description
	(inch)	(mm)		
* D690A1002	6 in. diameter	152 mm diameter	2500 ft/min	6 inch, Single Blade Round Damper, for use with ML6161 and ML7161 actuators or W7751 VAV Controller
* D690A1010	8 in. diameter	203 mm diameter	2500 ft/min	8 inch, Single Blade Round Damper, for use with ML6161 and ML7161 actuators or W7751 VAV Controller
* D690A1028	10 in. diameter	254 mm diameter	2500 ft/min	10 inch, Single Blade Round Damper, for use with ML6161 and ML7161 actuators or W7751 VAV Controller
* D690A1036	12 in. diameter	305 mm diameter	2500 ft/min	12 inch, Single Blade Round Damper, for use with ML6161 and ML7161 actuators or W7751 VAV Controller
* D690A1044	14 in. diameter	356 mm diameter	2500 ft/min	14 inch, Single Blade Round Damper, for use with ML6161 and ML7161 actuators or W7751 VAV Controller
* D690A1051	16 in. diameter	406 mm diameter	2500 ft/min	16 inch, Single Blade Round Damper, for use with ML6161 and ML7161 actuators or W7751 VAV Controller

* TRADELINE models • SUPER TRADELINE models

Commercial Round Dampers

DM7600 Commercial Zone Damper



The DM7600 Commercial Zone Damper is used in zoning systems to control airflow in a round duct. A Honeywell ML6161 or ML7161 Direct Coupled Actuator is factory mounted to the damper to simplify field installation.

- Neoprene seal for tight closing and low leakage.
- Oilite bearings for long life.
- 90 degree damper travel for a variety of applications.
- Magnetic coupling requires no limit switches or mechanical stops.

Application: heating, cooling, ventilating

Type of Blade: Single-blade, round

Temperature Range: 32 F to 130 F (0 C to 54 C)

Voltage: 24 Vac

Frequency: 50 Hz; 60 Hz

Product Number	Diameter		Integral Actuator	Maximum Approach Velocity (ft/ min)	Input Signal	Timing (sec)
	(inch)	(mm)				
DM7600A1005	6 in. diameter	152 mm diameter	2 to 10 Vdc or 4 to 20 mA, ML7161A2008	2500 ft/min	2 to 10 Vdc or 4 to 20 mA	90 sec
DM7600A1013	8 in. diameter	203 mm diameter	2 to 10 Vdc or 4 to 20 mA, ML7161A2008	2500 ft/min	2 to 10 Vdc or 4 to 20 mA	90 sec
DM7600A1021	10 in. diameter	254 mm diameter	2 to 10 Vdc or 4 to 20 mA, ML7161A2008	2500 ft/min	2 to 10 Vdc or 4 to 20 mA	90 sec
DM7600A1039	12 in. diameter	305 mm diameter	2 to 10 Vdc or 4 to 20 mA, ML7161A2008	2500 ft/min	2 to 10 Vdc or 4 to 20 mA	90 sec
DM7600A1047	14 in. diameter	356 mm diameter	2 to 10 Vdc or 4 to 20 mA, ML7161A2008	2500 ft/min	2 to 10 Vdc or 4 to 20 mA	90 sec
DM7600A1054	16 in. diameter	406 mm diameter	2 to 10 Vdc or 4 to 20 mA, ML7161A2008	2500 ft/min	2 to 10 Vdc or 4 to 20 mA	90 sec
DM7600B1004	6 in. diameter	152 mm diameter	SPDT ; Floating, ML6161A2009	2500 ft/min	SPDT Floating	90 sec
DM7600B1012	8 in. diameter	203 mm diameter	SPDT ; Floating, ML6161A2009	2500 ft/min	SPDT Floating	90 sec
DM7600B1020	10 in. diameter	254 mm diameter	SPDT; Floating, ML6161A2009	2500 ft/min	SPDT Floating	90 sec
DM7600B1038	12 in. diameter	305 mm diameter	SPDT ; Floating, ML6161A2009	2500 ft/min	SPDT Floating	90 sec
DM7600B1046	14 in. diameter	356 mm diameter	SPDT; Floating, ML6161A2009	2500 ft/min	SPDT Floating	90 sec
DM7600B1053	16 in. diameter	406 mm diameter	SPDT ; Floating, ML6161A2009	2500 ft/min	SPDT Floating	90 sec

* TRADELINE models • SUPER TRADELINE models

Direct Coupled Damper Actuators—Spring Return

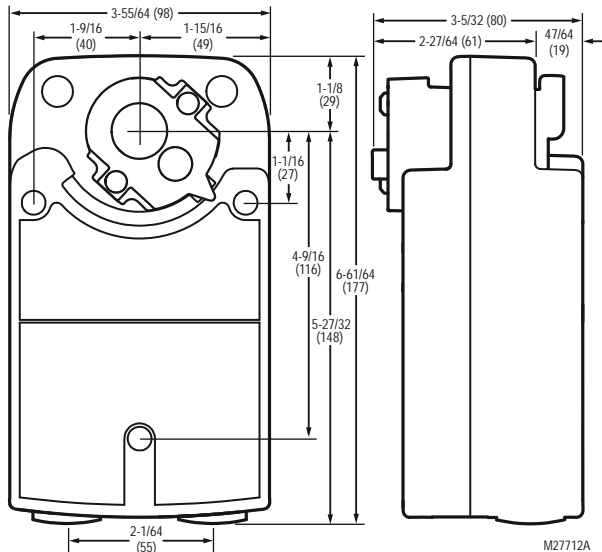
S03 Series: MS4103; MS7403; MS7503; MS8103 Spring Return Direct Coupled Actuator, 27 lb-in



MS4103, MS7403, MS7503, and MS8103 Spring Return Direct Coupled Actuators (DCA) are used within heating, ventilating, and air-conditioning (HVAC) systems. They can drive a variety of quarter-turn, final control elements requiring spring return fail-safe operation.

- Brushless DC submotor with electronic stall protection on all models
- Self-centering shaft adaptor (shaft coupling) for wide range of shaft sizes
- Models available for use with two-position, SPST, line- (Series 40) or low- (Series 80) voltage controls
- Models available for use with floating or switched SPDT (Series 60) controls
- Models available for use with proportional current or voltage (Series 70) controls
- Models available with combined floating and modulating control in a single device
- Models available with an internal end switch
- Access cover to facilitate connectivity
- Durable plastic housing with built-in mechanical end limits
- Spring return direction field selectable
- Shaft position indicator and scale
- UL (cUL) listed and CE compliant
- All models are plenum rated per UL873

Dimensions in inches (millimeters)



Actuator Type: Damper; Valve

Rotational Stroke: 95 ±3 degrees

Fail Safe Mode: Spring Return

Torque: 27 lb-in. (3 Nm)

Spring Return Torque: 27 lb-in (3 Nm)

Spring Return Direction: By orientation

External Auxiliary Switches Available: No

Electrical Connections: Enclosed screw terminal strip (22 to 14 AWG)

Ingress Protection Rating: IP54

Environmental Rating: NEMA2

Frequency: 50 Hz; 60 Hz

Mounting: Direct Coupled

Maximum Noise Rating, Holding (dBA @ 1m): 20 (no audible noise)

Maximum Noise Rating, Driving (dBA @ 1m): 50

Rotation to Open: By switch

Rotational Stroke Adjustment: Mechanically limited 5 degree increments

Compatible Damper Shafts: 3/8 to 5/8 in. round or 1/4 to 1/2 in. square (9 to 16 mm round or 6 to 13 mm square)

Shaft Adapter Type: Self-centering clamping

Materials: Plenum rated plastic housing

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Ambient Temperature Range: -40 F to +149F (-40 C to +65 C)

-22 F to +149F (-30 C to +65 C) for two-position actuators only

Temperature Ratings (Shipping): -40 F to +150F (-40 C to +65 C)

Storage Temperature Range: -40 F to +150F (-40 C to +65 C)

Weight: 3.5 lb (1.6 kg)

Includes: Mounting bracket, self-centering shaft adapter

Approvals:

CE: EMC 2004/108/EC; Certification Low Voltage Directive 2006/95/EC; IEC 60730-1 and Part 2-14

C-Tick: N314

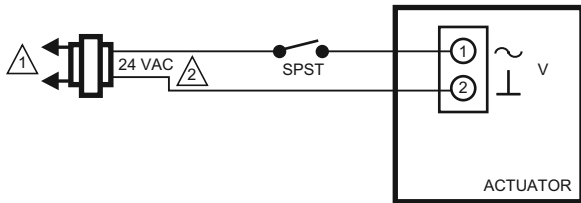
Underwriters Laboratories, Inc. UL 873

Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

Direct Coupled Damper Actuators—Spring Return

Product Number	Control Signal	Feedback	Timing (seconds)		Power Consumption (Driving)	Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Type of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz	Maximum Spring Return						
MS4103A1030	Two position; SPST	—	45 sec	25 sec	10 VA	100 to 250 Vac	—	0	—	—
MS4103A1130	Two position; SPST	—	45 sec	25 sec	10 VA	100 to 250 Vac	—	1	adjustable 0-95 degrees	250 Vac, 8 A res (5 A ind)
MS7403A2030	3 kOhm 2-10 Vdc (4-20 mA w/500 ohm resistor); Floating; Three position	2-10 Vdc	90 sec	25 sec	7 VA	24 Vac/dc	Min. 95 kOhm	0	Min. Pos.	—
MS7503A2030	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	(0)2-10 Vdc	90 sec	25 sec	7 VA	24 Vac/dc	Min. 95 kOhm	0	—	—
MS7503A2130	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	(0)2-10 Vdc	90 sec	25 sec	7 VA	24 Vac/dc	Min. 95 kOhm	1	adjustable 0-95 degrees	250 Vac, 8 A res (5 A ind)
MS8103A1030	Two position; SPST	—	45 sec	25 sec	7 VA	24 Vac/dc	—	—	—	—
MS8103A1130	Two position; SPST	—	45 sec	25 sec	7 VA	24 Vac/dc	—	—	adjustable 0-95 degrees	250 Vac, 8 A res (5 A ind)

Wiring for low-voltage two-position control

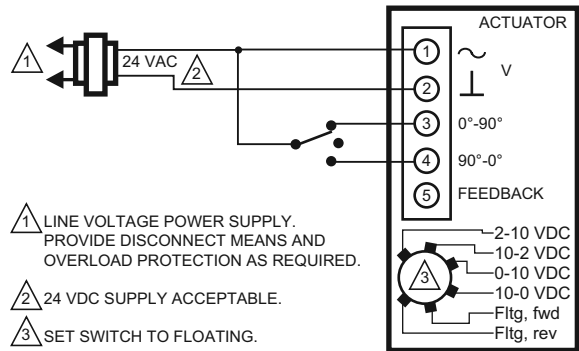


1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

M29512

Wiring for floating control



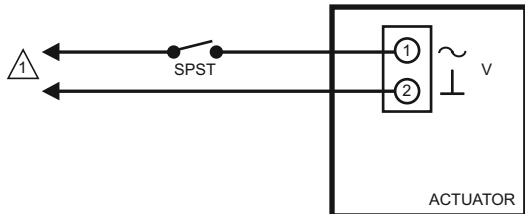
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO FLOATING.

M29515

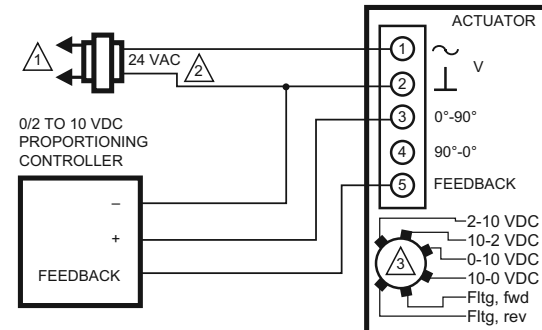
Wiring for line-voltage two-position control



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

M29513

Wiring for (0)2-10 Vdc proportioning controllers



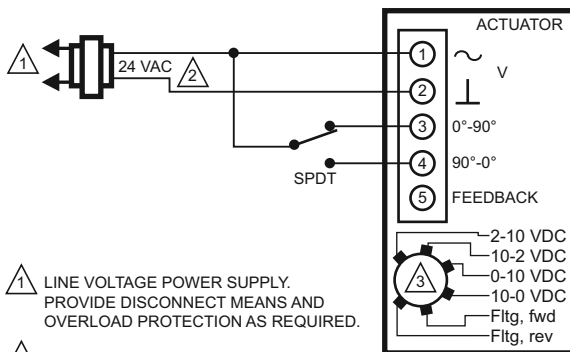
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M29516

Wiring for SPDT on/off control



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

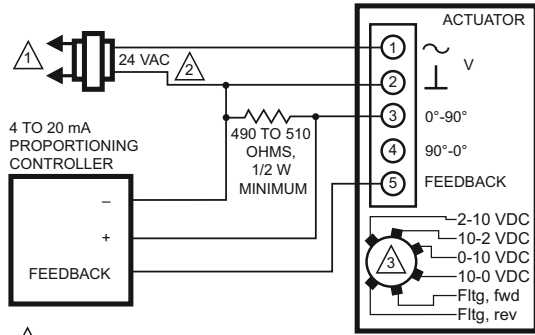
2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO FLOATING.

M29514

Direct Coupled Damper Actuators—Spring Return

Wiring for 4-10 mA proportioning controllers



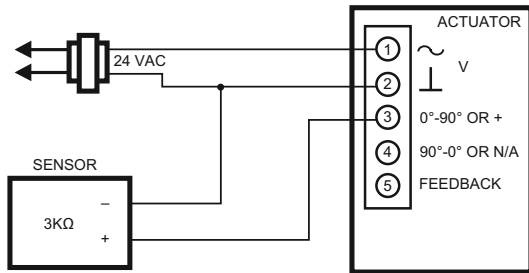
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M29508

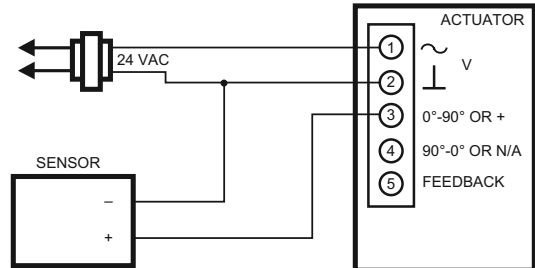
Wiring for 3 kOhm Economizer controllers



1 EXTERNAL MINIMUM POSITION POT CAN BE APPLIED TO TERMINAL 4 90°-0°.

M29510

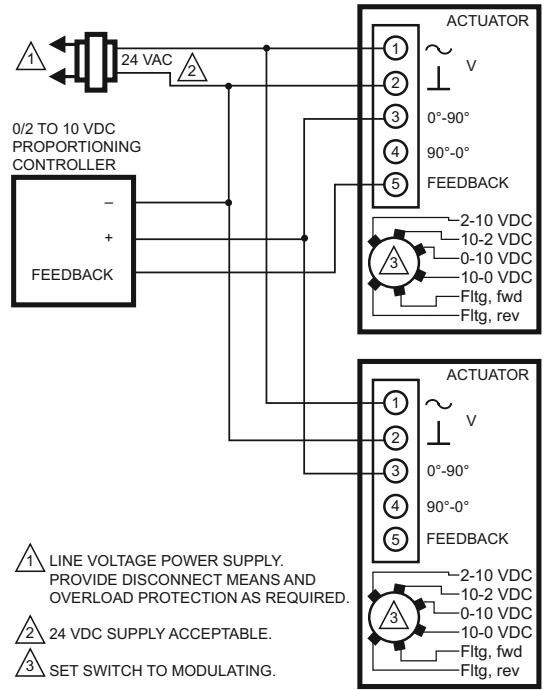
Wiring for 3 position Economizer controllers



1 EXTERNAL MINIMUM POSITION POT CAN BE APPLIED TO TERMINAL 4 90°-0°.

M29511

Wiring for (0)2-10 Vdc proportioning controllers operating multiple actuators



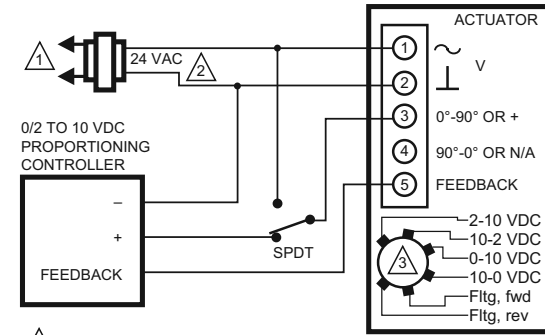
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M29509

Override to full open



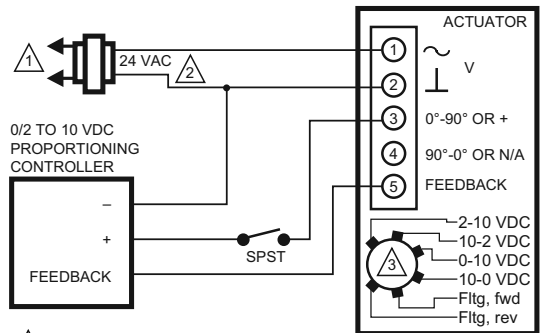
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M27827

Override to full closed



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M27828

Direct Coupled Damper Actuators—Spring Return

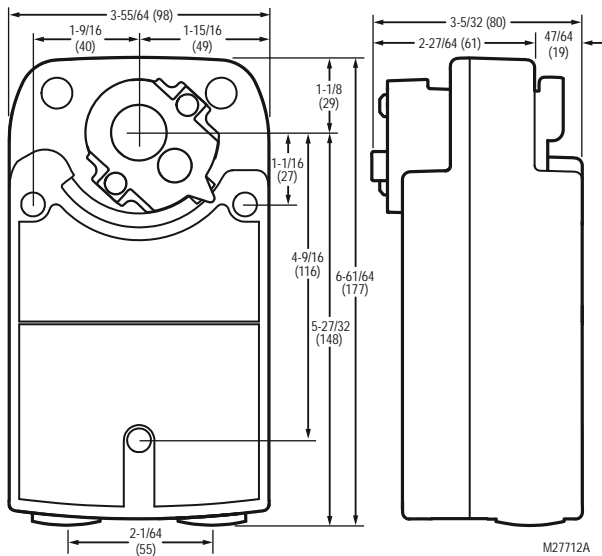
S05 Series: MS4105; MS7405; MS7505; MS8105 Spring Return Direct Coupled Actuator, 44 lb-in



MS4103, MS7403, MS7503, and MS8103 Spring Return Direct Coupled Actuators (DCA) are used within heating, ventilating, and air-conditioning (HVAC) systems. They can drive a variety of quarter-turn, final control elements requiring spring return fail-safe operation.

- Feature Bullets
- Brushless DC submotor with electronic stall protection on all models
- Self-centering shaft adaptor (shaft coupling) for wide range of shaft sizes
- Models available for use with two-position, SPST, line- (Series 40) or low- (Series 80) voltage controls
- Models available for use with floating or switched SPDT (Series 60) controls
- Models available for use with proportional current or voltage (Series 70) controls
- Models available with combined floating and modulating control in a single device
- Models available with an internal end switch
- Access cover to facilitate connectivity
- Durable plastic housing with built-in mechanical end limits
- Spring return direction field selectable
- Shaft position indicator and scale
- UL (cUL) listed and CE compliant
- All models are plenum rated per UL873

Dimensions in inches (millimeters)



- Actuator Type:** Damper; Valve
Rotational Stroke: 95 ±3 degrees
Fail Safe Mode: Spring Return
Torque: 44 lb-in. (5 Nm)
Spring Return Torque: 44 lb-in. (5 Nm)
Spring Return Direction: By orientation
External Auxiliary Switches Available: No
Electrical Connections: Enclosed screw terminal strip (22 to 14 AWG)
Environmental Rating: NEMA2
Ingress Protection Rating: IP54
Frequency: 50 Hz; 60 Hz
Mounting: Direct Coupled
Maximum Noise Rating, Holding (dBA @ 1m): 20 (no audible noise)
Maximum Noise Rating, Driving (dBA @ 1m): 50
Rotation to Open: By switch
Rotational Stroke Adjustment: Mechanically limited 5 degree increments
Compatible Damper Shafts: 3/8 to 5/8 in. round or 1/4 to 1/2 in. square (9 to 16 mm round or 6 to 13 mm square)
Shaft Adapter Type: Self-centering clamping
Materials: Plenum rated plastic housing
Operating Humidity Range (% RH): 5 to 95% RH, non-condensing
Ambient Temperature Range: -40 F to +149F F (-40 C to +65 C)
 -22 F to +149F (-30 C to +65 C) for two-position actuators only
Temperature Ratings (Shipping): -40 F to +150F (-40 C to +65 C)
Storage Temperature Range: -40 F to +150F (-40 C to +65 C)
Weight: 3.5 lb (1.6 kg)
Includes: Mounting bracket, self-centering shaft adapter

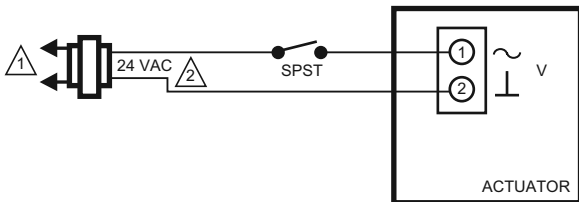
- Approvals:**
CE: EMC 2004/108/EC; Certification Low Voltage Directive 2006/95/EC; IEC 60730-1 and Part 2-14
C-Tick: N314
Underwriters Laboratories, Inc. UL 873
Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

Direct Coupled Damper Actuators—Spring Return

Product Number	Control Signal	Feedback	Timing (seconds)		Power Consumption (Driving)	Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Type of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz	Maximum Spring Return (sec)						
MS4105A1030	Two position; SPST	—	45 sec	25 sec	11 VA	100 to 250 Vac	—	0	—	—
MS4105A1130	Two position; SPST	—	45 sec	25 sec	11 VA	100 to 250 Vac	—	1	adjustable 0-95 degrees	250 Vac, 8 A res (5 A ind)
MS7405A2030	3 kOhm 2-10 Vdc (4-20 mA w/500 ohm resistor); Floating; Three position	2-10 Vdc	90 sec	25 sec	8 VA	24 Vac/dc	Min. 95 kOhm	0	Min. Pos.	—
MS7505A2030	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	(0)2-10 Vdc	90 sec	25 sec	8 VA	24 Vac/dc	Min. 95 kOhm	0	—	—
MS7505A2130	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	(0)2-10 Vdc	90 sec	25 sec	8 VA	24 Vac/dc	Min. 95 kOhm	1	adjustable 0-95 degrees	250 Vac, 8 A res (5 A ind)
MS8105A1030	Two position; SPST	—	45 sec	25 sec	8 VA	24 Vac/dc	—	0	—	—
MS8105A1130	Two position; SPST	—	45 sec	25 sec	8 VA	24 Vac/dc	—	1	adjustable 0-95 degrees	250 Vac, 8 A res (5 A ind)

* TRADELINE models • SUPER TRADELINE models

Wiring for low-voltage two-position control

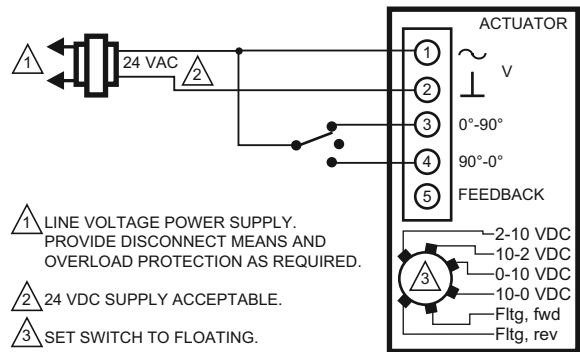


1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

M29512

Wiring for floating control



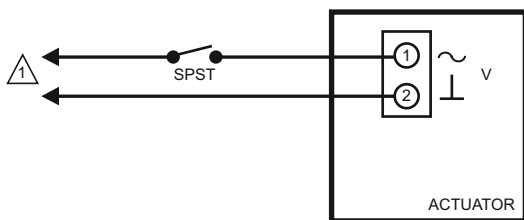
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO FLOATING.

M29515

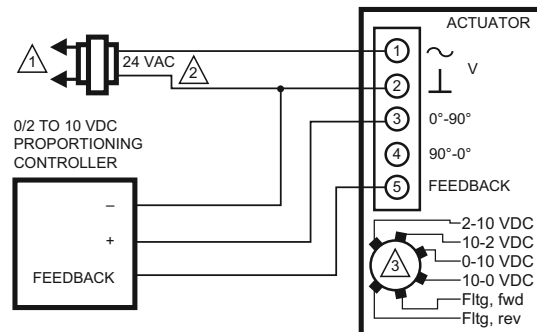
Wiring for line-voltage two-position control



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

M29513

Wiring for (0)2-10 Vdc proportioning controllers



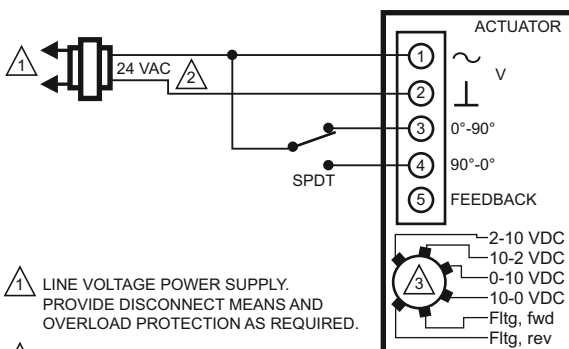
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M29516

Wiring for SPDT on/off control



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

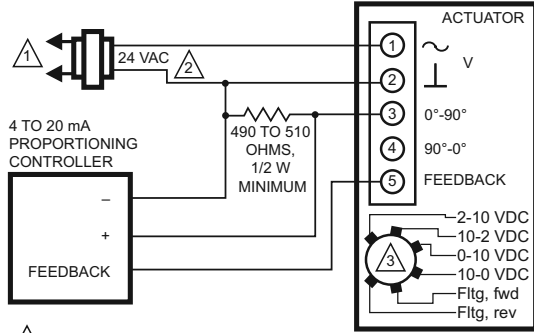
2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO FLOATING.

M29514

Direct Coupled Damper Actuators—Spring Return

Wiring for 4-10 mA proportioning controllers



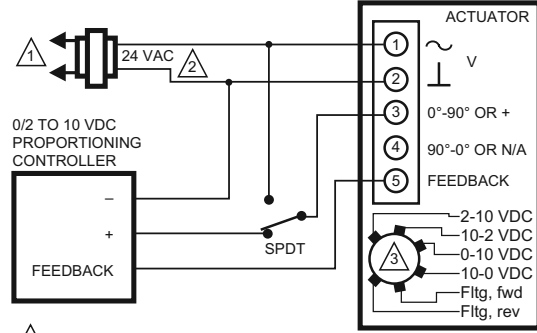
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M29508

Override to full open



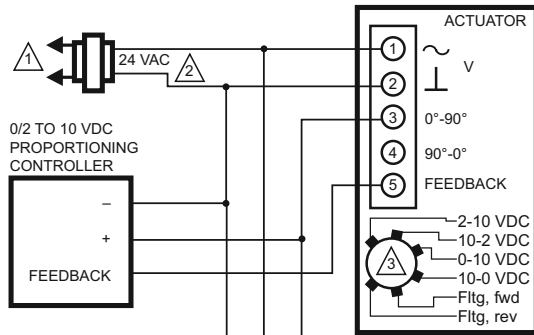
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M27827

Wiring for (0)2-10 Vdc proportioning controllers operating multiple actuators



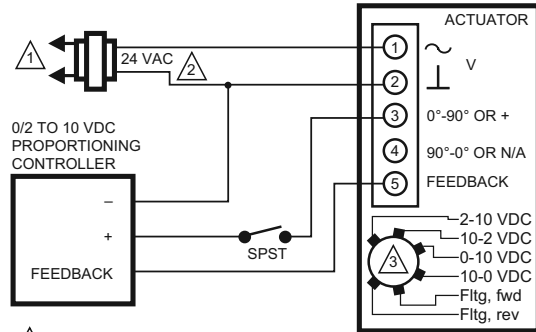
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M29509

Override to full closed



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M27828

Direct Coupled Damper Actuators—Spring Return

S10 Series: MS4110; MS7510; MS8110

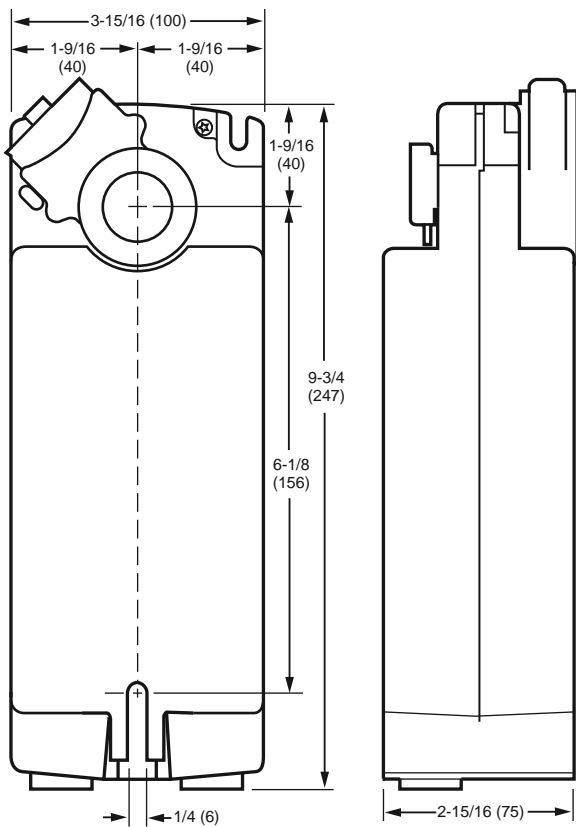
Spring Return Direct Coupled Actuator, 88 lb-in



MS4110, MS7510, MS8110 S10 Series Spring Return Direct Coupled Actuators (DCA) are used within heating, ventilating, and air-conditioning (HVAC) systems. They can drive a variety of quarter-turn, final control elements requiring spring return fail-safe operation.

- Brushless DC submotor with electronic stall protection for floating/modulating models.
- Brush DC submotor with electronic stall protection for 2-position models.
- Self-centering shaft adapter (shaft coupling) for wide range of shaft sizes.
- Models available for use with two-position, single pole single throw (spst), line- (Series 40) or low- (Series 80) voltage controls.
- Models available for use with floating or switched single-pole, double-throw (spdt) (Series 60) controls.
- Models available for use with proportional current or voltage (Series 70) controls.
- Models available with combined floating/modulating control in a single device.
- Models available with adjustable zero and span.
- Models available with line-voltage internal end switches.
- Access cover to facilitate connectivity.
- Metal housing with built-in mechanical end limits.
- Spring return direction field-selectable.
- Shaft position indicator and scale.
- Manual winding capability with locking function.
- UL (cUL) listed and CE compliant.
- All Models are plenum-rated per UL873.

Dimensions in inches (millimeters)



Actuator Type: Damper; Valve

Rotational Stroke: 95 ±3 degrees

Fail Safe Mode: Spring Return

Torque: 88 lb-in. (10 Nm)

Spring Return Torque: 88 lb-in. (10 Nm)

Spring Return Direction: By orientation

External Auxiliary Switches Available: Yes, SW2-US

Electrical Connections: Enclosed screw terminal strip (22 to 14 AWG)

Environmental Rating: NEMA2

Frequency: 50 Hz; 60 Hz

Manual operation: Manual crank

Mounting: Direct Coupled

Maximum Noise Rating, Holding (dBA @ 1m): 20 (no audible noise)

Maximum Noise Rating, Driving (dBA @ 1m): 40

Rotational Stroke Adjustment: Mechanically limited 5 degree increments

Compatible Damper Shafts:

3/8 to 1.06 in. round or 3/8 to 11/16 in. square

(10 to 27 mm round or 10 to 18 mm square)

Shaft Adapter Type: Self-centering clamping

Materials: Aluminum housing, Plenum rated plastic access cover

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Storage Temperature Range: -40 F to +158 F (-40 C to +70 C)

Weight: 6 lb (2.72 kg)

Includes: Mounting bracket, self-centering shaft adapter, 3mm crank

Comments: Integral 1/2 in. NPSM conduit connection.

Approvals:

CE: 89/336/ECC, 73/23/EEC

C-Tick: N314

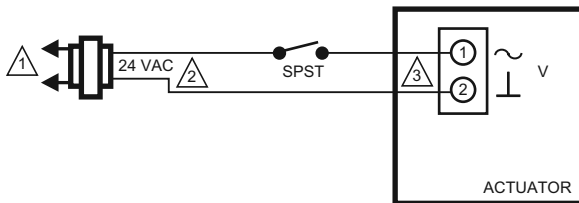
Underwriters Laboratories, Inc. UL873, Plenum Rated

Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

Direct Coupled Damper Actuators—Spring Return

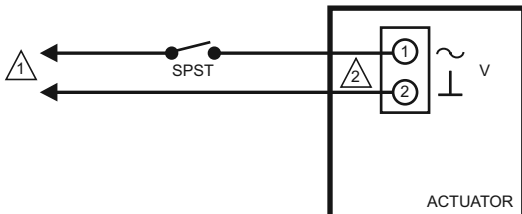
Product Number	Control Signal	Feedback	Timing (seconds)		Power Consumption		Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz	Maximum Spring Return	(Driving)	(Holding)				
MS4110A1002	Two position; SPST	—	45 sec	20 sec	45 VA	13 VA	100 to 250 Vac	—	0	—
MS4110A1200	Two position; SPST	—	45 sec	20 sec	45 VA	13 VA	100 to 250 Vac	—	2	250 Vac, 5 A res (3 A ind)
MS7510A2008	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	2-10 Vdc (max. output: ±1.0 mA)	90 sec	20 sec	14 VA	5 VA	24 Vac ±20%	Min. 95 kOhm	0	—
MS7510A2206	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	2-10 Vdc (max. output: ±1.0 mA)	90 sec	20 sec	14 VA	5 VA	24 Vac ±20%	Min. 95 kOhm	2	250 Vac, 5 A res (3 A ind)
MS7510H2209	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	2-10 Vdc (max. output: ±1.0 mA)	90 sec	20 sec	14 VA	5 VA	24 Vac ±20%	Min. 95 kOhm	2	250 Vac, 5 A res (3 A ind)
MS8110A1008	Two position; SPST	—	45 sec	20 sec	30 VA	8 VA	24 Vac ±20%	—	0	—
MS8110A1206	Two position; SPST	—	45 sec	20 sec	30 VA	8 VA	24 Vac ±20%	—	2	250 Vac, 5 A res (3 A ind)

Wiring for On/Off Control



- 1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 24 VDC SUPPLY ACCEPTABLE.
- 3 ENSURE PROPER GROUNDING OF ACTUATOR CASE.

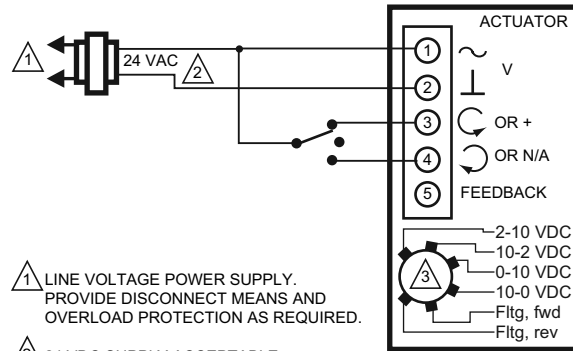
M19718C



- 1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 ENSURE PROPER GROUNDING OF ACTUATOR CASE.

M22289A

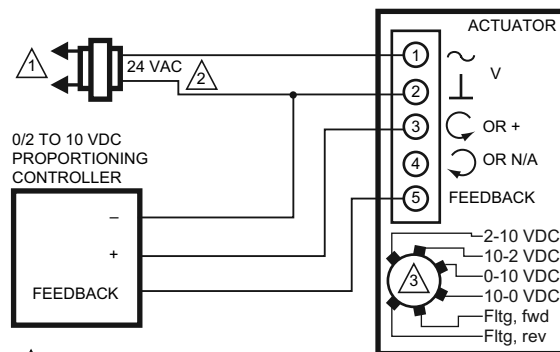
Wiring for Floating Control (Floating mode setting)



- 1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 24 VDC SUPPLY ACCEPTABLE.
- 3 SET SWITCH TO FLOATING.

M19573A

Wiring for Proportioning controllers (Modulating mode setting)

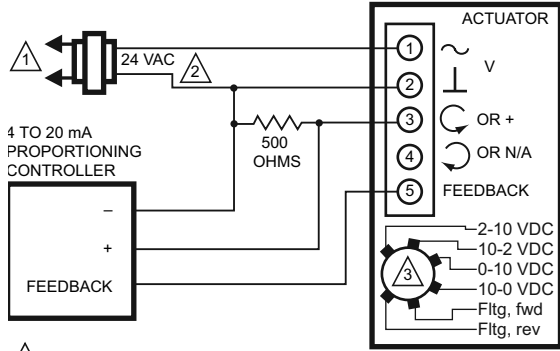


- 1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 24 VDC SUPPLY ACCEPTABLE.
- 3 SET SWITCH TO MODULATING.

M19574A

Direct Coupled Damper Actuators—Spring Return

Wiring for Proportioning controllers (Modulating mode setting)



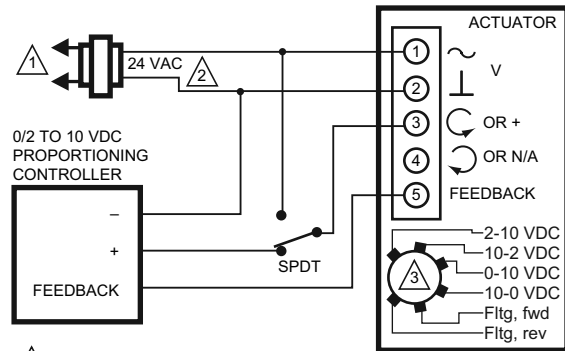
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M22282

Override to full open (Modulating mode setting)



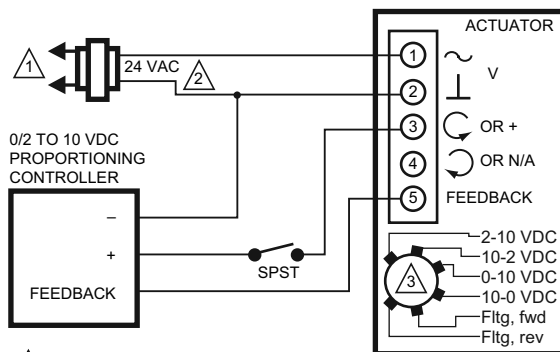
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M19576A

Override to full closed (Modulating mode setting)



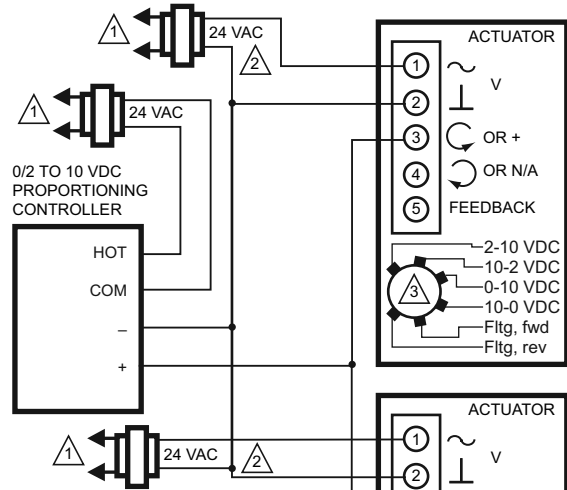
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M19577A

Wiring for Proportioning controllers operating multiple actuators (Modulating mode setting)



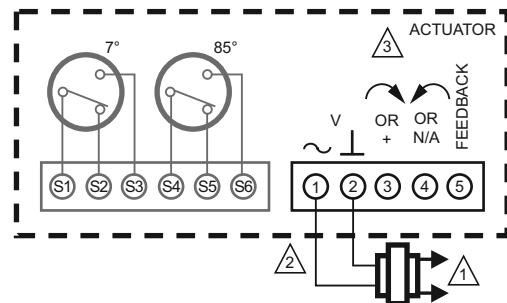
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M22288

Terminal Block Details



1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 THE INTERNAL AUXILIARY SWITCHES MUST BE CONNECTED TO THE SAME POWER SOURCE; OR THE AUXILIARY SWITCHES SHALL BE CONNECTED TO THE SAME POLE OF THE SAME SUPPLY CIRCUIT, CONNECTED IN A SAME POLARITY MANNER.

3 ENSURE PROPER GROUNDING OF ACTUATOR CASE.

M19571B

Direct Coupled Damper Actuators—Spring Return

S20 Series: MS4120; MS7520; MS8120

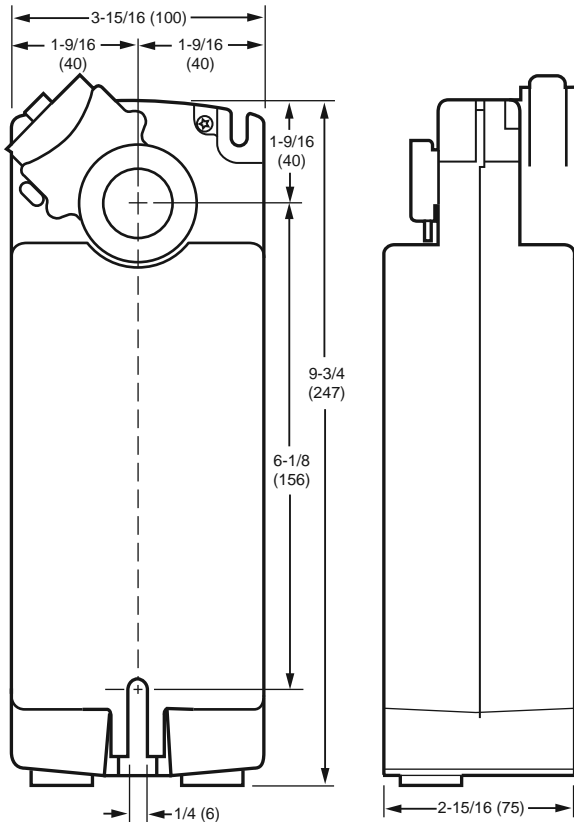
Spring Return Direct Coupled Actuator, 175 lb-in



MS4120, MS7520, MS8120 Spring Return Direct Coupled Actuators (DCA) are used within heating, ventilating, and air-conditioning (HVAC) systems. They can drive a variety of quarter-turn, final control elements requiring spring return fail-safe operation.

- Brushless DC submotor with electronic stall protection for floating/modulating models.
- Brush DC submotor with electronic stall protection for 2-position models.
- Self-centering shaft adapter (shaft coupling) for wide range of shaft sizes.
- Models available for use with two-position, single pole single throw (spst), line- (Series 40) or low- (Series 80) voltage controls.
- Models available for use with floating or switched single-pole, double-throw (spdt) (Series 60) controls.
- Models available for use with proportional current or voltage (Series 70) controls.
- Models available with combined floating/modulating control in a single device.
- Models available with adjustable zero and span.
- Models available with line-voltage internal end switches.
- Access cover to facilitate connectivity.
- Metal housing with built-in mechanical end limits.
- Spring return direction field-selectable.
- Shaft position indicator and scale.
- Manual winding capability with locking function.
- UL (cUL) listed and CE compliant.
- All models are plenum-rated per UL873.

Dimensions in inches (millimeters)



M20952

Actuator Type: Damper; Valve

Rotational Stroke: 95 ±3 degrees

Fail Safe Mode: Spring Return

Torque: 175 lb-in. (20 Nm)

Spring Return Torque: 175 lb-in. (20 Nm)

Spring Return Direction: By orientation

External Auxiliary Switches Available: Yes, SW2-US

Electrical Connections: Enclosed screw terminal strip (22 to 14 AWG)

Environmental Rating: NEMA2

Frequency: 50 Hz; 60 Hz

Manual operation: Manual crank

Mounting: Direct Coupled

Maximum Noise Rating, Holding (dBA @ 1m): 20 (no audible noise)

Maximum Noise Rating, Driving (dBA @ 1m): 40

Rotational Stroke Adjustment: Mechanically limited 5 degree increments

Compatible Damper Shafts:

3/8 to 1.06 in. round or 3/8 to 11/16 in. square
(10 to 27 mm round or 10 to 18 mm square)

Shaft Adapter Type: Self-centering clamping

Materials: Aluminum housing, Plenum rated plastic access cover

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Storage Temperature Range: -40 F to +158 F (-40 C to +70 C)

Weight: 6 lb (2.72 kg)

Includes: Mounting bracket, self-centering shaft adapter, 3mm crank

Comments: Integral 1/2 in. NPSM conduit connection.

Approvals:

CE: 89/336/ECC, 73/23/EEC

C-Tick: N314

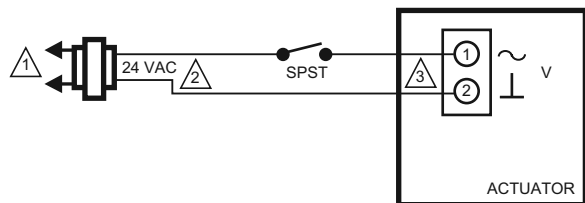
Underwriters Laboratories, Inc. UL873, Plenum Rated

Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

Direct Coupled Damper Actuators—Spring Return

Product Number	Control Signal	Feedback	Timing (seconds)		Power Consumption		Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz	Maximum Spring Return (sec)	(Driving)	(Holding)				
MS4120A1001	Two position; SPST	—	45 sec	20 sec	60 VA	13 VA	100 to 250 Vac	—	0	—
MS4120A1209	Two position; SPST	—	45 sec	20 sec	60 VA	13 VA	100 to 250 Vac	—	2	250 Vac, 5 A res (3 A ind)
MS7520A2007	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	2-10 Vdc (max. output: ±1.0 mA)	90 sec	20 sec	16 VA	5 VA	24 Vac ±20%	Min. 95 kOhm	0	—
MS7520A2205	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	2-10 Vdc (max. output: ±1.0 mA)	90 sec	20 sec	16 VA	5 VA	24 Vac ±20%	Min. 95 kOhm	2	250 Vac, 5 A res (3 A ind)
MS7520H2208	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	2-10 Vdc (max. output: ±1.0 mA)	90 sec	20 sec	16 VA	5 VA	24 Vac ±20%	Min. 95 kOhm	2	250 Vac, 5 A res (3 A ind)
MS8120A1007	Two position; SPST	—	45 sec	20 sec	40 VA	8 VA	24 Vac ±20%	—	0	—
MS8120A1205	Two position; SPST	—	45 sec	20 sec	40 VA	8 VA </td <td>24 Vac ±20%</td> <td>—</td> <td>2</td> <td>250 Vac, 5 A res (3 A ind)</td>	24 Vac ±20%	—	2	250 Vac, 5 A res (3 A ind)

Wiring for On/Off Control

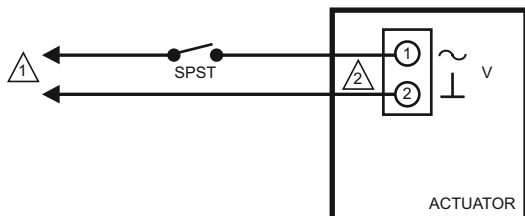


1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 ENSURE PROPER GROUNDING OF ACTUATOR CASE.

M19718C

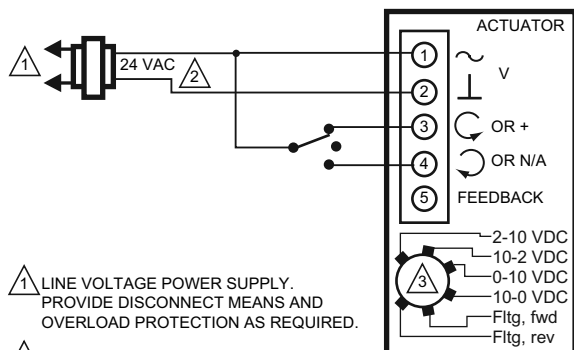


1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 ENSURE PROPER GROUNDING OF ACTUATOR CASE.

M22289A

Wiring for Floating Control (Floating mode setting)



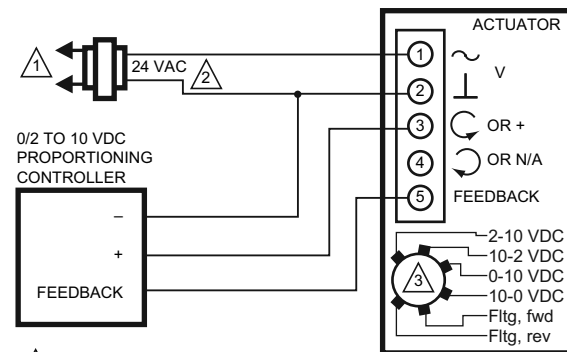
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO FLOATING.

M19573A

Wiring for Proportioning Controllers (Modulating mode setting)

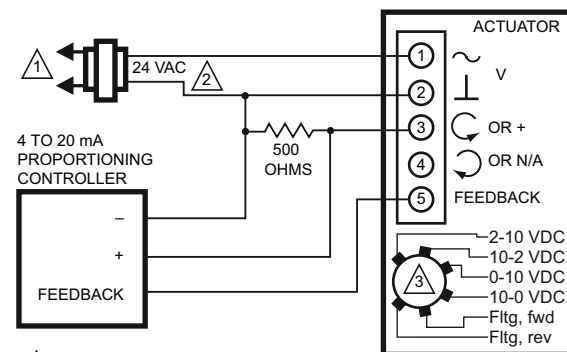


1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M19574A



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

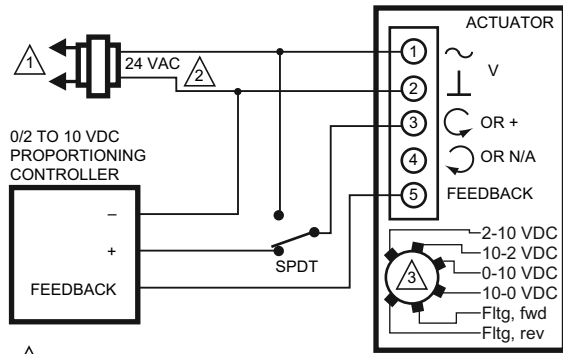
2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M22282

Direct Coupled Damper Actuators—Spring Return

Override to full open (Modulating mode setting)



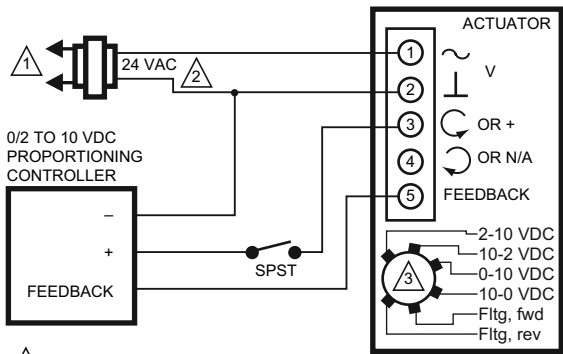
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M19576A

Override to full closed (Modulating mode setting)



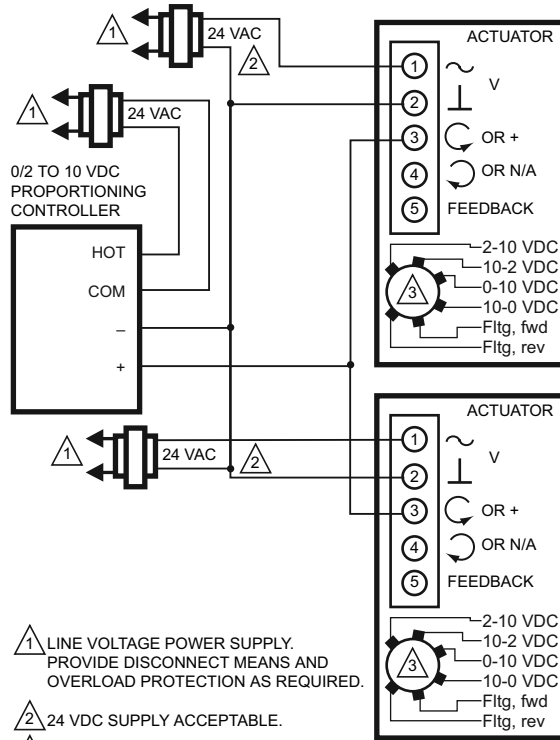
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M19577A

Wiring for Proportioning controllers operating multiple actuators (Modulating mode setting)



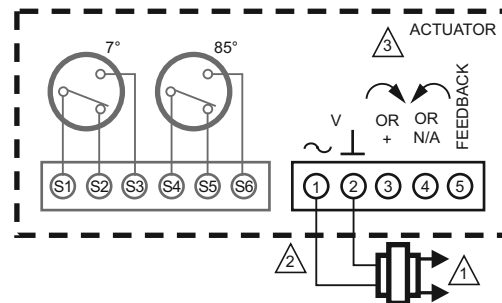
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M22288

Terminal Block Details



1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 THE INTERNAL AUXILIARY SWITCHES MUST BE CONNECTED TO THE SAME POWER SOURCE; OR THE AUXILIARY SWITCHES SHALL BE CONNECTED TO THE SAME POLE OF THE SAME SUPPLY CIRCUIT, CONNECTED IN A SAME POLARITY MANNER.

3 ENSURE PROPER GROUNDING OF ACTUATOR CASE.

M19571B

Direct Coupled Damper Actuators—Spring Return

ML4135; ML8135

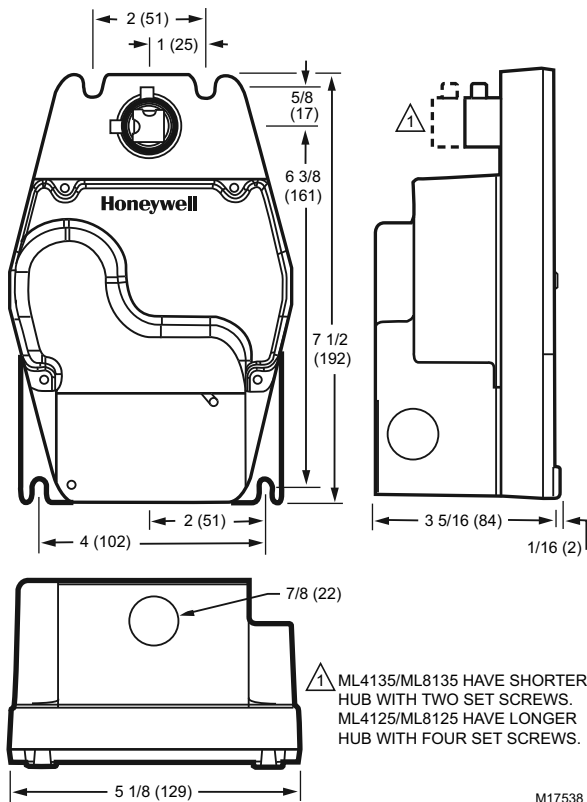
HVAC, Fast-Acting, Two-Position Actuators, 40 lb-in



The ML8135 Fast-Acting, Two-Position Actuators are spring return direct coupled actuators (DCA) with an integral junction box for on/off damper control.

- Integral spring return.
- -40 C to 130 F (-40 C to 54 C) operating temperature range.
- No audible noise during holding.
- Electronic circuitry provides efficient operation while eliminating the need for limit switches.
- Ninety-five degree angle of rotation.
- Die-cast aluminum housing. Housing design allows flush mounting to damper.
- Integral junction box with three conduit openings eliminates need for separate wiring box.
- Direct mounting to 3/8 or 1/2 in. round or square shaft.
- Not intended for smoke control systems.

Dimensions in inches (millimeters)



Actuator Type: Damper

Rotational Stroke: 95 ±3 degrees

Fail Safe Mode: Spring Return

Torque: 40 lb-in. (4.5 Nm)

Spring Return Torque: 40 lb-in. (4.5 Nm)

External Auxiliary Switches Available: Yes, 32003532-005

Electrical Connections: Two color-coded leads

Electrical Connection Length: 16 in. (406 mm)

Environmental Rating: NEMA1

Frequency: 60 Hz

Mounting: Direct Coupled

Maximum Noise Rating, Holding (dBA @ 1m): 20 (no audible noise)

Maximum Noise Rating, Driving (dBA @ 1m): 65

Compatible Damper Shafts: 3/8 to 1/2 in. square or round (10 to 13 mm square/round)

Shaft Adapter Type: Aluminum Hub, four set screws

Materials: Aluminum housing

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Ambient Temperature Range: -40 F to +130 F (-18 C to +55 C)

Storage Temperature Range: -40 F to +140 F (-18 C to +60 C)

Weight: 6 lb (2.72 kg)

Comments: Integral junction box with three 7/8 in. conduit openings (fittings not included)

Approvals:

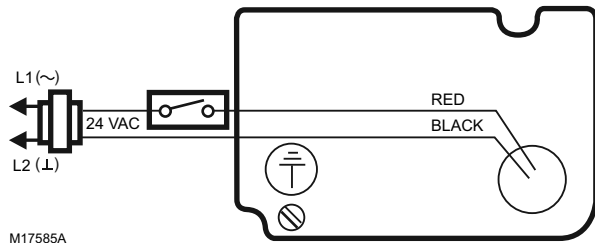
Underwriters Laboratories, Inc. UL873, Plenum Rated

Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

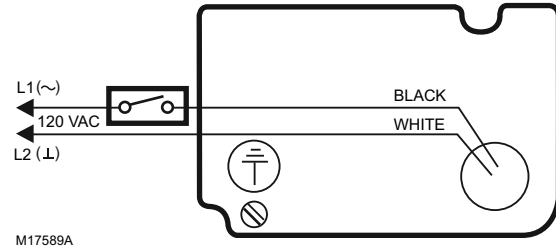
Direct Coupled Damper Actuators—Spring Return

Product Number	Control Signal	Spring Return Direction	Timing (seconds)			Power Consumption		Supply Voltage	Number of Internal Auxiliary Switch	Includes
			Maximum Driving @ 60 Hz	Nominal Driving @ 60 Hz	Maximum Spring Return	(Driving)	(Holding)			
ML4135A1007	Two position; SPST	CCW	25 sec	20 sec	15 sec	0.18A, 18W	0.11A, 9W	120 Vac ±10%	0	Mounting bracket, ground screw
ML4135B1006	Two position; SPST	CW	25 sec	20 sec	15 sec	0.18A, 18W	0.11A, 9W	120 Vac ±10%	0	Mounting bracket, ground screw
ML8135A1003	Two position; SPST	CCW	25 sec	20 sec	15 sec	18 VA	8.5 VA	24 Vac +20%, -10%	0	Mounting bracket
ML8135B1002	Two position; SPST	CW	25 sec	20 sec	15 sec	18 VA	8.5 VA	24 Vac +20%, -10%	0	Mounting bracket

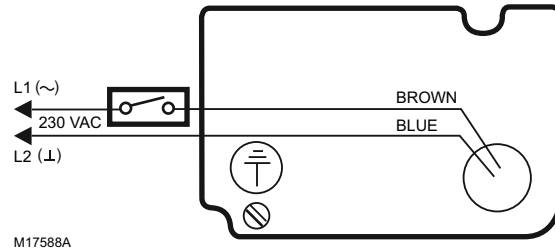
Typical 24 Vac wiring



Typical 120 Vac Wiring



Typical 230 Vac Wiring



Direct Coupled Damper Actuators—Spring Return

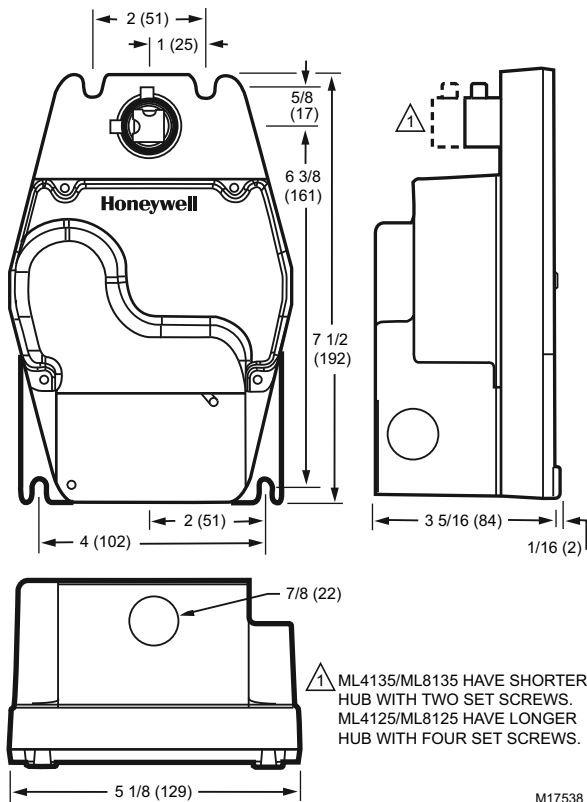
ML4125; ML8125; HVAC, Fast-Acting, Two-Position Actuators, 100 lb-in



The ML8125 Fast-Acting, Two-Position Actuators are spring return direct coupled actuators (DCA) with an integral junction box for on/off damper control.

- Integral spring return.
- -40 C to 130 F (-40 C to 54 C) operating temperature range.
- No audible noise during holding.
- Electronic circuitry provides efficient operation while eliminating the need for limit switches.
- Ninety-five degree angle of rotation.
- Die-cast aluminum housing. Housing design allows flush mounting to damper.
- Integral junction box with three conduit openings eliminates need for separate wiring box.
- Direct mounting to 3/8 or 1/2 in. round or square shaft.
- Not intended for smoke control systems.

Dimensions in inches (millimeters)



Actuator Type: Damper

Rotational Stroke: 95 ±3 degrees

Fail Safe Mode: Spring Return

Torque: 100 lb-in. (11.3 Nm)

Spring Return Torque: 100 lb-in. (11.3 Nm)

External Auxiliary Switches Available: Yes, 32003532-005

Electrical Connections: Two color-coded leads

Electrical Connection Length: 16 in. (406 mm)

Environmental Rating: NEMA1

Frequency: 60 Hz

Mounting: Direct Coupled

Maximum Noise Rating, Holding (dBA @ 1m): 20 (no audible noise)

Maximum Noise Rating, Driving (dBA @ 1m): 65

Compatible Damper Shafts: 3/8 to 1/2 in. square or round (10 to 13 mm square/round)

Shaft Adapter Type: Aluminum Hub, two set screws

Materials: Aluminum housing

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Ambient Temperature Range: -40 F to +130 F (-18 C to +55 C)

Storage Temperature Range: -40 F to 140 F (-40 C to +60 C)

Weight: 6 lb (2.72 kg)

Comments: Integral junction box with three 7/8 in. conduit openings (fittings not included)

Approvals:

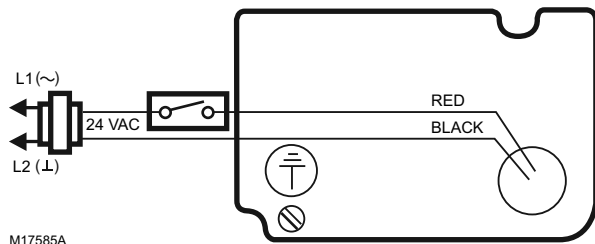
Underwriters Laboratories, Inc. UL873, Plenum Rated

Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

Direct Coupled Damper Actuators—Spring Return

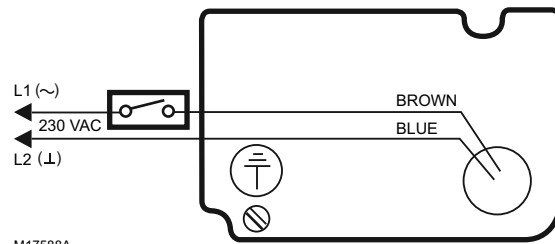
Product Number	Control Signal	Spring Return Direction	Timing (seconds)			Power Consumption		Supply Voltage	Number of Internal Auxiliary Switch	Includes
			Maximum Driving @ 60 Hz	Nominal Driving @ 60 Hz	Maximum Spring Return	(Driving)	(Holding)			
ML4125A1008	Two position; SPST	CCW	40 sec	25 sec	25 sec	0.16A, 15W	0.10A, 5W	120 Vac +10%, -15%	0	Ground Screw
ML4125B1007	Two position; SPST	CW	40 sec	25 sec	25 sec	0.16A, 15W	0.10A, 5W	120 Vac +10%, -15%	0	Ground Screw
ML4125C1006	Two position; SPST	CCW	40 sec	25 sec	25 sec	0.12A, 18.6W	0.10A, 7W	230 Vac ±10%	0	Mounting bracket
ML4125D1005	Two position; SPST	CW	40 sec	25 sec	25 sec	0.12A, 18.6W	0.10A, 7W	230 Vac ±10%	0	Mounting bracket
ML8125A1004	Two position; SPST	CCW	40 sec	25 sec	25 sec	15.6 VA	4 VA	24 Vac +20%, -10%	0	Mounting bracket
ML8125B1003	Two position; SPST	CW	40 sec	25 sec	25 sec	15.6 VA	4 VA	24 Vac +20%, -10%	0	Mounting bracket

Typical 24 Vac wiring



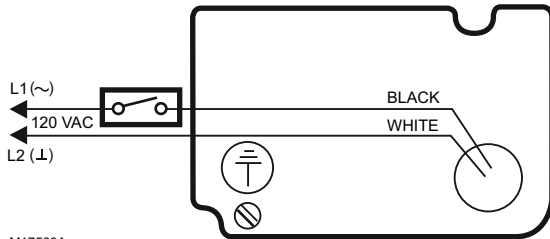
M17585A

Typical 230 Vac Wiring



M17588A

Typical 120 Vac Wiring



M17589A

Direct Coupled Damper Actuators—Non-Spring Return

ML6161; ML7161

Non-Spring Return Direct Coupled Damper Actuators, 35 lb-in



ML6161A,B



ML6161C,D



ML7161

Used to control dampers in applications such as variable air volume (VAV) terminal units and for mounting on ball valves; suitable for use with SPDT or floating thermostats or building automation controls.

- Control for air damper applications with up to 10 sq.ft. assuming 3.5 in-lb per sq.ft. of damper area, velocity independent.
- Superior A/C synchronous submotor for consistent timing and actuator longevity.
- Eliminate need for limit switches or mechanical stops by providing magnetic coupling.
- All models include manual declutch lever, and bag assembly with two minimum position setscrews.
- Mount directly on 3/8 inch or 1/2 inch square or round damper shaft.
- Selectable 45, 60, and 90 stroke in either clockwise or counterclockwise direction.

Actuator Type: Damper

Rotational Stroke: 90 degrees

Fail Safe Mode: Non-Spring Return

Torque: 35 lb-in. (4 Nm)

External Auxiliary Switches Available: Yes, 201052B

Electrical Connections: Screw terminals

Environmental Rating: NEMA1

Feedback: With accessory

Frequency: 50 Hz; 60 Hz

Manual operation: Declutch mechanism

Mounting: Direct Coupled

Maximum Noise Rating, Driving (dBA @ 1m): 45

Rotation to Open: By wiring

Rotational Stroke Adjustment: Mechanically limited at 45 or 60 degrees in cw or ccw directions

Compatible Damper Shafts: 3/8 to 1/2 in. square or round (10 to 13 mm square/round)

Shaft Adapter Type: Aluminum Hub, two set screws

Supply Voltage: 24 Vac \pm 20%

Materials: Steel plate and Plenum rated plastic

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Ambient Temperature Range: 20 F to 125 F (-18 C to +50 C)

Storage Temperature Range: 20 F to 130 F (-18 C to +54 C)

Weight: 1.5 lb (0.68 kg)

Includes: 4074ENY Bag Assembly

Approvals:

CE: 89/336/ECC, 73/23/EEC

C-Tick: N314

Underwriters Laboratories, Inc. UL873, Plenum Rated

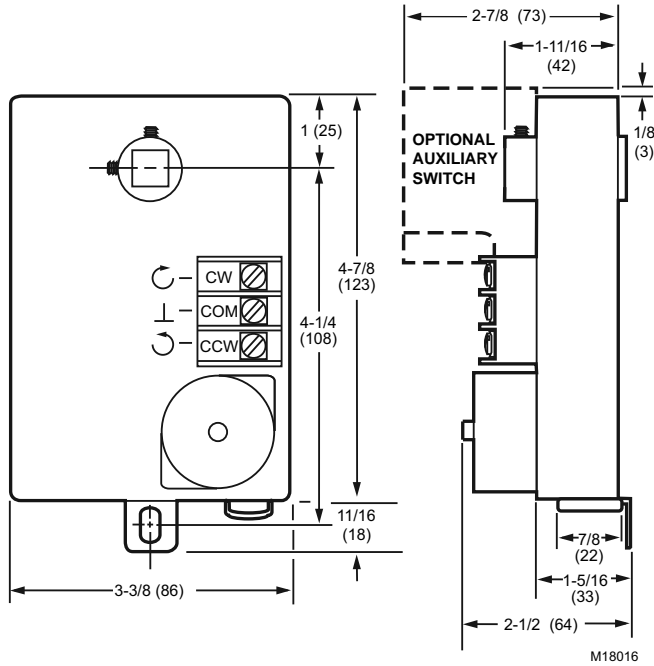
Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

Product Number	Control Signal	Feedback	Timing (seconds)	Power Consumption (Driving)	Input Impedance	Number of Internal Auxiliary Switch	Comments
			Nominal Driving @ 60 Hz				
* ML6161A2009	SPDT; Floating	With accessory	90 sec	1.8 VA	—	0	—
ML6161A2017	SPDT; Floating	With accessory	420 sec	1.8 VA	—	0	—
* ML6161A2025	SPDT; Floating	With accessory	180 sec	1.8 VA	—	0	—
* ML6161B2024	SPDT; Floating	—	90 sec	1.8 VA	—	0	—
* ML6161B2032	SPDT; Floating	—	420 sec	1.8 VA	—	0	—
* ML6161B2073	SPDT; Floating	—	180 sec	1.8 VA	—	0	—
ML6161C2007	SPDT; Floating	With accessory	90 sec	1.8 VA	—	0	Includes two 5/8 x 7/8 in. double knock-out conduit openings
ML6161D2006	SPDT; Floating	—	90 sec	1.8 VA	—	0	Includes two 5/8 x 7/8 in. double knock-out conduit openings
ML7161A2008	2 to 10 Vdc (4-20 mA w/500 ohm resistor)	—	90 sec	5.4 VA	45K ohm (2-10 Vdc signal), 536 ohm (4-20 mA signal)	0	—

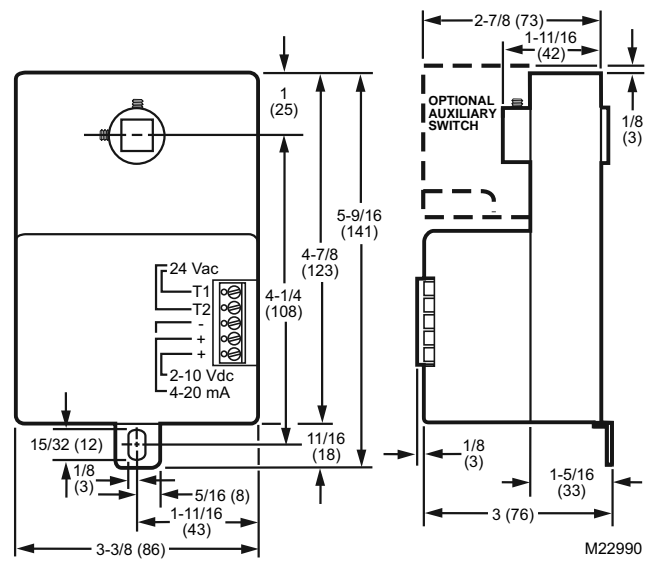
* TRADELINE models • SUPER TRADELINE models

Direct Coupled Damper Actuators—Non-Spring Return

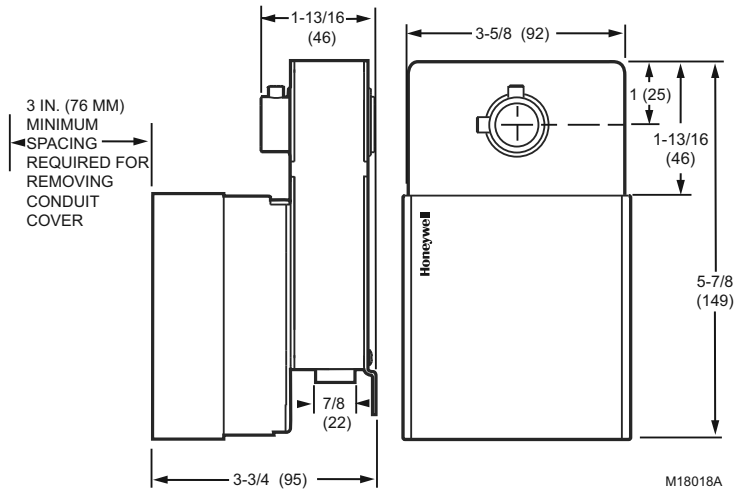
ML6161A,B Dimensions in inches (millimeters)



ML6161 Dimensions in inches (millimeters)

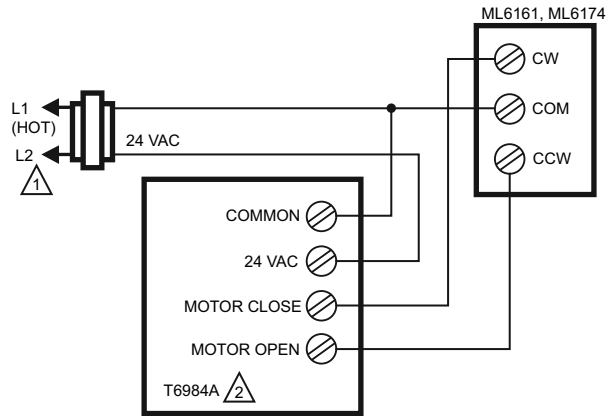


ML6161C,D Dimensions in inches (millimeters)



Direct Coupled Damper Actuators—Non-Spring Return

Typical Wiring of ML6161 using Electronic Floating T6984 Thermostat

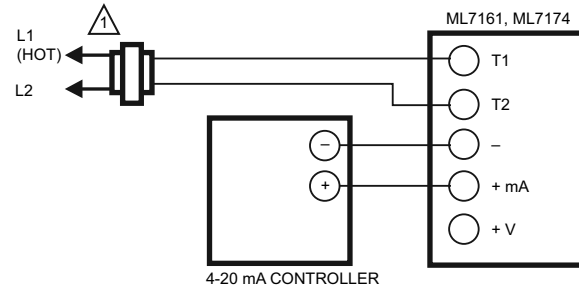


1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION, AS REQUIRED.

2 T6984A SHOWN WIRED FOR COOLING ONLY. TO WIRE FOR HEATING ONLY, REVERSE OPEN AND CLOSE CONTACTS.

M18023

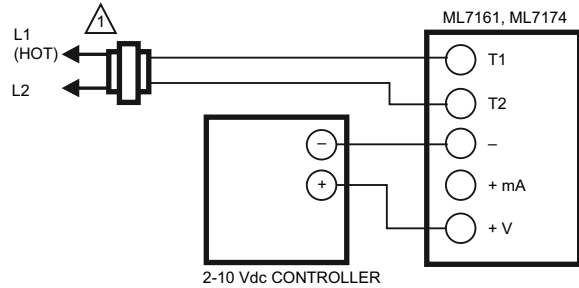
ML7161 used with 4-20 mA control



1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

M18071

ML7161 used with 2-10 Vdc control



1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

M18072

Direct Coupled Damper Actuators—Non-Spring Return

ML6174; ML7174, Non-Spring Return Direct Coupled Damper Actuators, 70 lb-in



ML6174A,B

ML6174C,D

ML6174

Used to control dampers in applications such as variable air volume (VAV) terminal units and for mounting on ball valves; suitable for use with SPDT or floating thermostats or building automation controls.

- Control for air damper applications with up to 20 sq.ft. assuming 3.5 in-lb per sq.ft. of damper area, velocity independent.
- Magnetic coupling eliminates the need for mechanical stops or limit switch adjustments by limiting stall torque to 130 lb-in. maximum.
- Mount directly on 3/8 to 1/2 in. round and square damper shafts. All models include manual declutch lever for ease of mounting, and bag assembly with two minimum position setscrews. 90 second timing models are suitable for use with pressure independent VAV systems.
- Selectable 45, 60, and 90 degree stroke in either clockwise or counterclockwise direction.

Actuator Type: Damper
Rotational Stroke: 90 degrees
Fail Safe Mode: Non-Spring Return
Torque: 70 lb-in (8 Nm)
External Auxiliary Switches Available: Yes, 201052B
Environmental Rating: NEMA1
Feedback: With accessory
Frequency: 50 Hz; 60 Hz
Manual operation: Declutch mechanism
Mounting: Direct Coupled
Maximum Noise Rating, Driving (dBA @ 1m): 45
Rotation to Open: By wiring
Rotational Stroke Adjustment: Mechanically limited at 45 or 60 degrees in cw or ccw directions

Compatible Damper Shafts: 3/8 to 1/2 in. square or round (10 to 13 mm square/round)
Shaft Adapter Type: Aluminum Hub, two set screws
Supply Voltage: 24 Vac ±20%
Materials: Steel plate and Plenum rated plastic
Operating Humidity Range (% RH): 5 to 95% RH, non-condensing
Ambient Temperature Range: 20 F to 125 F (-18 C to +50 C)
Storage Temperature Range: 20 F to 130 F (-18 C to +54 C)
Weight: 1.5 lb (0.68 kg)
Includes: 4074ENY Bag Assembly

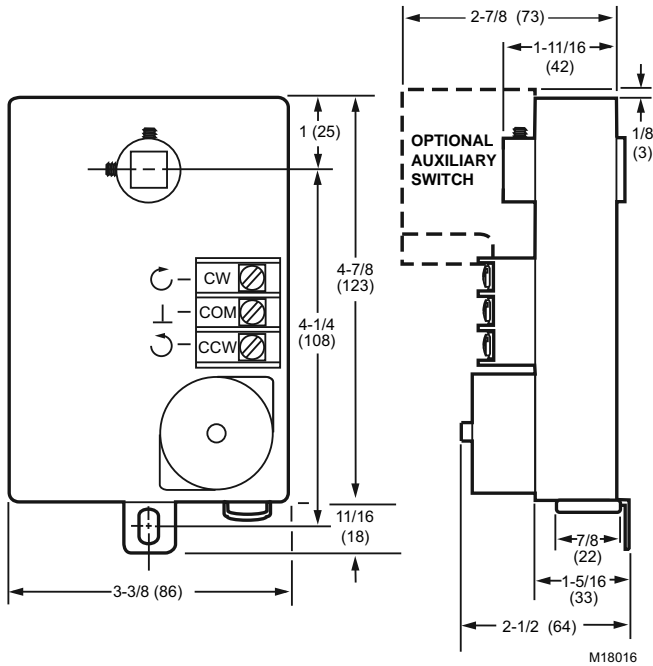
Approvals:
Underwriters Laboratories, Inc. UL873, Plenum Rated
Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

Product Number	Control Signal	Feedback	Spring Return Direction	Timing (seconds)	Power Consumption (Driving)	Input Impedance	Number of Internal Auxiliary Switch	Electrical Connections	Electrical Connection Length		Comments
				Nominal Driving @ 60 Hz					(inch)	(m)	
* ML6174A2002	SPDT; Floating	With accessory	—	90 sec	2.4 VA	—	0	Screw terminals	—	—	—
* ML6174A2010	SPDT; Floating	With accessory	—	180 sec	2.4 VA	—	0	Screw terminals	—	—	—
* ML6174B2019	SPDT; Floating	—	—	90 sec	2.4 VA	—	0	Screw terminals	—	—	—
ML6174B2035	SPDT; Floating	—	—	420 sec	2.4 VA	—	0	Screw terminals	—	—	—
ML6174D2009	SPDT; Floating	—	—	90 sec	2.4 VA	—	0	Screw terminals	—	—	Includes two 5/8 x 7/8 in. double knock-out conduit openings
ML6174E2008	SPDT; Floating	—	—	90 sec	2.4 VA	—	0	Appliance cable	39 in.	1 m	—
ML7174A2001	2 to 10 Vdc (4-20 mA w/500 ohm resistor)	—	Stem down on power failure	90 sec	5.4 VA	45K ohm (2-10 Vdc signal), 536 ohm (4-20 mA signal)	0	Screw terminals	—	—	—
ML7174E2007	2 to 10 Vdc (4-20 mA w/500 ohm resistor)	—	—	90 sec	5.4 VA	45K ohm (2-10 Vdc signal), 536 ohm (4-20 mA signal)	0	Appliance cable	39 in.	1 m	—

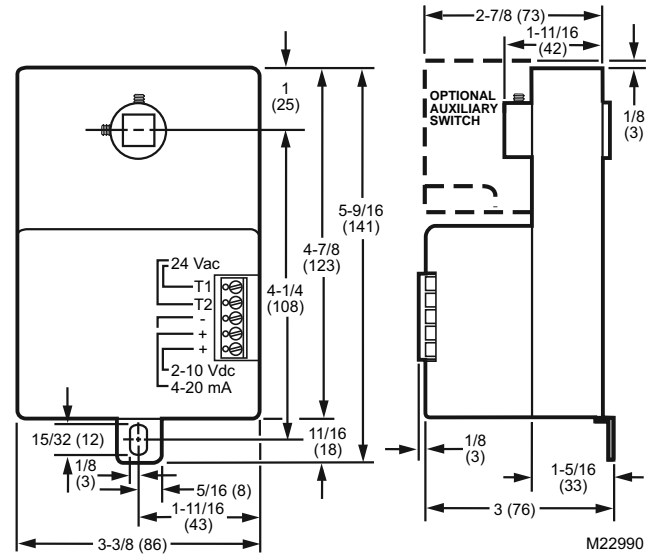
* TRADELINE models • SUPER TRADELINE models

Direct Coupled Damper Actuators—Non-Spring Return

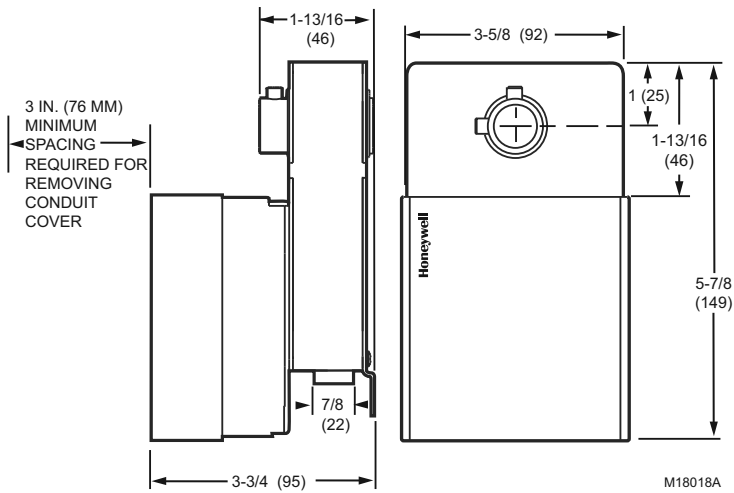
ML6174A,B Dimensions in inches (millimeters)



ML6174 Dimensions in inches (millimeters)

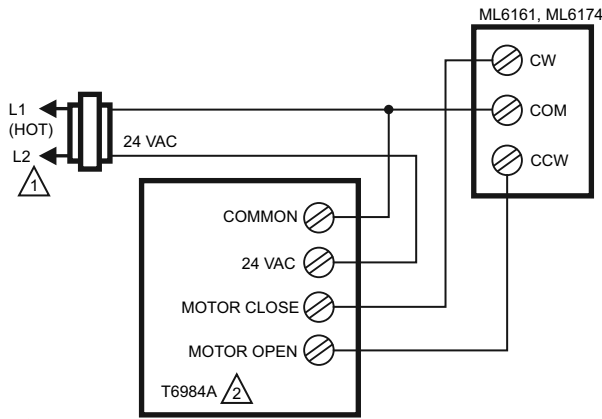


ML6174C,D Dimensions in inches (millimeters)



Direct Coupled Damper Actuators—Non-Spring Return

Typical Wiring of ML6174 using Electronic Floating T6984 Thermostat

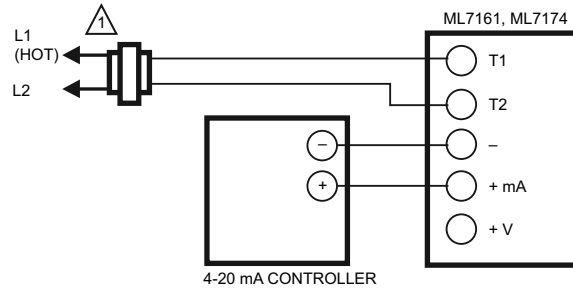


1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION, AS REQUIRED.

2 T6984A SHOWN WIRED FOR COOLING ONLY. TO WIRE FOR HEATING ONLY, REVERSE OPEN AND CLOSE CONTACTS.

M18023

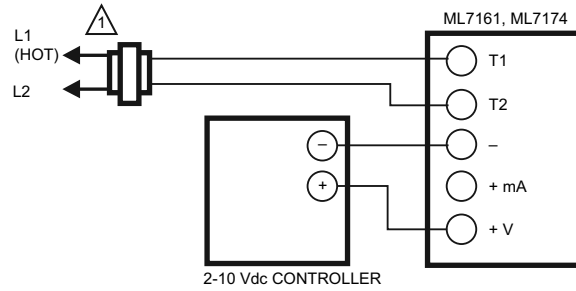
ML7174 used with 4-20 mA control



1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

M18071

ML7174 used with 2-10 Vdc control



1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

M18072

Direct Coupled Damper Actuators—Non-Spring Return

N05 Series: MN6105; MN7505

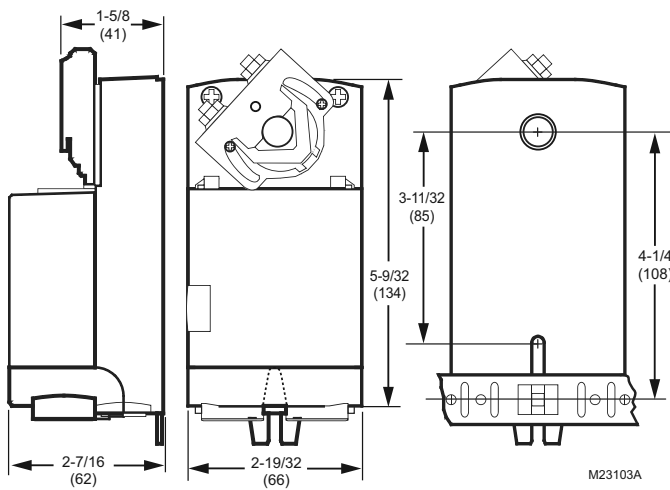
Non-Spring Return Direct Coupled Actuator, 44 lb-in



This non-spring return direct-coupled damper actuator provides modulating and floating/2-position control for: air dampers, air handlers, ventilation flaps, louvers, and reliable control for air damper applications with up to 10 sq. ft./ 44lb.-in. (5 Nm) and 20 sq. ft./88 lb.-in. (10 Nm) (seal-less damper blades; air friction-dependent).

- Declutch for manual adjustment
- Adjustable mechanical end limits
- Removable access cover for direct wiring
- Mountable in any orientation
- Function selection switch for selecting modulating or floating/2-position control

Dimensions in inches (millimeters)



Actuator Type: Damper; Valve
Rotational Stroke: 95 ±3 degrees
Fail Safe Mode: Non-Spring Return
Torque: 44 lb.-in. (5 Nm)
External Auxiliary Switches Available: Yes, SSW2-1M
Electrical Connections: Enclosed screw terminal strip (22 to 14 AWG)
Environmental Rating: NEMA2
Frequency: 50 Hz; 60 Hz
Manual operation: Declutch mechanism
Mounting: Direct Coupled
Maximum Noise Rating, Driving (dBA @ 1m): 35
Rotation to Open: By switch
Rotational Stroke Adjustment: Dual Integral Adj. Stops (3 degree increments)
Compatible Damper Shafts: 1/4 to 1/2 in. square or 3/8 to 5/8 in. round (6 to 13 mm square or 8 to 16 mm round)
Shaft Adapter Type: U-bolt clamp
Supply Voltage: 24 Vac +20%, -15%, 24 Vdc
Materials: Plenum rated plastic housing
Ingress Protection Rating: IP54
Operating Humidity Range (% RH): 5 to 95% RH, non-condensing
Ambient Temperature Range: -5 F to +140 F (-20 C to +60 C)
Storage Temperature Range: -22 F to +176 F (-30 C to +80 C)
Weight: 1 lb (0.45 kg)
Includes: Mounting bracket, screws, shaft adapter, water-tight strain-relief cable fittings
Comments: Integral 1/2 in. NPSM conduit connection.

Approvals:
CE: 89/336/ECC, 73/23/EEC
C-Tick: N314
Underwriters Laboratories, Inc. UL873, Plenum Rated
Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

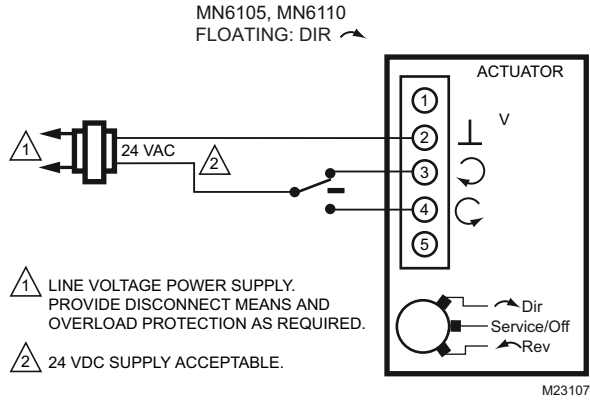
Product Number	Control Signal	Feedback	Timing (seconds)	Power Consumption (Driving)	Number of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz			
* MN6105A1011	Floating; Two position	—	95 sec	5 VA	0	—
* MN6105A1201	Floating; Two position	—	95 sec	5 VA	2	30 Vdc max., 3 A Class II
* MN7505A2001	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating; Two position	(0)2-10 Vdc (max. output: ±1.0 mA)	95 sec	5 VA	0	—
* MN7505A2209	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating; Two position	(0)2-10 Vdc (max. output: ±1.0 mA)	95 sec	5 VA	2	30 Vdc max., 3 A Class II

* TRADELINE models • SUPER TRADELINE models

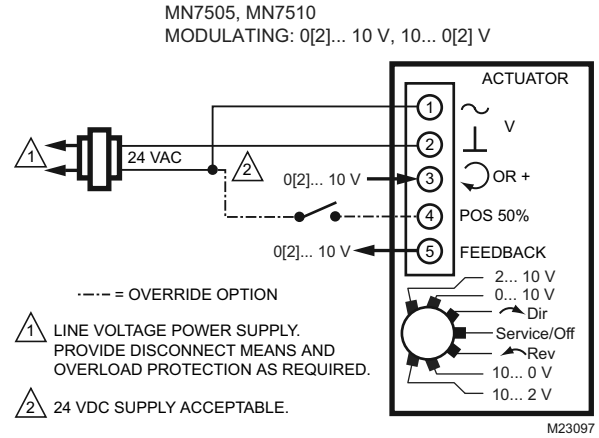
Commercial Components

Direct Coupled Damper Actuators—Non-Spring Return

Wiring for Floating Control

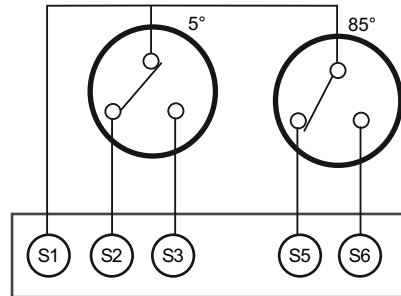


Wiring for Voltage Control



Wiring for Auxiliary Switches

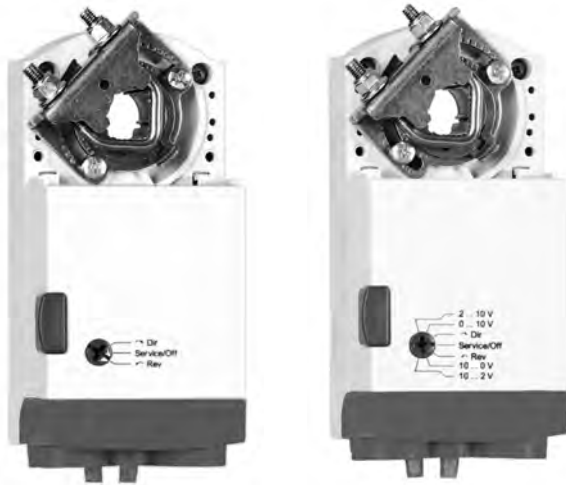
END SWITCHES (CLASS II-ONLY)



Direct Coupled Damper Actuators—Non-Spring Return

N10 Series: MN6110; MN7510

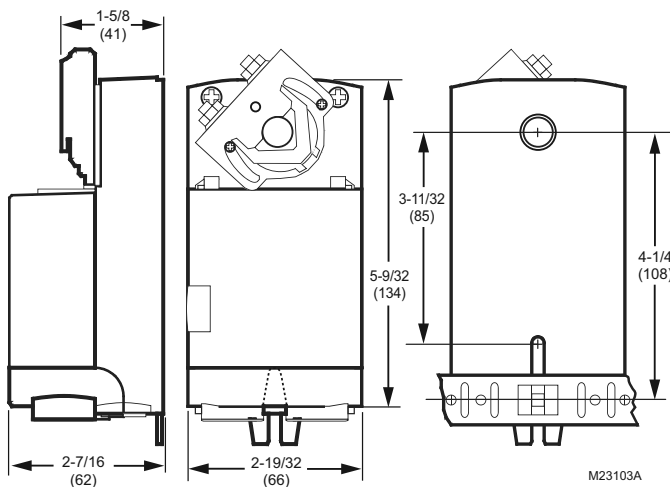
Non-Spring Return Direct Coupled Actuator, 88 lb-in



This non-spring return direct-coupled damper actuator provides modulating and floating/2-position control for air dampers, air handlers, ventilation flaps, louvers, and reliable control for air damper applications with up to 20 sq ft/88 lb-in. (10 Nm) (seal-less damper blades; air friction-dependent).

- Declutch for manual adjustment
- Adjustable mechanical end limits
- Removable access cover for direct wiring
- Mountable in any orientation
- Function selection switch for selecting modulating or floating/2-position control

Dimensions in inches (millimeters)



Actuator Type: Damper; Valve
Rotational Stroke: 95 ±3 degrees
Fail Safe Mode: Non-Spring Return
Torque: 88 lb-in. (10 Nm)
External Auxiliary Switches Available: Yes, SSW2-1M
Electrical Connections: Enclosed screw terminal strip (22 to 14 AWG)
Environmental Rating: NEMA2
Frequency: 50 Hz; 60 Hz
Manual operation: Declutch mechanism
Mounting: Direct Coupled
Maximum Noise Rating, Driving (dBA @ 1m): 35
Rotation to Open: By switch
Rotational Stroke Adjustment: Dual Integral Adj. Stops (3 degree increments)
Compatible Damper Shafts: 1/4 to 1/2 in. square or 3/8 to 5/8 in. round (6 to 13 mm square or 8 to 16 mm round)
Shaft Adapter Type: U-bolt clamp
Supply Voltage: 24 Vac +20%, -15%, 24 Vdc
Materials: Plenum rated plastic housing
Ingress Protection Rating: IP54
Operating Humidity Range (% RH): 5 to 95% RH, non-condensing
Ambient Temperature Range: -5 F to +140 F (-20 C to +60 C)
Storage Temperature Range: -22 F to +176 F (-30 C to +80 C)
Weight: 1 lb (0.45 kg)
Includes: Mounting bracket, screws, shaft adapter, water-tight strain-relief cable fittings
Comments: Integral 1/2 in. NPSM conduit connection.

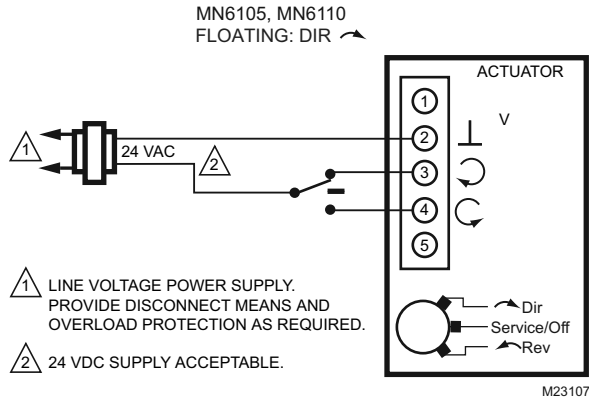
Approvals:
CE: 89/336/ECC, 73/23/EEC
C-Tick: N314
Underwriters Laboratories, Inc. UL873, Plenum Rated
Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

Product Number	Control Signal	Feedback	Timing (seconds)		Number of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz	Power Consumption (Driving)		
* MN6110A1003	Floating; Two position	—	95 sec	5 VA	0	—
* MN6110A1201	Floating; Two position	—	95 sec	5 VA	2	30 Vdc max., 3 A Class II
* MN7510A2001	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating; Two position	(0)2-10 Vdc (max. output: ±1.0 mA)	95 sec	5 VA	0	—
* MN7510A2209	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating; Two position	(0)2-10 Vdc (max. output: ±1.0 mA)	95 sec	5 VA	2	30 Vdc max., 3 A Class II

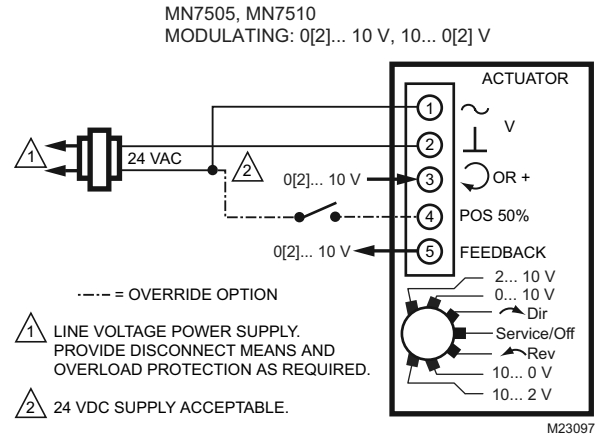
* TRADELINE models • SUPER TRADELINE models

Direct Coupled Damper Actuators—Non-Spring Return

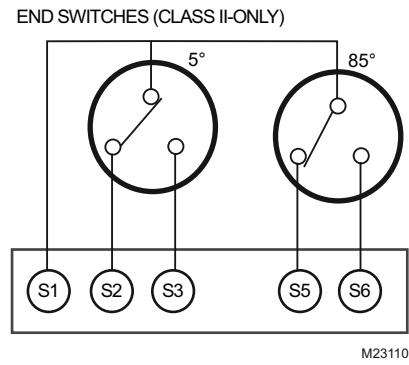
Wiring for Floating Control



Wiring for Voltage Control



Wiring for Auxiliary Switches



Direct Coupled Damper Actuators—Non-Spring Return

N20 Series: MN6120; MN7220

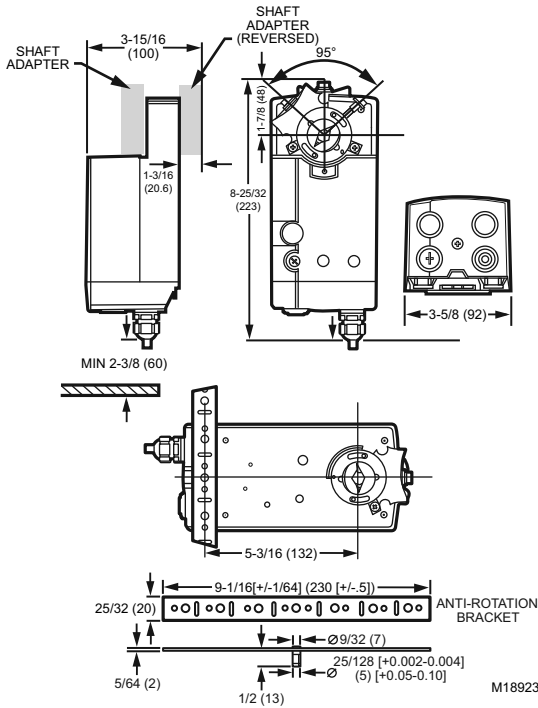
Non-Spring Return Direct Coupled Actuator, 175 lb-in



These direct-coupled damper actuators provide adjustable modulating control for: air dampers, air handling units, ventilation flaps, louvers, and reliable control for air damper applications with up to 4.6 m²/50 sq ft (seal-less dampers; air friction-dependent).

- Control for air damper applications with up to 50 sq ft assuming 3.5 in-lb per sq ft of damper area, velocity independent.
- Patented self-centering shaft adapter.
- Access cover to facilitate connectivity.
- Declutch for manual adjustment.
- Mechanical end limits.
- Field-insatiable auxiliary switches.
- Rotation direction selectable by switch.
- Mountable in any orientation (no IP54 if upside down).
- Mechanical position indicator.
- CE approved. UL approved.

Dimensions in inches (millimeters)



Actuator Type: Damper; Valve

Rotational Stroke: 95 ±3 degrees

Fail Safe Mode: Non-Spring Return

Torque: 175 lb-in. (20 Nm)

External Auxiliary Switches Available: Yes, SW2-US

Electrical Connections: Enclosed screw terminal strip (22 to 14 AWG)

Environmental Rating: NEMA2; IP54

Frequency: 50 Hz; 60 Hz

Manual operation: Declutch mechanism

Mounting: Direct Coupled

Maximum Noise Rating, Driving (dBA @ 1m): 40

Rotation to Open: By switch

Rotational Stroke Adjustment: Dual Integral Adj. Stops (3 degree increments)

Compatible Damper Shafts: 3/8 to 1.06 in. round or 3/8 to 11/16 in. square (10 to 27 mm round or 10 to 18 mm square)

Shaft Adapter Type: Self-centering clamping

Materials: Plenum rated plastic housing

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Ambient Temperature Range: -5 F to +140 F (-20 C to +60 C)

Storage Temperature Range: -40 F to +175 F (-40 C to +80 C)

Weight: 3.2 lb (1.45 kg)

Includes: Mounting bracket, self-centering shaft adapter

Comments: Integral 1/2 in. NPSM conduit connection.

Approvals:

CE: 89/336/ECC, 73/23/EEC

C-Tick: N314

Underwriters Laboratories, Inc. UL873, Plenum Rated

Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

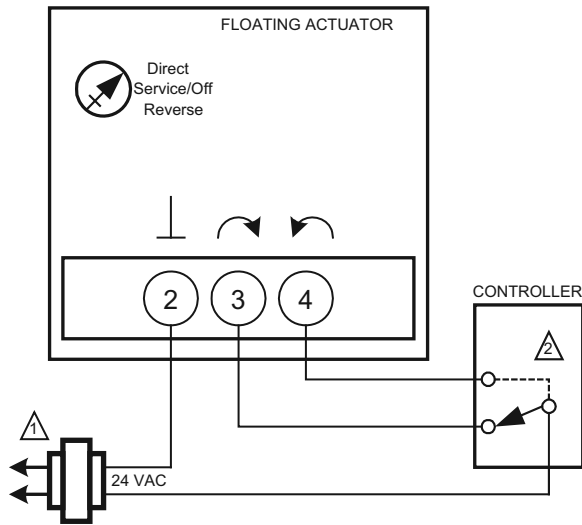
Product Number	Control Signal	Feedback	Timing (seconds)	Power Consumption (Driving)	Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz					
* MN6120A1002	Floating; Two position	—	95 sec	6 VA, 6 W	24 Vac ±15%	—	0	—
* MN6120A1200	Floating; Two position	—	95 sec	6 VA, 6 W	24 Vac ±15%	—	2	250 Vac, 5 A res (3 A ind)
* MN7220A2007	(0)2-10 Vdc (4-20 mA w/500 ohm resistor)	—	95 sec	6 VA, 6 W	24 Vac ±20%	100K ohm (voltage), 500 ohm (current)	0	—
* MN7220A2205	(0)2-10 Vdc (4-20 mA w/500 ohm resistor)	(0)2-10 Vdc (max. output: ±1.0 mA)	95 sec	6 VA, 6 W	24 Vac ±20%	100K ohm (voltage), 500 ohm (current)	2	250 Vac, 5 A res (3 A ind)

* TRADELINE models • SUPER TRADELINE models

Commercial Components

Direct Coupled Damper Actuators—Non-Spring Return

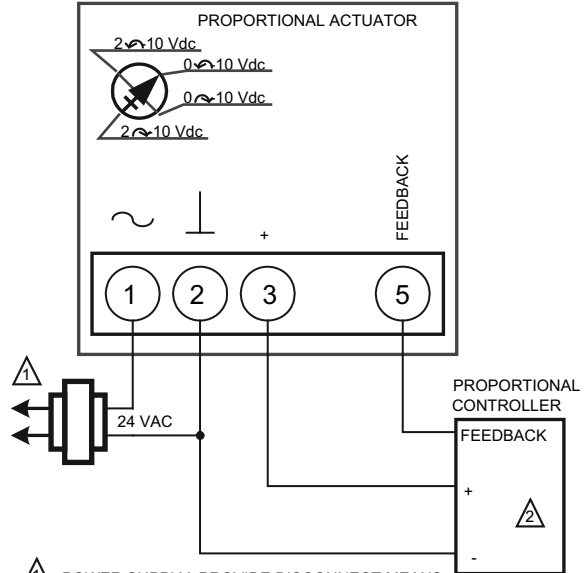
Used for On/Off Control



- ⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- ⚠ CONNECTION REQUIRED FOR SPST CONTROL.

M18945A

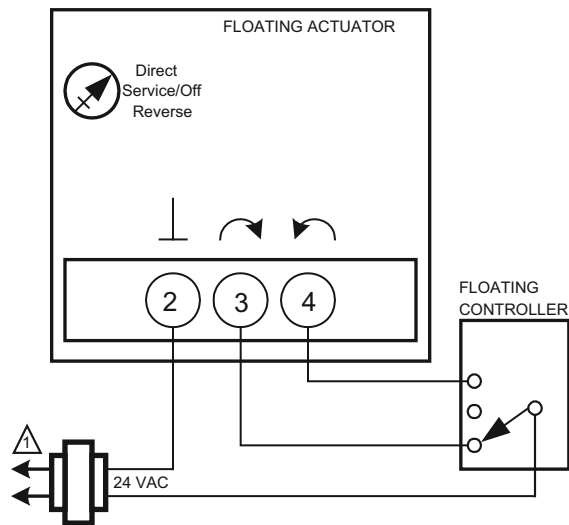
Wiring for Modulating Control



- ⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- ⚠ 0(2)-10 VDC OF 0(4)-20 mA CONTROL SIGNAL ACCEPTABLE. SET CONTROL SIGNAL DIP SWITCH TO "OFF" FOR VOLTAGE. SET TO "ON" FOR CURRENT.

M18947A

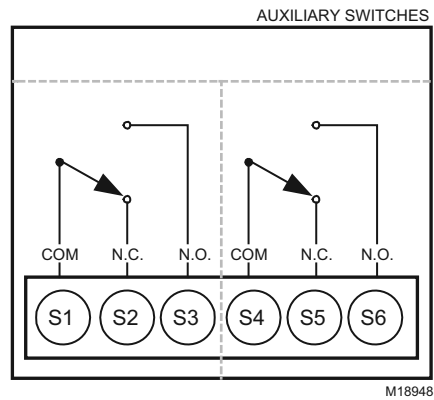
Wiring for Floating Control



- ⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

M18946A

Wiring for Auxiliary Switches



M18948

Direct Coupled Damper Actuators—Non-Spring Return

N34 Series: MN6134; MN7234

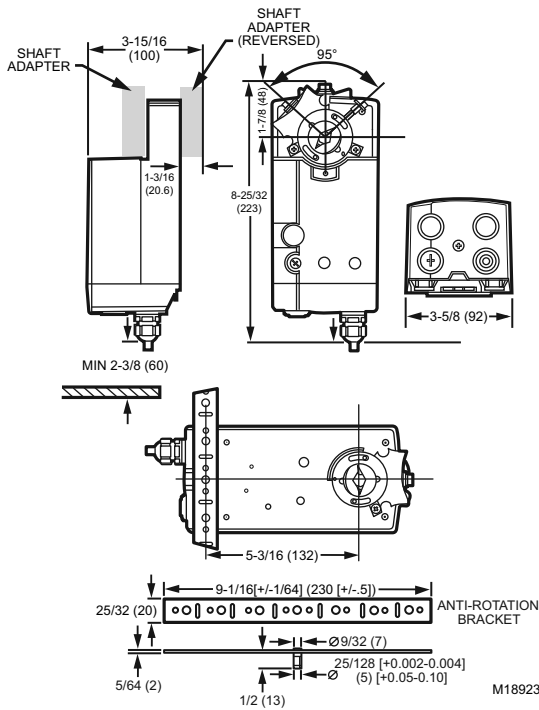
Non-Spring Return Direct Coupled Actuator, 300 lb-in



These direct coupled damper actuators provide adjustable modulating control for air dampers, air handling units, ventilation flaps, louvers, and reliable control for air damper applications with up to 7.9 m²/85 sq ft (seal-less dampers; air friction-dependent).

- Control for air damper applications with up to 85 sq ft assuming 3.5 in-lb per sq ft of damper area, velocity independent.
- Patented self-centering shaft adapter.
- Access cover to facilitate connectivity.
- Declutch for manual adjustment.
- Mechanical end limits.
- Field-installable auxiliary switches.
- Rotation direction selectable by switch.
- Mountable in any orientation (no IP54 if upside down).
- Mechanical position indicator.
- CE approved. UL approved.

Dimensions in inches (millimeters)



Actuator Type: Damper; Valve
Rotational Stroke: 95 ±3 degrees
Fail Safe Mode: Non-Spring Return
Torque: 300 lb-in. (34 Nm)
External Auxiliary Switches Available: Yes, SW2-US
Electrical Connections: Enclosed screw terminal strip (22 to 14 AWG)
Environmental Rating: NEMA2
Frequency: 50 Hz; 60 Hz
Manual operation: Declutch mechanism
Mounting: Direct Coupled
Maximum Noise Rating, Driving (dBA @ 1m): 40
Rotation to Open: By switch
Compatible Damper Shafts: 3/8 to 1.06 in. round or 3/8 to 11/16 in. square (10 to 27 mm round or 10 to 18 mm square)
Shaft Adapter Type: Self-centering shaft adapter
Materials: Plenum rated plastic housing
Operating Humidity Range (% RH): 5 to 95% RH, non-condensing
Ambient Temperature Range: -5 F to +140 F (-20 C to +60 C)
Storage Temperature Range: -40 F to +175 F (-40 C to +80 C)
Weight: 3.2 lb (1.45 kg)
Includes: Mounting bracket, self-centering shaft adapter
Comments: Integral 1/2 in. NPSM conduit connection.

Approvals:
CE: 89/336/ECC, 73/23/EEC
C-Tick: N314
Underwriters Laboratories, Inc. UL873, Plenum Rated
Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

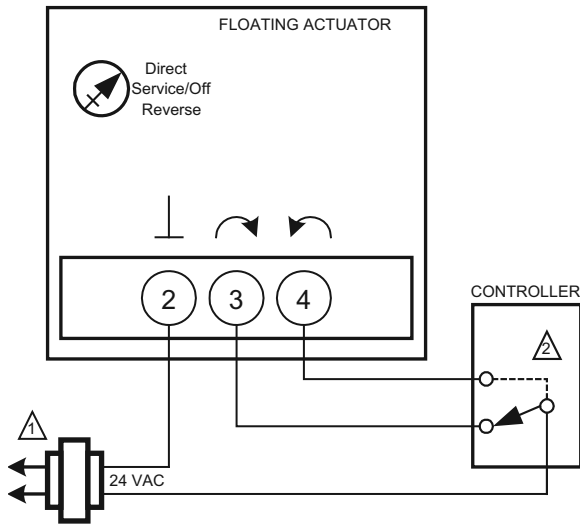
Product Number	Control Signal	Feedback	Timing (seconds)	Power Consumption (Driving)	Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch
			Nominal Driving @ 60 Hz				
* MN6134A1003	Floating; Two position	—	95 sec	9 VA, 9 W	24 Vac ±15%, 24 Vdc	—	0
* MN7234A2008	(0)2-10 Vdc (4-20 mA w/500 ohm resistor)	(0)2-10 Vdc (max. output: ±1.0 mA)	95 sec	8 VA, 6 W	24 Vac ±20%, 24 Vdc	100K ohm (voltage), 500 ohm (current)	0

* TRADELINE models • SUPER TRADELINE models

Commercial Components

Direct Coupled Damper Actuators—Non-Spring Return

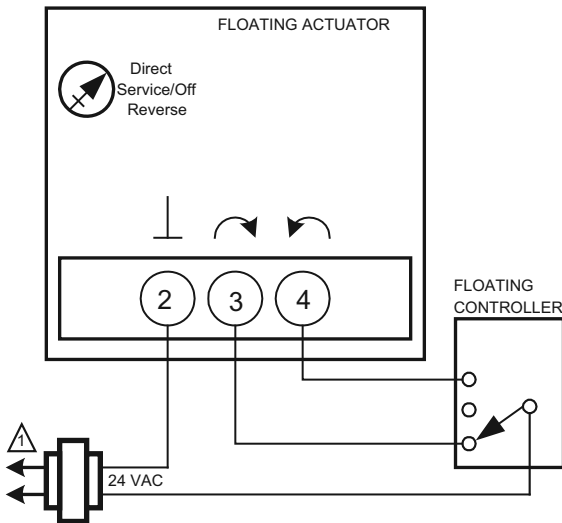
Used for On/Off Control



- ⚠️ 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- ⚠️ 2 CONNECTION REQUIRED FOR SPST CONTROL.

M18945A

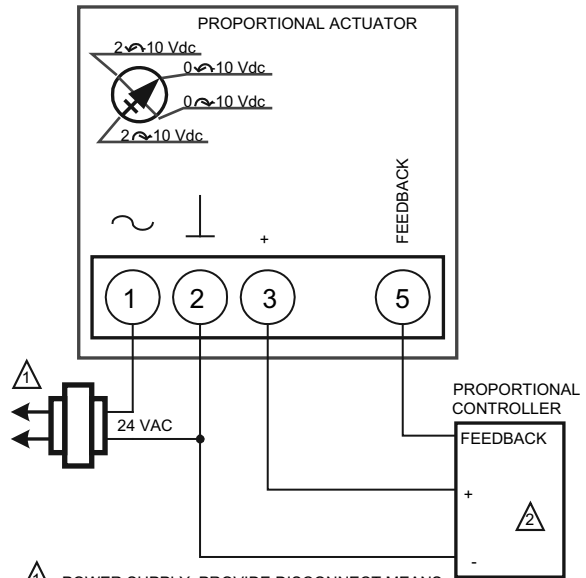
Wiring for Floating Control



- ⚠️ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

M18946A

Wiring for Modulating Control

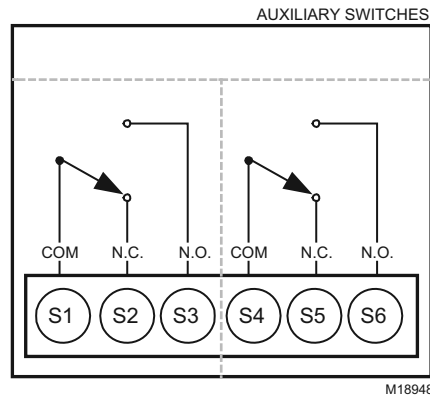


- ⚠️ 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

- ⚠️ 2 0(2)-10 VDC OF 0(4)-20 mA CONTROL SIGNAL ACCEPTABLE. SET CONTROL SIGNAL DIP SWITCH TO "OFF" FOR VOLTAGE. SET TO "ON" FOR CURRENT.

M18947A

Wiring for Auxiliary Switches



M18948

Direct Coupled Damper Actuators—Fire and Smoke

ML4115; ML8115

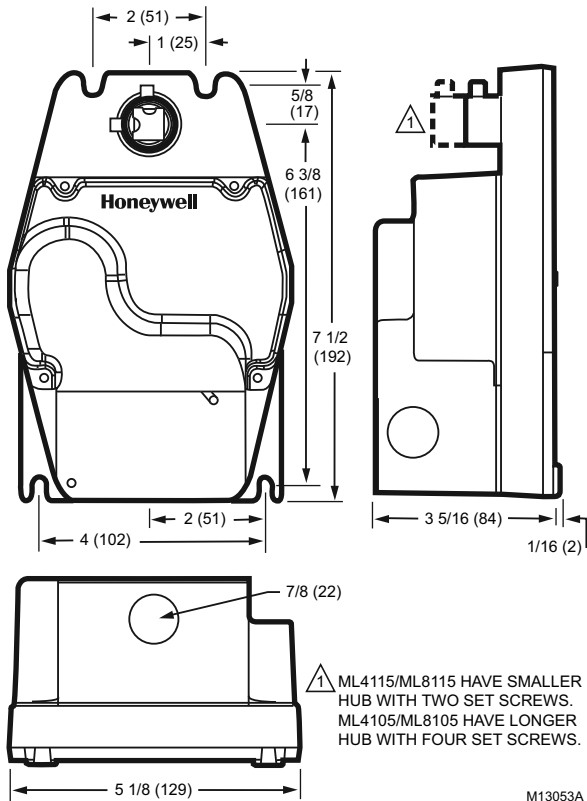
Fire and Smoke, Fast-Acting, Two-Position Actuators, 30 lb-in



Spring return direct coupled actuators (DCA) for on/off damper control with an integral junction box. The actuator accepts an on/off signal from a single-pole, single-throw (SPST) controller. They are designed to operate reliably in smoke control systems requiring Underwriter's Laboratories Inc. UL555S ratings up to 350 F.

- Integral spring return.
- No audible noise during holding.
- Electronic circuitry provides efficient operation while eliminating the need for limit switches.
- Ninety-five degree angle of rotation for tight damper closure.
- Die-cast aluminum housing.
- Housing design allows flush mounting to damper.
- Integral junction box with three conduit openings eliminates need for separate wiring box.
- Mounts to 3/8 or 1/2 in. round or square shaft.

Dimensions in millimeters (inches)



Actuator Type: Damper

Rotational Stroke: 95 ±3 degrees

Fail Safe Mode: Spring Return

Torque: 30 lb-in. (3.4 Nm)

Minimum Driving Torque at 350 F: 30 lb-in.

Spring Return Torque: 30 lb-in. (3.4 Nm)

External Auxiliary Switches Available: Yes, 32003532-005

Number of Internal Auxiliary Switches: 0

Electrical Connections: Two color-coded leads

Electrical Connection Length: 16 in. (406 mm)

Environmental Rating: NEMA1

Frequency: 60 Hz

Mounting: Direct Coupled

Maximum Noise Rating, Holding (dBA @ 1m): 20 (no audible noise)

Maximum Noise Rating, Driving (dBA @ 1m): 65

Compatible Damper Shafts: 3/8 to 1/2 in. square or round (10 to 13 mm square/round)

Shaft Adapter Type: Aluminum Hub, two set screws

Materials: Aluminum housing

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Ambient Temperature Range: 0 F to +130 F (-18 C to +55 C)

Storage Temperature Range: -40 F to 140 F (-40 C to +60 C)

Weight: 6 lb (2.72 kg)

Comments: Integral junction box with three 7/8 in. conduit openings (fittings not included)

Approvals:

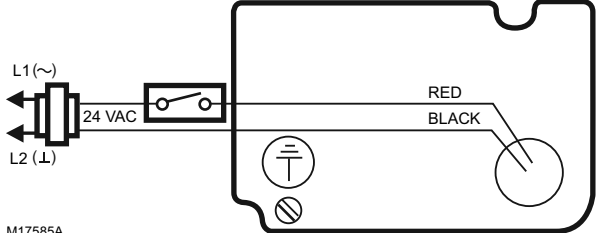
Underwriters Laboratories, Inc. UL873, Plenum Rated

Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

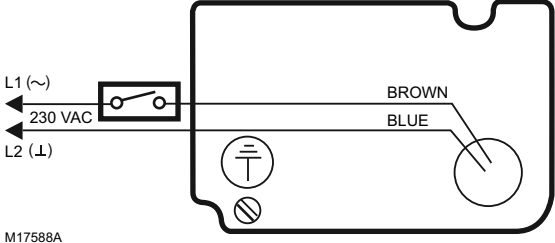
Product Number	Control Signal	Spring Return Direction	Timing (seconds)			Power Consumption		Supply Voltage	Includes
			Maximum Driving @ 60 Hz	Nominal Driving @ 60 Hz	Maximum Spring Return	(Driving)	(Holding)		
ML4115A1009	Two position; SPST	CCW	25 sec	18 sec	15 sec	0.18A, 18W	0.11A, 9W	120 Vac ±10%	Ground Screw
ML4115B1008	Two position; SPST	CW	25 sec	18 sec	15 sec	0.18A, 18W	0.11A, 9W	120 Vac ±10%	Ground Screw
ML8115A1005	Two position; SPST	CCW	25 sec	18 sec	15 sec	16 VA	8 VA	24 Vac ±20%	—
ML8115B1004	Two position; SPST	CW	25 sec	18 sec	15 sec	16 VA	8 VA	24 Vac ±20%	—

Direct Coupled Damper Actuators—Fire and Smoke

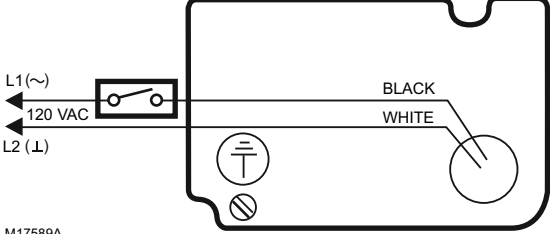
Typical 24 Vac wiring



Typical 230 Vac Wiring



Typical 120 Vac wiring



Direct Coupled Damper Actuators—Fire and Smoke

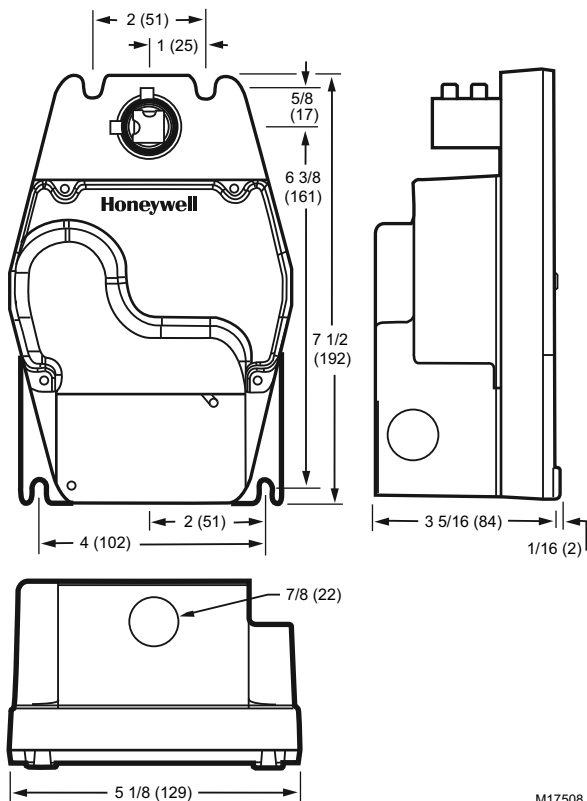
MS4209F; MS4309F; MS4709F; MS4809F; MS8209F; MS8309F Fast-Acting, Two-Position Actuators, 80 lb-in



Spring return direct coupled actuators (DCA) for on/off damper control with an integral junction box. The actuator accepts an on/off signal from a single-pole, single-throw (SPST) controller. They are designed to operate reliably in smoke control systems requiring Underwriter's Laboratories Inc. UL555S ratings up to 350 F.

- Integral spring return ensures level of return torque.
- Fifteen-second spring return timing.
- No special cycling required during long-term holding.
- No audible noise during holding.
- Patent pending design eliminates need for limit switches to reduce power consumption.
- Models available for 24, 120, and 230 Vac.
- Ninety-five degree angle of rotation for tight damper closure.
- Actuator holds rated torque at reduced power level.
- Die-cast aluminum housing. Housing design allows flush mounting to damper.
- Integral junction box with three conduit openings eliminates need for separate wiring box.

Dimensions in millimeters (inches)



M17508

Actuator Type: Damper

Rotational Stroke: 95 ±3 degrees

Fail Safe Mode: Spring Return

Torque: 80 lb-in. (9 Nm)

Minimum Driving Torque at 350 F: 80 lb-in.

Spring Return Torque: 80 lb-in. (9 Nm)

External Auxiliary Switches Available: Yes, 32003532-005

Number of Internal Auxiliary Switches: 0

Environmental Rating: NEMA1

Frequency: 60 Hz

Mounting: Direct Coupled

Maximum Noise Rating, Holding (dBA @ 1m): 20 (no audible noise)

Maximum Noise Rating, Driving (dBA @ 1m): 80

Compatible Damper Shafts: 3/8 to 1/2 in. square or round (10 to 13 mm square/round)

Shaft Adapter Type: Aluminum Hub, four set screws

Supply Voltage: 120 Vac +10%, -15%

Materials: Aluminum housing

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Ambient Temperature Range: 0 F to +130 F (-18 C to +55 C)

Storage Temperature Range: -40 F to 140 F (-40 C to +60 C)

Weight: 6 lb (2.72 kg)

Comments: Integral junction box with three 7/8 in. conduit openings (fittings not included)

Approvals:

CE: 89/336/ECC, 73/23/EEC

C-Tick: N314

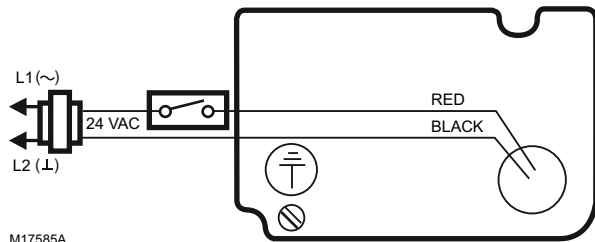
Underwriters Laboratories, Inc. UL873, Plenum Rated

Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

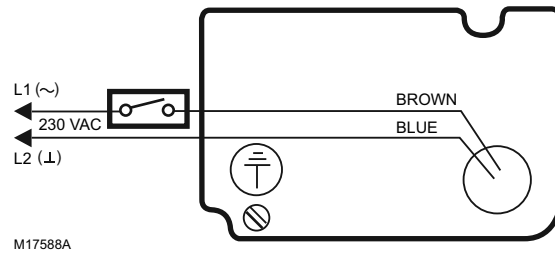
Direct Coupled Damper Actuators—Fire and Smoke

Product Number	Control Signal	Spring Return Direction	Timing (seconds)			Power Consumption		Supply Voltage	Electrical Connections	Electrical Connection Length	
			Maximum Driving @ 60 Hz	Nominal Driving @ 60 Hz	Maximum Spring Return	(Driving)	(Holding)			(inch)	(m)
MS4209F1007	Two position; SPST	CW	25 sec	15 sec	15 sec	0.25A, 23W	0.13A, 7W	120 Vac +10%, -15%	Two color-coded leads	16 in.	406 mm
MS4309F1005	Two position; SPST	CCW	25 sec	15 sec	15 sec	0.25A, 23W	0.13A, 7W	120 Vac +10%, -15%	Two color-coded leads	16 in.	406 mm
MS4709F1014	Two position; SPST	CW	25 sec	15 sec	15 sec	0.13A, 23W	0.09A, 7W	230 Vac ±10%	Appliance cable	39 in.	1 m
MS4809F1012	Two position; SPST	CCW	25 sec	15 sec	15 sec	0.13A, 23W	0.09A, 7W	230 Vac ±10%	Appliance cable	39 in.	1 m
MS8209F1003	Two position; SPST	CW	25 sec	15 sec	15 sec	23 VA	7 VA	24 Vac +20%, -10%	Two color-coded leads	16 in.	406 mm
MS8309F1001	Two position; SPST	CCW	25 sec	15 sec	15 sec	23 VA	7 VA	24 Vac +20%, -10%	Two color-coded leads	16 in.	406 mm

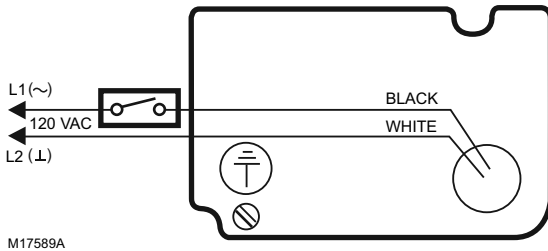
Typical 24 Vac wiring



Typical 230 Vac Wiring



Typical 120 Vac wiring



Direct Coupled Damper Actuators—Fire and Smoke

MS4120F; MS4620F; MS8120F

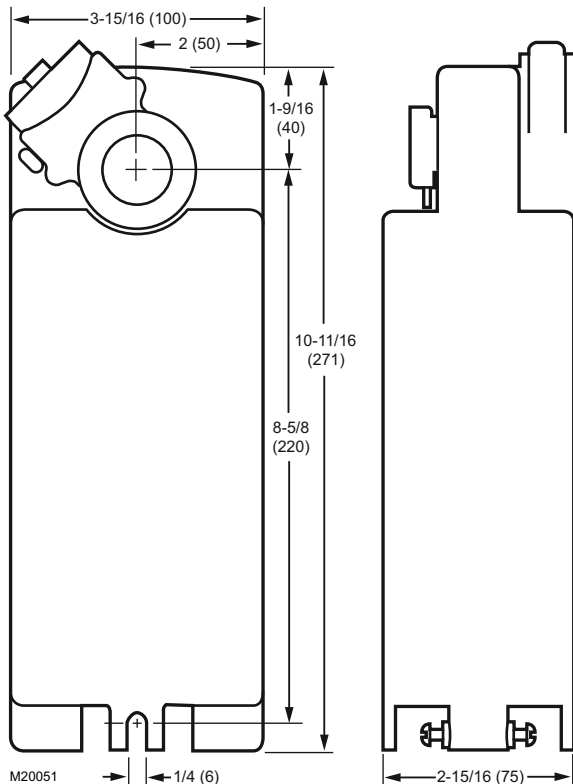
Fast-Acting, Two-Position Actuators, 175 lb-in



Spring return direct coupled actuators (DCA) for on/off damper control with an integral junction box. The actuator accepts an on/off signal from a single-pole, single-throw (SPST) controller. They are designed to operate reliably in smoke control systems requiring Underwriter's Laboratories Inc. UL555S ratings up to 350 F.

- Brush DC submotor with electronic stall protection for 2-position models
- Self-centering shaft adapter (shaft coupling) for wide range of shaft sizes
- Models available for use with two-position, single pole single throw (spst), line- (Series 40) or low- (Series 80) voltage controls
- Metal housing with built-in mechanical end limits
- Spring return direction field-selectable
- Shaft position indicator and scale
- Manual winding capability with locking function
- UL (cUL) listed and CE compliant
- All Models are plenum-rated per UL873

Dimensions in millimeters (inches)



Actuator Type: Damper

Rotational Stroke: 95 ±3 degrees

Fail Safe Mode: Spring Return

Torque: 175 lb-in. (20 Nm)

Minimum Driving Torque at 350 F: 175 lb-in.

Spring Return Torque: 175 lb-in. (20 Nm)

Spring Return Direction: By orientation

External Auxiliary Switches Available: No

Electrical Connections: Teflon-jacketed cable

Electrical Connection Length: 40 in. (1 m)

Environmental Rating: NEMA2

Ingress Protection Rating: IP54

Frequency: 60 Hz

Manual operation: Manual crank

Mounting: Direct Coupled

Maximum Noise Rating, Holding (dBA @ 1m): 20 (no audible noise)

Maximum Noise Rating, Driving (dBA @ 1m): 70

Compatible Damper Shafts: 3/8 to 1.06 in. round or 3/8 to 11/16 in. square (10 to 27 mm round or 10 to 18 mm square)

Shaft Adapter Type: Self-centering clamping

Supply Voltage: 120 Vac ±10%

Materials: Aluminum housing

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Ambient Temperature Range: -40 F to +130 F (-40 C to +55 C)

Storage Temperature Range: -40 F to +140 F (-40 C to +60 C)

Weight: 8 lb (3.63 kg)

Includes: Self-centering shaft adapter, 3mm crank

Comments: Two integral 3/8 in. flexible conduit connections

Approvals:

CE: 89/336/ECC, 73/23/EEC

C-Tick: N314

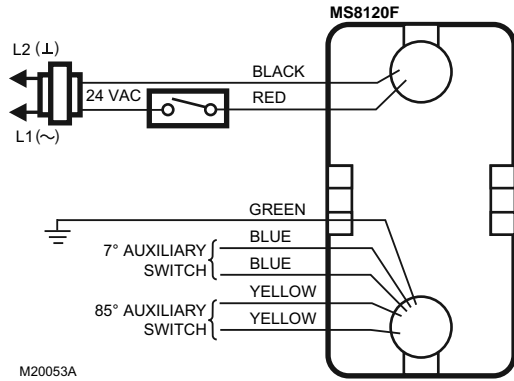
Underwriters Laboratories, Inc. UL873, Plenum Rated

Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

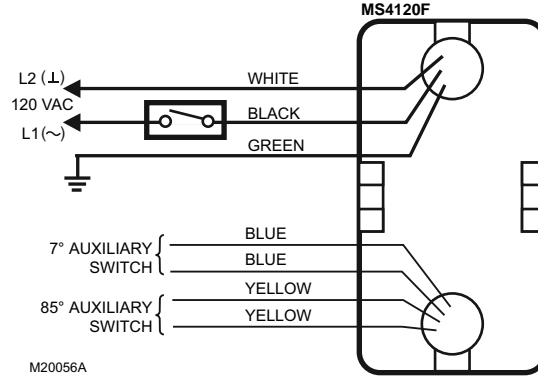
Direct Coupled Damper Actuators—Fire and Smoke

Product Number	Control Signal	Timing (seconds)		Power Consumption		Supply Voltage	Number of Internal Auxiliary Switch	Switch Ratings
		Nominal Driving @ 60 Hz	Maximum Spring Return	(Driving)	(Holding)			
MS4120F1006	Two position: SPST	15 sec	15 sec	0.35A, 35W	0.15A, 10W	120 Vac ±10%	0	—
MS4120F1204	Two position: SPST	15 sec	15 sec	0.35A, 35W	0.15A, 10W	120 Vac ±10%	2	250 Vac, 5 A res (3 A ind)
MS4620F1005	Two position: SPST	15 sec	15 sec	0.20A, 35W	0.14A, 10W	230 Vac ±10%	0	—
MS4620F1203	Two position: SPST	15 sec	15 sec	0.20A, 35W	0.14A, 10W	230 Vac ±10%	2	250 Vac, 5 A res (3 A ind)
MS8120F1002	Two position: SPST	15 sec	15 sec	45 VA	10 VA	24 Vac +20%, -10%	0	—
MS8120F1200	Two position: SPST	15 sec	15 sec	45 VA	10 VA	24 Vac +20%, -10%	2	250 Vac, 5 A res (3 A ind)

Wiring for 24V Control



Wiring for 120V Control



Direct Coupled Damper Actuators—Accessories

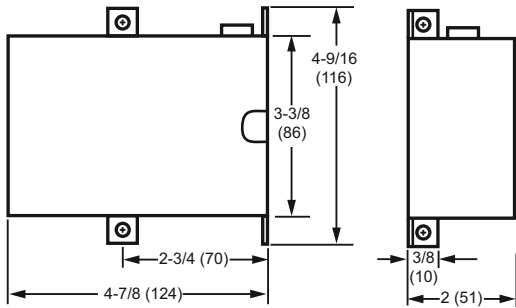
Q7002 Interface Modules



The Q7002 Interface Modules allow controllers with an otherwise incompatible signal to control an Economizer Logic Module or Direct Coupled Actuator.

- 24 Vac or 24 Vdc power.
- Available for input signals: dc voltage, current, or resistive; and pulse-width modulation (PWM).
- Available to provide output: analog voltage or current for an actuator.
- Inputs and outputs are jumper-selectable and include adjustable zero and span.
- Output is jumper-selectable direct or reverse acting.
- Includes reference voltage and current to power an input device or sensor.
- PWM time base is user-selectable with positive or negative input reference; all ranges have 255-step resolution.
- Multiplex mode enables one PWM signal from a Building Automation System (BAS) controller to address and control up to eight interface modules.

Dimensions in inches (millimeters)



ENCLOSURE MODELS

M18985

Frequency: 60 Hz

Mounting: Enclosure (NEMA 1) with mounting tabs

Used With: Direct-Coupled Proportional Actuators and Modutrol Motors

Product Number	Output Burden	Supply Voltage	Description	Comments
Q7002B1009	0 to 10 Vdc > 500 Ohm; 0 to 20 mA < 500 ohm	24 Vac ±20%, 24 Vdc	Transducer, Accepts dc voltage, current, or resistive input and provides a voltage or current output	Input: dc voltage, current, or resistive, Output: voltage or current output
Q7002C1007	0 to 10 Vdc > 500 Ohm; 0 to 20 mA < 500 ohm	24 Vac ±20%, 24 Vdc	Transducer, Accepts a pulse-width modulation (PWM) signal and provides a voltage output	Input: PWM signal, Output: analog voltage

Direct Coupled Damper Actuators—Accessories

Accessories for Direct Coupled Damper Actuators

Compatibility Chart		SPRING RETURN							NON-SPRING RETURN				
		MSxx03	MSxx05	MSxx10A	MSxx20A	ML41x5, ML81x5	MSxx09F	MSxx20F	MLxx61, MLxx74	MNXX05	MNxx10	MNxx20A	MNxx34A
ACTUATOR ACCESSORIES													
Control, Positioning, Feedback													
200976A	Feedback Potentiometer (500 ohm)								•				
200976C	Feedback Potentiometer (2000 ohm)								•				
201052A	Auxiliary Switch (1 SPDT)								•				
201052B	Auxiliary Switch (2 SPDT)								•				
205860	Minimum Position Potentiometer	•	•	•	•				•	•	•	•	•
32003532-005	High Temperature Auxiliary Switch (2 SPDT)					•	•						
32006306-001	Resistor Kit (500 ohm); converts 4-20 mA signal to 2-10 Vdc	•	•	•	•				•	•	•	•	•
SSW2-1M	Auxiliary Switch Package - Low Torque Non Spring Return									•	•		
SW2-US	Auxiliary Switch Package (2 adjustable SPDT switches)			•	•							•	•
Q7002 Interface Modules													
Q7002B1009	Transducer, Accepts dc voltage, current, or resistive input	•	•	•	•				•			•	•
Q7002C1007	Transducer, Accepts a pulse-width modulation (PWM)	•	•	•	•				•	•	•	•	•
Mounting													
205649	Mounting Bracket			•	•	•	•	•					
32007205-001	Actuator Mounting Plate			•	•	•	•	•	•	•	•	•	•
32007205-002	Damper Blade Drive Lever (<24 in.)	•	•	•	•	•	•	•	•	•	•	•	•
32007205-003	Damper Blade Drive Lever (>24 in.)	•	•	•	•	•	•	•	•	•	•	•	•
32007205-004	Damper External Drive Pin Clip	•	•	•	•	•	•	•	•	•	•	•	•
32007205-005	Damper External Drive Pin Kit	•	•	•	•	•	•	•	•	•	•	•	•
32007205-006	Damper Axle Coupling	•	•	•	•	•	•	•	•	•	•	•	•
32007205-007	Damper Crossover Jumper Bracket	•	•	•	•	•	•	•	•	•	•	•	•
50000407-001	Tandem Mounting Kit	•	•	•	•			•	•	•		•	•
50001194-001	Foot Mounting Kit			•	•			•	•	•		•	•
50006427-001	Flexible Anti-rotation Bracket			•	•					•		•	•
STRN-BRKT	Anti-rotation Bracket	•	•										
STRN-CRK-01	Crank Arm Kit	•	•										
STRN-ECONO-01	Economizer Retrofit Kit	•	•										
STRN-WMK-01	Wall Mount Kit	•	•										
Rotation Limiters, Position Indicators													
4074ENJ	Stroke Stop/Minimum Position Kit								•				
Ball Joints, Push Rods													
27518	Ball Joint (5/16 in.)	•	•	•	•	•	•	•	•	•	•	•	•
27520A	Push Rod (5/16 in. dia., 5 in. length)	•	•	•	•	•	•	•	•	•	•	•	•
27520B	Push Rod (5/16 in. dia., 10 in. length)	•	•	•	•	•	•	•	•	•	•	•	•
27520C	Push Rod (5/16 in. dia., 12 in. length)	•	•	•	•	•	•	•	•	•	•	•	•
27520D	Push Rod (5/16 in. dia., 15 in. length)	•	•	•	•	•	•	•	•	•	•	•	•
27520E	Push Rod (5/16 in. dia., 18 in. length)	•	•	•	•	•	•	•	•	•	•	•	•
27520G	Push Rod (5/16 in. dia., 24 in. length)	•	•	•	•	•	•	•	•	•	•	•	•
27520H	Push Rod (5/16 in. dia., 28 in. length)	•	•	•	•	•	•	•	•	•	•	•	•

Direct Coupled Damper Actuators—Accessories



Compatibility Chart		SPRING RETURN						NON-SPRING RETURN				
		MSxx03	MSxx05	MSxx10A	MSxx20A	ML41x5, ML81x5	MSxx09F	MSxx20F	MLxx61, MLxx74	MNXX05	MINxx10	MNxx20A
ACTUATOR ACCESSORIES												
27520K	Push Rod (5/16 in. dia., 36 in. length)	•	•	•	•	•	•	•	•	•	•	•
27520L	Push Rod (5/16 in. dia., 48 in. length)	•	•	•	•	•	•	•	•	•	•	•
27520Q	Push Rod (5/16 in. dia., 8 in. length)	•	•	•	•	•	•	•	•	•	•	•
Crankarms												
26026G	Damper Crank Arm, 1/2 in. damper shaft	•	•	•	•	•	•	•	•	•	•	•
205830A	Rotary-to-Linear Kit							•				
STRN-CA-01	Non-Self-centering Crank Arm	•	•									
STRN-CA-02	Self-centering Crank Arm	•	•									
Shaft Adapters												
32003167-001	Shaft Adapter (3/8 in.)							•				
32003168-001	Short Shaft Adapter (3/4-1/2 in.)	•	•	•	•	•	•	•	•	•	•	•
32003168-002	Short Shaft Adapter (5/8-1/2 in.)	•	•	•	•	•	•	•	•	•	•	•
32003168-003	Short Shaft Adapter (9/16-1/2 in.)	•	•	•	•	•	•	•	•	•	•	•
32004254-001	Self Centering Shaft Adapter										•	
32004254-002	Self Centering Shaft Adapter			•	•							
32004254-003	Self Centering Shaft Adapter											•
4074EVK	Short Shaft Kit							•				
4074ENY	Stroke Stop Kit							•				
STRN-SCSA	Self-centering Shaft Adapter	•	•									
Enclosures												
32003036-001	Weather Enclosure	•	•	•	•	•	•	•			•	•
50005859-001	NEMA 4 Enclosure	•	•	•	•				•			•
7640QW	Metal Enclosure							•				
Miscellaneous												
32000085-001	Strain Relief Fitting (10 pack)			•	•					•	•	•
STRN-STRNRLF	Strain Relief Fitting (10 pack)	•	•									

Direct Coupled Damper Actuators—Accessories


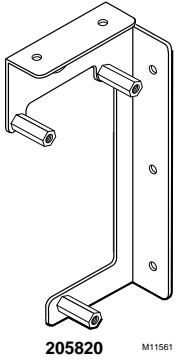
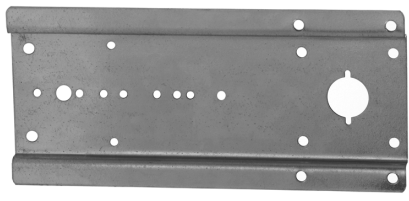
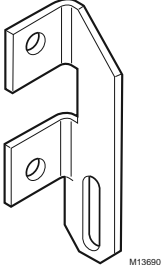
Control, Positioning, Feedback Accessories

Product Number	Description	Used With	
200976A	Auxiliary Feedback Potentiometer (0 to 500 ohm) Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
200976C	Auxiliary Feedback Potentiometer (0 to 2000 ohm) Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
201052A	Auxiliary Switch Package, Single Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
201052B	Auxiliary Switch Package, Double Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
201052C	Auxiliary Switch Package, Triple Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
201052D	Auxiliary Switch Package, Double Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
205860	Electronic Remote Minimum Position Potentiometer Used With: Proportional Actuators	Proportional Actuators	
32003532-003	High Temperature Dual Switch Assembly	ML4105, ML8105, ML4115, ML8115, ML4125, ML8125, ML4135, ML8135, MS4209, MS4309, MS4709, MS4809, MS8209, MS8309	
32003532-004	High Temperature Dual Switch Assembly	ML4105, ML8105, ML4115, ML8115, ML4125, ML8125, ML4135, ML8135, MS4209, MS4309, MS4709, MS4809, MS8209, MS8309	
32003532-005	High Temperature Dual Switch Assembly	ML4105, ML8105, ML4115, ML8115, ML4125, ML8125, ML4135, ML8135, MS4209, MS4309, MS4709, MS4809, MS8209, MS8309;	
32006306-001	Resistor Kit (500 ohm, converts 4-20mA to 2-10Vdc)	Proportional Actuators	

Direct Coupled Damper Actuators—Accessories

Product Number	Description	Used With	
SSW2-1M	Auxiliary Switch Package - Low Torque Non Spring Return	MN Series Actuator (44 in-lb, 88 in-lb)	
SW2-US	Auxiliary Switch Package (2 adjustable SPDT switches)	MS and MN Series High Torque Actuators (MNXX20 and XX34)	

Mounting Accessories


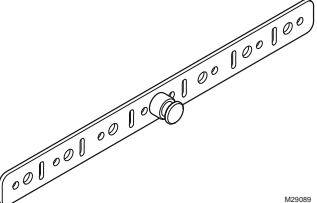
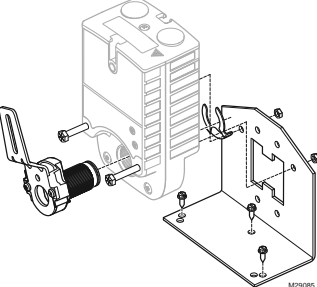
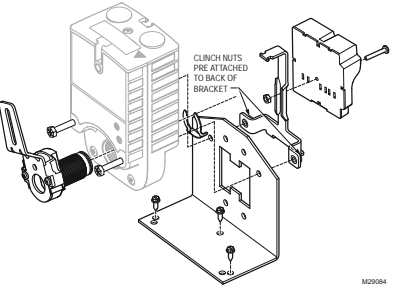
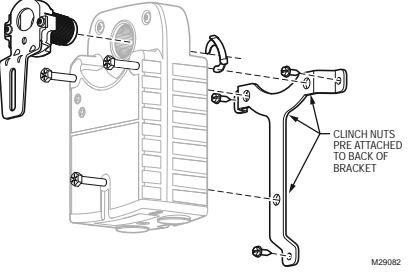
Product Number	Description	Used With	
205649	Mounting Bracket Used With: 150 and 300 lb-in NSR and SR Actuators	150 and 300 lb-in. NSR and SR (except 25, 53 and 142 lb-in) Actuators	
205820A	3-Point Mounting Kit Used With: 150 lb-in NSR and 25 and 53 lb-in Actuators (ML Series)	150 lb-in. NSR and 25 and 53 lb-in. Actuators (ML Series)	
32007205-001	Direct Coupled Actuator Mounting Bracket Used With: Damper with External Actuator Mounting (i.e., 32007205-005 Kit)	Damper with External Actuator Mounting (i.e., 32007205-005 Kit)	
32007205-002	Damper Blade Drive Lever (Small) Used With: All Actuators and Dampers	All Actuators and Dampers	

Commercial Components



Direct Coupled Damper Actuators—Accessories

Product Number	Description	Used With	
32007205-003	Damper Blade Drive Lever (Large) Used With: All Actuators and Dampers	All Actuators and Dampers	A large metal lever with a curved end and two mounting holes. Part number M13691 is visible.
32007205-004	Retaining Clip, Damper External Drive Pin Used With: Damper with External Actuator Mounting (i.e., 32007205-005 Kit)	Damper with External Actuator Mounting (i.e., 32007205-005 Kit)	A C-shaped metal clip used to secure the drive pin.
32007205-005	Damper External Drive Pin Kit Used With: Damper with External Actuator Mounting (i.e., 32007205-005 Kit)	Damper with External Actuator Mounting (i.e., 32007205-005 Kit)	A metal drive pin with a base plate and two side flanges.
32007205-006	Damper Axle Coupling Used With: Multi-Section Dampers	Multi-Section Dampers	A cylindrical metal coupling with a central hole and a tapered end.
32007205-007	Jumper Bracket Used With: Multi-Section Dampers	Multi-Section Dampers	A metal bracket with two vertical flanges and a horizontal base.
50000407-001	Actuator Tandem Mounting Kit	N20 Actuators; N34 Actuators; S05 Actuators; S10 Actuators; S20 Actuators	A collection of metal brackets, plates, and hardware for mounting actuators in tandem.
50001194-001	Foot Mounting Kit	MS and MN Series High Torque Actuators (MNXX20 and XX34)	A large metal mounting plate with a handle and multiple mounting holes.

Direct Coupled Damper Actuators—Accessories



Product Number	Description	Used With	
50006427-001	Flexible Anti-Rotation Bracket	N20 Actuators; N34 Actuators; S05 Actuators; S10 Actuators; S20 Actuators	
STRN-BRKT	Anti-rotation Bracket for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	
STRN-CRK-01	Crank arm kit for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	
STRN-ECONO-01	Economizer Retrofit Kit for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	
STRN-WMK-01	Wall mount kit for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	

Rotational Limiters, Position Indicators



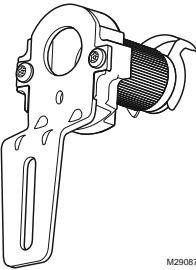
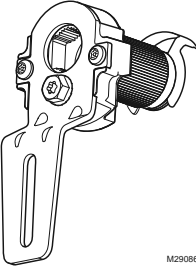
Product Number	Description	Used With	
4074ENG	Stop Pin Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
4074ENJ	Minimum Position Kit Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	

Direct Coupled Damper Actuators—Accessories

Ball Joints, Push Rod Accessories






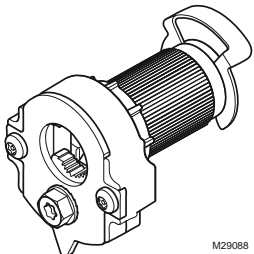
Product Number	Description	Used With	
27518	Crankarm balljoint with 1/4 - 28 UNF male threads, fits 5-16 inch diameter push rods	All Actuators and Dampers	
27520A	Push Rod (5/16 in. dia., 5 in. length) Used With: All Actuators and Dampers	All Actuators and Dampers	
27520B	Push Rod (5/16 in. dia., 10 in. length) Used With: All Actuators and Dampers	All Actuators and Dampers	
27520C	Push Rod (5/16 in. dia., 12 in. length)	All Actuators and Dampers	
27520D	Push Rod (5/16 in. dia., 15 in. length) Used With: All Actuators and Dampers	All Actuators and Dampers	
27520E	Push Rod (5/16 in. dia., 18 in. length) Used With: All Actuators and Dampers	All Actuators and Dampers	
27520G	Push Rod (5/16 in. dia., 24 in. length)	All Actuators and Dampers	
27520H	Push Rod (5/16 in. dia., 28 in. length) Used With: All Actuators and Dampers	All Actuators and Dampers	
27520J	Push Rod (5/16 in. dia., 32 in. length) Used With: All Actuators and Dampers	All Actuators and Dampers	
27520K	Push Rod (5/16 in. dia., 36 in. length)	All Actuators and Dampers	
27520L	Push Rod (5/16 in. dia., 48 in. length)	All Actuators and Dampers	
27520Q	Push Rod (5/16 in. dia., 8 in. length) Used With: All Actuators and Dampers	All Actuators and Dampers	

Crankarms

Product Number	Description	Used With	
205830A	Rotary-to-Linear Kit Used With: 35 and 70 lb-in NSR Actuators	35 and 70 lb-in.NSR	
26026G	Damper Crank Arm, 1/2 in. damper shaft	All Actuators and Damper	
STRN-CA-01	Non Self-centering Crank Arm for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	 M29087
STRN-CA-02	Self-centering Crank Arm for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	 M29086




Direct Coupled Damper Actuators—Accessories

Shaft Adaptor Accessories


Product Number	Description	Used With	
32003167-001	3/8 in. Shaft Adapter Used With: ML6161, ML6174, ML7161, ML7174, ML7999	ML6161; ML6174; ML7161; ML7174; ML7999	
32003168-001	Short Shaft Adapter (3/4 in. to 1/2 in.) Used With: All Actuators and Dampers	All Actuators and Dampers	
32003168-002	Short Shaft Adapter (5/8 in. to 1/2 in.) Used With: All Actuators and Dampers	All Actuators and Dampers	
32003168-003	Short Shaft Adapter (9/16 in. to 1/2 in.) Used With: All Actuators and Dampers	All Actuators and Dampers	
32004254-001	Self-Centering Shaft Adapter Used With N20 Actuators	N20 Actuators	
32004254-002	Self-Centering Shaft Adapter Used With S10, S20 Actuators	S10 Actuators; S20 Actuators	
32004254-003	Self-Centering Shaft Adapter Used With: N34 Actuators	N34 Actuators	
4074ENY	3/8 in. Shaft Kit Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
4074EVK	Short Shaft Kit Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
STRN-SCSA	Self-centering Shaft Adapter for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	 M29088

Direct Coupled Damper Actuators—Accessories

Enclosure Accessories

Product Number	Description	Used With	
32003036-001	Weather Enclosure Used With: All Actuators	All Actuators	
32004783-001	Weather Enclosure Used With: Small Actuators & Economizer Logic Modules	All Actuators	
50005859-001	NEMA 4 Enclosure for Direct Coupled Actuator	150 lb-in. NSR Actuators (ML Series); ML6161, ML6174, ML7161, ML7174; N20 Actuators; N34 Actuators; S03 Actuators; S05 Actuators; S10 Actuators; S20 Actuators	
7640QW	Enclosure for Conduit Connection Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	

Miscellaneous Accessories

Product Number	Description	Used With	
32000085-001	Strain Relief Fitting (10 pack)	MS and MN Series Actuators	
32003967-003	Power Control Module; for W7763/T6984 W/ML6144 and MIT System	—	
STRN-STRNRLF	Strain Relief Fitting for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	

Economizer Systems Quick Selection Guide

ECOMOMIZER SYSTEM SELECTION



Motor Type	Motor	Logic Module	Sensors
Foot Mount 25 lb-in. Torque	M7415	W7459A,D	Enthalpy: C7400 ^a with C7150/C7046
	M9175	H705 or W7210 ^b	
DCA 44 lb-in. Torque	MS7505	W7210	Temperature: C7660 ^c with C7150/C7046
Foot Mount 60 lb-in. Torque	M7285 M7286	W7210	
	M9185 M9186	H705, W7210 ^b	
DCA 88 lb-in. Torque	MS7510	W7210	
DCA 175 lb-in. Torque	MS7520	W7210	

Motor Type	Motor	Logic Module	Sensors
Foot Mount 25 lb-in. Torque	M7415	W7460	Enthalpy: C7400 ^a with C7150/C7046
	M7215	W7212/13/14	
	M9175	W7215 ^b , W7212 ^b , W7213/14	
DCA 44 lb-in. Torque	MS7505	W7215	Temperature: C7660 ^c with C7150/C7046
Foot Mount 60 lb-in. Torque	M7285 M7286	W7215, W7212, W7213/14	CO ₂ : C7232 or C7632
	M9185 M9186	W7215, W7212 ^b , W7213/14 ^b	
DCA 88 lb-in. Torque	MS7510	W7215, W7212, W7213/14	
DCA 175 lb-in. Torque	MS7520	W7215, W7212, W7213/14	

^a Enthalpy sensor. Use two for differential enthalpy and one for single enthalpy.

For Dry Bulb only, use C7660 for single dry bulb only. C7660 cannot be used for differential dry bulb.

^b To operate a Series 90 motor, the W7210 and W7215 require a Q7230 interface module or the proper resistor combination (included in the 4074EJM resistor kit), see form 63-2544 for details.

^c C7660 can only be used in a single (referential) temperature operation. C7660 cannot be used for differential dry bulb.

NOTE: Series 90 Mod Motors™ can be retrofit using W7210, W7212 or W7215 Economizer Logic Modules and a Q7230 or the proper resistor combination. Refer to form 63-2544 for details on using Economizer Logic Modules with Series 90 motors.

Logic Module Details.

Model	DCV	Differential CO ₂	Enthalpy High Limit	Exhaust Fan Setpoint	Shutdown and Air Change	Purge	Motors Controlled	Model Number
Standard								
H705 ^a	No	No	None	None	No	No	Series 90	H705A1003
W7459	No	No	No	None	No	No	M7415	W7459A1001
			Yes					W7459D1005
W7210	No	No	No	None	No	No	Series 72	W7210A1001
			Yes					W7210D1005
Advanced								
W7212	Yes	No	No	Adjustable	No	No	Series 72	W7212A1009, W7212A1041 or W7212C1000 ^{c,d}
W7213/14 ^b	Yes	No	No	Adjustable	No	No	Series 72	W7213A1008 ^b
								W7214A1007 ^b
W7215	Yes	No	No	Adjustable	Yes	Yes	Series 72	W7215A1006
		Yes		Fixed		No		W7215B1004
W7460	Yes	No	No	Adjustable	Yes	Yes	M7415	W7460A1008
		Yes		Fixed		No		W7460B1006

^a The H705 includes a SPDT logic module and C7400 sensor (both affixed to the mounting plate).

^b Terminals B-B1 (W7213) for heat pump applications, terminals 0-01 (W7214) for heat pump applications.

^c Use C7400C with W7212C; Use C7400A with W7212A

^d W7212C has A, B, C, D and E enthalpy curves

Sensor Details

Model	Sensor of	Details	Comments	Model Number	
				No Display	Display
C7046	Temperature	Discharge or Mixed Air	Probe with flange	C7046A1004	—
C7150			Thermistor on board	C7150B1004	—
C7400A	Enthalpy	Changeover	Use with W7212A	C7400A1004	—
C7400C			Use with W7212C	C7400C1002	—
C7660			Use for single dry bulb only.	C7660A1000	—
C7232	CO ₂	Wall Mount	Outputs: one relay, one 0/2-10 Vdc analog or 4-20 mA	C7232A1016	C7232A1008
		Duct Mount		C7232B1014	C7232B1006
C7632	CO ₂	Wall Mount	Outputs: one fixed 0-10 Vdc analog (fixed 0-2000 ppm)	C7632A1004	—
		Duct Mount		C7632B1002	—

Economizer Controllers and Logic Modules

H705 Solid State Enthalpy Controller



Dimensions, Approximate: 4 3/4 in. high x 6 in. wide x 2 1/2 in. deep
(120 mm high x 154 mm wide x 80 mm deep)

Contact Ratings: 1.5 A Run @ 24 Vac; 3.5 A Inrush @ 24 Vac

Voltage: 20-28V at 60 Hz; 20-26V at 50 Hz

Frequency: 50 Hz; 60 Hz

Operating Temperature Range: 45 F to 95 F (7 C to 35 C)

Operating Humidity Range (% RH): 20 to 90% RH

The H705 Solid State Enthalpy Controller maximizes the use of free outdoor air in place of the first stage of cooling in heating, ventilating and air conditioning (HVAC) economizer systems.

- Consists of a W7459A type solid state economizer logic module and a C7400A Solid State Enthalpy Sensor on a mounting plate.
- Mounts in any position in outdoor air duct.
- Use enthalpy setpoint to select desired combination of air temperature and humidity.
- Use a second C7400A Sensor for differential changeover control to maximize savings.
- Maximizes use of outdoor air for free cooling.
- Use in electronic and electromechanical systems.

Approvals:

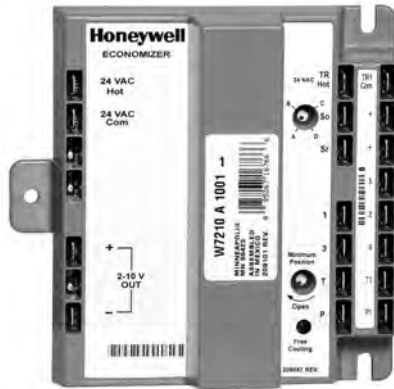
Underwriters Laboratories, Inc. Component UL plastic rated for UL 94 V-0

Accessories:

4074EJM 1.2K ohm checkout resistor, 620 ohm resistor, and jumper
S963B1128 Manual Potentiometer (135 ohm)

Product Number	Description	Comments	Used With
H705A1003	Includes W7459 and C7400A	SPDT - terminals 1 and 2 make with enthalpy increase above setpoint; terminals 2 and 3 make with enthalpy decrease.	Series 90 motors

W7210 Solid State Economizer Logic Modules



Dimensions, Approximate: 5 3/16 in. high x 4 11/16 in. wide x 1 9/16 in. deep (119 mm high x 132 mm wide x 40 mm deep)

Contact Ratings: 1.5 A Run @ 24 Vac; 3.5 A Inrush @ 24 Vac

Voltage: 24 Vac

Frequency: 50 Hz; 60 Hz

Operating Temperature Range: -40 F to +125 F (-40 C to +52 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

W7210A,D Solid State Economizer Logic Modules are used with solid state C7400A Enthalpy Sensors or C7660 Dry Bulb Temperature Sensors and Honeywell Series 72 actuators to proportion outdoor and return air dampers for economizer control in commercial HVAC equipment.

- Operates from the commercial thermostat to provide a totally integrated control system.
- Includes enthalpy or dry bulb changeover control, minimum damper position potentiometer and compressor staging relay functions.
- Optional differential enthalpy control provides greater economizer savings than single enthalpy control by selecting the most economical air for cooling.
- Differential enthalpy control uses two sensor inputs, one in return air and one in outdoor air then economizer control selects the air with the lower enthalpy.
- Enthalpy setpoint (A-D) W7210 Solid State Economizer Logic Module controls the combination of air temperature and humidity suitable for free cooling.
- LED indicates when free cooling is available.
- Mount on the sheet metal duct.
- Mounting screws included.

Used With: Honeywell Series 72 actuators

Approvals:

Underwriters Laboratories, Inc. Flammability Rating UL94V-5V

Accessories:

S963B1128 Manual Potentiometer (135 ohm)

Product Number	Input	Output	Use with Sensor	Description	Comments
W7210A1001	Dry Bulb Temperature sensor C7660, or Enthalpy sensor C7400A, or Mixed Air Temperature sensor C7150	Two SPDT one 2-10Vdc	C7400A; C7150; C7046; C7660	Series 72 Economizer Logic Module	Optional remote minimum position potentiometer. Economizer Logic Module operates Series 72 actuators.
W7210D1005	Dry Bulb Temperature sensor C7660, or Enthalpy sensor C7400A, or Mixed Air Temperature sensor C7150	Two SPDT one 2-10Vdc	C7400A; C7150; C7046; C7660	Series 72 Economizer Logic Module	High enthalpy limit. Optional remote minimum position potentiometer. Economizer Logic Module operates Series 72 actuators.

Economizer Controllers and Logic Modules

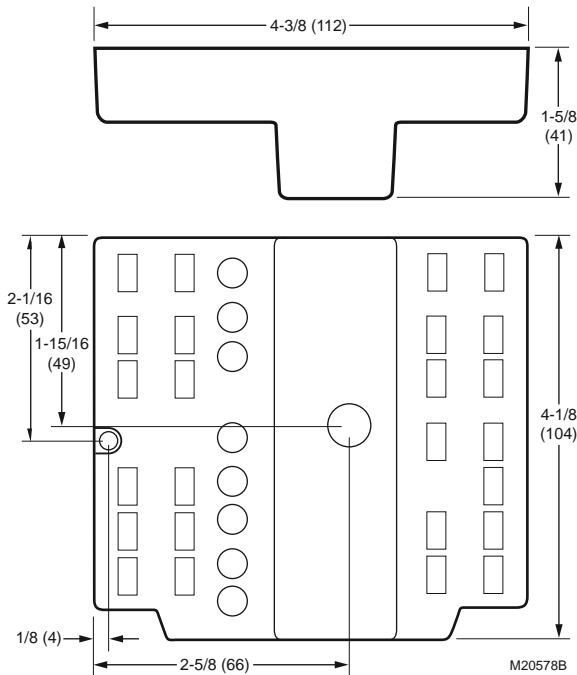
W7212; W7213; W7214 Demand Control Ventilation Economizer Logic Modules



W7212, W7213, and W7214 Economizer Logic Modules are used with C7232 Demand Control Ventilation (DCV) Sensors, and solid state C7400 Enthalpy Sensors or C7660 Dry Bulb Temperature Sensors. All models proportion outdoor and return air dampers for control of free cooling in commercial HVAC equipment.

- Operates from commercial thermostat and DCV sensor to provide a totally integrated control system.
- Mounts on M7215 Motor or ductwork.
- Used with Honeywell M7215 or Series 70 DCA.
- Combines minimum and DCV maximum damper position potentiometers with compressor staging.
- Solid state enthalpy or dry bulb changeover control.
- Terminals included for connecting optional S963B1128 Remote Potentiometer for remote minimum damper position control.
- LED indicates when free cooling is available.
- LED indicates when module is in DCV mode.
- LED indicates when exhaust fan contact is closed.
- W7213 is used with heat pump B terminal.
- W7214 is used with heat pump O terminal.

Dimensions in inches (millimeters)



Contact Ratings: 1.5 A Run @ 30 Vac; 3.5 A Inrush @ 30Vac

Voltage: 24 Vac

Output: 2-10 Vdc to actuator

Frequency: 50 Hz; 60 Hz

Operating Temperature Range: -40 F to +149 F (-40 C to +65 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Color: Black

Approvals:

Underwriters Laboratories, Inc. UL Listed File: E4436, Guide: XAPX, CE Report: GV02-003, Meets UL873 plenum requirements, C-tick, Complies with California Title 24

Accessories:

C7232A1008 Wall mounted Non-dispersive Infrared (NDIR) Carbon Dioxide Sensor with LCD Display and Honeywell logo

C7232A1016 Wall mounted Non-dispersive Infrared (NDIR) Carbon Dioxide Sensor with Honeywell logo

C7232B1006 Duct mounted Non-dispersive Infrared (NDIR) Carbon Dioxide Sensor with LCD Display and Honeywell logo

C7232B1014 Duct mounted Non-dispersive Infrared (NDIR) Carbon Dioxide Sensor with Honeywell logo

C7632A1004 Wall mounted Non-dispersive Infrared (NDIR) Carbon Dioxide Sensor with Honeywell logo

C7632B1002 Duct mounted Non-dispersive Infrared (NDIR) Carbon Dioxide Sensor with Honeywell logo

S963B1128 Manual Potentiometer (135 ohm)

Product Number	Input	Use with Sensor	Description	Comments	Used With
W7212A1009	Dry Bulb Temperature sensor: C7660; Mixed Air Temperature sensor: C7150; CO2 sensor: C7233; Enthalpy Sensor: C7400A	C7232; C7400A; C7150	Series 72 Economizer Logic Module with Demand Control Ventilation	Can be used with C7400A Enthalpy sensors or C7660 Dry Bulb sensor and C7232 CO2 sensors for Demand Control Ventilation. Accepts inputs from discharge or mixed air temperature sensors. Economizer Logic Module operates Series 72 actuators. Default minimum position in freeze protection	C7232; C7632; Honeywell Series 72 actuators
W7212A1041	Dry Bulb Temperature sensor: C7660; Mixed Air Temperature sensor: C7150; CO2 sensor: C7233; Enthalpy Sensor: C7400A	C7232; C7400A; C7150	Series 72 Economizer Logic Module with Demand Control Ventilation	Can be used with C7400A Enthalpy sensors or C7660 Dry Bulb sensor and C7232 CO2 sensors for Demand Control Ventilation. Accepts inputs from discharge or mixed air temperature sensors. Economizer Logic Module operates Series 72 actuators. Default closed position in freeze protection	C7232; C7632; Honeywell Series 72 actuators; M7215
W7212C1000	Dry Bulb Temperature sensor: C7660; Mixed Air Temperature sensor: C7150; CO2 sensor: C7233; Enthalpy Sensor: C7400C;	C7232; C7400C; C7150	Series 72 Economizer Logic Module with Demand Control Ventilation with additional "E"	Can be used with C7400C Enthalpy sensors or C7660 Dry Bulb sensor and C7232 CO2 sensors for Demand Control Ventilation. Accepts inputs from discharge or mixed air temperature sensors. Economizer Logic Module operates Series 72 actuators. Default minimum position in freeze protection. Additional "E" enthalpy curve	C7232; C7632; Honeywell Series 72 actuators; M7215

Economizer Controllers and Logic Modules

Product Number	Input	Use with Sensor	Description	Comments	Used With
W7213A1008	Dry Bulb Temperature sensor: C7660; Mixed Air Temperature sensor: C7150; CO2 sensor: C7233; Enthalpy Sensor: C7400A	C7232; C7400A; C7150	Series 72 Economizer Logic Module with Demand Control Ventilation and B-B1 terminals for heat pump	Can be used with C7400A Enthalpy sensors or C7660 Dry Bulb sensor and C7232 CO2 sensors for Demand Control Ventilation. Accepts inputs from discharge or mixed air temperature sensors. Economizer Logic Module operates Series 72 actuators. Default closed position in freeze protection. Includes B terminal (energized in heating mode)	C7232; C7632; Honeywell Series 72 actuators
W7214A1007	Dry Bulb Temperature sensor: C7660; Mixed Air Temperature sensor: C7150; CO2 sensor: C7233; Enthalpy Sensor: C7400A	C7232; C7400A; C7150	Series 72 Economizer Logic Module with Demand Control Ventilation and O-O1 terminals for heat pump	Includes O terminal (energized in cooling mode). Can be used with C7400A Enthalpy sensors or C7660 Dry Bulb sensor and C7232 CO2 sensors for Demand Control Ventilation. Accepts inputs from discharge or mixed air temperature sensors. Economizer Logic Module operates Series 72 actuators. Default closed position in freeze protection	C7232; C7632; Honeywell Series 72 actuators

W7215A,B; W7460 Enhanced Economizer Logic Modules



Use with C7400A, or C7660 and C7150B or C7046 Sensors; Demand Control Ventilation (DCV) sensor C7232 CO2 sensor (2-10 Vdc); and Honeywell Series 72 actuators, or M7415 Damper Actuator to proportion outdoor and return air dampers for

Dimensions, Approximate: 8 11/16 in. high x 5 13/16 in. wide x 1 11/16 in. deep (221 mm high x 147 mm wide x 43 mm deep)

Contact Ratings: 1.5 A Run @ 30 Vac; 3.5 A Inrush @ 30Vac

Voltage: 24 Vac

Frequency: 50 Hz; 60 Hz

Operating Temperature Range: -25 F to +125 F (-32 C to +52 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Used With: Honeywell Series 72 actuators

economizer and ventilation control in commercial HVAC equipment. (See below)

- Input from DCV CO2 sensor provides optimum ventilation based on occupancy.
- All models include air change and shutdown; "A" models also provide prepurge.
- Demand control ventilation economizer provides comfort, energy savings, reliability, air quality compliance and application flexibility in heating, cooling and ventilating applications.
- Combines solid state enthalpy or dry bulb changeover control, minimum and maximum damper position potentiometer and DCV setpoint functions.
- Optional differential enthalpy control (enthalpy setpoint D with two C7400A sensors) provides greater economizer savings and maximum comfort over single enthalpy control by selecting the most economical method for cooling.
- Enthalpy setpoint (A-D) on economizer module controls the combination of air temperature and humidity that is suitable for free cooling.
- LEDs indicates when economizer is in free cooling and DCV modes.
- B models provide for input from an outdoor air quality sensor.

Approvals:

Underwriters Laboratories, Inc. UL Listed File: E4436, Guide: XAPX, CE Report: GV02-003, Meets UL873 plenum requirements, C-tick, Complies with California Title 24

Accessories:

4074EJM 1.2K ohm checkout resistor, 620 ohm resistor, and jumper
S963B1128 Manual Potentiometer (135 ohm)

Product Number	Input	Output	Use with Sensor	Description	Comments
W7215A1006	Discharge Air Temperature sensor: C7150 or C7046; Air Quality Sensor	2-10 Vdc to actuator	C7232; C7400A; C7150; C7046; C7660	Series 72 Economizer Logic Module with analog input from one Indoor Air Quality sensor (commonly Carbon Dioxide Sensor)	Can accept remote minimum position damper position potentiometer and/or analog input from one carbon dioxide sensor for indoor air. Economizer Logic Module operates Series 72 actuators.
W7215B1004	Discharge Air Temperature sensor: C7150 or C7046; Air Quality Sensor	2-10 Vdc to actuator	C7232; C7400A; C7150; C7046; C7660	Series 72 Economizer Logic Module with analog input from two Indoor Air Quality sensors (commonly Carbon Dioxide Sensor)	Can accept remote minimum position damper position potentiometer and/or analog input from two carbon dioxide sensors for indoor and outdoor air. Economizer Logic Module operates Series 72 actuators.

Economizer Controllers and Logic Modules

W7459 Solid State Economizer Logic Module



W7459 Solid State Economizer Logic Module are used with **M7415** and **M8405 Dedicated Economizer Actuators** to proportion outdoor and return air dampers in economizer systems.

- Attaches to one side of actuator for proportional control of damper.
- Combines solid state changeover control, minimum damper position potentiometer and compressor staging relays.
- Use one sensor in outdoor air for single sensor control; use two sensors, one in return air and one in outdoor air, for differential control.

Dimensions, Approximate: 4 1/16 in. high x 2 13/16 in. wide x 1 1/4 in. deep (103 mm high x 71 mm wide x 32 mm deep)

Contact Ratings: 1.5 A Run @ 24 Vac; 3.5 A Inrush @ 24 Vac

Voltage: 24 Vac

Frequency: 50 Hz; 60 Hz

Output: Output for M7415

Operating Temperature Range: -40 F to +125 F (-40 C to +52 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Approvals:

Underwriters Laboratories, Inc. UL Listed File: E4436, Guide: XAPX2, CE Report: GV97-010, Flammability Rating UL94V-5V

Accessories:

4074EJM 1.2K ohm checkout resistor, 620 ohm resistor, and jumper
S963B1128 Manual Potentiometer (135 ohm)

Product Number	Input	Use with Sensor	Comments	Used With
W7459A1001	Y1 and Y2 from thermostat; Discharge Air Temperature sensor: C7150 or C7046; Enthalpy Sensor: C7400A	C7400A; C7150; C7046; C7660	Optional remote minimum position potentiometer.	M7415 Damper Actuator
W7459A1035	See comments Y1 and Y2 from thermostat	C7400A; C7150; C7046; C7660	Optional remote minimum position potentiometer. With resistor jumper to allow operation with a temperature activated switch to limit minimum position to 50% max. open.	M7415 Damper Actuator
W7459C1007	Discharge Air Temperature controller: T675 or T6031	C7400A; C7150; C7046; C7660	—	M8405 Damper Actuator
W7459D1005	Y1 and Y2 from thermostat; Discharge Air Temperature sensor: C7150 or C7046; Enthalpy Sensor: C7400A	C7400A; C7150; C7046; C7660	High enthalpy limit.	M7415 Damper Actuator

W7499 Solid State Economizer Logic Module



W7499 Solid State Economizer Logic Module with M7415 Actuator to proportion outdoor and return air dampers in economizer systems.

- Combines solid state changeover control, minimum damper position potentiometer and compressor staging relays.
- Use one sensor in outdoor air for single sensor control; use two sensors, one in return air and one in outdoor air, for differential control.

Dimensions, Approximate: 5 in. high x 6 in. wide x 5 in. deep (103 mm high x 71.4 mm wide x 33 mm deep)

Contact Ratings: 1.5 A Run @ 30 Vac; 3.5 A Inrush @ 30Vac

Voltage: 24 Vac

Frequency: 50 Hz; 60 Hz

Operating Temperature Range: -40 F to +125 F (-40 C to +52 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Approvals:

Underwriters Laboratories, Inc. UL Listed File: E4436, Guide: XAPX2, Flammability Rating UL94V-5V

Product Number	Use with Sensor	Description	Comments
W7499A1003	May add a second C7400 sensor for differential control, C7400A, C7150, C7046, C7660	W7459A1001 Economizer Logic Module with M7415A1006 Damper Actuator	Kit includes W7459A1001 Economizer Logic Module and M7415A1006 Damper Actuator

Economizer Controllers and Logic Modules

W859 Economizer Control Packages



Dimensions, Approximate: 5 13/16 in. high x 4 1/8 in. wide x 3 11/32 in. deep (148 mm high x 105 mm wide x 85 mm deep)
Contact Ratings: 1 A @ 24 Vac
Voltage: 24 Vac
Frequency: 50 Hz; 60 Hz

Contain all controls needed to operate an outdoor return air damper system, when used with an M91XX Modutrol IV Motor with internal balancing relay.

- Can be connected to the commercial thermostat to provide a totally integrated control system that locks out the economizer during the heating system.
- Used with an H205A or H705A Enthalpy Control to provide maximum economy in high humidity areas.
- Includes lead wires for remote minimum position potentiometer and remote changeover switch. 24 Vac power supply only.
- Mounts in place of Modutrol IV Motor cover, when used with 203977A bracket.
- Weatherproof screw-on caps prevent accidentally changing control adjustments.
- Hook provided to support device on side of Modutrol IV Motor during wiring.

Approvals:
Underwriters Laboratories, Inc. UL and CSA recognized for field wiring.

Accessories:
107324A Capillary Holder Assembly for duct insertion, 8 3/8 in. long

Replacement Parts:
107324A Capillary Holder Assembly for duct insertion, 8 3/8 in. long

Product Number	Output	Comments	Used With
W859F1005	Series 90	throttling range: 10 F (6 C) Requires 203977A bracket for mounting on Modutrol IV motor.135 ohm mixed air temperature controller	M91XX Modutrol IV motor
W859F1013	Series 90	throttling range: 10 F (6 C) Requires 203977A bracket for mounting on Modutrol IV motor.135 ohm mixed air temperature controller	M91XX Modutrol IV motor, and H705A1003 enthalpy control
W859F1021	Series 90	throttling range: 10 F (6 C) Requires 203977A bracket for mounting on Modutrol IV motor.135 ohm mixed air temperature controller	M91XX Modutrol IV motor, and H705A1003 enthalpy control

Economizer Parts and Accessories

Product Number	Description	Used With
4074EJM	1.2K ohm checkout resistor, 620 ohm resistor, and jumper	W7459; W7210; W7212; W7215
4074EJQ	Board for panel mounting W7459A	W7459A

Economizer Damper Actuators

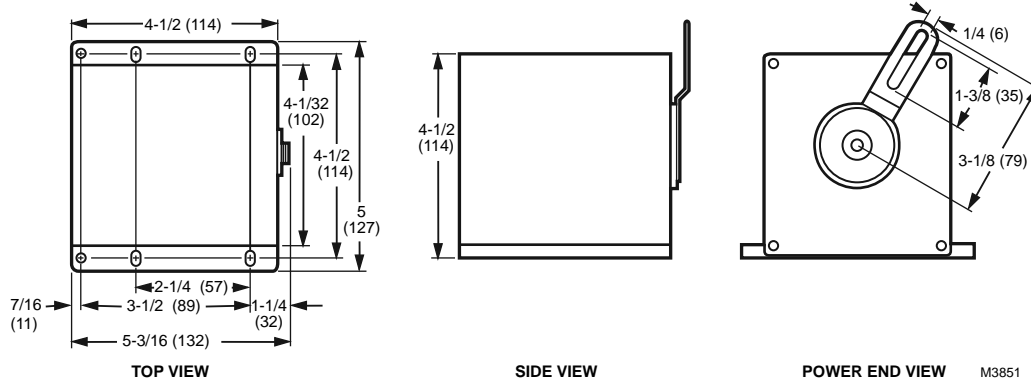
M6415; M7215; M7415; M8405; M8415 Economizer Damper Actuators



25 lb-in. spring return damper actuators provide two-position, three-position, floating, or modulating control of economizer systems, ventilation dampers and combustion air dampers used in residential or commercial HVAC equipment.

- Synchronous Motor. Quiet, high efficiency drive motor.
- Spring returns motor shaft to normal position in the event of power failure.
- High impact, glass-fiber reinforced plastic case is rugged, lightweight and corrosion resistant.
- Uses Q298B Linkage.

Dimensions in inches (millimeters)



Dimensions, Approximate: 4 1/2 in. high x 5 in. wide x 5 3/16 in. deep (114 mm high x 127 mm wide x 132 mm deep)

Fail Safe Mode: Spring Return

Torque Rating: 25 lb-in. (2.8 Nm)

Torque Rating, Breakaway: 40 lb-in. (4.5 Nm)

External Auxiliary Switches Available: Yes

Fixed Stroke: Yes

Motor Shafts: 1

Feedback: No

Electrical Connections: Quick-connect terminals

Frequency: 50 Hz; 60 Hz

Mounting: Foot-mounted

Vibration: V2 level

Angle of Rotation (Stroke Max (deg)): 90

Nominal Spring Return (seconds): 18 sec

Nominal Timing Opening (seconds): 90 sec

Maximum Run Time (seconds): 90 sec

Minimum Timing (seconds): 90 sec

Deadweight Load on Shaft (Power End): 15 lbs max

Operating Temperature Range: -25 F to +125 F (-32 C to +52 C)

Shipping Temperature Range: -30 F to +150 F (-34 C to +66 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Materials (Housing): UL94-5V plastic housing

Weight: 3 lb

Approvals:

Underwriters Laboratories, Inc. Listed File: E4436, Guide: XAPX

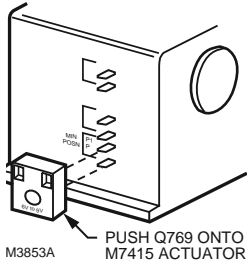
Product Number	Control Signal	Power Consumption		Rotation to Open	Description	Comments	Used With
		(Driving)	(Holding)				
M6415A1016	Floating, SPDT	8 VA	3 VA	CCW	Spring return-foot mounted, Spdt floating, 24 Vac	—	Floating Controllers—
M7215A1008	2 to 10 Vdc	8 VA	3 VA	CCW	Spring return-foot mounted, Modulating, 24 Vac	—	W7212/13/14 Economizers; W7215 Economizers
M7415A1006	Thermistor, Modulating	8 VA	5 VA	CCW	Spring return-foot mounted, Modulating, 24 Vac	With captive mounting nuts	W7459 Economizers; W7460 Economizers
M7415B1004	Thermistor, Modulating	8 VA	5 VA	CW	Spring return-foot mounted, Modulating, 24 Vac	—	W7459 Economizers; W7460 Economizers
M8405A1006	Three position	8 VA	3 VA	CCW	Spring return-foot mounted, 3 position w/field adj. min pos., 24 Vac	—	W7459C—
M8415A1004	Two position, SPST	8 VA	3 VA	CCW	Spring return-foot mounted, 2 position, 2 wire w/field adj. min. pos., 24 Vac	—	—

Economizer Damper Actuators

Q769 Signal Adapters





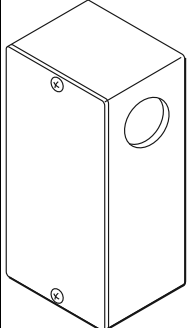
Q769 Adapter is used to provide a modulating signal to the M7415 Economizer Damper Motors when used with a controller.



Dimensions, Approximate: 1 3/8 in. high x 1 3/8 in. wide x 11/16 in. deep (35 mm high x 35 mm wide x 17 mm deep)
Electrical Connections: Quick-connect terminals
Operating Temperature Range: -25 F to +125 F (-32 C to +52 C)

Product Number	Control Signal	Description	Used With
Q769A1009	6 to 9 Vdc	6 to 9 volt Adapter	M7415
Q769B1008	4 to 20 mA	4 to 20 mA Adapter	M7415
Q769C1007	0 to 10 Vdc	0-2 to 10 Vdc Adjustable Adapter	M7415

Economizer Actuator Accessories

Product Number	Description	Used With	
203977A	Economizer Adapter Kit for Mod Motors	Modutrol™ Motors; W7459 Economizers	
4074EGR	Crank arm assembly	M6415; M7215; M7415; M8405; M8415	
4074EKV	24 Vac Auxiliary switch which provides switching capability for controlling auxiliary equipment	M6415; M7215; M7415; M8405; M8415	
7640QF	Terminal Enclosure which provides wiring enclosure for electrical connections	M6415; M7215; M7415; M8405; M8415	 7640 QF M11519A
Q709A1005	Minimum Position Potentiometer	M7415; M7405	

C7150 Mixed Air Sensor



Application: Temperature Mixed Air
Dimensions, Approximate: 2 in. high, 2 1/2 in. wide, 3/4 in. deep (51 mm high x 64 mm wide)
Sensor Type: 3000 ohms @ 25C NTC
Color: Black
Operating Temperature Range: 40 F to 110 F (4 C to 43 C)

C7150 Solid State mixed air sensor is used with Honeywell economizer logic modules and W973 and M7415 to proportion outdoor and return air dampers in economizer systems.

- Uses thermistor sensing element in ventilation duct systems.
- Negative temperature coefficient (NTC) causes resistance to decrease as sampled air temperature increases.
- Resistance change used as in input to control W973 and M7415.
- Requires no settings or calibration.
- Mounts on duct surface with four screws (not supplied).

Electrical Connections: 1/4 in. (6 mm) quick-connect terminals.

Approvals:
CE: Report: GV97-011
Underwriters Laboratories, Inc. Component Recognized

Product Number	Mounting	Maximum Ambient Temperature		Used With
		(F)	(C)	
C7150B1004	Mount on a mounting bracket (not included) inside the mixed air or discharge air duct.	250 F	121 C	W973 and M7415; W7210, W7212, W7213, W7214, W7215, W7459, W7460

C7400 Enthalpy Sensor



Application: Enthalpy economizing
Dimensions, Approximate: 3 5/32 in. high, 3 7/8 in. wide, 1 in. deep (80 mm high x 98 mm wide x 25 mm deep)
Sensor Type: 4-20 mA output
Color: Black
Operating Temperature Range: -25 F to +125 F (-32 C to +52 C)
Operating Humidity Range (% RH): 10 to 90% RH
Electrical Connections: Two 1/4 in. quick-connect terminals

C7400 Solid State Enthalpy Sensor is used with Honeywell economizer logic modules to proportion outdoor and return air dampers in economizer systems.

- C7400 solid state elements sense enthalpy (temperature and humidity); use two sensors for differential control, maximizing energy savings.
- Use one sensor in outdoor air for single sensor control; use two sensors, one in return air and one in outdoor air, for differential control.
- C7400 mount in any position up to 200 ft (61 m) away from Economizer Logic Module.
- UL94-5V enclosure.

Approvals:
CE: Report: GV97-011
Underwriters Laboratories, Inc. Component Recognized: E4436

Accessories:
4074EJM 1.2K ohm checkout resistor, 620 ohm resistor, and jumper
4074EJQ Board for panel mounting W7459A
S963B1128 Manual Potentiometer (135 ohm)

Product Number	Mounting	Maximum Ambient Temperature		Used With
		(F)	(C)	
C7400A1004	Mounted in any position where it is exposed to freely circulating air	250 F	121 C	W7210, W7212A, W7213, W7214, W7215, W7459, W7460
C7400C1002	Mounted in any position where it is exposed to freely circulating air	250 F	121 C	W7212C

Economizer Sensors

C7650 Dry Bulb Sensor - for Differential Dry Bulb applications



Application: Temperature economizing
Dimensions, Approximate: 3 5/32 in. high, 3 7/8 in. wide, 1 in. deep
 (80 mm high x 98 mm wide x 25 mm deep)
Sensor Type: 10-20 mA inversely proportional
Color: Black
Operating Temperature Range: 40 F to 100 F (4 C to 38 C)
Electrical Connections: Two 1/4 in. quick-connect terminals

C7650 Solid State Temperature Sensor is used with Honeywell economizer logic modules to proportion outdoor and return air dampers in economizer systems. For use in differential dry bulb applications.

- C7650 solid state element senses temperature.
- Use two sensors, one in return air and one in outdoor air, for differential control. For single dry bulb applications use C7660.
- C7650 mount in any position up to 200 ft (61 m) away from W7459.
- UL94-5V enclosure.

Approvals:
CE: Report: GV97-011
Underwriters Laboratories, Inc. Component Recognized: E4436

Accessories:
4074EJM 1.2K ohm checkout resistor, 620 ohm resistor, and jumper
4074EJQ Board for panel mounting W7459A
S963B1128 Manual Potentiometer (135 ohm)

Product Number	Application Type	Mounting	Description	Used With
C7650A1001	Duct outside, one in return air and one in outdoor air	Mounted in any position where it is exposed to freely circulating air	Dry Bulb Temperature Sensor for supply duct or return air with a 10-20 mA inversely proportional sensor - for differential dry bulb applications	W7210, W7212, W7213, W7214, W7215, W7459, W7460

C7660 Selectable Temperature Sensor



Application: Selectable Temperature Sensor
Dimensions, Approximate: 4 5/32 in. high x 3 7/8 in. wide x 1 in. deep
 (81 mm high x 96 mm wide x 25 mm deep)
Sensor Type: 4 or 20mA Output
Color: Black

C7660 Selectable Temperature Sensor is used with the W7459, W7215, W7212, W7213 and W7214 Economizer Controls. The economizer controls are mounted on an M7415/M7215 Actuator. They permit the use of outdoor air as the first stage of cooling in heating, ventilating and air conditioning (HVAC) systems. The C7660 Selectable Temperature Sensor is only to be used with single temperature change over with the sensor located in the outdoor air.

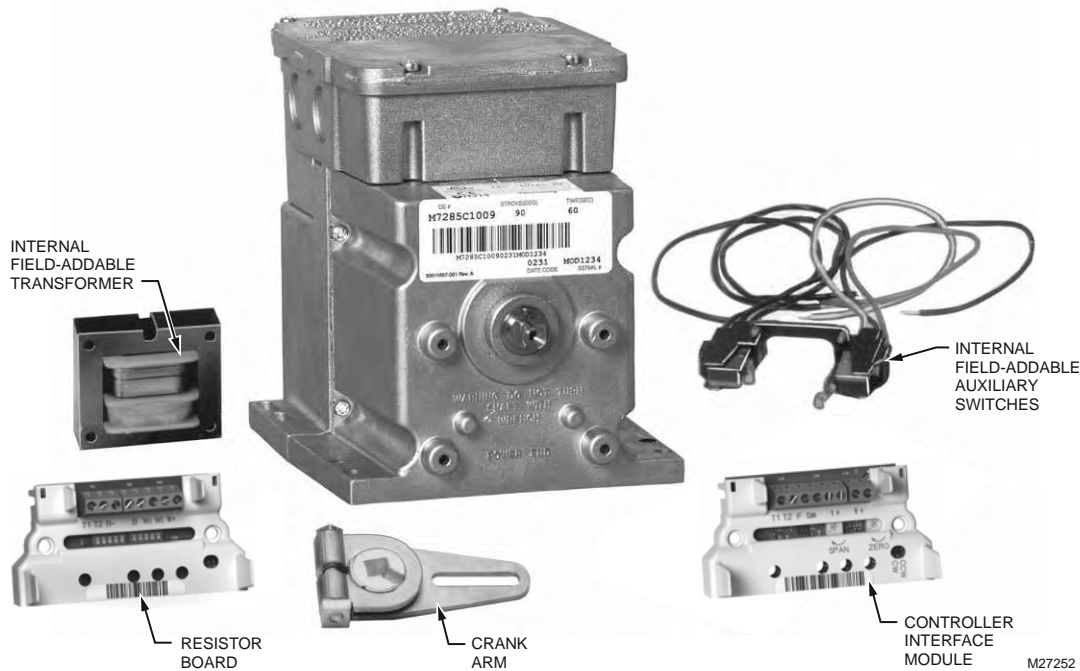
- Senses temperature of outdoor air and provides a signal to economizer control with OK or not OK to economize.
- Selectable dip switch provides 8 change over temperature options.
- When temperature of outdoor air is below change over temperature, the outdoor air damper is opened to reduce the cooling load in the building.
- Provides 4 OR 20 mA output signal to economizer control; At 4 mA not OK to economize, at 20 mA OK to economize.
- Highly accurate microprocessor control.
- Sensor is enclosed in a rugged, corrosion-resistant plastic case.
- Replaces C7650 temperature sensors and the control function of temperature change over in the economizer control.

Operating Temperature Range: -40 to 149 F (-40 to 65 C)
Electrical Connections: Two 1/4 in. quick-connect terminals

Approvals:
Underwriters Laboratories, Inc. Flammability Rating 94-5V (C-UL)

Product Number	Application Type	Mounting	Used With
C7660A1000	Duct outside (supply) or return	Mounted in any position where it is exposed to freely circulating air	W7210, W7212, W7213, W7214, W7215, W7459, W7460

Modutrol IV™ Series 2 and Series 3 Family of Motors “Contractor-Friendly” design for service and retrofit



Modutrol IV™ Series 2 and Series 3 Motors replace all present generation Modutrol motors and set a new, certifiable standard for the industry. Modutrol IV™ Series 2 and Series 3 Motors retain all the features that make Honeywell Modutrol motors the most reliable produced, and go even further with many quality improvements.

Our engineers have incorporated Design for Six Sigma methodology and Electronic Excellence to re-engineer this popular product. The motor has undergone a technology update integrating the proven DCA (Direct Coupled Actuator) microprocessor based design into the existing footprint of a Mod Motor.

The Series 2 and Series 3 Motors provide these features and benefits:








1. **Dual shafts.** Slotted and tapped at both ends. Both drive and auxiliary shafts have equal torque ratings, allowing auxiliary shaft to drive full torque loads. This provides a more flexible motor. For example, a spring-return, normally closed motor will provide normally open operation simply by using the auxiliary shaft.
2. **NEMA 3 housing.** Modutrol IV™ motor housings protect the motor from driving rain if motor is mounted in the upright position (as shown in above photo). May be mounted outdoors without a weatherproofing kit.
3. **Brushless DC sub motor** provides a fixed torque over the entire voltage range.
4. **Reduced power consumption.** Motor power needs can always be satisfied with a 25 VA transformer.
5. **Internal quality improvements.** Results in improved performance and longer life. These quality improvements include:
 - Microprocessor based technology eliminated the need for mechanical end stops.
 - Brushless DC sub motor eliminates the need for oil.
6. **Auxiliary Switch cams.** All models have auxiliary switch cams that permit acceptance of 220736A,B Internal Auxiliary Switch Kits.
7. **Field Adjustable stroke.** Most models are field adjustable (i.e. 90 to 160 degrees).

TRADELINE motors and appropriate accessories can be configured to replace all previous Honeywell Modutrol motors, as well as most OEM modutrol motors. The appropriate accessories are listed with the different models and in tables near the end of this section.

Modutrol IV™ Motors

Modutrol IV™ Family of Motors

The following Modutrol IV™ motors can replace the old style Modutrol motors as shown below.

	Mod IV Replacement	Old Motors Replaced
Non-Spring Return	M6184 M9164 M6194 M9174 M6284 M9184 M6294 M9194 M7164 M9484 M7284 M9494 M7294 	M644 M744 M941 M944 M954  M734 M934 
Spring Return	M4185 M7685 M6285 M8185 M7285 M9185 M7286 	M445 M745 M845 M945 M955 
Medium Torque Spring Return	M9175 	M765 M865 M965 M975 

The Honeywell Family of Modutrol IV™ Series 2 and Series 3 Motors

Actuator	Voltage Vac			Stroke	Timing	Control Input			Torque (lb-in.)					Spring Return	Recommended Controller
	24 ^a	120	230			On/Off	SPDT Floating	Modulating	35	60	75	150	300		
<i>*TRADELINE models.</i>															
M4185A1001		●		90-160	30-60	●				●				●	T775; T4031
M4185B1009		●		90-160	30-60	●				●				●	T775; T4031
M4185B1058	●	●	●	90-160	30-60	●				●				●	T775; T4031
M4185C1001	●	●		90-160	30-60	●				●				●	T775; T4031
M6184A1015	●			90-160	30-60			●				●			T775; T675; T678; T6031
M6184A1023		●		90-160	15-30			●				●			T775; T675; T678; T6031

^a All 24 Vac Modutrol motors have CE approval.

^b Available only through Honeywell Authorized Distributors.

^c Includes minimum position potentiometer.

Modutrol IV™ Motors

Actuator	Voltage Vac			Stroke	Timing	Control Input			Torque (lb-in.)					Spring Return	Recommended Controller	
	24 ^a	120	230			On/Off	SPDT Floating	Modulating	35	60	75	150	300			
<i>*TRADELINE models.</i>																
M6184D1001	●			90-160	15-30		●						●			T775; T675; T678; T6031
*M6184D1035	●			90-160	30-60		●						●			T775; T675; T678; T6031
M6184D1068	●			90-160	120-240		●						●			T775; T675; T678; T6031
M6184F1014	●			90-160	30-60		●						●			T775; T675; T678; T6031
*M6194B1011	●			90-160	60-120		●							●		T775; T675; T678; T6031
*M6194D1017	●			90-160	120-240		●							●		T775; T675; T678; T6031
M6194E1006	●			90-160	120-240		●							●		T775; T675; T678; T6031
M6284A1055		●		90-160	30-60		●							●		T775; T675; T678; T6031
M6284A1071		●		90-160	30-60		●							●		T775; T675; T678; T6031
*M6284D1000	●			90-160	30-60		●							●		T775; T675; T678; T6031
*M6284D1026	●			90-160	30-60		●							●		T775; T675; T678; T6031
M6284F1013	●			90-160	30-60		●							●		T775; T675; T678; T6031
*M6285A1005	●			90-160	30-60		●							●		T775; T675; T678; T6031
M6285C1001	●			90-160	30-60		●							●		T775; T675; T678; T6031
*M6294D1008	●			90-160	120-240		●							●		T775; T675; T678; T6031
M7164A1017 ^b	●			90-160	30-60				10.5-13.5 Vdc	●						T775; W7080
M7164G1030 ^b		●		90-160	30-60				10.5-13.5 Vdc	●						T775; W7080
M7284A1004 ^b		●		90-160	30-60				4-20 mA					●		T775, EXCEL 5000
M7284A1012 ^b		●		90-160	30-60				4-20 mA					●		T775, EXCEL 5000
M7284A1038 ^b		●		90-160	15-30				4-20 mA				●			T775, EXCEL 5000
M7284A1079 ^b	●			90-160	30-60				2-10 Vdc					●		T775, EXCEL 5000
M7284C1000 ^b		●		90-160	30-60				4-20 mA					●		T775, EXCEL 5000
M7284C1083	●			90	30		●		4-20 mA					●		DDC
M7284C1091	●			160	60		●		4-20 mA					●		DDC
M7284Q1009 ^b		●		90-160	30-60				4-20 mA					●		T775, EXCEL 5000
M7284Q1082	●			90	30		●		4-20 mA					●		DDC
M7284Q1090	●			160	60		●		4-20 mA					●		DDC
M7285A1003 ^b		●		90-160	30-60				4-20 mA					●		T775, EXCEL 5000
M7285A1045 ^b	●			90-160	30-60				2-10 Vdc					●		T775, EXCEL 5000
M7285C1009 ^b		●		90-160	30-60				4-20 mA					●		T775, EXCEL 5000
M7285Q1008 ^b		●		90-160	30-60				4-20 mA					●		T775, EXCEL 5000
M7286G1009 ^b	●			90-160	30-60				2-10 Vdc					●		T775, EXCEL 5000
M7294A1010 ^b	●			90-160	60-120				2-10 Vdc					●		T775, EXCEL 5000
M7294Q1007 ^b		●		90-160	60-120				4-20 mA					●		T775, EXCEL 5000
M7685A1025 ^{b,c}	●			90-160	30-60				14-17 Vdc					●		T775; W7080
*M8185D1006	●			90-160	30-60		●							●		T775
M9164A1005		●		90-160	30-60				135 ohm					●		T775; T915; T991
M9164A1013	●	●	●	90-160	30-60				135 ohm					●		T775; T915; T991
M9164A1070	●			90-160	30-60				135 ohm					●		T775; T915; T991
M9164C1001	●			90-160	30-60				135 ohm					●		T775; T915; T991
M9164C1068		●		90-160	30-60				135 ohm					●		T775; T915; T991
*M9164D1009	●			90-160	30-60				135 ohm					●		T775; T915; T991
M9174B1027		●		90-160	30-60				135 ohm					●		T775; T915; T991
M9174C1025		●		90-160	30-60				135 ohm					●		T775; T915; T991

^a All 24 Vac Modutrol motors have CE approval.

^b Available only through Honeywell Authorized Distributors.

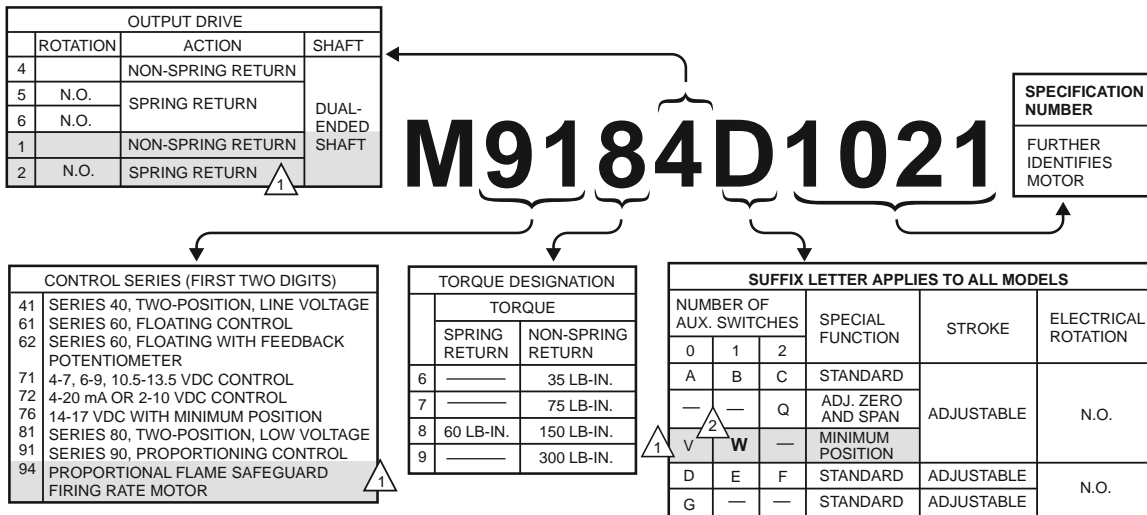
^c Includes minimum position potentiometer.

Modutrol IV™ Motors

Actuator	Voltage Vac			Stroke	Timing	Control Input			Torque (lb-in.)					Spring Return	Recommended Controller
	24 ^a	120	230			On/Off	SPDT Floating	Modulating	35	60	75	150	300		
*TRADELINE models.															
M9174C1033		●		90-160	30-60			135 ohm			●				T775; T915; T991
*M9174D1007	●			90-160	30-60			135 ohm			●				T775; T915; T991
M9184A1019	●			90-160	30-60			135 ohm			●				T775; T915; T991
M9184C1031	●			90-160	30-60			135 ohm			●				T775; T915; T991
M9184D1005	●			90-160	15-30			135 ohm			●				T775; T915; T991
*M9184D1021	●			90-160	30-60			135 ohm			●				T775; T915; T991
M9184F1034	●			90-160	30-60			135 ohm			●				T775; T915; T991
M9185A1018	●			90-160	30-60			135 ohm	●				●		T775; T915; T991
M9185C1006	●			90-160	30-60			135 ohm		●			●		T775; T915; T991
*M9185D1004	●			90-160	30-60			135 ohm		●			●		T775; T915; T991
M9185E1019	●			90-160	30-60			135 ohm	●				●		T775; T915; T991
*M9194D1003	●			90-160	120-240			135 ohm				●			T775; T915; T991
M9194E1000	●			90-160	120-240			135 ohm				●			T775; T915; T991

^a All 24 Vac Modutrol motors have CE approval.
^b Available only through Honeywell Authorized Distributors.
^c Includes minimum position potentiometer.

Modutrol IV™ Series 2 and Series 3 Motor Order Number Guide



1 MODEL NUMBERS IN SHADED AREAS ARE AVAILABLE SPECIAL ORDER ONLY. CONTACT YOUR HONEYWELL SALES REPRESENTATIVE.

2 SUFFIX LETTERS IN BOLD ARE OBSOLETE.

M13696A

M4185 Line Volt; M8185 Low Volt Two-Position Modutrol IV™ Series 2 Motors



Series 41 and Series 81 Modutrol IV™ motors are 2-position (line- and low-voltage per motor control) spring-return motors. They are used to operate dampers or valves in applications where it is necessary or desirable to have the controlled element return to the starting position in the event of power failure.

- Fixed torque throughout the entire voltage range.
- Integral spring return returns motor to normal position in the event of power failure.
- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Motors are designed for either normally open or normally closed valves and dampers.
- Integral auxiliary switches are available factory mounted, or can be field added.
- Motors can operate valve linkages from the power end or auxiliary end shafts for normally closed or normally open valve applications.
- All models have dual shafts (slotted and tapped on both ends).

Application Type: Electric
Fail Safe Mode: Spring Return
Control Signal: Two position, SPST
Feedback: No
Frequency: 60 Hz; 50 Hz

External Auxiliary Switches Available: Yes
Auxiliary Switch Ratings AFL - 120 Vac: 7.2A
Auxiliary Switch Ratings ALR - 120 Vac: 43.2A
Auxiliary Switch Ratings AFL - 240 Vac: 3.6A
Auxiliary Switch Ratings ALR - 240 Vac: 21.6A
Electrical Connections: Quick-connect terminals

Mounting: Foot-mounted

Motor Shafts: Dual-ended shaft

Shaft Shape: square

Shaft Dimensions: 0.375 in. (10 mm)

Shaft Rotation (upon control signal increase):

Clockwise (as viewed from power end) (normally closed)

Deadweight Load on Shaft (Either End): 200 lbs.

Deadweight Load (Combined on both Shafts): 300 lbs.

Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)

Weight: 9.5 lb

Approvals:

CE: EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)

Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX for USA and Canada

Accessories:

Q7230A1005 Interface module, provides adjustable zero & span, voltage or current control

220736A Internal Auxiliary Switch Assembly - 1 Switch

220736B Internal Auxiliary Switch Assembly - 2 Switches

220738A Adapter Bracket. Adjusts shaft height to match Modutrol III motors

220741A2-TP Screw Terminal Adapter Kit for 2 position Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals

221455A Infinitely adjustable Motor Crank Arm

50017460-001 24/120/230 Vac Internal Transformers for Series 2 Motors

50017460-003 120 Vac Internal Transformers for Series 2 Motors

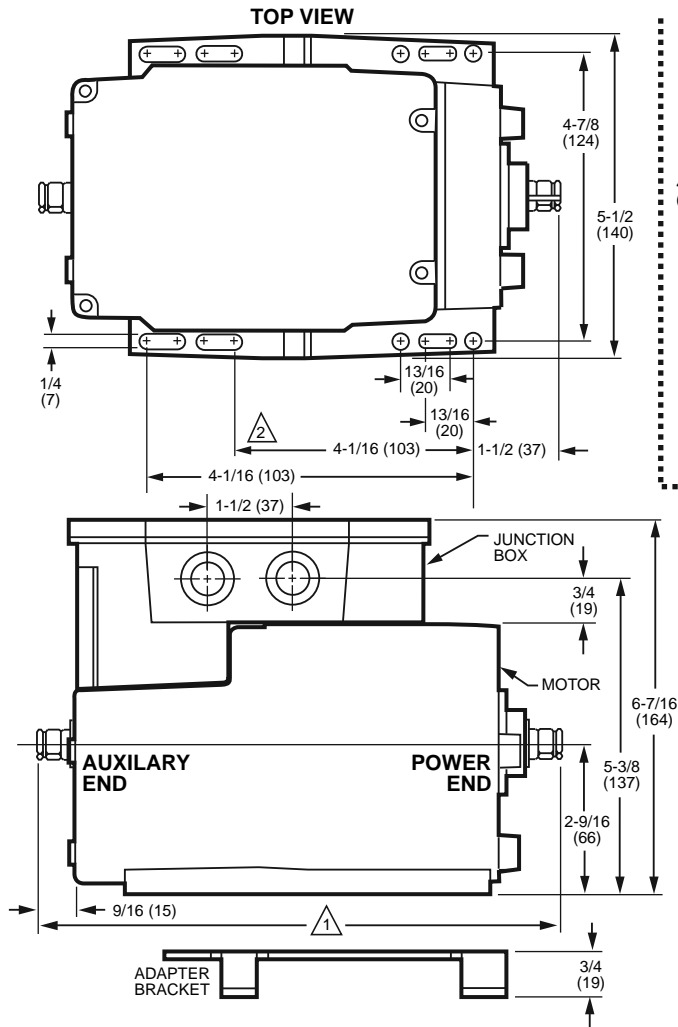
4074ERU Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Internal Auxiliary Switch	Stroke	Includes
	(lb-in., lb)	(Nm, N)					
M4185A1001	60 lb-in.	6.8 Nm	120V	30-60 sec	0	Adjustable; 90 to 160 degrees	Transformer
M4185B1009	60 lb-in.	6.8 Nm	120V	30-60 sec	1	Adjustable; 90 to 160 degrees	Transformer
M4185B1058	60 lb-in.	6.8 Nm	24/120/230V	30-60 sec	1	Adjustable; 90 to 160 degrees	Transformer
M4185C1007	60 lb-in.	6.8 Nm	120V	30-60 sec	2	Adjustable; 90 to 160 degrees	Transformer
* M8185D1006	60 lb-in.	6.8 Nm	24V	30-60 sec	0	Adjustable; 90 to 160 degrees	—

* TRADELINE models • SUPER TRADELINE models

Modutrol IV™ Motors

Dimensions in inches (millimeters)



- △1 FOR 60 LB-IN. SPRING RETURN MODELS 8-3/4 (222);
- △2 FOR 60 LB-IN. SPRING RETURN MODELS (SHOWN).

M18992A

M6184; M6194 Floating Modutrol IV™ Series 2 Motors



Application Type: Electric
Fail Safe Mode: Non-Spring Return
Control Signal: Floating
Feedback: No
Frequency: 60 Hz; 50 Hz
External Auxiliary Switches Available: Yes
Auxiliary Switch Ratings AFL - 120 Vac: 7.2A
Auxiliary Switch Ratings ALR - 120 Vac: 43.2A
Auxiliary Switch Ratings AFL - 240 Vac: 3.6A
Auxiliary Switch Ratings ALR - 240 Vac: 21.6A
Electrical Connections: Quick-connect terminals
Mounting: Foot-mounted
Motor Shafts: Dual-ended shaft
Shaft Shape: square
Shaft Dimensions: 0.375 in. (10 mm)
Shaft Rotation (upon control signal increase):
 Dependent on wiring (normally closed)
Stroke: Adjustable; 90 to 160 degrees
Deadweight Load on Shaft (Either End): 200 lbs.
Deadweight Load (Combined on both Shafts): 300 lbs.

Series 61 Modutrol IV™ Motors non-spring return floating control motors used with controllers that provide a switched spdt or floating output to operate dampers or valves.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.
- Motors are designed for either normally open or normally closed valves and dampers.

Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)
Weight: 6.5 lb

Approvals:

CE: EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)
Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX for USA and Canada

Accessories:

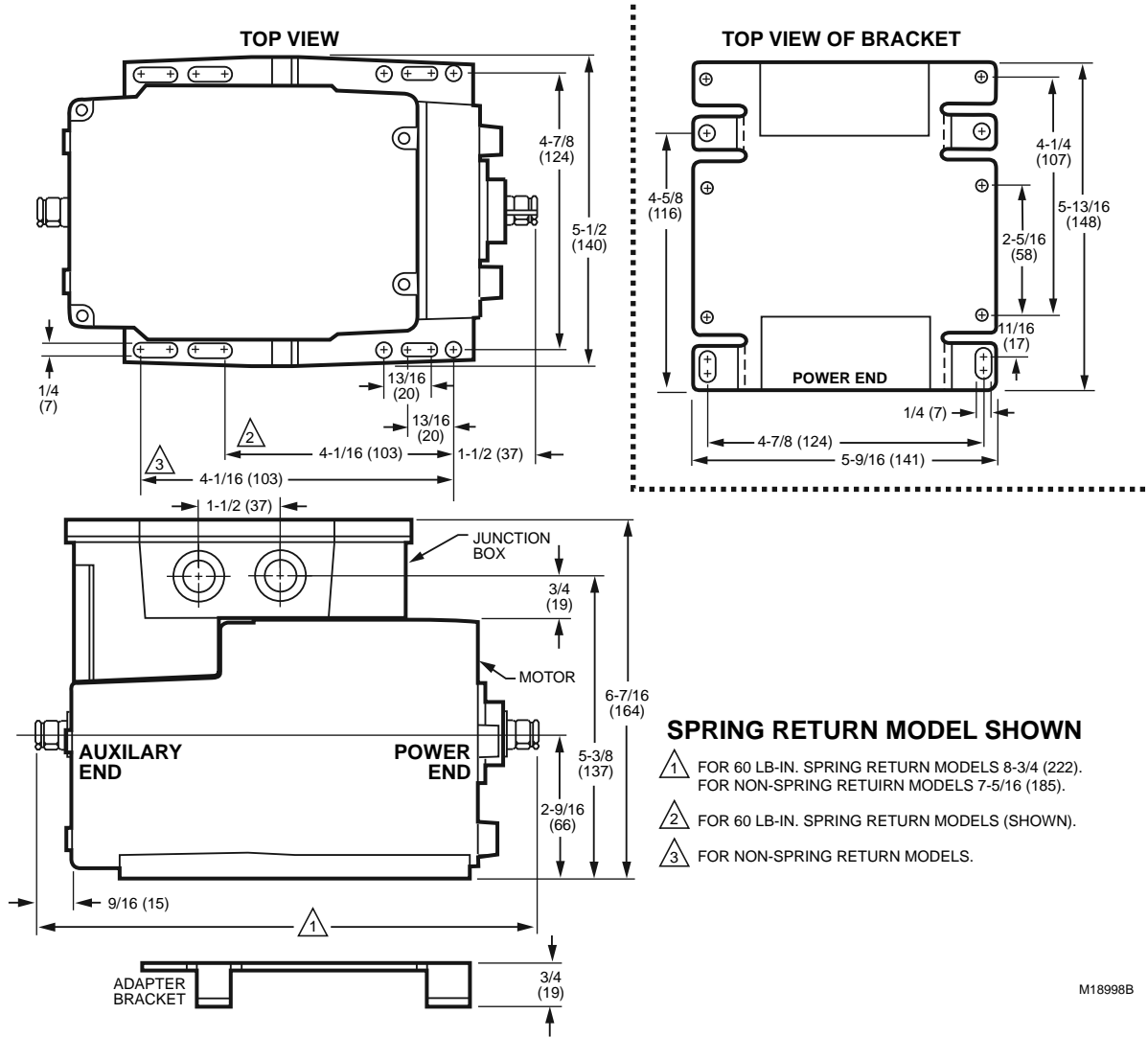
- Q7230A1005** Interface module, provides adjustable zero & span, voltage or current control
- 220736A** Internal Auxiliary Switch Assembly - 1 Switch
- 220736B** Internal Auxiliary Switch Assembly - 2 Switches
- 220738A** Adapter Bracket. Adjusts shaft height to match Modutrol III motors
- 221455A** Infinitely adjustable Motor Crank Arm
- 50017460-001** 24/120/230 Vac Internal Transformers for Series 2 Motors
- 50017460-003** 120 Vac Internal Transformers for Series 2 Motors
- 4074ERU** Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Internal Auxiliary Switch	Includes	Comments
	(lb-in., lb)	(Nm, N)					
M6184A1015	150 lb-in.	17 Nm	24V	30-60 sec	0	—	—
M6184A1023	75 lb-in.	8.5 Nm	120V	15-30 sec	0	Transformer	—
M6184D1001	75 lb-in.	8.5 Nm	24V	15-30 sec	0	—	—
* M6184D1035	150 lb-in.	17 Nm	24V	30-60 sec	0	—	—
M6184D1068	150 lb-in.	17 Nm	24V	120-240 sec	0	—	Contains on-off pulsing circuitry to achieve timing.
M6184F1014	150 lb-in.	17 Nm	24V	30-60 sec	2	—	—
M6194B1011	300 lb-in.	34 Nm	24V	60-120 sec	1	—	—
* M6194D1017	300 lb-in.	34 Nm	24V	120-240 sec	0	—	—
M6194E1006	300 lb-in.	34 Nm	24V	120-240 sec	1	—	—

* TRADELINE models • SUPER TRADELINE models

Modutrol IV™ Motors

Dimensions in inches (millimeters)



M18998B

M6284; M6294 Floating Modutrol IV™ Series 2 Motors, for Slaving Applications only



These Series 62 Modutrol IV™ Motors non-spring return floating control motors are used with controllers that provide a switched spdt or floating output to operate dampers or valves. These motors also have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position. Some models can be used for slaving Series 90 Motors.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.
- Motors are designed for either normally open or normally closed valves and dampers.
- Include electrically isolated feedback potentiometer that provides shaft position indication.
- -S models with non-linear feedback are for slaving applications only.

Dimensions Diagram: See page 452

Application Type: Electric

Fail Safe Mode: Non-Spring Return

Control Signal: Floating

Feedback: Yes

Frequency: 60 Hz; 50 Hz

External Auxiliary Switches Available: Yes

Auxiliary Switch Ratings AFL - 120 Vac: 7.2A

Auxiliary Switch Ratings ALR - 120 Vac: 43.2A

Auxiliary Switch Ratings AFL - 240 Vac: 3.6A

Auxiliary Switch Ratings ALR - 240 Vac: 21.6A

Mounting: Foot-mounted

Motor Shafts: Dual-ended shaft

Shaft Shape: square

Shaft Dimensions: 0.375 in. (10 mm)

Shaft Rotation (upon control signal increase):

Dependent on wiring (normally closed)

Stroke: Adjustable; 90 to 160 degrees

Deadweight Load on Shaft (Either End): 200 lbs.

Deadweight Load (Combined on both Shafts): 300 lbs.

Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)

Weight: 7.5 lb

Comments: Non-linear feedback, for slaving applications only

Approvals:

CE: EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)

Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX for USA and Canada

Accessories:

Q7230A1005 Interface module, provides adjustable zero & span, voltage or current control

220736A Internal Auxiliary Switch Assembly - 1 Switch

220736B Internal Auxiliary Switch Assembly - 2 Switches

220738A Adapter Bracket. Adjusts shaft height to match Modutrol III motors

220741A2-62 Screw Terminal Adapter Kit for Series 62 Series Modutrol IV Series 2 motors- Converts quick-connect terminals to screw terminals

221455A Infinitely adjustable Motor Crank Arm

50017460-001 24/120/230 Vac Internal Transformers for Series 2 Motors

50017460-003 120 Vac Internal Transformers for Series 2 Motors

4074ERU Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Timing (sec)		Electrical Connections	Internal Auxiliary Switch	Includes
	(lb-in., lb)	(Nm, N)		Nominal Timing (sec)	Spring Return Timing (sec)			
M6284A1055-S	150 lb-in.	17 Nm	120V	30-60 sec	—	Quick-connect terminals	0	Transformer
M6284A1071-S	150 lb-in.	17 Nm	120V	30-60 sec	—	Screw terminals	0	Transformer
* M6284D1000-S	150 lb-in.	17 Nm	24V	30-60 sec	—	Quick-connect terminals	0	Slave with Series 90 Motors
* M6284D1026-S	150 lb-in.	17 Nm	24V	30-60 sec	60 sec.	Quick-connect terminals	0	220741A Screw Terminal Adapter
* M6284D4004-S	150 lb-in.	17 Nm	24V	30-60 sec	—	Quick-connect terminals	0	—
M6284F1013-S	150 lb-in.	17 Nm	24V	30-60 sec	—	Quick-connect terminals	2	—
* M6294D1008-S	300 lb-in.	34 Nm	24V	120-240 sec	—	Quick-connect terminals	0	—

* TRADELINE models • SUPER TRADELINE models

Commercial Components

Modutrol IV™ Motors

M6285 Floating Modutrol IV™ Series 2 Motors, for Slaving Applications only



Series 62 Modutrol IV™ Motors are spring return floating control motors used with controllers that provide a switched spdt or floating output to operate dampers or valves. These motors also have an internal electrically isolated feedback potentiometer that

provides indication of the motor shaft position and can be used for slaving Series 90 motors or rebalancing an external control circuit.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Integral spring return returns motor to normal position in the event of power failure.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- Spring return motors can operate valve linkages from power end or auxiliary end shafts for normally closed or normally open valve applications.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.
- Motors are designed for either normally open or normally closed valves and dampers.
- Include electrically isolated feedback potentiometer that provides shaft position indication.

Dimensions Diagram: See page 452

Application Type: Electric
Fail Safe Mode: Spring Return
Control Signal: Floating
Feedback: Yes
Frequency: 60 Hz; 50 Hz

External Auxiliary Switches Available: Yes
Auxiliary Switch Ratings AFL - 120 Vac: 7.2A
Auxiliary Switch Ratings ALR - 120 Vac: 43.2A
Auxiliary Switch Ratings AFL - 240 Vac: 3.6A
Auxiliary Switch Ratings ALR - 240 Vac: 21.6A
Electrical Connections: Quick-connect terminals
Mounting: Foot-mounted
Motor Shafts: Dual-ended shaft
Shaft Shape: square
Shaft Dimensions: 0.375 in. (10 mm)
Shaft Rotation (upon control signal increase):
 Dependent on wiring (normally closed)
Stroke: Adjustable; 90 to 160 degrees
Deadweight Load on Shaft (Either End): 200 lbs.
Deadweight Load (Combined on both Shafts): 300 lbs.
Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)
Weight: 8.5 lb

Comments: Non-linear feedback, for slaving applications only

Approvals:
CE: EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)
Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX for USA and Canada

Accessories:
Q7230A1005 Interface module, provides adjustable zero & span, voltage or current control
220736A Internal Auxiliary Switch Assembly - 1 Switch
220736B Internal Auxiliary Switch Assembly - 2 Switches
220738A Adapter Bracket. Adjusts shaft height to match Modutrol III motors
220741A2-62 Screw Terminal Adapter Kit for Series 62 Series Modutrol IV Series 2 motors- Converts quick-connect terminals to screw terminals
221455A Infinitely adjustable Motor Crank Arm
50017460-001 24/120/230 Vac Internal Transformers for Series 2 Motors
50017460-003 120 Vac Internal Transformers for Series 2 Motors
4074ERU Weatherproofing kit. Protects motor from driving rain when mounted in any position

	Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Internal Auxiliary Switch
		(Nm, N)	(lb-in., lb)			
*	M6285A1005-S	6.8 Nm	60 lb-in.	24V	30-60 sec	0
	M6285C1001-S	6.8 Nm	60 lb-in.	24V	30-60 sec	2

* TRADELINE models • SUPER TRADELINE models

Modutrol IV™ Motor with Linear 10K feedback



Series 62 Modutrol IV™ Motors Spring Return and Non-Spring Return floating control motors used with controllers that provide a switched spdt or floating output to operate dampers or valves. These motors also have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.
- Motors are designed for either normally open or normally closed valves and dampers.
- -F models have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position.

Dimensions Diagram: See page 452

Application Type: Electric

Control Signal: Floating

Feedback: Yes

Voltage: 24V

Frequency: 60 Hz; 50 Hz

External Auxiliary Switches Available: Yes

Auxiliary Switch Ratings AFL - 120 Vac: 7.2A

Auxiliary Switch Ratings ALR - 120 Vac: 43.2A

Auxiliary Switch Ratings AFL - 240 Vac: 3.6A

Auxiliary Switch Ratings ALR - 240 Vac: 21.6A

Mounting: Foot-mounted

Motor Shafts: 2; Dual-ended shaft

Shaft Shape: square

Shaft Dimensions: 0.375 in. (10 mm)

Shaft Rotation (upon control signal increase):

Dependent on wiring (normally closed)

Stroke: Adjustable; 90 to 160 degrees

Deadweight Load on Shaft (Either End): 200 lbs.

Deadweight Load (Combined on both Shafts): 300 lbs.

Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)

Weight: 6.5 lb

Comments: Linear 10K feedback

Approvals:

CE: EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)

Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX for USA and Canada

Accessories:

Q7230A1005 Interface module, provides adjustable zero & span, voltage or current control

220736A Internal Auxiliary Switch Assembly - 1 Switch

220736B Internal Auxiliary Switch Assembly - 2 Switches

220738A Adapter Bracket. Adjusts shaft height to match Modutrol III motors

220741A2-62 Screw Terminal Adapter Kit for Series 62 Series Modutrol IV Series 2 motors- Converts quick-connect terminals to screw terminals

221455A Infinitely adjustable Motor Crank Arm

50017460-001 24/120/230 Vac Internal Transformers for Series 2 Motors

50017460-003 120 Vac Internal Transformers for Series 2 Motors

4074ERU Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Fail Safe Mode	Torque/Force		Timing (sec)		Electrical Connections	Internal Auxiliary Switch
		(lb-in., lb)	(Nm, N)	Nominal Timing	Spring Return Timing		
M6274F1009-F	Non-Spring Return	75 lb-in.	8.5 Nm	15/27	—	Screw terminals	2
* M6284D1032-F	Non-Spring Return	150 lb-in.	17 Nm	30-60 sec	—	Quick-connect terminals	0
M6284F1078-F	Non-Spring Return	150 lb-in.	17 Nm	30/53	—	Screw terminals	2
M6285F1001-F	Spring Return	60 lb-in.	6.8 Nm	30/53	30 sec.	Screw terminals	2
M6294F1009-F	Non-Spring Return	300 lb-in.	34 Nm	120/214	—	Screw terminals	2
M6294F1017-F	Non-Spring Return	300 lb-in.	34 Nm	60/107	—	Screw terminals	2

* TRADELINE models • SUPER TRADELINE models

Commercial Components

Modutrol IV™ Motors

M7164 Modutrol IV™ Series 2 Motors



Series 71 Modutrol IV™ Motors non-spring return motors used to control dampers and valves. These motors accept a voltage signal from an electronic controller to position a damper or valve at any point between open and closed.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.

Dimensions Diagram: See page 452

Application Type: Electric

Fail Safe Mode: Non-Spring Return

Control Signal: Modulating, 10.5-13.5 Vdc

Feedback: No

Frequency: 60 Hz; 50 Hz

External Auxiliary Switches Available: Yes

Auxiliary Switch Ratings AFL - 120 Vac: 7.2A

Auxiliary Switch Ratings ALR - 120 Vac: 43.2A

Auxiliary Switch Ratings AFL - 240 Vac: 3.6A

Auxiliary Switch Ratings ALR - 240 Vac: 21.6A

Internal Auxiliary Switch: 0

Electrical Connections: Quick-connect terminals

Mounting: Foot-mounted

Motor Shafts: Dual-ended shaft

Shaft Shape: square

Shaft Dimensions: 0.375 in. (10 mm)

Deadweight Load on Shaft (Either End): 200 lbs.

Deadweight Load (Combined on both Shafts): 300 lbs.

Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)

Weight: 6.5 lb

Approvals:

CE: EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)

Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX for USA and Canada

Accessories:

Q7230A1005 Interface module, provides adjustable zero & span, voltage or current control

220736A Internal Auxiliary Switch Assembly - 1 Switch

220736B Internal Auxiliary Switch Assembly - 2 Switches

220738A Adapter Bracket. Adjusts shaft height to match Modutrol III motors

220741A2-71 Screw Terminal Adapter Kit for Series 71 Modutrol IV Series 2 motors- Converts quick-connect terminals to screw terminals

221455A Infinitely adjustable Motor Crank Arm

50017460-001 24/120/230 Vac Internal Transformers for Series 2 Motors

50017460-003 120 Vac Internal Transformers for Series 2 Motors

4074ERU Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Stroke	Shaft Rotation (upon control signal increase)	Includes
	(lb-in., lb)	(Nm, N)					
M7164A1017	60 lb-in.	6.8 Nm	24V	30-60 sec	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	—
M7164G1030	60 lb-in.	6.8 Nm	120V	30-60 sec	Adjustable; 90 to 160 degrees	Counter-clockwise (as viewed from power end) (normally open)	Transformer

M7274 4-20 mA V Modutrol IV™ Motors



The Series 72 Modutrol IV™ Motors spring return and non-spring return motors are used to control dampers and valves. The motors accept a current or voltage signal from an electronic controller to position a damper or valve at any point between open and closed.

- Integral spring return returns motor to normal position in the event of power failure on spring return models.
- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- Spring return motors can operate valve linkages from power end or auxiliary end shafts for normally closed or normally open valve applications.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.
- Motors are designed for either normally open or normally closed valves and dampers.
- Models available with adjustable start (zero) and span.
- Models available with 4 to 20 mA input signal.
- Die-cast aluminum housing.

Dimensions Diagram: See page 452

Application Type: Electric

Fail Safe Mode: Non-Spring Return

Control Signal: Modulating, 4-20 mA

Feedback: No

Frequency: 60 Hz; 50 Hz

External Auxiliary Switches Available: Yes

Auxiliary Switch Ratings AFL - 120 Vac: 7.2A

Auxiliary Switch Ratings ALR - 120 Vac: 43.2A

Auxiliary Switch Ratings AFL - 240 Vac: 3.6A

Auxiliary Switch Ratings ALR - 240 Vac: 21.6A

Internal Auxiliary Switch: 2

Electrical Connections: Screw terminals

Mounting: Foot-mounted

Motor Shafts: Dual-ended shaft

Shaft Shape: square

Shaft Dimensions: 0.375 in. (10 mm)

Shaft Rotation (upon control signal increase):

Clockwise (as viewed from power end) (normally closed)

Stroke: Adjustable; 90 to 160 degrees

Deadweight Load on Shaft (Either End): 200 lbs.

Deadweight Load (Combined on both Shafts): 300 lbs.

Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)

Weight: 7 lb

Approvals:

Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX for USA and Canada

Accessories:

Q7230A1005 Interface module, provides adjustable zero & span, voltage or current control

220736A Internal Auxiliary Switch Assembly - 1 Switch

220736B Internal Auxiliary Switch Assembly - 2 Switches

220738A Adapter Bracket. Adjusts shaft height to match Modutrol III motors

220741A2-72 Screw Terminal Adapter Kit for Series 72 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals

221455A Infinitely adjustable Motor Crank Arm

50017460-001 24/120/230 Vac Internal Transformers for Series 2 Motors

50017460-003 120 Vac Internal Transformers for Series 2 Motors

4074ERU Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Comments
	(lb-in., lb)	(Nm, N)			
M7274Q1009	75 lb-in.	8.5 Nm	24V	15/27	Adjustable zero and span for split range applications

Modutrol IV™ Motors

M7284; M7285; M7286; M7294 Modutrol IV™ Series 2 Motors



- Integral spring return returns motor to normal position in the event of power failure on spring return models.
- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- Spring return motors can operate valve linkages from power end or auxiliary end shafts for normally closed or normally open valve applications.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.
- Motors are designed for either normally open or normally closed valves and dampers.
- Models available with adjustable start (zero) and span.
- Models available with 4 to 20 mA input signal.
- Models available with 2 to 10 Vdc input signal.
- Die-cast aluminum housing.

Series 72 Modutrol IV™ Motors are spring return and non-spring return motors (per motor type) used to control dampers and valves. The motors accept a current or voltage signal from an electronic controller to position a damper or valve at any point between open and closed.

Dimensions Diagram: See page 452

Application Type: Electric

Feedback: No

Frequency: 60 Hz; 50 Hz

External Auxiliary Switches Available: Yes

Auxiliary Switch Ratings AFL - 120 Vac: 7.2A

Auxiliary Switch Ratings ALR - 120 Vac: 43.2A

Auxiliary Switch Ratings AFL - 240 Vac: 3.6A

Auxiliary Switch Ratings ALR - 240 Vac: 21.6A

Mounting: Foot-mounted

Motor Shafts: Dual-ended shaft

Shaft Shape: square

Shaft Dimensions: 0.375 in. (10 mm)

Deadweight Load on Shaft (Either End): 200 lbs.

Deadweight Load (Combined on both Shafts): 300 lbs.

Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)

Weight: 7.5 lb

Approvals:

CE: EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)

Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX for USA and Canada

Accessories:

Q7230A1005 Interface module, provides adjustable zero & span, voltage or current control

220736A Internal Auxiliary Switch Assembly - 1 Switch

220736B Internal Auxiliary Switch Assembly - 2 Switches

220738A Adapter Bracket. Adjusts shaft height to match Modutrol III motors

220741A2-72 Screw Terminal Adapter Kit for Series 72 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals

221455A Infinitely adjustable Motor Crank Arm

50017460-001 24/120/230 Vac Internal Transformers for Series 2 Motors

50017460-003 120 Vac Internal Transformers for Series 2 Motors

4074ERU Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Fail Safe Mode	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Stroke	Shaft Rotation (upon control signal increase)	Control Signal	Internal Auxiliary Switch	Includes	Comments
		(lb-in., lb)	(Nm, N)									
M7284A1004	Non-Spring Return	150 lb-in.	17 Nm	120V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	0	Transformer and Screw Terminal Adapter	—
M7284A1012	Non-Spring Return	150 lb-in.	17 Nm	120V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	0	Transformer and Screw Terminal Adapter	—
M7284A1038	Non-Spring Return	75 lb-in.	8.5 Nm	120V	15-30 sec	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	0	Transformer and Screw Terminal Adapter	—
M7284A1079	Non-Spring Return	150 lb-in.	17 Nm	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 2-10 Vdc	0	—	—
M7284C1000	Non-Spring Return	150 lb-in.	17 Nm	120V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	2	Transformer and Screw Terminal Adapter	—

Modutrol IV™ Motors

Product Number	Fail Safe Mode	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Stroke	Shaft Rotation (upon control signal increase)	Control Signal	Internal Auxiliary Switch	Includes	Comments
		(lb-in., lb)	(Nm, N)									
M7284C1083	Non-Spring Return	150 lb-in.	17 Nm	24/120/230V	30 sec	Screw terminals	Fixed; 90 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	2	Transformer	Enhanced models, additional repositions
M7284C1091	Non-Spring Return	150 lb-in.	17 Nm	24/120/230V	60 sec	Screw terminals	Fixed; 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	2	Transformer	Enhanced models, additional repositions
M7284Q1009	Non-Spring Return	150 lb-in.	17 Nm	120V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	2	Transformer and Screw Terminal Adapter	Adjustable zero and span for split range applications
M7284Q1082	Non-Spring Return	150 lb-in.	17 Nm	24/120/230V	30 sec	Screw terminals	Fixed; 90 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	2	Transformer	Enhanced models, additional repositions (160°) Adjustable zero and span for split range applications
M7284Q1090	Non-Spring Return	150 lb-in.	17 Nm	24/120/230V	60 sec	Screw terminals	Fixed; 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	2	Transformer	Enhanced models, additional repositions (160°) Adjustable zero and span for split range applications
M7284Q1098	Non-Spring Return	150 lb-in.	17 Nm	24V	30-53	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	2 to 10 Vdc	2	—	Enhanced models, additional repositions Adjustable zero and span for split range applications
M7284Q1106	Non-Spring Return	150 lb-in.	17 Nm	24V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	2	—	Adjustable zero and span for split range applications
M7285A1003	Spring Return	60 lb-in.	6.8 Nm	120V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	0	Transformer and Screw Terminal Adapter	—
M7285A1045	Spring Return	60 lb-in.	6.8 Nm	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 2-10 Vdc	0	—	—
M7285C1009	Spring Return	60 lb-in.	6.8 Nm	120V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	2	Transformer and Screw Terminal Adapter	—
M7285Q1008	Spring Return	60 lb-in.	6.8 Nm	120V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	2	Transformer and Screw Terminal Adapter	Adjustable zero and span for split range applications
M7285Q1024	Spring Return	60 lb-in.	6.8 Nm	24 V	30/53	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	2	Screw Terminal Adapter	—
M7285Q1032	Spring Return	60 lb-in.	6.8 Nm	24 V	30/53	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 2-10 Vdc	2	Screw Terminal Adapter	—
M7286G1009	Spring Return	60 lb-in.	6.8 Nm	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees	Counter-clockwise (as viewed from power end) (normally open)	Modulating, 2-10 Vdc	0	—	—
M7294A1010	Non-Spring Return	300 lb-in.	34 Nm	24V	60-120 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 2-10 Vdc	0	—	—

Commercial Components

Modutrol IV™ Motors

Product Number	Fail Safe Mode	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Stroke	Shaft Rotation (upon control signal increase)	Control Signal	Internal Auxiliary Switch	Includes	Comments
		(lb-in., lb)	(Nm, N)									
M7294Q1007	Non-Spring Return	300 lb-in.	34 Nm	120V	60-120 sec	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	2	Transformer and Screw Terminal Adapter	Adjustable zero and span for split range applications
M7294Q1015	Non-Spring Return	300 lb-in.	34 Nm	24V	60/107	Screw terminals	Adjustable; 90 to 160 degrees	Clockwise (as viewed from power end) (normally closed)	Modulating, 4-20 mA	2	Screw Terminal Adapter	Adjustable zero and span for split range applications

M7685 Modutrol IV™ Series 2 Motor



Proportional, spring-return motors for use with Honeywell W7080 panel 14-17 Vdc output; with minimum position adjustment.

- Integral spring return returns motor to normal position in the event of power failure.
- Integral junction box provides NEMA 3 weather protection.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 deg. to 160 deg.).
- Integral auxiliary switches are available factory mounted, or can be field added.
- Spring return motors can operate valve linkages from power end or auxiliary end shafts for normally closed or normally open valve applications.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.

Dimensions Diagram: See page 452

Application Type: Electric
Fail Safe Mode: Spring Return
Control Signal: Modulating, 14-17 Vdc
Feedback: No
Frequency: 60 Hz; 50 Hz
External Auxiliary Switches Available: Yes
Auxiliary Switch Ratings AFL - 120 Vac: 7.2A
Auxiliary Switch Ratings ALR - 120 Vac: 43.2A
Auxiliary Switch Ratings AFL - 240 Vac: 3.6A
Auxiliary Switch Ratings ALR - 240 Vac: 21.6A
Internal Auxiliary Switch: 0
Electrical Connections: Quick-connect terminals
Mounting: Foot-mounted
Motor Shafts: Dual-ended shaft
Shaft Shape: square
Shaft Dimensions: 0.375 in. (10 mm)
Shaft Rotation (upon control signal increase):
 Clockwise (as viewed from power end) (normally closed)
Stroke: Adjustable; 90 to 160 degrees
Deadweight Load on Shaft (Either End): 200 lbs.

Deadweight Load (Combined on both Shafts): 300 lbs.
Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)
Weight: 8.5 lb

Approvals:
Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX for USA and Canada

Accessories:
Q7230A1005 Interface module, provides adjustable zero & span, voltage or current control
220736A Internal Auxiliary Switch Assembly - 1 Switch
220736B Internal Auxiliary Switch Assembly - 2 Switches
220738A Adapter Bracket. Adjusts shaft height to match Modutrol III motors
221455A Infinitely adjustable Motor Crank Arm
50017460-001 24/120/230 Vac Internal Transformers for Series 2 Motors
50017460-003 120 Vac Internal Transformers for Series 2 Motors
4074ERU Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Includes
	(lb-in., lb)	(Nm, N)			
M7685A1025	60 lb-in.	6.8 Nm	24V	30-60 sec	Minimum Position Potentiometer

M9182 Modutrol IV™ Series 3 Motors



Series 90 Modutrol® IV Motors spring return modulating proportional control motors used with controllers that provide a Series 90 output to operate dampers or valves.

Dimensions Diagram: See page 452

Application Type: Electric
Fail Safe Mode: Spring Return
Control Signal: Proportional, 135 ohm
Feedback: No
Frequency: 60 Hz; 50 Hz
External Auxiliary Switches Available: Yes
Auxiliary Switch Ratings AFL - 120 Vac: 7.2A
Auxiliary Switch Ratings ALR - 120 Vac: 43.2A
Auxiliary Switch Ratings AFL - 240 Vac: 3.6A
Auxiliary Switch Ratings ALR - 240 Vac: 21.6A
Internal Auxiliary Switch: 0
Electrical Connections: Quick-connect terminals
Mounting: Foot-mounted
Motor Shafts: Dual-ended shaft
Shaft Shape: square
Shaft Dimensions: 0.375 in. (10 mm)
Shaft Rotation (upon control signal increase):
 Clockwise (as viewed from power end) (normally closed)
Stroke: Adjustable; 90 to 160 degrees
Deadweight Load on Shaft (Either End): 200 lbs.
Deadweight Load (Combined on both Shafts): 300 lbs.
Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Integral spring return returns motor to normal position in the event of power failure.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard; screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- Spring return motors can operate valve linkages from power end or auxiliary end shafts for normally closed or normally open valve applications.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.

Weight: 8.5 lb

Approvals:
Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX for USA and Canada

Accessories:
Q7230A1005 Interface module, provides adjustable zero & span, voltage or current control
220736A Internal Auxiliary Switch Assembly - 1 Switch
220736B Internal Auxiliary Switch Assembly - 2 Switches
220738A Adapter Bracket. Adjusts shaft height to match Modutrol III motors
220741A2-90 Screw Terminal Adapter Kit for Series 90 Modutrol IV Series 2 and Series 3 motors - Converts quick-connect terminals to screw terminals
221455A Infinitely adjustable Motor Crank Arm
50017460-001 24/120/230 Vac Internal Transformers for Series 2 Motors
50017460-003 120 Vac Internal Transformers for Series 2 Motors
4074ERU Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)
	(lb-in., lb)	(Nm, N)		
M9182A1011	60 lb-in.	6.8 Nm	24V	30-60 sec

Modutrol IV™ Motors

M9164; M9174; M9184; M9194 Modutrol IV™ Series 3 Motors



Series 90 Modutrol® IV Motors non-spring return modulating proportional control motors used with controllers that provide a Series 90 output to operate dampers or valves.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard; screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.

Dimensions Diagram: See page 452

Application Type: Electric

Fail Safe Mode: Non-Spring Return

Control Signal: Proportional, 135 ohm

Feedback: No

Frequency: 60 Hz; 50 Hz

External Auxiliary Switches Available: Yes

Auxiliary Switch Ratings AFL - 120 Vac: 7.2A

Auxiliary Switch Ratings ALR - 120 Vac: 43.2A

Auxiliary Switch Ratings AFL - 240 Vac: 3.6A

Auxiliary Switch Ratings ALR - 240 Vac: 21.6A

Mounting: Foot-mounted

Motor Shafts: Dual-ended shaft

Shaft Shape: square

Shaft Dimensions: 0.375 in. (10 mm)

Shaft Rotation (upon control signal increase):

Clockwise (as viewed from power end) (normally closed)

Stroke: Adjustable; 90 to 160 degrees

Deadweight Load on Shaft (Either End): 200 lbs.

Deadweight Load (Combined on both Shafts): 300 lbs.

Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)

Weight: 7.5 lb

Approvals:

CE: EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)

Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX for USA and Canada

Accessories:

Q7230A1005 Interface module, provides adjustable zero & span, voltage or current control

220736A Internal Auxiliary Switch Assembly - 1 Switch

220736B Internal Auxiliary Switch Assembly - 2 Switches

220738A Adapter Bracket. Adjusts shaft height to match Modutrol III motors

220741A2-90 Screw Terminal Adapter Kit for Series 90 Modutrol IV Series 2 and Series 3 motors - Converts quick-connect terminals to screw terminals

221455A Infinitely adjustable Motor Crank Arm

50017460-001 24/120/230 Vac Internal Transformers for Series 2 Motors

50017460-003 120 Vac Internal Transformers for Series 2 Motors

4074ERU Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Internal Auxiliary Switch	Includes
	(lb-in., lb)	(Nm, N)					
M9164A1005	60 lb-in.	4 Nm	120V	30-60 sec	Quick-connect terminals	0	Transformer
M9164A1013	60 lb-in.	4 Nm	24/120/230V	30-60 sec	Quick-connect terminals	0	Transformer
M9164A1070	60 lb-in.	4 Nm	24V	30-60 sec	Quick-connect terminals	0	—
M9164C1001	60 lb-in.	4 Nm	24V	30-60 sec	Quick-connect terminals	2	—
M9164C1068	60 lb-in.	4 Nm	120V	30-60 sec	Quick-connect terminals	2	Transformer
* M9164D1009	60 lb-in.	4 Nm	24V	30-60 sec	Quick-connect terminals	0	—
M9174B1027	75 lb-in.	8.5 Nm	120V	30-60 sec	Quick-connect terminals	1	Transformer
M9174C1025	75 lb-in.	8.5 Nm	120V	30-60 sec	Quick-connect terminals	2	Transformer
M9174C1033	75 lb-in.	8.5 Nm	120V	30-60 sec	Quick-connect terminals	2	Transformer
* M9174D1007	75 lb-in.	8.5 Nm	24V	30-60 sec	Quick-connect terminals	0	—
M9174F1001	75 lb-in.	8.5 Nm	24 V	30/53	Screw terminals	2	—
M9184A1019	150 lb-in.	17 Nm	24V	30-60 sec	Quick-connect terminals	0	—
M9184C1031	150 lb-in.	17 Nm	24V	30-60 sec	Quick-connect terminals	2	—
M9184D1005	75 lb-in.	8.5 Nm	24V	15-30 sec	Quick-connect terminals	0	—
* M9184D1021	150 lb-in.	17 Nm	24V	30-60 sec	Quick-connect terminals	0	—
M9184F1034	150 lb-in.	17 Nm	24V	30-60 sec	Quick-connect terminals	2	—
* M9194D1003	300 lb-in.	34 Nm	24V	120-240 sec	Quick-connect terminals	0	—
M9194E1000	300 lb-in.	34 Nm	24V	120-240 sec	Quick-connect terminals	1	—

* TRADELINE models • SUPER TRADELINE models

M9175; M9185 Modutrol IV™ Series 3 Motors



Series 90 Modutrol® Motors are spring return modulating proportional control motors used with controllers that provide a Series 90 output to operate dampers or valves.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Integral spring return returns motor to normal position in the event of power failure.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard; screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- Spring return motors can operate valve linkages from power end or normally open valve applications.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.

Dimensions Diagram: See page 452

Application Type: Electric

Fail Safe Mode: Spring Return

Control Signal: Proportional, 135 ohm

Feedback: No

Frequency: 60 Hz; 50 Hz

External Auxiliary Switches Available: Yes

Auxiliary Switch Ratings AFL - 120 Vac: 7.2A

Auxiliary Switch Ratings ALR - 120 Vac: 43.2A

Auxiliary Switch Ratings AFL - 240 Vac: 3.6A

Auxiliary Switch Ratings ALR - 240 Vac: 21.6A

Mounting: Foot-mounted

Motor Shafts: Dual-ended shaft

Shaft Shape: square

Shaft Dimensions: 0.375 in. (10 mm)

Shaft Rotation (upon control signal increase):

Clockwise (as viewed from power end) (normally closed)

Stroke: Adjustable; 90 to 160 degrees

Deadweight Load on Shaft (Either End): 200 lbs.

Deadweight Load (Combined on both Shafts): 300 lbs.

Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)

Weight: 8.5 lb

Approvals:

CE: EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)

Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX for USA and Canada

Accessories:

Q7230A1005 Interface module, provides adjustable zero & span, voltage or current control

220736A Internal Auxiliary Switch Assembly - 1 Switch

220736B Internal Auxiliary Switch Assembly - 2 Switches

220738A Adapter Bracket. Adjusts shaft height to match Modutrol III motors

220741A2-90 Screw Terminal Adapter Kit for Series 90 Modutrol IV Series 2 and Series 3 motors - Converts quick-connect terminals to screw terminals

221455A Infinitely adjustable Motor Crank Arm

50017460-001 24/120/230 Vac Internal Transformers for Series 2 Motors

50017460-003 120 Vac Internal Transformers for Series 2 Motors


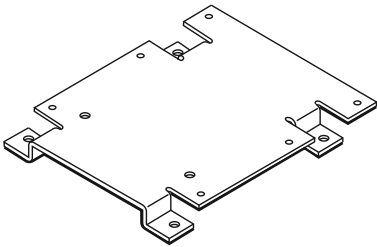


4074ERU Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Internal Auxiliary Switch
	(lb-in., lb)	(Nm, N)				
M9185A1018	60 lb-in.	6.8 Nm	24V	30-60 sec	Quick-connect terminals	0
M9185C1006	60 lb-in.	6.8 Nm	24V	30-60 sec	Quick-connect terminals	2
* M9185D1004	60 lb-in.	6.8 Nm	24V	30-60 sec	Quick-connect terminals	0
M9185E1019	60 lb-in.	6.8 Nm	24V	30-60 sec	Quick-connect terminals	1
M9185F1002	60 lb-in.	6.8 Nm	24V	30/53	Screw terminals	2

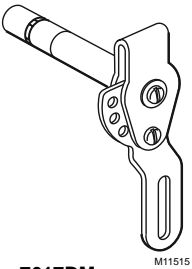
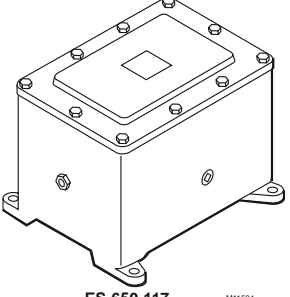
* TRADELINE models • SUPER TRADELINE models

Modutrol IV™ Motors

Foot Mounted Motor Accessories

Product Number	Description	Used With	
203709D2	Screw Terminal Adapter for Series 70 Mod IV Motors With Zero and Span Adjustment	Series 2 and Series 3 Modutrol IV™ motors	
220738A	Adapter Bracket. Adjusts shaft height to match Modutrol III motors	Mod IV Actuator to match shaft height of Mod III Actuator	 220738 M11550
220741A2-61	Screw Terminal Adapter Kit for Series 61 Modutrol IV Series 2 motors- Converts quick-connect terminals to screw terminals	Series 61 Mod IV Motor	
220741A2-62	Screw Terminal Adapter Kit for Series 62 Series Modutrol IV Series 2 motors- Converts quick-connect terminals to screw terminals	Series 62 Mod IV Motor	
220741A2-71	Screw Terminal Adapter Kit for Series 71 Modutrol IV Series 2 motors- Converts quick-connect terminals to screw terminals	Series 71 Mod IV Motor	
220741A2-72	Screw Terminal Adapter Kit for Series 72 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals	Series 72 Mod IV Motor	
220741A2-90	Screw Terminal Adapter Kit for Series 90 Modutrol IV Series 2 and Series 3 motors - Converts quick-connect terminals to screw terminals	Series 90 Mod IV Motor	
220741A2-TP	Screw Terminal Adapter Kit for 2 position Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals	Two Position for use with M4XXX and M8XXX Mod IV Motors	
221455A	Infinitely adjustable Motor Crank Arm	Modutrol IV Motors	
221508A2	Resistor Board Assembly for Series 2 Modutrol IV Motors	Series 2 Modutrol IV Motors	
4074ERU	Weatherproofing kit. Protects motor from driving rain when mounted in any position	Fits all Modutrol IV motors.	

Modutrol IV™ Motors

Product Number	Description	Used With	
7617DM	Coupling- Must be used with ES650117 explosion-proof housing	ES650117	 <p>7617DM M11515</p>
ES-650-117	Explosion-Proof Housing encloses motor for use in explosive atmospheres. To order contact: EGS Enclosures, (281) 774-3763; or write to: EGS Enclosures in Houston, TX Karen Barfield 281-774-3763 Karen.barfield@egseg.com Part number ES-650-117	Modutrol IV Motors, not for use with Q5001 (or any other valve linkages)	 <p>ES-650-117 M11534</p>

220736 Internal Auxiliary Switch Kits



Application Type: Internal Auxiliary Switch Kits
Control Signal: SPDT, On/Off switch
Auxiliary Switch Ratings AFL - 120 Vac: 7.2A
Auxiliary Switch Ratings ALR - 120 Vac: 43.2A
Auxiliary Switch Ratings AFL - 240 Vac: 3.6A
Auxiliary Switch Ratings ALR - 240 Vac: 21.6A
Electrical Connections: 15 in (381 mm) Lead Wires
Ambient Temperature Range: 0 F to 131 F (-18 C to +55 C)
Weight: 0.3 lb

Product Number	Includes	Used With
220736A	One Micro Switch V3 precision switch, which is actuated by adjustable cams inside the motor.	TRADELINE Modutrol IV Motors
220736B	Two Micro Switch V3 precision switches, which are actuated by adjustable cams inside the motor.	TRADELINE Modutrol IV Motors

Modutrol IV™ Motors

50017460 Internal Transformers for Series 2 Motors

Application Type: Internal Transformer

Control Signal: SPST, On/Off switch

Frequency: 60 Hz; 50 Hz

Mounting: Internal mount to Modutrol IV™ Motors

Ambient Temperature Range: 0 F to 131 F (-18 C to +55 C)

Product Number	Voltage	Includes	Used With
50017460-001	24/120/230 Vac	Transformer, screws, instructions for mounting internally in Modutrol IV Series 2 motors	Series 2 Modutrol IV Motors
50017460-003	120 Vac	Transformer, screws, instructions for mounting internally in Modutrol IV Series 2 motors	Series 2 Modutrol IV Motors

198162 Internal Transformer for Series 1 Motors

Application Type: Internal Transformer

Control Signal: SPST, On/Off switch

Ambient Temperature Range: 0 F to 131 F (-18 C to +55 C)

Product Number	Voltage	Includes	Comments
198162AA	120/208/240 Vac at 50 or 60 Hz	Transformer, screws, instructions for mounting internally in Modutrol IV Series 1 motors	For Mod IV Series 2 actuator, use 50017460-001
198162EA	120 Vac at 50 or 60 Hz	Transformer, screws, instructions for mounting internally in Modutrol IV Series 1 motors	For Mod IV Series 2 actuator, use 50017460-003
198162GA	220 Vac at 50 or 60 Hz	Transformer, screws, instructions for mounting internally in Modutrol IV Series 1 motors	For Mod IV Series 2 actuator, use 50017460-001
198162JA	24 Vac (for electrical isolation)	Transformer, screws, instructions for mounting internally in Modutrol IV Series 1 motors	For Mod IV Series 2 actuator, use 50017460-001

Q181 Auxiliary Potentiometer for Modutrol Motors



Controls from one to four Modutrol (Series 90) motors from one master motor.

- Compatible with Modutrol III and Modutrol IV™ motors.
- Mounts on master motor and operates controlled motors in unison or in sequence.
- Controls motors with mechanical balance relay and solid state drive circuit.
- Use with 24V motors.

Application Type: Electro-mechanical

Dimensions, Approximate: 3 3/16 in. high x 3 1/4 in. wide x 3 3/8 in. deep (81 mm high x 83 mm wide x 86 mm deep)

Mounting: External mount to Modutrol IV™ Motors

Weight: 1.38 lb

Approvals:

CE: Report: GV97-011

Product Number	Electrical Connections	Control Signal	Includes	Comments	Used With
Q181A1007	Screw terminals	SPST, On/Off switch	Cover	For controlling one modutrol motor	Series 90
Q181A1015	Screw terminals	SPST, On/Off switch	Cover	For controlling two modutrol motors	Series 90
Q181A1064	Screw terminals	SPST, On/Off switch	—	For controlling up to three modutrol motors	Series 90
Q181A1072	Screw terminals	SPST, On/Off switch	—	For controlling up to four modutrol motors	Series 90

Q209 Manual Potentiometer for Modutrol Motors



- Used to limit minimum position of a proportioning Modutrol motor.
- Mount directly in motor.
 - All wiring is accomplished within motor wiring compartment.
 - Color-coded leadwires.

Application Type: Electro-mechanical

Dimensions, Approximate: 3 1/4 in. high x 3 3/8 in. wide x 3 7/8 in. deep (83 mm high x 86 mm wide x 98 mm deep)

Control Signal: SPST, On/Off switch

Mounting: Internal mount to Modutrol IV™ Motors

Weight: 0.2 lb

Approvals:

CE: Report: GV97-011

Product Number	Electrical Connections	Includes	Used With
Q209A1022	Screw terminals	150 ohm Potentiometer, leadwires and bracket	M9184; M9185; M6284; M6285
Q209A1030	Screw terminals	300 ohm Potentiometer, leadwires and bracket	M9184; M9185; M6284; M6285
Q209E1002	Quick-connect terminals with lead wires	150 ohm Potentiometer, factory mounted on a wiring cover box	—
Q209E1010	Quick-connect terminals with lead wires	300 Ohm Potentiometer, Factory Mounted on a wiring cover box	—

Q607 Auxiliary Switches for Modutrol Motors



For control of auxiliary equipment as a function of motor shaft position.

- Compatible with Modutrol III and Modutrol IV™ motors. (Requires 220738A adapter bracket for use with Modutrol IV™ motors).
- Micro Switch precision switches, adjustable.
- Indicate motor position by use of a scale plate anchored to a common shaft, which allows Q607 to be adjusted for operational sequence before mounting.
- Adjustable plate allows universal mounting on either end of motor.
- Wrap-around cover for easy access to switch adjustments and wiring.
- Maintenance-free protection of the switches and cams.

Application Type: Electro-mechanical

Dimensions, Approximate: 6 7/16 in. high x 5 3/16 in. wide x 2 1/8 in. deep (164 mm high x 132 mm wide x 54 mm deep)

Control Signal: SPDT, On/Off switch

Auxiliary Switch Ratings AFL - 120 Vac: 9.8A

Auxiliary Switch Ratings ALR - 120 Vac: 58.8A

Auxiliary Switch Ratings AFL - 240 Vac: 4.90A

Auxiliary Switch Ratings ALR - 240 Vac: 29.4A

Electrical Connections: Screw terminals

Mounting: Cover or gear end

Weight: 2.5 lb

Approvals:

Canadian Standards Association: Certified: File No. LR1620

Underwriters Laboratories, Inc. Listed File: E4436, Guide: XAPX2

	Product Number	Electrical Connections	Internal Auxiliary Switch	Includes	Comments
	Q607A1050	Screw terminals	1	Revised mounting bracket	Post 1969 Honeywell Modutrol Motors
*	Q607A1076	Screw terminals	1	With adapter for cover end spring return motor and revised mounting bracket	Post 1969 Honeywell Modutrol Motors
	Q607B1067	Screw terminals	2	Revised mounting bracket	Pre/Post 1969 Honeywell Modutrol Motors
*	Q607B1083	Screw terminals	2	With adapter for cover end spring return motor and revised mounting bracket	—
	Q607C1009	Terminal Board	1	Special terminal panel and metric grounding screws	—
	Q607D1008	Terminal Board	2	Special terminal panel and metric grounding screws	—

* TRADELINE models • SUPER TRADELINE models

Modutrol IV™ Motors

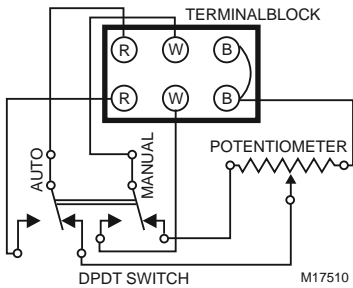
S443 Manual Potentiometer for Modutrol Motors



Used for remote manual control of proportioning (Series 90) motors and relays.

- Compatible with Modutrol III and Modutrol IV™ motors.
- Select automatic or manual control with DPST toggle switch.
- Suitable for Series 90, M7685; and M7285 motors controlled by 135 ohm inputs.
- Surface mounted, with conduit outlet on each side of case. Screw terminals.
- Scale marked OPEN-CLOSE.

Internal schematic of S443A



Application Type: Electric

Dimensions, Approximate: *

*Fits inside wiring junction box of Modutrol IV™ Motor
Including Knob 3 3/4 in. high, 3 3/8 in. wide, 3 1/4 in. deep.
(95 mm high, 86 mm wide, 83 mm deep.)

Control Signal: SPST, On/Off switch

Mounting: Surfaced mounted with conduit knock-outs

Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)

Weight: 1.3 lb

Product Number	Electrical Connections	Comments	Used With
S443A1007	Screw terminals	2 position manual switch	M9164; M9484; M9184; M9185 and motors replaced by these motors

Q7130; Q7230; Q7330 Interface Modules for Series 90 Modutrol IV™ Motors



For converting Series 90 Modutrol IV™ motors to Series 70 (electronic) control.

- Mounts and works inside wiring box of any series 90 Modutrol IV™ Motor.
- Protected from weather by motor's NEMA 3 wiring box.
- Mates to motor's quick-connect terminals and provides screw terminals for control wiring connections.
- Features solid-state circuitry with surface mount components.
- Cover holds module in place, screws not required.
- Includes (except Q7330A) reversing switch to allow replacement of electrically normally open or electrically normally closed motors.

Application Type: Electric

Dimensions, Approximate: Fits inside wiring junction box of Modutrol IV™ Motor

Frequency: 60 Hz; 50 Hz

Electrical Connections: Terminal Board

Mounting: Mounts to quick-connects inside Mod Motor

Ambient Temperature Range: -40 F to +150 F (-40 C to +60 C)

Weight: 0.3 lb

Product Number	Electrical Connections	Control Signal	Used With
Q7130A1006	Terminal Board	Provides selectable voltage ranges: 4 to 7, 6 to 9, or 10.5 to 13.5 Vdc. Adapts M91XX to function as M71XX model	Series 90 for conversion to Series 70
Q7230A1005	Terminal Board	Provides adjustable zero & span, voltage or current control (includes 2-10 Vdc or 4-20 mA). Adapts M91XX to function as M72XX model.	Series 90 for conversion to Series 70
Q7330A1004	Terminal Board	Provides interface to W936 Control. Adapts M91XX to function as M73XX model.	Series 90 for conversion to Series 70

Interface Module Cross Reference and Usage Chart

Product Number	Application	Replaces	Replaces	Use With
Q7130A1006	Provides selectable voltage ranges: 4 to 7, 6 to 9 or 10.5 to 13.5 Vdc. Adapts M91XX Modutrol IV™ motor to function as M71XX model for M734H,J; M744D; M745G,P replacements.	M744D1011, M744D1003	M7184A1005	M9184D1021
		M745P1007	M7185A1004	M9185D1004
Q7230A1005	Provides adjustable zero and span, voltage or current control (includes 4 to 20 mA and 2 to 10 Vdc). Adapts M91XX Modutrol IV™ motors to function as M72XX model for M744S,T,Y; M745S,T,Y replacements.	M744S1005	M7284A1004	M9184D1021
		M744S1013	M7284A1012	
		M744T1004	M7284C1000	
		M744T1012	M7284C1018	
		M744Y1009	M7284Q1009	
		M744Y1017	M7284Q1017	
		M745S1002	M7285A1003	M9185D1004
		M745S1010	M7285A1011	
		M745T1001	M7285C1009	
		M745T1019	M7285C1017	
		M745Y1006	M7285Q1008	
M745Y1014	M7285Q1016			
Q7330A1004	Provides interface to W936 Control. Adapts M91XX Modutrol IV motor to function as M73XX model for M734D; M744A; M745A replacements.	M744A1006	M7384A1003	M9184D1021
		M744A1014	M7384A1011	
		M745A1003	M7385A1002	M9185D1004
		M745A1011	M7385A1010	

Kit Mounted Motors

M436; M836 Damper Motors



Dimensions, Approximate: 4 1/2 in. high x 4 5/8 in. wide x 3 3/4 in. deep (114 mm high x 118 mm wide x 95 mm deep)

Fail Safe Mode: Spring Return

Control Signal: Two position, SPST

Internal Auxiliary Switch: 1

External Auxiliary Switches Available: Yes

Spring Return Timing (Maximum (seconds)): 25 sec

Torque Rating, Breakaway: 30 lb-in.

Electrical Connections: Screw terminals

Frequency: 60 Hz

Mounting: Foot-mounted

Spring return motors for two-position back draft, outdoor air changeover, zone, or minimum position damper control.

- Operate outdoor air dampers for combustion or makeup air in residential and light commercial applications.
- Operate changeover dampers for heating and cooling systems.
- Operate minimum position dampers for ventilation and similar applications.
- Include internal SPDT switch for controlling auxiliary equipment, additional motors, or to provide a burner interlock switch.
- Spring returns motor to start position on power failure.
- Drive shafts located on both sides of motor.
- Adjustable auxiliary switch for cascading motors or operating auxiliary equipment.
- Thermal breaker for overload protection during lifting stroke or if motor stalls.

Motor Shafts: 2

Shaft Shape: Hexagonal

Angle of Rotation (Stroke Max (deg)): 75

Angle of Rotation (Stroke Min (deg)): 75

Operating Temperature Range: 32 F to 125 F (0 C to 52 C)

Operating Humidity Range (% RH): 5 to 95% RH

Weight: 4 lb 10 oz (2.1 kg)

Approvals:

Underwriters Laboratories, Inc. Listed File: E4436, Guide: XAPX

Product Number	Torque Rating		Voltage	Run Time (Maximum (seconds))	Timing Opening, Nominal (seconds)	Nominal Current Draw (amps)		Nominal Power (watts)		Includes	Used With
	(lb-in.)	(Nm)				Opening	Holding	Opening	Holding		
* M436A1116	20 lb-in.	2.3 Nm	120 Vac	40 sec	Open: 30 sec	0.37 A	0.12 A	28 W	8.5 W	—	—
* M436A1124	20 lb-in.	2.3 Nm	240 Vac	40 sec	Open: 30 sec	0.19 A	0.06 A	29 W	8.5 W	—	—
M436A1140	20 lb-in.	2.3 Nm	220 Vac	55 sec	Open: 30 sec, Close: 25 sec	0.21 A	0.062 A	30 W	8.5 W	Ground and cover screw	Series 40, 80 circuits
* M836A1042	20 lb-in.	2.3 Nm	24 Vac	40 sec	Open: 30 sec	1.85 A	0.6 A	28 W	8.5 W	—	—
* M836B1033	15 lb-in.	1.7 Nm	24 Vac	40 sec	Open: 25 sec	1.34 A	0.73 A	20.3 W	11.2 W	—	—

* TRADELINE models • SUPER TRADELINE models

M835 Two-Position Zone Damper Actuator



Dimensions, Approximate: 5 1/2 in. high x 4 1/4 in. wide x 2 5/8 in. deep (140 mm high x 108 mm wide x 67 mm deep)

Fail Safe Mode: Spring Return

Control Signal: Two position, SPST

External Auxiliary Switches Available: No

Torque Rating, Breakaway: 30 lb-in.

Electrical Connections: Lead wire in conduit box

Frequency: 60 Hz

Two-Position Zone Motor, used with two-wire, 24-volt room thermostat or other controller for two position damper control.

- Controls zone or changeover damper in heating and air conditioning systems, and control gates on feeders.
- SPST end switch makes within 20 sec of full open, breaks within 20 sec after start of closing stroke.

Mounting: Foot-mounted

Motor Shafts: 2

Shaft Shape: Round

Angle of Rotation (Stroke Max (deg)): 60

Angle of Rotation (Stroke Min (deg)): 75

Operating Temperature Range: Cooling: 140 F, Heating: 200 F (Cooling: 60 C, Heating: 93 C)

Operating Humidity Range (% RH): 5 to 95% RH

Product Number	Torque Rating		Voltage	Run Time (Maximum (seconds))	Nominal Power (watts)	
	(lb-in.)	(Nm)			Opening	Holding
* M835A1051	4 lb-in.	0.45 Nm	24 Vac	Open: 80 sec, Close: 160 sec	27 W	8.5 W

* TRADELINE models • SUPER TRADELINE models

M847 Two-Position Draft Damper Actuator



Two-Position Draft Damper Actuators. Use with two-wire 24V room thermostats or other low voltage controllers to operate the draft damper on solid fuel furnaces or boilers and other similar light duty applications.

- Low voltage, spring-return damper actuator.
- Equipped with mounting bracket for wall, duct or direct appliance mounting to control draft damper through an actuator arm or chain linkage arrangement.
- Actuator wheel rotates in a clockwise direction (when facing the wheel) when energized.

Dimensions, Approximate: 3 1/2 in. high x 2 5/8 in. wide x 3 5/16 in. deep (89 mm high x 66 mm wide x 84 mm deep)

Fail Safe Mode: Spring Return

Control Signal: Two position, SPST

External Auxiliary Switches Available: No

Frequency: 60 Hz

Mounting: Foot mounted. Direct Coupled

Motor Shafts: 1

Shaft Shape: Round

Angle of Rotation (Stroke Max (deg)): 45

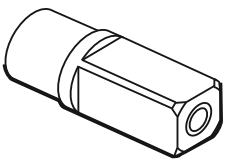
Operating Temperature Range: 40 F to 125 F (5 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH

Weight: 1.75 lbs

Product Number	Torque Rating		Voltage	Run Time (Maximum (seconds))	Includes
	(lb-in.)	(Nm)			
M847A1072	1.9 lb-in.	0.21 Nm	24 Vac	20 sec	3.8 in. linkage arm
M847A1080	1.9 lb-in.	0.21 Nm	24 Vac	20 sec	38 in. linkage chain

Replacement Parts and Accessories for Kit Mounted Motors

Product Number	Description	Used With	
121825AA	Auxiliary crank arm assembly	Q298; M835	
126809/0021	M836 Mounting Bracket	M836	
126816/0021	Clamp for M436	M436	
128336/0021	Mounting Bracket for M436/M836, Increases motor height 0.5 inches.	M436, M836	
16254AC	Motor mounting bracket for M436/M836.	M436, M836	
198545	Motor mounting bracket for M436/M836.	M436, M836	
4074BRU	Bag Assembly Extension adapter and screws for mounting Q607 Auxiliary switch to M436A Damper Motor.	Q607; M436A	 <p>4074BRU</p>
4074ELR	Crank arm, heavy duty	—	
4074ELY	Crank arm, infinitely adjustable	—	

Versa Drive Accessories

Product Number	Description
Q583C1002	Coupler and Bracket for Versadrive Actuator

Damper and Valve Linkages

Q100 Linkage



Contains necessary hardware to link Modutrol motors to a V51B Butterfly Valve.

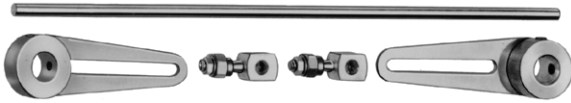
- Compatible with Modutrol III and Modutrol IV™ motors. (Requires adapter bracket)
- Adaptable for all sizes of V51B Valves.
- Strain release and stop bracket are provided with V51B.

Linkage Type: Valve

Used with Actuator: Modutrol Motor

Product Number	Description
Q100A1015	Linkage for 2 1/2 and 3 in. butterfly valves
Q100A1023	Linkage for 4 in. butterfly valves

Q298 Damper Linkage for Economizer Motors



Connects M833, M835, M836 or M7415 motor to 1 or 2 zone dampers.

- May be used to link shafts of two dampers together.
- Includes pushrod, ball joints and bushings for 1/4 in. (6 mm) to 1/2 in. (13 mm) diameter shafts.

Linkage Type: Damper

Used with Actuator: Damper Actuator (M6415, M7405, M7415, M8415)

Product Number	Description	Includes
Q298B1065	Damper Linkage	Pushrod in variable lengths, 2 damper arms, and 2 ball joints

Damper and Valve Linkages

Q605 Damper Linkage



Connect Modutrol motor to standard damper or set of dampers to provide control of duct airflow.

- Adjustable to any degree of damper opening. Include ball joints, motor crank arm and damper arm for 1/2 in. (13 mm) diameter shaft.
- 27520 pushrod must be ordered separately.

Linkage Type: Damper

Mounting: Mount motor externally on duct

Used with Actuator: Modutrol Motor

Product Number	Shaft Dimensions	Description	Comments	Includes
* Q605A1070	1/2 in.	Damper-Linkage with 1/2 inch shaft- Connects Modutrol motor to water or steam valve	—	Motor bracket, damper arm, motor crankarm, and 2 ball joints
* Q605D1051	—	Damper-Linkage including Motor bracket, 3 damper arms, motor crankarm, and 4 ball joints- Connects Modutrol motor to water or steam valve.	—	Motor bracket, 3 damper arms, motor crankarm, and 4 ball joints
• Q605D1069	—	Damper-Linkage including Motor bracket, 3 damper arms, motor crankarm, 4 ball joints, left hand drive ear and crankarm adapter- Connects Modutrol motor to water or steam valve.	—	Motor bracket, 3 damper arms, motor crankarm, 4 ball joints, left hand drive ear and crankarm adapter
* Q605E1050	—	Damper-Linkage including Damper arm, motor crankarm, and 2 ball joints- Connects Modutrol motor to water or steam valve.	—	Damper arm, motor crankarm, and 2 ball joints
* Q605F1018	—	Damper-Linkage including Motor bracket, damper arm, motor crankarm, and 2 ball joints- Connects Modutrol motor to water or steam valve.	—	Motor bracket, damper arm, motor crankarm, and 2 ball joints
Q605G1009	—	Damper-Linkage including Motor bracket, damper arm, motor crankarm, and 2 ball joints- Connects Modutrol motor to water or steam valve.	—	Motor bracket, damper arm, motor crankarm, and 2 ball joints
Q605H1016	1/2 in.	Damper-Linkage including Motor bracket, 3 damper arms, motor crankarm, and 4 ball joints- Connects Modutrol motor to water or steam valve.	Connects One Mod IV Motor to Two Louver Dampers	Motor bracket, 3 damper arms, motor crankarm, and 4 ball joints
• Q605H1024	1/2 in.	Damper-Linkage including Motor bracket, 3 damper arms, motor crankarm, 4 ball joints, left hand drive ear and crankarm adapter- Connects Modutrol motor to water or steam valve.	Connects One Mod IV Motor to Two Louver Dampers	Motor bracket, 3 damper arms, motor crankarm, 4 ball joints, left hand drive ear and crankarm adapter
* Q605J1013	1/2 in.	Damper-Linkage with 1/2 inch shaft- Connects Modutrol motor to water or steam valve	—	Damper arm, motor crankarm, and 2 ball joints

* TRADELINE models • SUPER TRADELINE models

Q605 Accessories

Used with Actuator: Modutrol Motor

Product Number	Description	Used With
101662A/0021	Motor Mounting Bracket Assembly for Q605	Q605
102931/0021	Adapter arm for less than 90 degree rotation for the Q605	Q605

Damper and Valve Linkages

Q5001 Valve Linkage for Modutrol IV™ Motors



The Q5001 Valve Linkage connects a Modutrol Motor to a 2- or 3-way valve. It is used primarily on V5011 or V5013 steam and water valves.

- Q5001 Valve Linkage is applicable to 2-Way or 3-Way valves in modulating or two-position service.
- Linkage requires no adjustment when used with Honeywell valves and Modutrol IV™ Motors.
- Q5001 Valve Linkage replaces Q601 and Q618 Valve Linkages.
- Linkage mounts directly to the valve bonnet; motor mounts to linkage bracket.
- Easy-to-read position indicator.
- Valve stem lift height cam selectable.
- Overtravel permits tight close-off without excessive motor strain.
- Available brackets make linkages adaptable to many valve bodies.
- Models available with 80 lb, 160 lb, and 320 lb stem force.
- Reversible cams on the Q5001 allow field selection of normally open or normally closed valve operation.
- All models have anti-spin clips.

Linkage Type: Valve

Mounting: Linkage mounts directly to the valve bonnet; motor mounts on linkage bracket.

Used with Actuator: Modutrol Motor

Stem Force Rating: 80 or 160 lbs (356 N or 712 N)

Ambient Temperature Range: -40 F to +150 F (-40 C to +66 C)

Replacement Parts:

220845/0767 Retainer button for Q5001

Accessories:

220829BCQ1 Barber-Colman Valve Adapter Kit

220829LGQ3 Landis and Gyr Powers Valve Adapter Kit

	Product Number	Bonnet Size (in.)	Stroke	Description	Includes	Used With
*	Q5001D1000	1 3/8 in.	3/4 in.	Valve Linkage for Mod III and Mod IV motors with 80 or 160 lb stem force	1 3/8 in. valve bracket and Anti spin clip	V5011/V5013; Modutrol IV Motors
*	Q5001D1018	1 3/8 in.	3/4 in.	Valve Linkage for Mod IV motors with 160 or 320 lb stem force and up to 3 inch valves	1 3/8 in. valve bracket and Anti spin clip	Valve sizes up to 3 inch; V5011/V5013; Modutrol IV Motors
*	Q5001D1026	1 7/8 in.	1 1/2 in.	Valve Linkage for Mod IV motors with 160 or 320 lb stem force and 4, 5 or 6 inch valves	1 7/8 in. valve bracket and Anti spin clip	4, 5 or 6 inch valves; V5011/V5013; Modutrol IV Motors

* TRADELINE models • SUPER TRADELINE models

Q5001 parts

Linkage Type: Valve

Product Number	Stroke	Description	Used With
220828AA	—	Valve bracket assembly, Q5001	Q5001
220845/0767	—	Retainer button for Q5001	—
220848A	1/2 in.	Q5001 Cam	Q5001
220852A	—	Stroke Indicator, Q5001	Q5001
220858A	9/16 in.	9/16 inch lift Q5001 linkage cam assembly	Q5001
220861A	3/4 in.	3/4 inch lift Q5001 linkage cam assembly	Q5001
220863A	1 in.	1 inch lift Q5001 linkage cam assembly	Q5001
220864A	1 1/8 in.	1 1/8 inch lift Q5001 linkage cam assembly	Q5001
220865A	1 1/4 in.	1 1/4 inch lift Q5001 linkage cam assembly	Q5001
220867A	1 1/2 in.	1 1/2 inch lift Q5001 linkage cam assembly	Q5001
220874/0767	—	9/16 inch anti spin clip for Q5001	—
4074ETB	—	Antispin Kit, Q5001	Q5001

Q5020 Globe Valve Linkages



The Q5020 Globe Valve Linkages connect a Honeywell direct coupled actuator (DCA) to a steam or water globe valve. The Q5020 Linkages are compatible with two-way and three-way globe valves up to 3 inch (DN80).

- Used with two-way and three-way globe valves in modulating or two-position service.
- Used with 25, 50, and 142 lb-in. spring return and 35, 70, 150, and 300 lb-in. non-spring return DCA.
- Quick and simple installation with no disassembly required.
- Heavy-duty Steel rack and pinion construction and Aluminum Die-cast housing.
- Maintenance-free construction.
- Precision roller-bearing rack construction prevents premature valve packing wear and leakage.
- Flexible actuator mounting orientation.
- Adjustable manual override lever and valve position indicator.
- Can be mounted on specific non-Honeywell valves using a 32004629 Bonnet Adapter Kit.

Linkage Type: Valve

Mounting: Linkage mounts directly to the valve bonnet; actuator mounts on linkage

Used with Actuator: Direct Coupled Actuator

Product Number	Bonnet Size (in.)	Shaft Dimensions	Stroke	Description	Includes	Used With
Q5020A1003	1 3/8 in.	1/2 in.	3/4 in.	Globe Valve Linkage, 1/2 in. actuator shaft	1/2 in. diameter drive shaft	V5011G; V5011F; V5013N; V5011N
Q5020B1001	1 3/8 in.	1 in.	3/4 in.	Globe Valve Linkage, 1 in. actuator shaft	1 in. diameter drive shaft	V5011G; V5011F; V5013N; V5011N
Q5020C1009	1 3/8 in.	1 in.	1 1/2 in.	Globe Valve Linkage, 1 in. actuator shaft	1 in. diameter drive shaft	V5051
Q5020D1007	1 3/8 in.	1/2 in.	1/2 in.	Globe Valve Linkage, 1/2 in. actuator shaft	1/2 in. diameter drive shaft	Siebe valves; Johnson valves; Siemms valves

Damper and Valve Linkages

Q5022 Globe Valve Tandem DCA Linkage



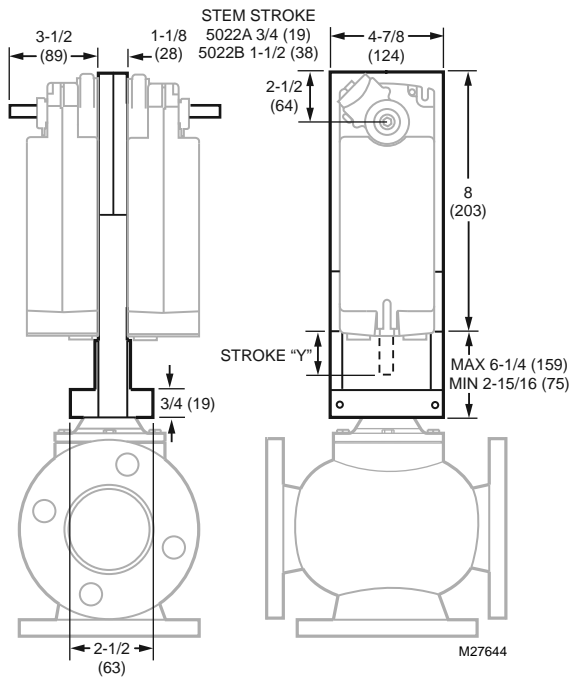
The Q5022A,B Globe Valve Linkages connect one or two Honeywell direct coupled rotary actuators (DCA) to a globe valve for control of chilled water, hot water, or steam. The Q5022A,B Linkages are compatible with 2 and 3-way globe valves up to 6 in. (DN150) pipe size.

Q5022A is used to provide enhanced close-off ratings with Honeywell globe valves up to 3 in. with 1-3/8 in. diameter bonnet and 3/4 in. stem stroke.

Q5022B is used with Honeywell globe valves 4 to 6 in. with 1-7/8 in. diameter bonnet and 1-1/2 in. stem stroke.

- For use with 2-way and 3-way globe valves in modulating or two-position service.
- For use with 175 lb.-in. (S20) spring return or 175 and 300 lb.-in. (N20, N34) non-spring return DCAs.
- Accepts single or dual matching actuators for higher close-off pressures.
- Fail-safe operation with spring return DCAs, field selectable normally open or normally closed for direct or reverse-acting valves.
- Linkage threads onto valve stem.
- Oilite™ self-lubricated actuator shaft bearing.
- Anodized extruded aluminum housing.
- Maintenance-free construction.
- Precision roller-bearing rack construction to prevent premature valve packing wear and leakage.
- Flexible actuator mounting orientation.

Dimensions in inches (millimeters)



Linkage Type: Valve

Mounting: Linkage mounts directly to the valve bonnet; actuator(s) mount on linkage

Used with Actuator: Direct Coupled Actuator

Stem Force Rating: 1117 max. (4969 max.)

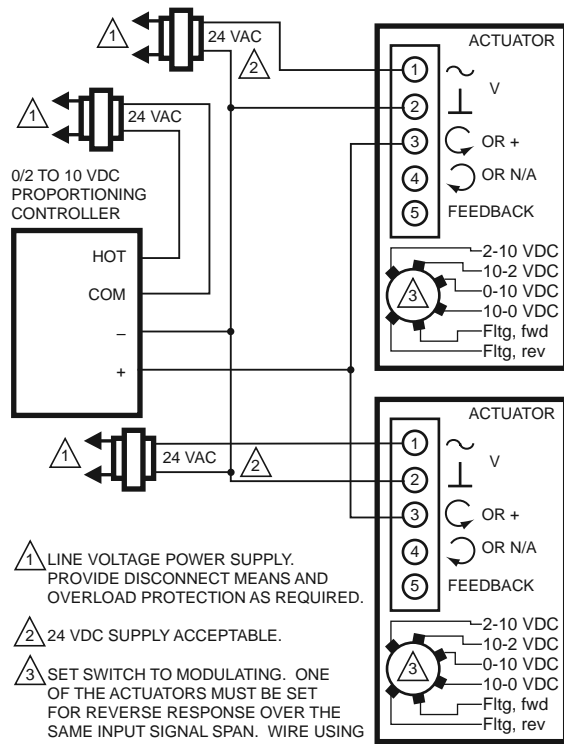
Comments: This linkage is not compatible with the 43196000 high temperature kits

Includes: Anti-spin brackets

Product Number	Bonnet Size (in.)	Shaft Dimensions	Stroke	Description	Used With
Q5022A1001	1 3/8 in.	1/4 -28UNF-2A	3/4 in.	Tandem DCA linkage for Honeywell threaded and flanged globe valves 3 inches and smaller	VGF under 4 in.; V5013; V5011
Q5022B1009	1 7/8 in.	7/16 -20UNF-2A	1 1/2 in.	Tandem DCA linkage for Honeywell flanged globe valves 4 inches and larger	VGF over 3 in.; V5013; V5011

Damper and Valve Linkages

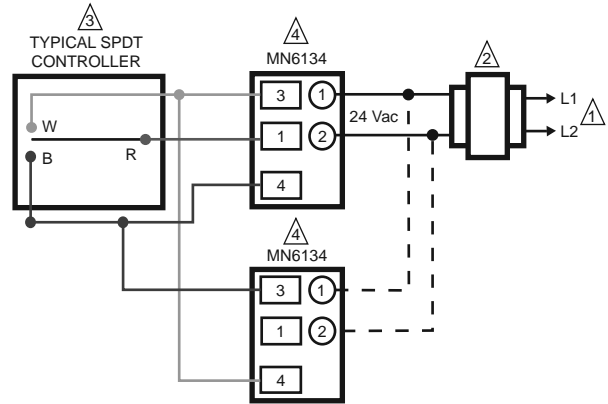
Wiring and configuring modulating tandem actuators with Q5022 linkages



- 1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 24 VDC SUPPLY ACCEPTABLE.
- 3 SET SWITCH TO MODULATING. ONE OF THE ACTUATORS MUST BE SET FOR REVERSE RESPONSE OVER THE SAME INPUT SIGNAL SPAN. WIRE USING SHIELDED CABLE WHEN USING 0-10 OR 10-0V SIGNAL SPAN GROUND SHIELD AT CONTROLLER ONLY.
- 4 ENSURE PROPER GROUNDING OF ACTUATOR CASE. DO NOT GROUND SIGNAL COMMON.

M27710

Wiring of tandem floating actuators with Q5022 linkages



- 1 POWER SUPPLY PROVIDES OVERLOAD PROTECTION AND DISCONNECT MEANS.
- 2 ALLOW UP TO 0.5 AMPS FOR EACH DEVICE. ACTUATORS AND CONTROLLER CAN SHARE SAME TRANSFORMER, PROVIDED THAT THE VA RATING OF THE TRANSFORMER IS NOT EXCEEDED AND PROPER PHASING IS OBSERVED. DO NOT MIX A.C. AND D.C. POWER SOURCES.
- 3 CONTROLLER CAN BE LOW VOLTAGE SPDT SERIES 20 "ON-OFF" OR SP3T SERIES 60 "FLOATING" (TRI-STATE) TYPE.
- 4 MULTIPLE ACTUATORS CONTROLLED BY A COMMON CONTROLLER IN PARALLEL MUST BE WIRED SO THAT THEY ALL ROTATE IN THE SAME DIRECTION.

M27648

Damper and Valve Linkage Accessories

Linkage Type: Damper

Product Number	Description	Includes	Used With
102546	Ball Joint, 5/16 in.	—	Damper Linkages
104643A	Adapter for driving 2 dampers from 1 crank arm	—	Kit Mounted Motors; Modutrol IV™ Motors
26025F	Damper Arm, 3/8 in. shaft	—	—
26026B	Damper Arm, 1/2 in. shaft, 3 in. long	—	—
32004629-001	Bonnet adapter kit to adapt Seimens (Landis/Power) Flowrite 599 1/2 inch to 3 inch globe valves with Q5020A or Q5009B	—	Siemms valves
32004629-002	Bonnet Adapter Kit, Johnson Controls 1/2 to 3/4 in., Q5020	—	Johnson valves; Q5020
32004629-003	Bonnet Adapter Kit, Johnson Controls 1 to 2 in., Q5020	—	Johnson valves; Q5020
32004629-004	Bonnet Adapter Kit, Siebe 1/2 to 2 in., Q5020	—	Siebe valves; Q5020
7617ACL	Bag Assembly, Q605	Damper arm, motor crankarm, and 2 ball joints	Q605

Carbon Dioxide (CO₂) Sensors

C7232 Carbon Dioxide (CO₂) Sensors



The Carbon Dioxide (CO₂) Sensors and Controllers are stand-alone carbon dioxide (CO₂) sensors for use in determining ventilation

Carbon Dioxide Range: 0 to 2000 ppm, adjustable

Analog Current Output: 0/2 - 10 Vdc or 0/4 - 20 mA selectable, w/ one relay output

Electrical Connections: Six leadwires, 20-gauge, 8 in. long

Contact Ratings: 1 A @ 50 Vac/24 Vdc

Relay Output: One: Normally Open SPST

necessity with HVAC controllers. The sensor measures the CO₂ concentration in the ventilated space or duct. The sensors are used in ventilation and air conditioning systems to control the amount of fresh outdoor air supplied to maintain acceptable levels of CO₂ in the space.

- Models available with LCD that provides sensor readings and status information.
- Non-Dispersion-Infrared (NDIR) technology used to measure carbon dioxide gas.
- Gold-plated sensor provides long-term calibration stability.
- C7232 provides voltage or current output based on CO₂ levels.
- SPST relay output.
- Used for CO₂ based ventilation control (Demand Control Ventilation (DCV)).
- Automatic Background Calibration (ABC) algorithm based on long-term evaluation reduces required typical zero-drift check maintenance.

Voltage: 24 Vac/dc ±20%,

Frequency: 60 Hz; 50 Hz

Response Time: 1 minute

Sensor Type: Non-dispersive Infrared (NDIR)

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Accuracy: (5% full scale)

Product Number	Display	Mounting	Dimensions, Approximate		Includes
			(inch)	(mm)	
C7232A1008	Yes	Wall mount	5 1/16 in. high x 3 11/16 in. wide x 2 in. deep	128 mm high x 80 mm wide x 25 mm deep	Honeywell Logo
C7232A1016	No	Wall mount	5 1/16 in. high x 3 5/32 in. wide x 2 in. deep	128 mm high x 80 mm wide x 25 mm deep	Honeywell Logo
C7232A1024	Yes	Wall mount	5 1/16 in. high x 3 5/32 in. wide x 2 in. deep	128 mm high x 80 mm wide x 25 mm deep	No Honeywell Logo
C7232A1032	No	Wall mount	5 1/16 in. high x 3 5/32 in. wide x 2 in. deep	128 mm high x 80 mm wide x 25 mm deep	No Honeywell Logo
C7232B1006	Yes	Duct mount	5 5/8 in. high x 3 5/16 in. wide x 3 7/16 in. deep x plus 8 in. long sensing tube	142 mm high x 84 mm wide x 87 mm deep x plus 203 mm sensing tube	Honeywell Logo
C7232B1014	No	Duct mount	5 5/8 in. high x 3 5/16 in. wide x 3 7/16 in. deep x plus 8 in. long sensing tube	142 mm high x 84 mm wide x 87 mm deep x plus 203 mm sensing tube	Honeywell Logo
C7232B1022	Yes	Duct mount	5 5/8 in. high x 3 5/16 in. wide x 3 7/16 in. deep x plus 8 in. long sensing tube	142 mm high x 84 mm wide x 87 mm deep x plus 203 mm sensing tube	No Honeywell Logo
C7232B1030	No	Duct mount	5 5/8 in. high x 3 5/16 in. wide x 3 7/16 in. deep x plus 8 in. long sensing tube	142 mm high x 84 mm wide x 87 mm deep x plus 203 mm sensing tube	No Honeywell Logo

Carbon Dioxide (CO₂) Sensors

C7632 Carbon Dioxide (CO₂) Sensors



The Carbon Dioxide (CO₂) Sensors offer a fixed 0-2000ppm and fixed 0-10Vdc output. No adjustments are necessary. Like the C7232 sensors, these are for use in determining ventilation necessity with HVAC controllers. The sensor measures the CO₂ concentration in the ventilated space or duct. The sensors are used in ventilation and air conditioning systems to control the amount of fresh outdoor air supplied to maintain acceptable levels of CO₂ in the space.

- Non-Dispersion-Infrared (NDIR) technology used to measure carbon dioxide gas.
- Gold-plated sensor provides long-term calibration stability.
- Fixed 0-2000ppm, fixed 0-10Vdc output.
- Used for CO₂ based ventilation control (Demand Control Ventilation (DCV)).
- Automatic Background Calibration (ABC) algorithm based on long-term evaluation reduces required typical zero-drift check maintenance.

Carbon Dioxide Range: 0 to 2000 ppm, fixed

Analog Current Output: 0-10Vdc fixed

Electrical Connections: Terminal block

Relay Output: None

Voltage: 24 Vac (±20%)

Frequency: 60 Hz; 50 Hz

Response Time: 1 minute

Sensor Type: Non-dispersive Infrared (NDIR)

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Accuracy: (5% full scale)

Product Number	Display	Mounting	Dimensions, Approximate		Includes
			(inch)	(mm)	
C7632A1004	No	Wall mount	4 1/8 in high x 3 7/8 in. wide x 1 1/16 in. deep	104mm high x 99 mm high x 27 mm deep	Honeywell Logo
C7632B1002	No	Duct mount	5 5/8 in. high x 3 5/16 in. wide x 1 13/16 in. deep x plus 8 in. long sensing tube	142 mm high x 84 mm wide x 87 mm deep x plus 203 mm sensing tube	Honeywell Logo

Current Switches

Solid and Split Core Current Switches



All of these sensors have a solid-state output with an adjustable or fixed trip point (setpoint). These current switches should be used

Dimension Diagrams: See page 481

Application: Great for monitoring fans, pumps, motors, compressors, or other electrical equipment

Din Rail Size: 1-3/8 in. (35 mm)

LEDs: Red – Above the trip point; Green – Below the trip point

Enclosure Rating/Color: UL94-5V/Burgundy

Isolation Voltage: 2200 Vac

Supply Voltage: Induced from monitored conductor

Frequency: 40 Hz to 1 kHz

Operating Range: 0-250A

in applications in which a "Go/No Go" current switch is required. The current switches can be used to monitor devices with a maximum continuous operating current of up to 250 Amps. These current switches do not need to be externally powered, since the power for the switch is induced from the conductor being monitored. The split core switches are ideal for retrofit or existing installations, since it is not necessary to power down the unit and disconnect any wires during the installation process. Solid core switches are extremely easy to install, they are an excellent choice for new installations.

- Solid or split core switches with fixed or adjustable trip points
- Very low operating trip points
- LED status indication
- Integral DIN rail mounting flange
- Accepts up to a 350 MCM (17.3 mm) cable
- Operates up to 250 continuous amps
- RoHS and WEEE Compliant
- Limited 5 year warranty

Operating Temperature Range: 5 F to 104 F (-15 C to 40 C)

Operating Humidity Range (% RH): 0 to 95% RH, non-condensing

Weight: 0.23 lb (0.1 kg)

Approvals:

CE: Approved

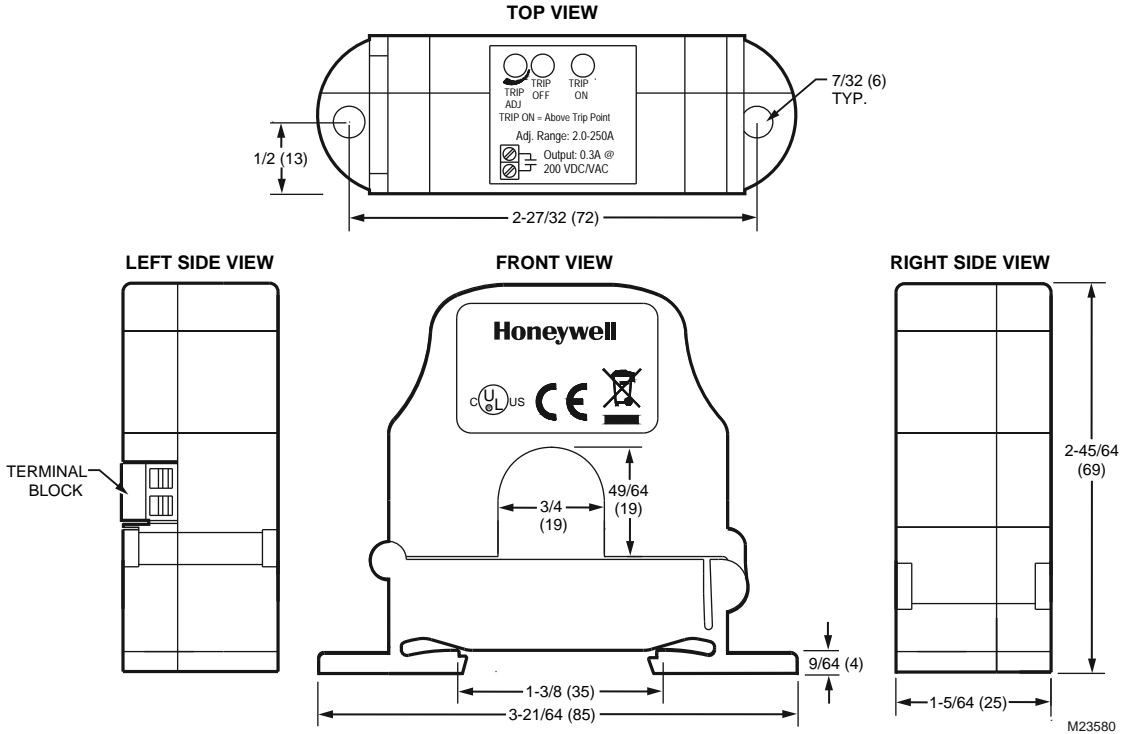
Underwriters Laboratories, Inc. Approved

Environmental Compliance: RoHS-Directive 2002/95/EC, WEEE-Directive 2002/96/EC

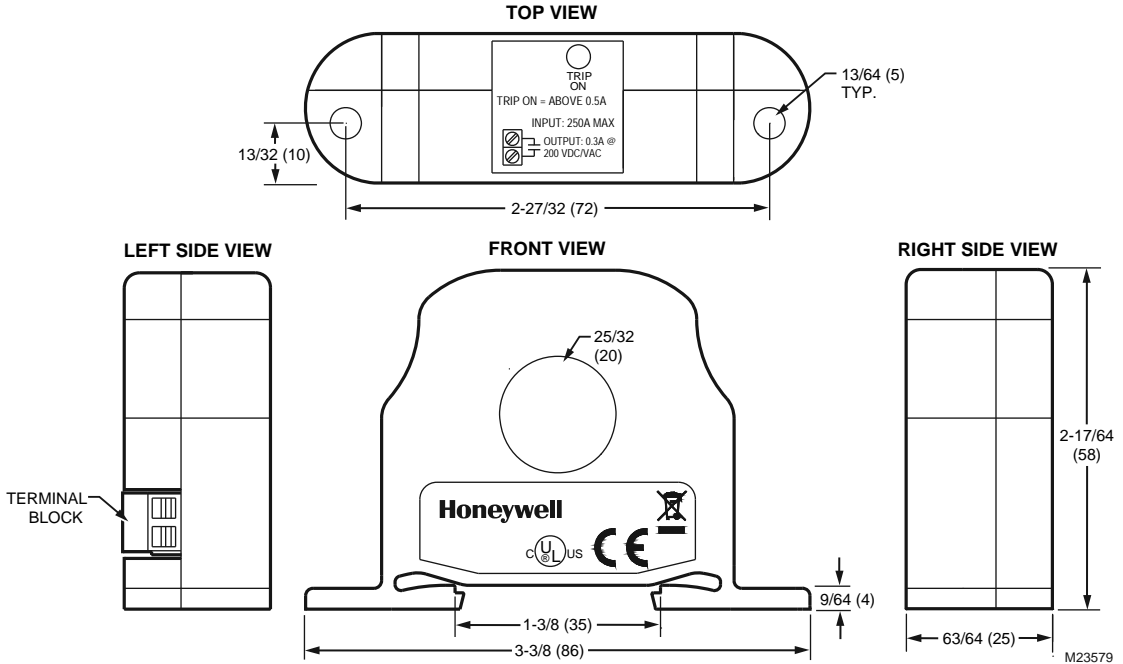
Product Number	Description	Core Type	Normal Position	Output Switch Rating	Trip Point	LEDs
CSP-C-A200-001	Adjustable Current Switch	Split	N.C.	0.15 Amps @ 300 Vac/Vdc	2.5-250 Amps	Green – Below the trip point; Red – Above the trip point
CSP-O-A200-001	Adjustable Current Switch	Split	N.O.	0.30 Amps @ 200 Vac/Vdc	2.0-200 Amps	Green – Below the trip point; Red – Above the trip point
CSP-O-A300-001	Adjustable Current Switch	Split	N.O.	0.30 Amps @ 200 Vac/Vdc	3.0-200 Amps	Green – Below the trip point; Red – Above the trip point
CSP-O-F10-001	Go/No Go Current Switch	Split	N.O.	0.30 Amps @ 200 Vac/Vdc	1.50 Amps	Red – Above the trip point
CSP-O-F15-001	Go/No Go Current Switch	Split	N.O.	0.30 Amps @ 200 Vac/Vdc	2.50 Amps	Red – Above the trip point
CSS-C-F1-001	Go/No Go Current Switch	Solid	N.C.	0.15 Amps @ 300 Vac/Vdc	0.50 Amps	Red – Above the trip point
CSS-C-F5-001	Go/No Go Current Switch	Solid	N.C.	0.15 Amps @ 300 Vac/Vdc	1.00 Amps	Red – Above the trip point
CSS-O-A200-001	Adjustable Current Switch	Solid	N.O.	0.30 Amps @ 200 Vac/Vdc	0.5-250 Amps	Green – Below the trip point; Red – Above the trip point
CSS-O-A300-001	Adjustable Current Switch	Solid	N.O.	0.30 Amps @ 200 Vac/Vdc	1.0-250 Amps	Green – Below the trip point; Red – Above the trip point
CSS-O-F1-001	Go/No Go Current Switch	Solid	N.O.	0.30 Amps @ 200 Vac/Vdc	0.20 Amps	Red – Above the trip point
CSS-O-F5-001	Go/No Go Current Switch	Solid	N.O.	0.30 Amps @ 200 Vac/Vdc	0.50 Amps	Red – Above the trip point

Current Switches

Split Core Dimensions in inches (millimeters)



Solid Core Dimensions in inches (millimeters)



Commercial Components

Current Switches

Solid and Split Core Current Transmitters



which can be monitored by a building management controller. These current sensors should be used in load trending (current monitoring) type applications. The split core transmitters are ideal for retrofit or existing installations, since it is not necessary to power down the unit and disconnect any wires during the installation process. Solid core transmitters are extremely easy to install, they are an excellent choice for new installations.

- Solid or split core loop-powered current transmitters for 4-20 mA models
- Solid or split core 0-5 or 0-10 Vdc models
- Fast response time
- Integral DIN rail mounting flange
- Easy wiring, polarity sensitive output
- Accepts up to a 350 MCM (17.3 mm) cable
- Operates up to 250 continuous amps
- True RMS versions are available
- RoHS and WEEE Compliant
- Limited 5 Year Warranty

Depending on model selected the current is converted into a linear and proportional output signal of 0-5 Vdc, 0-10 Vdc or 4-20 mA,

Dimension Diagrams: See page 481

Application: Ideal for retrofit or existing installations requiring load trending (current monitoring)

Din Rail Size: 1-3/8 in. (35 mm)

Enclosure Rating/Color: UL94-5V/Burgundy

Maximum Load Resistance: 650 Ohms @ 24 Vdc (Vs-10)/0.02-40.2

Isolation Voltage: 2200 Vac

Supply Current: 36 mA max

Type: Adjustable

Operating Temperature Range: 5 F to 104 F (-15 C to 40 C)

Operating Humidity Range (% RH): 0 to 95% RH, non-condensing

Weight: 0.24 lb (0.1 kg)

Approvals:

CE: Pending

Underwriters Laboratories, Inc. Approved

Environmental Compliance: RoHS-Directive 2002/95/EC, WEEE-Directive 2002/96/EC

Product Number	Description	Core Type	Output Switch Rating	Current Range	Response Time	Supply Voltage	Frequency
CTP-20-050-VFD-001	Loop Powered Current Sensor	Split	4-20 mA Average True RMS	0-50 Amps; 0-20 Amps; 0-10 Amps	<200 mS	12 to 30 Vdc	30 Hz to 1 kHz
CTP-20-200-AVG-001	Loop Powered Current Sensor	Split	4-20 mA Average	0-150 Amps; 0-200 Amps; 0-100 Amps	<75 mS	12 to 30 Vdc	30 Hz to 1 kHz
CTS-05-050-VDC-001	Current Sensors	Solid	0 to 5 Vdc	0-50 Amps; 0-20 Amps; 0-10 Amps	<100 mS	Induced from monitored conductor	50 Hz to 600 Hz
CTS-10-250-VDC-001	Current Sensors	Solid	0 to 10 Vdc	0-250 Amps; 0-200 Amps; 0-100 Amps	<100 mS	Induced from monitored conductor	50 Hz to 600 Hz
CTS-20-250-AVG-001	Loop Powered Current Sensor	Solid	4-20 mA Average	0-250 Amps; 0-200 Amps; 0-100 Amps	<75 mS	12 to 30 Vdc	30 Hz to 1 kHz
CTS-20-250-VFD-001	Loop Powered Current Sensor	Solid	4-20 mA Average True RMS	0-250 Amps; 0-200 Amps; 0-100 Amps	<200 mS	12 to 30 Vdc	30 Hz to 1 kHz

Dew Point Sensor



This early-warning dew-point sensor is designed for use in monitoring cooling water pipes or chilled surfaces in order to determine if temperatures are approaching the dewpoint.

It is suitable for mounting on flat and round surfaces. The sensor measures the relative humidity prevailing directly at the chilled surface and can thus be used to regulate cooling performance, or switch cooling systems ON and OFF, and signal if the temperature is approaching the dew point.

Using this sensor, it is thus possible to operate e.g. chilled ceilings in an optimal manner and without the formation of condensation water even under critical climatic conditions.

- Does not wait to detect when the dew-point has already been reached, but rather provides an early warning of the approaching dew-point
- Compact design
- Fast response
- Module is coated, thus protected against contamination
- Simple and easy mounting

Application: For use in monitoring cooling water pipes or chilled surfaces in order to determine if temperatures are approaching the dew point.

Dimensions, Approximate: 1/16 in. high x 1 1/4 in. wide x 2 in. deep (15.5†mm high x 32†mm wide x 50†mm deep)

Operating Humidity Range (% RH): 5–95% RH, non-condensing

Power Consumption: < 10 mA

Voltage: 60 Vdc

Mounting: Flat and round surfaces

Product Number	ON Voltage	Supply Voltage	R.H. Hysteresis Switching	Switch Points	Switching Current	Output Type	Response Time
H7018A1003	100 mV @ 15 mA	24 Vac ±20%	5% RH	Contact Closed @ <90% RH Contact Open @ > 90% RH	15 mA max	Potential-Free Contact	~3 min (given a jump in the relative humidity of from 55% to 100%)

Humidity Sensors

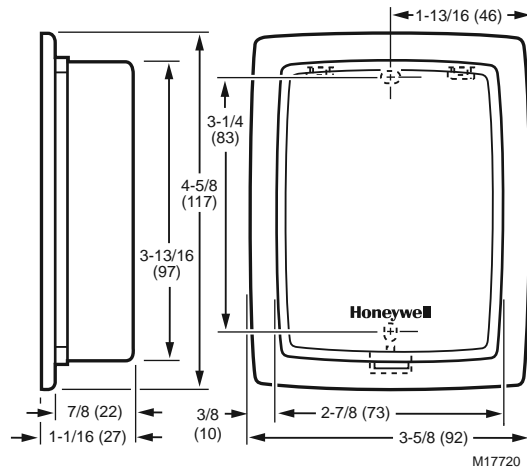
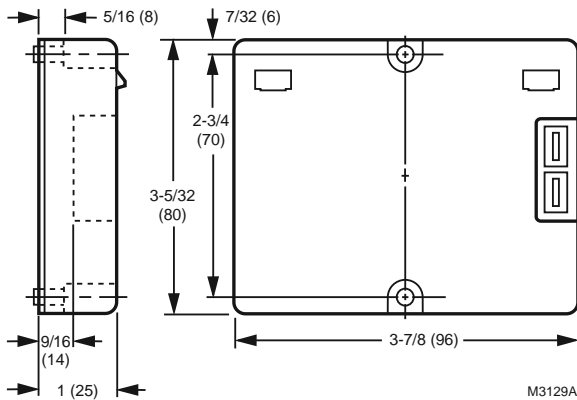
C7600 Humidity Sensor



Used with any controller capable of processing a 4-20 mA or 2-10 Vdc signal.

- Provide humidity sensing through a long-lasting thick-film capacitive polyimide sensing element that is both accurate and stable over time.
- Vents in top cover provide for airflow to humidity sensing element inside.
- Mounts easily because of compact size and lightweight construction.
- Remains operational after exposure to all outdoor air humidity extremes. 5% RH accuracy from 30% to 70% RH.

Dimensions in inches (millimeters)



Application: Humidity
Operating Temperature Range: 32 F to 125 F (0 C to 52 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)
Operating Humidity Range (% RH): 10 to 90% RH, non-condensing

Product Number	Application Type	Mounting	Sensor Type	Comments	Used With
C7600A1002	Duct mount	Duct or Wall mount	4-20 mA inversely proportional	Two 1/4 in. quick-connect terminals	W7600
C7600B2008	Junction box mount	Wall mount	2-10Vdc directly proportional	Three 22-gauge wires	T775U
C7600C1008	Duct mount	Duct or Wall mount	4-20mA directly proportional	Two 1/4 in. quick-connect terminals	T775U

H7012 Humidity and Temperature Room Sensors



- Wall-mounted, capacitance type relative humidity room sensor.**
- Capacitance type sensing element.
 - Wide sensing range.
 - Temperature indication sensor, H7012B only.

Application: Humidity
Dimensions, Approximate: 5 1/8 in. high x 3 3/16 in. wide x 1 11/32 in. deep (130 mm high x 81 mm wide x 34 mm deep)
Operating Humidity Range (% RH): 30 to 70% RH

Product Number	Mounting	Sensor Type	Description	Comments
H7012A1009	Wall mount	—	Humidity Sensor	Capacitance type humidity sensor
H7012B1007	Wall mount	PT1000	Humidity and Temperature Sensor	Capacitance type humidity sensor
H7012B1015	Wall mount	Balco 500	Humidity and Temperature Sensor	Capacitance type humidity sensor

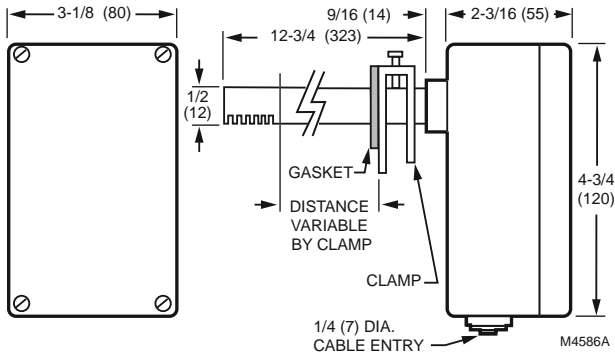
H7015B Humidity Transducers



The H7015B Combined Humidity/Temperature Duct Sensor combines a capacitance-type relative humidity sensor with a PT1000 or BALCO 500 temperature sensor in one housing. These sensors can be used for discharge, outside or return air control or as a high-limit sensor in applications such as steam humidification.

- Wide sensing range.
- Capacitance type sensing element for relative humidity.
- PT1000 or BALCO 500 temperature sensing element.

Dimensions in inches (millimeters)



Application: Humidity Sensor
Dimensions, Approximate: 4 3/4 high, 3 1/8 in. wide, 2 3/16 in. deep (120 mm high, 82 mm wide, 55 mm deep)
Operating Temperature Range: -22 F to 158 F (-30 C to 70 C)
Operating Humidity Range (% RH): 10 to 90% RH, non-condensing

Product Number	Mounting	Description	Comments
H7015B1004	Duct mount	Humidity and Temperature Duct Mounted Sensors	With PT1000 Temperature Sensor
H7015B1012	Duct mount	Humidity and Temperature Duct Mounted Sensors	With Balco 500 Temperature Sensor

Commercial Components

Humidity Sensors

H7625, H7635, and H7655 Humidity and Temperature Transmitters



H7625A
H7635A



H7655A



H7625B
H7635B,C
H7655B

The H7625, H7635, and H7655 are highly accurate, stable humidity transducers designed for use with HVAC controllers such as the T7350 Thermostat, T775U Remote Humidity Controller, and W7760 Direct Digital Controllers. The Ceramic Technology humidity sensor is not affected by condensation and provides excellent long-term stability.

- Ceramic Technology overcomes the limitations of other resistance based humidity sensors that use water soluble polymer coatings.
- Ceramic Technology allows sensors to recover fully from condensation, fog, and high humidity.
- Highly accurate, repeatable, stable output with negligible hysteresis.
- Temperature compensated output. Zero and span trimmers, and increment/decrement recalibration feature.
- All units have selectable 4-20 mA, 0-10 Vdc, or 0-5 Vdc output. NIST traceable 2%, 3%, and 5% calibration, every sensor calibrated at 3 different points.
- All humidity sensors use the same enclosure as the T7770 sensor, except the H7655A, which uses the T7047-like enclosure.

Application: Humidity and Temperature

Voltage: 18-36Vdc or 18-28Vac

Operating Temperature Range: -10 F to 160F (-23C to 70C)

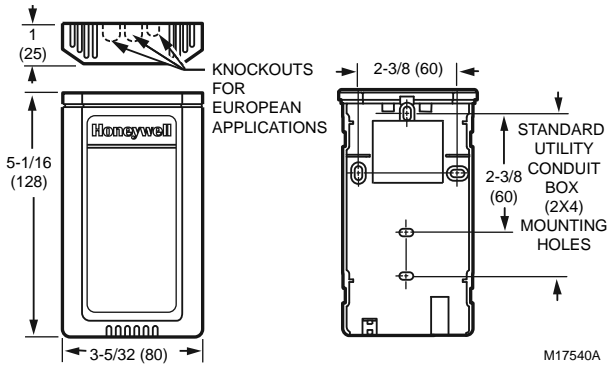
Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Operating Humidity Range (% RH): 0 to 100% RH

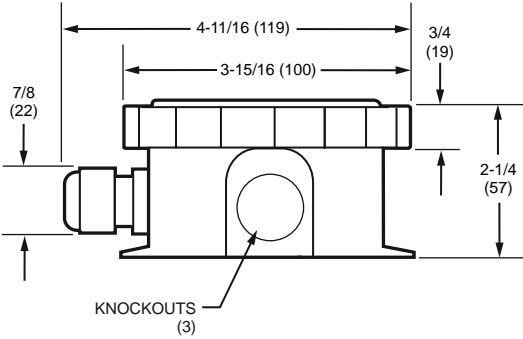
Product Number	Application Type	Accuracy (% RH)	Temperature Output	Humidity Output	Comments	Used With
H7625A1008	Wall mount	2% from 20-95% RH	20K ohm NTC	4-20mA, 0-5Vdc, or 0-10Vdc selectable	Ceramic resistance humidity sensor	Excel 15, Excel 10, T7350, T775 Series 2000
H7625B1006	Duct mount	2% from 20-95% RH	20K ohm NTC	4-20mA, 0-5Vdc, or 0-10Vdc selectable	Ceramic resistance humidity sensor	Excel 15, Excel 10, T7350, T775 Series 2000
H7635A1006	Wall mount	3% from 20-95% RH	20K ohm NTC	4-20mA, 0-5Vdc, or 0-10Vdc selectable	Ceramic resistance humidity sensor	Excel 15, Excel 10, T7350, T775 Series 2000
H7635B1004	Duct mount	3% from 20-95% RH	20K ohm NTC	4-20mA, 0-5Vdc, or 0-10Vdc selectable	Ceramic resistance humidity sensor	Excel 15, Excel 10, T7350, T775 Series 2000
H7635C1002	Outdoor mount	3% from 20-95% RH	20K ohm NTC	4-20mA, 0-5Vdc, or 0-10Vdc selectable	Ceramic resistance humidity sensor	XL products where needed, T775 Series 2000
H7655A1001	Wall mount	5% from 30-70% RH	none	0-10Vdc	Uses different enclosure (same as T7047 Sensor). Polymer capacitance humidity sensor	XL15, XL10, T7350
H7655B1009	Duct mount	5% from 20-95% RH	20K ohm NTC	4-20mA, 0-5Vdc, or 0-10Vdc selectable	Ceramic resistance humidity sensor	Excel 15, Excel 10, T7350

Humidity Sensors

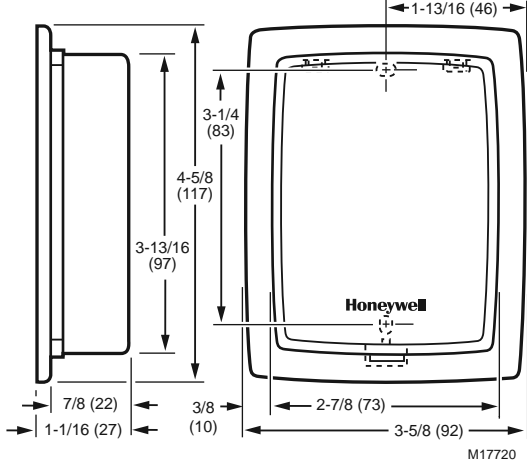
Dimensions in inches (millimeters)



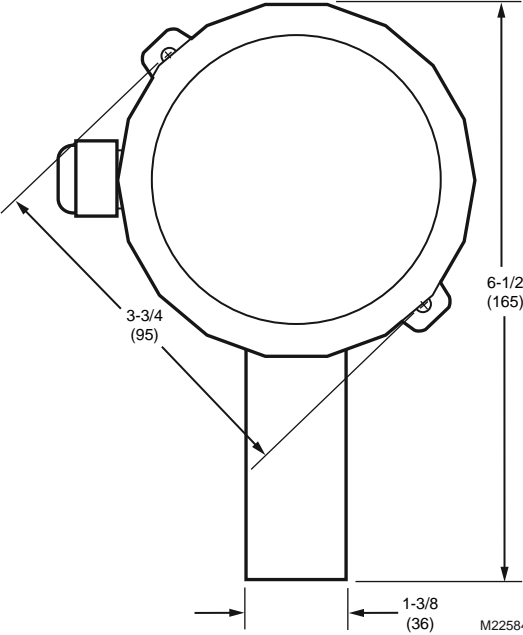
M17540A



KNOCKOUTS (3)



M17720

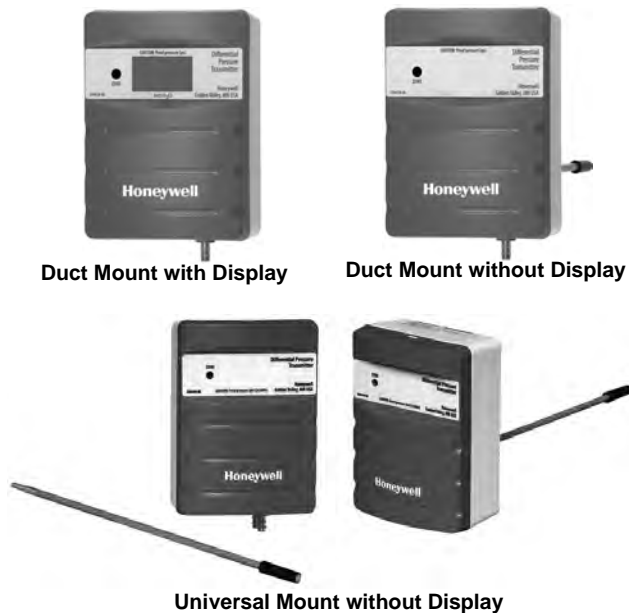


M22584

Commercial Components

Pressure Sensors

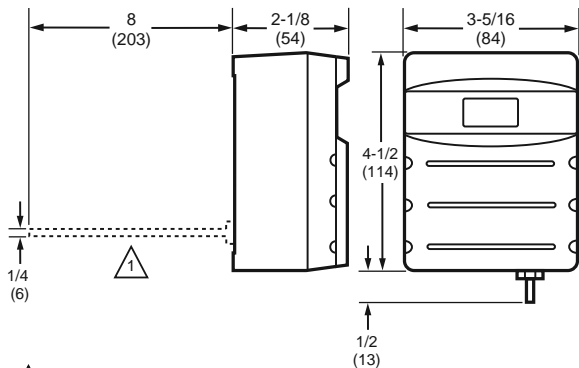
P7640 Differential Pressure Transmitters



The P7640 Pressure Sensors are designed with field-selectable 4-20 mA, 0-5 Vdc, or 0-10 Vdc output. The P7640 offers switch selectable pressure ranges between 0-1 in. w.c./0-250 Pa or 0-10 in. w.c./0-2500PA depending on the model. Pressure ranges can be set for either uni-directional or bi-directional.

- The P7640A Panel Mount, P7640B Duct Mount and P7640U Universal Mount Differential Pressure Transmitters provide reliable, accurate measurement and control.
- Proper applications include measurement of extremely low pressure applications such as: building/room pressure, air flow, variable air volume, filter status, and duct pressure.
- They are ideal for clean rooms, hospitals, fume hoods, and computer rooms.
- Selectable inches w.c. or Pascal scale.
- Selectable fast or standard response time.
- Duct mount model comes with factory installed duct probe.
- The Universal model comes with attachable duct probe and can be used in either panel or duct mounting application.

Dimensions in inches (millimeters)



Connection Size: Pneumatic: 1/4 in. Brass Hose Barb, Electrical: Unpluggable screw terminal block

Output: 4-20mA, 0-5Vdc or 0-10Vdc selectable

Temperature Range: 32F to 140F (0C to 60C)

Accuracy: ($\pm 1\%$ Full Scale)

Burst Pressure: 5 psi

Proof Pressure: 3 psi

Electrical Termination: Voltage: 12 to 30 Vdc or 24 Vac

Product Number	Pressure Ranges		Mounting	Output	Display
	(Pa)	(in. wc)			
P7640A1000	0-25, 0-50, 0-100, 0-250 Pa uni- or bi-directional	0-1.0, 0-0.5, 0-0.25, or 0-0.1 inches w.c., uni- or bi-directional	Panel mount	4-20mA, 0-5Vdc or 0-10Vdc selectable	Yes
P7640A1018	0-25, 0-50, 0-100, 0-250 Pa uni- or bi-directional	0-1.0, 0-0.5, 0-0.25, or 0-0.1 inches w.c., uni- or bi-directional	Panel mount	4-20mA, 0-5Vdc or 0-10Vdc selectable	No
P7640A1026	0-250, 0-500, 0-1000, 0-2500 Pa uni- or bi-directional	0-10, 0-5, 0-2.5, or 0-1 inches w.c., uni- or bi-directional	Panel mount	4-20mA, 0-5Vdc or 0-10Vdc selectable	Yes
P7640A1034	0-250, 0-500, 0-1000, 0-2500 Pa uni- or bi-directional	0-10, 0-5, 0-2.5, or 0-1 inches w.c., uni- or bi-directional	Panel mount	4-20mA, 0-5Vdc or 0-10Vdc selectable	No
P7640B1008	0-25, 0-50, 0-100, 0-250 Pa uni- or bi-directional	0-1.0, 0-0.5, 0-0.25, or 0-0.1 inches w.c., uni- or bi-directional	Duct mount, integral 8 in. probe	4-20mA, 0-5Vdc or 0-10Vdc selectable	Yes
P7640B1016	0-25, 0-50, 0-100, 0-250 Pa uni- or bi-directional	0-1.0, 0-0.5, 0-0.25, or 0-0.1 inches w.c., uni- or bi-directional	Duct mount, integral 8 in. probe	4-20mA, 0-5Vdc or 0-10Vdc selectable	No
P7640B1024	0-250, 0-500, 0-1000, 0-2500 Pa uni- or bi-directional	0-10, 0-5, 0-2.5, or 0-1 inches w.c., uni- or bi-directional	Duct mount, integral 8 in. probe	4-20mA, 0-5Vdc or 0-10Vdc selectable	Yes
P7640B1032	0-250, 0-500, 0-1000, 0-2500 Pa uni- or bi-directional	0-10, 0-5, 0-2.5, or 0-1 inches w.c., uni- or bi-directional	Duct mount, integral 8 in. probe	4-20mA, 0-5Vdc or 0-10Vdc selectable	No
P7640U1040	0-25, 0-50, 0-100, 0-250, 0-500, 0-1000, 0-2500 Pa uni- or bi-directional	0-0.1, 0-0.25, 0-0.5, 0-1, 0-2.5, 0-5, or 0-10 inches w.c., uni- or bi-directional	Universal	4-20mA, 0-5Vdc or 0-10Vdc selectable	No
P7640U1052	0-25, 0-50, 0-100, 0-250, 0-500, 0-1000, 0-2500 Pa uni- or bi-directional	0-0.1, 0-0.25, 0-0.5, 0-1, 0-2.5, 0-5, or 0-10 inches w.c., uni- or bi-directional	Universal	4-20mA, 0-5Vdc or 0-10Vdc selectable	Yes

PWT Series Wet/Wet Differential Pressure Sensors



Panel Mount with Display



Bypass Valve Assembly

The PWT Series wet/wet differential pressure sensors provide reliable, accurate measurement and control of many applications, including pump differential pressure, chiller/boiler differential pressure drop, and CW/HW system differential pressure.

- The PWT Pressure Sensors incorporate microprocessor profiled sensors for exceptional accuracy and reliability.
- Field-selectable 4-20 mA, 0-5 Vdc, or 0-10 Vdc output.
- Jumper-selectable slow or fast response time.
- Switch-selectable pressure ranges.
- The jumper-selectable output switch for normal (4-20 mA) or reverse (20-4mA) operation provides application flexibility.
- Rugged, die-cast enclosure provides NEMA 4 sealing.
- Jumper-selectable port swap feature.
- All models offer both push button and digital input to zero the output.

Dimensions, Approximate: 4 in. high x 5 51/64 in. wide x 2 13/64 in. deep (102 mm high x 147 mm wide x 57 mm deep)

Connection Size: 1/8 in. NPT female, stainless steel 17-4 PH

Output: 4-20mA, 0-5Vdc or 0-10Vdc selectable

Operating Temperature Range: 14 F to 131 F (-10 C to 55 C)

Burst Pressure: 5x max. F.S. range

Proof Pressure: 2x max. F.S. range

Supply Voltage: 12 to 30 Vdc or 24 Vac

Approvals:

CE: CE

Product Number	Accuracy	Pressure Ranges (psi)	Display	Description
PWT50	±1% F.S. for 0-10, 0-25, 0-50 psid; ±2% F.S. for 0-5 psid	0-5, 0-10, 0-25, 0-50 psid	Yes	Wet Differential Pressure Transmitter
PWT250	±1% F.S. for 0-250, 0-125, & 0-50 psid; ±2% F.S. for 0-25 psid	0-25, 0-50, 0-125, 0-250 psid	Yes	Wet Differential Pressure Transmitter
PWT100	±1% F.S. for 0-100, 0-50, 0-20 psid; ±2% F.S. for 0-10 psid	0-100, 0-50, 0-20, 0-10 psid	Yes	Wet Differential Pressure Transmitter
PWT-BV	—	—	—	Bypass Valve Manifold

Gauge Pressure Sensors



Output: 4-20 mA, 2-wire

Operating, Storage, and Compensated Temperature Range:
-40 F to +257 F (-40 C to 125 C)

Electrical Termination: Cable (3 meter)

Supply Voltage: 9.5Vdc to 30Vdc

The 50035430 Series is a two-wire 4-20mA gauge pressure sensor. This digitally compensated sensor offers an unparalleled value and performance combination, making it the ideal pressure sensing solution for demanding applications. The 50035430 series is available in pressure ranges up to 1000 psi.

- Available in 50, 150, 300, 500 and 1000 psi.
- All metal wetted parts for use in wide variety of fluid applications.
- Suitable for use with freon and ammonia based cooling systems.
- No internal elastomeric seals mean no o-ring compatibility issues.
- Less than 2 ms response time provides accurate, high speed measurement.
- Select models available with 1/4-in. SAE female Schrader connection with valve depressor.

Materials (Housing): Black plastic, Amodel AS-4133 HS-PPA

Materials in contact with media: SST 304L and Haynes 214 alloy

Approvals:

CE: CE

Product Number	Accuracy	Pressure Ranges (psi)	Burst Pressure	Proof Pressure	Connection Size
50035430-050	± 0.50% FSS	50 psig	10X Working Pressure Range	3X Working Pressure Range	1/4 in.-18 NPT
50035430-150	±0.25% FSS	150 psig	10X Working Pressure Range	3X Working Pressure Range	1/4 in.-18 NPT
50035430-300	±0.25% FSS	300 psig	10X Working Pressure Range	3X Working Pressure Range	1/4 in.-18 NPT
50035430-500	±0.25% FSS	500 psig	10X Working Pressure Range	3X Working Pressure Range	1/4 in. SAE female Schrader
50035430-01K	±0.25% FSS	1000 psig	10X Working Pressure Range	2X Working Pressure Range	1/4 in. SAE female Schrader

Temperature Sensors

C7031 Electronic Temperature Sensors



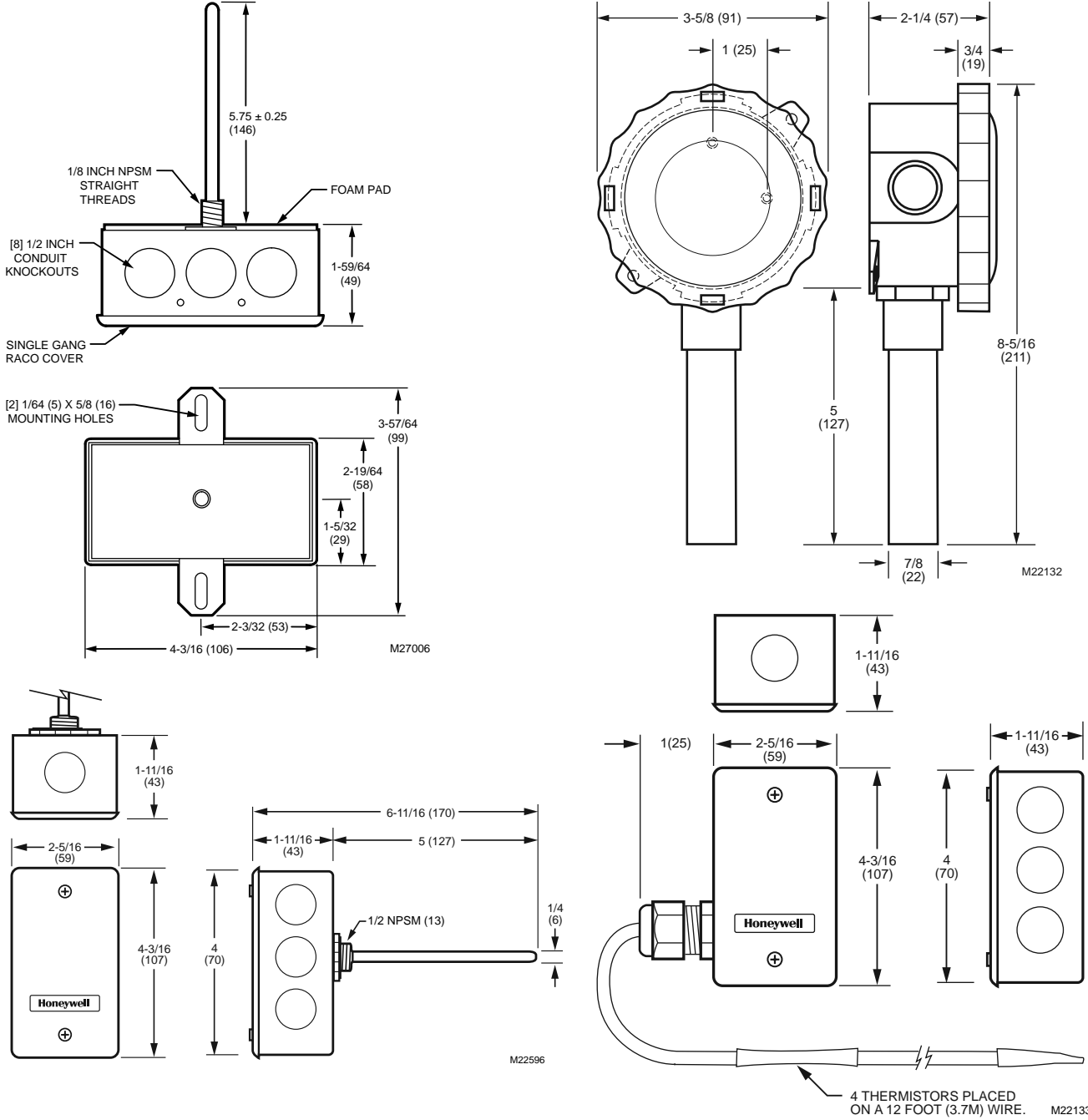
Electronic temperature sensors used with DDC Systems.
 • Solid state thermistor element provides accurate sensing of temperature changes.

Maximum Ambient Temperature: 250 F (121 C)
Shipping Temperature Range: -30 F to +160 F (-34 C to +71 C)

Product Number	Application	Sensor Type	Operating Temperature Range		Insertion Length		Includes	Used With
			(F)	(C)	(inch)	(mm)		
C7031B2005	Duct Discharge	1097 K ohm PTC @ 77 F	-40 F to +250 F	-40 C to +121 C	6 in.	152 mm	—	Excel 10, 50, 80, 100, 500, T775 Series 2000
C7031D2003	Hot or chilled water	PT1000, 1097 ohms @ 77 F	40 F to 240 F	4 C to 116 C	5 in.	127 mm	Well	Excel 500, T775 Series 2000
C7031G2006	Outside air temperature	1715 @ 90F NTC	-40 F to +120 F	-40 C to +49 C	—	—	—	W7100 (outdoor reset)
C7031G2014	Outside air temperature	PT3000, 3484 ohms @ 77 F	-40 F to +120 F	-40 C to +49 C	—	—	—	T7350
C7031J2009	Duct Discharge	PT1000, 1097 ohms @ 77 F PTC	40 F to 180 F	4 C to 82 C	144 in.	3658 mm	—	Excel 500, T775 Series 2000

Temperature Sensors

Dimensions in inches (millimeters)



C7031 Accessories

Application: Temperature Sensor Part or Accessory

Product Number	Description	Application
32005960-001	Immersion well for C7031D Series 2 models only	Temperature Sensor Part or Accessory

C7031 Replacement Parts

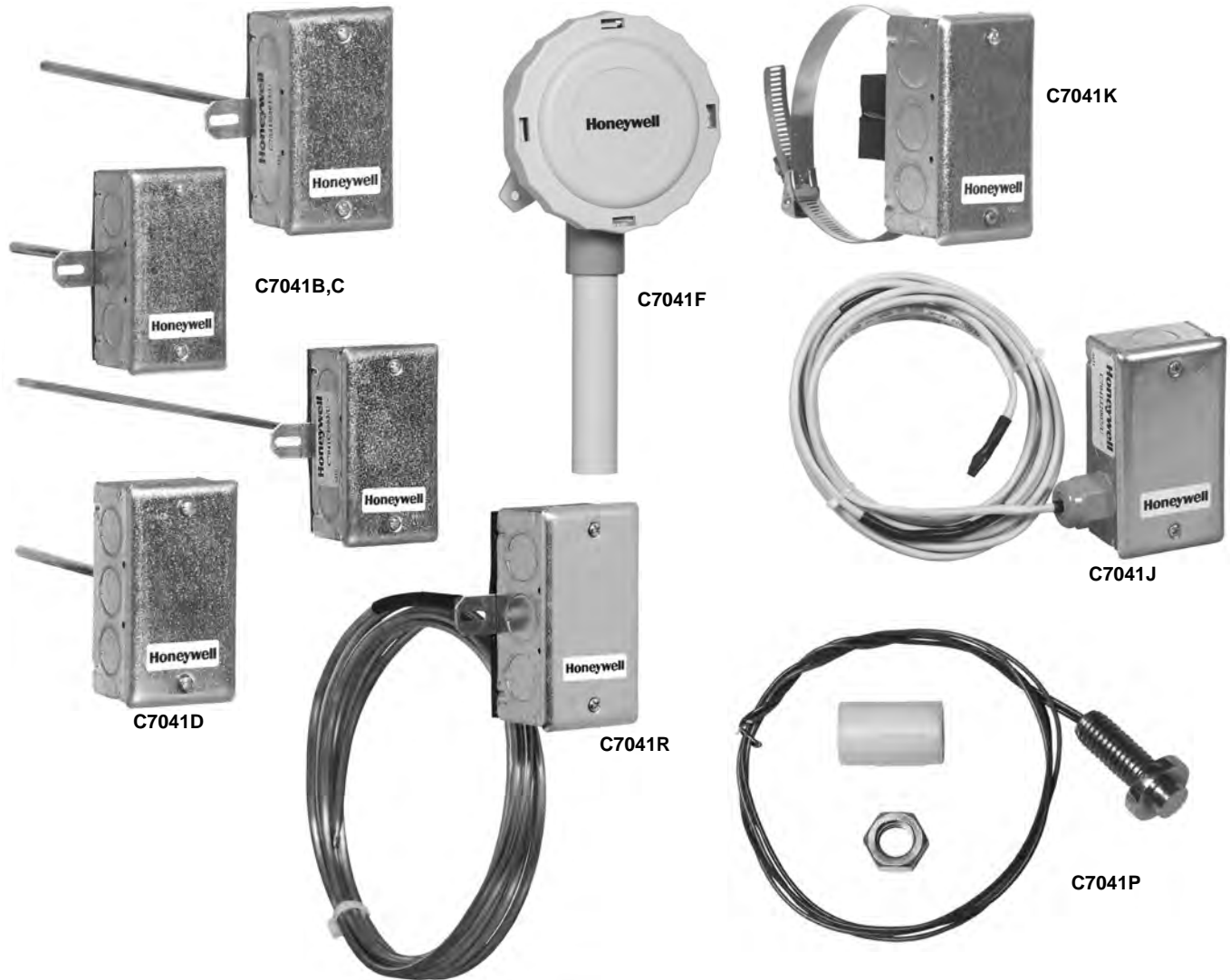
Application: Temperature Sensor Part or Accessory

Product Number	Description	Application
32006523-001'	Temperature probe for C7031D1062	Temperature Sensor Part or Accessory

Commercial Components

Temperature Sensors

C7041 20K ohm NTC Temperature Sensors



The C7041 Electronic Temperature Sensors are designed to be used with electronic controllers in domestic or commercial heating and cooling systems.

- The C7041 series of electronic temperature sensors are designed for use with the Excel 10, Excel 15, or any controller requiring a 20K ohm NTC non-linearized sensor input.
- Various models are available for sensing duct air temperature, averaging air temperature, water temperature, outdoor air temperature, or water pipe temperature.
- All devices consist of a temperature sensitive element and leadwires enclosed for protection from physical damage.
- Sensor element enclosures are made of various lengths and configurations for the specific applications.
- All devices have a wiring box housing to enclose the field wiring connections. C7041F outdoor sensor design, made of aluminum and stainless steel, is waterproof, and includes a sunshield.

Application: Duct Discharge

Sensor Type: 20 K ohm NTC @ 77 F

Maximum Ambient Temperature: 302 F (150 C)

Operating Temperature Range: -40 F to +250 F (-40 C to +121 C)

Shipping Temperature Range: -30 F to +160 F (-34 C to +71 C)

Used With: Excel 10, 50, 80, 100, 500

Accessories:

50001774-001 5 inch Stainless Steel Immersion Well for Use with C7041D2001

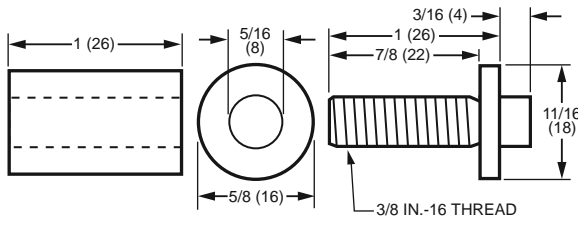
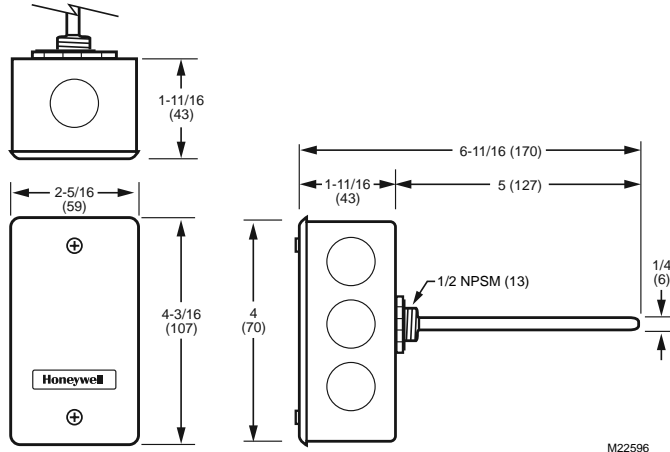
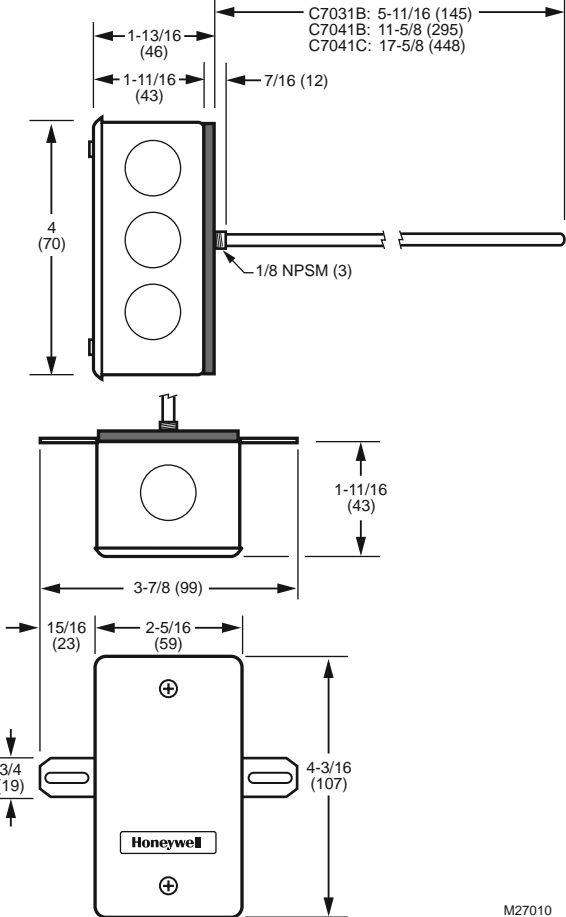
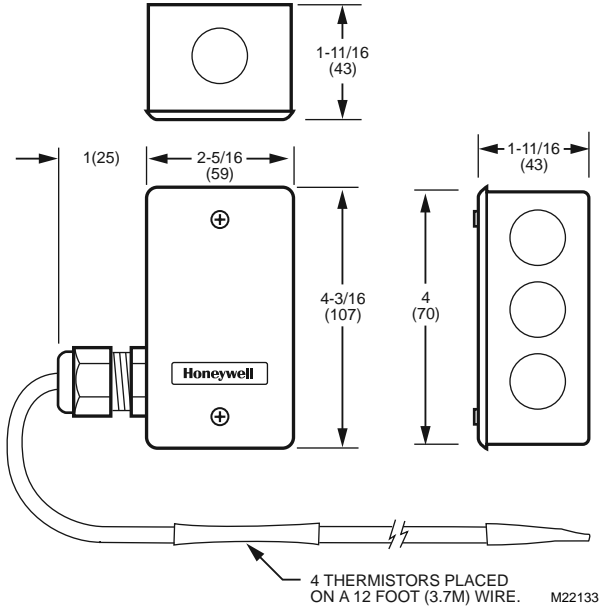
50001775-001 Immersion well adaptor, to adapt new C7041D2001 to fit into old brass 32005960-001 well used with old C7031D1062 and C7041D1003

Product Number	Insertion Length		Application
	(inch)	(mm)	
C7041B2005	6 in.	152 mm	Duct Discharge
C7041B2013	12 in.	305 mm	Duct Discharge
C7041C2003	18 in.	457 mm	Duct Discharge
C7041D2001	5 in.	127 mm	Immersion sensor for hot or chilled water, purchase well 50001774-001 separately
C7041F2006	—	—	Outside air temperature

Temperature Sensors

Product Number	Insertion Length		Application
	(inch)	(mm)	
C7041J2007	12 ft.	3.66 m	Duct discharge air (averaging)
C7041K2005	—	—	Hot or chilled water (strap on)
C7041P2004	—	—	Temperature sensor
C7041R2000	12 ft.	3.66 m	Duct discharge air (averaging)
C7041R2018	24 ft.	7.3 m	Duct discharge air (averaging)

Dimensions in inches (millimeters)

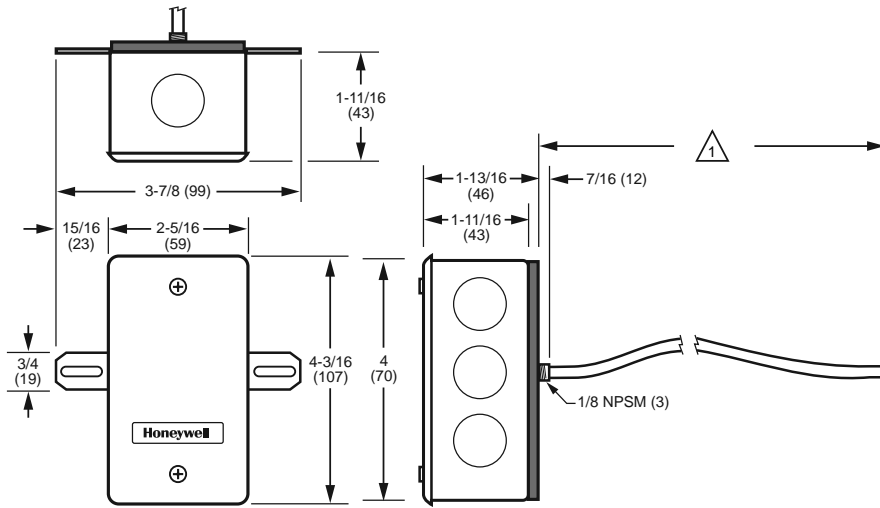
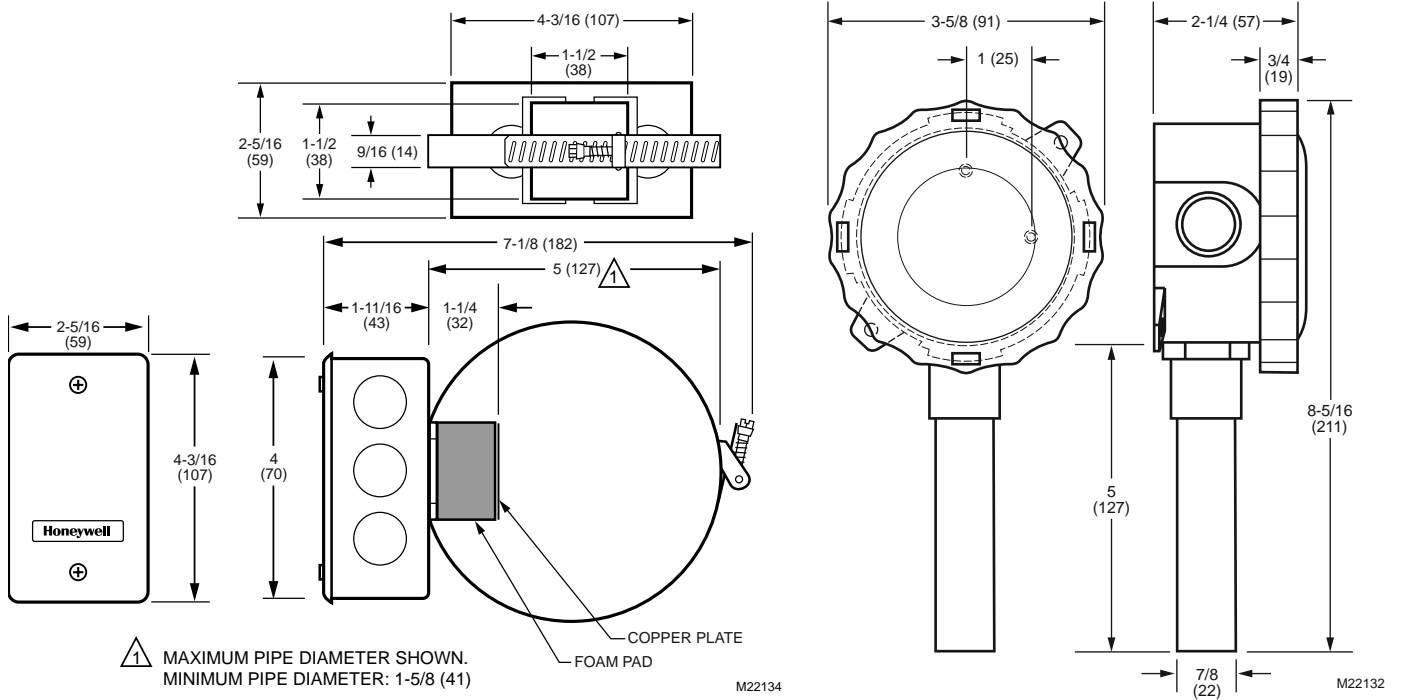


SPACER SENSOR

M22821

Commercial
Components

Temperature Sensors



C7041 Temperature Sensor Accessories

Product Number	Description	Used With
50001774-001	5 inch immersion well	C7031D2003 and C7041D2001 only C7031D2000, C7041D2000 only
50001775-001	Immersion well adaptor	C7031D2000, C7041D2000 series to thread into old 32005960-001

C7046 Discharge Air Temperature Sensors



Air Temperature Sensors function as primary and/or secondary sensors in electronic control systems.

- No settings or calibration required.
- Solid state components not affected by dust or dirt.
- Fast reacting.
- Rugged aluminum insertion probe.
- Mounts on duct or plenum surface with integral mounting flange, or in a 2 x 4 in. junction box.

Application: Primary and/or secondary sensors in electronic control systems

Maximum Ambient Temperature: 250 F (121 C)

Operating Temperature Range: 40 F to 150 F (4 C to 66 C)

Shipping Temperature Range: -30 F to +160 F (-34 C to +71 C)

Mounting: Mounts on flat duct or plenum surface with integral mounting flange or in a 2 in. x 4 in. (51 mm x 102 mm) junction box.

Includes: 6 in. leadwires

Comments: Quick response time. Sensor probe diameter is 1/4 in. (6 mm). 6 in. leadwires.

Product Number	Sensor Type	Insertion Length		Dimensions, Approximate		Used With
		(inch)	(mm)	(inch)	(mm)	
C7046A1004	3K ohm @ 77 F NTC	8 in.	203 mm	1 in. high x 2 in. wide x 9 in. deep	25 mm high x 51 mm wide x 229 mm deep	W973, W6210, W6215, W7210, W7215, W7459, W7460
C7046A1038	3K ohm @ 77 F NTC	12 in.	305 mm	1 in. high x 2 in. wide x 13 in. deep	25 mm high x 51 mm wide x 330 mm deep	W973, W6210, W6215, W7210, W7215, W7459, W7460
C7046B1010	22.8 K ohm NTC @ 77 F	6 in.	152 mm	1 in. high x 2 in. wide x 7 in. deep	25 mm high x 51 mm wide x 178 mm deep	W7080
C7046C1000	3K ohm @ 77 F NTC	8 in.	203 mm	1 in. high x 2 in. wide x 9 in. deep	25 mm high x 51 mm wide x 229 mm deep	W973
C7046D1008	1097 ohm @ 77 F PTC	8 in.	203 mm	1 in. high x 2 in. wide x 9 in. deep	25 mm high x 51 mm wide x 229 mm deep	Excel 600, Excel 500, Excel 100, Excel 80, and T775 Series 2000

C7100 Averaging Duct Temperature Sensors



Averaging Duct Temperature Sensors are used to sense temperature in discharge duct.

- Use to troubleshoot system operation.
- Platinum positive temperature coefficient sensor.
- Factory calibrated; no settings or field calibration required.

Application: Averaging Duct Temperature Sensors

Dimensions, Approximate: 1 13/16 in. high x 1 13/16 in. wide x 13 1/4 in. deep (46 mm high x 46 mm wide x 336 mm deep)

Maximum Ambient Temperature: 250 F (121 C)

Product Number	Sensor Type	Operating Temperature Range		Insertion Length		Description	Used With
		(F)	(C)	(inch)	(mm)		
C7100A1015	PT3000, 3484 ohms @ 77 F PTC	40 F to 220 F	4 C to 104 C	13 in.	330 mm	PT3000 Platinum Averaging Discharge Air Sensor	W7100, W8900
C7100B1013	22.8 K ohm @ 77 F NTC	40 F to 150 F	4 C to 64 C	13 in.	330 mm	22.8 K ohm Averaging Air Sensor	W7080
C7100C1003	PT3000, 3484 ohms @ 25C PTC	40 F to 220 F	4 C to 104 C	13 in.	330 mm	PT3000 Platinum Averaging Discharge Air Sensor	T775
C7100D1001	PT1000, 1097 ohms @ 77 F PTC	40 F to 220 F	4 C to 104 C	13 in.	330 mm	PT1000 Platinum Averaging Discharge Air Sensor	Excel 500, T775 Series 2000

Temperature Sensors

C7130 Wall Mount Temperature Sensor



The C7130A,B Wall-Mount Air Temperature Sensors provide the input required by the R7380J,L, W7100, W7600, W7620, and Excel 500 Control Systems to sense air temperature in indoor spaces.

- C7130A Wall-mount Temperature Sensor:
 - Intended for use as an indoor air sensor with the R7380J,L Indicating Controller, the W7100 Discharge Controller, the W7600 Direct Digital Controller, and the W7620 Direct Digital Controller.
- C7130B Wall-mount Temperature Sensor:
 - Intended for use as an indoor air sensor with the Excel 500 Controller.

Application: Intended for monitoring or controlling temperature in conjunction with an electronic control

Dimensions, Approximate: 2 13/16 in. high x 4 5/8 in. wide (71.4mm high x 118 mm wide)

Maximum Ambient Temperature: 150 F (66 C)

Operating Temperature Range: -40 F to +100 F (-40 C to +38 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Mounting: Wall mount

Used With: R7380J,L, W7100, W7600, W7620

Product Number	Sensor Type	Used With
C7130A1001	PT3000, 3484 ohms @ 77 F PTC	R7380J,L, W7100, W7600, W7620
C7130B1009	PT1000, 1097 ohms @ 77 F PTC	Excel 500, T775 Series 2000

C7170 Immersion Sensor



Primary electronic temperature sensor for the R7380J,L, W7100 and W7505 load inputs for immersion, strap-on and duct mounting.

- Requires no setting or calibration.
- Sensor can be located up to 1195 ft. (340 m) from controller.
- Pigtail leads.

Application: Intended for monitoring or controlling temperature in conjunction with an electronic control

Dimensions, Approximate: 3/8 in. dia. x 2 5/8 in. long (10 mm dia. x 66 mm long)

Operating Temperature Range: -40 F to +250 F (-40 C to +125 C)

Shipping Temperature Range: -40 F to +302 F (-40 C to +150 C)

Operating Humidity Range (% RH): 90% RH at 90 F, non-condensing

Mounting: Immersion or strap-on discharge

Comments: Use immersion well 121371A copper or 121371E steel. 24 in. pigtail leads

Product Number	Sensor Type	Insertion Length		Description	Used With
		(inch)	(mm)		
C7170A1002	PT3000, 3484 ohms @ 77 F PTC	3 in.	76 mm	PT 3000 Temperature Sensor with 24 in. leads	R7380J,L, W7100, W7600, W7620
C7170A1010	PT3000, 3484 ohms @ 77 F PTC	3 in.	76 mm	PT 3000 Temperature Sensor with 180 in. leads	R7380J,L, W7100, W7600, W7620
C7170B1000	PT1000, 1097 ohms @ 77 F PTC	3 in.	76 mm	PT 1000 Temperature Sensor	Excel 500, T775 Series 2000

C7750 Duct Probe



The C7750A is a direct wired temperature sensor that is used to sense discharge or return air in a duct that may be controlled by an

Application: Primary and/or secondary sensors in electronic control systems

Dimensions, Approximate: 1 in. high x 2 in. wide x 7 in. deep (25 mm high x 51 mm wide x 177 mm deep)

Operating Temperature Range: 45 F to 99 F (7 C to 37 C)

Excel 10 Controller. The C7750A Sensor consists of a temperature sensitive 20K ohm thermistor that is connected on a circuit board to two linearizing resistors in series-parallel configuration.

- A primary and/or secondary sensor for use with electronic control systems.
- Designed with an integral linearized 20K ohm thermistor.
- Operating range of 45 to 99 F (7.2 to 37.2 C).
- Intended for mounting on a flat duct or plenum surface or (for a plenum-rated application) in a standard utility conduit box.
- Probe length of 6-1/2 in. (165 mm) and a nominal sensor resistance of 8000 ohms at 77 F (25 C).
- Rugged aluminum insertion probe.

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Mounting: Mounts on flat duct or plenum surface with integral mounting flange or in a 2 in. x 4 in. (51 mm x 102 mm) junction box.

Used With: XL10, W7751

Product Number	Sensor Type	Insertion Length		Description
		(inch)	(mm)	
C7750A3006	20 K ohm NTC linear	6 in.	152 mm	20 K ohm NTC linear Temperature Sensor, used with Excel 10, Series 1000 only

C7770A Duct Probe



Application: Primary and/or secondary sensors in electronic control systems

Dimensions, Approximate: 1 in. high x 2 in. wide x 7 in. deep (25 mm high x 51 mm wide x 177 mm deep)

Operating Temperature Range: 45 F to 99 F (7 C to 37 C)

Direct wired temperature sensor used to sense discharge or return air temperature in a duct controlled by an Excel 10 Series 2000 Controller.

- Primary and/or secondary sensor for use with electronic control systems.
- Integral 20 K ohm non-linear NTC thermistor.
- Rugged aluminum insertion probe.

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Mounting: Mounts on flat duct or plenum surface with integral mounting flange or in a 2 in. x 4 in. (51 mm x 102 mm) junction box.

Used With: XL10, W7751

Product Number	Sensor Type	Insertion Length		Description	Comments
		(inch)	(mm)		
C7770A1006	20 K ohm NTC non-linear	6 in.	152 mm	6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor	—
C7770A1040	20 K ohm NTC non-linear	6 in.	152 mm	6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor	6 foot plenum rated cable

Temperature Sensors

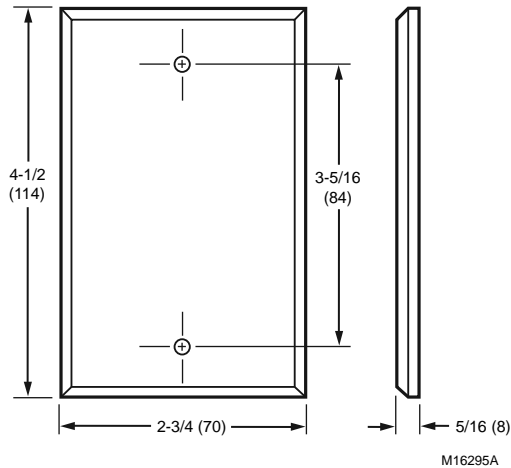
C7772 Flush Mount Sensors



The C7772 series of wallplate Temperature Sensors are designed to be used with the Excel 5000 family and other Honeywell controllers. The C7772 sensors provide a resistive output signal proportional to sensed room or space temperature. The C7772 is well suited for low profile wall mounted applications where durability and tamper proof construction is desired, such as schools, prisons, and institutions.

- Low profile when mounted on industry standard utility conduit box.
- Rugged, brushed stainless steel wallplate.
- Integral foam pad isolates wallplate sensor from conduit box.
- Insulated screw terminals ensure reliable field wiring connection.
- Models available with a variety of resistive temperature sensor elements.

Dimensions in inches (millimeters)



Application: Low profile wall mounted where durability and tamper proof construction is desired

Dimensions, Approximate: 4 1/2 in. high x 2 3/4 in. wide (114 mm high x 70 mm wide)

Operating Temperature Range: 45 F to 99 F (7 C to 37 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Mounting: Wall mount

Used With: Excel 5000 family

Product Number	Sensor Type	Description	Comments
C7772A1004	20 K ohm NTC non-linear	20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo	—
C7772A1012	20 K ohm NTC non-linear	20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo	with Honeywell logo, looks very professional and facilitates finding sensor after installation

T7022A Return Air Temperature Sensor



The T7022 Remote Temperature Sensor is a non-adjustable thermistor sensor. Its primary use is with the T7300 Programmable Commercial Thermostat (only in return air) to control heating or cooling equipment.

Application: Remote Temperature Sensors for use with T7300 thermostats

Operating Temperature Range: 60 F to 90 F (16 C to 32 C)

Used With: T7300, T7067B, W927

Dimensions, Approximate: 3/8 in. dia. x 2 3/4 in. long (10 mm dia. x 70 mm long)

Product Number	Sensor Type	Insertion Length		Application
		(inch)	(mm)	
T7022A1010	1420 ohms @ 75 F	2 3/4 in.	70 mm	Remote Temperature Sensors for use with T7300 thermostats

Temperature Sensors

T7047 Remote Temperature Sensors for use with T7300 Thermostats



The T7047 Electronic Thermostats, Remote Space Sensors are used with T7300 thermostats and W973 controller to provide modulating space temperature control.

- T7047C is a 2-wire remote space sensor for applications requiring remote setpoint adjustment.
- T7047G is a 2-wire remote space sensor used as one half of an averaging sensor network.
- T7047C,G contain a carbon type negative temperature coefficient (NTC) thermistor sensing element.
- T7047H is a thin-film, platinum 1K (at 0 C), positive temperature coefficient (PTC) temperature sensor only and is for use with the Excel 80/100/500/600 Controllers.
- Locking cover.

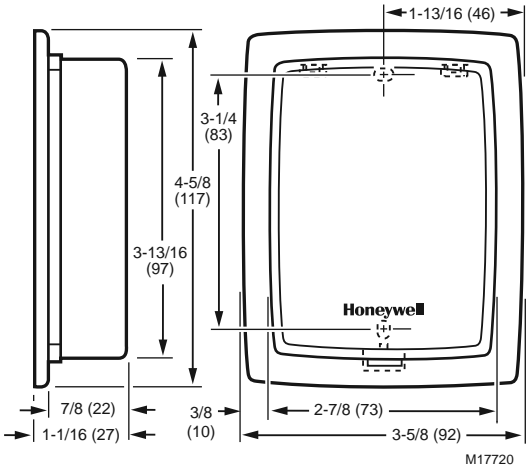
Application: Used in Series 70 control systems to provide modulating space temperature control

Operating Temperature Range: 40 F to 110 F (4 C to 43 C)

Mounting: Mounts on wall or 2 x 4 inch vertical outlet box

Product Number	Sensor Type	Color	Comments	Used With
T7047C2007	1420 ohms @ 75 F	Taupe	Series 2000 styling	T7300/Q7300
T7047C2015	1420 ohms @ 75 F	Premier White®	Series 2000 styling	T7300/Q7300
T7047G1000	710 ohm @ 75F	Beige	Series 1000 styling, for averaging only	T7300/Q7300, S963B, T7067B, T7080B
T7047G1018	710 ohm @ 75F	Premier White®	Series 1000 styling, for averaging only	Premier White T7300, Light Gray Q7300
T7047G2008	710 ohm @ 75F	Taupe	Series 2000 styling, for averaging only.	T7300/Q7300
T7047G2016	710 ohm @ 75F	Premier White®	Series 2000 styling, for averaging only.	T7300/Q7300

Dimensions in inches (millimeters)



T7047 Accessories

Product Number	Description	Application
190389A	Cover assembly for T7047A,B, series 1000 styling	Temperature Sensor Part or Accessory

Commercial Components

Temperature Sensors

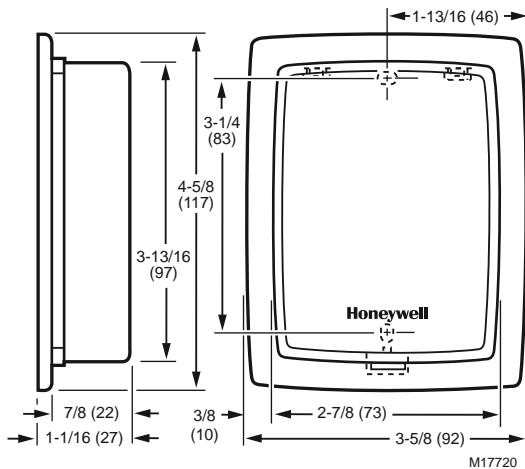
T7147 Remote Temperature Sensors for use with T7300 Thermostats



For use with T7300/Q7300 Thermostat system to provide space temperature sensing, and switch initiation and indication of overrides from remote location.

- Factory-calibrated negative temperature coefficient (NTC) thermistor sensing element.
- Mount on wall or 2 x 4 in. vertical outlet box.
- Locking cover.
- Override button.
- Warmer/cooler buttons on some models.
- 710 ohm models are for use with certain multiple sensor configurations.
- See T7300 product literature for details.

Dimensions in inches (millimeters)



Application: Provides space temperature sensing, switch initiation, and indication of overrides from a remote location

Dimensions, Approximate: 4 5/8 in. high x 3 5/8 in. wide x 1 5/8 in. deep (117 mm high x 92 mm wide x 41 mm deep)

Operating Temperature Range: 40 F to 110 F (4 C to 43 C)

Shipping Temperature Range: -30 F to +150 F (-34 C to +66 C)

Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Mounting: Mounts on wall or 2 x 4 inch vertical outlet box

Used With: T7300/Q7300

Product Number	Sensor Type	Color	Comments
T7147A2000	1420 ohms @ 75 F	Taupe	Series 2000 styling with override button
T7147A2018	1420 ohms @ 75 F	Taupe	Series 2000 styling with override button, warmer and cooler buttons
T7147G2015	710 ohm @ 75F	Taupe	Series 2000 styling, with override button, for averaging only.
T7147G2023	710 ohm @ 75F	Taupe	Series 2000 styling, with override button, warmer and cooler buttons, for averaging only.

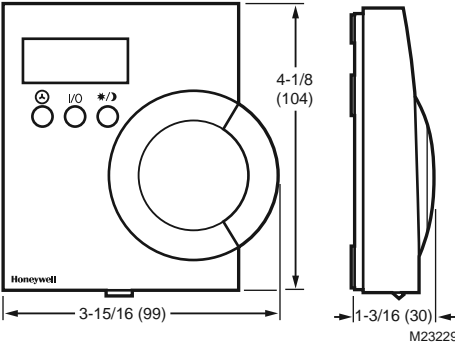
T7560 Digital Wall Modules



The T7560 Digital Wall Module is a direct wired wall module for use with Excel 600, 500, 100, and Excel 10 Series 2000 controllers. Includes setpoint wheel, override buttons, and LCD display for temperature, setpoint, fan status, and/or humidity

- 2 models configurable to cover all applications.
- T7560B has Humidity sensor.
- Intuitive and easy to operate.

Dimensions in inches (millimeters)



Application: Networked Sensor
Sensor Type: 20 K ohm NTC
Operating Temperature Range: 32 F to 104 F (0 C to 40 C)
Shipping Temperature Range: -40 F to +140 F (-40 C to +60 C)
Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Approvals:
CE: Approved
N.E.C. Class II
Underwriters Laboratories, Inc. Listed: per Standard 916

Product Number	Setpoint Temperature Range		Color	Comments	Includes	Used With
	(F)	(C)				
T7560A1018	55 F to 85 F	12 C to 30 C	—	—	Setpoint Wheel, Unoccupied/Occupied override, and LCD display for temperature, setpoint and fan status	Excel 10, 100, 500, 600 Controllers; Excel 600, 500, 100 and Excel 10, 15 Series Controllers
T7560A1042	55 F to 85 F	12 C to 30 C	White with white knob	Same as T7560A1018 except with white knob and push buttons	Setpoint Wheel, Unoccupied/Occupied override, and LCD display for temperature, setpoint and fan status	Excel 10, 100, 500, 600 Controllers
T7560B1016	55 F to 85 F	12 C to 30 C	—	—	Humidity sensor, Setpoint Wheel, Unoccupied/Occupied override, and LCD display for temperature, setpoint, fan status and humidity	Excel 10, 100, 500, 600 Controllers
T7560B1032	55 F to 85 F	12 C to 30 C	White with white knob	Same as T7560B1016 except with white knob and push buttons	Humidity sensor, Setpoint Wheel, Unoccupied/Occupied override, and LCD display for temperature, setpoint, fan status and humidity	Excel 10, 100, 500, 600 Controllers
T7560LONJACK	—	—	—	Lon Jack for T7560	—	T7560A, B

Commercial Components

Temperature Sensors

T775 Series 2000 Sensors



The T775 temperature sensors are 1097 Ohm sensors for use with the T775 Series 2000 electronic standalone controller in commercial heating and cooling applications.

- Use the T775-SENS-OAT to measure outside air temperature.
- Some typical applications for the 50021579-001 and T775-SENSWT/WR sensors include:
 - Monitoring return air temperatures
 - Monitoring discharge air temperatures
 - Monitoring mixed air temperatures
- All sensors:
 - Fast response time and highly accurate
 - 1/2 in. (6.35 mm) stainless steel probe with a thermally conductive epoxy
- 1,097 Ohms PTC at 77°F (25C)
- The 50021579-001 is a standard temperature sensor for indoor applications
- The T775-SENS-WR is a water resistant sensor with 5 ft leads
- The T775-SENS-WT is a water tight sensor with 6 ft leads
- The T775-SENS-OAT is for sensing outdoor air temperature and is housed in a weatherproof case for outdoor use (knockouts allow for 1/2 in. conduit connection)
- Two year warranty

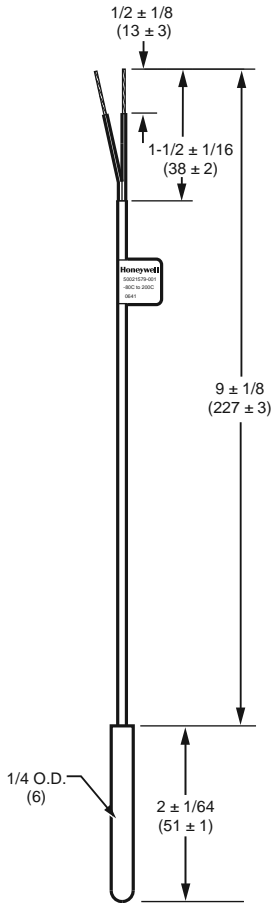
Application: For indoor use in applications such as monitoring return air, discharge air, and mixed air temperatures

Used With: T775 Series 2000

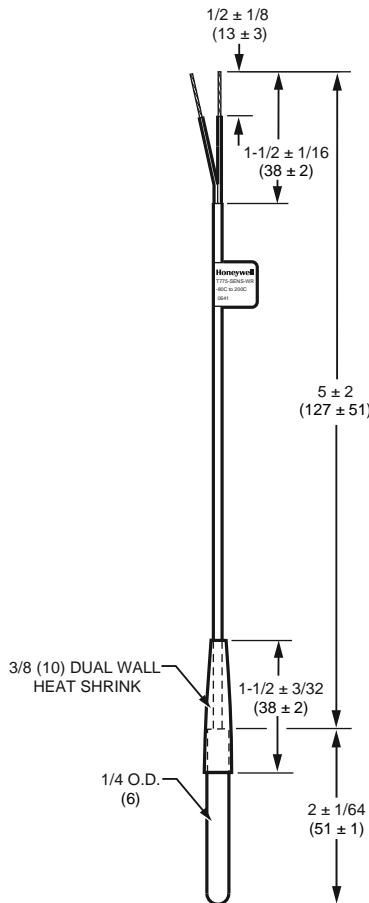
Product Number	Application	Sensor Type	Operating Temperature Range		Description
			(F)	(C)	
50021579-001	For indoor use in applications such as monitoring return air, discharge air, and mixed air temperatures	1097 ohm @ 77 F PTC	-40 F to 270 F	-40 C to 132 C	Standard Temperature Sensor for the T775 Series 2000
T775-SENS-OAT	Outside air temperature	PT1000, 1097 ohms @ 77 F PTC	-40 F to 158 F	-40 C to 70 C	1097 ohm Outdoor Air Temperature Sensor
T775-SENS-STRAP	Hot or chilled water (strap on)	PT1000, 1097 ohms @ 77 F PTC	-40 F to +250 F	-40 C to +121 C	Strap-on Sensor for Hot or Chilled Water
T775-SENS-WR	For use in applications such as monitoring return air, discharge air, and mixed air temperatures	PT1000, 1097 ohms @ 77 F PTC	-40 F to 270 F	-40 C to 132 C	Water-resistant Sensor for T775 Series 2000.
T775-SENS-WT	For use in applications such as monitoring return air, discharge air, and mixed air temperatures	PT1000, 1097 ohms @ 77 F PTC	-40 F to 270 F	-40 C to 132 C	Water-tight Sensor for T775 Series 2000

Temperature Sensors

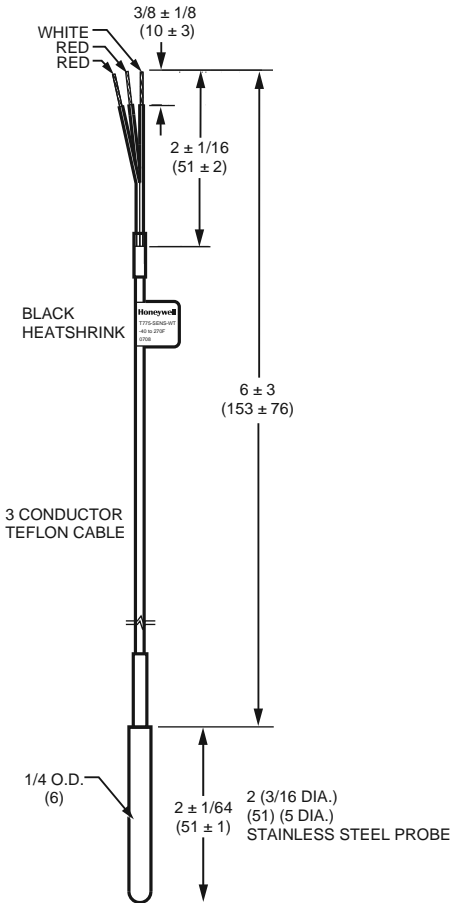
Dimensions in inches (millimeters)



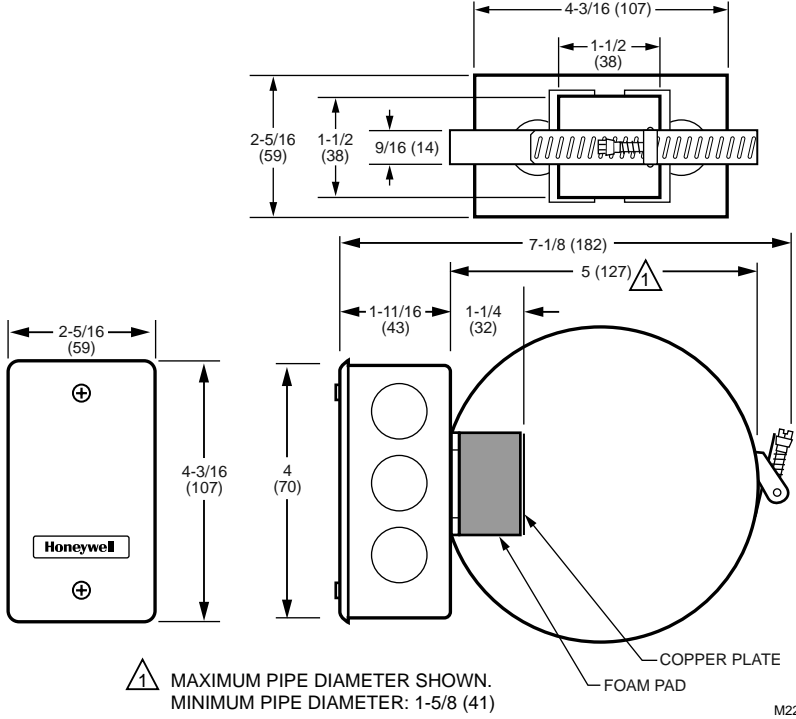
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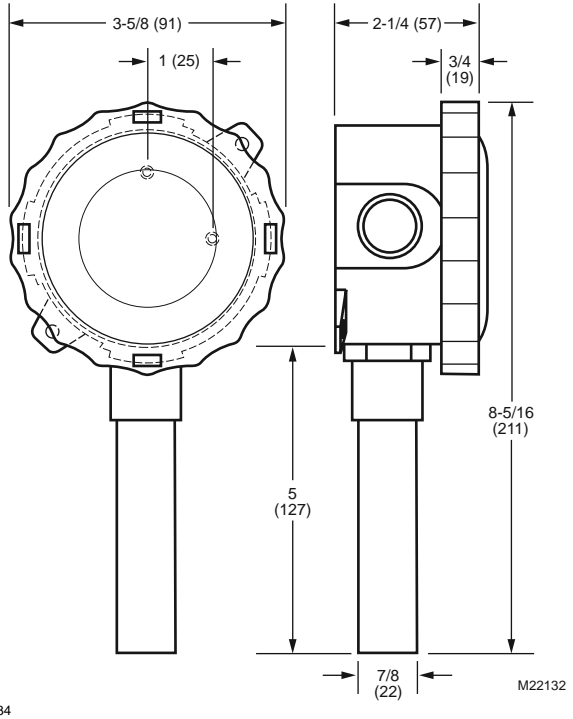
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Commercial Components

Temperature Sensors

T7750 Wall Modules



Temperature sensors for use with Excel 10 Series 1000 Controllers. The T7750 Wall Modules provide the following additional combination of options to the customer: analog setpoint input and for models used with Excel 10 Controllers, override (bypass) digital input contact, LED status indicator and network access jack.

- Integral linearized 20K ohm NTC thermistor.
- Vertical Mounting.
- Models available with setpoint adjustment.
- Models available with occupied/unoccupied override.
- For use only as replacement of existing T7750's.
- Not for new installations.
- All new Honeywell controllers now use T7770 Wall Modules.

Application: Wall Modules

Dimensions, Approximate: 5 1/32 in. high x 3 5/32 in. wide x 1 19/32 in. deep (128 mm high x 80 mm wide x 41 mm deep)

Setpoint Temperature Range: 55 F to 85 F (12 C to 30 C)

Operating Temperature Range: 45 F to 99 F (7 C to 37 C)

Mounting: Wall mount

Product Number	Setpoint Temperature Range		Comments	Used With
	(F)	(C)		
T7750A1000	55 F to 85 F	12 C to 30 C	—	W7751
T7750B1008	55 F to 85 F	12 C to 30 C	Has optional setpoint	W7751 or XL600, 500, 100, 80, 20
T7750C1006	55 F to 85 F	12 C to 30 C	Has optional setpoint, override, and override LED	W7751
T7750D1004	55 F to 85 F	12 C to 30 C	Has override, and override LED	W7751

T7771 Wall Module



The T7771A Remote Temperature Sensors are direct wired wall modules for use with the Honeywell T7350 Commercial Programmable Thermostat. The T7771A has a space temperature sensor, LED push button setpoint adjustment, and override with LED.

- Push button setpoint adjustment with LED indicators.
- Occupied/unoccupied override (bypass) with LED.
- LONWORKS® bus jack.
- Operating range 45 to 99 F (7 to 37 C).

Application: Remote Room Temperature Sensor for use with T7350 thermostat

Dimensions, Approximate: 5 1/32 in. high x 3 5/32 in. wide x 1 in. deep (128 mm high x 80 mm wide x 25 mm deep)

Operating Temperature Range: 45 F to 99 F (7 C to 37 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Mounting: Mounted on a standard 2 x 4 inch junction box or on a 60 mm diameter junction box.

Comments: Can be configured to output 10K ohms for use in multiple sensor averaging with T7770A.

Used With: T7350

Approvals:

N.E.C. Class II

Product Number	Sensor Type	Setpoint Temperature Range		Color	Network Jack
		(F)	(C)		
T7771A1005	20 K ohm NTC non-linear	offset ± 3F	offset ± 1.67C	White	LonWorks Bus

TR20 Series Wall Modules



TR21, TR24



TR22, TR23

The TR21, TR22, TR23, and TR24 are a family of direct wired wall modules for use with Honeywell Excel 600, 500, 100, and 80 controllers; Excel 10 W7750, W7751A, W7752, and W7753 controllers; W7761 Controller; and Spyder Unitary Controllers. All models have a space temperature sensor.

- Models available with user selectable setpoint adjustment dials in Fahrenheit, Celsius and Relative Scales
- Models available with occupied/unoccupied override (bypass) with LED
- Models available with 3-position (auto/0/1) or 5-position (auto/0/1/2/3 speed) fan switch
- LONWORKS network jack on all models except the TR21 and TR21-A models
- Models available with on board humidity sensor, humidity output: 0-10Vdc, 0-5 Vdc, 4-20ma selectable

Application: Networked Sensor
Operating Temperature Range: 45 F to 99 F (7 C to 37 C)
Shipping Temperature Range: -40 F to +150 F (-40 C to +65 C)
Operating Humidity Range (% RH): 5 to 95% RH, non-condensing
Color: White
Mounting: Mounted on a standard 2 x 4 inch junction box or on a 60 mm diameter junction box.
Comments: Also used with the T7350 and TB8220 Thermostats

Used With: Spyder, Excel 600, 500, 100, 80 and Excel 10, 15 Series Controllers

Approvals:
CE: Approved
Federal Communications Commission: FCC Part 15, Class B
Underwriters Laboratories, Inc. UL94 plastic enclosure

Model Number		Sensor Element Type	Sensor Type		Selectable Setpoint Adjustment 55° to 85°F, 13° to 30°C, Or (- to +)	Override Button with LED	LON Jack	Fan Switching	Comments
Honeywell Wall Module Model	Replaces Honeywell Model		20K ohm NTC Temp	Humidity					
TR21	T7770A1006	20K ohms non-linear	✓						
TR21-A	T7770A3002	10K ohms non-linear for averaging only	✓						
TR21-H	N/A	20K ohms non-linear	✓	✓					
TR21-J	T7770A2004		✓			✓			
TR22	T7770B1004 T7770B1020 T7770B1046		✓		✓		✓		
TR23	T7770C1002 T7770C1028 T7770C1044		✓		✓	✓	✓		
TR23-KL	N/A		✓		✓	✓	✓		Bulk pack of 20 Setpoint knob not included
TR23-H	N/A		✓	✓	✓	✓	✓		
TR23-H-KL	N/A		✓	✓	✓	✓	✓		Bulk pack of 20 Setpoint knob not included
TR23-N	T7770C1051		✓		✓	✓	✓		No Honeywell logo
TR24	T7770D1000		✓			✓	✓		
TR22-F5	N/A		✓		✓		✓	5 position	
TR23-F3	T7770E1023	✓		✓	✓	✓	3 position		
TR23-F5	T7770F1005	✓		✓	✓	✓	5 position		

Replacement Parts for the TR20 Series Wall Modules

Product Number	Color	Description	Comments	Used With
KNOB-C	White	Celsius Scale Knobs, (13 to 30C)	sold in packs of 20	TR20 Series Wall Modules
KNOB-F	White	Fahrenheit Scale Knobs (55F to 85F)	sold in packs of 20	TR20 Series Wall Modules
KNOB-O	White	Relative Scale Knobs (- to +)	sold in packs of 20	TR20 Series Wall Modules

Commercial Components

Temperature Sensors

TR20 Series Wireless Wall Sensor Kits



The WRECVR receiver and TR21-WS, TR23-WS, TR21-WK, and TR23-WK sensors are a family of wireless wall modules and receivers. All models report space temperature; TR23 models come with setpoint adjustment and override.

- Wall module to Receiver (point to point) wireless kits can replace any standard wired sensor
- Wireless Kits (wall module and receiver) are pre bound at the factory for quick installation
- Signal Strength LED built into the wall module
- Low battery indication
- Optional dip switches available to bind any wall module to any receiver
- Approximate 5 year battery life with AA Alkaline (included), 7.5 year with Lithium
- Locking screw discourages tampering and battery theft

Dimensions, Approximate:

Sensor: 4 11/16 in. high x 3 in. wide x 7/8 in. deep
 Receiver: 5 1/2 in. high x 3 13/64 in. wide x 2 13/64 in. deep
 (Sensor: 119 mm high x 77 mm wide x 22 mm deep
 Receiver: 140 mm high x 81 mm wide x 56 mm deep)

Operating Temperature Range: Sensor: 45 F to 99 F (7 C to 37 C)
 Receiver: -40 to +150 F (-40 to + 65.5 C)

Shipping Temperature Range: -40 F to +150 F (-40 to + 65.5 C)

Temperature Sensor Accuracy: ± 1 F across 53.6 F to 86 F
 ((± 0.5 C) across 12 C to 30 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Battery Life: 7.5 years with two AA Lithium Batteries;
 5 years with two AA Alkaline batteries (included)

Radio Frequency: 2.4 GHz (IEEE Std 802.15.4-2003 compliant)

Receiver Voltage: 20-30 Vac/dc, 50/60 Hz; 24 Vac typical

Open Range: 3000 feet

Typical Range: 100 feet

Comments: not compatible with TB7220, TB8220, TB line voltage thermostats, XL15s, W7762, W7763

Used With: Spyder, Excel 10 W7750, W7751, W7752, W7753, T7350, T7351, TB8575, WEBS-AX™ I/O Module

Approvals:

Federal Communications Commission: FCC Part 15

Underwriters Laboratories, Inc. UL94 plastic enclosure

Receiver: UL94-5VA

Product Number	Description	Setpoint Temperature Range		Additional Comments	Includes
		(F)	(C)		
TR21-WK	Wireless sensor kit, ships with both sensor and receiver	—	—	—	TR21-WS and WRECVR
TR21-WKU	Wireless sensor kit, ships with both sensor and receiver	—	—	no Honeywell logo	TR21-WSU and WRECVRU
TR23-WK	Wireless sensor kit, ships with both sensor and receiver	55 F to 85 F	13 C to 30 C	—	TR23-WS and WRECVR
TR23-WKU	Wireless sensor kit, ships with both sensor and receiver	55 F to 85 F	13 C to 30 C	no Honeywell logo	TR23-WSU and RECVRU

TR20 Series Wireless Wall Sensors



TR21



TR23

Dimensions, Approximate: 4 11/16 in. high x 3 in. wide x 7/8 in. deep (119 mm high x 77 mm wide x 22 mm deep)
Operating Temperature Range: 45 F to 99 F (7 C to 37 C)
Shipping Temperature Range: -40 F to +150 F (-40 to + 65.5 C)
Temperature Sensor Accuracy: ± 1 F across 53.6 F to 86 F (± 0.5 C) across 12 C to 30 C)
Operating Humidity Range (% RH): 5 to 95% RH, non-condensing
Mounting: Wall mount
Color: White
Battery Life: 7.5 years with two AA Lithium Batteries; 5 years with two AA Alkaline batteries (included)

TR21-WS and TR23-WS sensors are a family of wireless wall modules. All models report space temperature; TR23 models come with setpoint adjustment and override.

- Wall module to Receiver (point to point) wireless kits can replace any standard wired sensor
- Wireless Kits (wall module and receiver) are pre bound at the factory for quick installation
- Signal Strength LED built into the wall module
- Low battery indication
- Optional dip switches available to bind any wall module to any receiver
- Approximate 5 year battery life with AA Alkaline (included), 7.5 year with Lithium
- Locking screw discourages tampering and battery theft

Radio Frequency: 2.4 GHz (IEEE Std 802.15.4-2003 compliant)

Open Range: 3000 feet

Typical Range: 100 feet

Comments: not compatible with TB7220, TB8220, TB line voltage thermostats, XL15s, W7762, W7763

Used With: Spyder, Excel 10 W7750, W7751, W7752, W7753, T7350, T7351, TB8575, WEBs-AX™ I/O Module

Approvals:

Federal Communications Commission: FCC Part 15

Underwriters Laboratories, Inc. UL94 plastic enclosure

Product Number	Description	Setpoint Temperature Range		Includes
		(F)	(C)	
TR21-WS	TR21 wireless temperature sensor	—	—	—
TR21-WSU	TR21 Wireless Temp Sensor without Honeywell logo	—	—	—
TR23-WS	TR23 Wireless temperature sensor with Setpoint (F/C/Relative) and override button	55 F to 85 F	13 C to 30 C	Selectable Setpoint dials in Fahrenheit, Celsius, and Relative (- to +), and Override Button
TR23-WSU	TR23 Wireless temperature sensor, with Setpoint (F/C/Relative) and override button, no Honeywell logo	55 F to 85 F	13 C to 30 C	Selectable Setpoint dials in Fahrenheit, Celsius, and Relative (- to +), and Override Button

TR20 Series Wireless Wall Modules



The WRECVR receiver and TR21-WS, TR23-WS, TR21-WK, and TR23-WK sensors are a family of wireless wall modules and receivers.

- Wall module to Receiver (point to point) wireless kits can replace any standard wired sensor
- Wireless Kits (wall module and receiver) are pre bound at the factory for quick installation
- Signal Strength LED built into the wall module
- Low battery indication
- Optional dip switches available to bind any wall module to any receiver

Application: Receiver

Dimensions, Approximate: 5 1/2 in. high x 3 13/64 in. wide x 2 13/64 in. deep (140 mm high x 81 mm wide x 56 mm deep)

Operating Temperature Range: -40 to +150 F (-40 to + 65.5 C)

Shipping Temperature Range: -40 F to +150 F (-40 to + 65.5 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Radio Frequency: 2.4 GHz (IEEE Std 802.15.4-2003 compliant)

Receiver Voltage: 20-30 Vac/dc, 50/60 Hz; 24 Vac typical

Open Range: 3000 feet

Typical Range: 100 feet

Approvals:

Federal Communications Commission: FCC Part 15

Underwriters Laboratories, Inc. UL94-5VA

Product Number	Description	Comments	Used With
WRECVR	Receiver used with wireless temperature sensors	—	TR21-WS, TR23-WS
WRECVRU	Receiver used with wireless temperature sensors	no Honeywell logo	TR21-WSU, TR23-WSU

Temperature Sensors

Zio LCD Wall Modules



The TR70 and TR70-H are 2-wire, non-polarity sensitive, Sylk™ bus communicating wall modules for use with Spyder™ programmable controllers which are compatible with the Sylk bus.

Application: Temperature sensor

Dimensions, Approximate: 3 5/16 in. wide x 4 5/8 in. high x 15/16 in. deep (84 mm wide x 117 mm high x 24 mm deep)

Operating Temperature Range: 30 F to 110 F (-1 C to 43 C)

Shipping Temperature Range: -40 F to +150 F (-40 C to 65.5 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Network Communications: Sylk Bus and Network Jack

Mounting: Vertical Mount

Switch Positions (Fan): Configurable

All models have a space-temperature sensor, network bus jack, and an LCD with three softkeys and two Up/Down adjustment keys. The TR70-H model includes an onboard humidity sensor.

- Ability to control user access to controller parameters.
- Parameter access can be customized by using the Tridium Niagara Workbench tool.
- Programmable for: Home screen options, tenant access, contractor access, access to controller parameters, setpoint, override, fan, and other parameters.
- Supplied with eight pre-programmed configurations (e.g. VAV with balancing) in the wall module configuration tool.
- Ability to access and adjust most parameters in the programmable controller (except Scheduling).
- Ability to balance the VAV system from the wall module.
- Home screen can display one to three of any of the following parameters: Temperature Setpoint, Room Temperature, Room Humidity, Outdoor Humidity, Outdoor Temperature, and Time, or one of virtually any parameter in the controller.
- Network bus jack.
- Simple 2-wire terminal connection to the programmable controller and an optional 2-wire terminal connection for the network. All connections are polarity insensitive.
- Retention of user configuration, including setpoints after a power outage.

Color: White

Comments: Configurable with Niagara Workbench

Used With: Spyder Sylk Enhanced

Approvals:

Canadian Standards Association: CE: Approved

Federal Communications Commission: FCC Part 15

Underwriters Laboratories, Inc. UL94-HB plastic enclosure

Product Number	Temperature Sensor Accuracy		Humidity Sensor Accuracy	Setpoint Temperature Range	
	(F)	(C)		(F)	(C)
TR70	±0.36 F at 77 F	±0.2 C at 25 C	—	Default range is 55 F to 85 F; configurable for other ranges	Default range is 10 C to 35 C; configurable for other ranges
TR70-H	±0.36 F at 77 F	±0.2 C at 25 C	±5% RH from 20% to 80% RH	Default range is 55 F to 85 F; configurable for other ranges	Default range is 10 C to 35 C; configurable for other ranges

Class 100 Single Phase kWh Meter



The Honeywell Class 100 kWh meters are fully electronic, low-cost meters for monitoring electrical usage in multi-family, commercial and industrial applications. Monitor anything from a single lighting circuit to an entire building. Ideal for both new and retrofitted facilities. Can be used for tenant monitoring and billing.

- UL/CUL Listed
- Direct-read 8-digit LCD displays accumulative kWh and 'real time' kW load.
- 0-2 volt split-core current sensors allow safer installation without power interruption.
- Certified to ANSI C12.1 and C12.16.
- Parallel up to three (3) sets of current sensors for cumulative reading.
- Meter can be used in the following configurations: 1-Phase, 2-Wire; 2-Phase, 3-Wire
- Industrial-grade JIC steel enclosure with padlocking hasp and mounting flanges for indoor installations with 1-1/16 in. knockout(3/4 in. conduit) on bottom of enclosure.
- Maintains reading in the event of power failure.
- Non-volatile Memory.
- Meters can be placed up to 2,000 feet away from an electric panel (by extending current sensor leads).

Dimension Diagrams: See page 512

Application: The Honeywell Class 100 kWh meters are fully electronic, meters for monitoring electrical usage in commercial and industrial applications.

Dimensions, Approximate: 7-1/2 in. high x 7 in. wide x 3-1/4 in. deep (191 mm high x 178 mm wide x 83 mm deep)

Output: Pulse

Accuracy: ±1% from 1% to 100% of rated load

Display: Yes

Frequency (Hz): 50 Hz; 60 Hz

Number of Phases: 1

Operating Temperature Range: -4 F to 122 F (-20 C to 50 C)

Operating Humidity Range (% RH): 0-95% non-condensing

Approvals:

Canadian Standards Association: Recognized

Underwriters Laboratories, Inc. Listed

Product Number	Current Sensor Rating (A)	Input Voltage	Input Voltage Configuration
SUB2120-100	100A	120V	2 Wire
SUB2120-200	200A	120V	2 Wire
SUB2120-25	25A	120V	2 Wire
SUB2120-50	50A	120V	2 Wire
SUB3208-100	100A	208-240; V120V	3 Wire
SUB3208-200	200A	208-240V; 120V	3 Wire
SUB3208-25	25A	208-240V; 120V	3 Wire
SUB3208-50	50A	208-240V; 120V	3 Wire

Submeters

Class 200 Three Phase kWh Meter



The Honeywell Class 200 kWh meters are fully electronic, low cost meters for monitoring electrical usage in multifamily, commercial and industrial applications.

- UL/CUL Listed.
- Direct-read 8-digit LCD displays accumulative kWh and 'real time' kW load.
- 0-2 volt output split-core current sensors allow for quick and safe installation without power interruption.
- Certified to ANSI C12.1 and C12.16.
- Parallel up to three (3) sets of current sensors for cumulative reading.
- Meter can be used on the following configurations: 3-Phase, 4-Wire; 3-Phase, 3-Wire; 2-Phase, 3-Wire.
- Industrial-grade JIC steel enclosure with padlocking hasp and mounting flanges for indoor installations with 1-1/16 in. knockout(3/4 in. conduit) on bottom of enclosure.
- Maintains reading in the event of power failure.
- Non-volatile Memory.
- Meters can be placed up to 2,000 feet away from an electric panel.

Dimension Diagrams: See page 512

Application: The Honeywell Class 200 kWh meters are fully electronic, meters for monitoring electrical usage in commercial and industrial applications.

Output: Pulse

Accuracy: ±1% from 1% to 100% of rated load

Display: Yes

Frequency (Hz): 50 Hz; 60 Hz

Number of Phases: 3

Operating Temperature Range: -4 F to 122 F (-20 C to 50 C)

Operating Humidity Range (% RH): 0-95% non-condensing

Approvals:

Canadian Standards Association: Recognized

Underwriters Laboratories, Inc. Listed

Product Number	Current Sensor Rating (A)	Input Voltage	Input Voltage Configuration
SUB208-100	100A	120V/208-240V	3-4 Wire
SUB208-1600	1600A	120V/208-240V	3-4 Wire
SUB208-200	200A	120V/208-240V	3-4 Wire
SUB208-3200	3200A	120V/208-240V	3-4 Wire
SUB208-400	400A	120V/208-240V	3-4 Wire
SUB208-800	800A	120V/208-240V	3-4 Wire
SUB480-100	100A	277V; 480V	3-4 Wire
SUB480-1600	1600A	277V; 480V	3-4 Wire
SUB480-200	200A	277V; 480V	3-4 Wire
SUB480-3200	3200A	277V; 480V	3-4 Wire
SUB480-400	400A	277V; 480V	3-4 Wire
SUB480-800	800A	277V; 480V	3-4 Wire

Class 500 Advanced kWh/Demand Meter



The Class 500 Meter is a 3-element meter with communications. The device is used to monitor electric power usage of individual loads after the utility meter and store kW and kVAR data for automatic meter reading. Installation must only be performed by qualified personnel and in accordance with these instructions and all applicable local and national electrical codes.

- Direct-read 8-digit LCD display of cumulative kWh.
- Modbus Option: (Modbus RTU, Modbus TCP, BACnet)
- Provides 40 Modbus data registers.
- 0-2 volt output split-core current sensors.
- Remote mounting of current sensors up to 500 feet from meter.
- Current sensor installation diagnostic indicator.
- Communication Options: RS485 (Modbus RTU), Ethernet (Modbus TCP, BACnet)
- Modbus version supports two external inputs from gas, water, etc. meters. (Dry contact, 10 Hz max. input.)
- Available in standard JIC Industrial-grade steel enclosure.
- UL Listed; meets or exceeds ANSI C12 national accuracy standards.
- Optional power failure contact for alarming.

Dimension Diagrams: See page 512

Application: The Class 500 Advanced KWH/Demand Meter with Full Data Stream are fully electronic, meters for monitoring electrical usage in commercial and industrial applications.

Accuracy: ±1% from 1% to 100% of rated load

Display: Yes

Frequency (Hz): 50 Hz; 60 Hz

Number of Phases: 3

Operating Temperature Range: -4 F to 122 F (-20 C to 50 C)

Operating Humidity Range (% RH): 0-95% non-condensing

Approvals:

Canadian Standards Association: Recognized

Underwriters Laboratories, Inc. Listed

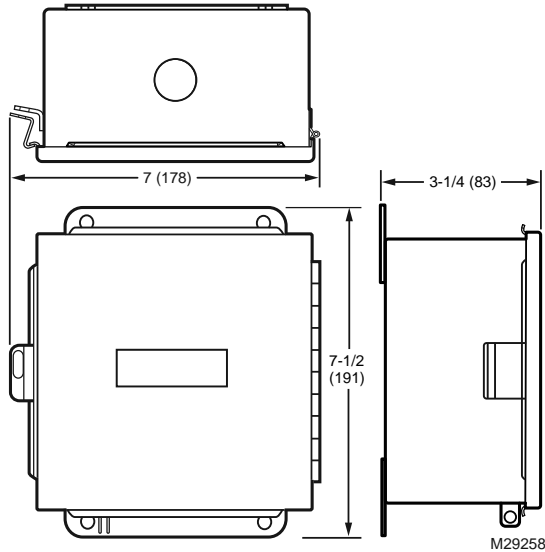
Product Number	Protocol	Current Sensor Rating (A)	Input Voltage	Input Voltage Configuration	Output
SUB208-100C	Modbus RTU	100A	120V; 208-240V	3-4 Wire	RS-485
SUB208-1600C	Modbus RTU	1600A	120V; 208-240V	3-4 Wire	RS-485
SUB208-200C	Modbus RTU	200A	120V; 208-240V	3-4 Wire	RS-485
SUB208-3200C	Modbus RTU	3200A	120V; 208-240V	3-4 Wire	RS-485
SUB208-400C	Modbus RTU	400A	120V; 208-240V	3-4 Wire	RS-485
SUB208-800C	Modbus RTU	800A	120V; 208-240V	3-4 Wire	RS-485
SUB480-100C	Modbus RTU	100A	277V; 480V	3-4 Wire	RS-485
SUB480-1600C	Modbus RTU	1600A	277V; 480V	3-4 Wire	RS-485
SUB480-200C	Modbus RTU	200A	277V; 480V	3-4 Wire	RS-485
SUB480-3200C	Modbus RTU	3200A	277V; 480V	3-4 Wire	RS-485
SUB480-400C	Modbus RTU	400A	277V; 480V	3-4 Wire	RS-485
SUB480-800C	Modbus RTU	800A	277V; 480V	3-4 Wire	RS-485
SUBAC208-100C	BACnet	100A	120V; 208-240V	3-4 Wire	Ethernet
SUBAC208-1600C	BACnet	1600A	120V; 208-240V	3-4 Wire	Ethernet
SUBAC208-200C	BACnet	200A	120V; 208-240V	3-4 Wire	Ethernet
SUBAC208-3200C	BACnet	3200A	120V; 208-240V	3-4 Wire	Ethernet
SUBAC208-400C	BACnet	400A	120V; 208-240V	3-4 Wire	Ethernet
SUBAC208-800C	BACnet	800A	120V; 208-240V	3-4 Wire	Ethernet
SUBAC480-100C	BACnet	100A	277V; 480V	3-4 Wire	Ethernet
SUBAC480-1600C	BACnet	1600A	277V; 480V	3-4 Wire	Ethernet
SUBAC480-200C	BACnet	200A	277V; 480V	3-4 Wire	Ethernet
SUBAC480-3200C	BACnet	3200A	277V; 480V	3-4 Wire	Ethernet
SUBAC480-400C	BACnet	400A	277V; 480V	3-4 Wire	Ethernet
SUBAC480-800C	BACnet	800A	277V; 480V	3-4 Wire	Ethernet
SUBM208-100C	Modbus TCP	100A	120V; 208-240V	3-4 Wire	Ethernet
SUBM208-1600C	Modbus TCP	1600A	120V; 208-240V	3-4 Wire	Ethernet
SUBM208-200C	Modbus TCP	200A	120V; 208-240V	3-4 Wire	Ethernet
SUBM208-3200C	Modbus TCP	3200A	120V; 208-240V	3-4 Wire	Ethernet
SUBM208-400C	Modbus TCP	400A	120V; 208-240V	3-4 Wire	Ethernet
SUBM208-800C	Modbus TCP	800A	120V; 208-240V	3-4 Wire	Ethernet
SUBM480-100C	Modbus TCP	100A	277V; 480V	3-4 Wire	Ethernet
SUBM480-1600C	Modbus TCP	1600A	277V; 480V	3-4 Wire	Ethernet

Submeters

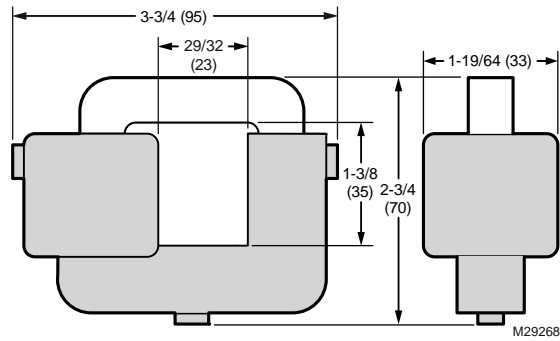
Product Number	Protocol	Current Sensor Rating (A)	Input Voltage	Input Voltage Configuration	Output
SUBM480-200C	Modbus TCP	200A	277V; 480V	3-4 Wire	Ethernet
SUBM480-3200C	Modbus TCP	3200A	277V; 480V	3-4 Wire	Ethernet
SUBM480-400C	Modbus TCP	400A	277V; 480V	3-4 Wire	Ethernet
SUBM480-800C	Modbus TCP	800A	277V; 480V	3-4 Wire	Ethernet

Dimensions for Meters and Current Sensors

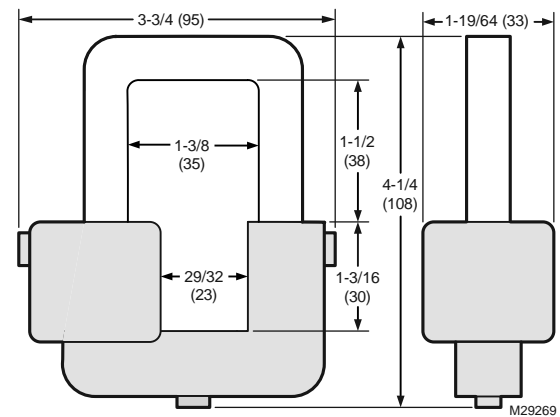
Dimensions in inches (millimeters) for Class 100, Class 200 and Class 500 Meters



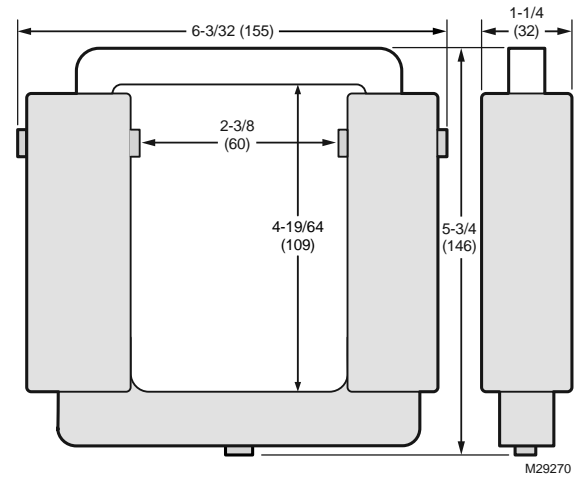
25-200 Amp current sensor dimensions



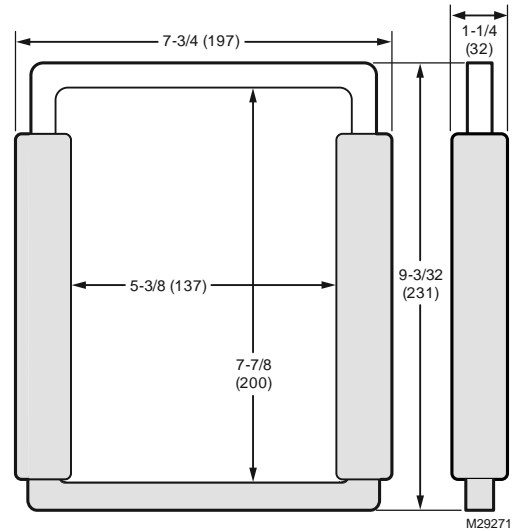
400 Amp current sensor dimensions



800 and 1600 Amp current sensor dimensions



3200 Amp current sensor dimensions



SXB35/SXB36 Networked Power Meters (Modbus® RTU)

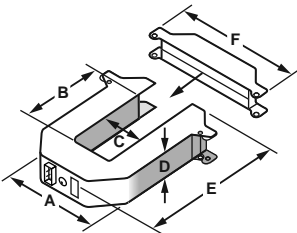


Honeywell's innovative three-phase networked (Modbus RTU) power meters combine power metering electronics and high accuracy industrial grade CTs in a single package. There are two application-specific platforms to choose from.

The SXB35 Meters are ideal for submetering applications where only kW and kWh are required. The SXB36 Enhanced Data Stream meters output 26 energy variables including kW, kWh, volts, amps, and power factor, making them ideal for power monitoring and diagnostics.

- Monitor energy parameters (kW, kWh, kVAR, PF, Amps, Volts) at up to 63 locations on a single RS-485 network—greatly reduces wiring time and cost.
- Fast split-core installation eliminates the need to remove conductors—saves time and labor.
- Precision metering electronics and current transformers in a single package reduces the number of installed components, meaning huge labor savings.
- Smart electronics eliminate CT orientation concerns—resulting in fast, trouble-free installation.
- Certified to ANSI C12.16.

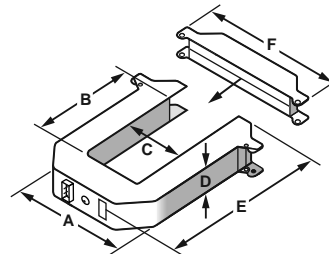
Dimensions in inches (millimeters)



SMALL 100/300 AMP

- A = 3-51/64 (96)
- B = 1-1/2 (38)
- C = 1-19/64 (31)
- D = 1-3/32 (29)
- E = 4 (100)
- F = 4-51/64 (121)

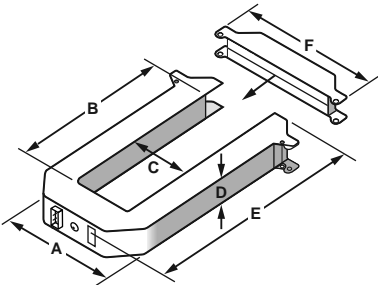
M29225



MEDIUM 400/800 AMP

- A = 4-29/32 (125)
- B = 2-29/32 (73)
- C = 2-1/2 (62)
- D = 1-3/32 (29)
- E = 5-13/64 (132)
- F = 5-29/32 (151)

M29226



LARGE 800/1600/2400 AMP

- A = 4-29/32 (125)
- B = 5-1/2 (139)
- C = 2-1/2 (62)
- D = 1-3/32 (29)
- E = 7-29/32 (201)
- F = 6 (151)

M29227

Output: RS-485

Accuracy: ±1% total system accuracy, (10% to 100% of CT rating)

Display: No

Frequency (Hz): 50 Hz; 60 Hz

Operating Temperature Range: 32 F to 140 F (0 C to 60 C)

Operating Humidity Range (% RH): 0-95% non-condensing

Protocol: Modbus RTU

Approvals:

Canadian Standards Association: Recognized

Underwriters Laboratories, Inc. Listed

Product Number	CT Size	Current Sensor Rating (A)	Input Voltage	Number of Phases
SXB35-100	Small	100A	208V - 480V	1 to 3
SXB35-300	Small	300A	208V - 480V	1 to 3
SXB35-400	Medium	400A	208V - 480V	1 to 3
SXB35-800-3	Medium	800A	208V - 480V	1 to 3
SXB35-800-4	Large	800A	208V - 480V	1 to 3
SXB35-1600	Large	1600A	208V - 480V	1 to 3
SXB35-2400	Large	2400A	208V - 480V	1 to 3
SXB36-100	Small	100A	208V - 480V	1 to 3
SXB36-300	Small	300A	208V - 480V	1 to 3
SXB36-400	Medium	400A	208V - 480V	1 to 3
SXB36-800-3	Medium	800A	208V - 480V	1 to 3
SXB36-800-4	Large	800A	208V - 480V	1 to 3
SXB36-1600	Large	1600A	208V - 480V	1 to 3
SXB36-2400	Large	2400A	208V - 480V	1 to 3

Submeters

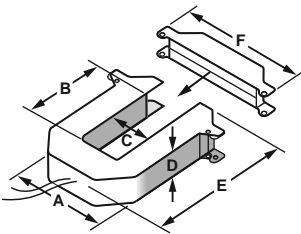
SXB40/SXB50 Self Contained Split-Core kW/kWh Transducers



The Honeywell SXB40/SXB50 Series kW (real power)/kWh (consumption) transducers combine processing electronics and industrial grade CTs in an easy-to-install split-core package. These devices continuously measure voltage and current values for the monitored conductors and update calculations to provide highly accurate true RMS power readings. Models designed for balanced loads include one CT only, while models for unbalanced loads have three CTs.

- Fast split-core installation eliminates the need to remove conductors—perfect for retrofits.
- Precision meter electronics and current transformers in a single package reduces the number of installed components, resulting in huge labor savings.
- Smart electronics eliminate the need to be concerned with CT orientation, providing fast, trouble-free installation.
- Certified to ANSI C12.16

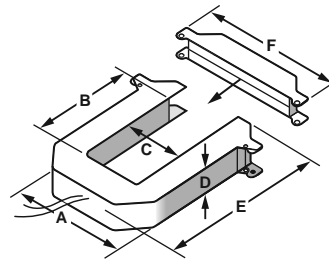
Dimensions in inches (millimeters)



SMALL 100/300 AMP

A = 3-51/64 (96)
B = 1-13/64 (30)
C = 1-19/64 (31)
D = 1-13/64 (30)
E = 4 (100)
F = 4-51/64 (121)

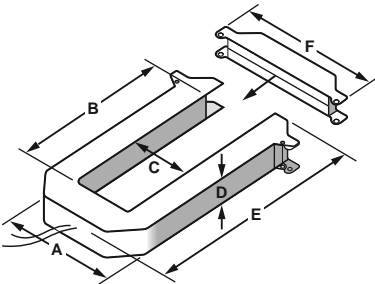
M29198



MEDIUM 400/800 AMP

A = 4-29/32 (125)
B = 2-29/32 (73)
C = 2-1/2 (62)
D = 1-13/64 (30)
E = 5-13/64 (132)
F = 5-29/32 (151)

M29199



LARGE 800/1600/2400 AMP

A = 4-29/32 (125)
B = 5-1/2 (139)
C = 2-1/2 (62)
D = 1-13/64 (30)
E = 7-29/32 (201)
F = 6 (151)

M29200

Application: Ideal for monitoring electrical power in commercial and industrial facilities

Accuracy: ±1% total system accuracy, (10% to 100% of CT rating)

Display: No

Frequency (Hz): 50 Hz; 60 Hz

Operating Temperature Range: 32 F to 140 F (0 C to 60 C)

Operating Humidity Range (% RH): 0-95% non-condensing

Approvals:

Canadian Standards Association: Recognized

Underwriters Laboratories, Inc. Listed

Product Number	CT Size	Current Sensor Rating (A)	Input Voltage	Output	Number of Phases
SXB42-100	Small	100A	480V	4-20mA	1
SXB42-300	Small	300A	480V	4-20mA	1
SXB42-400	Medium	400A	480V	4-20mA	1
SXB42-800-3	Medium	800A	480V	4-20mA	1
SXB42-800-4	Large	800A	480V	4-20mA	1
SXB42-1600-4	Large	1600A	480V	4-20mA	1
SXB42-2400	Large	2400A	480V	4-20mA	1
SXB43-100	Small	100A	208V; 240V	4-20mA	3
SXB43-300	Small	300A	208V; 240V	4-20mA	3
SXB43-400	Medium	400A	208V; 240V	4-20mA	3
SXB43-1600	Large	1600A	208V; 240V	4-20mA	3
SXB43-2400	Large	2400A	208V; 240V	4-20mA	3
SXB43-800-3	Medium	800A	208V; 240V	4-20mA	3
SXB43-800-4	Large	800A	208V; 240V	4-20mA	3
SXB44-100	Small	100A	480V	4-20mA	3
SXB44-300	Small	300A	480V	4-20mA	3
SXB44-400	Medium	400A	480V	4-20mA	3
SXB44-800-3	Medium	800A	480V	4-20mA	3
SXB44-800-4	Large	800A	480V	4-20mA	3
SXB44-1600	Large	1600A	480V	4-20mA	3

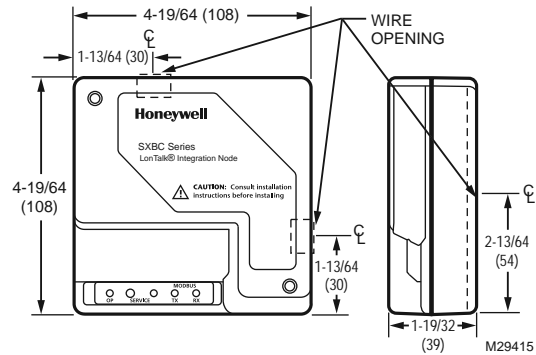
Product Number	CT Size	Current Sensor Rating (A)	Input Voltage	Output	Number of Phases
SXB44-2400	Large	2400A	480V	4-20mA	3
SXB51-100	Small	100A	208V; 240V	Pulse	1
SXB51-300	Small	300A	208V; 240V	Pulse	1
SXB51-400	Medium	400A	208V; 240V	Pulse	1
SXB51-800-3	Medium	800A	208V; 240V	Pulse	1
SXB51-800-4	Large	800A	208V; 240V	Pulse	1
SXB51-1600	Large	1600A	208V; 240V	Pulse	1
SXB51-2400	Large	2400A	208V; 240V	Pulse	1
SXB53-100	Small	100A	208V; 240V	Pulse	3
SXB53-300	Small	300A	208V; 240V	Pulse	3
SXB53-400	Medium	400A	208V; 240V	Pulse	3
SXB53-800-3	Medium	800A	208V; 240V	Pulse	3
SXB53-800-4	Large	800A	208V; 240V	Pulse	3
SXB53-1600	Large	1600A	208V; 240V	Pulse	3
SXB53-2400	Large	2400A	208V; 240V	Pulse	3

SXBC-1, SXBC-5 Integration Nodes

To answer the needs for open-protocol standards and cost-effective energy information, Honeywell offers the SXBC Series of LonTalk Integration Nodes. Transducers can be connected to LonWorks networks through the SXBC devices. Couple the simplified installation of our Modbus power meters to the flexible SXBC platform and realize installation savings of up to 70% when compared to 'standard' power transducers.

- Easy Integration to Honeywell networks
- Pre-configured to pass points acquired by Honeywell transducers to a Lon controller
- Easy cost-effective connectivity to LonWorks systems...makes open connectivity possible
- Flexible mounting and wiring options save time and money

Dimensions in inches (millimeters)



Product Number	Description
SXBC-1	SXB36 to LonTalk® integration node
SXBC-5	SXB35 to LonTalk® integration node

Fan Coil Thermostats

T4039 Fan Coil Thermostat



Control line voltage valves of a fan coil unit in cooling, manual or automatic changeover heating-cooling systems.

- Directly operate one or two valves.
- Positive deadband separates heating and cooling circuits in automatic models.
- Includes allen wrench for cover and mounting screws.

Dimensions, Approximate: 4 5/8 in. high x 4 15/16 in. wide x 1 5/16 in. deep. (118 mm high x 125 mm wide x 33 mm deep)

Mounting: 4 in. square outlet box or 2-ganged outlet box

Electrical Ratings:

Fan Switch: 120 Vac: 5.5 AFL, 33.0 ALR; 240 Vac: 2.75 AFL, 16.5 ALR; 277 Vac: 2.4 AFL, 14.4 ALR
 Thermostat (Valve load): 120 Vac: 0.32 AFL, 1.0 A ALR; 240 Vac: 0.16 AFL, 0.50 ALR; 277 Vac: 0.14 AFL, 0.43 ALR

Voltage: 120 to 277 Vac

Frequency: 50 Hz; 60 Hz

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Setting Temperature Range: 55 F to 95 F, marked COOL-WARM (13 C to 35 C, marked COOL-WARM)

Display: No

Includes: Allen wrench for cover and mounting screws

Approvals:

Canadian Standards Association: Certified

Underwriters Laboratories, Inc. File No. E34436, Vol 2, dated 3-19-73; Guide No. XAPX

Accessories:

TG511A1000 Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others

TG511D1004 Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others

Product Number	Application	Differential Temperature		Switch Position		Changeover	Color
		(F)	(C)	System	Fan		
T4039B1008	Fan coil, cooling only	Approximately 2 F at midscale	Approximately 1 C at midscale	ON-OFF	HI-MED-LO	—	Tan
T4039J1026	4 pipe fan coil, automatic heat-cool changeover	The differential from make of one contact to make of the opposite contact is 7 F maximum with a positive deadspot.	The differential from make of one contact to make of the opposite contact is 4 C maximum with a positive deadspot.	OFF-HI-LO, Off breaks cooling and fan circuits	—	Remote changeover switch is required to separate circuits in manual changeover heating-cooling models.	Tan
T4039M1004	4 pipe fan coil, automatic heat-cool changeover	The differential from make of one contact to make of the opposite contact is 7 F maximum with a positive deadspot.	The differential from make of one contact to make of the opposite contact is 4 C maximum with a positive deadspot.	ON-OFF	HI-MED-LO	Automatic	Tan
T4039M1103	4 pipe fan coil, automatic heat-cool changeover	The differential from make of one contact to make of the opposite contact is 7 F maximum with a positive deadspot.	The differential from make of one contact to make of the opposite contact is 4 C maximum with a positive deadspot.	ON-OFF	HI-MED-LO	Automatic	Premier White®
T4039S1016	4 pipe fan coil, manual heat-cool changeover	The differential from make of one contact to make of the opposite contact is 7 F maximum with a positive deadspot.	The differential from make of one contact to make of the opposite contact is 4 C maximum with a positive deadspot.	HEAT-OFF-COOL	HI-MED-LO	Manual	Tan
T4039S1040	4 pipe fan coil, manual heat-cool changeover	The differential from make of one contact to make of the opposite contact is 7 F maximum with a positive deadspot.	The differential from make of one contact to make of the opposite contact is 4 C maximum with a positive deadspot.	HEAT-OFF-COOL	HI-MED-LO	Manual	Tan

T6069 Fan Coil Thermostat



T6069 thermostats control line voltage valves and/or blower motors on fan coil units in manual changeover heating/cooling systems. The thermostats feature a single System and Fan speed switch.

- Thermostat, system and fan control switches combined in one deluxe-styled unit.
- Available in classic gold or contemporary white styling. Language-free graphic symbols.
- Manual three-speed fan control on most models.
- Suitable for single or double gang electrical boxes.
- Operates one or two valves.
- Has cycled or constant fan control.

Dimensions, Approximate: 4 5/8 in. high x 4 1/2 in. wide x 1 7/8 in. deep. + 5/8 in projection into junction box (119 mm high x 114 mm wide x 47 mm deep + 15 mm projection into junction box)

Mounting: Mounts on 2 in. x 4 in. (50mm x 75 mm) single or double-ganged vertically-oriented outlet box.

Electrical Ratings:

- 8.0 AFL/48 ALR/13A resistive @ 120 Vac
- 4.4 AFL/26.4 ALR/7.5A resistive @208 Vac
- 4.0 AFL/24 ALR/6.5A resistive @240 Vac
- 3.3 AFL/19.8 ALR 5.5A resistive @277 Vac

Voltage: 120 to 277 Vac

Frequency: 50 Hz; 60 Hz

Display: No thermometer

Approvals:

Canadian Standards Association: File No. LR1322

Underwriters Laboratories, Inc. File No. E47434

Accessories:

TG511A1000 Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others

TG511D1004 Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others

Product Number	Application	Setting Temperature Range		Differential Temperature		Switch Position		Changeover	Color
		(F)	(C)	(F)	(C)	System	Fan		
T6069A4010	2 pipe fan coil, manual heat-cool changeover, constant or cycled fan	44 F to 86 F	—	2 F	—	HEAT-OFF-COOL	HI-MED-LO	Manual	Tan
T6069B4000	4 pipe fan coil, manual heat-cool changeover, constant fan	—	7 C to 28 C	—	1 C	HEAT-OFF-COOL	HI-MED-LO	Manual	Premier White®
T6069B4018	4 pipe fan coil, manual heat-cool changeover, constant fan	44 F to 86 F	—	2 F	—	HEAT-OFF-COOL	HI-MED-LO	Manual	Tan
T6069C4016	4 pipe fan coil, manual heat-cool changeover, cycled fan	44 F to 86 F	—	2 F	—	HEAT-OFF-COOL	HI-MED-LO	Manual	Tan
T6069D4014	2 pipe fan coil, seasonal auto changeover, constant or cycled fan	44 F to 86 F	—	2 F	—	ON-AUTO-OFF	HI-MED-LO	Seasonal Auto with External Aquastat® Controller	Tan

Fan Coil Thermostats

T6169 Fan Coil Thermostat



The T6169 thermostats control line voltage valves and/or blower motors on fan coil units in manual or automatic changeover, cooling, heating or cooling/heating systems. The thermostats feature a single fan and/or system manual switches.

- Combines thermostat, single system and/or fan control switch in one deluxe-styled unit.
- Three speed manual FAN control on some models.
- Fan can be wired for continuous (ON) or cycled (AUTO) operation.
- System switch OFF position breaks heating/cooling and fan circuits.
- Color-coded leadwire connections.
- Available in classic gold or Premier White® styling.
- Language-free graphic symbols.
- Suitable for single or double gang electrical boxes.

Dimensions, Approximate: 4 5/8 in. high x 4 1/2 in. wide x 1 7/8 in. deep. + 5/8 in projection into junction box (133 mm high x 114 mm wide x 47 mm deep + 15 mm projection into junction box)

Mounting: Mounts on 2 in. x 4 in. (50mm x 75 mm) single or double-ganged vertically-oriented outlet box.

Electrical Ratings: 8.0 AFL/48 ALR/13A resistive @ 120 Vac
4.4 AFL/26.4 ALR/7.5A resistive @208 Vac
4.0 AFL/24 ALR/6.5A resistive @240 Vac
3.3 AFL/19.8 ALR 5.5A resistive @277 Vac

Frequency: 50 Hz; 60 Hz

Display: No thermometer

Approvals:

Canadian Standards Association: File No. LR1322

Underwriters Laboratories, Inc. File No. E47434

Accessories:

TG511A1000 Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others

TG511D1004 Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others

Product Number	Application	Setting Temperature Range		Differential Temperature		Voltage	Switch Position		Changeover	Color
		(F)	(C)	(F)	(C)		System	Fan		
T6169A4001	2 pipe fan coil, seasonal auto changeover, constant or cycled fan	—	7 C to 28 C	—	1 C	120 to 277 Vac	—	HI-OFF-MED-LO	Seasonal Auto with External Aquastat® Controller	Premier White®
T6169A4019	2 pipe fan coil, seasonal auto changeover, constant or cycled fan	44 F to 86 F	—	2 F	—	120 to 277 Vac	—	HI-OFF-MED-LO	Seasonal Auto with External Aquastat® Controller	Tan
T6169B4017	4 pipe fan coil, manual heat-cool changeover, no fan switching	44 F to 86 F	—	2 F	—	120 Vac; 277 Vac	HEAT-OFF-COOL	—	Manual	Tan
T6169C4015	2 pipe fan coil, manual or auto changeover	44 F to 86 F	—	2 F	—	120 Vac; 277 Vac	Auto-Off	—	Automatic; Manual	Tan

Fan Coil Thermostat Accessories

Product Number	Description	Used With
137905E	Faceplate for T4039M beige model.	—
50033847-001	Adapter plate for mounting TB6575/TB8575 series fan coil thermostats to vertical, single or double-gang junction box	—
PS20	20 K ohm Pipe sensor	TB6575, TB8575
W6380B1005	Fan Coil Unit Relay Control Center for 24 Vac Fan Coil Thermostats	—
W6380B1005	Fan Coil Unit Relay Control Center for 24 Vac Fan Coil Thermostats	—

Replacement Parts

Product Number	Description	Used With
190389AD	Cover assembly for T4039 with Thermometer	T4039
272735T	Tan wallplate for covering old thermostat marks. To be used with T6069 and T6169 thermostats	T6069, T6169

TB6575; TB8575 Digital Fan-Coil Thermostat



The TB6575A, TB6575B, and TB8575A are a family of Digital Fan-Coil thermostats for residential and commercial applications. They are great for use in hotels, condos, and school classrooms. They provide line voltage and low voltage on/off control for various fan-coil units. The three models provide control of 2 or 4 pipe fan-coil units, 120, 240, or 24 Vac, and manual or automatic heat/cool changeover. The fan can also be controlled from the thermostat, which offers three fan speeds (Low, Med, High) and Auto. Valves and auxiliary electric heaters can be controlled using a relay or contactor system switch controlled by the thermostat.

- Simple, intuitive user interface and ease of installation.
- Attractive modern styling ideal for hotels and condos.

Dimensions, Approximate: 3 13/16 in. high x 5 13/16 in. wide x 1 1/8 in. deep (97 mm high x 148 mm wide x 29 mm deep)

Mounting: Direct mounting on horizontal 2 x 4 in. (50mm x 75 mm) junction box. Mounts on vertical 2 x 4 in. or 4 x 4 in junction box with optional wall plate (50033847-001).

Color: Premier White®

Display: LCD

Changeover: Manual/Auto

Electrical Ratings: 120 Vac, Fan Rating: 6.0 A, Relay Rating: 1.0 A; 240 Vac, Fan Rating: 3.0 A, Relay Rating: 1.0 A

Frequency: 50 Hz; 60 Hz

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Approvals:

Canadian Standards Association: Certified
Underwriters Laboratories, Inc.

Meets the same requirements as UL-873

- Digital display of ambient temperature, setpoint, mode icons when cooling or heating relays operate, when energy savings mode is active, and fan status.
- Four buttons allow manual control of system operation, fan speed, and temperature setpoint adjustment.
- VersaSpeed™ Fan Ramp Algorithm automatically adjusts Low, Medium, High fan speed.
- Optional freeze protection feature that turns on heat, if necessary.
- Activity sensing algorithm sets back thermostat to economy mode.
- Auto fan rest option sets back fan to auto mode.
- Energy savings mode -- external energy savings input from dry contact such as time switch, occupancy sensor, or hotel cardkey overrides comfort setpoint with selectable setback heating or cooling setpoints.
- Energy savings input configurable as a normally open or normally closed dry contact.
- Proportional plus integral (P+I) control algorithm for precision temperature regulation.
- Selectable C or F.
- Adjustable deadband, in auto changeover mode, for heat and cool control.
- Adjustable maximum heating and minimum cooling setpoint limits.
- Installer setup mode allows changes of operating parameters.
- EEPROM permanently retains user settings, including setpoints, during power loss (no batteries required).
- Capability to display temperature sensor failure for easier troubleshooting.
- Optional remote temperature sensor and remote pipe sensor.

Accessories:

50033847-001 Adapter plate for mounting TB6575/TB8575 series fan coil thermostats to vertical, single or double-gang junction box

WSK-24 Wireless Occupancy Solution

PS20 20 K ohm Pipe sensor

TR21 20 K ohm NTC non-linear Temperature Wall Module

TR21-A 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

C7041B2005 20K ohm NTC Temperature Sensor with 6 in. insertion

C7041B2013 20K ohm NTC Temperature Sensor with 12 in. insertion

C7041C2003 20K ohm NTC Temperature Sensor with 18 in. insertion

C7041P2004 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

C7770A1006 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

C7772A1004 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

C7772A1012 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

Product Number	Application	Setting Temperature Range		Switch Position		Description	Voltage
		(F)	(C)	System	Fan		
TB6575A1000	2 or 4 pipe fan coil, Heat/Cool manual/auto changeover, 3-speed fan, 120 - 240 Vac	50 F to 90 F	10 C to 30 C	OFF-HEAT-COOL-AUTO	HI-MED-LOW-AUTO-OFF	3-Speed Fan Coil Thermostat; 2 or 4 pipe Manual/Auto Heat/Cool changeover, 3 speed fan, Supply voltage: 120/240 Vac 50/60 Hz	120 Vac (±10%) or 240 Vac (± 10%)
TB6575B1000	2 pipe fan coil, Heat/Cool manual/auto changeover, 3-speed fan, 120 - 240 Vac	50 F to 90 F	10 C to 30 C	OFF-HEAT-COOL-AUTO	HI-MED-LOW-AUTO-OFF	3-Speed Fan Coil Thermostat; 2 pipe Manual/Auto Heat/Cool changeover, 3 speed fan, Supply voltage: 120/240 Vac 50/60 Hz	120 Vac (±10%) or 240 Vac (±10%)
TB8575A1000	2 or 4 pipe fan coil, Heat/Cool manual/auto changeover, 3-speed fan, 24 Vac	50 F to 90 F	10 C to 30 C	OFF-HEAT-COOL-AUTO	HI-MED-LOW-AUTO-OFF	3-Speed Fan Coil Thermostat; 2 or 4 pipe Manual/Auto Heat or Cool changeover, 3 speed fan, Supply voltage: 24 Vac 50/60 Hz	20 to 30 Vac

Commercial Components

Wireless Occupancy Solutions

Wireless Occupancy Solution

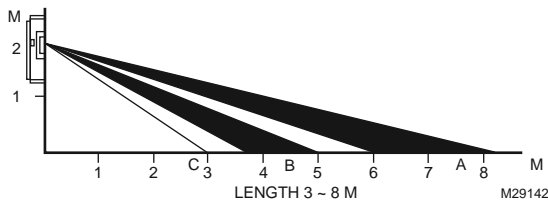


The WSK-24 Wireless Occupancy Solution automatically controls HVAC equipment by determining when a room is occupied. The WSK-24 uses the combination of an occupancy sensor and a door switch to provide optimal control. The WSK-24 is packaged in a kit that includes a 24V dry contact receiver, a wireless PIR (passive infrared receiver) occupancy sensor with mounting kit, a wireless door sensor with mounting kit, and a wiring harness.

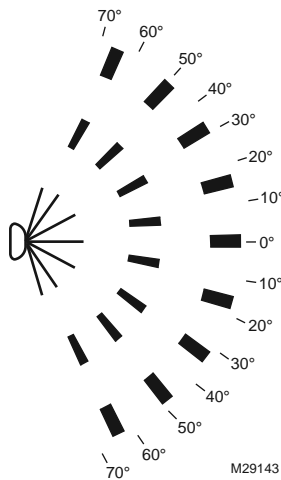
The receiver can be wired into any thermostat or controller that supports the connection of a remote setback device. The receiver communicates wirelessly to a PIR occupancy sensor, a door sensor, and an optional 2nd door/window sensor. After the receiver determines that the room is unoccupied, it closes a dry contact switch. After the thermostat or controller recognizes the contact closure, it places the thermostat in economy setback mode, which provides energy savings for when the room is unoccupied.

- Wireless system provides quick and easy installation
- Pre-configured door sensor and occupancy sensor
- Guest comfort is maintained by never turning off HVAC equipment when someone is in the room ñ even if they are sleeping
- Fuse protection
- Long battery life
- Low battery indication
- Receiver memory retained after power loss
- Optional sliding door/window sensor can be easily added

Side view of PIR detection pattern



Top view of PIR detection pattern



Dimensions, Approximate:

- Door Sensor: 2-19/64 in. high x 1-13/32 in. wide x 19/32 in. deep (58 mm high x 36 mm wide x 15 mm deep)
- Receiver: 3-13/32 in. high x 3-19/32 in. wide x 1-13/64 in. deep (86 mm high x 91 mm wide x 31 mm deep)
- PIR Sensor: 3-29/32 in. high x 2-51/64 in. wide x 1-3/32 in. deep (100 mm high x 71 mm wide x 28 mm deep)

Power Supply:

- Receiver: 24 Vac/Vdc at 50/60 Hz; Standby power consumption 15 mA; Channel 1 relay output, N.O.
- Door Sensor: Two CR2032 lithium batteries
- PIR Sensor: Three AAA E92 1.5V alkaline batteries

Battery Life: Door Sensor: Two years (under normal usage)
PIR Sensor: One year (under normal usage)

Used With: TB6575, TB8575; TB7100; T7350/T7351 (requires R8222 switching relay)

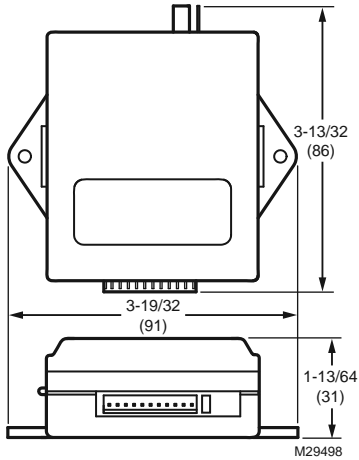
Approvals:

Federal Communications Commission: FCC Part 15, Class B

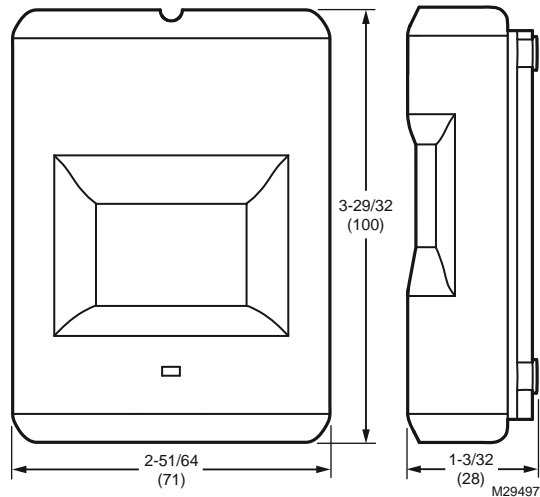
Product Number	Operating Frequency	Open Range	Typical Range	PIR Detection Pattern	Operating Temperature Range	
					(F)	(C)
WSK-24	Door Sensor: 433.92 MHz; Receiver: 433.92 MHz	With antenna exposed: 200 ft; With antenna coiled inside receiver: 50 ft	With antenna exposed: 100 ft; With antenna coiled inside receiver: 40 ft	Angle: 140 degrees; Length: 3 to 8 meters when mounted 2 meters above the floor	PIR Sensor: -4 F to 104 F; Door Sensor: -4 F to 140 F; Receiver: -5 F to 140 F	PIR Sensor: -20 C to 40 C; Door Sensor: -20 C to 60 C; Receiver: -21 C to 60 C

Wireless Occupancy Solutions

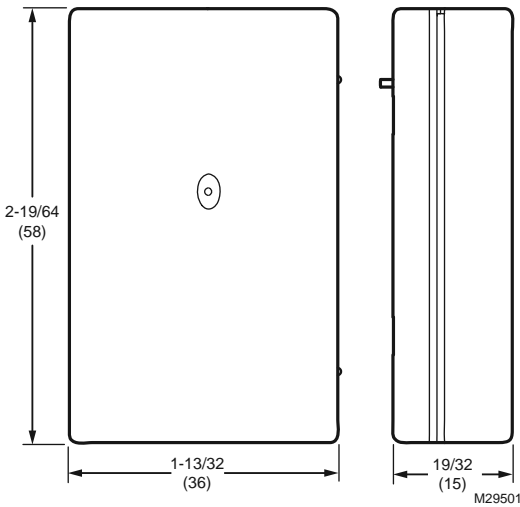
Receiver dimensions in inches (millimeters)



PIR Motion Sensor dimensions in inches (millimeters)



Door Sensor dimensions in inches (millimeters)



Wireless Occupancy Solution Accessories

Battery Life: Door Sensor: Two years (under normal usage)

Product Number	Description	Operating Frequency	Open Range	Typical Range	Used With
50037735-001	Optional Sliding Door/Window Sensor	433.92 MHz	With antenna exposed: 200 ft; With antenna coiled inside receiver: 50 ft	With antenna exposed: 100 ft; With antenna coiled inside receiver: 40 ft	WSK-24

Wireless Occupancy Solution Replacement Parts

Product Number	Description	Operating Frequency	Operating Temperature Range		Used With
			(F)	(C)	
50037736-001	Wireless PIR Occupancy Sensor	433.92 MHz	-4 F to 104 F	-20 C to 40 C	WSK-24
50037737-001	Wireless Receiver	433.92 MHz	-5 F to 140 F	-21 C to 60 C	WSK-24

Commercial Components

Line Voltage Thermostats

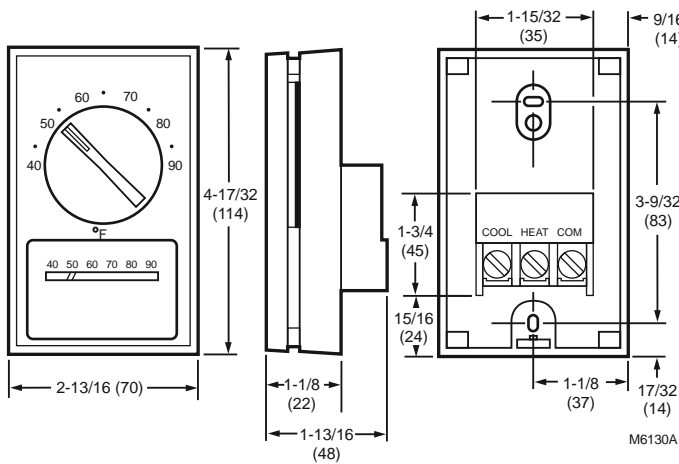
T451; T651 Medium Duty Line Voltage Thermostat



Light Duty Line Voltage Thermostats control line voltage valves, motors, contractors, electric heat, elements, duct furnaces, and fan coil units in heating/cooling systems.

- Automatic cooling and heating anticipation.
- Mount on standard vertical or horizontal outlet box.

Dimensions in inches (millimeters)



Dimensions, Approximate: 4 1/2 in. high x 2 15/16 in. wide x 1 1/2 in. deep (switches and wiring terminals protrude into outlet box 3/4 in.) (115 mm high x 75 mm wide x 39 mm deep (switches and wiring terminals protrude into outlet box 19 mm))

Electrical Ratings:

- 22 A @ 120 - 240 Vac Resistive
- 19 A @ 277 Vac Resistive.
- 9.8 FLA/58.8 ALR @ 120 Vac
- 5.6 FLA/33.6 ALR @ 208 Vac
- 4.9 FLA/29.4 ALR @ 240 Vac
- 4.2 FLA/25.2 ALR @ 277 Vac

Electrical Connections: Flylead

Voltage: 120 Vac - 227 Vac

Frequency: 50 Hz; 60 Hz

Sensor Element: Vapor filled dual diaphragm

Color: Champagne gold face-plate with beige cover

Approvals:

Canadian Standards Association: CSA Certified, File No. LR1322

Underwriters Laboratories, Inc. Listed: File No. E47434, Guide No. XAPX.

Accessories:

TG511A1000 Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others

TG511D1004 Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others

Product Number	Application	Setting Temperature Range		Differential Temperature		Switch Position (System)	Switching Action	Description	Includes
		(F)	(C)	(F)	(C)				
T451A3005	Heating	44 F to 86 F	—	2 F	—	—	SPST - breaks on temperature rise	Thermostat, Medium Duty Line Voltage, Application: heating, Range: 44 F to 86 F	Vertical scaleplate with thermometer, range stops and locking cover screws, wall plate, high accuracy Dual Diaphragm sensor.
T451B3004	Heating	50 F to 86 F	—	2 F	—	—	SPST - breaks on temperature rise; with positive off	Thermostat, Medium Duty Line Voltage, Application: heating, Range: 50 F to 86 F	Vertical scaleplate with thermometer and high accuracy dual diaphragm sensor
• T651A3018	Heating and cooling	44 F to 86 F	—	2 F	—	heating and cooling	SPDT - breaks heating and makes cooling on temperature rise	Light Duty Line Voltage Thermostat.	Vertical scaleplate with thermometer, horizontal scaleplate with no thermometer, range stops and locking screws, wall plate, and high accuracy Dual Diaphragm sensor
T651A3026	Heating and cooling Celsius	—	7 C to 28 C	—	1 C	heating and cooling	SPDT - breaks heating and makes cooling on temperature rise	Light Duty Line Voltage Thermostat.	Vertical scaleplate with thermometer, range stops and locking screws, wall plate, high accuracy Dual Diaphragm sensor.

* TRADELINE models • SUPER TRADELINE models

Line Voltage Thermostats

T6051; T6052 Heavy Duty Line Voltage Thermostats



Heavy Duty Line Voltage Thermostats used to control fan coils, fans, motor starters, valves, contactors, and circulator motors in heating and/or cooling systems.

- Provide good line voltage comfort control.
- Use with Q651A,B subbases for system and fan switching.
- Removable setpoint knob locks setpoint and prevents tampering.
- With locking cover.

Dimensions, Approximate: 5 in. high x 3 1/8 in. wide x 1 5/8 in. deep
(127 mm high x 79 mm wide x 41 mm deep)

Electrical Ratings:

120 Vac: 16 AFL, 96 ALR
240 Vac: 8 AFL, 48 ALR
Resistive 22A @ 120 Vac, 19 A @ 277 Vac
Pilot Duty 125 VA

Electrical Connections: Screw terminals

Voltage: 120 Vac; 240 Vac

Frequency: 50 Hz; 60 Hz

Sensor Element: Vapor filled dual diaphragm

Color: Plastic cover, tan

Approvals:

Canadian Standards Association: CSA Certified: File no. LR1620
Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX

Accessories:

135531J Scaleplate, vertical, Celsius, 10 C to 25 C.

23394B Locking guard for T42, T92, T451, T498, T651, T4051, T6051, T6052

TG511A1000 Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others

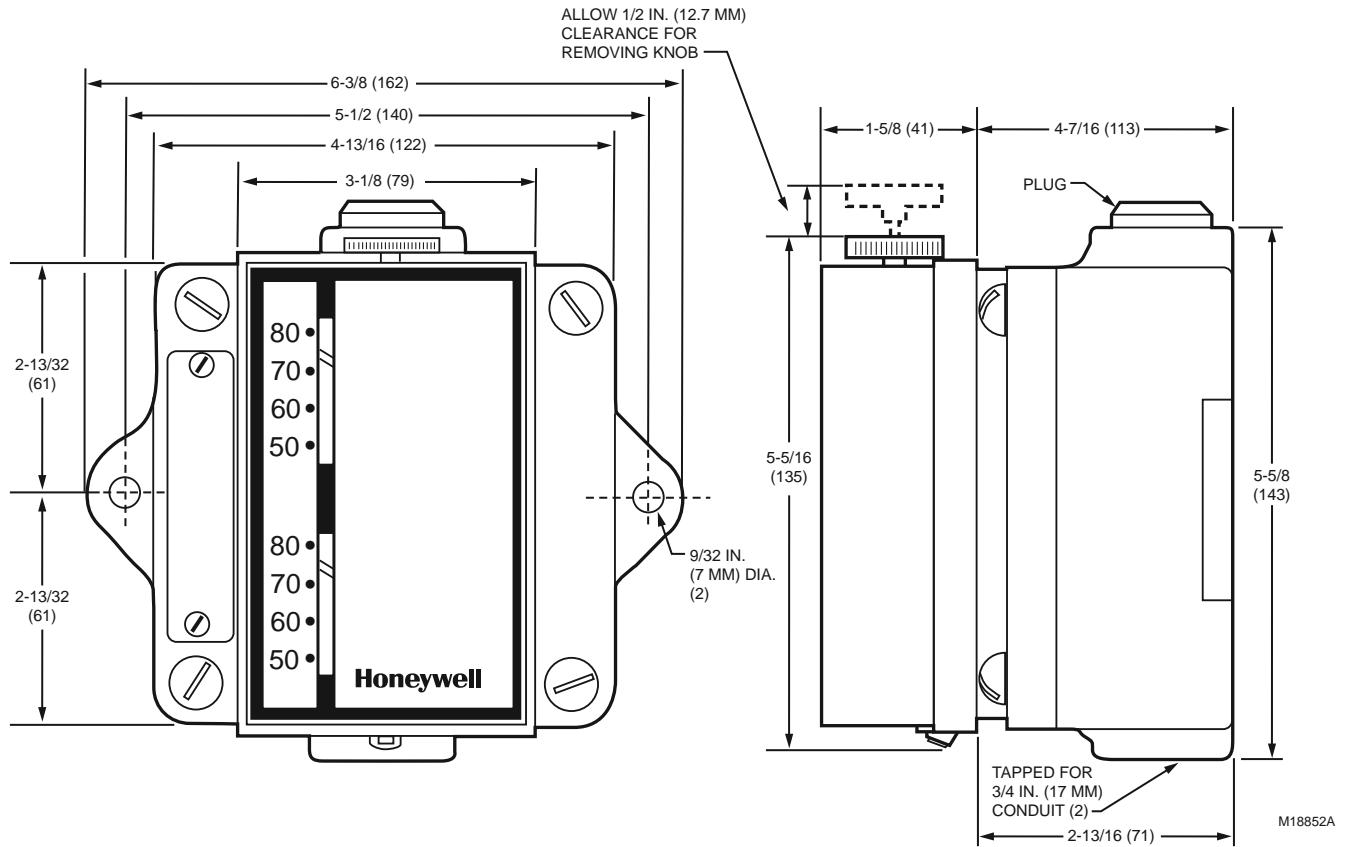
TG511D1004 Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others

Product Number	Application	Setting Temperature Range		Differential Temperature		Switch Position		Switching Action	Description	Includes	Used With
		(F)	(C)	(F)	(C)	System	Fan				
T6051A1016	Heating and cooling	46 F to 84 F	—	1 F	—	—	—	SPDT	Thermostat, Heavy Duty Line Voltage, Application: Heating and cooling, Use with: Q651A, B subbases for system and fan switching	Vertical mounting	Q651A, B subbases for system and fan switching
* T6051A1057	Heating and cooling	—	8 C to 29 C	—	0.6 C	—	—	SPDT	Thermostat, Heavy Duty Line Voltage, Application: Heating and cooling, Use with: Q651A, B subbases for system and fan switching	Vertical mounting	Q651A, B subbases for system and fan switching
T6051B1006	Explosion-proof, Heating and cooling	46 F to 84 F	—	1 F	—	—	—	SPDT	Heavy Duty Line Voltage Thermostat	Vertical mounting	—
* T6052A1015	Two stage heating or two stage cooling	46 F to 84 F	—	Stage 2 Heat, Stage 1 Cool: 3.2 F; Stage 1 Heat, Stage 2 Cool: 2.5 F	—	2-stage heating or 2-stage cooling	—	2 SPDT switches	Heavy Duty Line Voltage Thermostat	Vertical or horizontal mounting	Q651A, B subbases for system and fan switching
T6052A1023	Two stage heating or two stage cooling	—	8 C to 29 C	—	Stage 2 Heat, Stage 1 Cool: 1.8 C; Stage 1 Heat, Stage 2 Cool: 1.4 C	2-stage heating or 2-stage cooling	—	2 SPDT switches	Heavy Duty Line Voltage Thermostat	Vertical or horizontal mounting	Q651C subbase for system and fan switching
* T6052B1013	Heating and cooling, auto changeover	46 F to 84 F	—	Stage 2 Cool: 3.2 F; Stage 1 Heat: 2.5 F	—	1-stage heating-cooling	—	2 SPDT switches	Heavy Duty Line Voltage Thermostat	Vertical or horizontal mounting	Q651A, B subbases for system and fan switching

* TRADELINE models • SUPER TRADELINE models

Line Voltage Thermostats

Dimensions in inches (millimeters)



Line Volt Thermostat Replacement Parts and Accessories

Product Number	Description	Used With
135531J	Scaleplate, vertical, Celsius, 10 C to 25 C.	—
199923AA	Plastic cover for T6051/T6052 with thermometer and setpoint scale. With ground strap.	T6051/T6052
220124D	Faceplate, horizontal, Celsius scale, for T651 models with thermometer.	T651
272804A	Range Stop and Locking Screws Assembly	T410, T498, T4398

Q651 Switching Subbase



Provide manual system switching for T6051 and T6052 Thermostats.

- Provide positive OFF switching of the system.
- Mount vertically or horizontally on standard outlet box.
- Include pressure sensitive labels to identify switching positions.

Dimensions, Approximate: 5 13/16 in. high x 3 3/16 in. wide x 11/16 in. deep. (148 mm high x 81 mm wide x 18 mm deep)

Electrical Ratings:

- 16 A @ 120 Vac Full Load
- 8 A @ 240 Vac Full Load
- 96 A @ 120 Vac LR
- 48 A @ 240 Vac LR

Voltage: 120 or 240 Vac

Frequency: 60 Hz

Approvals:

Canadian Standards Association: Certified

Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX

Accessories:

TG511A1000 Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others

TG511D1004 Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others

Product Number	Application	Switch Position		Switching Action	Includes	Used With
		System	Fan			
Q651A1009	Subbase for T6051A	See switch labels		Provide positive OFF switching of the system	Switch labels: HEAT-OFF-COOL , HEAT-OFF-FAN , AUTO-OFF-ON; Pressure sensitive labels to identify switching positions	Thermostat: T6051A, Thermostat Guard: TG511 and TG512
Q651B1008	Subbase for T6051A	See switch labels		Provide positive OFF switching of the system	Switch labels: AUTO-OFF-FAN; Pressure sensitive labels to identify switching positions	Thermostat: T6051A, Thermostat Guard: TG511 and TG512

Proportional Thermostats

T921 Proportional Thermostats



Proportional Thermostats provide low voltage, 3-wire control for valve motors, damper motors, and balancing relays in heating or cooling system applications.

- Bellows element adjusts potentiometer slider to regulate motor operation.
- Removable setting knob prevents unauthorized tampering with setpoint.

Dimensions, Approximate: 5 11/16 in. high x 3 3/8 in. wide x 2 1/4 in. deep (144 mm high x 86 mm wide x 58 mm deep)

Mounting: Wall mount

Throttling Range: 2.5 F (1.4 C)

Product Number	Setpoint Temperature Range		Output Signal	Includes
	(F)	(C)		
T921A1183	—	13 C to 29 C	135 Ohm potentiometer	Celsius model
* T921A1191	56 F to 84 F	—	135 Ohm potentiometer	Tradeline model which includes slotted sides and an add-on faceplate to allow thermostat to be mounted horizontally.
T921G1005	56 F to 84 F	—	135 Ohm potentiometer	—

* TRADELINE models • SUPER TRADELINE models

Proportional Thermostat Parts and Accessories

Product Number	Description	Used With
100653A	Potentiometer Assembly for use with T921	T921
124355/0047	Adjustment screw for TA42, T921, T473	—
130224	Knob - Adjusting	—
4074BKB	Envelope assembly for T921	—
50014156-002	Remote room sensor for the ZonePRO®	ZonePRO
50014157-001	Duct temperature sensor for the ZonePRO®	ZonePRO

Proportional Thermostats

ZonePRO® Modulating/Floating Control Thermostats



The ZonePRO® thermostats are for low-voltage pressure-dependent variable air volume (VAV) applications. ZonePRO can also be used for hydronic perimeter heating/cooling and bypass box with or without reheat. The four models cover modulating applications, floating applications and applications that require up to two additional outputs for reheat.

- Provides modulating (2 to 10 Vdc analog) control (TB7980)
- Provides floating control (TB6980)
- Provides 2 additional outputs (TB6980B and TB7980B)
- Provides max. and min. setpoints for heating and cooling
- Provides a night setback (NSB) terminal for energy savings

Dimensions, Approximate: 2 5/8 in. wide X 4 9/16 in. high X 1 in. deep
(69 mm wide X 118 mm high X 27 mm deep)

Setpoint Temperature Range: 50F to 95F (10C to 35C)

Mounting: Wall mount

Power Supply: 24 Vac

Frequency: 60 Hz

Product Number	Output Signal	Output Signal Burden	Additional Outputs	Description
TB6980A1007	Floating	0.5A max @ 24Vac	—	Floating control
TB6980B1006	Floating	0.5A max @ 24Vac	1 Analog/TRIAC1 TRIAC	Floating control with 2 additional outputs
TB7980A1006	0-10 Vdc or 2-10 Vdc	0-10V, 10k min	—	Modulating (0-10 Vdc) control
TB7980B1005	0-10 Vdc or 2-10 Vdc	0.5A max @ 24Vac	1 Analog/TRIAC1 TRIAC	Modulating (0-10 Vdc) control with 2 additional outputs







* TRADELINE models • SUPER TRADELINE models

ZonePRO® Modulating Thermostat Cross Reference

Product Number	Replaces	Compatible Valves	Compatible Actuators	Sensors and Accessories
TB6980A1007	T6984A1059	VC6930, VC6934, VC6936, M6410, M6435	ML6984A1006, ML6420, ML6161B2024, MN6105A1011	R841 series of electromechanical relays, 50014157-001 air duct sensor, 50014156-002 space sensor, ST6008A1003 and ST7009A1003 time clocks, 209651A wall plate, D3 and D690 dampers
TB6980B1006	T6984D1046, T6984E1043			
TB7980A1006	T7984A1057, T7984A1065	VC7930, VC7934, VC7936, M7410, M7435	ML7984A4009, ML7420, ML7161A2008, MN7505A2001	
TB7980B1005	T7984B1005, T7984C1053			







Programmable Commercial Thermostats

Commercial Thermostat Cross Reference

Model		Schedule Options			User Interface	Application					Power Method	Features and Functions						
		Program Options	Temporary Override	Holiday		Conventional	Heat Pump	Modulating	Fan Coil	PTAC		Real Time Clock (Automatically Updates Daylight Savings)	Permanent Memory Retention	Recovery Ramps	LonWorks Communicating Capability	Economizer Output	Multiple Keypad Lockout Levels	Dehumidification Control
	T7350H1009	365-Day	X	X	Soft Keys	3 Heat/3 Cool or 2 Heat/4 Cool	3 Heat/370 2 Cool	No	No	No	24 Vac	X	X	X	X	X	3	X
	T7350H1017	365-Day	Yes	X	Soft Keys	2 Heat/1 Cool	N/A	Two 4-20 mA	No	No	24 Vac	X	X	X	X	X	3	X
	T7350M1008	365-Day	Yes	X	Soft Keys	1 Heat/2 Cool or 2 Heat/1 Cool or 2 Cool/1 Heat	N/A	Two 4-20 mA	No	No	24 Vac	X	X	X	X	X	3	X
	T7350D1008 and T7351F2010	365-Day	Yes	X	Soft Keys	3 Heat/3 Cool or 2 Heat/4 Cool	3 Heat/2 Cool	No	No	No	24 Vac	X	X	X		X	3	X
	T7350B1002	365-Day	Yes	X	Soft Keys	3 Heat/2 Cool or 2 Heat/3 Cool	3 Heat/2 Cool	No	No	No	24 Vac	X	X	X		X	3	
	T7350A1004	365-Day	Yes	X	Soft Keys	1 Heat/2 Cool or 2 Heat/1 Cool	2 Heat/1 Cool	No	No	No	24 Vac	X	X	X		X	3	
	TB8220U1003	7-Day	Yes (Cumulative)	X	Touch-screen	2 Heat/2 Cool	3 Heat/2 Cool	No	No	No	24 Vac or Battery	X	X	X		X	4	
	TB7220U1012	7-Day	Yes (Cumulative)	X	Soft Keys	2 Heat/2 Cool	3 Heat/2 Cool	No	No	No	24 Vac or Battery	X	X	X		X	4	
	TB7100A1000	7-Day or non-programmable	Yes (Cumulative)	X	Soft Keys	1 Heat/1 Cool	2 Heat/1 Cool	No	2 or 4 pipe	2 Heat/1 Cool	24 Vac or Battery	Yes	X	X			5	

Programmable Commercial Thermostats

Commercial Thermostat Cross Reference

Model		Features and Functions		Display Information			Replacements				
		Remote Sensing	Display Size (Viewable)	On-Demand Backlighting	Continuous Backlighting	Simultaneous Display of Room and Set Temperature	Honeywell	White-Rodgers	Invensys/Robertshaw	Carrier/Totaline	TCS Basys
	T7350H1009	Yes (Indoor, Outdoor, Discharge, Humidity, Occupancy)	4.2 sq. in.	No	Yes	No	All T7300's with Q7300H subbases	No equivalent offering	No equivalent offering	No equivalent offering	SZ1022, SZ1024, SZ1031, SZ1033, SZ1035, SZ1009
	T7350H1017	Yes (Indoor, Outdoor, Discharge, Humidity, Occupancy)	4.2 sq. in.	No	Yes	No	No previous offering	No equivalent offering	No equivalent offering	No equivalent offering	SZ1017a, SZ1053
	T7350M1008	Yes (Indoor, Outdoor, Discharge, Humidity, Occupancy)	4.2 sq. in.	No	Yes	No	No previous offering	No equivalent offering	No equivalent offering	No equivalent offering	SZ1017a, SZ1053
	T7350D1008 and T7351F2010	Yes (Indoor, Outdoor, Discharge, Humidity, Occupancy)	4.2 sq. in.	No	Yes	No	All T7300's with non Q7300H subbases	All White-Rodgers Thermostats	All Invensys/Robertshaw Thermostats	All Carrier/Totaline Thermostats	SZ1022, SZ1024, SZ1031, SZ1033, SZ1035, SZ1009
	T7350B1002	Yes (Indoor, Outdoor, Discharge)	4.2 sq. in.	No	Yes	No	All T7300's with Q7300A and Q7300C subbases	All White-Rodgers Thermostats	9700i series, 300 series	All Carrier/Totaline Thermostats	SZ1022, SZ1024, SZ1031, SZ1033, SZ1009
	T7350A1004	No	4.2 sq. in.	No	Yes	No	All T7300's with Q7300A2008 subbase	1F90-371, 1F97-371, 1F96-344, 1F90-374, 1F97-374	9700i, 9701i		SZ1009
	Commercial VisionPRO® 8000 TB8220U1003	Yes (Indoor or Outdoor)	10 sq. in.	Yes	Yes	Yes	T7300 with Q7300A2016, Q7300A2008, Q7300C2004 and Q7300C2012 subbase	1F90 series, 1F80 series	9800 series, 9700i series, 300 series	P374-2100, P374-2200, P374-2300, 33CS250-01, 33CS220-01, 33CS071-01, 33CSP2-WC, 33CSSN2-WC	
	CommercialPRO® 7000 TB7220U1012	Yes (Indoor or Outdoor)	4 sq. in.	Yes	Yes	Yes	T7300 with Q7300A2016, Q7300A2008, Q7300C2004 and Q7300C2012 subbase	1F90 series, 1F80 series	9800 series, 9700i series, 300 series	P374-2100, P374-2200, P374-2300, 33CS250-01, 33CS220-01, 33CS071-01, 33CSP2-WC, 33CSSN2-WC	
	MultiPRO™ 7000* TB7100A1000	Yes (Indoor or Occupancy)	4 sq. in.	Yes	Yes	Yes	T8574B2016, T8575B2007, T8575C2005, T8575D2003	IF90-371, IF96-344, IF97-371, IF80-224, IF80-241, IF80-261, IF86-244, IF87-251, IF82-261, IF89-211	97012, 9610, 9700i, 300-224, 300-225, 300-226,	P274-0100, P274-1100, P374-0200, P374-0300	SZ1-61, SZ1062

* The MultiPRO™ 7000 also replaces the following models for PSG Controls: DFC-20YU6585F, DPFC-024U2F, DPFC-024K2F, TDMS24-AH22CB

Programmable Commercial Thermostats

Honeywell Thermostat Sensors Cross Reference

Model Number		Sensor Element Type	Sensor Type		Selectable Setpoint Adjustment 55° to 85°F 13° to 30°C Relative (- to +)	Override Button with LED	LON Jack	Fan Switching
Honeywell Wall Module Model	Replaces Honeywell Model		Temperature	Humidity				
TR21	T7770A1006	20K ohms non-linear	✓					
TR21-A	T7770A3002		10K ohms non-linear for averaging only	✓				
TR21-H	N/A	20K ohms non-linear	✓	✓			✓	
TR21-J	T7770A2004		✓				✓	
TR22	T7770B1004 T7770B1020 T7770B1046		✓		✓		✓	
TR23	T7770C1002 T7770C1028 T7770C1044		✓		✓	✓	✓	
TR23-H	N/A		✓	✓	✓	✓	✓	
TR23-N*	T7770C1051		✓		✓	✓	✓	
TR24	T7770D1000		✓			✓	✓	
TR22-F5	N/A		✓		✓		✓	5 position
TR23-F3	T7770E1023		✓		✓	✓	✓	3 position
TR23-F5	T7770F1005		✓		✓	✓	✓	5 position

* No Honeywell Logo

Programmable Commercial Thermostats

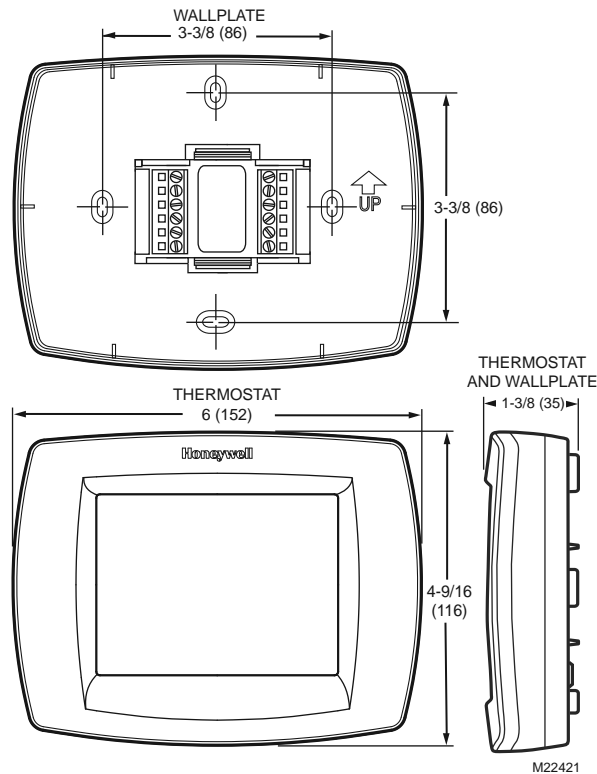
Commercial VisionPRO® 8000



The TB8220 Commercial VisionPRO 8000 Touchscreen Programmable Thermostat is an effortless, seven day programmable thermostat that provides universal system compatibility, precise comfort control and is easy to program. The TB8220 provides temperature control for gas, oil, electric and heat pumps for up to 2 heat, 2 cool systems.

- Large, clear display with backlight shows the current and set temperature and time even in the dark.
- Menu-driven programming make setup effortless.
- Beautiful ergonomic design is smart and sophisticated to match your customers' lifestyle.
- Touchscreen interaction Real-time clock keeps time during power failures and automatically updates to daylight savings.
- Saving Changes notification lets you know when the schedule changes have been saved.
- Change reminders let you know when to replace the batteries.
- Holiday Override options allow you to override the program schedule, as desired.
- Speedy same--schedule programming--no need to copy multiple days.
- Armchair programming allows you to remove the thermostat from the wall for programming.

Dimensions in inches (millimeters)



Color: Premier White®

Electrical Connections: 24 VAC or Battery

Network Communications: None

Dimensions, Approximate: 6 in. wide x 4 9/16 in. high x 1 3/8 in. deep (152 mm wide x 116 mm high x 35 mm deep)

Accessories:

32003796-001 Premier White® cover plate 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)

TR21 20 K ohm NTC non-linear Temperature Wall Module

TR21-A 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

C7189U1005 Remote Indoor Sensor

C7770A1006 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

C7772A1004 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

C7772A1012 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

C7041B2005 20K ohm NTC Temperature Sensor with 6 in. insertion

C7041B2013 20K ohm NTC Temperature Sensor with 12 in. insertion

C7041C2003 20K ohm NTC Temperature Sensor with 18 in. insertion

C7041P2004 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

C7089U1006 Remote Outdoor Sensor

W7212A1009 Series 72 Economizer Logic Module with Demand Control Ventilation

Product Number	Application	Switch Position		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(F)	(C)	
TB8220U1003	24 Vac heating and cooling systems; Heat Pump Systems; Conventional systems; Packaged RTU	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	R, Rc, W (O/B), W2 (W1), Y, Y2, L, A, G, C, S1, S2	Up to 2 Heat/ 2 Cool Conventional; Up to 3 Heat/ 2 Cool Heat Pump	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	The L-terminal is an input only; Selectable programmable or non-programmable; Includes A terminal to enable an economizer or control a lighting panel when used as a time of day relay

Programmable Commercial Thermostats

CommercialPRO® 7000

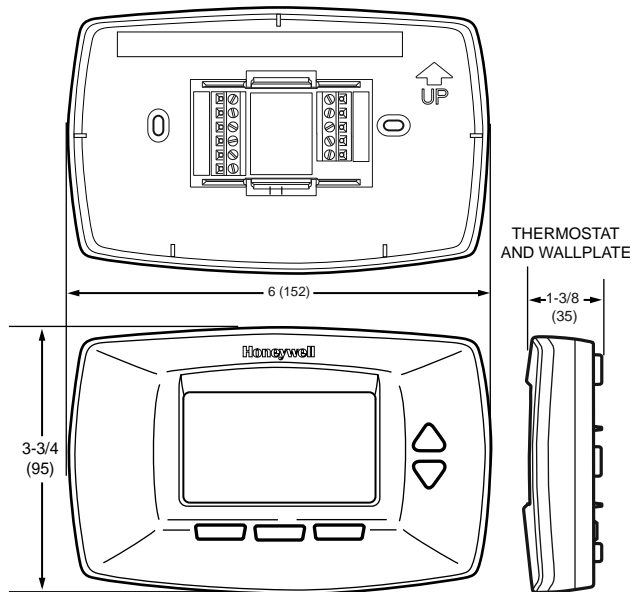


The COMMERCIALPRO® 7000 Programmable Thermostat is an effortless, seven-day programmable thermostat that provides universal system compatibility, precise comfort control and is easy-to-program.

The TB7220 provides temperature control for gas, oil, electric and heat pumps for up to 2 heat, 2 cool systems.

- Large, clear display with backlight shows the current and set temperature and time--even in the dark.
- Menu-driven programming make setup effortless.
- Beautiful ergonomic design is smart and sophisticated to match your customers' lifestyle.
- Real-time clock keeps time during power failures and automatically updates to daylight savings.
- Saving Changes notification lets you know when the schedule changes have been saved.
- Change reminders let you know when to replace the batteries.
- Holiday Override options allow you to override the program schedule, as desired.
- Speedy same--schedule programming--no need to copy multiple days.
- Armchair programming allows you to remove the thermostat from the wall for programming.

Dimensions in inches (millimeters)



M13668

Color: Premier White®

Electrical Connections: 24 VAC or Battery

Network Communications: None

Dimensions, Approximate: 6 in. wide x 3 3/4 in. high x 1 3/8 in. deep (152 mm wide x 96 mm high x 35 mm deep)

Accessories:

50002883-001 FocusPRO 5000/6000 and PRO 3000/4000 Cover Plate Assembly

TR21 20 K ohm NTC non-linear Temperature Wall Module

TR21-A 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

C7189U1005 Remote Indoor Sensor

C7770A1006 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

C7772A1004 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

C7772A1012 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

C7041B2005 20K ohm NTC Temperature Sensor with 6 in. insertion

C7041B2013 20K ohm NTC Temperature Sensor with 12 in. insertion

C7041C2003 20K ohm NTC Temperature Sensor with 18 in. insertion

C7041P2004 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

C7089U1006 Remote Outdoor Sensor

W7212A1009 Series 72 Economizer Logic Module with Demand Control Ventilation

Product Number	Application	Switch Position		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(F)	(C)	
TB7220U1012	24 Vac heating and cooling systems; Heat Pump Systems; Conventional systems; Packaged RTU	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	R, Rc, W (O/B), W2 (W1), Y, Y2, A, G, C, S1, S2	Up to 2 Heat/2 Cool Conventional; Up to 3 Heat/2 Cool Heat Pump	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Selectable programmable or non-programmable; Includes A terminal to enable an economizer or control a lighting panel when used as a time of day relay

Programmable Commercial Thermostats

MultiPRO™ 7000



The MultiPRO™ Multispeed and Multipurpose Thermostat is an effortless, seven-day programmable or non-programmable thermostat that provides universal system compatibility, precise comfort and is easy to program.

The MultiPRO provides temperature control for gas, oil, electric, heat pumps, PTACs, and fan-coil equipment for the following types of applications: 1H/1C conventional; Up to 2H/1C heat pump; 4 pipe fan coil (3 fan speeds); 2 pipe fan coil (3 fan speeds); 2 pipe fan coil w/Auxiliary Heat (3 fan speeds); PTAC (Hi, Lo fan speeds).

Color: Premier White®

Electrical Connections: 24 VAC or Battery

Network Communications: None

Accessories:

50002883-001 FocusPRO 5000/6000 and PRO 3000/4000 Cover Plate Assembly

TR21 20 K ohm NTC non-linear Temperature Wall Module

TR21-A 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

C7189U1005 Remote Indoor Sensor

- Large, clear display with backlight shows the current and set temperature and time--even in the dark.
- Menu-driven programming make setup effortless.
- Beautiful ergonomic design is smart and sophisticated to match your customers' lifestyle.
- Real-time clock keeps time during power failures and automatically updates to daylight savings.
- Saving Changes notification lets you know when the schedule changes have been saved.
- Change reminders let you know when to replace the batteries.
- Holiday Override options allow you to override the program schedule, as desired.
- Speedy same--schedule programming--no need to copy multiple days.
- Armchair programming allows you to remove the thermostat from the wall for programming.
- Programmable or non-programmable modes.
- Remote setback input for occupancy sensors or timeclocks.
- VersaSpeed™ fan ramping algorithm and fan reset algorithm (fan coil and PTAC applications).
- Up to 3 fan speeds for fan coil and 2 fan speeds for PTAC applications.
- Remote Indoor air sensing option (20K ohm or 10K ohm)

C7770A1006 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

C7772A1004 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

C7772A1012 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

C7041B2005 20K ohm NTC Temperature Sensor with 6 in. insertion

C7041B2013 20K ohm NTC Temperature Sensor with 12 in. insertion

C7041C2003 20K ohm NTC Temperature Sensor with 18 in. insertion

C7041P2004 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

WSK-24 Wireless Occupancy Solution

Product Number	Application	Switch Position		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(F)	(C)	
TB7100A1000	Conventional, Heat Pump, Fan Coil, and PTAC Systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON; Fan Coil: HI-MED-LO-AUTO; PTAC: HI-LO-AUTO	R, Rc, W1, O/B, Y, G, G2, G3, C, S1, S2	1 Heat/ 1Cool Conventional; Up to 2 Heat/ 1 Cool Heat Pump; 2 or 4 pipe Fan Coil; Up to 2 Heat/ 1 Cool PTAC	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Includes 3 speed fan control and configurable sensor input for indoor temperature, occupancy sensor, or changeover; Selectable programmable or non-programmable

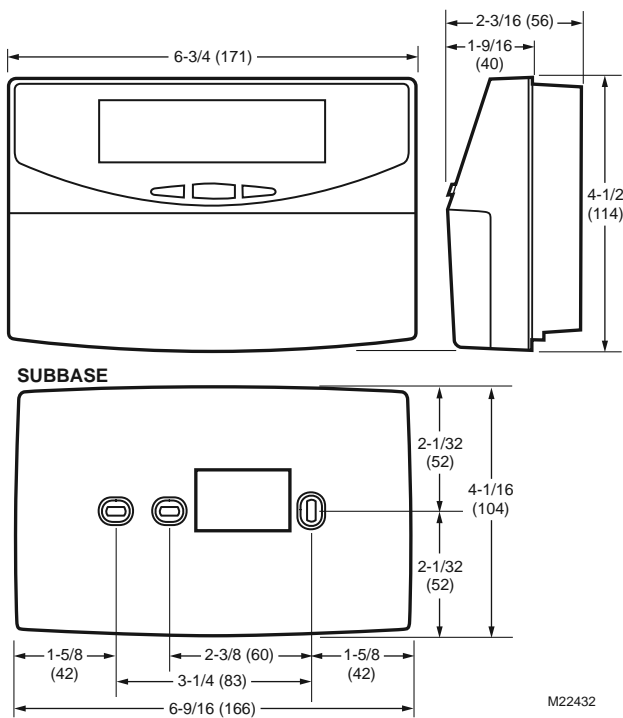
Programmable Commercial Thermostats

T7350 Programmable Commercial Thermostats



T7350 Thermostats control 24 Vac commercial single-zone multistage conventional, heat pump and modulating HVAC equipment.

Dimensions in inches (millimeters)



Color: Trident White

Electrical Connections: 24 Vac, 50/60 Hz; 20 to 30 Vac, 50/60 Hz.

Network Communications: None

- 365-day programming.
- Two Occupied and two Not Occupied periods per day.
- Thermostat Interface Module (TIM) connections to thermostat from PDA for advanced configuration, programming, keypad lockout, etc.
- Individual heat and cool setpoints available for Occupied and Not Occupied periods.
- P+I+D control minimizes temperature fluctuations.
- Recovery ramping control automatically optimizes equipment start times based on building load.
- Universal Versaguard™ Thermostat guards available.
- Convenient overrides allow temporary setpoint changes.
- Keypad multi-level lockout available with all models.
- Remote sensor capability - EXCEPT T7350A model - for temperature (including outdoor air and discharge air) and humidity sensors.
- Auxiliary contact interfaces with a Honeywell Economizer System (for total rooftop control integration) or as a dehumidification output.

Accessories:

C7041B2005 20K ohm NTC Temperature Sensor with 6 in. insertion

C7041B2013 20K ohm NTC Temperature Sensor with 12 in. insertion

C7041R2000 20K ohm NTC 12 ft Flexible Copper Averaging Temperature Sensor

C7089A1002 Remote Outdoor Sensor

H7625A1008 Humidity Transmitter, 2% RH accuracy, wall mount, with optional 20K ohm temp output

H7625B1006 Humidity Transmitter, 2% RH accuracy, duct mount, with optional 20K ohm temp output

H7635A1006 Humidity Transmitter, 3% RH accuracy, wall mount, with optional 20K ohm temp output

H7635B1004 Humidity Transmitter, 3% RH accuracy, duct mount, with optional 20K ohm temp output

H7655A1001 Humidity Transmitter, 5% RH accuracy, wall mount, without temp output

H7655B1009 Humidity Transmitter, 5% RH accuracy, duct mount, with optional 20K ohm temp output

T7771A1005 20 K ohm NTC non-linear Temperature Wall Module

TR21 20 K ohm NTC non-linear Temperature Wall Module

TR21-A 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

TR22 20 K ohm NTC non-linear Temperature Wall Module with Setpoint adjustment

TR23 20 K ohm NTC non-linear Temperature Wall Module with Override and Setpoint adjustment

TR23-H 20 K ohm NTC non-linear Temperature Wall Module with Humidity

TR24 20 K ohm NTC non-linear Temperature Wall Module with Override and Humidity

TR21-H 20 K ohm NTC non-linear Temperature Wall Module with Humidity

W7212A1009 Series 72 Economizer Logic Module with Demand Control Ventilation

WSK-24 Wireless Occupancy Solution

Product Number	Application	Switch Position		Stages	Comments
		System	Fan		
T7350A1004	Conventional and Heat Pump systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	1 Heat/1 Cool	—
T7350B1002	Conventional and Heat Pump systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	2 Heat/2 Cool	Remote Temp, Outdoor, Discharge Air
T7350D1008	Conventional and Heat Pump systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	3 Heat/3 Cool	Remote Temp, Outdoor, Discharge Air, Humidity, Occupancy
T7350M1008	Modulating Systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	2 Mod (4-20mA)/ 2 Relay	Remote Temp, Outdoor, Discharge Air, Humidity, Occupancy

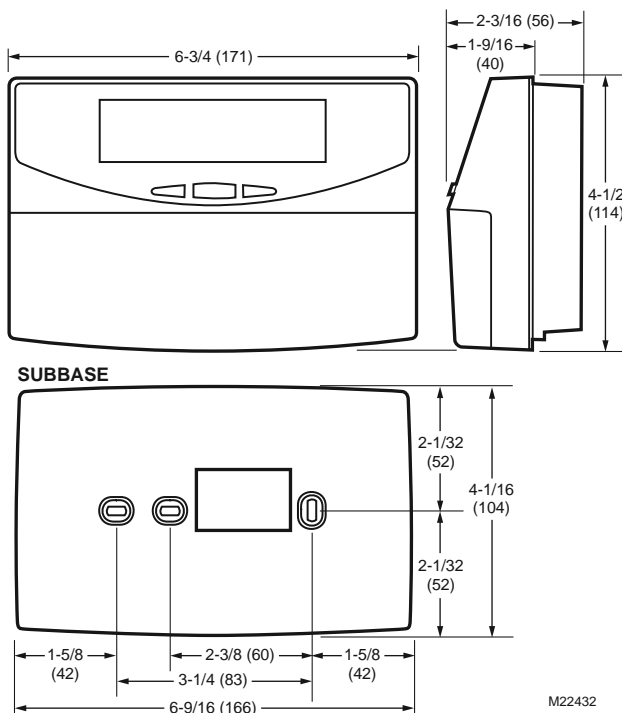
Programmable Commercial Thermostats

T7351F Programmable Commercial Thermostats



The T7351 Commercial Programmable Thermostat controls 24 Vac commercial single zone heating, ventilating and air conditioning (HVAC) equipment. The T7351 consists of a thermostat and subbase. The thermostat includes the keypad and display for 365-day programming. The subbase includes equipment control connections. The subbase mounts on the wall and the thermostat mounts to the subbase.

Dimensions in inches (millimeters)



Color: Trident White

Electrical Connections: 24 Vac, 50/60 Hz; 20 to 30 Vac, 50/60 Hz.

Network Communications: None

- Typically used in buildings (including: restaurants, shopping malls, office buildings and banks) under 55,000 square feet.
- For single zone rooftop units, split systems, heat pumps or hot/chilled water systems.
- 365-day programming.
- Two Occupied and two Not Occupied periods per day.
- Individual heat and cool setpoints available for Occupied and Not Occupied periods.
- P+I+D control minimizes temperature fluctuations.
- Recovery ramp control automatically optimizes equipment start times based on building load.
- Convenient overrides allow temporary setpoint changes.
- Keypad multi-level lockout available with all models.
- Remote sensor capability for temperature (including outdoor air and discharge air) and humidity sensors.
- Auxiliary subbase contact typically interface with a Honeywell Economizer System (for total rooftop control integration) or act as dehumidification output.
- Universal Versaguard Thermostat guards available.


Accessories:

- C7041B2005** 20K ohm NTC Temperature Sensor with 6 in. insertion
- C7041B2013** 20K ohm NTC Temperature Sensor with 12 in. insertion
- C7041R2000** 20K ohm NTC 12 ft Flexible Copper Averaging Temperature Sensor
- C7089A1002** Remote Outdoor Sensor
- H7625A1008** Humidity Transmitter, 2% RH accuracy, wall mount, with optional 20K ohm temp output
- H7625B1006** Humidity Transmitter, 2% RH accuracy, duct mount, with optional 20K ohm temp output
- H7635A1006** Humidity Transmitter, 3% RH accuracy, wall mount, with optional 20K ohm temp output
- H7635B1004** Humidity Transmitter, 3% RH accuracy, duct mount, with optional 20K ohm temp output
- H7655A1001** Humidity Transmitter, 5% RH accuracy, wall mount, without temp output
- H7655B1009** Humidity Transmitter, 5% RH accuracy, duct mount, with optional 20K ohm temp output
- T7771A1005** 20 K ohm NTC non-linear Temperature Wall Module
- TR21** 20 K ohm NTC non-linear Temperature Wall Module
- TR21-A** 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)
- TR21-H** 20 K ohm NTC non-linear Temperature Wall Module with Humidity
- TR22** 20 K ohm NTC non-linear Temperature Wall Module with Setpoint adjustment
- TR23** 20 K ohm NTC non-linear Temperature Wall Module with Override and Setpoint adjustment
- TR23-H** 20 K ohm NTC non-linear Temperature Wall Module with Humidity
- TR24** 20 K ohm NTC non-linear Temperature Wall Module with Override
- WSK-24** Wireless Occupancy Solution
- W7212A1009** Series 72 Economizer Logic Module with Demand Control Ventilation

Product Number	Application	Switch Position		Stages	Comments
		System	Fan		
T7351F2010	Conventional and Heat Pump systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	3 Heat/3 Cool	Remote Temp, Outdoor, Discharge Air, Humidity, Occupancy

Programmable Commercial Thermostats

Commercial Thermostat Accessories

Product Number	Description	Used With	
209651A	Wallplate	T7350	
50014064-001	Infra Red Thermostat Interface Module (IR-TIM), allows PDA to be connected to the T7350	T7350	



InfraRed Thermostat Interface (IR-TIM)

InfraRed Thermostat Interface Module (IR-TIM) - 50014064-001



This InfraRed Thermostat Interface Module (IR-TIM) allows a PDA to be connected wirelessly to the T7350 Thermostat.

T7350 Handheld and Smartphone Compatibility List

Below is a complete list of all the tested and compatible handhelds and smartphones for programming the T7350 thermostats. These handhelds have been tested using the IR-TIM (Product number 50014064-001).

Brand	Model	Handheld or smartphone OS	InfraRed Thermostat Interface Module
Palm	i705	4.x	X
Palm	m105	3.5	X
Palm	Vx	3.5	X
Palm	m125	4.5	X
Palm	Zire71	5.2.1	X
HandEra	TRGpro	3.5x	X
Palm	Tungsten T	5.0	X
Palm	m125	4.x	X
Palm	Tungsten™ C	5.2.1	X
Palm	Tungsten T2	5.2.1	X
Palm	Tungsten T3	5.2.1	X
Palm	Zire 31™	5.2.8	X
Palm	Zire 21	5.2.1	X
Palm	Zire 71	5.2.8	X
Palm	Treo™ 650	5.4	X
Palm	E2	5.4	X
Palm	TX	5.4	X
Palm	LifeDrive	5.4	X
Sony	PEG-TJ27	5.2.1	X
Treo	650	5.4	X
Treo	680	5.4.9	X
Treo	700p	5.4.9	X
Treo	755p	5.4.9	X

Non-Compatible T7350 Handhelds and Smartphones

The following models are not compatible with the T7350:

- Zire 22
- Treo 750
- Treo 700wx
- Treo 700w
- All handhelds and smartphones with Windows Mobile (5.0) operating system

Communicating Thermostats

T7350 Communicating Programmable Commercial Thermostats



T7350H Communicating Thermostats control 24 Vac commercial single-zone multistage conventional, heat pump and modulating HVAC equipment. Additionally, the T7350H allows remote access and the sharing of clock, schedule, setpoints, bypass and other system parameters with other devices in a LONWORKS® network.

Color: Trident White

Network Communications: LonWorks Bus and PDA Serial Port

Accessories:

C7041B2005 20K ohm NTC Temperature Sensor with 6 in. insertion

C7041R2000 20K ohm NTC 12 ft Flexible Copper Averaging Temperature Sensor

H7625A1008 Humidity Transmitter, 2% RH accuracy, wall mount, with optional 20K ohm temp output

H7625B1006 Humidity Transmitter, 2% RH accuracy, duct mount, with optional 20K ohm temp output

H7635A1006 Humidity Transmitter, 3% RH accuracy, wall mount, with optional 20K ohm temp output

H7635B1004 Humidity Transmitter, 3% RH accuracy, duct mount, with optional 20K ohm temp output

H7635C1002 Humidity Transmitter, 3% RH accuracy, outdoor mount, with optional 20K ohm temp output

H7655A1001 Humidity Transmitter, 5% RH accuracy, wall mount, without temp output

- 365-day programming.
- Two Occupied and two Not Occupied periods per day.
- Thermostat Interface Module (TIM) connections to thermostat from PDA for advanced configuration, programming, keypad lockout, etc.
- Individual heat and cool setpoints available for Occupied and Not Occupied periods.
- P+I+D control minimizes temperature fluctuations.
- Recovery ramping control automatically optimizes equipment start times based on building load.
- Universal Versaguard™ Thermostat guards available.
- Convenient overrides allow temporary setpoint changes.
- Keypad multi-level lockout available with all models.
- Remote sensor capability for temperature (including outdoor air and discharge air) and humidity sensors.
- Auxiliary contact interfaces with a Honeywell Economizer System (for total rooftop control integration) or as a dehumidification output LONWORKS® network communication.

H7655B1009 Humidity Transmitter, 5% RH accuracy, duct mount, with optional 20K ohm temp output

T7771A1005 20 K ohm NTC non-linear Temperature Wall Module

TR21 20 K ohm NTC non-linear Temperature Wall Module

TR21-A 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

TR21-H 20 K ohm NTC non-linear Temperature Wall Module with Humidity

TR22 20 K ohm NTC non-linear Temperature Wall Module with Setpoint adjustment

TR23 20 K ohm NTC non-linear Temperature Wall Module with Override and Setpoint adjustment

TR23-H 20 K ohm NTC non-linear Temperature Wall Module with Humidity

TR24 20 K ohm NTC non-linear Temperature Wall Module with Override

W7212A1009 Series 72 Economizer Logic Module with Demand Control Ventilation

WSK-24 Wireless Occupancy Solution

Product Number	Application	Switch Position		Stages	Comments	Includes
		System	Fan			
T7350H1009	Conventional and Heat Pump systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	3 Heat/3 Cool	Remote Temp, Outdoor, Discharge Air, Humidity	—
T7350H1017	Modulating Systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	2 Mod (4-20mA)/2 Relay	Remote Temp, Outdoor, Discharge Air, Humidity and Occupancy	—
Y7355H1009	Conventional and Heat Pump systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	3 Heat/3 Cool	Remote Temp, Outdoor, Discharge Air, Humidity, Occupancy	T7350H1009, C7041B2005, T7771A1005

WebStat® Controller



WebStat allows you to step up from standalone thermostat control to the automated T7350 communicating thermostat platform without incurring any excessive direct digital control (DDC) cost or complexity. Automation features include web control, alarming, trending, scheduling, network accessibility, and floor plans. Operational savings are enabled by remote monitoring, alarming, floor plan visuals and thermostat assignment privileges for tenants, facility managers and contractors. WebStat keeps control simple by allowing Internet accessibility and flexibility for assigning user privileges.

- Remote Monitoring
- Remote Programming
- Up to 20 T7350H Thermostats
- Plug-and-Play Setup
- Universal Programming, Commissioning and Graphics Tool
- Alarm Email Notification
- Trending
- Thermostat Self-Discovery
- Wiring Diagram Generation Tool

Dimensions, Approximate: 6 3/8 in. wide x 4 7/64 in. high x 2.5 in. deep (16.2 cm wide x 10.5 cm high x 6.4 cm deep)

Application Size: Up to 20 T7350H Thermostats with free software upgrade

Operating Temperature Range: 32 F to 122 F (0 C to 50 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Shipping Temperature Range: 32 F to 140 F (0 C to 60 C)

Approvals:

Canadian Standards Association: CSA C22.2 No. 205-M1983 Signal Equipment

CE: Approved

Federal Communications Commission: FCC part 15 Class A

Underwriters Laboratories, Inc. UL 916, C-UL listed

Product Number	Application	Network Communications	Commissioning Software	Compatible with	Includes	Used With
W7350A1000	Controller	LonWorks	WebStat	T7350H Communicating Thermostats	Lon Card and Power Supply	LonWorks bus

Commercial Thermostat Resources

Honeywell Building Controls' Web Sites/Electronic Resources

Main Customer Web Site/Product and Technical Literature

customer.honeywell.com

New Products – Buildings' Product Showcase

Contains trainings, marketing materials, and literature on new thermostat products.

customer.honeywell.com/buildings

Buildings Forum

buildingsforum.honeywell.com

Honeywell Promotional Materials

honeywell.promocollection.com

Literature Ordering Site

literature.honeywell.com

Applications and Downloads

Contains valuable Commercial Thermostat tools, including the Energy Estimating Tool and Commercial Thermostat Code Compliance Tool – ComCheck 3.3.1. Also contains T7350 Stat downloads, including Palm Software, PC Emulator, and Configuration Code Spreadsheet.

<http://customer.honeywell.com/Business/Cultures/en-US/Products/Applications+and+Downloads/>

WebStat® Demo Site

www.webstathoneywell.com

User ID: honeywell
Password: honeywell

Rapid Zone® Website

customer.honeywell.com/rapidzone

eLearning Training Modules

<http://customer.honeywell.com/learning>

Training presentations are available 24/7 at this site, so you can access the trainings whenever is best for you.

1. Go to the website above and log in to your customer.honeywell.com account. If you need a login, just register and you'll have access within about 24 hours.
2. Click on where it says "**Please click here to browse our eLearning Modules.**" This will open up a new window with the eLearning Training Modules.
3. From this spot you can click on the product that you want and the module will launch from your screen with visuals accompanied by an informational audio presentation. The section listings on the right will help you track your progress and know the approximate time remaining in each section as well as for the complete module. If you need to pause it, just click the pause button at the bottom of the screen. If you wish to repeat a section simply click on

that section's listing on the right side of the screen. All modules feature an interactive quiz to help you review the material. After you finish this quiz, the training is complete.

4. Trainings Include:
 - a. **Building Automation (LCBS) Products**
 - i. WebStat Programming and Configuration – Course #63-9625
 - ii. WebStat Installation and Networking – Course #63-9626
 - b. **Building Controls Products**
 - i. Commercial Thermostats – Course #63-9605
 - ii. T7351 Basic Training – Course #63-9600
 - iii. T7351 Advanced Training – Course #63-9601 (Must take Basic Training first)
 - iv. Commercial VisionPRO 8000 Basic Training – Course #63-9602
 - v. CommercialPRO 7000 Basic Training – Course #63-9603
 - vi. ZonePRO Basic Training – Course #63-9604
 - vii. MultiPRO Basic Training – Course #67-7200
 - viii. SuitePRO Basic Training – Course #67-7201

Product Resources

These sites contain information on Buildings' Products, and include access to Product Features, Marketing Materials, and Training Presentations.

WebStat® Controller

<http://customer.honeywell.com/webstat>

T7351 Thermostat

<http://customer.honeywell.com/t7351>

ZonePRO® Modulating Thermostat

<http://customer.honeywell.com/zonepro>

CommercialPRO® 7000

<http://customer.honeywell.com/cpro>

Commercial VisionPRO® 8000

<http://customer.honeywell.com/cvp>

SuitePRO™ Digital Fan Coil Thermostat

<http://customer.honeywell.com/suitepro>

MultiPRO™ 7000

<http://customer.honeywell.com/multipro>

Commercial Thermostat Literature – Useful literature on Commercial Thermostats

- 63-9610 – Commercial Thermostats Application and Cross Reference Guide
- 63-9620 - Commercial Thermostats Application and Cross Reference Guide (General Wholesaler Version)
- 95C-10897 – T6570, T8570 Digital Fan Coil Stat Product Data Sheet
- 63-2658 WebStat User Guide

ST6008 Energy Management Timers



- Battery backup (quartz drive).
- Screw wiring terminals.
- Three-way override.
- Captive trippers.

Dimensions, Approximate: 4 1/4 in. high x 2 15/16 in. wide x 2 1/4 in. deep (108 mm high x 75 mm wide x 57 mm deep)

Electrical Connections (in.): Screw terminals

Mounting: Surface or on DIN rail

Voltage: 120 Vac

Frequency: 60 Hz

Ambient Temperature Range: -40 F to +180 F (-40 C to +82 C)

Operating Humidity Range (% RH): 0 to 95% RH

Approvals:

Canadian Standards Association: Certified: File No. LR52379

Underwriters Laboratories, Inc. Listed File: E83486

Provide 24-hour or 7-day time-based switching.

- Universal application with 24-hour or 7-day programming.

Product Number	Clock Type	Minimum Timing	Switching	Switch Ratings
ST6008A1006	24-hours synchronous	15 min	1 SPDT	1350 W tungsten 21 A resistive @ 250 V
ST6008B1005	7-day synchronous	2 hrs	1 SPDT	22 A resistive @ 250 V 1350 W tungsten
ST6008C1004	7-day quartz (7 day battery reserve)	2 hrs	1 SPDT	23 A resistive @ 250 V 1350 W tungsten

Pressure-regulated Control Valves

NPT Dynamic Pressure-regulated Control Valves



The VRN2 two-way dynamic pressure-regulating control ball valves maintain constant flow of hot or chilled water in closed loop heating, ventilating, and air conditioning (HVAC) systems regardless of head pressure fluctuations above the minimum specified pressure drop. These valve assemblies can be used with Honeywell non-spring return or spring return direct coupled actuators (DCA) with minimum torque of 35 lb-in (4 Nm) on valve sizes up to 3 inches (DN80).

The built-in differential pressure regulator makes fluid flow through the valve independent of changes in supply pressure, eliminating "hunting" by the control system, even at low coil flow. The pressure regulator virtually eliminates cavitation in the valve, and decouples the control valve from the effects of piping components such as reducers and elbows.

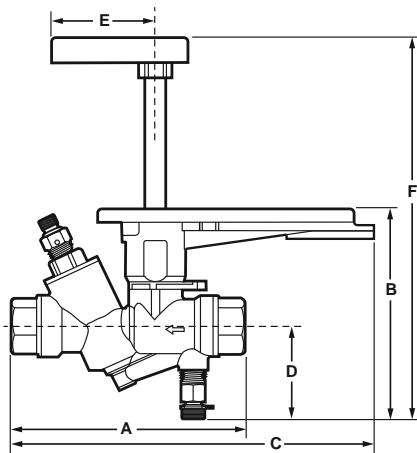
Pressure independent control valves are sized to match design coil flow regardless of coil size. VRN2 valves eliminate the need to

balance the system for proper flow, and allow chillers to be operated at design temperature differential for maximum efficiency at every load condition. When used in a system with variable speed pump drives, 3-way valves and coil bypass lines are not required. In new construction, VRN2 valves perform better than reverse return piping designs without the extra materials these systems need.

Systems that utilize the capabilities of properly installed and monitored pressure-independent control valves may qualify for LEED points. Pressure-independent control requires less flow, enabling use of smaller piping, pumps, and chillers.

- Sizes from 1/2 to 3 in. with internal (female) NPT connections.
- Controls hot or chilled water with up to 50% glycol.
- Regulated flow rates available from 1 to 95 gpm.
- Differential pressure regulator for constant pressure drop across valve seat.
- Positive pressure, rolling diaphragm regulator design for long service life for flow control accuracy of $\pm 5\%$ over specified control range.
- Equal percentage flow characteristic using patented flow control ball insert.
- Multiple regulated flow rates available per valve size.
- Patented ball seals require low operating torque.
- Nickel-chrome plated brass or stainless steel trim.
- Choice of factory-installed actuation using Honeywell N05/S05-series direct-coupled actuators: Floating, Modulating (2-10 V), Spring Return Modulating/Floating.
- Spring return actuators field-configurable for normally open or normally closed fail-safe position.
- Actuators available with optional auxiliary switches.
- Removable, manual operating handle to control valve during installation or in an event of power failure.
- Upstream Test Port for venting or pressure gauge attachment.
- Three actuator orientations on the valve for cramped spaces.

Dimensions in inches (millimeters)



VALVE SIZE (IN.)	DIMENSIONS IN INCHES (MM)						
	A	B	C	D	E	F _Z ^a	F _S ^a
1/2	5 11/16 (145)	4 5/16 (109)	8 19/32 (218)	1 (26)	2 1/2 (64)	8 13/32 (213)	7 3/16 (182)
3/4			8.7 (221)				
1	5 29/32 (150)	4 19/32 (117)	10.9 (277)	1 5/8 (41)		9 13/32 (239)	8 3/16 (207)
	9 (229)						
1 1/4	8 13/32 (213)		10 19/32 (269)				
1 1/2	8 3/16 (208)	5 3/16 (132)	10.5 (267)	2 3/32 (53)		10 13/32 (264)	9 3/16 (232)
	10 (254)						
2	9 29/32 (251)		12 (305)				
2 1/2	10 9/32 (263)		12 3/16 (310)				
3	10 13/16 (274)		12.4 (314)				

^a LONG SHAFT SUPPLIED WITH "ZELIX" (Z) DIRECT COUPLED ACTUATORS; SHORT SHAFT SUPPLIED WITH "SALT" (S) NON-SPRING RETURN DCAS. M31310

Valve Type: Dynamic pressure-regulated control valve

Body Pattern: 2-way, straight-through

Pipe Connection Type: Female-NPT

Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

Valve Action: Quarter-turn rotary

Maximum Safe Operating Pressure: 360 psi (2500 kPa)

Maximum Safe Operating Temperature: 248 F (120 C)

Maximum Close-off Pressure: 100 psid (690 kPa)

Fluid Temperature Range: -22 F to 250 F (-30 C to 121 C)

Ambient Temperature Range: 14 F to 131 F (-10 C to 55 C)

Accuracy: $\pm 5\%$ over specified pressure range

Stem Travel: 90 deg. rotation

Materials

(Body): Forged Brass ASTM B584

(Seat): Teflon seals/EPDM O-rings

(Regulator): Stainless Steel

(Packing): Teflon seals/EPDM O-rings

(Diaphragm): Hydrogenated Acrylonitrile Butadiene Rubber

Pressure-regulated Control Valves

Flow Characteristics: Equal Percentage with flow control insert

Comments: 2 - 10V position feedback signal

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/Ball/Disc)	(Stem)		
VRN2AB3D2B	1/2 in.	DN15	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AB3D2D	1/2 in.	DN15	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	w/ position feedback signal
VRN2AB3S2B	1/2 in.	DN15	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AB3S2D	1/2 in.	DN15	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2AD3D2B	1/2 in.	DN15	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AD3D2D	1/2 in.	DN15	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2AD3S2B	1/2 in.	DN15	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AD3S2D	1/2 in.	DN15	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2AE3D2B	1/2 in.	DN15	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AE3D2D	1/2 in.	DN15	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2AE3S2B	1/2 in.	DN15	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AE3S2D	1/2 in.	DN15	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2AF3D2B	1/2 in.	DN15	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AF3D2D	1/2 in.	DN15	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2AF3S2B	1/2 in.	DN15	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AF3S2D	1/2 in.	DN15	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2AG3D2B	1/2 in.	DN15	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AG3D2D	1/2 in.	DN15	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2AG3S2B	1/2 in.	DN15	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AG3S2D	1/2 in.	DN15	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2AH3D2B	1/2 in.	DN15	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AH3D2D	1/2 in.	DN15	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2AH3S2B	1/2 in.	DN15	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AH3S2D	1/2 in.	DN15	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2AJ3D2B	1/2 in.	DN15	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AJ3D2D	1/2 in.	DN15	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2AJ3S2B	1/2 in.	DN15	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2AJ3S2D	1/2 in.	DN15	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BB3D2B	3/4 in.	DN20	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BB3D2D	3/4 in.	DN20	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BB3S2B	3/4 in.	DN20	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit

Commercial Components

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/ Ball/ Disc)	(Stem)		
VRN2BB3S2D	3/4 in.	DN20	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BD3D2B	3/4 in.	DN20	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BD3D2D	3/4 in.	DN20	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BD3S2B	3/4 in.	DN20	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BD3S2D	3/4 in.	DN20	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BE3D2B	3/4 in.	DN20	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BE3D2D	3/4 in.	DN20	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BE3S2B	3/4 in.	DN20	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BE3S2D	3/4 in.	DN20	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BF3D2B	3/4 in.	DN20	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BF3D2D	3/4 in.	DN20	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BF3S2B	3/4 in.	DN20	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BF3S2D	3/4 in.	DN20	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BG3D2B	3/4 in.	DN20	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BG3D2D	3/4 in.	DN20	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BG3S2B	3/4 in.	DN20	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BG3S2D	3/4 in.	DN20	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BH3D2B	3/4 in.	DN20	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BH3D2D	3/4 in.	DN20	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BH3S2B	3/4 in.	DN20	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BH3S2D	3/4 in.	DN20	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BJ3D2B	3/4 in.	DN20	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BJ3D2D	3/4 in.	DN20	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BJ3S2B	3/4 in.	DN20	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BJ3S2D	3/4 in.	DN20	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BK3D2B	3/4 in.	DN20	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BK3D2D	3/4 in.	DN20	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BK3S2B	3/4 in.	DN20	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BK3S2D	3/4 in.	DN20	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BL3D2B	3/4 in.	DN20	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BL3D2D	3/4 in.	DN20	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BL3S2B	3/4 in.	DN20	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BL3S2D	3/4 in.	DN20	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/Ball/Disc)	(Stem)		
VRN2CB3D2B	1 in.	DN25	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CB3D2D	1 in.	DN25	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CB3S2B	1 in.	DN25	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CB3S2D	1 in.	DN25	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CD3D2B	1 in.	DN25	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CD3D2D	1 in.	DN25	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CD3S2B	1 in.	DN25	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CD3S2D	1 in.	DN25	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CE3D2B	1 in.	DN25	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CE3D2D	1 in.	DN25	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CE3S2B	1 in.	DN25	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CE3S2D	1 in.	DN25	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CF3D2B	1 in.	DN25	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CF3D2D	1 in.	DN25	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CF3S2B	1 in.	DN25	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CF3S2D	1 in.	DN25	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CG3D2B	1 in.	DN25	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CG3D2D	1 in.	DN25	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CG3S2B	1 in.	DN25	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CG3S2D	1 in.	DN25	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CH3D2B	1 in.	DN25	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CH3D2D	1 in.	DN25	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CH3S2B	1 in.	DN25	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CH3S2D	1 in.	DN25	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CJ3D2B	1 in.	DN25	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CJ3D2D	1 in.	DN25	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CJ3S2B	1 in.	DN25	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CJ3S2D	1 in.	DN25	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CK3D2B	1 in.	DN25	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CK3D2D	1 in.	DN25	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CK3S2B	1 in.	DN25	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CK3S2D	1 in.	DN25	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CL3D2B	1 in.	DN25	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/ Ball/ Disc)	(Stem)		
VRN2CL3D2D	1 in.	DN25	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CL3S2B	1 in.	DN25	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CL3S2D	1 in.	DN25	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CM3D2B	1 in.	DN25	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CM3D2D	1 in.	DN25	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CM3S2B	1 in.	DN25	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CM3S2D	1 in.	DN25	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CN3D2B	1 in.	DN25	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CN3D2D	1 in.	DN25	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CN3S2B	1 in.	DN25	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CN3S2D	1 in.	DN25	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CP3D2B	1 in.	DN25	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CP3D2D	1 in.	DN25	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2CP3S2B	1 in.	DN25	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2CP3S2D	1 in.	DN25	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2DM3D2B	1-1/4 in.	DN32	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2DM3D2D	1-1/4 in.	DN32	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2DM3S2B	1-1/4 in.	DN32	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2DM3S2D	1-1/4 in.	DN32	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2DN3D2B	1-1/4 in.	DN32	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2DN3D2D	1-1/4 in.	DN32	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2DN3S2B	1-1/4 in.	DN32	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2DN3S2D	1-1/4 in.	DN32	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2DP3D2B	1-1/4 in.	DN32	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2DP3D2D	1-1/4 in.	DN32	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2DP3S2B	1-1/4 in.	DN32	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2DP3S2D	1-1/4 in.	DN32	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2DQ3D2B	1-1/4 in.	DN32	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2DQ3D2D	1-1/4 in.	DN32	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2DQ3S2B	1-1/4 in.	DN32	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2DQ3S2D	1-1/4 in.	DN32	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2DR3D2B	1-1/4 in.	DN32	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2DR3D2D	1-1/4 in.	DN32	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/Ball/Disc)	(Stem)		
VRN2DR3S2B	1-1/4 in.	DN32	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2DR3S2D	1-1/4 in.	DN32	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2EU3D2B	1-1/2 in.	DN40	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2EU3D2D	1-1/2 in.	DN40	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2EU3S2B	1-1/2 in.	DN40	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2EU3S2D	1-1/2 in.	DN40	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2E13D2B	1-1/2 in.	DN40	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2E13D2D	1-1/2 in.	DN40	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2E13S2B	1-1/2 in.	DN40	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2E13S2D	1-1/2 in.	DN40	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2EM3D2B	1-1/2 in.	DN40	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2EM3D2D	1-1/2 in.	DN40	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2EM3S2B	1-1/2 in.	DN40	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2EM3S2D	1-1/2 in.	DN40	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2EN3D2B	1-1/2 in.	DN40	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2EN3D2D	1-1/2 in.	DN40	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2EN3S2B	1-1/2 in.	DN40	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2EN3S2D	1-1/2 in.	DN40	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2EP3D2B	1-1/2 in.	DN40	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2EP3D2D	1-1/2 in.	DN40	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2EP3S2B	1-1/2 in.	DN40	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2EP3S2D	1-1/2 in.	DN40	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2EQ3D2B	1-1/2 in.	DN40	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2EQ3D2D	1-1/2 in.	DN40	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2EQ3S2B	1-1/2 in.	DN40	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2EQ3S2D	1-1/2 in.	DN40	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2ER3D2B	1-1/2 in.	DN40	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2ER3D2D	1-1/2 in.	DN40	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2ER3S2B	1-1/2 in.	DN40	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2ER3S2D	1-1/2 in.	DN40	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2ES3D2B	1-1/2 in.	DN40	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2ES3D2D	1-1/2 in.	DN40	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2ES3S2B	1-1/2 in.	DN40	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/ Ball/ Disc)	(Stem)		
VRN2ES3S2D	1-1/2 in.	DN40	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2ET3D2B	1-1/2 in.	DN40	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2ET3D2D	1-1/2 in.	DN40	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2ET3S2B	1-1/2 in.	DN40	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2ET3S2D	1-1/2 in.	DN40	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2FQ3D2B	2 in.	DN50	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2FQ3D2D	2 in.	DN50	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2FQ3S2B	2 in.	DN50	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2FQ3S2D	2 in.	DN50	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2FR3D2B	2 in.	DN50	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2FR3D2D	2 in.	DN50	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2FR3S2B	2 in.	DN50	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2FR3S2D	2 in.	DN50	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2FS3D2B	2 in.	DN50	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2FS3D2D	2 in.	DN50	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2FS3S2B	2 in.	DN50	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2FS3S2D	2 in.	DN50	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2FT3D2B	2 in.	DN50	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2FT3D2D	2 in.	DN50	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2FT3S2B	2 in.	DN50	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2FT3S2D	2 in.	DN50	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2FU3D2B	2 in.	DN50	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2FU3D2D	2 in.	DN50	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2FU3S2B	2 in.	DN50	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2FU3S2D	2 in.	DN50	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2F13D2B	2 in.	DN50	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2F13D2D	2 in.	DN50	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2F13S2B	2 in.	DN50	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2F13S2D	2 in.	DN50	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2F23D2B	2 in.	DN50	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2F23D2D	2 in.	DN50	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2F23S2B	2 in.	DN50	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2F23S2D	2 in.	DN50	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/Ball/Disc)	(Stem)		
VRN2F33D2B	2 in.	DN50	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2F33D2D	2 in.	DN50	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2F33S2B	2 in.	DN50	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2F33S2D	2 in.	DN50	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2F43D2B	2 in.	DN50	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2F43D2D	2 in.	DN50	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2F43S2B	2 in.	DN50	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2F43S2D	2 in.	DN50	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2F53D2B	2 in.	DN50	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2F53D2D	2 in.	DN50	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2F53S2B	2 in.	DN50	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2F53S2D	2 in.	DN50	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2F63D2B	2 in.	DN50	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2F63D2D	2 in.	DN50	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2F63S2B	2 in.	DN50	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2F63S2D	2 in.	DN50	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2GQ3D2B	2-1/2 in.	DN65	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2GQ3D2D	2-1/2 in.	DN65	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2GQ3S2B	2-1/2 in.	DN65	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2GQ3S2D	2-1/2 in.	DN65	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2GR3D2B	2-1/2 in.	DN65	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2GR3D2D	2-1/2 in.	DN65	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2GR3S2B	2-1/2 in.	DN65	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2GR3S2D	2-1/2 in.	DN65	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2GS3D2B	2-1/2 in.	DN65	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2GS3D2D	2-1/2 in.	DN65	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2GS3S2B	2-1/2 in.	DN65	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2GS3S2D	2-1/2 in.	DN65	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2GT3D2B	2-1/2 in.	DN65	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2GT3D2D	2-1/2 in.	DN65	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2GT3S2B	2-1/2 in.	DN65	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2GT3S2D	2-1/2 in.	DN65	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2GU3D2B	2-1/2 in.	DN65	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/ Ball/ Disc)	(Stem)		
VRN2GU3D2D	2-1/2 in.	DN65	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2GU3S2B	2-1/2 in.	DN65	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2GU3S2D	2-1/2 in.	DN65	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G13D2B	2-1/2 in.	DN65	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G13D2D	2-1/2 in.	DN65	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G13S2B	2-1/2 in.	DN65	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G13S2D	2-1/2 in.	DN65	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G23D2B	2-1/2 in.	DN65	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G23D2D	2-1/2 in.	DN65	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G23S2B	2-1/2 in.	DN65	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G23S2D	2-1/2 in.	DN65	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G33D2B	2-1/2 in.	DN65	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G33D2D	2-1/2 in.	DN65	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G33S2B	2-1/2 in.	DN65	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G33S2D	2-1/2 in.	DN65	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G43D2B	2-1/2 in.	DN65	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G43D2D	2-1/2 in.	DN65	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G43S2B	2-1/2 in.	DN65	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G43S2D	2-1/2 in.	DN65	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G53D2B	2-1/2 in.	DN65	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G53D2D	2-1/2 in.	DN65	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G53S2B	2-1/2 in.	DN65	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G53S2D	2-1/2 in.	DN65	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G63D2B	2-1/2 in.	DN65	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G63D2D	2-1/2 in.	DN65	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G63S2B	2-1/2 in.	DN65	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G63S2D	2-1/2 in.	DN65	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G73D2B	2-1/2 in.	DN65	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G73D2D	2-1/2 in.	DN65	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G73S2B	2-1/2 in.	DN65	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G73S2D	2-1/2 in.	DN65	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G83D2B	2-1/2 in.	DN65	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G83D2D	2-1/2 in.	DN65	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/Ball/Disc)	(Stem)		
VRN2G83S2B	2-1/2 in.	DN65	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G83S2D	2-1/2 in.	DN65	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2HQ3D2B	3 in.	DN80	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2HQ3D2D	3 in.	DN80	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2HQ3S2B	3 in.	DN80	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2HQ3S2D	3 in.	DN80	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2HR3D2B	3 in.	DN80	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2HR3D2D	3 in.	DN80	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2HR3S2B	3 in.	DN80	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2HR3S2D	3 in.	DN80	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2HS3D2B	3 in.	DN80	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2HS3D2D	3 in.	DN80	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2HS3S2B	3 in.	DN80	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2HS3S2D	3 in.	DN80	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2HT3D2B	3 in.	DN80	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2HT3D2D	3 in.	DN80	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2HT3S2B	3 in.	DN80	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2HT3S2D	3 in.	DN80	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2HU3D2B	3 in.	DN80	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2HU3D2D	3 in.	DN80	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2HU3S2B	3 in.	DN80	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2HU3S2D	3 in.	DN80	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H13D2B	3 in.	DN80	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H13D2D	3 in.	DN80	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H13S2B	3 in.	DN80	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H13S2D	3 in.	DN80	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H23D2B	3 in.	DN80	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H23D2D	3 in.	DN80	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H23S2B	3 in.	DN80	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H23S2D	3 in.	DN80	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H33D2B	3 in.	DN80	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H33D2D	3 in.	DN80	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H33S2B	3 in.	DN80	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/ Ball/ Disc)	(Stem)		
VRN2H33S2D	3 in.	DN80	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H43D2B	3 in.	DN80	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H43D2D	3 in.	DN80	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H43S2B	3 in.	DN80	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H43S2D	3 in.	DN80	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H53D2B	3 in.	DN80	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H53D2D	3 in.	DN80	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H53S2B	3 in.	DN80	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H53S2D	3 in.	DN80	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H63D2B	3 in.	DN80	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H63D2D	3 in.	DN80	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H63S2B	3 in.	DN80	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H63S2D	3 in.	DN80	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H73D2B	3 in.	DN80	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H73D2D	3 in.	DN80	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H73S2B	3 in.	DN80	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H73S2D	3 in.	DN80	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H83D2B	3 in.	DN80	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H83D2D	3 in.	DN80	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H83S2B	3 in.	DN80	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H83S2D	3 in.	DN80	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	

Comments: No feedback signal

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/ Ball/ Disc)	(Stem)		
VRN2AB3D2A	1/2 in.	DN15	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2AB3DFX	1/2 in.	DN15	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2AB3S2A	1/2 in.	DN15	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2AB3SFX	1/2 in.	DN15	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2AD3D2A	1/2 in.	DN15	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2AD3DFX	1/2 in.	DN15	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2AD3S2A	1/2 in.	DN15	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2AD3SFX	1/2 in.	DN15	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2AE3D2A	1/2 in.	DN15	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/ Ball/ Disc)	(Stem)		
VRN2AE3DFX	1/2 in.	DN15	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2AE3S2A	1/2 in.	DN15	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2AE3SFX	1/2 in.	DN15	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2AF3D2A	1/2 in.	DN15	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2AF3DFX	1/2 in.	DN15	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2AF3S2A	1/2 in.	DN15	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2AF3SFX	1/2 in.	DN15	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2AG3D2A	1/2 in.	DN15	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2AG3DFX	1/2 in.	DN15	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2AG3S2A	1/2 in.	DN15	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2AG3SFX	1/2 in.	DN15	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2AH3D2A	1/2 in.	DN15	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2AH3DFX	1/2 in.	DN15	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2AH3S2A	1/2 in.	DN15	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2AH3SFX	1/2 in.	DN15	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2AJ3D2A	1/2 in.	DN15	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2AJ3DFX	1/2 in.	DN15	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2AJ3S2A	1/2 in.	DN15	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2AJ3SFX	1/2 in.	DN15	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BB3D2A	3/4 in.	DN20	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BB3DFX	3/4 in.	DN20	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BB3S2A	3/4 in.	DN20	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BB3SFX	3/4 in.	DN20	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BD3D2A	3/4 in.	DN20	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BD3DFX	3/4 in.	DN20	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BD3S2A	3/4 in.	DN20	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BD3SFX	3/4 in.	DN20	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BE3D2A	3/4 in.	DN20	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BE3DFX	3/4 in.	DN20	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BE3S2A	3/4 in.	DN20	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BE3SFX	3/4 in.	DN20	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BF3D2A	3/4 in.	DN20	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BF3DFX	3/4 in.	DN20	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/Ball/Disc)	(Stem)		
VRN2BF3S2A	3/4 in.	DN20	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BF3SFX	3/4 in.	DN20	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BG3D2A	3/4 in.	DN20	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BG3DFX	3/4 in.	DN20	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BG3S2A	3/4 in.	DN20	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BG3SFX	3/4 in.	DN20	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BH3D2A	3/4 in.	DN20	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BH3DFX	3/4 in.	DN20	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BH3S2A	3/4 in.	DN20	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BH3SFX	3/4 in.	DN20	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BJ3D2A	3/4 in.	DN20	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BJ3DFX	3/4 in.	DN20	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BJ3S2A	3/4 in.	DN20	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BJ3SFX	3/4 in.	DN20	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BK3D2A	3/4 in.	DN20	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BK3DFX	3/4 in.	DN20	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BK3S2A	3/4 in.	DN20	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BK3SFX	3/4 in.	DN20	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BL3D2A	3/4 in.	DN20	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BL3DFX	3/4 in.	DN20	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2BL3S2A	3/4 in.	DN20	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BL3SFX	3/4 in.	DN20	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CB3D2A	1 in.	DN25	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CB3DFX	1 in.	DN25	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CB3S2A	1 in.	DN25	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CB3SFX	1 in.	DN25	1.0 gpm	0.23 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CD3D2A	1 in.	DN25	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CD3DFX	1 in.	DN25	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CD3S2A	1 in.	DN25	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CD3SFX	1 in.	DN25	2.0 gpm	0.45 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CE3D2A	1 in.	DN25	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CE3DFX	1 in.	DN25	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CE3S2A	1 in.	DN25	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/ Ball/ Disc)	(Stem)		
VRN2CE3SFX	1 in.	DN25	3.0 gpm	0.68 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CF3D2A	1 in.	DN25	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CF3DFX	1 in.	DN25	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CF3S2A	1 in.	DN25	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CF3SFX	1 in.	DN25	4.0 gpm	0.91 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CG3D2A	1 in.	DN25	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CG3DFX	1 in.	DN25	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CG3S2A	1 in.	DN25	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CG3SFX	1 in.	DN25	5.0 gpm	1.14 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CH3D2A	1 in.	DN25	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CH3DFX	1 in.	DN25	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CH3S2A	1 in.	DN25	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CH3SFX	1 in.	DN25	6.0 gpm	1.36 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CJ3D2A	1 in.	DN25	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CJ3DFX	1 in.	DN25	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CJ3S2A	1 in.	DN25	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CJ3SFX	1 in.	DN25	7.0 gpm	1.59 m ³ /h	6.5 ft	3.0 psid	21 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CK3D2A	1 in.	DN25	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CK3DFX	1 in.	DN25	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CK3S2A	1 in.	DN25	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CK3SFX	1 in.	DN25	8.0 gpm	1.82 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CL3D2A	1 in.	DN25	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CL3DFX	1 in.	DN25	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CL3S2A	1 in.	DN25	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CL3SFX	1 in.	DN25	9.0 gpm	2.04 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2CM3D2A	1 in.	DN25	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CM3DFX	1 in.	DN25	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2CM3S2A	1 in.	DN25	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CM3SFX	1 in.	DN25	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2CN3D2A	1 in.	DN25	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CN3DFX	1 in.	DN25	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2CN3S2A	1 in.	DN25	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CN3SFX	1 in.	DN25	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/Ball/Disc)	(Stem)		
VRN2CP3D2A	1 in.	DN25	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CP3DFX	1 in.	DN25	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2CP3S2A	1 in.	DN25	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2CP3SFX	1 in.	DN25	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2DM3D2A	1-1/4 in.	DN32	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2DM3DFX	1-1/4 in.	DN32	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2DM3S2A	1-1/4 in.	DN32	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2DM3SFX	1-1/4 in.	DN32	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2DN3D2A	1-1/4 in.	DN32	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2DN3DFX	1-1/4 in.	DN32	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2DN3S2A	1-1/4 in.	DN32	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2DN3SFX	1-1/4 in.	DN32	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2DP3D2A	1-1/4 in.	DN32	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2DP3DFX	1-1/4 in.	DN32	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2DP3S2A	1-1/4 in.	DN32	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2DP3SFX	1-1/4 in.	DN32	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2DQ3D2A	1-1/4 in.	DN32	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2DQ3DFX	1-1/4 in.	DN32	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2DQ3S2A	1-1/4 in.	DN32	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2DQ3SFX	1-1/4 in.	DN32	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2DR3D2A	1-1/4 in.	DN32	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2DR3DFX	1-1/4 in.	DN32	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2DR3S2A	1-1/4 in.	DN32	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2DR3SFX	1-1/4 in.	DN32	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2EU3D2A	1-1/2 in.	DN40	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2EU3DFX	1-1/2 in.	DN40	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2EU3S2A	1-1/2 in.	DN40	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2EU3SFX	1-1/2 in.	DN40	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2E13D2A	1-1/2 in.	DN40	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2E13DFX	1-1/2 in.	DN40	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2E13S2A	1-1/2 in.	DN40	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2E13SFX	1-1/2 in.	DN40	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2EM3D2A	1-1/2 in.	DN40	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/ Ball/ Disc)	(Stem)		
VRN2EM3DFX	1-1/2 in.	DN40	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2EM3S2A	1-1/2 in.	DN40	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2EM3SFX	1-1/2 in.	DN40	10 gpm	2.27 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2EN3D2A	1-1/2 in.	DN40	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2EN3DFX	1-1/2 in.	DN40	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2EN3S2A	1-1/2 in.	DN40	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2EN3SFX	1-1/2 in.	DN40	15 gpm	3.41 m ³ /h	6.5 ft	3.0 psid	21 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2EP3D2A	1-1/2 in.	DN40	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2EP3DFX	1-1/2 in.	DN40	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2EP3S2A	1-1/2 in.	DN40	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2EP3SFX	1-1/2 in.	DN40	20 gpm	4.54 m ³ /h	8.7 ft	4.0 psid	28 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2EQ3D2A	1-1/2 in.	DN40	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2EQ3DFX	1-1/2 in.	DN40	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2EQ3S2A	1-1/2 in.	DN40	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2EQ3SFX	1-1/2 in.	DN40	25 gpm	5.68 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2ER3D2A	1-1/2 in.	DN40	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2ER3DFX	1-1/2 in.	DN40	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2ER3S2A	1-1/2 in.	DN40	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2ER3SFX	1-1/2 in.	DN40	30 gpm	6.81 m ³ /h	10.9 ft	5.0 psid	34 kPa	109 ft	50 psid	340 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2ES3D2A	1-1/2 in.	DN40	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2ES3DFX	1-1/2 in.	DN40	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2ES3S2A	1-1/2 in.	DN40	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2ES3SFX	1-1/2 in.	DN40	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2ET3D2A	1-1/2 in.	DN40	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2ET3DFX	1-1/2 in.	DN40	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2ET3S2A	1-1/2 in.	DN40	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2ET3SFX	1-1/2 in.	DN40	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2FU3D2A	2 in.	DN50	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2FU3DFX	2 in.	DN50	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2FU3S2A	2 in.	DN50	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2FU3SFX	2 in.	DN50	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2F13D2A	2 in.	DN50	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2F13DFX	2 in.	DN50	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/Ball/Disc)	(Stem)		
VRN2F13S2A	2 in.	DN50	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2F13SFX	2 in.	DN50	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2F23D2A	2 in.	DN50	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2F23DFX	2 in.	DN50	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2F23S2A	2 in.	DN50	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2F23SFX	2 in.	DN50	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2F33D2A	2 in.	DN50	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2F33DFX	2 in.	DN50	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2F33S2A	2 in.	DN50	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2F33SFX	2 in.	DN50	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2F43D2A	2 in.	DN50	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2F43DFX	2 in.	DN50	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2F43S2A	2 in.	DN50	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2F43SFX	2 in.	DN50	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2F53D2A	2 in.	DN50	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2F53DFX	2 in.	DN50	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2F53S2A	2 in.	DN50	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2F53SFX	2 in.	DN50	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2F63D2A	2 in.	DN50	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2F63DFX	2 in.	DN50	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2F63S2A	2 in.	DN50	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2F63SFX	2 in.	DN50	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2FQ3D2A	2 in.	DN50	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2FQ3DFX	2 in.	DN50	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2FQ3S2A	2 in.	DN50	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2FQ3SFX	2 in.	DN50	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2FR3D2A	2 in.	DN50	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2FR3DFX	2 in.	DN50	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2FR3S2A	2 in.	DN50	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2FR3SFX	2 in.	DN50	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2FS3D2A	2 in.	DN50	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2FS3DFX	2 in.	DN50	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2FS3S2A	2 in.	DN50	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/ Ball/ Disc)	(Stem)		
VRN2F53SFX	2 in.	DN50	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2FT3D2A	2 in.	DN50	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2FT3DFX	2 in.	DN50	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2FT3S2A	2 in.	DN50	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2FT3SFX	2 in.	DN50	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2GU3D2A	2-1/2 in.	DN65	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2GU3DFX	2-1/2 in.	DN65	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2GU3S2A	2-1/2 in.	DN65	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2GU3SFX	2-1/2 in.	DN65	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G13D2A	2-1/2 in.	DN65	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G13DFX	2-1/2 in.	DN65	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G13S2A	2-1/2 in.	DN65	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G13SFX	2-1/2 in.	DN65	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G23D2A	2-1/2 in.	DN65	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G23DFX	2-1/2 in.	DN65	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G23S2A	2-1/2 in.	DN65	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G23SFX	2-1/2 in.	DN65	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G33D2A	2-1/2 in.	DN65	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G33DFX	2-1/2 in.	DN65	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G33S2A	2-1/2 in.	DN65	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G33SFX	2-1/2 in.	DN65	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G43D2A	2-1/2 in.	DN65	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G43DFX	2-1/2 in.	DN65	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G43S2A	2-1/2 in.	DN65	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G43SFX	2-1/2 in.	DN65	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G53D2A	2-1/2 in.	DN65	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G53DFX	2-1/2 in.	DN65	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G53S2A	2-1/2 in.	DN65	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G53SFX	2-1/2 in.	DN65	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G63D2A	2-1/2 in.	DN65	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G63DFX	2-1/2 in.	DN65	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G63S2A	2-1/2 in.	DN65	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G63SFX	2-1/2 in.	DN65	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/Ball/Disc)	(Stem)		
VRN2G73D2A	2-1/2 in.	DN65	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G73DFX	2-1/2 in.	DN65	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G73S2A	2-1/2 in.	DN65	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G73SFX	2-1/2 in.	DN65	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G83D2A	2-1/2 in.	DN65	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G83DFX	2-1/2 in.	DN65	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G83S2A	2-1/2 in.	DN65	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G83SFX	2-1/2 in.	DN65	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2GQ3D2A	2-1/2 in.	DN65	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2GQ3DFX	2-1/2 in.	DN65	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2GQ3S2A	2-1/2 in.	DN65	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2GQ3SFX	2-1/2 in.	DN65	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2GR3D2A	2-1/2 in.	DN65	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2GR3DFX	2-1/2 in.	DN65	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2GR3S2A	2-1/2 in.	DN65	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2GR3SFX	2-1/2 in.	DN65	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2GS3D2A	2-1/2 in.	DN65	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2GS3DFX	2-1/2 in.	DN65	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2GS3S2A	2-1/2 in.	DN65	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2GS3SFX	2-1/2 in.	DN65	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2GT3D2A	2-1/2 in.	DN65	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2GT3DFX	2-1/2 in.	DN65	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2GT3S2A	2-1/2 in.	DN65	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2GT3SFX	2-1/2 in.	DN65	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2HQ3D2A	3 in.	DN80	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2HQ3DFX	3 in.	DN80	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2HQ3S2A	3 in.	DN80	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2HQ3SFX	3 in.	DN80	25 gpm	5.68 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2HR3D2A	3 in.	DN80	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2HR3DFX	3 in.	DN80	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2HR3S2A	3 in.	DN80	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2HR3SFX	3 in.	DN80	30 gpm	6.81 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2HS3D2A	3 in.	DN80	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/ Ball/ Disc)	(Stem)		
VRN2HS3DFX	3 in.	DN80	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2HS3S2A	3 in.	DN80	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2HS3SFX	3 in.	DN80	35 gpm	7.95 m ³ /h	8.7 ft	4.0 psid	28 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2HT3D2A	3 in.	DN80	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2HT3DFX	3 in.	DN80	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2HT3S2A	3 in.	DN80	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2HT3SFX	3 in.	DN80	40 gpm	9.08 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2HU3D2A	3 in.	DN80	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2HU3DFX	3 in.	DN80	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2HU3S2A	3 in.	DN80	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2HU3SFX	3 in.	DN80	45 gpm	10 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H13D2A	3 in.	DN80	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H13DFX	3 in.	DN80	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H13S2A	3 in.	DN80	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H13SFX	3 in.	DN80	50 gpm	11 m ³ /h	13.1 ft	6.0 psid	41 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H23D2A	3 in.	DN80	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H23DFX	3 in.	DN80	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H23S2A	3 in.	DN80	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H23SFX	3 in.	DN80	55 gpm	12 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H33D2A	3 in.	DN80	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H33DFX	3 in.	DN80	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H33S2A	3 in.	DN80	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H33SFX	3 in.	DN80	60 gpm	14 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H43D2A	3 in.	DN80	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H43DFX	3 in.	DN80	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H43S2A	3 in.	DN80	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H43SFX	3 in.	DN80	65 gpm	15 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H53D2A	3 in.	DN80	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H53DFX	3 in.	DN80	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H53S2A	3 in.	DN80	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H53SFX	3 in.	DN80	70 gpm	16 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H63D2A	3 in.	DN80	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H63DFX	3 in.	DN80	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/Ball/Disc)	(Stem)		
VRN2H63S2A	3 in.	DN80	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H63SFX	3 in.	DN80	75 gpm	17 m ³ /h	15.2 ft	7.0 psid	48 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H73D2A	3 in.	DN80	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H73DFX	3 in.	DN80	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H73S2A	3 in.	DN80	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H73SFX	3 in.	DN80	80 gpm	18 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H83D2A	3 in.	DN80	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H83DFX	3 in.	DN80	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H83S2A	3 in.	DN80	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H83SFX	3 in.	DN80	85 gpm	19 m ³ /h	21.8 ft	10.0 psid	69 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque

Flow Characteristics: Full port ball

Comments: Full port ball; 2 - 10V position feedback signal

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/Ball/Disc)	(Stem)		
VRN2BM3D2B	3/4 in.	DN20	10 gpm	2.27 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BM3D2D	3/4 in.	DN20	10 gpm	2.27 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2BM3S2B	3/4 in.	DN20	10 gpm	2.27 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2BM3S2D	3/4 in.	DN20	10 gpm	2.27 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2DS3D2B	1-1/4 in.	DN32	35 gpm	7.95 m ³ /h	14.1 ft	6.5 psid	45 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2DS3D2D	1-1/4 in.	DN32	35 gpm	7.95 m ³ /h	14.1 ft	6.5 psid	45 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2DS3S2D	1-1/4 in.	DN32	35 gpm	7.95 m ³ /h	14.1 ft	6.5 psid	45 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G93D2B	2-1/2 in.	DN65	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G93D2D	2-1/2 in.	DN65	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2G93S2B	2-1/2 in.	DN65	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2G93S2D	2-1/2 in.	DN65	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H93D2B	3 in.	DN80	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H93D2D	3 in.	DN80	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MS7505 "Zelix" Modulating Spring Return DCA	
VRN2H93S2B	3 in.	DN80	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN7505 Modulating DCA	SSW2 Auxiliary switch kit
VRN2H93S2D	3 in.	DN80	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MS7505 "Zelix" Modulating Spring Return DCA	

Pressure-regulated Control Valves

Comments: Full port ball; No feedback

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials		Includes	Available Accessories
	(inch)	(DN)	(gpm)	(m ³ /h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	(Plug/Ball/Disc)	(Stem)		
VRN2BM3D2A	3/4 in.	DN20	10 gpm	2.27 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BM3DFX	3/4 in.	DN20	10 gpm	2.27 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2BM3S2A	3/4 in.	DN20	10 gpm	2.27 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2BM3SFX	3/4 in.	DN20	10 gpm	2.27 m ³ /h	13.1 ft	6.0 psid	41 kPa	76 ft	35 psid	240 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 27 lb-in torque
VRN2DS3D2A	1-1/4 in.	DN32	35 gpm	7.95 m ³ /h	14.1 ft	6.5 psid	45 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2DS3DFX	1-1/4 in.	DN32	35 gpm	7.95 m ³ /h	14.1 ft	6.5 psid	45 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2DS3S2A	1-1/4 in.	DN32	35 gpm	7.95 m ³ /h	14.1 ft	6.5 psid	45 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2DS3SFX	1-1/4 in.	DN32	35 gpm	7.95 m ³ /h	14.1 ft	6.5 psid	45 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G93D2A	2-1/2 in.	DN65	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G93DFX	2-1/2 in.	DN65	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2G93S2A	2-1/2 in.	DN65	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2G93SFX	2-1/2 in.	DN65	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H93D2A	3 in.	DN80	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H93DFX	3 in.	DN80	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Plated brass	Brass	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque
VRN2H93S2A	3 in.	DN80	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	MN6105 Floating DCA	SSW2 Auxiliary switch kit
VRN2H93SFX	3 in.	DN80	95 gpm	22 m ³ /h	26.1 ft	12.0 psid	83 kPa	126 ft	58 psid	400 kPa	Stainless Steel	Stainless Steel	Two shafts, universal anti-rotation bar	DCA, minimum 35 lb-in torque

Pressure-regulated Control Valves

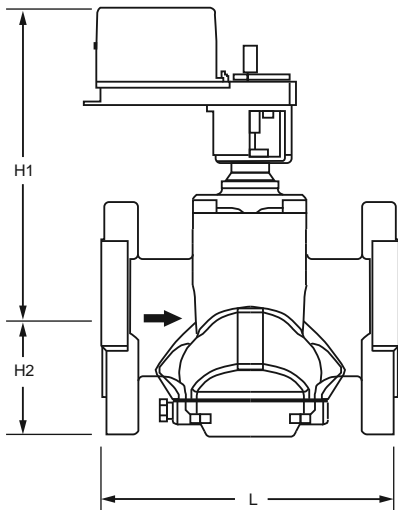
Wafer Flanged Dynamic Pressure-regulated Control Valves



The VRW2 two-way dynamic pressure-regulating control valves maintain constant flow of hot and chilled water in closed-loop heating, ventilating, and air conditioning (HVAC) systems regardless of head pressure fluctuations above minimum specified pressure drop. These valves come complete with proportional, stay-in-place or electronic fail-safe actuators.

The built-in differential pressure regulator makes fluid flow through the valve independent of changes in supply pressure, eliminating "hunting" by the control system, even at low coil flow. The pressure regulator virtually eliminates cavitation in the valve, and decouples the control valve from the effects of piping components such as reducers and elbows.

Dimensions in inches (millimeters)



L		H ₁		H ₂	
in.	mm	in.	mm	in.	mm
8 3/4	224	9 3/4	246	3 3/4	95
12 5/8	320	11 3/8	290	5 1/4	135
16 5/8	422	13 1/4	338	7 1/8	180

M31311

Pressure independent control valves are sized to match design coil flow regardless of coil size. VRW2 valves eliminate the need to balance the system for proper flow, and allow chillers to be operated at design temperature differential for maximum efficiency at every load condition. When used in a system with variable speed pump drives, 3-way valves and coil bypass lines are not required.

Systems that utilize the capabilities of properly installed, adjusted, and monitored pressure-independent control valves may qualify for LEED points.

- Multi-sized bodies from 2 1/2 to 6 inch pipes with wafer flanged connections.
- Combination ANSI/ASME Class 150/300 pressure rating.
- Controls hot or chilled water with up to 50% glycol.
- Regulated flow rates available from 39 to 469 gpm.
- Stainless steel pressure regulator maintains constant pressure drop across valve seat.
- Positive pressure, rolling diaphragm regulator design provides flow control accuracy of ±5% over specified pressure range.
- Equal percentage flow characteristic using multi turn, non-rising, characterized plug.
- High close-off rating.
- 50 discrete, selectable flow rates available per valve size.
- Stainless steel trim.
- Six-turn actuator with floating or modulating inputs available with stay-in-place or electronic fail-safe action.
- Fail-safe actuators field-configurable for normally open or normally closed power failure return position.
- Two Test Ports for venting or pressure gauge attachment.

Valve Type: Wafer flanged dynamic pressure-regulated control valve

Body Pattern: 2-way, straight-through

Flow Characteristic: Equal Percentage

Pipe Connection Type: Wafer flange

Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

Valve Action: Multi-turn linear

Leakage Rating: 0.2% max.

Maximum Safe Operating Pressure: 580 psig (4000 kPa)

Maximum Safe Operating Temperature: 248 F (120 C)

Maximum Close-off Pressure: 101 psid (700 kPa)

Fluid Temperature Range: -4 F to 248 F (-20 C to 120 C)

Ambient Temperature Range: 14 F to 131 F (-10 C to 55 C)

Accuracy: ±5% over specified pressure range

Stem Travel: 1 to 6 Rotations in 51 equal, field-selectable increments

ANSI/ ASME Class: 150/300

Comments: 2 - 10V position feedback signal

Materials

(Body): Ductile Iron, ASTM A536ñ65T, Class 60-45-18

(Stem): Stainless Steel

(Seat): 316 Stainless steel

(Regulator): 316 Stainless steel

(Plug/Ball/Disc): 316 stainless steel

(Packing): EPDM and Nitrile O-rings

(Diaphragm): EPDM

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Includes
	(inch)	(DN)	(gpm)	(m3/h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	
VRW2JV4SMB	2-1/2 in.; 3 in.	DN65; DN80	112 gpm	25 m3/h	11.1 ft	5.1 psid	35 kPa	126 ft	58 psid	400 kPa	Modulating/Floating actuator
VRW2JV4SMD	2-1/2 in.; 3 in.	DN65; DN80	112 gpm	25 m3/h	11.1 ft	5.1 psid	35 kPa	126 ft	58 psid	400 kPa	Modulating/Floating Fail-safe actuator
VRW2JW4SMB	2-1/2 in.; 3 in.	DN65; DN80	155 gpm	35 m3/h	25.3 ft	11.6 psid	80 kPa	126 ft	58 psid	400 kPa	Modulating/Floating actuator

Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Includes
	(inch)	(DN)	(gpm)	(m3/h)	(ft)	(psi)	(kPa)	(ft)	(psi)	(kPa)	
VRW2JW4SMD	2-1/2 in.; 3 in.	DN65; DN80	155 gpm	35 m3/h	25.3 ft	11.6 psid	80 kPa	126 ft	58 psid	400 kPa	Modulating/Floating Fail-safe actuator
VRW2KV4SMB	3in.; 4 in.	DN80; DN100	147 gpm	33 m3/h	11.1 ft	5.1 psid	35 kPa	126 ft	58 psid	400 kPa	Modulating/Floating actuator
VRW2KV4SMD	3in.; 4 in.	DN80; DN100	147 gpm	33 m3/h	11.1 ft	5.1 psid	35 kPa	126 ft	58 psid	400 kPa	Modulating/Floating Fail-safe actuator
VRW2KW4SMB	3in.; 4 in.	DN80; DN100	222 gpm	50 m3/h	18.7 ft	8.6 psid	59 kPa	126 ft	58 psid	400 kPa	Modulating/Floating actuator
VRW2KW4SMD	3in.; 4 in.	DN80; DN100	222 gpm	50 m3/h	18.7 ft	8.6 psid	59 kPa	126 ft	58 psid	400 kPa	Modulating/Floating Fail-safe actuator
VRW2LV4SMB	5 in.; 6 in.	DN125; DN150	370 gpm	84 m3/h	11.1 ft	5.1 psid	35 kPa	126 ft	58 psid	400 kPa	Modulating/Floating actuator
VRW2LV4SMD	5 in.; 6 in.	DN125; DN150	370 gpm	84 m3/h	11.1 ft	5.1 psid	35 kPa	126 ft	58 psid	400 kPa	Modulating/Floating Fail-safe actuator
VRW2LW4SMB	5 in.; 6 in.	DN125; DN150	469 gpm	106 m3/h	18.7 ft	8.6 psid	59 kPa	126 ft	58 psid	400 kPa	Modulating/Floating actuator
VRW2LW4SMD	5 in.; 6 in.	DN125; DN150	469 gpm	106 m3/h	18.7 ft	8.6 psid	59 kPa	126 ft	58 psid	400 kPa	Modulating/Floating Fail-safe actuator

Control Ball Valves

VBF2; VBF3; VBN2; VBN3 Control Ball Valves

Valve	Fitting	Body/Flow	Size	C _V	T/P	Trim	Enclosure	Actuator
VB = valve, ball								
F = Flanged								
N = Female NPT threaded								
2 = 2 way								
3 = 3 way								
			inch	S.I. metric				
A			1/2	DN15				
B			3/4	DN20				
C			1	DN25				
D			1-1/4	DN32				
E			1-1/2	DN40				
F			2	DN50				
G			2-1/2	DN65				
H			3	DN80				
J			4	DN100				
K			5	DN125				
L			6	DN150				
B				C _V Designator (specific values vary by valve size)				
C								
D								
E								
F								
....								
S								
T								
U								
1								
2								
3								
4								
5								
6								
7								
1 = ANSI Valve construction								
3 = ANSI 300 Valve construction								
P = Plated (chrome or nickel)								
S = Stainless Steel								
0 = no enclosure								
R = NEMA 3R enclosure								
X = no actuator								
A = NSR, Floating, conduit								
B = NSR, Modulating								
C = SR, 2-Position, 24 Vac								
D = SR, Floating/Modulating								
F = NSR, Floating, open terminal strip, 1/2 and 3/4 inch only								

VB	F	2	A	B	1	S	0	A
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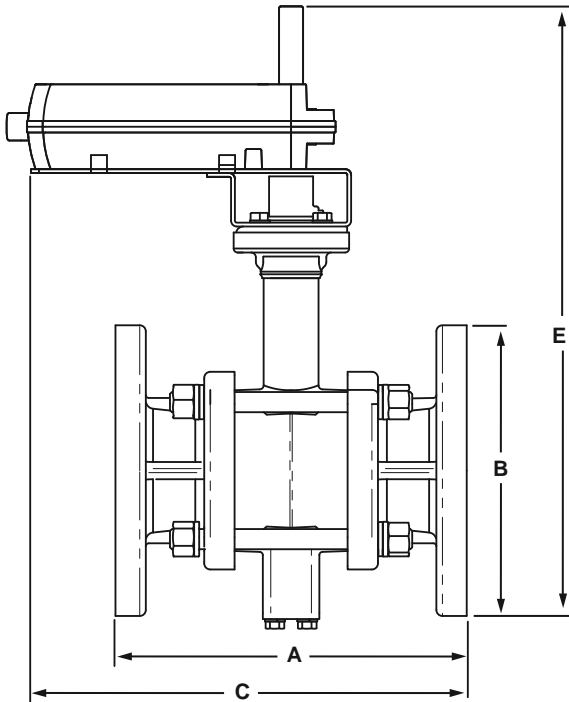
VBF2 Two-way Flanged Control Ball Valve



The VBF2 Two-Way Ball Valve Assemblies, with and without actuators, control hot and chilled water with glycol solutions up to 50% in closed loop heating, ventilating, and air conditioning (HVAC) systems to provide two-position or modulating functions. These valve assemblies can be ordered with or without factory-mounted non-spring return or spring return direct-coupled actuators (DCA).

- Sizes from 4 to 6 inch with ANSI Class 125 flanged connections.
- Equal percentage or linear flow characteristics.
- Choice of four, factory-installed actuation control schemes: Floating, Modulating (2-10 V), Spring Return 24V 2-Position, Spring Return Modulating/Floating.
- Field configurable for normally open or normally closed fail-safe position.
- Removable manual operating handle to control valve during installation or in an event of power failure.
- ANSI Class IV leakage specification (0.01% of Cv).
- Optional NEMA 3R (IP54) rated enclosure for outdoor applications.
- Option of four actuator mounting positions on the valve.
- Wide range of Cv choices from 91 to 650.
- Valve ball and stem 316 stainless steel.

Dimensions in inches (millimeters)



Valve Type: Control Ball Valve

Body Pattern: Two-way

Connection Type: Flanged

Flow Characteristic: Equal Percentage

Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

Leakage Rating: ANSI Class IV (0.01% of Cv maximum)

Maximum Safe Operating Pressure: 240 psi (1655 kPa)

Maximum Differential Pressure Ratings (Close-off):

70 psi (483 kPa)

Fluid Temperature Range: -22 F to +250 F (-30 C to +121 F)

Materials

(Body): Cast Iron

(Stem): 316 Stainless Steel

(Seat): Teflon®

(Plug/Ball/Disc): 316 stainless steel

Size (in.)	Model Number	A in. (mm)	B in. (mm)	C in. (mm)	D (depth) (not shown) in. (mm)	E in. (mm)	Wt. lb (kg)
4	VBF2J	11 (278)	9 (229)	13-1/4 (337)	9 (229)	18-3/4 (476)	65 (31)
5	VBF2K	12-3/8 (352)	10 (254)	14-1/4 (362)	10 (254)	19 (483)	75 (34)
6	VBF2L	13-7/8 (352)	11 (278)	15-1/8 (384)	11 (278)	19-7/8 (505)	90 (41)

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Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure
	(inch)	DN	(Cv)	(Kv)		
VBF2JS1SRA	4 in.	DN100	91 Cv	78 kvs	Non-Spring Return Floating	NEMA 3R
VBF2JS1SRB	4 in.	DN100	91 Cv	78 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2JS1SRC	4 in.	DN100	91 Cv	78 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2JS1SRD	4 in.	DN100	91 Cv	78 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF2JS1S0A	4 in.	DN100	91 Cv	78 kvs	Non-Spring Return Floating	None
VBF2JS1S0B	4 in.	DN100	91 Cv	78 kvs	Non-Spring Return Modulating	None
VBF2JS1S0C	4 in.	DN100	91 Cv	78 kvs	Spring Return 2-Position, 24Vac	None
VBF2JS1S0D	4 in.	DN100	91 Cv	78 kvs	Spring Return Floating/Modulating	None
VBF2JS1S0X	4 in.	DN100	91 Cv	78 kvs	No pre-assembled actuator	None
VBF2JT1SRA	4 in.	DN100	118 Cv	101 kvs	Non-Spring Return Floating	NEMA 3R
VBF2JT1SRB	4 in.	DN100	118 Cv	101 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2JT1SRC	4 in.	DN100	118 Cv	101 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2JT1SRD	4 in.	DN100	118 Cv	101 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF2JT1S0A	4 in.	DN100	118 Cv	101 kvs	Non-Spring Return Floating	None
VBF2JT1S0B	4 in.	DN100	118 Cv	101 kvs	Non-Spring Return Modulating	None
VBF2JT1S0C	4 in.	DN100	118 Cv	101 kvs	Spring Return 2-Position, 24Vac	None
VBF2JT1S0D	4 in.	DN100	118 Cv	101 kvs	Spring Return Floating/Modulating	None
VBF2JT1S0X	4 in.	DN100	118 Cv	101 kvs	No pre-assembled actuator	None
VBF2JU1SRA	4 in.	DN100	152 Cv	131 kvs	Non-Spring Return Floating	NEMA 3R
VBF2JU1SRB	4 in.	DN100	152 Cv	131 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2JU1SRC	4 in.	DN100	152 Cv	131 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2JU1SRD	4 in.	DN100	152 Cv	131 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF2JU1S0A	4 in.	DN100	152 Cv	131 kvs	Non-Spring Return Floating	None
VBF2JU1S0B	4 in.	DN100	152 Cv	131 kvs	Non-Spring Return Modulating	None
VBF2JU1S0C	4 in.	DN100	152 Cv	131 kvs	Spring Return 2-Position, 24Vac	None
VBF2JU1S0D	4 in.	DN100	152 Cv	131 kvs	Spring Return Floating/Modulating	None
VBF2JU1S0X	4 in.	DN100	152 Cv	131 kvs	No pre-assembled actuator	None
VBF2J11SRA	4 in.	DN100	197 Cv	169 kvs	Non-Spring Return Floating	NEMA 3R
VBF2J11SRB	4 in.	DN100	197 Cv	169 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2J11SRC	4 in.	DN100	197 Cv	169 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2J11SRD	4 in.	DN100	197 Cv	169 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF2J11S0A	4 in.	DN100	197 Cv	169 kvs	Non-Spring Return Floating	None
VBF2J11S0B	4 in.	DN100	197 Cv	169 kvs	Non-Spring Return Modulating	None
VBF2J11S0C	4 in.	DN100	197 Cv	169 kvs	Spring Return 2-Position, 24Vac	None
VBF2J11S0D	4 in.	DN100	197 Cv	169 kvs	Spring Return Floating/Modulating	None
VBF2J11S0X	4 in.	DN100	197 Cv	169 kvs	No pre-assembled actuator	None
VBF2J21SRA	4 in.	DN100	254 Cv	218 kvs	Non-Spring Return Floating	NEMA 3R
VBF2J21SRB	4 in.	DN100	254 Cv	218 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2J21SRC	4 in.	DN100	254 Cv	218 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2J21SRD	4 in.	DN100	254 Cv	218 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF2J21S0A	4 in.	DN100	254 Cv	218 kvs	Non-Spring Return Floating	None
VBF2J21S0B	4 in.	DN100	254 Cv	218 kvs	Non-Spring Return Modulating	None
VBF2J21S0C	4 in.	DN100	254 Cv	218 kvs	Spring Return 2-Position, 24Vac	None
VBF2J21S0D	4 in.	DN100	254 Cv	218 kvs	Spring Return Floating/Modulating	None
VBF2J21S0X	4 in.	DN100	254 Cv	218 kvs	No pre-assembled actuator	None
VBF2KU1SRA	5 in.	DN125	144 Cv	124 kvs	Non-Spring Return Floating	NEMA 3R
VBF2KU1SRB	5 in.	DN125	144 Cv	124 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2KU1SRC	5 in.	DN125	144 Cv	124 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2KU1SRD	5 in.	DN125	144 Cv	124 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF2KU1S0A	5 in.	DN125	144 Cv	124 kvs	Non-Spring Return Floating	None
VBF2KU1S0B	5 in.	DN125	144 Cv	124 kvs	Non-Spring Return Modulating	None
VBF2KU1S0C	5 in.	DN125	144 Cv	124 kvs	Spring Return 2-Position, 24Vac	None
VBF2KU1S0D	5 in.	DN125	144 Cv	124 kvs	Spring Return Floating/Modulating	None
VBF2KU1S0X	5 in.	DN125	144 Cv	124 kvs	No pre-assembled actuator	None
VBF2K11SRA	5 in.	DN125	185 Cv	159 kvs	Non-Spring Return Floating	NEMA 3R
VBF2K11SRB	5 in.	DN125	185 Cv	159 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2K11SRC	5 in.	DN125	185 Cv	159 kvs	Spring Return 2-Position, 24Vac	NEMA 3R

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure
	(inch)	DN	(Cv)	(Kv)		
VBF2K11SRD	5 in.	DN125	185 Cv	159 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF2K11S0A	5 in.	DN125	185 Cv	159 kvs	Non-Spring Return Floating	None
VBF2K11S0B	5 in.	DN125	185 Cv	159 kvs	Non-Spring Return Modulating	None
VBF2K11S0C	5 in.	DN125	185 Cv	159 kvs	Spring Return 2-Position, 24Vac	None
VBF2K11S0D	5 in.	DN125	185 Cv	159 kvs	Spring Return Floating/Modulating	None
VBF2K11S0X	5 in.	DN125	185 Cv	159 kvs	No pre-assembled actuator	None
VBF2K21SRA	5 in.	DN125	240 Cv	206 kvs	Non-Spring Return Floating	NEMA 3R
VBF2K21SRB	5 in.	DN125	240 Cv	206 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2K21SRC	5 in.	DN125	240 Cv	206 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2K21SRD	5 in.	DN125	240 Cv	206 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF2K21S0A	5 in.	DN125	240 Cv	206 kvs	Non-Spring Return Floating	None
VBF2K21S0B	5 in.	DN125	240 Cv	206 kvs	Non-Spring Return Modulating	None
VBF2K21S0C	5 in.	DN125	240 Cv	206 kvs	Spring Return 2-Position, 24Vac	None
VBF2K21S0D	5 in.	DN125	240 Cv	206 kvs	Spring Return Floating/Modulating	None
VBF2K21S0X	5 in.	DN125	240 Cv	206 kvs	No pre-assembled actuator	None
VBF2K31SRA	5 in.	DN125	309 Cv	266 kvs	Non-Spring Return Floating	NEMA 3R
VBF2K31SRB	5 in.	DN125	309 Cv	266 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2K31SRC	5 in.	DN125	309 Cv	266 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2K31SRD	5 in.	DN125	309 Cv	266 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF2K31S0A	5 in.	DN125	309 Cv	266 kvs	Non-Spring Return Floating	None
VBF2K31S0B	5 in.	DN125	309 Cv	266 kvs	Non-Spring Return Modulating	None
VBF2K31S0C	5 in.	DN125	309 Cv	266 kvs	Spring Return 2-Position, 24Vac	None
VBF2K31S0D	5 in.	DN125	309 Cv	266 kvs	Spring Return Floating/Modulating	None
VBF2K31S0X	5 in.	DN125	309 Cv	266 kvs	No pre-assembled actuator	None
VBF2K41SRA	5 in.	DN125	400 Cv	344 kvs	Non-Spring Return Floating	NEMA 3R
VBF2K41SRB	5 in.	DN125	400 Cv	344 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2K41SRC	5 in.	DN125	400 Cv	344 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2K41S0A	5 in.	DN125	400 Cv	344 kvs	Non-Spring Return Floating	None
VBF2K41S0B	5 in.	DN125	400 Cv	344 kvs	Non-Spring Return Modulating	None
VBF2K41S0C	5 in.	DN125	400 Cv	344 kvs	Spring Return 2-Position, 24Vac	None
VBF2K41S0X	5 in.	DN125	400 Cv	344 kvs	No pre-assembled actuator	None
VBF2L11SRA	6 in.	DN150	208 Cv	179 kvs	Non-Spring Return Floating	NEMA 3R
VBF2L11SRB	6 in.	DN150	208 Cv	179 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2L11SRC	6 in.	DN150	208 Cv	179 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2L11SRD	6 in.	DN150	208 Cv	179 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF2L11S0A	6 in.	DN150	208 Cv	179 kvs	Non-Spring Return Floating	None
VBF2L11S0B	6 in.	DN150	208 Cv	179 kvs	Non-Spring Return Modulating	None
VBF2L11S0C	6 in.	DN150	208 Cv	179 kvs	Spring Return 2-Position, 24Vac	None
VBF2L11S0D	6 in.	DN150	208 Cv	179 kvs	Spring Return Floating/Modulating	None
VBF2L11S0X	6 in.	DN150	208 Cv	179 kvs	No pre-assembled actuator	None
VBF2L21SRA	6 in.	DN150	268 Cv	230 kvs	Non-Spring Return Floating	NEMA 3R
VBF2L21SRB	6 in.	DN150	268 Cv	230 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2L21SRC	6 in.	DN150	268 Cv	230 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2L21SRD	6 in.	DN150	268 Cv	230 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF2L21S0A	6 in.	DN150	268 Cv	230 kvs	Non-Spring Return Floating	None
VBF2L21S0B	6 in.	DN150	268 Cv	230 kvs	Non-Spring Return Modulating	None
VBF2L21S0C	6 in.	DN150	268 Cv	230 kvs	Spring Return 2-Position, 24Vac	None
VBF2L21S0D	6 in.	DN150	268 Cv	230 kvs	Spring Return Floating/Modulating	None
VBF2L21S0X	6 in.	DN150	268 Cv	230 kvs	No pre-assembled actuator	None
VBF2L41SRA	6 in.	DN150	346 Cv	298 kvs	Non-Spring Return Floating	NEMA 3R
VBF2L41SRB	6 in.	DN150	346 Cv	298 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2L41SRC	6 in.	DN150	346 Cv	298 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2L41S0A	6 in.	DN150	346 Cv	298 kvs	Non-Spring Return Floating	None
VBF2L41S0B	6 in.	DN150	346 Cv	298 kvs	Non-Spring Return Modulating	None
VBF2L41S0C	6 in.	DN150	346 Cv	298 kvs	Spring Return 2-Position, 24Vac	None
VBF2L41S0X	6 in.	DN150	346 Cv	298 kvs	No pre-assembled actuator	None
VBF2L51SRA	6 in.	DN150	441 Cv	379 kvs	Non-Spring Return Floating	NEMA 3R

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure
	(inch)	DN	(Cv)	(Kv)		
VBF2L51SRB	6 in.	DN150	441 Cv	379 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2L51SRC	6 in.	DN150	441 Cv	379 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2L51S0A	6 in.	DN150	441 Cv	379 kvs	Non-Spring Return Floating	None
VBF2L51S0B	6 in.	DN150	441 Cv	379 kvs	Non-Spring Return Modulating	None
VBF2L51S0C	6 in.	DN150	441 Cv	379 kvs	Spring Return 2-Position, 24Vac	None
VBF2L51S0X	6 in.	DN150	441 Cv	379 kvs	No pre-assembled actuator	None
VBF2L61SRA	6 in.	DN150	577 Cv	496 kvs	Non-Spring Return Floating	NEMA 3R
VBF2L61SRB	6 in.	DN150	577 Cv	496 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2L61SRC	6 in.	DN150	577 Cv	496 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2L61S0A	6 in.	DN150	577 Cv	496 kvs	Non-Spring Return Floating	None
VBF2L61S0B	6 in.	DN150	577 Cv	496 kvs	Non-Spring Return Modulating	None
VBF2L61S0C	6 in.	DN150	577 Cv	496 kvs	Spring Return 2-Position, 24Vac	None
VBF2L61S0X	6 in.	DN150	577 Cv	496 kvs	No pre-assembled actuator	None
VBF2L71SRA	6 in.	DN150	650 Cv	559 kvs	Non-Spring Return Floating	NEMA 3R
VBF2L71SRB	6 in.	DN150	650 Cv	559 kvs	Non-Spring Return Modulating	NEMA 3R
VBF2L71SRC	6 in.	DN150	650 Cv	559 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2L71S0A	6 in.	DN150	650 Cv	559 kvs	Non-Spring Return Floating	None
VBF2L71S0B	6 in.	DN150	650 Cv	559 kvs	Non-Spring Return Modulating	None
VBF2L71S0C	6 in.	DN150	650 Cv	559 kvs	Spring Return 2-Position, 24Vac	None
VBF2L71S0X	6 in.	DN150	650 Cv	559 kvs	No pre-assembled actuator	None

VBF3 Three-way Flanged Control Ball Valve

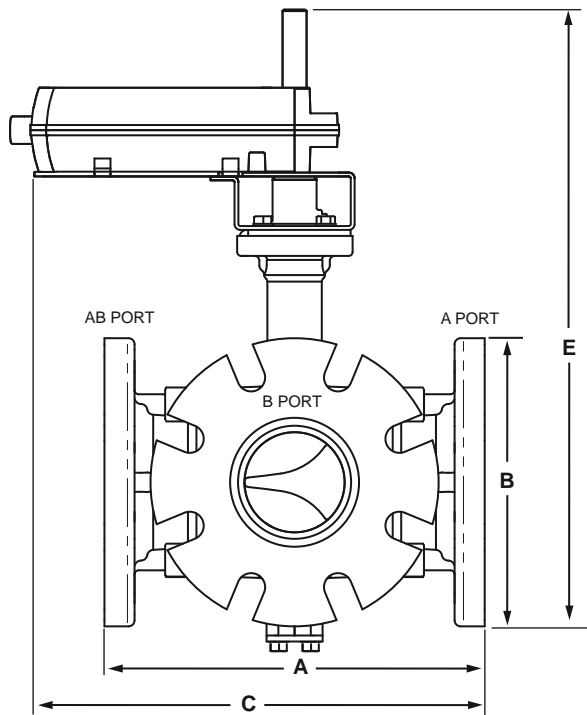


The VBF3 Three-Way Ball Valve Assemblies, with and without actuators, control hot and chilled water with glycol solutions up to

50% in closed loop heating, ventilating, and air conditioning (HVAC) systems to provide two-position or modulating functions. These valve assemblies can be ordered with or without factory-mounted non-spring return or spring return direct-coupled actuators (DCA).

- Sizes from 4 to 6 inch with ANSI Class 125 flanged connections.
- Equal percentage or linear flow characteristics.
- Choice of four, factory-installed actuation control schemes: Floating, Modulating (2-10 V), Spring Return 24V 2-Position, Spring Return Modulating/Floating.
- Field configurable for normally open or normally closed fail-safe position.
- Removable manual operating handle to control valve during installation or in an event of power failure.
- ANSI Class IV A-port seat leakage (0.01% of Cv).
- Optional NEMA 3R (IP54) rated enclosure for outdoor applications.
- Option of four actuator mounting positions on the valve.
- Wide range of Cv choices from 91 to 650.
- Valve ball and stem 316 stainless steel.
- Non-isolating mixing or diverting control.

Dimensions in inches (millimeters)



Valve Type: Control Ball Valve

Body Pattern: Three-way

Connection Type: Flanged

Flow Characteristic: Linear (B-AB); Equal Percentage (A-AB)

Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

Leakage Rating: ANSI Class IV (A port only) B port ~2% leakage

Maximum Safe Operating Pressure: 240 psi (1655 kPa)

Maximum Differential Pressure Ratings (Close-off): 70 psi (483 kPa)

Fluid Temperature Range: -22 F to +250 F (-30 C to +121 F)

Materials

(Body): Cast Iron

(Stem): 316 Stainless Steel

(Seat): Teflon®

(Plug/Ball/Disc): 316 stainless steel

Size (in.)	Model Number	A in. (mm)	B in. (mm)	C in. (mm)	D (depth) (not shown) in. (mm)	E in. (mm)	Wt. lb (kg)
4	VBF3J	11-7/8 (278)	9 (229)	14-1/8 (337)	10-3/8 (229)	18-1/2 (470)	75 (34)
5	VBF3K	13-7/8 (352)	10 (254)	15-1/8 (362)	12 (254)	19-3/8 (483)	90 (41)
6	VBF3L	15-7/8 (403)	11 (278)	16-1/8 (410)	13-3/8 (521)	20-1/2 (521)	105 (48)

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Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure
	(inch)	DN	(Cv)	(Kv)		
VBF3JS1SRA	4 in.	DN100	91 Cv	78 kvs	Non-Spring Return Floating	NEMA 3R
VBF3JS1SRB	4 in.	DN100	91 Cv	78 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3JS1SRC	4 in.	DN100	91 Cv	78 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3JS1SRD	4 in.	DN100	91 Cv	78 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF3JS1S0A	4 in.	DN100	91 Cv	78 kvs	Non-Spring Return Floating	None
VBF3JS1S0B	4 in.	DN100	91 Cv	78 kvs	Non-Spring Return Modulating	None
VBF3JS1S0C	4 in.	DN100	91 Cv	78 kvs	Spring Return 2-Position, 24Vac	None
VBF3JS1S0D	4 in.	DN100	91 Cv	78 kvs	Spring Return Floating/Modulating	None
VBF3JS1S0X	4 in.	DN100	91 Cv	78 kvs	No pre-assembled actuator	None
VBF3JT1SRA	4 in.	DN100	118 Cv	101 kvs	Non-Spring Return Floating	NEMA 3R
VBF3JT1SRB	4 in.	DN100	118 Cv	101 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3JT1SRC	4 in.	DN100	118 Cv	101 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3JT1SRD	4 in.	DN100	118 Cv	101 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF3JT1S0A	4 in.	DN100	118 Cv	101 kvs	Non-Spring Return Floating	None
VBF3JT1S0B	4 in.	DN100	118 Cv	101 kvs	Non-Spring Return Modulating	None
VBF3JT1S0C	4 in.	DN100	118 Cv	101 kvs	Spring Return 2-Position, 24Vac	None
VBF3JT1S0D	4 in.	DN100	118 Cv	101 kvs	Spring Return Floating/Modulating	None
VBF3JT1S0X	4 in.	DN100	118 Cv	101 kvs	No pre-assembled actuator	None
VBF3JU1SRA	4 in.	DN100	152 Cv	131 kvs	Non-Spring Return Floating	NEMA 3R
VBF3JU1SRB	4 in.	DN100	152 Cv	131 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3JU1SRC	4 in.	DN100	152 Cv	131 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3JU1SRD	4 in.	DN100	152 Cv	131 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF3JU1S0A	4 in.	DN100	152 Cv	131 kvs	Non-Spring Return Floating	None
VBF3JU1S0B	4 in.	DN100	152 Cv	131 kvs	Non-Spring Return Modulating	None
VBF3JU1S0C	4 in.	DN100	152 Cv	131 kvs	Spring Return 2-Position, 24Vac	None
VBF3JU1S0D	4 in.	DN100	152 Cv	131 kvs	Spring Return Floating/Modulating	None
VBF3JU1S0X	4 in.	DN100	152 Cv	131 kvs	No pre-assembled actuator	None
VBF3J11SRA	4 in.	DN100	197 Cv	169 kvs	Non-Spring Return Floating	NEMA 3R
VBF3J11SRB	4 in.	DN100	197 Cv	169 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3J11SRC	4 in.	DN100	197 Cv	169 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3J11SRD	4 in.	DN100	197 Cv	169 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF3J11S0A	4 in.	DN100	197 Cv	169 kvs	Non-Spring Return Floating	None
VBF3J11S0B	4 in.	DN100	197 Cv	169 kvs	Non-Spring Return Modulating	None
VBF3J11S0C	4 in.	DN100	197 Cv	169 kvs	Spring Return 2-Position, 24Vac	None
VBF3J11S0D	4 in.	DN100	197 Cv	169 kvs	Spring Return Floating/Modulating	None
VBF3J11S0X	4 in.	DN100	197 Cv	169 kvs	No pre-assembled actuator	None
VBF3J21SRA	4 in.	DN100	254 Cv	218 kvs	Non-Spring Return Floating	NEMA 3R
VBF3J21SRB	4 in.	DN100	254 Cv	218 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3J21SRC	4 in.	DN100	254 Cv	218 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3J21SRD	4 in.	DN100	254 Cv	218 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF3J21S0A	4 in.	DN100	254 Cv	218 kvs	Non-Spring Return Floating	None
VBF3J21S0B	4 in.	DN100	254 Cv	218 kvs	Non-Spring Return Modulating	None
VBF3J21S0C	4 in.	DN100	254 Cv	218 kvs	Spring Return 2-Position, 24Vac	None
VBF3J21S0D	4 in.	DN100	254 Cv	218 kvs	Spring Return Floating/Modulating	None
VBF3J21S0X	4 in.	DN100	254 Cv	218 kvs	No pre-assembled actuator	None
VBF3J31SRA	4 in.	DN100	327 Cv	281 kvs	Non-Spring Return Floating	NEMA 3R
VBF3J31SRB	4 in.	DN100	327 Cv	281 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3J31SRC	4 in.	DN100	327 Cv	281 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3J31SRD	4 in.	DN100	327 Cv	281 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF3J31S0A	4 in.	DN100	327 Cv	281 kvs	Non-Spring Return Floating	None
VBF3J31S0B	4 in.	DN100	327 Cv	281 kvs	Non-Spring Return Modulating	None
VBF3J31S0C	4 in.	DN100	327 Cv	281 kvs	Spring Return 2-Position, 24Vac	None
VBF3J31S0D	4 in.	DN100	327 Cv	281 kvs	Spring Return Floating/Modulating	None
VBF3J31S0X	4 in.	DN100	327 Cv	281 kvs	No pre-assembled actuator	None
VBF3KU1SRA	5 in.	DN125	144 Cv	124 kvs	Non-Spring Return Floating	NEMA 3R
VBF3KU1SRB	5 in.	DN125	144 Cv	124 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3KU1SRC	5 in.	DN125	144 Cv	124 kvs	Spring Return 2-Position, 24Vac	NEMA 3R

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure
	(inch)	DN	(Cv)	(Kv)		
VBF3KU1SRD	5 in.	DN125	144 Cv	124 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF3KU1S0A	5 in.	DN125	144 Cv	124 kvs	Non-Spring Return Floating	None
VBF3KU1S0B	5 in.	DN125	144 Cv	124 kvs	Non-Spring Return Modulating	None
VBF3KU1S0C	5 in.	DN125	144 Cv	124 kvs	Spring Return 2-Position, 24Vac	None
VBF3KU1S0D	5 in.	DN125	144 Cv	124 kvs	Spring Return Floating/Modulating	None
VBF3KU1S0X	5 in.	DN125	144 Cv	124 kvs	No pre-assembled actuator	None
VBF3K11SRA	5 in.	DN125	185 Cv	159 kvs	Non-Spring Return Floating	NEMA 3R
VBF3K11SRB	5 in.	DN125	185 Cv	159 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3K11SRC	5 in.	DN125	185 Cv	159 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3K11SRD	5 in.	DN125	185 Cv	159 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF3K11S0A	5 in.	DN125	185 Cv	159 kvs	Non-Spring Return Floating	None
VBF3K11S0B	5 in.	DN125	185 Cv	159 kvs	Non-Spring Return Modulating	None
VBF3K11S0C	5 in.	DN125	185 Cv	159 kvs	Spring Return 2-Position, 24Vac	None
VBF3K11S0D	5 in.	DN125	185 Cv	159 kvs	Spring Return Floating/Modulating	None
VBF3K11S0X	5 in.	DN125	185 Cv	159 kvs	No pre-assembled actuator	None
VBF3K21SRA	5 in.	DN125	240 Cv	206 kvs	Non-Spring Return Floating	NEMA 3R
VBF3K21SRB	5 in.	DN125	240 Cv	206 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3K21SRC	5 in.	DN125	240 Cv	206 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3K21SRD	5 in.	DN125	240 Cv	206 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF3K21S0A	5 in.	DN125	240 Cv	206 kvs	Non-Spring Return Floating	None
VBF3K21S0B	5 in.	DN125	240 Cv	206 kvs	Non-Spring Return Modulating	None
VBF3K21S0C	5 in.	DN125	240 Cv	206 kvs	Spring Return 2-Position, 24Vac	None
VBF3K21S0D	5 in.	DN125	240 Cv	206 kvs	Spring Return Floating/Modulating	None
VBF3K21S0X	5 in.	DN125	240 Cv	206 kvs	No pre-assembled actuator	None
VBF3K31SRA	5 in.	DN125	309 Cv	266 kvs	Non-Spring Return Floating	NEMA 3R
VBF3K31SRB	5 in.	DN125	309 Cv	266 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3K31SRC	5 in.	DN125	309 Cv	266 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3K31SRD	5 in.	DN125	309 Cv	266 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF3K31S0A	5 in.	DN125	309 Cv	266 kvs	Non-Spring Return Floating	None
VBF3K31S0B	5 in.	DN125	309 Cv	266 kvs	Non-Spring Return Modulating	None
VBF3K31S0C	5 in.	DN125	309 Cv	266 kvs	Spring Return 2-Position, 24Vac	None
VBF3K31S0D	5 in.	DN125	309 Cv	266 kvs	Spring Return Floating/Modulating	None
VBF3K31S0X	5 in.	DN125	309 Cv	266 kvs	No pre-assembled actuator	None
VBF3K41SRA	5 in.	DN125	400 Cv	344 kvs	Non-Spring Return Floating	NEMA 3R
VBF3K41SRB	5 in.	DN125	400 Cv	344 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3K41SRC	5 in.	DN125	400 Cv	344 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3K41S0A	5 in.	DN125	400 Cv	344 kvs	Non-Spring Return Floating	None
VBF3K41S0B	5 in.	DN125	400 Cv	344 kvs	Non-Spring Return Modulating	None
VBF3K41S0C	5 in.	DN125	400 Cv	344 kvs	Spring Return 2-Position, 24Vac	None
VBF3K41S0X	5 in.	DN125	400 Cv	344 kvs	No pre-assembled actuator	None
VBF3L11SRA	6 in.	DN150	208 Cv	179 kvs	Non-Spring Return Floating	NEMA 3R
VBF3L11SRB	6 in.	DN150	208 Cv	179 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3L11SRC	6 in.	DN150	208 Cv	179 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3L11SRD	6 in.	DN150	208 Cv	179 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF3L11S0A	6 in.	DN150	208 Cv	179 kvs	Non-Spring Return Floating	None
VBF3L11S0B	6 in.	DN150	208 Cv	179 kvs	Non-Spring Return Modulating	None
VBF3L11S0C	6 in.	DN150	208 Cv	179 kvs	Spring Return 2-Position, 24Vac	None
VBF3L11S0D	6 in.	DN150	208 Cv	179 kvs	Spring Return Floating/Modulating	None
VBF3L11S0X	6 in.	DN150	208 Cv	179 kvs	No pre-assembled actuator	None
VBF3L21SRA	6 in.	DN150	268 Cv	230 kvs	Non-Spring Return Floating	NEMA 3R
VBF3L21SRB	6 in.	DN150	268 Cv	230 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3L21SRC	6 in.	DN150	268 Cv	230 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3L21SRD	6 in.	DN150	268 Cv	230 kvs	Spring Return Floating/Modulating	NEMA 3R
VBF3L21S0A	6 in.	DN150	268 Cv	230 kvs	Non-Spring Return Floating	None
VBF3L21S0B	6 in.	DN150	268 Cv	230 kvs	Non-Spring Return Modulating	None
VBF3L21S0C	6 in.	DN150	268 Cv	230 kvs	Spring Return 2-Position, 24Vac	None
VBF3L21S0D	6 in.	DN150	268 Cv	230 kvs	Spring Return Floating/Modulating	None

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure
	(inch)	DN	(Cv)	(Kv)		
VBF3L21S0X	6 in.	DN150	268 Cv	230 kvs	No pre-assembled actuator	None
VBF3L41SRA	6 in.	DN150	346 Cv	298 kvs	Non-Spring Return Floating	NEMA 3R
VBF3L41SRB	6 in.	DN150	346 Cv	298 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3L41SRC	6 in.	DN150	346 Cv	298 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3L41S0A	6 in.	DN150	346 Cv	298 kvs	Non-Spring Return Floating	None
VBF3L41S0B	6 in.	DN150	346 Cv	298 kvs	Non-Spring Return Modulating	None
VBF3L41S0C	6 in.	DN150	346 Cv	298 kvs	Spring Return 2-Position, 24Vac	None
VBF3L41S0X	6 in.	DN150	346 Cv	298 kvs	No pre-assembled actuator	None
VBF3L51SRA	6 in.	DN150	441 Cv	379 kvs	Non-Spring Return Floating	NEMA 3R
VBF3L51SRB	6 in.	DN150	441 Cv	379 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3L51SRC	6 in.	DN150	441 Cv	379 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3L51S0A	6 in.	DN150	441 Cv	379 kvs	Non-Spring Return Floating	None
VBF3L51S0B	6 in.	DN150	441 Cv	379 kvs	Non-Spring Return Modulating	None
VBF3L51S0C	6 in.	DN150	441 Cv	379 kvs	Spring Return 2-Position, 24Vac	None
VBF3L51S0X	6 in.	DN150	441 Cv	379 kvs	No pre-assembled actuator	None
VBF3L61SRA	6 in.	DN150	577 Cv	496 kvs	Non-Spring Return Floating	NEMA 3R
VBF3L61SRB	6 in.	DN150	577 Cv	496 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3L61SRC	6 in.	DN150	577 Cv	496 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3L61S0A	6 in.	DN150	577 Cv	496 kvs	Non-Spring Return Floating	None
VBF3L61S0B	6 in.	DN150	577 Cv	496 kvs	Non-Spring Return Modulating	None
VBF3L61S0C	6 in.	DN150	577 Cv	496 kvs	Spring Return 2-Position, 24Vac	None
VBF3L61S0X	6 in.	DN150	577 Cv	496 kvs	No pre-assembled actuator	None
VBF3L71SRA	6 in.	DN150	650 Cv	559 kvs	Non-Spring Return Floating	NEMA 3R
VBF3L71SRB	6 in.	DN150	650 Cv	559 kvs	Non-Spring Return Modulating	NEMA 3R
VBF3L71SRC	6 in.	DN150	650 Cv	559 kvs	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3L71S0A	6 in.	DN150	650 Cv	559 kvs	Non-Spring Return Floating	None
VBF3L71S0B	6 in.	DN150	650 Cv	559 kvs	Non-Spring Return Modulating	None
VBF3L71S0C	6 in.	DN150	650 Cv	559 kvs	Spring Return 2-Position, 24Vac	None
VBF3L71S0X	6 in.	DN150	650 Cv	559 kvs	No pre-assembled actuator	None

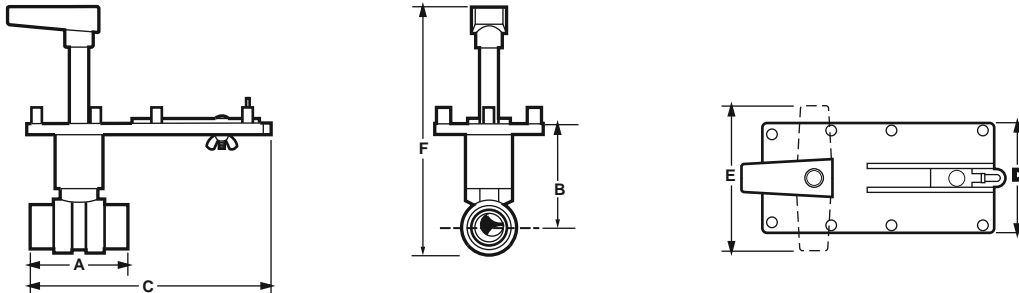
VBN2 Two-way Threaded Control Ball Valve



The VBN2 Two-Way Control Ball Valves control hot and chilled water with glycol solutions up to 50% in heating, ventilating, and air conditioning (HVAC) systems to provide two-position or modulating functions. These valve assemblies can be ordered with or without factory-mounted non-spring return or spring return direct-coupled actuators (DCA).

- Sizes from 1/2 to 3 inches with internal (female) NPT connections.
- Equal percentage or linear flow characteristics.
- Choice of four, factory-installed actuation control schemes: Floating, Modulating (2-10 V), Spring Return 2-Position, Spring Return Modulating/Floating.
- Field configurable for normally open or normally closed fail-safe position.
- Removable manual operating handle to control valve during installation or in an event of power failure.
- ANSI Class IV seat leakage specification (0.01% of Cv).
- Optional NEMA 3R (IP54) rated enclosure for outdoor applications.
- Actuator can be mounted on the valve in any of four positions.
- Field-serviceable stem assembly.
- Wide Cv choices from 0.38 to 266.
- Nickel-chrome plated brass or 316 stainless steel ball and stem.

Dimensions in inches (millimeters)



Pipe Size	Model No.	Cv	Dimensions inches (mm)						Weight lb (kg)
			A	B	C	D	E	F	
1/2"	VBN2A	0.38, 0.68, 1.3, 2.0, 2.6, 4.7, 11.7	2-3/8 (60)	3-7/16 (87)	6-5/8 (168)	3 (76)	4 (102)	8-1/8 (206)	1 (0.5)
		8.0	2-5/8 (67)	3-11/16 (94)	6-1/2 (165)	3 (76)	4 (102)	8-5/16 (211)	1 (0.5)
3/4"	VBN2B	0.31, 0.63, 1.2, 2.5, 4.3, 7.4, 14.7	2-3/8 (60)	3-7/16 (87)	6-7/16 (164)	3 (76)	4 (102)	8-1/8 (206)	1 (0.5)
		10.1, 29	2-5/8 (67)	3-11/16 (94)	6-1/2 (165)	3 (76)	4 (102)	8-5/16 (211)	1 (0.5)
1"	VBN2C	9.0	3-3/4 (95)	3-11/16 (94)	7-1/16 (179)	3 (76)	4 (102)	8-5/16 (211)	1 (0.5)
		4.4, 15.3, 54	3 (76)	3-15/16 (100)	6-3/4 (171)	3 (76)	4 (102)	8-11/16 (221)	1.4 (0.6)
		26, 44	4-3/8 (111)	4-7/16 (113)	7-3/8 (187)	3 (76)	4 (102)	8-7/8 (225)	2.4 (1.1)
1-1/4"	VBN2D	4.4, 8.3, 14.9, 25, 41	3 (76)	3-15/16 (100)	6-11/16 (170)	3 (76)	4 (102)	8-11/16 (221)	1.4 (0.6)
		37, 102	3-5/8 (92)	4-7/16 (113)	7 (178)	3 (76)	4 (102)	9-1/16 (231)	2.4 (1.1)
1-1/2"	VBN2E	23, 30, 74	3-3/8 (86)	3-15/16 (100)	6-15/16 (176)	3 (76)	4 (102)	9-1/16 (231)	2.4 (1.1)
		41, 172	3-3/4 (95)	5-3/16 (132)	7-1/16 (179)	3 (76)	4 (102)	8-7/8 (225)	3.2 (1.5)
2"	VBN2F	42, 108	4 (102)	5-3/16 (132)	7-3/16 (183)	3 (76)	4 (102)	8-7/8 (225)	3.2 (1.5)
		57, 71, 100, 210, 266	4-3/8 (111)	5-3/4 (146)	7-7/16 (189)	3 (76)	4 (102)	10-1/2 (267)	5 (2.3)
2-1/2"	VBN2G	45, 55, 72, 101, 162, 202	4-3/4 (121)	5-3/4 (146)	7-9/16 (192)	3 (76)	4 (102)	10-1/2 (267)	5.5 (2.5)
3"	VBN2H	49, 63, 82, 124, 145	5 (127)	5-7/8 (149)	7-11/16 (195)	3 (76)	4 (102)	10-11/16 (271)	5.9 (2.7)

M13729A

Valve Type: Control Ball Valve

Body Pattern: Two-way

Connection Type: Female NPT

Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

Leakage Rating: ANSI Class IV (0.01% of Cv maximum)

Maximum Safe Operating Pressure: 360 psi (2482 kPa)

Fluid Temperature Range: -22 F to +250 F (-30 C to +121 F)

Materials

(Body): Brass

(Seat): Teflon® seals with EPDM O-rings

(Flow Control Insert) : Noryl®

Control Ball Valves

Valves with Equal Percentage Flow Characteristic

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2AB3PRA	1/2 in.	DN15	0.38 Cv	0.33 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AB3PRB	1/2 in.	DN15	0.38 Cv	0.33 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AB3PRC	1/2 in.	DN15	0.38 Cv	0.33 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AB3PRD	1/2 in.	DN15	0.38 Cv	0.33 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AB3SRA	1/2 in.	DN15	0.38 Cv	0.33 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AB3SRB	1/2 in.	DN15	0.38 Cv	0.33 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AB3SRC	1/2 in.	DN15	0.38 Cv	0.33 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AB3SRD	1/2 in.	DN15	0.38 Cv	0.33 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AB3P0A	1/2 in.	DN15	0.38 Cv	0.33 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AB3P0B	1/2 in.	DN15	0.38 Cv	0.33 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AB3P0C	1/2 in.	DN15	0.38 Cv	0.33 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AB3P0D	1/2 in.	DN15	0.38 Cv	0.33 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AB3P0X	1/2 in.	DN15	0.38 Cv	0.33 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AB3S0A	1/2 in.	DN15	0.38 Cv	0.33 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AB3S0B	1/2 in.	DN15	0.38 Cv	0.33 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AB3S0C	1/2 in.	DN15	0.38 Cv	0.33 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AB3S0D	1/2 in.	DN15	0.38 Cv	0.33 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AB3S0X	1/2 in.	DN15	0.38 Cv	0.33 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AD3PRA	1/2 in.	DN15	0.68 Cv	0.58 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AD3PRB	1/2 in.	DN15	0.68 Cv	0.58 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AD3PRC	1/2 in.	DN15	0.68 Cv	0.58 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AD3PRD	1/2 in.	DN15	0.68 Cv	0.58 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AD3SRA	1/2 in.	DN15	0.68 Cv	0.58 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AD3SRB	1/2 in.	DN15	0.68 Cv	0.58 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AD3SRC	1/2 in.	DN15	0.68 Cv	0.58 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AD3SRD	1/2 in.	DN15	0.68 Cv	0.58 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AD3P0A	1/2 in.	DN15	0.68 Cv	0.58 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AD3P0B	1/2 in.	DN15	0.68 Cv	0.58 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AD3P0C	1/2 in.	DN15	0.68 Cv	0.58 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AD3P0D	1/2 in.	DN15	0.68 Cv	0.58 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AD3P0X	1/2 in.	DN15	0.68 Cv	0.58 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AD3S0A	1/2 in.	DN15	0.68 Cv	0.58 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AD3S0B	1/2 in.	DN15	0.68 Cv	0.58 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AD3S0C	1/2 in.	DN15	0.68 Cv	0.58 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AD3S0D	1/2 in.	DN15	0.68 Cv	0.58 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AD3S0X	1/2 in.	DN15	0.68 Cv	0.58 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AE3PRA	1/2 in.	DN15	1.3 Cv	1.1 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AE3PRB	1/2 in.	DN15	1.3 Cv	1.1 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AE3PRC	1/2 in.	DN15	1.3 Cv	1.1 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AE3PRD	1/2 in.	DN15	1.3 Cv	1.1 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AE3SRA	1/2 in.	DN15	1.3 Cv	1.1 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AE3SRB	1/2 in.	DN15	1.3 Cv	1.1 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AE3SRC	1/2 in.	DN15	1.3 Cv	1.1 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AE3SRD	1/2 in.	DN15	1.3 Cv	1.1 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AE3P0A	1/2 in.	DN15	1.3 Cv	1.1 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AE3P0B	1/2 in.	DN15	1.3 Cv	1.1 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AE3P0C	1/2 in.	DN15	1.3 Cv	1.1 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AE3P0D	1/2 in.	DN15	1.3 Cv	1.1 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AE3P0X	1/2 in.	DN15	1.3 Cv	1.1 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AE3S0A	1/2 in.	DN15	1.3 Cv	1.1 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AE3S0B	1/2 in.	DN15	1.3 Cv	1.1 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AE3S0C	1/2 in.	DN15	1.3 Cv	1.1 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AE3S0D	1/2 in.	DN15	1.3 Cv	1.1 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AE3S0X	1/2 in.	DN15	1.3 Cv	1.1 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AF3PRA	1/2 in.	DN15	2.0 Cv	1.7 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AF3PRB	1/2 in.	DN15	2.0 Cv	1.7 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AF3PRC	1/2 in.	DN15	2.0 Cv	1.7 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2AF3PRD	1/2 in.	DN15	2.0 Cv	1.7 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AF3SRA	1/2 in.	DN15	2.0 Cv	1.7 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AF3SRB	1/2 in.	DN15	2.0 Cv	1.7 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AF3SRC	1/2 in.	DN15	2.0 Cv	1.7 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AF3SRD	1/2 in.	DN15	2.0 Cv	1.7 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AF3P0A	1/2 in.	DN15	2.0 Cv	1.7 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AF3P0B	1/2 in.	DN15	2.0 Cv	1.7 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AF3P0C	1/2 in.	DN15	2.0 Cv	1.7 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AF3P0D	1/2 in.	DN15	2.0 Cv	1.7 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AF3P0X	1/2 in.	DN15	2.0 Cv	1.7 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AF3S0A	1/2 in.	DN15	2.0 Cv	1.7 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AF3S0B	1/2 in.	DN15	2.0 Cv	1.7 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AF3S0C	1/2 in.	DN15	2.0 Cv	1.7 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AF3S0D	1/2 in.	DN15	2.0 Cv	1.7 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AF3S0X	1/2 in.	DN15	2.0 Cv	1.7 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AG3PRA	1/2 in.	DN15	2.6 Cv	2.2 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AG3PRB	1/2 in.	DN15	2.6 Cv	2.2 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AG3PRC	1/2 in.	DN15	2.6 Cv	2.2 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AG3PRD	1/2 in.	DN15	2.6 Cv	2.2 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AG3SRA	1/2 in.	DN15	2.6 Cv	2.2 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AG3SRB	1/2 in.	DN15	2.6 Cv	2.2 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AG3SRC	1/2 in.	DN15	2.6 Cv	2.2 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AG3SRD	1/2 in.	DN15	2.6 Cv	2.2 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AG3P0A	1/2 in.	DN15	2.6 Cv	2.2 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AG3P0B	1/2 in.	DN15	2.6 Cv	2.2 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AG3P0C	1/2 in.	DN15	2.6 Cv	2.2 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AG3P0D	1/2 in.	DN15	2.6 Cv	2.2 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AG3P0X	1/2 in.	DN15	2.6 Cv	2.2 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AG3S0A	1/2 in.	DN15	2.6 Cv	2.2 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AG3S0B	1/2 in.	DN15	2.6 Cv	2.2 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AG3S0C	1/2 in.	DN15	2.6 Cv	2.2 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AG3S0D	1/2 in.	DN15	2.6 Cv	2.2 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AG3S0X	1/2 in.	DN15	2.6 Cv	2.2 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AH3PRA	1/2 in.	DN15	4.7 Cv	4.0 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AH3PRB	1/2 in.	DN15	4.7 Cv	4.0 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AH3PRC	1/2 in.	DN15	4.7 Cv	4.0 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AH3PRD	1/2 in.	DN15	4.7 Cv	4.0 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AH3SRA	1/2 in.	DN15	4.7 Cv	4.0 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AH3SRB	1/2 in.	DN15	4.7 Cv	4.0 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AH3SRC	1/2 in.	DN15	4.7 Cv	4.0 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AH3SRD	1/2 in.	DN15	4.7 Cv	4.0 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AH3P0A	1/2 in.	DN15	4.7 Cv	4.0 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AH3P0B	1/2 in.	DN15	4.7 Cv	4.0 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AH3P0C	1/2 in.	DN15	4.7 Cv	4.0 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AH3P0D	1/2 in.	DN15	4.7 Cv	4.0 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AH3P0X	1/2 in.	DN15	4.7 Cv	4.0 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AH3S0A	1/2 in.	DN15	4.7 Cv	4.0 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AH3S0B	1/2 in.	DN15	4.7 Cv	4.0 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AH3S0C	1/2 in.	DN15	4.7 Cv	4.0 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AH3S0D	1/2 in.	DN15	4.7 Cv	4.0 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AH3S0X	1/2 in.	DN15	4.7 Cv	4.0 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AJ3PRA	1/2 in.	DN15	8.0 Cv	6.9 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AJ3PRB	1/2 in.	DN15	8.0 Cv	6.9 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AJ3PRC	1/2 in.	DN15	8.0 Cv	6.9 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AJ3PRD	1/2 in.	DN15	8.0 Cv	6.9 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AJ3SRA	1/2 in.	DN15	8.0 Cv	6.9 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AJ3SRB	1/2 in.	DN15	8.0 Cv	6.9 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AJ3SRC	1/2 in.	DN15	8.0 Cv	6.9 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AJ3SRD	1/2 in.	DN15	8.0 Cv	6.9 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa

Commercial Components

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2AJ3P0A	1/2 in.	DN15	8.0 Cv	6.9 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AJ3P0B	1/2 in.	DN15	8.0 Cv	6.9 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AJ3P0C	1/2 in.	DN15	8.0 Cv	6.9 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AJ3P0D	1/2 in.	DN15	8.0 Cv	6.9 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AJ3P0X	1/2 in.	DN15	8.0 Cv	6.9 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AJ3S0A	1/2 in.	DN15	8.0 Cv	6.9 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AJ3S0B	1/2 in.	DN15	8.0 Cv	6.9 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AJ3S0C	1/2 in.	DN15	8.0 Cv	6.9 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AJ3S0D	1/2 in.	DN15	8.0 Cv	6.9 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AJ3S0X	1/2 in.	DN15	8.0 Cv	6.9 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	130 psi	896 kPa
VBN2BB3PRA	3/4 in.	DN20	0.31 Cv	0.27 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2BB3PRB	3/4 in.	DN20	0.31 Cv	0.27 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2BB3PRC	3/4 in.	DN20	0.31 Cv	0.27 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2BB3PRD	3/4 in.	DN20	0.31 Cv	0.27 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2BB3SRA	3/4 in.	DN20	0.31 Cv	0.27 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2BB3SRB	3/4 in.	DN20	0.31 Cv	0.27 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2BB3SRC	3/4 in.	DN20	0.31 Cv	0.27 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2BB3SRD	3/4 in.	DN20	0.31 Cv	0.27 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2BB3P0A	3/4 in.	DN20	0.31 Cv	0.27 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2BB3P0B	3/4 in.	DN20	0.31 Cv	0.27 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2BB3P0C	3/4 in.	DN20	0.31 Cv	0.27 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2BB3P0D	3/4 in.	DN20	0.31 Cv	0.27 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2BB3P0X	3/4 in.	DN20	0.31 Cv	0.27 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa
VBN2BB3S0A	3/4 in.	DN20	0.31 Cv	0.27 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2BB3S0B	3/4 in.	DN20	0.31 Cv	0.27 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2BB3S0C	3/4 in.	DN20	0.31 Cv	0.27 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2BB3S0D	3/4 in.	DN20	0.31 Cv	0.27 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2BB3S0X	3/4 in.	DN20	0.31 Cv	0.27 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	130 psi	896 kPa
VBN2BD3PRA	3/4 in.	DN20	0.63 Cv	0.54 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2BD3PRB	3/4 in.	DN20	0.63 Cv	0.54 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2BD3PRC	3/4 in.	DN20	0.63 Cv	0.54 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2BD3PRD	3/4 in.	DN20	0.63 Cv	0.54 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2BD3SRA	3/4 in.	DN20	0.63 Cv	0.54 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2BD3SRB	3/4 in.	DN20	0.63 Cv	0.54 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2BD3SRC	3/4 in.	DN20	0.63 Cv	0.54 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2BD3SRD	3/4 in.	DN20	0.63 Cv	0.54 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2BD3P0A	3/4 in.	DN20	0.63 Cv	0.54 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2BD3P0B	3/4 in.	DN20	0.63 Cv	0.54 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2BD3P0C	3/4 in.	DN20	0.63 Cv	0.54 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2BD3P0D	3/4 in.	DN20	0.63 Cv	0.54 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2BD3P0X	3/4 in.	DN20	0.63 Cv	0.54 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa
VBN2BD3S0A	3/4 in.	DN20	0.63 Cv	0.54 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2BD3S0B	3/4 in.	DN20	0.63 Cv	0.54 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2BD3S0C	3/4 in.	DN20	0.63 Cv	0.54 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2BD3S0D	3/4 in.	DN20	0.63 Cv	0.54 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2BD3S0X	3/4 in.	DN20	0.63 Cv	0.54 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	130 psi	896 kPa
VBN2BE3PRA	3/4 in.	DN20	1.2 Cv	1.0 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2BE3PRB	3/4 in.	DN20	1.2 Cv	1.0 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2BE3PRC	3/4 in.	DN20	1.2 Cv	1.0 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2BE3PRD	3/4 in.	DN20	1.2 Cv	1.0 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2BE3SRA	3/4 in.	DN20	1.2 Cv	1.0 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2BE3SRB	3/4 in.	DN20	1.2 Cv	1.0 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2BE3SRC	3/4 in.	DN20	1.2 Cv	1.0 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2BE3SRD	3/4 in.	DN20	1.2 Cv	1.0 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2BE3P0A	3/4 in.	DN20	1.2 Cv	1.0 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2BE3P0B	3/4 in.	DN20	1.2 Cv	1.0 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2BE3P0C	3/4 in.	DN20	1.2 Cv	1.0 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2BE3P0D	3/4 in.	DN20	1.2 Cv	1.0 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2BE3P0X	3/4 in.	DN20	1.2 Cv	1.0 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2BK3PRA	3/4 in.	DN20	10.1 Cv	8.7 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2BK3PRB	3/4 in.	DN20	10.1 Cv	8.7 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2BK3PRC	3/4 in.	DN20	10.1 Cv	8.7 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2BK3PRD	3/4 in.	DN20	10.1 Cv	8.7 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2BK3SRA	3/4 in.	DN20	10.1 Cv	8.7 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2BK3SRB	3/4 in.	DN20	10.1 Cv	8.7 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2BK3SRC	3/4 in.	DN20	10.1 Cv	8.7 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2BK3SRD	3/4 in.	DN20	10.1 Cv	8.7 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2BK3P0A	3/4 in.	DN20	10.1 Cv	8.7 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2BK3P0B	3/4 in.	DN20	10.1 Cv	8.7 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2BK3P0C	3/4 in.	DN20	10.1 Cv	8.7 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2BK3P0D	3/4 in.	DN20	10.1 Cv	8.7 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2BK3P0X	3/4 in.	DN20	10.1 Cv	8.7 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa
VBN2BK3S0A	3/4 in.	DN20	10.1 Cv	8.7 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2BK3S0B	3/4 in.	DN20	10.1 Cv	8.7 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2BK3S0C	3/4 in.	DN20	10.1 Cv	8.7 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2BK3S0D	3/4 in.	DN20	10.1 Cv	8.7 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2BK3S0X	3/4 in.	DN20	10.1 Cv	8.7 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	130 psi	896 kPa
VBN2CH3PRA	1 in.	DN25	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2CH3PRB	1 in.	DN25	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2CH3PRC	1 in.	DN25	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2CH3PRD	1 in.	DN25	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2CH3SRA	1 in.	DN25	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2CH3SRB	1 in.	DN25	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2CH3SRC	1 in.	DN25	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2CH3SRD	1 in.	DN25	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2CH3P0A	1 in.	DN25	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2CH3P0B	1 in.	DN25	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2CH3P0C	1 in.	DN25	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2CH3P0D	1 in.	DN25	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2CH3P0X	1 in.	DN25	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2CH3S0A	1 in.	DN25	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2CH3S0B	1 in.	DN25	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2CH3S0C	1 in.	DN25	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2CH3S0D	1 in.	DN25	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2CH3S0X	1 in.	DN25	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2CJ3PRA	1 in.	DN25	9.0 Cv	7.7 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2CJ3PRB	1 in.	DN25	9.0 Cv	7.7 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2CJ3PRC	1 in.	DN25	9.0 Cv	7.7 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2CJ3PRD	1 in.	DN25	9.0 Cv	7.7 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2CJ3SRA	1 in.	DN25	9.0 Cv	7.7 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2CJ3SRB	1 in.	DN25	9.0 Cv	7.7 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2CJ3SRC	1 in.	DN25	9.0 Cv	7.7 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2CJ3SRD	1 in.	DN25	9.0 Cv	7.7 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2CJ3P0A	1 in.	DN25	9.0 Cv	7.7 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2CJ3P0B	1 in.	DN25	9.0 Cv	7.7 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2CJ3P0C	1 in.	DN25	9.0 Cv	7.7 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2CJ3P0D	1 in.	DN25	9.0 Cv	7.7 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2CJ3P0X	1 in.	DN25	9.0 Cv	7.7 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2CJ3S0A	1 in.	DN25	9.0 Cv	7.7 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2CJ3S0B	1 in.	DN25	9.0 Cv	7.7 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2CJ3S0C	1 in.	DN25	9.0 Cv	7.7 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2CJ3S0D	1 in.	DN25	9.0 Cv	7.7 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2CJ3S0X	1 in.	DN25	9.0 Cv	7.7 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2CL3PRA	1 in.	DN25	15.3 Cv	13.2 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2CL3PRB	1 in.	DN25	15.3 Cv	13.2 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2CL3PRC	1 in.	DN25	15.3 Cv	13.2 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2CL3PRD	1 in.	DN25	15.3 Cv	13.2 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2CL3SRA	1 in.	DN25	15.3 Cv	13.2 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2CL3SRB	1 in.	DN25	15.3 Cv	13.2 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2CL3SRC	1 in.	DN25	15.3 Cv	13.2 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2CL3SRD	1 in.	DN25	15.3 Cv	13.2 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2CL3P0A	1 in.	DN25	15.3 Cv	13.2 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2CL3P0B	1 in.	DN25	15.3 Cv	13.2 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2CL3P0C	1 in.	DN25	15.3 Cv	13.2 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2CL3P0D	1 in.	DN25	15.3 Cv	13.2 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2CL3P0X	1 in.	DN25	15.3 Cv	13.2 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2CL3S0A	1 in.	DN25	15.3 Cv	13.2 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2CL3S0B	1 in.	DN25	15.3 Cv	13.2 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2CL3S0C	1 in.	DN25	15.3 Cv	13.2 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2CL3S0D	1 in.	DN25	15.3 Cv	13.2 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2CL3S0X	1 in.	DN25	15.3 Cv	13.2 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2CM3PRA	1 in.	DN25	26 Cv	22 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2CM3PRB	1 in.	DN25	26 Cv	22 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2CM3PRC	1 in.	DN25	26 Cv	22 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2CM3PRD	1 in.	DN25	26 Cv	22 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2CM3SRA	1 in.	DN25	26 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2CM3SRB	1 in.	DN25	26 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2CM3SRC	1 in.	DN25	26 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2CM3SRD	1 in.	DN25	26 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2CM3P0A	1 in.	DN25	26 Cv	22 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2CM3P0B	1 in.	DN25	26 Cv	22 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2CM3P0C	1 in.	DN25	26 Cv	22 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2CM3P0D	1 in.	DN25	26 Cv	22 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2CM3P0X	1 in.	DN25	26 Cv	22 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2CM3S0A	1 in.	DN25	26 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2CM3S0B	1 in.	DN25	26 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2CM3S0C	1 in.	DN25	26 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2CM3S0D	1 in.	DN25	26 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2CM3S0X	1 in.	DN25	26 Cv	22 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DH3PRA	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DH3PRB	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DH3PRC	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DH3PRD	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DH3SRA	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DH3SRB	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DH3SRC	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DH3SRD	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DH3P0A	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DH3P0B	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2DH3P0C	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DH3P0D	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DH3P0X	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DH3S0A	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DH3S0B	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2DH3S0C	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DH3S0D	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DH3S0X	1 1/4 in.	DN32	4.4 Cv	3.8 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DJ3PRA	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DJ3PRB	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DJ3PRC	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DJ3PRD	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DJ3SRA	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DJ3SRB	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DJ3SRC	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DJ3SRD	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DJ3P0A	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DJ3P0B	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2DJ3P0C	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DJ3P0D	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DJ3P0X	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DJ3S0A	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DJ3S0B	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2DJ3S0C	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DJ3S0D	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DJ3S0X	1 1/4 in.	DN32	8.3 Cv	7.1 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DK3PRA	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DK3PRB	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DK3PRC	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DK3PRD	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DK3SRA	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DK3SRB	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DK3SRC	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DK3SRD	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DK3P0A	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DK3P0B	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2DK3P0C	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DK3P0D	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DK3P0X	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DK3S0A	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DK3S0B	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2DK3S0C	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DK3S0D	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DK3S0X	1 1/4 in.	DN32	14.9 Cv	12.8 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DL3PRA	1 1/4 in.	DN32	25 Cv	22 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DL3PRB	1 1/4 in.	DN32	25 Cv	22 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DL3PRC	1 1/4 in.	DN32	25 Cv	22 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DL3PRD	1 1/4 in.	DN32	25 Cv	22 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DL3SRA	1 1/4 in.	DN32	25 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DL3SRB	1 1/4 in.	DN32	25 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DL3SRC	1 1/4 in.	DN32	25 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DL3SRD	1 1/4 in.	DN32	25 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DL3P0A	1 1/4 in.	DN32	25 Cv	22 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DL3P0B	1 1/4 in.	DN32	25 Cv	22 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2DL3P0C	1 1/4 in.	DN32	25 Cv	22 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DL3P0D	1 1/4 in.	DN32	25 Cv	22 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DL3P0X	1 1/4 in.	DN32	25 Cv	22 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DL3S0A	1 1/4 in.	DN32	25 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DL3S0B	1 1/4 in.	DN32	25 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2DL3S0C	1 1/4 in.	DN32	25 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DL3S0D	1 1/4 in.	DN32	25 Cv	22 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DL3S0X	1 1/4 in.	DN32	25 Cv	22 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DM3PRA	1 1/4 in.	DN32	37 Cv	32 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DM3PRB	1 1/4 in.	DN32	37 Cv	32 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DM3PRC	1 1/4 in.	DN32	37 Cv	32 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DM3PRD	1 1/4 in.	DN32	37 Cv	32 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DM3SRA	1 1/4 in.	DN32	37 Cv	32 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DM3SRB	1 1/4 in.	DN32	37 Cv	32 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DM3SRC	1 1/4 in.	DN32	37 Cv	32 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DM3SRD	1 1/4 in.	DN32	37 Cv	32 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DM3P0A	1 1/4 in.	DN32	37 Cv	32 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DM3P0B	1 1/4 in.	DN32	37 Cv	32 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2DM3P0C	1 1/4 in.	DN32	37 Cv	32 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DM3P0D	1 1/4 in.	DN32	37 Cv	32 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DM3P0X	1 1/4 in.	DN32	37 Cv	32 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DM3S0A	1 1/4 in.	DN32	37 Cv	32 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DM3S0B	1 1/4 in.	DN32	37 Cv	32 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2DM3S0C	1 1/4 in.	DN32	37 Cv	32 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DM3S0D	1 1/4 in.	DN32	37 Cv	32 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DM3S0X	1 1/4 in.	DN32	37 Cv	32 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DN3PRA	1 1/4 in.	DN32	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DN3PRB	1 1/4 in.	DN32	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DN3PRC	1 1/4 in.	DN32	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DN3PRD	1 1/4 in.	DN32	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DN3SRA	1 1/4 in.	DN32	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DN3SRB	1 1/4 in.	DN32	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DN3SRC	1 1/4 in.	DN32	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DN3SRD	1 1/4 in.	DN32	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DN3P0A	1 1/4 in.	DN32	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DN3P0B	1 1/4 in.	DN32	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2DN3P0C	1 1/4 in.	DN32	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DN3P0D	1 1/4 in.	DN32	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DN3P0X	1 1/4 in.	DN32	41 Cv	35 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DN3S0A	1 1/4 in.	DN32	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DN3S0B	1 1/4 in.	DN32	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2DN3S0C	1 1/4 in.	DN32	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DN3S0D	1 1/4 in.	DN32	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DN3S0X	1 1/4 in.	DN32	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2EL3PRA	1 1/2 in.	DN40	23 Cv	19.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2EL3PRB	1 1/2 in.	DN40	23 Cv	19.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2EL3PRC	1 1/2 in.	DN40	23 Cv	19.8 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2EL3PRD	1 1/2 in.	DN40	23 Cv	19.8 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2EL3SRA	1 1/2 in.	DN40	23 Cv	19.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2EL3SRB	1 1/2 in.	DN40	23 Cv	19.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2EL3SRC	1 1/2 in.	DN40	23 Cv	19.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2EL3SRD	1 1/2 in.	DN40	23 Cv	19.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2EL3P0A	1 1/2 in.	DN40	23 Cv	19.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2EL3P0B	1 1/2 in.	DN40	23 Cv	19.8 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2EL3P0C	1 1/2 in.	DN40	23 Cv	19.8 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2EL3P0D	1 1/2 in.	DN40	23 Cv	19.8 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2EL3P0X	1 1/2 in.	DN40	23 Cv	19.8 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2EL3S0A	1 1/2 in.	DN40	23 Cv	19.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2EL3S0B	1 1/2 in.	DN40	23 Cv	19.8 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2EL3S0C	1 1/2 in.	DN40	23 Cv	19.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2EL3S0D	1 1/2 in.	DN40	23 Cv	19.8 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2EL3S0X	1 1/2 in.	DN40	23 Cv	19.8 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2EM3PRA	1 1/2 in.	DN40	30 Cv	26 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2EM3PRB	1 1/2 in.	DN40	30 Cv	26 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2EM3PRC	1 1/2 in.	DN40	30 Cv	26 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2EM3PRD	1 1/2 in.	DN40	30 Cv	26 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2EM3SRA	1 1/2 in.	DN40	30 Cv	26 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2EM3SRB	1 1/2 in.	DN40	30 Cv	26 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2EM3SRC	1 1/2 in.	DN40	30 Cv	26 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2EM3SRD	1 1/2 in.	DN40	30 Cv	26 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2EM3P0A	1 1/2 in.	DN40	30 Cv	26 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2EM3P0B	1 1/2 in.	DN40	30 Cv	26 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2EM3P0C	1 1/2 in.	DN40	30 Cv	26 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2EM3P0D	1 1/2 in.	DN40	30 Cv	26 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2EM3P0X	1 1/2 in.	DN40	30 Cv	26 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2EM3S0A	1 1/2 in.	DN40	30 Cv	26 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2EM3S0B	1 1/2 in.	DN40	30 Cv	26 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2EM3S0C	1 1/2 in.	DN40	30 Cv	26 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2EM3S0D	1 1/2 in.	DN40	30 Cv	26 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2EM3S0X	1 1/2 in.	DN40	30 Cv	26 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2EN3PRA	1 1/2 in.	DN40	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2EN3PRB	1 1/2 in.	DN40	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa

Commercial Components

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2EN3PRC	1 1/2 in.	DN40	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2EN3PRD	1 1/2 in.	DN40	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2EN3SRA	1 1/2 in.	DN40	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2EN3SRB	1 1/2 in.	DN40	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2EN3SRC	1 1/2 in.	DN40	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2EN3SRD	1 1/2 in.	DN40	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2EN3P0A	1 1/2 in.	DN40	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2EN3P0B	1 1/2 in.	DN40	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2EN3P0C	1 1/2 in.	DN40	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2EN3P0D	1 1/2 in.	DN40	41 Cv	35 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2EN3P0X	1 1/2 in.	DN40	41 Cv	35 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2EN3S0A	1 1/2 in.	DN40	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2EN3S0B	1 1/2 in.	DN40	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2EN3S0C	1 1/2 in.	DN40	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2EN3S0D	1 1/2 in.	DN40	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2EN3S0X	1 1/2 in.	DN40	41 Cv	35 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2FN3PRA	2 in.	DN50	42 Cv	36 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2FN3PRB	2 in.	DN50	42 Cv	36 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2FN3PRC	2 in.	DN50	42 Cv	36 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2FN3PRD	2 in.	DN50	42 Cv	36 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2FN3SRA	2 in.	DN50	42 Cv	36 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2FN3SRB	2 in.	DN50	42 Cv	36 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2FN3SRC	2 in.	DN50	42 Cv	36 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2FN3SRD	2 in.	DN50	42 Cv	36 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2FN3P0A	2 in.	DN50	42 Cv	36 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2FN3P0B	2 in.	DN50	42 Cv	36 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2FN3P0C	2 in.	DN50	42 Cv	36 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2FN3P0D	2 in.	DN50	42 Cv	36 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2FN3P0X	2 in.	DN50	42 Cv	36 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2FN3S0A	2 in.	DN50	42 Cv	36 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2FN3S0B	2 in.	DN50	42 Cv	36 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2FN3S0C	2 in.	DN50	42 Cv	36 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2FN3S0D	2 in.	DN50	42 Cv	36 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2FN3S0X	2 in.	DN50	42 Cv	36 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2FP3PRA	2 in.	DN50	57 Cv	49 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2FP3PRB	2 in.	DN50	57 Cv	49 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2FP3PRC	2 in.	DN50	57 Cv	49 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2FP3PRD	2 in.	DN50	57 Cv	49 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2FP3SRA	2 in.	DN50	57 Cv	49 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2FP3SRB	2 in.	DN50	57 Cv	49 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2FP3SRC	2 in.	DN50	57 Cv	49 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2FP3SRD	2 in.	DN50	57 Cv	49 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2FP3P0A	2 in.	DN50	57 Cv	49 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2FP3P0B	2 in.	DN50	57 Cv	49 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2FP3P0C	2 in.	DN50	57 Cv	49 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2FP3P0D	2 in.	DN50	57 Cv	49 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2FP3P0X	2 in.	DN50	57 Cv	49 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2FP3S0A	2 in.	DN50	57 Cv	49 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2FP3S0B	2 in.	DN50	57 Cv	49 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2FP3S0C	2 in.	DN50	57 Cv	49 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2FP3S0D	2 in.	DN50	57 Cv	49 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2FP3S0X	2 in.	DN50	57 Cv	49 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2FR3PRA	2 in.	DN50	71 Cv	61 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2FR3PRB	2 in.	DN50	71 Cv	61 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2FR3PRC	2 in.	DN50	71 Cv	61 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2FR3PRD	2 in.	DN50	71 Cv	61 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2FR3SRA	2 in.	DN50	71 Cv	61 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2FR3SRB	2 in.	DN50	71 Cv	61 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2FR3SRC	2 in.	DN50	71 Cv	61 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2FR3SRD	2 in.	DN50	71 Cv	61 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2FR3P0A	2 in.	DN50	71 Cv	61 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2FR3P0B	2 in.	DN50	71 Cv	61 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2FR3P0C	2 in.	DN50	71 Cv	61 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2FR3P0D	2 in.	DN50	71 Cv	61 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2FR3P0X	2 in.	DN50	71 Cv	61 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2FR3S0A	2 in.	DN50	71 Cv	61 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2FR3S0B	2 in.	DN50	71 Cv	61 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2FR3S0C	2 in.	DN50	71 Cv	61 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2FR3S0D	2 in.	DN50	71 Cv	61 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2FR3S0X	2 in.	DN50	71 Cv	61 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2FS3PRA	2 in.	DN50	100 Cv	86 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2FS3PRB	2 in.	DN50	100 Cv	86 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2FS3PRC	2 in.	DN50	100 Cv	86 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2FS3PRD	2 in.	DN50	100 Cv	86 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2FS3SRA	2 in.	DN50	100 Cv	86 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2FS3SRB	2 in.	DN50	100 Cv	86 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2FS3SRC	2 in.	DN50	100 Cv	86 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2FS3SRD	2 in.	DN50	100 Cv	86 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2FS3P0A	2 in.	DN50	100 Cv	86 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2FS3P0B	2 in.	DN50	100 Cv	86 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2FS3P0C	2 in.	DN50	100 Cv	86 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2FS3P0D	2 in.	DN50	100 Cv	86 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2FS3P0X	2 in.	DN50	100 Cv	86 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2FS3S0A	2 in.	DN50	100 Cv	86 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2FS3S0B	2 in.	DN50	100 Cv	86 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2FS3S0C	2 in.	DN50	100 Cv	86 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2FS3S0D	2 in.	DN50	100 Cv	86 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2FS3S0X	2 in.	DN50	100 Cv	86 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2F13PRA	2 in.	DN50	210 Cv	181 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2F13PRB	2 in.	DN50	210 Cv	181 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2F13PRC	2 in.	DN50	210 Cv	181 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2F13PRD	2 in.	DN50	210 Cv	181 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2F13SRA	2 in.	DN50	210 Cv	181 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2F13SRB	2 in.	DN50	210 Cv	181 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2F13SRC	2 in.	DN50	210 Cv	181 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2F13SRD	2 in.	DN50	210 Cv	181 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2F13P0A	2 in.	DN50	210 Cv	181 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2F13P0B	2 in.	DN50	210 Cv	181 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2F13P0C	2 in.	DN50	210 Cv	181 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2F13P0D	2 in.	DN50	210 Cv	181 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2F13P0X	2 in.	DN50	210 Cv	181 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2F13S0A	2 in.	DN50	210 Cv	181 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2F13S0B	2 in.	DN50	210 Cv	181 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2F13S0C	2 in.	DN50	210 Cv	181 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2F13S0D	2 in.	DN50	210 Cv	181 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2F13S0X	2 in.	DN50	210 Cv	181 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2GN3PRA	2 1/2 in.	DN65	45 Cv	39 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2GN3PRB	2 1/2 in.	DN65	45 Cv	39 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2GN3PRC	2 1/2 in.	DN65	45 Cv	39 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2GN3PRD	2 1/2 in.	DN65	45 Cv	39 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2GN3SRA	2 1/2 in.	DN65	45 Cv	39 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2GN3SRB	2 1/2 in.	DN65	45 Cv	39 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2GN3SRC	2 1/2 in.	DN65	45 Cv	39 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2GN3SRD	2 1/2 in.	DN65	45 Cv	39 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2GN3P0A	2 1/2 in.	DN65	45 Cv	39 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2GN3P0B	2 1/2 in.	DN65	45 Cv	39 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2GN3P0C	2 1/2 in.	DN65	45 Cv	39 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2GN3P0D	2 1/2 in.	DN65	45 Cv	39 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa

Commercial Components

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2GN3P0X	2 1/2 in.	DN65	45 Cv	39 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2GN3S0A	2 1/2 in.	DN65	45 Cv	39 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2GN3S0B	2 1/2 in.	DN65	45 Cv	39 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2GN3S0C	2 1/2 in.	DN65	45 Cv	39 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2GN3S0D	2 1/2 in.	DN65	45 Cv	39 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2GN3S0X	2 1/2 in.	DN65	45 Cv	39 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2GP3PRA	2 1/2 in.	DN65	55 Cv	47 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2GP3PRB	2 1/2 in.	DN65	55 Cv	47 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2GP3PRC	2 1/2 in.	DN65	55 Cv	47 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2GP3PRD	2 1/2 in.	DN65	55 Cv	47 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2GP3SRA	2 1/2 in.	DN65	55 Cv	47 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2GP3SRB	2 1/2 in.	DN65	55 Cv	47 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2GP3SRC	2 1/2 in.	DN65	55 Cv	47 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2GP3SRD	2 1/2 in.	DN65	55 Cv	47 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2GP3P0A	2 1/2 in.	DN65	55 Cv	47 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2GP3P0B	2 1/2 in.	DN65	55 Cv	47 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2GP3P0C	2 1/2 in.	DN65	55 Cv	47 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2GP3P0D	2 1/2 in.	DN65	55 Cv	47 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2GP3P0X	2 1/2 in.	DN65	55 Cv	47 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2GP3S0A	2 1/2 in.	DN65	55 Cv	47 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2GP3S0B	2 1/2 in.	DN65	55 Cv	47 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2GP3S0C	2 1/2 in.	DN65	55 Cv	47 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2GP3S0D	2 1/2 in.	DN65	55 Cv	47 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2GP3S0X	2 1/2 in.	DN65	55 Cv	47 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2GR3PRA	2 1/2 in.	DN65	72 Cv	62 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2GR3PRB	2 1/2 in.	DN65	72 Cv	62 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2GR3PRC	2 1/2 in.	DN65	72 Cv	62 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2GR3PRD	2 1/2 in.	DN65	72 Cv	62 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2GR3SRA	2 1/2 in.	DN65	72 Cv	62 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2GR3SRB	2 1/2 in.	DN65	72 Cv	62 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2GR3SRC	2 1/2 in.	DN65	72 Cv	62 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2GR3SRD	2 1/2 in.	DN65	72 Cv	62 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2GR3P0A	2 1/2 in.	DN65	72 Cv	62 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2GR3P0B	2 1/2 in.	DN65	72 Cv	62 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2GR3P0C	2 1/2 in.	DN65	72 Cv	62 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2GR3P0D	2 1/2 in.	DN65	72 Cv	62 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2GR3P0X	2 1/2 in.	DN65	72 Cv	62 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2GR3S0A	2 1/2 in.	DN65	72 Cv	62 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2GR3S0B	2 1/2 in.	DN65	72 Cv	62 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2GR3S0C	2 1/2 in.	DN65	72 Cv	62 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2GR3S0D	2 1/2 in.	DN65	72 Cv	62 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2GR3S0X	2 1/2 in.	DN65	72 Cv	62 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2GS3PRA	2 1/2 in.	DN65	101 Cv	87 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2GS3PRB	2 1/2 in.	DN65	101 Cv	87 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2GS3PRC	2 1/2 in.	DN65	101 Cv	87 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2GS3PRD	2 1/2 in.	DN65	101 Cv	87 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2GS3SRA	2 1/2 in.	DN65	101 Cv	87 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2GS3SRB	2 1/2 in.	DN65	101 Cv	87 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2GS3SRC	2 1/2 in.	DN65	101 Cv	87 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2GS3SRD	2 1/2 in.	DN65	101 Cv	87 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2GS3P0A	2 1/2 in.	DN65	101 Cv	87 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2GS3P0B	2 1/2 in.	DN65	101 Cv	87 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2GS3P0C	2 1/2 in.	DN65	101 Cv	87 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2GS3P0D	2 1/2 in.	DN65	101 Cv	87 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2GS3P0X	2 1/2 in.	DN65	101 Cv	87 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2GS3S0A	2 1/2 in.	DN65	101 Cv	87 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2GS3S0B	2 1/2 in.	DN65	101 Cv	87 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2GS3S0C	2 1/2 in.	DN65	101 Cv	87 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2GS3S0D	2 1/2 in.	DN65	101 Cv	87 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2GS3S0X	2 1/2 in.	DN65	101 Cv	87 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2GU3PRA	2 1/2 in.	DN65	162 Cv	139 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2GU3PRB	2 1/2 in.	DN65	162 Cv	139 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2GU3PRC	2 1/2 in.	DN65	162 Cv	139 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2GU3PRD	2 1/2 in.	DN65	162 Cv	139 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2GU3SRA	2 1/2 in.	DN65	162 Cv	139 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2GU3SRB	2 1/2 in.	DN65	162 Cv	139 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2GU3SRC	2 1/2 in.	DN65	162 Cv	139 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2GU3SRD	2 1/2 in.	DN65	162 Cv	139 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2GU3P0A	2 1/2 in.	DN65	162 Cv	139 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2GU3P0B	2 1/2 in.	DN65	162 Cv	139 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2GU3P0C	2 1/2 in.	DN65	162 Cv	139 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2GU3P0D	2 1/2 in.	DN65	162 Cv	139 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2GU3P0X	2 1/2 in.	DN65	162 Cv	139 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2GU3S0A	2 1/2 in.	DN65	162 Cv	139 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2GU3S0B	2 1/2 in.	DN65	162 Cv	139 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2GU3S0C	2 1/2 in.	DN65	162 Cv	139 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2GU3S0D	2 1/2 in.	DN65	162 Cv	139 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2GU3S0X	2 1/2 in.	DN65	162 Cv	139 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2HN3PRA	3 in.	DN80	49 Cv	42 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2HN3PRB	3 in.	DN80	49 Cv	42 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2HN3PRC	3 in.	DN80	49 Cv	42 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2HN3PRD	3 in.	DN80	49 Cv	42 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2HN3SRA	3 in.	DN80	49 Cv	42 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2HN3SRB	3 in.	DN80	49 Cv	42 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2HN3SRC	3 in.	DN80	49 Cv	42 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2HN3SRD	3 in.	DN80	49 Cv	42 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2HN3P0A	3 in.	DN80	49 Cv	42 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2HN3P0B	3 in.	DN80	49 Cv	42 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2HN3P0C	3 in.	DN80	49 Cv	42 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2HN3P0D	3 in.	DN80	49 Cv	42 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2HN3P0X	3 in.	DN80	49 Cv	42 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2HN3S0A	3 in.	DN80	49 Cv	42 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2HN3S0B	3 in.	DN80	49 Cv	42 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2HN3S0C	3 in.	DN80	49 Cv	42 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2HN3S0D	3 in.	DN80	49 Cv	42 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2HN3S0X	3 in.	DN80	49 Cv	42 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2HP3PRA	3 in.	DN80	63 Cv	54 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2HP3PRB	3 in.	DN80	63 Cv	54 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2HP3PRC	3 in.	DN80	63 Cv	54 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2HP3PRD	3 in.	DN80	63 Cv	54 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2HP3SRA	3 in.	DN80	63 Cv	54 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2HP3SRB	3 in.	DN80	63 Cv	54 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2HP3SRC	3 in.	DN80	63 Cv	54 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2HP3SRD	3 in.	DN80	63 Cv	54 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2HP3P0A	3 in.	DN80	63 Cv	54 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2HP3P0B	3 in.	DN80	63 Cv	54 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2HP3P0C	3 in.	DN80	63 Cv	54 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2HP3P0D	3 in.	DN80	63 Cv	54 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2HP3P0X	3 in.	DN80	63 Cv	54 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2HP3S0A	3 in.	DN80	63 Cv	54 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2HP3S0B	3 in.	DN80	63 Cv	54 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2HP3S0C	3 in.	DN80	63 Cv	54 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2HP3S0D	3 in.	DN80	63 Cv	54 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2HP3S0X	3 in.	DN80	63 Cv	54 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2HR3PRA	3 in.	DN80	82 Cv	71 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2HR3PRB	3 in.	DN80	82 Cv	71 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2HR3PRC	3 in.	DN80	82 Cv	71 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2HR3PRD	3 in.	DN80	82 Cv	71 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2HR3SRA	3 in.	DN80	82 Cv	71 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2HR3SRB	3 in.	DN80	82 Cv	71 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2HR3SRC	3 in.	DN80	82 Cv	71 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2HR3SRD	3 in.	DN80	82 Cv	71 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2HR3POA	3 in.	DN80	82 Cv	71 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2HR3POB	3 in.	DN80	82 Cv	71 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2HR3POC	3 in.	DN80	82 Cv	71 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2HR3POD	3 in.	DN80	82 Cv	71 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2HR3POX	3 in.	DN80	82 Cv	71 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2HR3SOA	3 in.	DN80	82 Cv	71 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2HR3SOB	3 in.	DN80	82 Cv	71 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2HR3SOC	3 in.	DN80	82 Cv	71 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2HR3SOD	3 in.	DN80	82 Cv	71 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2HR3SOX	3 in.	DN80	82 Cv	71 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2HT3PRA	3 in.	DN80	124 Cv	107 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2HT3PRB	3 in.	DN80	124 Cv	107 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2HT3PRC	3 in.	DN80	124 Cv	107 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2HT3PRD	3 in.	DN80	124 Cv	107 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2HT3SRA	3 in.	DN80	124 Cv	107 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2HT3SRB	3 in.	DN80	124 Cv	107 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2HT3SRC	3 in.	DN80	124 Cv	107 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2HT3SRD	3 in.	DN80	124 Cv	107 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2HT3POA	3 in.	DN80	124 Cv	107 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2HT3POB	3 in.	DN80	124 Cv	107 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2HT3POC	3 in.	DN80	124 Cv	107 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2HT3POD	3 in.	DN80	124 Cv	107 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2HT3POX	3 in.	DN80	124 Cv	107 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2HT3SOA	3 in.	DN80	124 Cv	107 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2HT3SOB	3 in.	DN80	124 Cv	107 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2HT3SOC	3 in.	DN80	124 Cv	107 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2HT3SOD	3 in.	DN80	124 Cv	107 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2HT3SOX	3 in.	DN80	124 Cv	107 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa

Valves with Linear Flow Characteristic

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2AK3PRA	1/2 in.	DN15	11.7 Cv	10.1 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AK3PRB	1/2 in.	DN15	11.7 Cv	10.1 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AK3PRC	1/2 in.	DN15	11.7 Cv	10.1 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AK3PRD	1/2 in.	DN15	11.7 Cv	10.1 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AK3SRA	1/2 in.	DN15	11.7 Cv	10.1 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2AK3SRB	1/2 in.	DN15	11.7 Cv	10.1 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2AK3SRC	1/2 in.	DN15	11.7 Cv	10.1 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2AK3SRD	1/2 in.	DN15	11.7 Cv	10.1 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2AK3POA	1/2 in.	DN15	11.7 Cv	10.1 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AK3POB	1/2 in.	DN15	11.7 Cv	10.1 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AK3POC	1/2 in.	DN15	11.7 Cv	10.1 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AK3POD	1/2 in.	DN15	11.7 Cv	10.1 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AK3POX	1/2 in.	DN15	11.7 Cv	10.1 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa
VBN2AK3SOA	1/2 in.	DN15	11.7 Cv	10.1 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2AK3SOB	1/2 in.	DN15	11.7 Cv	10.1 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2AK3SOC	1/2 in.	DN15	11.7 Cv	10.1 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2AK3SOD	1/2 in.	DN15	11.7 Cv	10.1 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2AK3SOX	1/2 in.	DN15	11.7 Cv	10.1 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	130 psi	896 kPa
VBN2BL3PRA	3/4 in.	DN20	14.7 Cv	12.6 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2BL3PRB	3/4 in.	DN20	14.7 Cv	12.6 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2BL3PRC	3/4 in.	DN20	14.7 Cv	12.6 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2BL3PRD	3/4 in.	DN20	14.7 Cv	12.6 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2BL3SRA	3/4 in.	DN20	14.7 Cv	12.6 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2BL3SRB	3/4 in.	DN20	14.7 Cv	12.6 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2BL3SRC	3/4 in.	DN20	14.7 Cv	12.6 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2BL3SRD	3/4 in.	DN20	14.7 Cv	12.6 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2BL3P0A	3/4 in.	DN20	14.7 Cv	12.6 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2BL3P0B	3/4 in.	DN20	14.7 Cv	12.6 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2BL3P0C	3/4 in.	DN20	14.7 Cv	12.6 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2BL3P0D	3/4 in.	DN20	14.7 Cv	12.6 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2BL3P0X	3/4 in.	DN20	14.7 Cv	12.6 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa
VBN2BL3S0A	3/4 in.	DN20	14.7 Cv	12.6 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2BL3S0B	3/4 in.	DN20	14.7 Cv	12.6 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2BL3S0C	3/4 in.	DN20	14.7 Cv	12.6 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2BL3S0D	3/4 in.	DN20	14.7 Cv	12.6 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2BL3S0X	3/4 in.	DN20	14.7 Cv	12.6 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	130 psi	896 kPa
VBN2BM3PRA	3/4 in.	DN20	29 Cv	25 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2BM3PRB	3/4 in.	DN20	29 Cv	25 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2BM3PRC	3/4 in.	DN20	29 Cv	25 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2BM3PRD	3/4 in.	DN20	29 Cv	25 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2BM3SRA	3/4 in.	DN20	29 Cv	25 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	130 psi	896 kPa
VBN2BM3SRB	3/4 in.	DN20	29 Cv	25 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	130 psi	896 kPa
VBN2BM3SRC	3/4 in.	DN20	29 Cv	25 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	130 psi	896 kPa
VBN2BM3SRD	3/4 in.	DN20	29 Cv	25 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	130 psi	896 kPa
VBN2BM3P0A	3/4 in.	DN20	29 Cv	25 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2BM3P0B	3/4 in.	DN20	29 Cv	25 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2BM3P0C	3/4 in.	DN20	29 Cv	25 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2BM3P0D	3/4 in.	DN20	29 Cv	25 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2BM3P0X	3/4 in.	DN20	29 Cv	25 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	130 psi	896 kPa
VBN2BM3S0A	3/4 in.	DN20	29 Cv	25 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	130 psi	896 kPa
VBN2BM3S0B	3/4 in.	DN20	29 Cv	25 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	130 psi	896 kPa
VBN2BM3S0C	3/4 in.	DN20	29 Cv	25 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	130 psi	896 kPa
VBN2BM3S0D	3/4 in.	DN20	29 Cv	25 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	130 psi	896 kPa
VBN2BM3S0X	3/4 in.	DN20	29 Cv	25 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	130 psi	896 kPa
VBN2CN3PRA	1 in.	DN25	44 Cv	38 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2CN3PRB	1 in.	DN25	44 Cv	38 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2CN3PRC	1 in.	DN25	44 Cv	38 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2CN3PRD	1 in.	DN25	44 Cv	38 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2CN3SRA	1 in.	DN25	44 Cv	38 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2CN3SRB	1 in.	DN25	44 Cv	38 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2CN3SRC	1 in.	DN25	44 Cv	38 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2CN3SRD	1 in.	DN25	44 Cv	38 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2CN3P0A	1 in.	DN25	44 Cv	38 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2CN3P0B	1 in.	DN25	44 Cv	38 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2CN3P0C	1 in.	DN25	44 Cv	38 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2CN3P0D	1 in.	DN25	44 Cv	38 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2CN3P0X	1 in.	DN25	44 Cv	38 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2CN3S0A	1 in.	DN25	44 Cv	38 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2CN3S0B	1 in.	DN25	44 Cv	38 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2CN3S0C	1 in.	DN25	44 Cv	38 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2CN3S0D	1 in.	DN25	44 Cv	38 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2CN3S0X	1 in.	DN25	44 Cv	38 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2CP3PRA	1 in.	DN25	54 Cv	46 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2CP3PRB	1 in.	DN25	54 Cv	46 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2CP3PRC	1 in.	DN25	54 Cv	46 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2CP3PRD	1 in.	DN25	54 Cv	46 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2CP3SRA	1 in.	DN25	54 Cv	46 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2CP3SRB	1 in.	DN25	54 Cv	46 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2CP3SRC	1 in.	DN25	54 Cv	46 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2CP3SRD	1 in.	DN25	54 Cv	46 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa

Commercial Components

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2CP3P0A	1 in.	DN25	54 Cv	46 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2CP3P0B	1 in.	DN25	54 Cv	46 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2CP3P0C	1 in.	DN25	54 Cv	46 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2CP3P0D	1 in.	DN25	54 Cv	46 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2CP3P0X	1 in.	DN25	54 Cv	46 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2CP3S0A	1 in.	DN25	54 Cv	46 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2CP3S0B	1 in.	DN25	54 Cv	46 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2CP3S0C	1 in.	DN25	54 Cv	46 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2CP3S0D	1 in.	DN25	54 Cv	46 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2CP3S0X	1 in.	DN25	54 Cv	46 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DS3PRA	1 1/4 in.	DN32	102 Cv	88 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DS3PRB	1 1/4 in.	DN32	102 Cv	88 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DS3PRC	1 1/4 in.	DN32	102 Cv	88 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DS3PRD	1 1/4 in.	DN32	102 Cv	88 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DS3SRA	1 1/4 in.	DN32	102 Cv	88 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2DS3SRB	1 1/4 in.	DN32	102 Cv	88 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2DS3SRC	1 1/4 in.	DN32	102 Cv	88 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2DS3SRD	1 1/4 in.	DN32	102 Cv	88 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2DS3P0A	1 1/4 in.	DN32	102 Cv	88 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DS3P0B	1 1/4 in.	DN32	102 Cv	88 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2DS3P0C	1 1/4 in.	DN32	102 Cv	88 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DS3P0D	1 1/4 in.	DN32	102 Cv	88 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DS3P0X	1 1/4 in.	DN32	102 Cv	88 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2DS3S0A	1 1/4 in.	DN32	102 Cv	88 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2DS3S0B	1 1/4 in.	DN32	102 Cv	88 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2DS3S0C	1 1/4 in.	DN32	102 Cv	88 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2DS3S0D	1 1/4 in.	DN32	102 Cv	88 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2DS3S0X	1 1/4 in.	DN32	102 Cv	88 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2ER3PRA	1 1/2 in.	DN40	74 Cv	64 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2ER3PRB	1 1/2 in.	DN40	74 Cv	64 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2ER3PRC	1 1/2 in.	DN40	74 Cv	64 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2ER3PRD	1 1/2 in.	DN40	74 Cv	64 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2ER3SRA	1 1/2 in.	DN40	74 Cv	64 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2ER3SRB	1 1/2 in.	DN40	74 Cv	64 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2ER3SRC	1 1/2 in.	DN40	74 Cv	64 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2ER3SRD	1 1/2 in.	DN40	74 Cv	64 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2ER3P0A	1 1/2 in.	DN40	74 Cv	64 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2ER3P0B	1 1/2 in.	DN40	74 Cv	64 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2ER3P0C	1 1/2 in.	DN40	74 Cv	64 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2ER3P0D	1 1/2 in.	DN40	74 Cv	64 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2ER3P0X	1 1/2 in.	DN40	74 Cv	64 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2ER3S0A	1 1/2 in.	DN40	74 Cv	64 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2ER3S0B	1 1/2 in.	DN40	74 Cv	64 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2ER3S0C	1 1/2 in.	DN40	74 Cv	64 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2ER3S0D	1 1/2 in.	DN40	74 Cv	64 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2ER3S0X	1 1/2 in.	DN40	74 Cv	64 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2E13PRA	1 1/2 in.	DN40	172 Cv	148 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2E13PRB	1 1/2 in.	DN40	172 Cv	148 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2E13PRC	1 1/2 in.	DN40	172 Cv	148 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2E13PRD	1 1/2 in.	DN40	172 Cv	148 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2E13SRA	1 1/2 in.	DN40	172 Cv	148 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2E13SRB	1 1/2 in.	DN40	172 Cv	148 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2E13SRC	1 1/2 in.	DN40	172 Cv	148 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2E13SRD	1 1/2 in.	DN40	172 Cv	148 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2E13P0A	1 1/2 in.	DN40	172 Cv	148 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2E13P0B	1 1/2 in.	DN40	172 Cv	148 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2E13P0C	1 1/2 in.	DN40	172 Cv	148 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2E13P0D	1 1/2 in.	DN40	172 Cv	148 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2E13P0X	1 1/2 in.	DN40	172 Cv	148 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2E13S0A	1 1/2 in.	DN40	172 Cv	148 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2E13S0B	1 1/2 in.	DN40	172 Cv	148 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2E13S0C	1 1/2 in.	DN40	172 Cv	148 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2E13S0D	1 1/2 in.	DN40	172 Cv	148 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2E13S0X	1 1/2 in.	DN40	172 Cv	148 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2FT3PRA	2 in.	DN50	108 Cv	93 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2FT3PRB	2 in.	DN50	108 Cv	93 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2FT3PRC	2 in.	DN50	108 Cv	93 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2FT3PRD	2 in.	DN50	108 Cv	93 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2FT3SRA	2 in.	DN50	108 Cv	93 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2FT3SRB	2 in.	DN50	108 Cv	93 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2FT3SRC	2 in.	DN50	108 Cv	93 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2FT3SRD	2 in.	DN50	108 Cv	93 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2FT3P0A	2 in.	DN50	108 Cv	93 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2FT3P0B	2 in.	DN50	108 Cv	93 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2FT3P0C	2 in.	DN50	108 Cv	93 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2FT3P0D	2 in.	DN50	108 Cv	93 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2FT3P0X	2 in.	DN50	108 Cv	93 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2FT3S0A	2 in.	DN50	108 Cv	93 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2FT3S0B	2 in.	DN50	108 Cv	93 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2FT3S0C	2 in.	DN50	108 Cv	93 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2FT3S0D	2 in.	DN50	108 Cv	93 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2FT3S0X	2 in.	DN50	108 Cv	93 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2F23PRA	2 in.	DN50	266 Cv	229 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2F23PRB	2 in.	DN50	266 Cv	229 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2F23PRC	2 in.	DN50	266 Cv	229 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2F23PRD	2 in.	DN50	266 Cv	229 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2F23SRA	2 in.	DN50	266 Cv	229 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2F23SRB	2 in.	DN50	266 Cv	229 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2F23SRC	2 in.	DN50	266 Cv	229 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2F23SRD	2 in.	DN50	266 Cv	229 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2F23P0A	2 in.	DN50	266 Cv	229 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2F23P0B	2 in.	DN50	266 Cv	229 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2F23P0C	2 in.	DN50	266 Cv	229 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2F23P0D	2 in.	DN50	266 Cv	229 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2F23P0X	2 in.	DN50	266 Cv	229 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2F23S0A	2 in.	DN50	266 Cv	229 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2F23S0B	2 in.	DN50	266 Cv	229 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2F23S0C	2 in.	DN50	266 Cv	229 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2F23S0D	2 in.	DN50	266 Cv	229 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2F23S0X	2 in.	DN50	266 Cv	229 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa
VBN2G13PRA	2 1/2 in.	DN65	202 Cv	174 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2G13PRB	2 1/2 in.	DN65	202 Cv	174 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2G13PRC	2 1/2 in.	DN65	202 Cv	174 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2G13PRD	2 1/2 in.	DN65	202 Cv	174 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2G13SRA	2 1/2 in.	DN65	202 Cv	174 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2G13SRB	2 1/2 in.	DN65	202 Cv	174 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2G13SRC	2 1/2 in.	DN65	202 Cv	174 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2G13SRD	2 1/2 in.	DN65	202 Cv	174 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2G13P0A	2 1/2 in.	DN65	202 Cv	174 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2G13P0B	2 1/2 in.	DN65	202 Cv	174 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2G13P0C	2 1/2 in.	DN65	202 Cv	174 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2G13P0D	2 1/2 in.	DN65	202 Cv	174 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2G13P0X	2 1/2 in.	DN65	202 Cv	174 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2G13S0A	2 1/2 in.	DN65	202 Cv	174 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2G13S0B	2 1/2 in.	DN65	202 Cv	174 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2G13S0C	2 1/2 in.	DN65	202 Cv	174 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2G13S0D	2 1/2 in.	DN65	202 Cv	174 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2G13S0X	2 1/2 in.	DN65	202 Cv	174 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa

Commercial Components

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Materials		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)	(Plug/Ball/Disc)	(Stem)			(psi)	(kPa)
VBN2HU3PRA	3 in.	DN80	145 Cv	125 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2HU3PRB	3 in.	DN80	145 Cv	125 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2HU3PRC	3 in.	DN80	145 Cv	125 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2HU3PRD	3 in.	DN80	145 Cv	125 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2HU3SRA	3 in.	DN80	145 Cv	125 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	NEMA 3R	100 psi	689 kPa
VBN2HU3SRB	3 in.	DN80	145 Cv	125 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	NEMA 3R	100 psi	689 kPa
VBN2HU3SRC	3 in.	DN80	145 Cv	125 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	NEMA 3R	100 psi	689 kPa
VBN2HU3SRD	3 in.	DN80	145 Cv	125 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	NEMA 3R	100 psi	689 kPa
VBN2HU3P0A	3 in.	DN80	145 Cv	125 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2HU3P0B	3 in.	DN80	145 Cv	125 kvs	Nickel-plated brass ball	Brass	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2HU3P0C	3 in.	DN80	145 Cv	125 kvs	Nickel-plated brass ball	Brass	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2HU3P0D	3 in.	DN80	145 Cv	125 kvs	Nickel-plated brass ball	Brass	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2HU3P0X	3 in.	DN80	145 Cv	125 kvs	Nickel-plated brass ball	Brass	No pre-assembled actuator	None	100 psi	689 kPa
VBN2HU3S0A	3 in.	DN80	145 Cv	125 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Floating	None	100 psi	689 kPa
VBN2HU3S0B	3 in.	DN80	145 Cv	125 kvs	316 stainless steel	316 Stainless Steel	Non-Spring Return Modulating	None	100 psi	689 kPa
VBN2HU3S0C	3 in.	DN80	145 Cv	125 kvs	316 stainless steel	316 Stainless Steel	Spring Return 2-Position, 24Vac	None	100 psi	689 kPa
VBN2HU3S0D	3 in.	DN80	145 Cv	125 kvs	316 stainless steel	316 Stainless Steel	Spring Return Floating/Modulating	None	100 psi	689 kPa
VBN2HU3S0X	3 in.	DN80	145 Cv	125 kvs	316 stainless steel	316 Stainless Steel	No pre-assembled actuator	None	100 psi	689 kPa

VBN3 Three-way Threaded Control Ball Valve



The VBN3 Three-Way Control Ball Valves control hot and chilled water with glycol solutions up to 50% in heating, ventilating, and air conditioning (HVAC) systems to provide two-position or modulating functions. These valve assemblies can be ordered with or without factory-mounted non-spring return or spring return direct-coupled actuators (DCA).

- Sizes from 1/2 to 2-1/2 inches with internal (female) NPT connections.
- Equal percentage or linear flow characteristics.
- Reduced B-port Cv for constant loop flow.
- Choice of four, factory-installed actuation control schemes: Floating, Modulating (2-10 V), Spring Return 2-Position, Spring Return Modulating/Floating.
- Field configurable for normally open or normally closed fail-safe position.
- Removable manual operating handle to control valve during installation or in an event of power failure.
- ANSI Class IV seat leakage specification (0.01% of Cv).
- Optional NEMA 3R (IP54) rated enclosure for outdoor applications.
- Actuator can be mounted on the valve in any of four positions.
- Wide Cv choices from 0.33 to 109.
- Valve installs in a globe valve "T" pattern, no extra elbows or piping required.
- Field-serviceable stem assembly.
- Nickel-chrome plated brass ball and stem.
- Mixing or Diverting control.

Valve Type: Control Ball Valve

Body Pattern: Three-way

Flow Characteristic: Linear (B-AB); Equal Percentage (A-AB)

Connection Type: Female NPT

Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

Leakage Rating: ANSI Class IV (0.01% of Cv maximum)

Maximum Safe Operating Pressure: 360 psi (2482 kPa)

Dimensions in inches (millimeters)

Fluid Temperature Range: -22 F to +250 F (-30 C to +121 F)

Materials

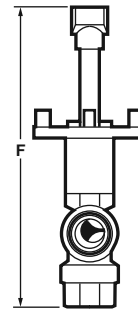
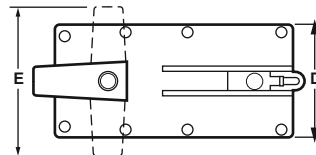
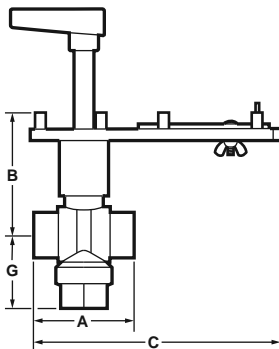
(Body): Brass

(Stem): Brass

(Seat): Teflon® seals with EPDM O-rings

(Plug/Ball/Disc): Nickel-plated brass ball

(Flow Control Insert) : Noryl®



Pipe Size	Model No.	Cv	Dimensions inches (mm)					Weight lb (kg)		
			A	B	C	D	E		F	G
1/2"	VBN3A	0.33, 0.59, 1.0, 2.4, 4.3, 8.0	3-1/2 (90)	3-5/16 (84)	7 (178)	3 (76)	4 (102)	9-3/8 (238)	2-3/8 (60)	2.4 (1.1)
3/4"	VBN3B	0.40, 0.66, 1.3, 2.4, 3.8, 11.0	2-13/16 (71)	3-5/16 (84)	6-1/2 (168)	3 (76)	4 (102)	8-13/16 (224)	2 (51)	2 (0.9)
1"	VBN3C	0.40, 0.65, 1.3, 2.3, 3.5	3-13/16 (97)	3-5/16 (84)	7-5/16 (186)	3 (76)	4 (102)	9-1/2 (241)	2-3/4 (70)	2.8 (1.3)
		8.6, 22	3 (76)	3-13/16	6-13/16 (173)	3 (76)	4 (102)	9-13/16 (249)	2-5/8 (67)	2.6 (1.2)
1-1/4"	VBN3D	4.5, 14.9, 31	4-1/2 (114)	4 (102)	7-13/16 (198)	3 (76)	4 (102)	10-13/16 (275)	3-1/4 (83)	3.3 (1.5)
		4.1, 8.7, 19.0	3 (76)	3-13/16	6-13/16 (173)	3 (76)	4 (102)	9-13/16 (249)	2-1/2 (64)	2.5 (1.1)
1-1/2"	VBN3E	12.7, 27, 34	3-5/8 (92)	4 (102)	7-5/16 (186)	3 (76)	4 (102)	10-5/16 (262)	2-3/4 (70)	2.8 (1.3)
		4.0, 8.3, 13.4, 32	4-1/2 (114)	4 (102)	7-13/16 (198)	3 (76)	4 (102)	10-13/16 (275)	3-1/4 (83)	3.3 (1.5)
2"	VBN3F	24, 38, 57	4 (102)	4-1/2 (114)	7-5/16 (186)	3 (76)	4 (102)	11 (279)	3-1/4 (83)	3.3 (1.5)
		83, 109	5 (127)	5-13/16	7-13/16 (198)	3 (76)	4 (102)	12-5/16 (313)	3-3/4 (95)	3.8 (1.7)
2-1/2"	VBN3G	38, 74, 100	5 (127)	5-13/16	7-13/16 (198)	3 (76)	4 (102)	12-5/16 (313)	3-3/4 (95)	3.8 (1.7)

M13730

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)			(psi)	(kPa)
VBN3AB3PRA	1/2 in.	DN15	0.33 Cv	0.28 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3AB3PRB	1/2 in.	DN15	0.33 Cv	0.28 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3AB3PRC	1/2 in.	DN15	0.33 Cv	0.28 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3AB3PRD	1/2 in.	DN15	0.33 Cv	0.28 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3AB3P0A	1/2 in.	DN15	0.33 Cv	0.28 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3AB3P0B	1/2 in.	DN15	0.33 Cv	0.28 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3AB3P0C	1/2 in.	DN15	0.33 Cv	0.28 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3AB3P0D	1/2 in.	DN15	0.33 Cv	0.28 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3AB3P0X	1/2 in.	DN15	0.33 Cv	0.28 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3AC3PRA	1/2 in.	DN15	0.59 Cv	0.5 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3AC3PRB	1/2 in.	DN15	0.59 Cv	0.5 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3AC3PRC	1/2 in.	DN15	0.59 Cv	0.5 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3AC3PRD	1/2 in.	DN15	0.59 Cv	0.5 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3AC3P0A	1/2 in.	DN15	0.59 Cv	0.5 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3AC3P0B	1/2 in.	DN15	0.59 Cv	0.5 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3AC3P0C	1/2 in.	DN15	0.59 Cv	0.5 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3AC3P0D	1/2 in.	DN15	0.59 Cv	0.5 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3AC3P0X	1/2 in.	DN15	0.59 Cv	0.5 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3AE3PRA	1/2 in.	DN15	1.0 Cv	0.86 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3AE3PRB	1/2 in.	DN15	1.0 Cv	0.86 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3AE3PRC	1/2 in.	DN15	1.0 Cv	0.86 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3AE3PRD	1/2 in.	DN15	1.0 Cv	0.86 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3AE3P0A	1/2 in.	DN15	1.0 Cv	0.86 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3AE3P0B	1/2 in.	DN15	1.0 Cv	0.86 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3AE3P0C	1/2 in.	DN15	1.0 Cv	0.86 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3AE3P0D	1/2 in.	DN15	1.0 Cv	0.86 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3AE3P0X	1/2 in.	DN15	1.0 Cv	0.86 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3AF3PRA	1/2 in.	DN15	2.4 Cv	2.1 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3AF3PRB	1/2 in.	DN15	2.4 Cv	2.1 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3AF3PRC	1/2 in.	DN15	2.4 Cv	2.1 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3AF3PRD	1/2 in.	DN15	2.4 Cv	2.1 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3AF3P0A	1/2 in.	DN15	2.4 Cv	2.1 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3AF3P0B	1/2 in.	DN15	2.4 Cv	2.1 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3AF3P0C	1/2 in.	DN15	2.4 Cv	2.1 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3AF3P0D	1/2 in.	DN15	2.4 Cv	2.1 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3AF3P0X	1/2 in.	DN15	2.4 Cv	2.1 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3AH3PRA	1/2 in.	DN15	4.3 Cv	3.7 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3AH3PRB	1/2 in.	DN15	4.3 Cv	3.7 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3AH3PRC	1/2 in.	DN15	4.3 Cv	3.7 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3AH3PRD	1/2 in.	DN15	4.3 Cv	3.7 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3AH3P0A	1/2 in.	DN15	4.3 Cv	3.7 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3AH3P0B	1/2 in.	DN15	4.3 Cv	3.7 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3AH3P0C	1/2 in.	DN15	4.3 Cv	3.7 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3AH3P0D	1/2 in.	DN15	4.3 Cv	3.7 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3AH3P0X	1/2 in.	DN15	4.3 Cv	3.7 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3AJ3PRA	1/2 in.	DN15	8.0 Cv	6.9 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3AJ3PRB	1/2 in.	DN15	8.0 Cv	6.9 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3AJ3PRC	1/2 in.	DN15	8.0 Cv	6.9 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3AJ3PRD	1/2 in.	DN15	8.0 Cv	6.9 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3AJ3P0A	1/2 in.	DN15	8.0 Cv	6.9 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3AJ3P0B	1/2 in.	DN15	8.0 Cv	6.9 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3AJ3P0C	1/2 in.	DN15	8.0 Cv	6.9 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3AJ3P0D	1/2 in.	DN15	8.0 Cv	6.9 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3AJ3P0X	1/2 in.	DN15	8.0 Cv	6.9 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3BC3PRA	3/4 in.	DN20	0.40 Cv	0.34 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3BC3PRB	3/4 in.	DN20	0.40 Cv	0.34 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)			(psi)	(kPa)
VBN3BC3PRC	3/4 in.	DN20	0.40 Cv	0.34 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3BC3PRD	3/4 in.	DN20	0.40 Cv	0.34 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3BC3P0A	3/4 in.	DN20	0.40 Cv	0.34 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3BC3P0B	3/4 in.	DN20	0.40 Cv	0.34 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3BC3P0C	3/4 in.	DN20	0.40 Cv	0.34 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3BC3P0D	3/4 in.	DN20	0.40 Cv	0.34 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3BC3P0X	3/4 in.	DN20	0.40 Cv	0.34 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3BD3PRA	3/4 in.	DN20	0.66 Cv	0.57 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3BD3PRB	3/4 in.	DN20	0.66 Cv	0.57 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3BD3PRC	3/4 in.	DN20	0.66 Cv	0.57 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3BD3PRD	3/4 in.	DN20	0.66 Cv	0.57 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3BD3P0A	3/4 in.	DN20	0.66 Cv	0.57 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3BD3P0B	3/4 in.	DN20	0.66 Cv	0.57 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3BD3P0C	3/4 in.	DN20	0.66 Cv	0.57 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3BD3P0D	3/4 in.	DN20	0.66 Cv	0.57 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3BD3P0X	3/4 in.	DN20	0.66 Cv	0.57 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3BE3PRA	3/4 in.	DN20	1.3 Cv	1.1 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3BE3PRB	3/4 in.	DN20	1.3 Cv	1.1 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3BE3PRC	3/4 in.	DN20	1.3 Cv	1.1 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3BE3PRD	3/4 in.	DN20	1.3 Cv	1.1 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3BE3P0A	3/4 in.	DN20	1.3 Cv	1.1 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3BE3P0B	3/4 in.	DN20	1.3 Cv	1.1 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3BE3P0C	3/4 in.	DN20	1.3 Cv	1.1 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3BE3P0D	3/4 in.	DN20	1.3 Cv	1.1 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3BE3P0X	3/4 in.	DN20	1.3 Cv	1.1 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3BF3PRA	3/4 in.	DN20	2.4 Cv	2.1 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3BF3PRB	3/4 in.	DN20	2.4 Cv	2.1 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3BF3PRC	3/4 in.	DN20	2.4 Cv	2.1 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3BF3PRD	3/4 in.	DN20	2.4 Cv	2.1 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3BF3P0A	3/4 in.	DN20	2.4 Cv	2.1 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3BF3P0B	3/4 in.	DN20	2.4 Cv	2.1 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3BF3P0C	3/4 in.	DN20	2.4 Cv	2.1 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3BF3P0D	3/4 in.	DN20	2.4 Cv	2.1 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3BF3P0X	3/4 in.	DN20	2.4 Cv	2.1 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3BG3PRA	3/4 in.	DN20	3.8 Cv	3.3 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3BG3PRB	3/4 in.	DN20	3.8 Cv	3.3 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3BG3PRC	3/4 in.	DN20	3.8 Cv	3.3 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3BG3PRD	3/4 in.	DN20	3.8 Cv	3.3 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3BG3P0A	3/4 in.	DN20	3.8 Cv	3.3 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3BG3P0B	3/4 in.	DN20	3.8 Cv	3.3 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3BG3P0C	3/4 in.	DN20	3.8 Cv	3.3 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3BG3P0D	3/4 in.	DN20	3.8 Cv	3.3 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3BG3P0X	3/4 in.	DN20	3.8 Cv	3.3 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3BJ3PRA	3/4 in.	DN20	7.0 Cv	6.5 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3BJ3PRB	3/4 in.	DN20	7.0 Cv	6.5 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3BJ3PRC	3/4 in.	DN20	7.0 Cv	6.5 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3BJ3PRD	3/4 in.	DN20	7.0 Cv	6.5 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3BJ3P0A	3/4 in.	DN20	7.0 Cv	6.5 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3BJ3P0B	3/4 in.	DN20	7.0 Cv	6.5 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3BJ3P0C	3/4 in.	DN20	7.0 Cv	6.5 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3BJ3P0D	3/4 in.	DN20	7.0 Cv	6.5 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3BJ3P0X	3/4 in.	DN20	7.0 Cv	6.5 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3BK3PRA	3/4 in.	DN20	11.0 Cv	9.5 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3BK3PRB	3/4 in.	DN20	11.0 Cv	9.5 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3BK3PRC	3/4 in.	DN20	11.0 Cv	9.5 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3BK3PRD	3/4 in.	DN20	11.0 Cv	9.5 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3BK3P0A	3/4 in.	DN20	11.0 Cv	9.5 kvs	Non-Spring Return Floating	None	50 psi	345 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)			(psi)	(kPa)
VBN3BK3P0B	3/4 in.	DN20	11.0 Cv	9.5 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3BK3P0C	3/4 in.	DN20	11.0 Cv	9.5 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3BK3P0D	3/4 in.	DN20	11.0 Cv	9.5 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3BK3P0X	3/4 in.	DN20	11.0 Cv	9.5 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3CC3PRA	1 in.	DN25	0.40 Cv	0.34 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3CC3PRB	1 in.	DN25	0.40 Cv	0.34 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3CC3PRC	1 in.	DN25	0.40 Cv	0.34 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3CC3PRD	1 in.	DN25	0.40 Cv	0.34 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3CC3P0A	1 in.	DN25	0.40 Cv	0.34 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3CC3P0B	1 in.	DN25	0.40 Cv	0.34 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3CC3P0C	1 in.	DN25	0.40 Cv	0.34 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3CC3P0D	1 in.	DN25	0.40 Cv	0.34 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3CC3P0X	1 in.	DN25	0.40 Cv	0.34 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3CD3PRA	1 in.	DN25	0.65 Cv	0.56 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3CD3PRB	1 in.	DN25	0.65 Cv	0.56 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3CD3PRC	1 in.	DN25	0.65 Cv	0.56 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3CD3PRD	1 in.	DN25	0.65 Cv	0.56 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3CD3P0A	1 in.	DN25	0.65 Cv	0.56 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3CD3P0B	1 in.	DN25	0.65 Cv	0.56 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3CD3P0C	1 in.	DN25	0.65 Cv	0.56 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3CD3P0D	1 in.	DN25	0.65 Cv	0.56 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3CD3P0X	1 in.	DN25	0.65 Cv	0.56 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3CE3PRA	1 in.	DN25	1.3 Cv	1.1 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3CE3PRB	1 in.	DN25	1.3 Cv	1.1 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3CE3PRC	1 in.	DN25	1.3 Cv	1.1 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3CE3PRD	1 in.	DN25	1.3 Cv	1.1 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3CE3P0A	1 in.	DN25	1.3 Cv	1.1 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3CE3P0B	1 in.	DN25	1.3 Cv	1.1 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3CE3P0C	1 in.	DN25	1.3 Cv	1.1 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3CE3P0D	1 in.	DN25	1.3 Cv	1.1 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3CE3P0X	1 in.	DN25	1.3 Cv	1.1 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3CF3PRA	1 in.	DN25	2.3 Cv	2.0 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3CF3PRB	1 in.	DN25	2.3 Cv	2.0 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3CF3PRC	1 in.	DN25	2.3 Cv	2.0 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3CF3PRD	1 in.	DN25	2.3 Cv	2.0 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3CF3P0A	1 in.	DN25	2.3 Cv	2.0 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3CF3P0B	1 in.	DN25	2.3 Cv	2.0 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3CF3P0C	1 in.	DN25	2.3 Cv	2.0 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3CF3P0D	1 in.	DN25	2.3 Cv	2.0 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3CF3P0X	1 in.	DN25	2.3 Cv	2.0 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3CG3PRA	1 in.	DN25	3.5 Cv	3.0 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3CG3PRB	1 in.	DN25	3.5 Cv	3.0 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3CG3PRC	1 in.	DN25	3.5 Cv	3.0 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3CG3PRD	1 in.	DN25	3.5 Cv	3.0 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3CG3P0A	1 in.	DN25	3.5 Cv	3.0 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3CG3P0B	1 in.	DN25	3.5 Cv	3.0 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3CG3P0C	1 in.	DN25	3.5 Cv	3.0 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3CG3P0D	1 in.	DN25	3.5 Cv	3.0 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3CG3P0X	1 in.	DN25	3.5 Cv	3.0 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3CH3PRA	1 in.	DN25	4.5 Cv	3.9 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3CH3PRB	1 in.	DN25	4.5 Cv	3.9 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3CH3PRC	1 in.	DN25	4.5 Cv	3.9 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3CH3PRD	1 in.	DN25	4.5 Cv	3.9 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3CH3P0A	1 in.	DN25	4.5 Cv	3.9 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3CH3P0B	1 in.	DN25	4.5 Cv	3.9 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3CH3P0C	1 in.	DN25	4.5 Cv	3.9 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3CH3P0D	1 in.	DN25	4.5 Cv	3.9 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)			(psi)	(kPa)
VBN3CH3P0X	1 in.	DN25	4.5 Cv	3.9 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3CJ3PRA	1 in.	DN25	8.6 Cv	7.4 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3CJ3PRB	1 in.	DN25	8.6 Cv	7.4 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3CJ3PRC	1 in.	DN25	8.6 Cv	7.4 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3CJ3PRD	1 in.	DN25	8.6 Cv	7.4 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3CJ3P0A	1 in.	DN25	8.6 Cv	7.4 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3CJ3P0B	1 in.	DN25	8.6 Cv	7.4 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3CJ3P0C	1 in.	DN25	8.6 Cv	7.4 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3CJ3P0D	1 in.	DN25	8.6 Cv	7.4 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3CJ3P0X	1 in.	DN25	8.6 Cv	7.4 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3CK3PRA	1 in.	DN25	14.9 Cv	12.8 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3CK3PRB	1 in.	DN25	14.9 Cv	12.8 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3CK3PRC	1 in.	DN25	14.9 Cv	12.8 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3CK3PRD	1 in.	DN25	14.9 Cv	12.8 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3CK3P0A	1 in.	DN25	14.9 Cv	12.8 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3CK3P0B	1 in.	DN25	14.9 Cv	12.8 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3CK3P0C	1 in.	DN25	14.9 Cv	12.8 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3CK3P0D	1 in.	DN25	14.9 Cv	12.8 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3CK3P0X	1 in.	DN25	14.9 Cv	12.8 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3CL3PRA	1 in.	DN25	22 Cv	18.9 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3CL3PRB	1 in.	DN25	22 Cv	18.9 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3CL3PRC	1 in.	DN25	22 Cv	18.9 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3CL3PRD	1 in.	DN25	22 Cv	18.9 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3CL3P0A	1 in.	DN25	22 Cv	18.9 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3CL3P0B	1 in.	DN25	22 Cv	18.9 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3CL3P0C	1 in.	DN25	22 Cv	18.9 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3CL3P0D	1 in.	DN25	22 Cv	18.9 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3CL3P0X	1 in.	DN25	22 Cv	18.9 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3CM3PRA	1 in.	DN25	31 Cv	27 kvs	Non-Spring Return Floating	NEMA 3R	50 psi	345 kPa
VBN3CM3PRB	1 in.	DN25	31 Cv	27 kvs	Non-Spring Return Modulating	NEMA 3R	50 psi	345 kPa
VBN3CM3PRC	1 in.	DN25	31 Cv	27 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	50 psi	345 kPa
VBN3CM3PRD	1 in.	DN25	31 Cv	27 kvs	Spring Return Floating/Modulating	NEMA 3R	50 psi	345 kPa
VBN3CM3P0A	1 in.	DN25	31 Cv	27 kvs	Non-Spring Return Floating	None	50 psi	345 kPa
VBN3CM3P0B	1 in.	DN25	31 Cv	27 kvs	Non-Spring Return Modulating	None	50 psi	345 kPa
VBN3CM3P0C	1 in.	DN25	31 Cv	27 kvs	Spring Return 2-Position, 24Vac	None	50 psi	345 kPa
VBN3CM3P0D	1 in.	DN25	31 Cv	27 kvs	Spring Return Floating/Modulating	None	50 psi	345 kPa
VBN3CM3P0X	1 in.	DN25	31 Cv	27 kvs	No pre-assembled actuator	None	50 psi	345 kPa
VBN3DH3PRA	1 1/4 in.	DN32	4.1 Cv	3.5 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3DH3PRB	1 1/4 in.	DN32	4.1 Cv	3.5 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3DH3PRC	1 1/4 in.	DN32	4.1 Cv	3.5 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3DH3PRD	1 1/4 in.	DN32	4.1 Cv	3.5 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3DH3P0A	1 1/4 in.	DN32	4.1 Cv	3.5 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3DH3P0B	1 1/4 in.	DN32	4.1 Cv	3.5 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3DH3P0C	1 1/4 in.	DN32	4.1 Cv	3.5 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3DH3P0D	1 1/4 in.	DN32	4.1 Cv	3.5 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3DH3P0X	1 1/4 in.	DN32	4.1 Cv	3.5 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3DJ3PRA	1 1/4 in.	DN32	8.7 Cv	7.5 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3DJ3PRB	1 1/4 in.	DN32	8.7 Cv	7.5 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3DJ3PRC	1 1/4 in.	DN32	8.7 Cv	7.5 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3DJ3PRD	1 1/4 in.	DN32	8.7 Cv	7.5 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3DJ3P0A	1 1/4 in.	DN32	8.7 Cv	7.5 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3DJ3P0B	1 1/4 in.	DN32	8.7 Cv	7.5 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3DJ3P0C	1 1/4 in.	DN32	8.7 Cv	7.5 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3DJ3P0D	1 1/4 in.	DN32	8.7 Cv	7.5 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3DJ3P0X	1 1/4 in.	DN32	8.7 Cv	7.5 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3DK3PRA	1 1/4 in.	DN32	12.7 Cv	10.9 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3DK3PRB	1 1/4 in.	DN32	12.7 Cv	10.9 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)			(psi)	(kPa)
VBN3DK3PRC	1 1/4 in.	DN32	12.7 Cv	10.9 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3DK3PRD	1 1/4 in.	DN32	12.7 Cv	10.9 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3DK3P0A	1 1/4 in.	DN32	12.7 Cv	10.9 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3DK3P0B	1 1/4 in.	DN32	12.7 Cv	10.9 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3DK3P0C	1 1/4 in.	DN32	12.7 Cv	10.9 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3DK3P0D	1 1/4 in.	DN32	12.7 Cv	10.9 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3DK3P0X	1 1/4 in.	DN32	12.7 Cv	10.9 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3DL3PRA	1 1/4 in.	DN32	19.4 Cv	16.7 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3DL3PRB	1 1/4 in.	DN32	19.4 Cv	16.7 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3DL3PRC	1 1/4 in.	DN32	19.4 Cv	16.7 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3DL3PRD	1 1/4 in.	DN32	19.4 Cv	16.7 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3DL3P0A	1 1/4 in.	DN32	19.4 Cv	16.7 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3DL3P0B	1 1/4 in.	DN32	19.4 Cv	16.7 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3DL3P0C	1 1/4 in.	DN32	19.4 Cv	16.7 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3DL3P0D	1 1/4 in.	DN32	19.4 Cv	16.7 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3DL3P0X	1 1/4 in.	DN32	19.4 Cv	16.7 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3DM3PRA	1 1/4 in.	DN32	27 Cv	23 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3DM3PRB	1 1/4 in.	DN32	27 Cv	23 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3DM3PRC	1 1/4 in.	DN32	27 Cv	23 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3DM3PRD	1 1/4 in.	DN32	27 Cv	23 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3DM3P0A	1 1/4 in.	DN32	27 Cv	23 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3DM3P0B	1 1/4 in.	DN32	27 Cv	23 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3DM3P0C	1 1/4 in.	DN32	27 Cv	23 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3DM3P0D	1 1/4 in.	DN32	27 Cv	23 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3DM3P0X	1 1/4 in.	DN32	27 Cv	23 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3DN3PRA	1 1/4 in.	DN32	34 Cv	29 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3DN3PRB	1 1/4 in.	DN32	34 Cv	29 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3DN3PRC	1 1/4 in.	DN32	34 Cv	29 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3DN3PRD	1 1/4 in.	DN32	34 Cv	29 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3DN3P0A	1 1/4 in.	DN32	34 Cv	29 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3DN3P0B	1 1/4 in.	DN32	34 Cv	29 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3DN3P0C	1 1/4 in.	DN32	34 Cv	29 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3DN3P0D	1 1/4 in.	DN32	34 Cv	29 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3DN3P0X	1 1/4 in.	DN32	34 Cv	29 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3EH3PRA	1 1/2 in.	DN40	4.0 Cv	3.4 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3EH3PRB	1 1/2 in.	DN40	4.0 Cv	3.4 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3EH3PRC	1 1/2 in.	DN40	4.0 Cv	3.4 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3EH3PRD	1 1/2 in.	DN40	4.0 Cv	3.4 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3EH3P0A	1 1/2 in.	DN40	4.0 Cv	3.4 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3EH3P0B	1 1/2 in.	DN40	4.0 Cv	3.4 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3EH3P0C	1 1/2 in.	DN40	4.0 Cv	3.4 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3EH3P0D	1 1/2 in.	DN40	4.0 Cv	3.4 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3EH3P0X	1 1/2 in.	DN40	4.0 Cv	3.4 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3EJ3PRA	1 1/2 in.	DN40	8.3 Cv	7.1 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3EJ3PRB	1 1/2 in.	DN40	8.3 Cv	7.1 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3EJ3PRC	1 1/2 in.	DN40	8.3 Cv	7.1 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3EJ3PRD	1 1/2 in.	DN40	8.3 Cv	7.1 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3EJ3P0A	1 1/2 in.	DN40	8.3 Cv	7.1 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3EJ3P0B	1 1/2 in.	DN40	8.3 Cv	7.1 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3EJ3P0C	1 1/2 in.	DN40	8.3 Cv	7.1 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3EJ3P0D	1 1/2 in.	DN40	8.3 Cv	7.1 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3EJ3P0X	1 1/2 in.	DN40	8.3 Cv	7.1 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3EK3PRA	1 1/2 in.	DN40	13.4 Cv	11.5 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3EK3PRB	1 1/2 in.	DN40	13.4 Cv	11.5 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3EK3PRC	1 1/2 in.	DN40	13.4 Cv	11.5 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3EK3PRD	1 1/2 in.	DN40	13.4 Cv	11.5 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3EK3P0A	1 1/2 in.	DN40	13.4 Cv	11.5 kvs	Non-Spring Return Floating	None	40 psi	276 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)			(psi)	(kPa)
VBN3EK3P0B	1 1/2 in.	DN40	13.4 Cv	11.5 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3EK3P0C	1 1/2 in.	DN40	13.4 Cv	11.5 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3EK3P0D	1 1/2 in.	DN40	13.4 Cv	11.5 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3EK3P0X	1 1/2 in.	DN40	13.4 Cv	11.5 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3EL3PRA	1 1/2 in.	DN40	24 Cv	21 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3EL3PRB	1 1/2 in.	DN40	24 Cv	21 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3EL3PRC	1 1/2 in.	DN40	24 Cv	21 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3EL3PRD	1 1/2 in.	DN40	24 Cv	21 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3EL3P0A	1 1/2 in.	DN40	24 Cv	21 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3EL3P0B	1 1/2 in.	DN40	24 Cv	21 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3EL3P0C	1 1/2 in.	DN40	24 Cv	21 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3EL3P0D	1 1/2 in.	DN40	24 Cv	21 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3EL3P0X	1 1/2 in.	DN40	24 Cv	21 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3EM3PRA	1 1/2 in.	DN40	32 Cv	28 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3EM3PRB	1 1/2 in.	DN40	32 Cv	28 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3EM3PRC	1 1/2 in.	DN40	32 Cv	28 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3EM3PRD	1 1/2 in.	DN40	32 Cv	28 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3EM3P0A	1 1/2 in.	DN40	32 Cv	28 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3EM3P0B	1 1/2 in.	DN40	32 Cv	28 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3EM3P0C	1 1/2 in.	DN40	32 Cv	28 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3EM3P0D	1 1/2 in.	DN40	32 Cv	28 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3EM3P0X	1 1/2 in.	DN40	32 Cv	28 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3EP3PRA	1 1/2 in.	DN40	61 Cv	52 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3EP3PRB	1 1/2 in.	DN40	61 Cv	52 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3EP3PRC	1 1/2 in.	DN40	61 Cv	52 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3EP3PRD	1 1/2 in.	DN40	61 Cv	52 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3EP3P0A	1 1/2 in.	DN40	61 Cv	52 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3EP3P0B	1 1/2 in.	DN40	61 Cv	52 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3EP3P0C	1 1/2 in.	DN40	61 Cv	52 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3EP3P0D	1 1/2 in.	DN40	61 Cv	52 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3EP3P0X	1 1/2 in.	DN40	61 Cv	52 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3FL3PRA	2 in.	DN50	24 Cv	21 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3FL3PRB	2 in.	DN50	24 Cv	21 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3FL3PRC	2 in.	DN50	24 Cv	21 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3FL3PRD	2 in.	DN50	24 Cv	21 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3FL3P0A	2 in.	DN50	24 Cv	21 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3FL3P0B	2 in.	DN50	24 Cv	21 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3FL3P0C	2 in.	DN50	24 Cv	21 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3FL3P0D	2 in.	DN50	24 Cv	21 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3FL3P0X	2 in.	DN50	24 Cv	21 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3FN3PRA	2 in.	DN50	38 Cv	33 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3FN3PRB	2 in.	DN50	38 Cv	33 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3FN3PRC	2 in.	DN50	38 Cv	33 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3FN3PRD	2 in.	DN50	38 Cv	33 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3FN3P0A	2 in.	DN50	38 Cv	33 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3FN3P0B	2 in.	DN50	38 Cv	33 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3FN3P0C	2 in.	DN50	38 Cv	33 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3FN3P0D	2 in.	DN50	38 Cv	33 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3FN3P0X	2 in.	DN50	38 Cv	33 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3FP3PRA	2 in.	DN50	57 Cv	49 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3FP3PRB	2 in.	DN50	57 Cv	49 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3FP3PRC	2 in.	DN50	57 Cv	49 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3FP3PRD	2 in.	DN50	57 Cv	49 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3FP3P0A	2 in.	DN50	57 Cv	49 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3FP3P0B	2 in.	DN50	57 Cv	49 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3FP3P0C	2 in.	DN50	57 Cv	49 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3FP3P0D	2 in.	DN50	57 Cv	49 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa

Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure	Maximum Close-off Pressure	
	(inch)	DN	(Cv)	(Kv)			(psi)	(kPa)
VBN3FP3P0X	2 in.	DN50	57 Cv	49 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3FR3PRA	2 in.	DN50	83 Cv	71 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3FR3PRB	2 in.	DN50	83 Cv	71 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3FR3PRC	2 in.	DN50	83 Cv	71 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3FR3PRD	2 in.	DN50	83 Cv	71 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3FR3P0A	2 in.	DN50	83 Cv	71 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3FR3P0B	2 in.	DN50	83 Cv	71 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3FR3P0C	2 in.	DN50	83 Cv	71 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3FR3P0D	2 in.	DN50	83 Cv	71 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3FR3P0X	2 in.	DN50	83 Cv	71 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3FT3PRA	2 in.	DN50	109 Cv	94 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3FT3PRB	2 in.	DN50	109 Cv	94 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3FT3PRC	2 in.	DN50	109 Cv	94 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3FT3PRD	2 in.	DN50	109 Cv	94 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3FT3P0A	2 in.	DN50	109 Cv	94 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3FT3P0B	2 in.	DN50	109 Cv	94 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3FT3P0C	2 in.	DN50	109 Cv	94 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3FT3P0D	2 in.	DN50	109 Cv	94 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3FT3P0X	2 in.	DN50	109 Cv	94 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3GN3PRA	2 1/2 in.	DN65	38 Cv	33 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3GN3PRB	2 1/2 in.	DN65	38 Cv	33 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3GN3PRC	2 1/2 in.	DN65	38 Cv	33 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3GN3PRD	2 1/2 in.	DN65	38 Cv	33 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3GN3P0A	2 1/2 in.	DN65	38 Cv	33 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3GN3P0B	2 1/2 in.	DN65	38 Cv	33 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3GN3P0C	2 1/2 in.	DN65	38 Cv	33 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3GN3P0D	2 1/2 in.	DN65	38 Cv	33 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3GN3P0X	2 1/2 in.	DN65	38 Cv	33 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3GR3PRA	2 1/2 in.	DN65	74 Cv	64 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3GR3PRB	2 1/2 in.	DN65	74 Cv	64 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3GR3PRC	2 1/2 in.	DN65	74 Cv	64 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3GR3PRD	2 1/2 in.	DN65	74 Cv	64 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3GR3P0A	2 1/2 in.	DN65	74 Cv	64 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3GR3P0B	2 1/2 in.	DN65	74 Cv	64 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3GR3P0C	2 1/2 in.	DN65	74 Cv	64 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3GR3P0D	2 1/2 in.	DN65	74 Cv	64 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3GR3P0X	2 1/2 in.	DN65	74 Cv	64 kvs	No pre-assembled actuator	None	40 psi	276 kPa
VBN3GS3PRA	2 1/2 in.	DN65	100 Cv	86 kvs	Non-Spring Return Floating	NEMA 3R	40 psi	276 kPa
VBN3GS3PRB	2 1/2 in.	DN65	100 Cv	86 kvs	Non-Spring Return Modulating	NEMA 3R	40 psi	276 kPa
VBN3GS3PRC	2 1/2 in.	DN65	100 Cv	86 kvs	Spring Return 2-Position, 24Vac	NEMA 3R	40 psi	276 kPa
VBN3GS3PRD	2 1/2 in.	DN65	100 Cv	86 kvs	Spring Return Floating/Modulating	NEMA 3R	40 psi	276 kPa
VBN3GS3P0A	2 1/2 in.	DN65	100 Cv	86 kvs	Non-Spring Return Floating	None	40 psi	276 kPa
VBN3GS3P0B	2 1/2 in.	DN65	100 Cv	86 kvs	Non-Spring Return Modulating	None	40 psi	276 kPa
VBN3GS3P0C	2 1/2 in.	DN65	100 Cv	86 kvs	Spring Return 2-Position, 24Vac	None	40 psi	276 kPa
VBN3GS3P0D	2 1/2 in.	DN65	100 Cv	86 kvs	Spring Return Floating/Modulating	None	40 psi	276 kPa
VBN3GS3P0X	2 1/2 in.	DN65	100 Cv	86 kvs	No pre-assembled actuator	None	40 psi	276 kPa

Butterfly Control Valves

VFF1, VFF2, VFF3, VFF6 Butterfly Control Valves

Butterfly Valves	Fitting	Body Pattern	Size	Disk size (close-off)	Pressure Rating	Valve trim	Actuator secondary Specification	Actuator primary Specification	Description	Actuator Type	
VF	Butterfly Valve, resilient seat										
	F	Flanged fitting									
		1	2-way (spring return normally open)								
		2	2-way (non-spring return or electric spring return direct coupled, factory set to normally closed, and field-convertible to normally open)								
		3	3-way A-B-AB (mixing/diverting)								
		6	3-way A-AB-B (diverting/mixing)								
		F	2 inch (DN50)								
		G	2-1/2 inch (DN65)								
		H	3 inch (DN80)								
		J	4 inch (DN100)								
		K	5 inch (DN125)								
		L	6 inch (DN150)								
		M	8 inch (DN200)								
		N	10 inch (DN250)								
		P	12 inch (DN300)								
		R	14 inch (DN350)								
		S	16 inch (DN400)								
		T	18 inch (DN450)								
		U	20 inch (DN500)								
		V	Undercut disk (lower actuator torque; 50 psid close-off)								
		W	Full diameter disk (high close-off)								
			1	ANSI 150 psig body pressure rating							
			2	ANSI 250 psig body pressure rating							
			Y	Nylon-coated disk, EPDM seat							
			2	NEMA 2 actuator housing (Honeywell DCA)							Electric
			6	NEMA 6 actuator housing with manual operator and heater							Electric
			X	NEMA 4X actuator housing with manual operator and heater							Electric
			8	Spring Range 8-13 psi for 20 psi pneumatic actuator							Pneumatic
			C	24 Vac solenoid for 80 psi pneumatic actuator							Pneumatic
			D	Electro-pneumatic positioner for 80 psi actuator							Pneumatic
			E	120 Vac solenoid for 80 psi pneumatic actuator							Pneumatic
			P	Pneumatic positioner for modulating applications							Pneumatic
			X	Standard, two-position control only							Pneumatic
			L	Lever operator for dead end service							Manual
			G	Geared operator for dead end service							Manual
			A	Floating actuator							Electric
			B	Modulating actuator							Electric
			C	Two-position 24 Vac spring return actuator							Electric
			D	Modulating spring return actuator							Electric
			E	Two-position 120 Vac spring return actuator							Electric
			P	Pneumatic actuator, spring return 20 psi							Pneumatic
			R	Pneumatic actuator, push-pull 80 psi (140 psi maximum)							Pneumatic
			S	Pneumatic actuator, spring return 80 psi (140 psi maximum)							Pneumatic
			X	Valve body only, for dead end service							Man
VF	F	2	J	V	1	Y	2	D	2-way, 4 inch flanged resilient-seat butterfly valve, undercut disk (50 psid close-off) modulating/floating control, spring return normally closed.		

Commercial Components

Butterfly Control Valves

VFF1 Two-way Normally-Open Butterfly Control Valves



Resilient seat in two-way valves, provide control for HVAC system applications including chilled water, hot water, cooling tower water, and thermal storage systems.

Body Pattern: 2 way (S/R NO)
Valve Action: Normally Open
Connection Type: Lugged
Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.
Actuator Control Type: Pneumatic
Type of Enclosure: Pneumatic
Flow Characteristic: Modified Equal Percent
Mounting: ANSI Flanged
Static Pressure Rating (max): 250 psi (1724 kPa)
Actuator Ambient Temperature Ratings: -20 F to 150 F (-29 C to 66 C)
Temperature Range: -40 F to 250 F (-40 C to 121 C)
Number of Flange Bolts
For 2 in., 2-1/2 in., 3 in. valves: 4
For 4 in., 5 in., 6 in., 8 in., valves: 8
For 10 in., 12 in., 14 in. valves: 12
For 16 in., 18 in. valves: 16
For 20 in. valves: 20
Flange Bolt Thread
For 2 in., 2-1/2 in., 3 in. valves: 5/8 in.-11 pitch
For 4 in., 5 in., 6 in., 8 in., valves: 3/4 in.-10 pitch
For 10 in., 12 in., 14 in. valves: 7/8 in.-9 pitch
For 16 in., 18 in., 20 in. valves: 1-1/8 in.-7 pitch
Materials
(Body): Polyester-coated cast iron ASTM A126 Class B
(Stem): 416 Stainless Steel
(Seat): Peroxide-cured EPDM resilient seat
(Plug/Ball/Disc): Nylon 11-coated ductile iron

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)		(psi)	(kPa)		
VFF1FW1Y8P	2 in.	DN50	61 Cv	53 kvs	Stroke limited to 70 degrees		20 psi spring return	175 psi	1206 kPa	Linear actuator	—
VFF1FW1YES	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 120 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1FW1YCS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 24 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1FW1YXS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1FW1YDS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	4-20 mA Servo, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1FW1YPP	2 in.	DN50	61 Cv	53 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	175 psi	1206 kPa	Linear actuator	—
VFF1FW1YPS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Modulating w/positioner, spring return	175 psi	1206 kPa	—	Position indicator
VFF1GW1Y8P	2-1/2 in.	DN65	107 Cv	93 kvs	Stroke limited to 70 degrees		20 psi spring return	175 psi	1206 kPa	Linear actuator	—
VFF1GW1YES	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 120 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1GW1YCS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 24 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1GW1YXS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1GW1YDS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	4-20 mA Servo, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1GW1YPP	2-1/2 in.	DN65	107 Cv	93 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	175 psi	1206 kPa	Linear actuator	—
VFF1GW1YPS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Modulating w/positioner, spring return	175 psi	1206 kPa	—	Position indicator
VFF1HW1Y8P	3 in.	DN80	154 Cv	133 kvs	Stroke limited to 70 degrees		20 psi spring return	175 psi	1206 kPa	Linear actuator	—
VFF1HW1YES	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 120 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1HW1YCS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 24 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1HW1YXS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1HW1YDS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	4-20 mA Servo, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1HW1YPP	3 in.	DN80	154 Cv	133 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	175 psi	1206 kPa	Linear actuator	—
VFF1HW1YPS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Modulating w/positioner, spring return	175 psi	1206 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)		(psi)	(kPa)		
VFF1JV1Y8P	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		20 psi spring return	50 psi	345 kPa	Linear actuator	—
VFF1JW1Y8P	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		20 psi spring return	175 psi	1206 kPa	Linear actuator	—
VFF1JV1YES	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1JW1YES	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1JV1YCS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1JW1YCS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1JV1YXS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1JW1YXS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1JV1YDS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1JW1YDS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1JV1YPP	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	50 psi	345 kPa	Linear actuator	—
VFF1JV1YPS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, spring return	50 psi	345 kPa	—	Position indicator
VFF1JW1YPP	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	175 psi	1206 kPa	Linear actuator	—
VFF1JW1YPS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, spring return	175 psi	1206 kPa	—	Position indicator
VFF1KV1Y8P	5 in.	DN125	428 Cv	370 kvs	Stroke limited to 70 degrees		20 psi spring return	50 psi	345 kPa	Linear actuator	—
VFF1KW1Y8P	5 in.	DN125	428 Cv	370 kvs	Stroke limited to 70 degrees		20 psi spring return	175 psi	1206 kPa	Linear actuator	—
VFF1KV1YES	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1KW1YES	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1KV1YCS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1KW1YCS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1KV1YXS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1KW1YXS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1KV1YDS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1KW1YDS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1KV1YPP	5 in.	DN125	428 Cv	370 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	50 psi	345 kPa	Linear actuator	—
VFF1KV1YPS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, spring return	50 psi	345 kPa	—	Position indicator
VFF1KW1YPP	5 in.	DN125	428 Cv	370 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	175 psi	1206 kPa	Linear actuator	—
VFF1KW1YPS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, spring return	175 psi	1206 kPa	—	Position indicator
VFF1LW1Y8P	6 in.	DN150	567 Cv	490 kvs	Stroke limited to 70 degrees		20 psi spring return	175 psi	1206 kPa	Linear actuator	—
VFF1LV1YES	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1LW1YES	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1LV1YCS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1LW1YCS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1LV1YXS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1LW1YXS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1LV1YDS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1LW1YDS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1LV1YPS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, spring return	50 psi	345 kPa	—	Position indicator
VFF1LW1YPP	6 in.	DN150	567 Cv	490 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	175 psi	1206 kPa	Linear actuator	—
VFF1LW1YPS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, spring return	175 psi	1206 kPa	—	Position indicator

Commercial Components

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)		(psi)	(kPa)		
VFF1MV1Y8P	8 in.	DN200	1081 Cv	935 kvs	Stroke limited to 70 degrees		20 psi spring return	50 psi	345 kPa	Linear actuator	—
VFF1MW1Y8P	8 in.	DN200	1081 Cv	935 kvs	Stroke limited to 70 degrees		20 psi spring return	175 psi	1206 kPa	Linear actuator	—
VFF1MV1YES	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1MW1YES	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1MV1YCS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1MW1YCS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1MV1YXS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1MW1YXS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1MV1YDS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1MW1YDS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1MV1YPP	8 in.	DN200	1081 Cv	935 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	50 psi	345 kPa	Linear actuator	—
VFF1MV1YPS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, spring return	50 psi	345 kPa	—	Position indicator
VFF1MW1YPP	8 in.	DN200	1081 Cv	935 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	175 psi	1206 kPa	Linear actuator	—
VFF1MW1YPS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, spring return	175 psi	1206 kPa	—	Position indicator
VFF1NV1Y8P	10 in.	DN250	1710 Cv	1479 kvs	Stroke limited to 70 degrees		20 psi spring return	50 psi	345 kPa	Linear actuator	—
VFF1NV1YES	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1NW1YES	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1NV1YCS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1NW1YCS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1NV1YXS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1NW1YXS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1NV1YDS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1NW1YDS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1NV1YPP	10 in.	DN250	1710 Cv	1479 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	50 psi	345 kPa	Linear actuator	—
VFF1NV1YPS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, spring return	50 psi	345 kPa	—	Position indicator
VFF1NW1YPS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, spring return	175 psi	1206 kPa	—	Position indicator
VFF1PV1YES	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1PW1YES	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1PV1YCS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1PW1YCS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1PV1YXS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1PW1YXS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1PV1YDS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1PW1YDS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo, 80 psi spring return	175 psi	1206 kPa	—	Position indicator
VFF1PV1YPS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, spring return	50 psi	345 kPa	—	Position indicator
VFF1PW1YPS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, spring return	175 psi	1206 kPa	—	Position indicator
VFF1RV1YES	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1RW1YES	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1RV1YCS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1RW1YCS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1RV1YXS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 80 psi spring return	50 psi	345 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)		(psi)	(kPa)		
VFF1RW1YXS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1RV1YDS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1RW1YDS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo, 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1RV1YPS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, spring return	50 psi	345 kPa	—	Position indicator
VFF1RW1YPS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, spring return	150 psi	1034 kPa	—	Position indicator
VFF1SV1YES	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 120 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1SW1YES	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 120 Vac solenoid 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1SV1YCS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 24 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1SW1YCS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 24 Vac solenoid 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1SV1YXS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1SW1YXS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1SV1YDS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	4-20 mA Servo, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1SW1YDS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	4-20 mA Servo, 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1SV1YPS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Modulating w/positioner, spring return	50 psi	345 kPa	—	Position indicator
VFF1RW1YPS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Modulating w/positioner, spring return	150 psi	1034 kPa	—	Position indicator
VFF1TV1YES	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 120 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1TW1YES	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 120 Vac solenoid 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1TV1YCS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 24 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1TW1YCS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 24 Vac solenoid 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1TV1YXS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1TW1YXS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1TV1YDS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	4-20 mA Servo, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1TW1YDS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	4-20 mA Servo, 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1TV1YPS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Modulating w/positioner, spring return	50 psi	345 kPa	—	Position indicator
VFF1TW1YPS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Modulating w/positioner, spring return	150 psi	1034 kPa	—	Position indicator
VFF1UV1YES	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 120 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1UW1YES	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 120 Vac solenoid 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1UV1YCS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 24 Vac solenoid 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1UW1YCS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 24 Vac solenoid 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1UV1YXS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1UW1YXS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1UV1YDS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	4-20 mA Servo, 80 psi spring return	50 psi	345 kPa	—	Position indicator
VFF1UW1YDS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	4-20 mA Servo, 80 psi spring return	150 psi	1034 kPa	—	Position indicator
VFF1UV1YPS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Modulating w/positioner, spring return	50 psi	345 kPa	—	Position indicator
VFF1UW1YPS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Modulating w/positioner, spring return	150 psi	1034 kPa	—	Position indicator

Butterfly Control Valves

VFF2 Two-way Butterfly Control Valves



Body Pattern: 2 way (NC, NC/NO; NSR)
Valve Action: Normally Closed, convertible to Normally Open with Spring Return DCA
Connection Type: Lugged
Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.
Flow Characteristic: Modified Equal Percent
Mounting: ANSI Flanged
Static Pressure Rating (max): 250 psi (1724 kPa)
Actuator Ambient Temperature Ratings: -5 F to 140 F (-20 C to 60 C)
Temperature Range: -40 F to 250 F (-40 C to 121 C)

Number of Flange Bolts
For 2 in., 2-1/2 in., 3 in. valves: 4
For 4 in., 5 in., 6 in., 8 in., valves: 8
For 10 in., 12 in., 14 in. valves: 12
For 16 in., 18 in. valves: 16
For 20 in. valves: 20

Flange Bolt Thread
For 2 in., 2-1/2 in., 3 in. valves: 5/8 in.-11 pitch
For 4 in., 5 in., 6 in., 8 in., valves: 3/4 in.-10 pitch
For 10 in., 12 in., 14 in. valves: 7/8 in.-9 pitch
For 16 in., 18 in., 20 in. valves: 1-1/8 in.-7 pitch

Materials
(Body): Polyester-coated cast iron ASTM A126 Class B
(Stem): 416 Stainless Steel
(Seat): Peroxide-cured EPDM resilient seat
(Plug/Ball/Disc): Nylon 11-coated ductile iron

Approvals:
CE: Compliant
Underwriters Laboratories, Inc. C/US UL873, Plenum Rated

Resilient seat two-way valves provide control for HVAC system applications including chilled water, hot water, cooling tower water, and thermal storage systems.

Accessories:
VFF50-0400 Position status monitor for VFF butterfly valves with high pressure pneumatic actuators

Valves with Electric Actuator

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF2FW1Y2A	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2FW1Y2B	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2FW1Y2C	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2FW1Y2D	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2FW1Y2E	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2FW1YXA	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2FW1YXB	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2GW1Y2A	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2GW1Y2B	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2GW1Y2C	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2GW1Y2D	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2GW1Y2E	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2GW1YXA	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF2GW1YXB	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2HW1Y2A	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2HW1Y2B	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2HW1Y2C	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2HW1Y2D	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2HW1Y2E	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2HW1YXA	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2HW1YXB	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2JV1Y2A	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Floating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF2JV1Y2B	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Modulating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF2JV1Y2C	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	50 psi	345 kPa	—	—
VFF2JV1Y2D	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF2JV1Y2E	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	50 psi	345 kPa	—	—
VFF2JW1Y2A	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2JW1Y2B	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2JV1YXA	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2JV1YXB	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2JW1YXA	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2JW1YXB	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2KV1Y2A	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Floating control	NEMA 2 housing	50 psi	345 kPa	Chilled water service only	—
VFF2KV1Y2B	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Modulating control	NEMA 2 housing	50 psi	345 kPa	Chilled water service only	—
VFF2KV1Y2C	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	50 psi	345 kPa	Chilled water service only	—
VFF2KV1Y2D	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	50 psi	345 kPa	Chilled water service only	—
VFF2KV1Y2E	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	50 psi	345 kPa	Chilled water service only	—
VFF2KW1Y2A	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2KW1Y2B	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2KV1YXA	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2KV1YXB	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2KW1YXA	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF2KW1YXB	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2LW1Y2A	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2LW1Y2B	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF2LV1YXA	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2LV1YXB	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2LW1YXA	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2LW1YXB	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2MV1Y2A	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return Floating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF2MV1Y2B	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return Modulating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF2MV1YXA	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2MV1YXB	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2MW1YXA	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2MW1YXB	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2NV1YXA	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2NV1YXB	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2NW1YXA	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2NW1YXB	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2PV1YXA	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2PV1YXB	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2PW1YXA	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2PW1YXB	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF2RV1YXA	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2RV1YXB	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2RW1YXA	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF2RW1YXB	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF2SW1Y4A	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF2SW1Y4B	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF2SV1YXA	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2SV1YXB	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2TW1Y4A	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF2TW1Y4B	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF2TV1YXA	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2TV1YXB	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2UV1Y4A	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2UV1Y4B	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF2UW1Y4A	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF2UW1Y4B	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel

Valves with Pneumatic Actuator

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF2FW1Y8P	2 in.	DN50	61 Cv	53 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2FW1YCR	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2FW1YCS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2FW1YDR	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2FW1YDS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2FW1YER	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2FW1YES	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2FW1YPP	2 in.	DN50	61 Cv	53 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2FW1YPR	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2FW1YPS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF2FW1YXR	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2FW1YXS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2GW1Y8P	2-1/2 in.	DN65	107 Cv	93 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2GW1YCR	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2GW1YCS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2GW1YDR	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2GW1YDS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2GW1YER	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2GW1YES	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2GW1YPP	2-1/2 in.	DN65	107 Cv	93 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2GW1YPR	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2GW1YPS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2GW1YXR	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2GW1YXS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2HW1Y8P	3 in.	DN80	154 Cv	133 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2HW1YCR	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2HW1YCS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2HW1YDR	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2HW1YDS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2HW1YER	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2HW1YES	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2HW1YPP	3 in.	DN80	154 Cv	133 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2HW1YPR	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2HW1YPS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2HW1YXR	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2HW1YXS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2JV1Y8P	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF2JV1YCR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2JV1YCS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2JV1YDR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2JV1YDS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2JV1YER	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2JV1YES	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF2JV1YPP	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF2JV1YPR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2JV1YPS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2JV1YXR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2JV1YXS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2JW1Y8P	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2JW1YCR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2JW1YCS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2JW1YDR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2JW1YDS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2JW1YER	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2JW1YES	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2JW1YPP	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2JW1YPR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2JW1YPS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2JW1YXR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2JW1YXS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2KV1Y8P	5 in.	DN125	428 Cv	370 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF2KV1YCR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2KV1YCS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2KV1YDR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2KV1YDS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2KV1YER	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2KV1YES	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2KV1YPP	5 in.	DN125	428 Cv	370 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF2KV1YPR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2KV1YPS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2KV1YXR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2KV1YXS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2KW1Y8P	5 in.	DN125	428 Cv	370 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2KW1YCR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2KW1YCS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2KW1YDR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF2KW1YDS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2KW1YER	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2KW1YES	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2KW1YPP	5 in.	DN125	428 Cv	370 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2KW1YPR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2KW1YPS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2KW1YXR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2KW1YXS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2LV1YCR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2LV1YCS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2LV1YDR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2LV1YDS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2LV1YER	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2LV1YES	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2LV1YPR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2LV1YPS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2LV1YXR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2LV1YXS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2LW1Y8P	6 in.	DN150	567 Cv	490 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2LW1YCR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2LW1YCS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2LW1YDR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2LW1YDS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2LW1YER	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2LW1YES	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2LW1YPP	6 in.	DN150	567 Cv	490 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2LW1YPR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2LW1YPS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2LW1YXR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2LW1YXS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2MV1Y8P	8 in.	DN200	1081 Cv	935 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF2MV1YCR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2MV1YCS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF2MV1YDR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2MV1YDS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2MV1YER	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2MV1YES	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2MV1YPP	8 in.	DN200	1081 Cv	935 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF2MV1YPR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2MV1YPS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2MV1YXR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2MV1YXS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2MW1Y8P	8 in.	DN200	1081 Cv	935 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2MW1YCR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2MW1YCS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2MW1YDR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2MW1YDS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2MW1YER	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2MW1YES	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2MW1YPP	8 in.	DN200	1081 Cv	935 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF2MW1YPR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2MW1YPS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2MW1YXR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2MW1YXS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2NV1Y8P	10 in.	DN250	1710 Cv	1479 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF2NV1YCR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2NV1YCS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2NV1YDR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2NV1YDS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2NV1YER	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2NV1YES	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2NV1YPP	10 in.	DN250	1710 Cv	1479 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF2NV1YPR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2NV1YPS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2NV1YXR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2NV1YXS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF2NW1YCR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2NW1YCS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2NW1YDR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2NW1YDS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2NW1YER	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2NW1YES	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2NW1YPR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2NW1YPS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2NW1YXR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2NW1YXS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2PV1YCR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2PV1YCS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2PV1YDR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2PV1YDS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2PV1YER	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2PV1YES	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2PV1YPR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2PV1YPS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2PV1YXR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2PV1YXS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2PW1YCR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2PW1YCS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2PW1YDR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2PW1YDS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2PW1YER	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2PW1YES	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2PW1YPR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2PW1YPS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2PW1YXR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2PW1YXS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF2RV1YCR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2RV1YCS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2RV1YDR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF2RV1YDS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2RV1YER	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2RV1YES	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2RV1YPR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2RV1YPS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2RV1YXR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2RV1YXS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2RW1YCR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2RW1YCS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2RW1YDR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2RW1YDS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2RW1YER	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2RW1YES	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2RW1YPR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2RW1YPS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2RW1YXR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2RW1YXS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2SV1YCR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2SV1YCS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2SV1YDR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2SV1YDS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2SV1YER	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2SV1YES	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2SV1YPR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2SV1YPS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2SV1YXR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2SV1YXS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2SW1YCR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2SW1YCS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2SW1YDR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2SW1YDS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2SW1YER	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2SW1YES	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF2SW1YPR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Modulating w/positioner, bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2SW1YPS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Modulating w/positioner, spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2SW1YXR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2SW1YXS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2TV1YCR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2TV1YCS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2TV1YDR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2TV1YDS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2TV1YER	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2TV1YES	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2TV1YPR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2TV1YPS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2TV1YXR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2TV1YXS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2TW1YCR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2TW1YCS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2TW1YDR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2TW1YDS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2TW1YER	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2TW1YES	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2TW1YPR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Modulating w/positioner, bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2TW1YPS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Modulating w/positioner, spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2TW1YXR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2TW1YXS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2UV1YCR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2UV1YCS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2UV1YDR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2UV1YDS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2UV1YER	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2UV1YES	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2UV1YPR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2UV1YPS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2UV1YXR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF2UV1YXS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF2UW1YCR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2UW1YCS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2UW1YDR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2UW1YDS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2UW1YER	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2UW1YES	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2UW1YPR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Modulating w/positioner, bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2UW1YPS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Modulating w/positioner, spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2UW1YXR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF2UW1YXS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator

Valves with Manual Operators

NOTE: These products use over-cut disks to achieve 250 psid close-off, and cannot be automated due to their high torque

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Maximum Differential Pressure Ratings (Close-off)		Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)	(psi)	(kPa)	
VFF2FW2YGX	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	175 psi	1206 kPa	Geared wheel operator
VFF2FW2YLX	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	175 psi	1206 kPa	Lever operator
VFF2GW2YGX	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	175 psi	1206 kPa	Geared wheel operator
VFF2GW2YLX	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	175 psi	1206 kPa	Lever operator
VFF2HW2YGX	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	175 psi	1206 kPa	Geared wheel operator
VFF2HW2YLX	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	175 psi	1206 kPa	Lever operator
VFF2JW2YGX	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	175 psi	1206 kPa	Geared wheel operator
VFF2JW2YLX	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	175 psi	1206 kPa	Lever operator
VFF2KW2YGX	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	175 psi	1206 kPa	Geared wheel operator
VFF2KW2YLX	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	175 psi	1206 kPa	Lever operator
VFF2LW2YGX	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	175 psi	1206 kPa	Geared wheel operator
VFF2LW2YLX	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	175 psi	1206 kPa	Lever operator
VFF2MW2YGX	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	175 psi	1206 kPa	Geared wheel operator
VFF2MW2YLX	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	175 psi	1206 kPa	Lever operator
VFF2NW2YGX	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	175 psi	1206 kPa	Geared wheel operator
VFF2NW2YLX	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	175 psi	1206 kPa	Lever operator
VFF2PW2YGX	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	175 psi	1206 kPa	Geared wheel operator
VFF2RW2YGX	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	150 psi	1034 kPa	Geared wheel operator
VFF2SW2YGX	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	150 psi	1034 kPa	Geared wheel operator
VFF2TW2YGX	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	150 psi	1034 kPa	Geared wheel operator
VFF2UW2YGX	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	150 psi	1034 kPa	Geared wheel operator

**VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

Butterfly Control Valves

VFF3 Three-way (A-B-AB) Butterfly Control Valves



Body Pattern: 3 way (A-B-AB porting)
Valve Action: Normally Closed
Connection Type: Lugged
Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.
Actuator Control Type: Electric floating
Flow Characteristic: Modified Equal Percent
Mounting: ANSI Flanged
Static Pressure Rating (max): 250 psi (1724 kPa)
Actuator Ambient Temperature Ratings: -5 F to 140 F (-20 C to 60 C)
Temperature Range: -40 F to 250 F (-40 C to 121 C)

Number of Flange Bolts
For 2 in., 2-1/2 in., 3 in. valves: 4
For 4 in., 5 in., 6 in., 8 in. valves: 8
For 10 in., 12 in., 14 in. valves: 12
For 16 in., 18 in. valves: 16
For 20 in. valves: 20

Flange Bolt Thread
For 2 in., 2-1/2 in., 3 in. valves: 5/8 in.-11 pitch
For 4 in., 5 in., 6 in., 8 in. valves: 3/4 in.-10 pitch
For 10 in., 12 in., 14 in. valves: 7/8 in.-9 pitch
For 16 in., 18 in., 20 in. valves: 1-1/8 in.-7 pitch

Materials
(Body): Polyester-coated cast iron ASTM A126 Class B
(Stem): 416 Stainless Steel
(Seat): Peroxide-cured EPDM resilient seat
(Plug/Ball/Disc): Nylon 11-coated ductile iron

Approvals:
CE: Compliant
Underwriters Laboratories, Inc. C/US UL873, Plenum Rated

Resilient seat three-way valves provide control for HVAC system applications including chilled water, hot water, cooling tower water, and thermal storage systems.

Accessories:
VFF50-0400 Position status monitor for VFF butterfly valves with high pressure pneumatic actuators

Valves with Electric Actuator

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF3FW1Y2A	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3FW1Y2B	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3FW1Y2C	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3FW1Y2D	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3FW1Y2E	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3FW1YXA	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3FW1YXB	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3GW1Y2A	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3GW1Y2B	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3GW1Y2C	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3GW1Y2D	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3GW1Y2E	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF3GW1YXA	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3GW1YXB	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3HW1Y2A	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3HW1Y2B	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3HW1Y2C	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3HW1Y2D	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3HW1Y2E	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3HW1YXA	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3HW1YXB	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3JV1Y2A	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Floating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF3JV1Y2B	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Modulating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF3JV1Y2C	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	50 psi	345 kPa	—	—
VFF3JV1Y2D	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF3JV1Y2E	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	50 psi	345 kPa	—	—
VFF3JW1Y2A	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3JW1Y2B	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3JV1YXA	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3JV1YXB	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3JW1YXA	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3JW1YXB	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3KV1Y2A	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Floating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF3KV1Y2B	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Modulating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF3KV1Y2C	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	50 psi	345 kPa	Chilled water service only	—
VFF3KV1Y2D	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	50 psi	345 kPa	Chilled water service only	—
VFF3KV1Y2E	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	50 psi	345 kPa	Chilled water service only	—
VFF3KW1Y2A	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3KW1Y2B	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF3KV1YXA	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF3KV1YXB	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3KW1YXA	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3KW1YXB	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3LV1Y2A	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return Floating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF3LV1Y2B	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return Modulating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF3LV1YXA	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3LV1YXB	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3LW1YXA	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3LW1YXB	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3MV1YXA	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3MV1YXB	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3MW1YXA	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3MW1YXB	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3NV1YXA	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3NV1YXB	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3NW1YXA	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3NW1YXB	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3PV1YXA	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3PV1YXB	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3PW1YXA	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3PW1YXB	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF3RW1Y4A	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF3RW1Y4B	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF3RV1YXA	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF3RV1YXB	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3SW1Y4A	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF3SW1Y4B	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF3SV1YXA	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3SV1YXB	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3TV1Y4A	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3TV1Y4B	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3TW1Y4A	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF3TW1Y4B	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF3UV1Y4A	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3UV1Y4B	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF3UW1Y4A	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF3UW1Y4B	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel

Valves with Pneumatic Actuator

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF3FW1Y8P	2 in.	DN50	61 Cv	53 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF3FW1YCR	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3FW1YCS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3FW1YDR	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3FW1YDS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3FW1YER	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3FW1YPP	2 in.	DN50	61 Cv	53 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF3FW1YPR	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3FW1YPS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3FW1YXR	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF3FW1YXS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3GW1Y8P	2-1/2 in.	DN65	107 Cv	93 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF3GW1YCR	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3GW1YCS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3GW1YDR	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3GW1YDS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3GW1YER	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3GW1YES	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3GW1YPP	2-1/2 in.	DN65	107 Cv	93 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF3GW1YPR	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3GW1YPS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3GW1YXR	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3GW1YXS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3HW1Y8P	3 in.	DN80	154 Cv	133 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF3HW1YCR	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3HW1YCS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3HW1YDR	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3HW1YDS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3HW1YER	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3HW1YES	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3HW1YPP	3 in.	DN80	154 Cv	133 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF3HW1YPR	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3HW1YPS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3HW1YXR	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3HW1YXS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3JV1Y8P	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF3JV1YCR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3JV1YCS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3JV1YDR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3JV1YDS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3JV1YER	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3JV1YES	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3JV1YPP	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF3JV1YPR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3JV1YPS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3JV1YXR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3JV1YXS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3JW1Y8P	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF3JW1YCR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3JW1YCS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3JW1YDR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3JW1YDS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3JW1YER	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3JW1YES	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3JW1YPP	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF3JW1YPR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3JW1YPS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3JW1YXR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3JW1YXS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3KV1YCR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3KV1YCS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3KV1YDR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3KV1YDS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3KV1YER	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3KV1YES	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3KV1YPR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3KV1YPS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3KV1YXR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3KV1YXS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3KW1Y8P	5 in.	DN125	428 Cv	370 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF3KW1YCR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3KW1YCS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3KW1YDR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3KW1YDS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3KW1YER	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3KW1YES	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF3KW1YPP	5 in.	DN125	428 Cv	370 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF3KW1YPR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3KW1YPS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3KW1YXR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3KW1YXS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3LV1Y8P	6 in.	DN150	567 Cv	490 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF3LV1YCR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3LV1YCS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3LV1YDR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3LV1YDS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3LV1YER	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3LV1YES	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3LV1YPP	6 in.	DN150	567 Cv	490 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF3LV1YPR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3LV1YPS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3LV1YXR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3LV1YXS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3LW1Y8P	6 in.	DN150	567 Cv	490 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF3LW1YCR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3LW1YCS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3LW1YDR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3LW1YDS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3LW1YER	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3LW1YES	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3LW1YPP	6 in.	DN150	567 Cv	490 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF3LW1YPR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3LW1YPS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3LW1YXR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3LW1YXS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3MV1Y8P	8 in.	DN200	1081 Cv	935 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF3MV1YCR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3MV1YCS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3MV1YDR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF3MV1YDS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3MV1YER	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3MV1YES	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3MV1YPP	8 in.	DN200	1081 Cv	935 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF3MV1YPR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3MV1YPS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3MV1YXR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3MV1YXS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3MW1YCR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3MW1YCS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3MW1YDR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3MW1YDS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3MW1YER	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3MW1YES	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3MW1YPR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3MW1YPS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3MW1YXR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3MW1YXS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3NV1YCR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3NV1YCS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3NV1YDR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3NV1YDS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3NV1YER	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3NV1YES	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3NV1YPR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3NV1YPS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3NV1YXR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3NV1YXS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3NW1YCR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3NW1YCS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3NW1YDR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3NW1YDS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3NW1YER	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF3NW1YES	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3NW1YPR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3NW1YPS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3NW1YXR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3NW1YXS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3PV1YCR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3PV1YCS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3PV1YDR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3PV1YDS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3PV1YER	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3PV1YES	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3PV1YPR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3PV1YPS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3PV1YXR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3PV1YXS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3PW1YCR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3PW1YCS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3PW1YDR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3PW1YDS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3PW1YER	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3PW1YES	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3PW1YPR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3PW1YPS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3PW1YXR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3PW1YXS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF3RV1YCR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3RV1YCS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3RV1YDR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3RV1YDS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3RV1YER	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3RV1YES	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3RV1YPR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3RV1YPS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF3RV1YXR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3RV1YXS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3RW1YCR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3RW1YCS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3RW1YDR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3RW1YDS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3RW1YER	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3RW1YES	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3RW1YPR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3RW1YPS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3RW1YXR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3RW1YXS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3SV1YCR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3SV1YCS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3SV1YDR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3SV1YDS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3SV1YER	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3SV1YES	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3SV1YPR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3SV1YPS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3SV1YXR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3SV1YXS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3SW1YCR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3SW1YDR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3SW1YER	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3SW1YPR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Modulating w/positioner, bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3SW1YXR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3TV1YCR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3TV1YCS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3TV1YDR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3TV1YDS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3TV1YER	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3TV1YES	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF3TV1YPR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3TV1YPS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3TV1YXR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3TV1YXS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3TW1YCR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3TW1YDR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3TW1YER	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3TW1YPR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Modulating w/positioner, bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3TW1YXR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3UV1YCR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3UV1YCS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3UV1YDR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3UV1YDS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3UV1YER	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3UV1YES	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3UV1YPR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3UV1YPS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3UV1YXR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3UV1YXS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF3UW1YCR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3UW1YDR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3UW1YER	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3UW1YPR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Modulating w/positioner, bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF3UW1YXR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator

**VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

Butterfly Control Valves

VFF6 Three-way (A-AB-B) Butterfly Control Valves



Body Pattern: 3 way (A-AB-B porting)
Valve Action: Normally Closed
Connection Type: Lugged
Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.
Actuator Control Type: Electric floating
Type of Enclosure: NEMA 2 housing
Flow Characteristic: Modified Equal Percent
Mounting: ANSI Flanged
Static Pressure Rating (max): 250 psi (1724 kPa)
Actuator Ambient Temperature Ratings: -5 F to 140 F (-20 C to 60 C)
Temperature Range: -40 F to 250 F (-40 C to 121 C)

Number of Flange Bolts
For 2 in., 2-1/2 in., 3 in. valves: 4
For 4 in., 5 in., 6 in., 8 in. valves: 8
For 10 in., 12 in., 14 in. valves: 12
For 16 in., 18 in. valves: 16
For 20 in. valves: 20

Flange Bolt Thread
For 2 in., 2-1/2 in., 3 in. valves: 5/8 in.-11 pitch
For 4 in., 5 in., 6 in., 8 in. valves: 3/4 in.-10 pitch
For 10 in., 12 in., 14 in. valves: 7/8 in.-9 pitch
For 16 in., 18 in., 20 in. valves: 1-1/8 in.-7 pitch

Materials
(Body): Polyester-coated cast iron ASTM A126 Class B
(Stem): 416 Stainless Steel
(Seat): Peroxide-cured EPDM resilient seat
(Plug/Ball/Disc): Nylon 11-coated ductile iron

Approvals:
CE: Compliant
Underwriters Laboratories, Inc. C/US UL873, Plenum Rated

Resilient seat three-way valves provide control for HVAC system applications including chilled water, hot water, cooling tower water, and thermal storage systems.

Accessories:
VFF50-0400 Position status monitor for VFF butterfly valves with high pressure pneumatic actuators

Valves with Electric Actuator

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF6FW1Y2A	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6FW1Y2B	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6FW1Y2C	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6FW1Y2D	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6FW1Y2E	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6FW1YXA	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6FW1YXB	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6GW1Y2A	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6GW1Y2B	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6GW1Y2C	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6GW1Y2D	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6GW1Y2E	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—

Commercial Components

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF6GW1YXA	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6GW1YXB	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6HW1Y2A	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6HW1Y2B	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6HW1Y2C	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6HW1Y2D	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6HW1Y2E	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6HW1YXA	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6HW1YXB	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6JV1Y2A	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Floating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF6JV1Y2B	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Modulating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF6JV1Y2C	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	50 psi	345 kPa	—	—
VFF6JV1Y2D	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF6JV1Y2E	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	50 psi	345 kPa	—	—
VFF6JW1Y2A	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6JW1Y2B	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6JW1YXA	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6JW1YXB	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6KV1Y2A	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Floating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF6KV1Y2B	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Modulating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF6KV1Y2C	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Spring Return 2-Position, 24 Vac	NEMA 2 housing	50 psi	345 kPa	Chilled water service only	—
VFF6KV1Y2D	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Spring Return Floating/Modulating control	NEMA 2 housing	50 psi	345 kPa	Chilled water service only	—
VFF6KV1Y2E	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Spring Return 2-Position, 120 Vac	NEMA 2 housing	50 psi	345 kPa	Chilled water service only	—
VFF6KW1Y2A	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Floating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6KW1Y2B	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Modulating control	NEMA 2 housing	175 psi	1206 kPa	—	—
VFF6KV1YXA	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6KV1YXB	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6KW1YXA	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF6KW1YXB	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6LV1Y2A	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return Floating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF6LV1Y2B	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return Modulating control	NEMA 2 housing	50 psi	345 kPa	—	—
VFF6LV1YXA	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6LV1YXB	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6LW1YXA	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6LW1YXB	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6MV1YXA	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6MV1YXB	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6MW1YXA	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6MW1YXB	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6NV1YXA	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6NV1YXB	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6NW1YXA	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6NW1YXB	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6PV1YXA	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6PV1YXB	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6PW1YXA	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6PW1YXB	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	175 psi	1206 kPa	—	Anti-condensation heater, manual gear wheel
VFF6RW1Y4A	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF6RW1Y4B	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF6RV1YXA	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6RV1YXB	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6SW1Y4A	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF6SW1Y4B	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF6SV1YXA	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6SV1YXB	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6TV1Y4A	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6TV1Y4B	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6TW1Y4A	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF6TW1Y4B	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF6UV1Y4A	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6UV1Y4B	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	50 psi	345 kPa	—	Anti-condensation heater, manual gear wheel
VFF6UW1Y4A	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel
VFF6UW1Y4B	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	150 psi	1034 kPa	—	Anti-condensation heater, manual gear wheel

Valves with Pneumatic Actuator

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF6FW1Y8P	2 in.	DN50	61 Cv	53 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF6FW1YCR	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6FW1YCS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6FW1YDR	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6FW1YDS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6FW1YER	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6FW1YPP	2 in.	DN50	61 Cv	53 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF6FW1YPR	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6FW1YPS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6FW1YXR	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6FW1YXS	2 in.	DN50	61 Cv	53 kvs	144 Cv	125 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6GW1Y8P	2-1/2 in.	DN65	107 Cv	93 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF6GW1YCR	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF6GW1YCS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6GW1YDR	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6GW1YDS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6GW1YER	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6GW1YES	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6GW1YPP	2-1/2 in.	DN65	107 Cv	93 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF6GW1YPR	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6GW1YPS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6GW1YXR	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6GW1YXS	2-1/2 in.	DN65	107 Cv	93 kvs	282 Cv	244 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6HW1Y8P	3 in.	DN80	154 Cv	133 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF6HW1YCR	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6HW1YCS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6HW1YDR	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6HW1YDS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6HW1YER	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6HW1YES	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6HW1YPP	3 in.	DN80	154 Cv	133 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF6HW1YPR	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6HW1YPS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6HW1YXR	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6HW1YXS	3 in.	DN80	154 Cv	133 kvs	461 Cv	399 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6JV1Y8P	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF6JV1YCR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6JV1YCS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6JV1YDR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6JV1YDS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6JV1YER	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6JV1YES	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6JV1YPP	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF6JV1YPR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6JV1YPS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6JV1YXR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF6JV1YXS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6JW1Y8P	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF6JW1YCR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6JW1YCS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6JW1YDR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6JW1YDS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6JW1YER	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6JW1YES	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6JW1YPP	4 in.	DN100	274 Cv	237 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF6JW1YPR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6JW1YPS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6JW1YXR	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6JW1YXS	4 in.	DN100	274 Cv	237 kvs	841 Cv	727 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6KV1YCR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6KV1YCS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6KV1YDR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6KV1YDS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6KV1YER	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6KV1YES	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6KV1YPR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6KV1YPS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6KV1YXR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6KV1YXS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6KW1Y8P	5 in.	DN125	428 Cv	370 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF6KW1YCR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6KW1YCS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6KW1YDR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6KW1YDS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6KW1YER	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6KW1YES	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6KW1YPP	5 in.	DN125	428 Cv	370 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF6KW1YPR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6KW1YPS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF6KW1YXR	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6KW1YXS	5 in.	DN125	428 Cv	370 kvs	1376 Cv	1190 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6LV1Y8P	6 in.	DN150	567 Cv	490 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF6LV1YCR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6LV1YCS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6LV1YDR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6LV1YDS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6LV1YER	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6LV1YES	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6LV1YPP	6 in.	DN150	567 Cv	490 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF6LV1YPR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6LV1YPS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6LV1YXR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6LV1YXS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6LW1Y8P	6 in.	DN150	567 Cv	490 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF6LW1YCR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6LW1YCS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6LW1YDR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6LW1YDS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6LW1YER	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6LW1YES	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6LW1YPP	6 in.	DN150	567 Cv	490 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	Linear actuator	—
VFF6LW1YPR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6LW1YPS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6LW1YXR	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6LW1YXS	6 in.	DN150	567 Cv	490 kvs	1850 Cv	1600 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6MV1Y8P	8 in.	DN200	1081 Cv	935 kvs	Stroke limited to 70 degrees		20 psi spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF6MV1YCR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6MV1YCS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6MV1YDR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6MV1YDS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6MV1YER	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6MV1YES	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF6MV1YPP	8 in.	DN200	1081 Cv	935 kvs	Stroke limited to 70 degrees		Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	Linear actuator	—
VFF6MV1YPR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6MV1YPS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6MV1YXR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6MV1YXS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6MW1YCR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6MW1YCS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6MW1YDR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6MW1YDS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6MW1YER	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6MW1YES	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6MW1YPR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6MW1YPS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6MW1YXR	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6MW1YXS	8 in.	DN200	1081 Cv	935 kvs	3316 Cv	2868 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6NV1YCR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6NV1YCS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6NV1YDR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6NV1YDS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6NV1YER	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6NV1YES	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6NV1YPR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6NV1YPS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6NV1YXR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6NV1YXS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6NW1YCR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6NW1YCS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6NW1YDR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6NW1YDS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6NW1YER	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6NW1YES	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6NW1YPR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6NW1YPS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF6NW1YXR	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6NW1YXS	10 in.	DN250	1710 Cv	1479 kvs	5430 Cv	4697 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6PV1YCR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6PV1YCS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6PV1YDR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6PV1YDS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6PV1YER	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6PV1YES	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6PV1YPR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6PV1YPS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6PV1YXR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6PV1YXS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6PW1YCR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6PW1YCS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6PW1YDR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6PW1YDS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6PW1YER	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6PW1YES	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6PW1YPR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6PW1YPS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	Modulating w/positioner, spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6PW1YXR	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position 80 psi bidirectional	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6PW1YXS	12 in.	DN300	2563 Cv	2217 kvs	8077 Cv	6987 kvs	2-position, 80 psi spring return	Pneumatic	175 psi	1206 kPa	—	Position indicator
VFF6RV1YCR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6RV1YCS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6RV1YDR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6RV1YDS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6RV1YER	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6RV1YES	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6RV1YPR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6RV1YPS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6RV1YXR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6RV1YXS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6RW1YCR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF6RW1YCS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6RW1YDR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6RW1YDS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6RW1YER	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6RW1YES	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6RW1YPR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6RW1YPS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	Modulating w/positioner, spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6RW1YXR	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6RW1YXS	14 in.	DN350	3384 Cv	2927 kvs	10538 Cv	9115 kvs	2-position, 80 psi spring return	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6SV1YCR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6SV1YCS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6SV1YDR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6SV1YDS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6SV1YER	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6SV1YES	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6SV1YPR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6SV1YPS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6SV1YXR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6SV1YXS	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6SW1YCR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6SW1YDR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6SW1YER	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6SW1YPR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	Modulating w/positioner, bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6SW1YXR	16 in.	DN400	4483 Cv	3878 kvs	13966 Cv	12081 kvs	2-position 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6TV1YCR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6TV1YCS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6TV1YDR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6TV1YDS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6TV1YER	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6TV1YES	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6TV1YPR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6TV1YPS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6TV1YXR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator

Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	(inch)	(DN)	(Cv)	(Kv)	(Cv)	(Kv)			(psi)	(kPa)		
VFF6TV1YXS	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6TW1YCR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6TW1YDR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6TW1YER	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6TW1YPR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	Modulating w/positioner, bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6TW1YXR	18 in.	DN450	5736 Cv	4962 kvs	17214 Cv	14890 kvs	2-position 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6UV1YCR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6UV1YCS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 24 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6UV1YDR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6UV1YDS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	4-20 mA Servo, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6UV1YER	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6UV1YES	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 120 Vac solenoid 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6UV1YPR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Modulating w/positioner, bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6UV1YPS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Modulating w/positioner, spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6UV1YXR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position 80 psi bidirectional	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6UV1YXS	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 80 psi spring return	Pneumatic	50 psi	345 kPa	—	Position indicator
VFF6UW1YCR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 24 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6UW1YDR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	4-20 mA Servo 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6UW1YER	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position, 120 Vac solenoid 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6UW1YPR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	Modulating w/positioner, bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator
VFF6UW1YXR	20 in.	DN500	7144 Cv	6180 kvs	22339 Cv	19323 kvs	2-position 80 psi bidirectional	Pneumatic	150 psi	1034 kPa	—	Position indicator

**VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

Butterfly Valve Assembly Accessories

Product Number	Description	Used With
VFF50-0400	Position status monitor for VFF butterfly valves with high pressure pneumatic actuators	VFF...XR/XS; VFF...ER/ES; VFF...CR/CS; High pressure pneumatic actuator without pneumatic or electro-pneumatic positioner

Flanged Globe Valves

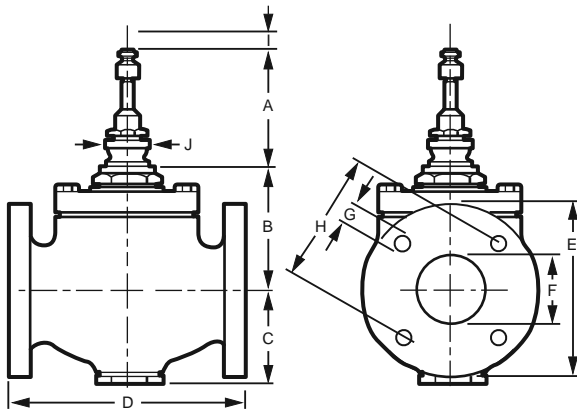
V5011A,B Two-Way Flanged Globe Valves



Used for proportional control of hot or chilled water and glycol solutions (to 50 percent concentration) and for two-position control of low pressure steam in closed loop HVAC systems.

- Sizes range from 2-1/2 to 6 inches.
- Stainless steel stem with serviceable Teflon packing.
- Valves utilize direct mounting valve actuators, Q5020/Q5022 linkages with Direct Coupled Actuators, or Pneumatic Valve Actuators to operate the valve.
- Equal Percentage flow characteristic.

Dimensions in inches (millimeters)



MODEL	VALVE SIZE	A ^a	B	C	D	E	F	G	H	I (TRAVEL)	J (DIAMETER)
V5011A	2-1/2 (64)	3-1/2 (89)	4-13/16 (122)	4 (102)	9-1/2 (241)	7 (178)	2-1/2 (64)	3/4 (19)	5-1/2 (140)	3/4 (19)	1-3/8 (35)
	3 (76)	3-1/2 (89)	3-1/2 (89)	4-5/8 (117)	11 (279)	7-1/2 (191)	3 (76)	3/4 (19)	6 (152)	3/4 (19)	1-3/8 (35)
	4 (102)	5-1/4 (133)	5-1/4 (133)	5-3/16 (132)	13 (330)	9 (229)	4 (102)	3/4 (19)	7-1/2 (191)	1-1/2 (38)	1-7/8 (48)
V5011B	4 (102)	6-3/4 (171)	6-3/4 (171)	8-1/16 (205)	13 (330)	9 (229)	4 (102)	3/4 (19)	7-1/2 (191)	1-1/2 (38)	1-7/8 (48)

M27256

Valve Type: Globe Valve

Body Pattern: Two-way

Connection Type: Flanged

Flow Characteristic: Equal percentage

Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with fuels; Low pressure steam

Maximum Safe Operating Pressure: 15 psi steam (100 kPa steam); 150 psi at 240 F water (1034 kPa at 115 C water)

Maximum Differential for Quiet Water Service: 20 psid (138 kPa)

Ambient Temperature Range: 40 F to 250 F (4 C to 121 C)

ANSI/ASME Rating: 125

Actuation: Must be purchased separately

Materials

(Body): Cast Iron

(Stem): 316 Stainless Steel

(Seat): Bronze

(Packing): Teflon Cone

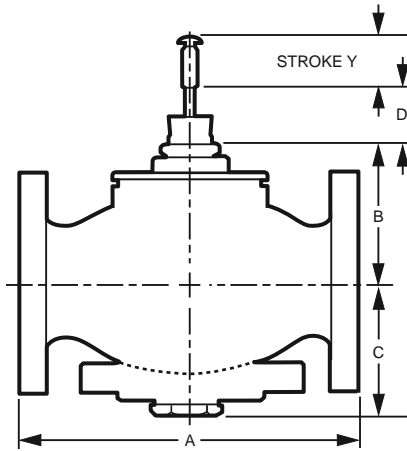
Product Number	Valve Size		Flow Capacity		Stem Travel		Bonnet Size		Valve Action	Used With
	(inch)	DN	(Cv)	(Kv)	(inch)	(mm)	(inch)	(mm)		
V5011A1734	2 1/2 in.	DN65	63 Cv	54 kvs	3/4 in.	20 mm	1-3/8 in.	35 mm	Stem down to close	Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425; ML6984/ML7984
V5011A1767	3 in.	DN80	100 Cv	85 kvs	3/4 in.	20 mm	1-3/8 in.	35 mm	Stem down to close	ML6984/ML7984; ML7420/ML7421A/ML7425; ML6420,21A,25; Q5001/Modutrol IV Motor; MP953
V5011A1858	4 in.	DN100	160 Cv	137 kvs	1 1/2 in.	38 mm	1-7/8 in.	47.6 mm	Stem down to close	Q5001/Modutrol IV Motor; MP953; ML7421B; ML6421B
V5011B1013	4 in.	DN100	160 Cv	137 kvs	1 1/2 in.	38 mm	1-7/8 in.	47.6 mm	Stem up to close	ML7421B; Q5001/Modutrol IV Motor; MP953; ML6421B
V5011A1882	5 in.	DN125	250 Cv	214 kvs	1 1/2 in.	38 mm	1-7/8 in.	47.6 mm	Stem down to close	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
V5011B1047	5 in.	DN125	250 Cv	214 kvs	1 1/2 in.	38 mm	1-7/8 in.	47.6 mm	Stem up to close	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
V5011A1916	6 in.	DN150	360 Cv	308 kvs	1 1/2 in.	38 mm	1-7/8 in.	47.6 mm	Stem down to close	ML6421B; Q5001/Modutrol IV Motor; MP953; ML7421B
V5011B1070	6 in.	DN150	360 Cv	308 kvs	1 1/2 in.	38 mm	1-7/8 in.	47.6 mm	Stem up to close	ML6421B; Q5001/Modutrol IV Motor; MP953; ML7421B

VG2 Two-way Flanged Globe Valves



VG2 Flanged Globe Valves are used for 2-position or modulating control of steam, hot water, or chilled water-glycol solutions up to 50 percent concentration in closed loop heating, ventilation and air conditioning (HVAC) systems. They can be operated by ML6984/7984, ML6420/6425, ML6421/7421 Electric Linear Actuators, MP953

Dimensions in inches (millimeters)



▲ DOTTED LINE REPRESENTS ANSI 125 VALVE BONNET.

MODEL NUMBER	DIMENSIONS, IN. (MM)				
	A	B	C	E	Y
2-WAY VALVES, ANSI CLASS 125. STEM DOWN TO CLOSE. EQUAL PERCENTAGE OR LINEAR FLOW CHARACTERISTIC					
VGF21_S25	10-7/8 (276)	4-3/8 (112)	7 (178)	3-1/2 (89)	13/16 (20)
VGF21_S30	11-3/4 (298)	6-3/8 (161)	7-1/2 (191)		
VGF21_S40	13-7/8 (352)	5-7/8 (150)	9 (229)	5-1/4 (133)	1-1/2 (38)
VGF21_S50	15-3/4 (400)	6-3/16 (157)	10 (254)		
VGF21_S60	17-3/4 (451)	6-3/16 (157)	11 (279)		
2-WAY VALVES, ANSI CLASS 250. STEM DOWN TO CLOSE. EQUAL PERCENTAGE FLOW CHARACTERISTIC					
VGF22ES25	11-1/2 (292)	4-3/8 (112)	7-1/2 (191)	3-1/2 (89)	13/16 (20)
VGF22ES30	12-1/2 (318)	6-3/8 (161)	8-1/4 (210)		
VGF22ES40	14-1/2 (368)	5-7/8 (150)	10 (254)	5-1/4 (133)	1-1/2 (38)
VGF22ES50	16-5/8 (422)	6-3/16 (157)	11 (279)		
VGF22ES60	18-5/8 (473)	6-3/16 (157)	12-1/2 (318)		
2-WAY VALVES, PRESSURE-BALANCED, ANSI CLASS 125. STEM DOWN TO CLOSE. EQUAL PERCENTAGE OR LINEAR FLOW CHARACTERISTIC					
VGF21_P25	10-7/8 (276)	4-3/16 (107)	7 (178)	3-1/2 (89)	13/16 (20)
VGF21_P30	11-3/4 (298)	5-7/8 (150)	7-1/2 (191)		
VGF21_P40	13-7/8 (352)	5-7/8 (150)	9 (229)	5-1/4 (133)	1-1/2 (38)
VGF21_P50	15-3/4 (400)	6-1/8 (156)	10 (254)		
VGF21_P60	17-3/4 (451)	6-1/8 (156)	11 (279)		

M27603

Pneumatic Actuators, Modutrol™ Motors with Q5001 valve linkage, or MN/MS Series Direct Coupled Actuators with Q5020 or Q5022 valve linkages.

- ANSI Class 125 and Class 250 cast iron bodies with flanged end connections
- Equal percentage and linear flow characteristics
- Face-to-face flange dimensions per ANSI/ISA S75.03 standard
- Sizes from 2-1/2 to 6 in.
- Stainless steel trim standard for long life span
- ANSI Class III or IV seat leakage
- Steam inlet pressure up to 125 psig and 353 F maximum temperature
- Self-adjusting packing
- Accurate positioning with equal percentage and linear flow characteristics to ensure precise temperature control
- Universal bonnet for direct-coupled electric and pneumatic actuators for easy mounting, or linkage coupled Modutrol™ Motors and MN/MS Series direct coupled actuators.
- Not suitable for combustible gasses.

Valve Type: Globe Valve

Valve Action: Stem down to close

Body Pattern: Two-way

Connection Type: Flanged

Controlled Fluid: Steam; Chilled or hot water with up to 50% Glycol.
Not for use with fuels

Fluid Temperature Range: 20 F to 250 F, steam 353 F (-7 C to +120 C, steam 180 C)

Actuation: Must be purchased separately

Stem Travel

2-1/2 and 3 inch valves: 3/4 in. (20 mm)

4 to 6 inch valves: 1-1/2 in. (39 mm)

Bonnet Size

2-1/2 and 3 inch valves: 1-3/8 in. (35 mm)

4 to 6 inch valves: 1-7/8 in. (47.6 mm)

Materials

(Body): Cast Iron ASTM A126 Class B

(Stem): Stainless Steel

(Seat): Stainless Steel

(Cartridge): Stainless Steel

(Plug/Ball/Disc): Stainless Steel

(Packing): Spring-loaded PTFE cone rings

Flanged Globe Valves

Valves with Equal Percentage Flow Characteristic

Product Number	Valve Size		Flow Capacity		Maximum Safe Operating Pressure		ANSI/ASME Rating	Maximum Close-off Pressure		Comments	Used With	Leakage Rating
	(inch)	DN	(Cv)	(Kv)	(psi)	(kPa)		(psi)	(kPa)			
VGF21EP25	2 1/2 in.	DN65	70 Cv	60 kvs	175 psig	1206 kPa	125	175 psi	1206 kPa	Pressure-balanced. Minimum actuator force is 135# (600N)Direct acting	MP953 (7-1/8 to 13"); ML6984/ML7984; ML642X/ML742X	0.01% of Cv
VGF21ES25	2 1/2 in.	DN65	70 Cv	60 kvs	175 psig	1206 kPa	125	69 psi	475 kPa	Direct acting	ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953	0.05% of Cv
VGF22ES25	2 1/2 in.	DN65	70 Cv	60 kvs	400 psig	2758 kPa	250	69 psi	475 kPa	Direct acting		0.05% of Cv
VGF21EP30	3 in.	DN80	115 Cv	99 kvs	175 psig	1206 kPa	125	175 psi	1206 kPa	Pressure-balanced. Minimum actuator force is 135# (600N)Direct acting	MP953 (7-1/8 to 13"); ML6984/ML7984; ML642X/ML742X	0.01% of Cv
VGF21ES30	3 in.	DN80	115 Cv	99 kvs	175 psig	1206 kPa	125	34 psi	234 kPa	Direct acting	ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953	0.05% of Cv
VGF22ES30	3 in.	DN80	120 Cv	103 kvs	400 psig	2758 kPa	250	34 psi	234 kPa	Direct acting		0.05% of Cv
VGF21EP40	4 in.	DN100	150 Cv	129 kvs	175 psig	1206 kPa	125	175 psi	1206 kPa	Pressure-balanced. Minimum actuator force is 400# (1800N)Direct acting	ML6421B/ML7421B, MP953(13")	0.01% of Cv
VGF21ES40	4 in.	DN100	150 Cv	129 kvs	175 psig	1206 kPa	125	34 psi	234 kPa	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953	0.05% of Cv
VGF22ES40	4 in.	DN100	150 Cv	129 kvs	400 psig	2758 kPa	250	34 psi	234 kPa	Direct acting		0.05% of Cv
VGF21EP50	5 in.	DN125	285 Cv	244 kvs	175 psig	1206 kPa	125	175 psi	1206 kPa	Pressure-balanced. Minimum actuator force is 400# (1800N)Direct acting	ML6421B/ML7421B, MP953(13")	0.01% of Cv
VGF21ES50	5 in.	DN125	285 Cv	244 kvs	175 psig	1206 kPa	125	13 psi	90 kPa	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953	0.05% of Cv
VGF22ES50	5 in.	DN125	320 Cv	274 kvs	400 psig	2758 kPa	250	13 psi	90 kPa	Direct acting		0.05% of Cv
VGF21EP60	6 in.	DN150	365 Cv	313 kvs	175 psig	1206 kPa	125	175 psi	1206 kPa	Pressure-balanced. Minimum actuator force is 400# (1800N)Direct acting	ML6421B/ML7421B, MP953(13")	0.01% of Cv
VGF21ES60	6 in.	DN150	365 Cv	313 kvs	175 psig	1206 kPa	125	13 psi	90 kPa	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953	0.05% of Cv
VGF22ES60	6 in.	DN150	370 Cv	317 kvs	400 psig	2758 kPa	250	13 psi	90 kPa	Direct acting		0.05% of Cv

Flanged Globe Valves

Valves with Linear Flow Characteristic

Maximum Safe Operating Pressure: 175 psig (1206 kPa)

Product Number	Valve Size		Flow Capacity		ANSI/ASME Rating	Maximum Close-off Pressure		Comments	Used With	Leakage Rating
	(inch)	DN	(Cv)	(Kv)		(psi)	(kPa)			
VGF21LP25	2 1/2 in.	DN65	70 Cv	60 kvs	125	175 psi	1206 kPa	Pressure-balanced. Minimum actuator force is 135# (600N)Direct acting	MP953 (7-1/8 to 13"); ML6984/ML7984; ML642X/ML742X	0.01% of Cv
VGF21LS25	2 1/2 in.	DN65	70 Cv	60 kvs	125	69 psi	475 kPa	Direct acting	ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953	0.05% of Cv
VGF21LP30	3 in.	DN80	120 Cv	103 kvs	125	175 psi	1206 kPa	Pressure-balanced. Minimum actuator force is 135# (600N)Direct acting	MP953 (7-1/8 to 13"); ML6984/ML7984; ML642X/ML742X	0.01% of Cv
VGF21LS30	3 in.	DN80	125 Cv	107 kvs	125	34 psi	234 kPa	Direct acting	ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953	0.05% of Cv
VGF21LP40	4 in.	DN100	150 Cv	129 kvs	125	175 psi	1206 kPa	Pressure-balanced. Minimum actuator force is 400# (1800N)Direct acting	ML6421B/ML7421B, MP953(13")	0.01% of Cv
VGF21LS40	4 in.	DN100	155 Cv	133 kvs	125	34 psi	234 kPa	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953	0.05% of Cv
VGF21LP50	5 in.	DN125	320 Cv	274 kvs	125	175 psi	1206 kPa	Pressure-balanced. Minimum actuator force is 400# (1800N)Direct acting	ML6421B/ML7421B, MP953(13")	0.01% of Cv
VGF21LS50	5 in.	DN125	320 Cv	274 kvs	125	13 psi	90 kPa	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953	0.05% of Cv
VGF21LP60	6 in.	DN150	370 Cv	317 kvs	125	175 psi	1206 kPa	Pressure-balanced. Minimum actuator force is 400# (1800N)Direct acting	ML6421B/ML7421B, MP953(13")	0.01% of Cv
VGF21LS60	6 in.	DN150	370 Cv	317 kvs	125	13 psi	90 kPa	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953	0.05% of Cv

Flanged Globe Valves

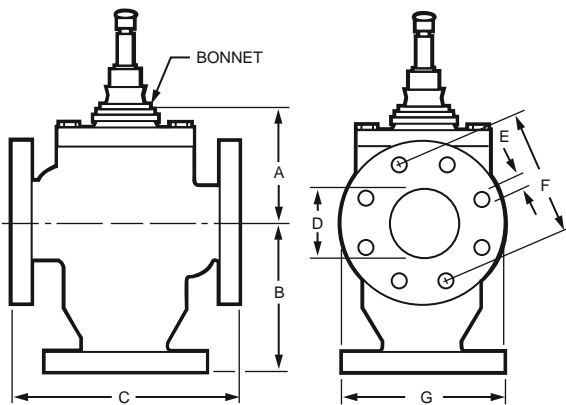
V5013B,C Three-Way Flanged Globe Valves



The V5013B are three-way mixing valves. The V5013C are three-way diverting valves. These valves provide proportional or two-position control of hot or chilled water in closed loop heating or cooling systems. These valves are offered in sizes 2 1/2 in. through 6 in.

- Not suitable for combustible gases.
- Valves utilize direct mounting valve actuators, Q5020/Q5022 linkages with Direct Coupled Actuators, or Pneumatic Valve Actuators to operate the valve.
- Constant total flow through full plug travel.
- Stainless steel stem prevents corrosion.
- Class IV (0.01% of Cv) Leakage Rating.

Dimensions in inches (millimeters)



V5013B,C DIMENSIONS

VALVE SIZE IN INCHES (MM)					
	2-1/2 (64)	3 (76)	4 (102)	5 (125)	6 (152)
A	4-1/2 (114)	5-1/4 (133)	5-7/8 (149)	6-1/4 (159)	7-1/4 (184)
B	6-7/16 (164)	6-5/8 (168)	8-11/16 (221)	9-5/8 (244)	10-11/16 (271)
C	9-1/2 (241)	11 (279)	13 (330)	15 (381)	16-1/2 (419)
D	2-1/2 (64)	3 (76)	4 (102)	5 (127)	6 (152)
E	3/4 (19)	3/4 (19)	3/4 (19)	7/8 (22)	7/8 (22)
F	5-1/2 (140)	6 (152)	7-1/2 (191)	8-1/2 (216)	9-1/2 (241)
G	7 (178)	7-1/2 (191)	9 (229)	10 (254)	11 (279)

VALVE SIZE	BONNET SIZE	NUMBER OF BOLT HOLES
2-1/2 (64)	1-3/8 (35)	4
3 (76)		
4 (102)		
5 (125)	1-7/8 (48)	8
6 (152)		

C7959B

Valve Type: Globe Valve

Body Pattern: Three-way

Flow Characteristic: Linear (constant total)

Connection Type: Flanged

Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

Maximum Safe Operating Pressure: 150 psi at 240 F water (1034 kPa at 115 C water)

Maximum Differential for Quiet Water Service: 20 psid (138 kPa)

Ambient Temperature Range: 40 F to 250 F (4 C to 121 C)

ANSI/ASME Rating: 125

Actuation: Must be purchased separately

Materials

(Body): Cast Iron

(Stem): Stainless Steel

(Seat): Bronze

(Packing): Teflon Cone

Flanged Globe Valves

Product Number	Valve Size		Flow Capacity		Stem Travel		Bonnet Size		Valve Action	Comments	Used With
	(inch)	DN	(Cv)	(Kv)	(inch)	(mm)	(inch)	(mm)			
V5013B1003	2 1/2 in.	DN65	63 Cv	54 kvs	3/4 in.	20 mm	1-3/8 in.	35 mm	Stem up increases B to AB flow	Mixing	ML6984/ML7984; Q5001/Modutrol IV Motor; ML7420/ML7421A/ML7425; ML6420,21A,25
V5013C1001	2 1/2 in.	DN65	63 Cv	54 kvs	3/4 in.	20 mm	1-3/8 in.	35 mm	Stem up increases AB to A flow	Diverting	ML6984/ML7984; Q5001/Modutrol IV Motor; ML7420/ML7421A/ML7425; ML6420,21A,25
V5013B1011	3 in.	DN80	100 Cv	85 kvs	3/4 in.	20 mm	1-3/8 in.	35 mm	Stem up increases B to AB flow	Mixing	ML6984/ML7984; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7425
V5013C1019	3 in.	DN80	100 Cv	85 kvs	3/4 in.	20 mm	1-3/8 in.	35 mm	Stem up increases AB to A flow	Diverting	ML6984/ML7984; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7425
V5013B1029	4 in.	DN100	160 Cv	137 kvs	1 1/2 in.	38 mm	1-7/8 in.	47.6 mm	Stem up increases B to AB flow	Mixing	ML7421B; ML6421B; Q5001/Modutrol IV Motor
V5013C1027	4 in.	DN100	160 Cv	137 kvs	1 1/2 in.	38 mm	1-7/8 in.	47.6 mm	Stem up increases AB to A flow	Diverting	ML6421B; ML7421B; Q5001/Modutrol IV Motor
V5013B1037	5 in.	DN125	250 Cv	214 kvs	1 1/2 in.	38 mm	1-7/8 in.	47.6 mm	Stem up increases B to AB flow	Mixing	ML6421B; ML7421B; Q5001/Modutrol IV Motor
V5013C1035	5 in.	DN125	250 Cv	214 kvs	1 1/2 in.	38 mm	1-7/8 in.	47.6 mm	Stem up increases AB to A flow	Diverting	ML7421B; ML6421B; Q5001/Modutrol IV Motor
V5013B1045	6 in.	DN150	360 Cv	308 kvs	1 1/2 in.	38 mm	1-7/8 in.	47.6 mm	Stem up increases B to AB flow	Mixing	ML7421B; ML6421B; Q5001/Modutrol IV Motor
V5013C1043	6 in.	DN150	360 Cv	308 kvs	1 1/2 in.	38 mm	1-7/8 in.	47.6 mm	Stem up increases AB to A flow	Diverting	ML6421B; ML7421B; Q5001/Modutrol IV Motor

Flanged Globe Valves

VGF3 Three-way Flanged Globe Valves

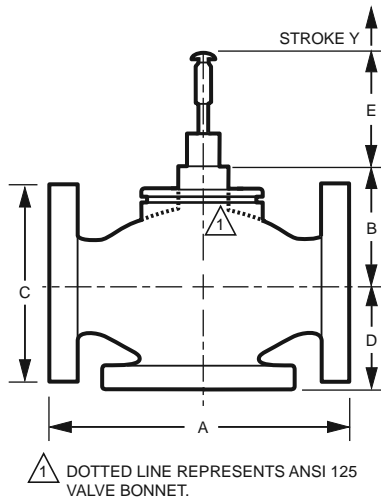


VGF Flanged Globe Valves are used for 2-position or modulating control of hot water or chilled water-glycol solutions up to 50% concentration in closed loop heating, ventilation and air conditioning (HVAC) systems. They can be operated by ML6984/7984, ML6420/6425, ML6421/7421 Electric Linear Actuators, MP953 Pneumatic Actuators, Modutrol™ Motors with Q5001 valve linkage, or MN/MS Series Direct Coupled Actuators with Q5020 or Q5022

valve linkages. Three-way bodies are available in mixing or diverting style with equal percentage and linear flow characteristics, respectively. For boiler/chiller bypass applications requiring tight close-off, use VGF31/32LD diverting valves. For outdoor temperature compensation of building supply water, or modulating control of heat exchangers, use VGF31/32EM mixing valves.

- ANSI Class 125 and Class 250 cast iron bodies with flanged end connections.
- Face-to-face flange dimensions per ANSI/ISA S75.03 standard.
- Sizes from 2-1/2 to 6 inches.
- Stainless steel trim standard for long life span.
- Self-adjusting packing.
- Accurate positioning with equal percentage and linear flow characteristics to ensure precise temperature control.
- Universal bonnet for direct-coupled electric and pneumatic actuators for easy mounting, or linkage coupled Modutrol™ Motors and MN/MS Series direct coupled actuators.
- Constant total flow throughout full plug travel (3-way diverting models).
- Not suitable for combustible gasses.

Dimensions in inches (millimeters)



MODEL NUMBER	DIMENSIONS, IN. (MM)					
	A	B	C	D	E	Y
3-WAY MIXING VALVES, ANSI CLASS 125. STEM UP TO CLOSE A-AB						
VGF31EM25	10-7/8 (276)	3 (76)	7 (178)	3-3/4 (95)	4-3/16 (107)	13/16 (20)
VGF31EM30	11-3/4 (298)	4-3/16 (107)	7-1/2 (191)	4-3/8 (111)		
VGF31EM40	13-7/8 (352)	5-8/16 (140)	9 (229)	5-1/8 (130)	6-11/16 (170)	1-1/2 (38)
VGF31EM50	15-3/4 (400)	5-3/8 (137)	10 (254)	5-3/4 (146)		
VGF31EM60	17-3/4 (451)	5-11/16 (145)	11 (279)	6-5/8 (168)		
3-WAY MIXING VALVES, ANSI CLASS 250. STEM UP TO CLOSE A-AB						
VGF32EM25	11-1/2 (292)	4-3/8 (112)	7-1/2 (191)	3-3/4 (95)	4-3/16 (107)	13/16 (20)
VGF32EM30	12-1/2 (318)	6-3/8 (161)	8-1/4 (210)	4-3/8 (111)		
VGF32EM40	14-1/2 (368)	5-7/8 (150)	10 (254)	5-1/8 (130)	6-11/16 (170)	1-1/2 (38)
VGF32EM50	16-5/8 (422)	6-3/16 (157)	11 (279)	5-3/4 (146)		
VGF32EM60	18-5/8 (473)	6-3/16 (157)	12-1/2 (318)	6-5/8 (168)		
3-WAY DIVERTING VALVES, ANSI CLASS 125. STEM DOWN TO CLOSE AB-A						
VGF31LD25	10-7/8 (276)	3 (76)	7 (178)	3-3/4 (95)	4-3/16 (107)	13/16 (20)
VGF31LD30	11-3/4 (298)	4-3/16 (107)	7-1/2 (191)	4-3/8 (111)		
VGF31LD40	13-7/8 (352)	5-8/16 (140)	9 (229)	5-1/8 (130)	6-11/16 (170)	1-1/2 (38)
VGF31LD50	15-3/4 (400)	5-3/8 (137)	10 (254)	5-3/4 (146)		
VGF31LD60	17-3/4 (451)	5-11/16 (145)	11 (279)	6-5/8 (168)		
3-WAY DIVERTING VALVES, ANSI CLASS 250. STEM DOWN TO CLOSE AB-A						
VGF32LD25	11-1/2 (292)	4-3/8 (112)	7-1/2 (191)	3-3/4 (95)	4-3/16 (107)	13/16 (20)
VGF32LD30	12-1/2 (318)	6-3/8 (161)	8-1/4 (210)	4-3/8 (111)		
VGF32LD40	14-1/2 (368)	5-7/8 (150)	10 (254)	5-1/8 (130)	6-11/16 (170)	1-1/2 (38)
VGF32LD50	16-5/8 (422)	6-3/16 (157)	11 (279)	5-3/4 (146)		
VGF32LD60	18-5/8 (473)	6-3/16 (157)	12-1/2 (318)	6-5/8 (168)		

M27604

Valve Type: Globe Valve
Body Pattern: Three-way
Connection Type: Flanged
Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.
Leakage Rating: Port A seat leakage: 0.5%; Port B seat leakage 1.0%.
Maximum Safe Operating Pressure: 175 psig at 130 F (66 C) (1206 kPa at 66 C (130 F))
Maximum Differential Pressure Ratings (Close-off): 87 psi (599 kPa)
Fluid Temperature Range: 20 F to 250 F (-7 C to +120 C)
Actuation: Must be purchased separately

Stem Travel
2-1/2 and 3 inch valves: 3/4 in. (20 mm)
4 to 6 inch valves: 1-1/2 in. (39 mm)
Bonnet Size
2-1/2 and 3 inch valves: 1-3/8 in. (35 mm)
4 to 6 inch valves: 1-7/8 in. (47.6 mm)
Materials
(Body): Cast Iron ASTM A126 Class B
(Stem): Stainless Steel
(Seat): Stainless Steel
(Cartridge): Stainless Steel
(Plug/Ball/Disc): Stainless Steel
(Packing): Spring-loaded PTFE cone rings

Flanged Globe Valves

Valves with Equal Percentage (A-AB) Flow Characteristic

Note: For Supply mixing control; use diverting valve for boiler/chiller bypass

Valve Action: Mixing, step up to close A-AB

Comments: Stem up to close A-AB

Product Number	Valve Size		Flow Capacity		Maximum Safe Operating Pressure		ANSI/ASME Rating	Maximum Close-off Pressure		Used With
	(inch)	DN	(Cv)	(Kv)	(psi)	(kPa)		(psi)	(kPa)	
VGF31EM25	2 1/2 in.	DN65	70 Cv	60 kvs	175 psig at 130 F (66 C)	1206 kPa at 66 C (130 F)	125	87 psi	599 kPa	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF32EM25	2 1/2 in.	DN65	70 Cv	60 kvs	400 psig	2758 kPa	250	87 psi	599 kPa	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF31EM30	3 in.	DN80	115 Cv	99 kvs	175 psig at 130 F (66 C)	1206 kPa at 66 C (130 F)	125	58 psi	400 kPa	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF32EM30	3 in.	DN80	115 Cv	99 kvs	400 psig	2758 kPa	250	58 psi	400 kPa	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF31EM40	4 in.	DN100	170 Cv	146 kvs	175 psig at 130 F (66 C)	1206 kPa at 66 C (130 F)	125	34 psi	234 kPa	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF32EM40	4 in.	DN100	170 Cv	146 kvs	400 psig	2758 kPa	250	34 psi	234 kPa	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF31EM50	5 in.	DN125	320 Cv	274 kvs	175 psig at 130 F (66 C)	1206 kPa at 66 C (130 F)	125	13 psi	90 kPa	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF32EM50	5 in.	DN125	320 Cv	274 kvs	400 psig	2758 kPa	250	13 psi	90 kPa	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF31EM60	6 in.	DN150	370 Cv	317 kvs	175 psig at 130 F (66 C)	1206 kPa at 66 C (130 F)	125	13 psi	90 kPa	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF32EM60	6 in.	DN150	370 Cv	317 kvs	400 psig	2758 kPa	250	13 psi	90 kPa	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953

Valves with Linear (constant total) Flow Characteristic

Valve Action: Diverting, stem down to close AB-A

Comments: Stem down to close AB-A

Product Number	Valve Size		Flow Capacity		Maximum Safe Operating Pressure		ANSI/ASME Rating	Maximum Close-off Pressure		Used With
	(inch)	DN	(Cv)	(Kv)	(psi)	(kPa)		(psi)	(kPa)	
VGF31LD25	2 1/2 in.	DN65	70 Cv	60 kvs	175 psig at 130 F (66 C)	1206 kPa at 66 C (130 F)	125	69 psi	475 kPa	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF32LD25	2 1/2 in.	DN65	70 Cv	60 kvs	400 psig	2758 kPa	250	69 psi	475 kPa	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF31LD30	3 in.	DN80	120 Cv	103 kvs	175 psig at 130 F (66 C)	1206 kPa at 66 C (130 F)	125	34 psi	234 kPa	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF32LD30	3 in.	DN80	120 Cv	103 kvs	400 psig	2758 kPa	250	34 psi	234 kPa	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF31LD40	4 in.	DN100	160 Cv	137 kvs	175 psig at 130 F (66 C)	1206 kPa at 66 C (130 F)	125	34 psi	234 kPa	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF32LD40	4 in.	DN100	160 Cv	137 kvs	400 psig	2758 kPa	250	34 psi	234 kPa	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF31LD50	5 in.	DN125	285 Cv	244 kvs	175 psig at 130 F (66 C)	1206 kPa at 66 C (130 F)	125	13 psi	90 kPa	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF32LD50	5 in.	DN125	285 Cv	244 kvs	400 psig	2758 kPa	250	13 psi	90 kPa	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF31LD60	6 in.	DN150	380 Cv	326 kvs	175 psig at 130 F (66 C)	1206 kPa at 66 C (130 F)	125	13 psi	90 kPa	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF32LD60	6 in.	DN150	380 Cv	326 kvs	400 psig	2758 kPa	250	13 psi	90 kPa	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953

Threaded Globe Valves

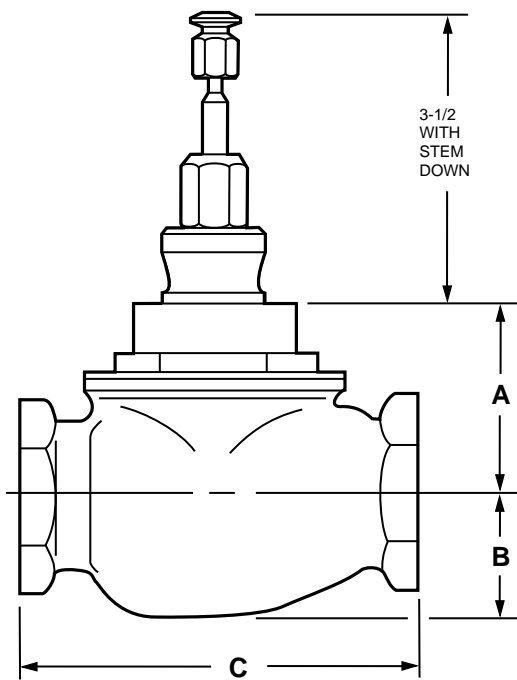
V5011F,G Two-Way Threaded Globe Valves



Used for two-position or modulating control of steam and water and glycol solutions (to 50 percent concentration) in heating or cooling systems.

- Sizes range from 2-1/2 to 3 inches.
- Direct acting
- High pressure steam models with stainless steel trim.
- Spring-loaded, self-adjusting packing.
- Stainless steel stem prevents corrosion.
- Valve designs provide equal percentage characteristics of flow for close control of water, and linear characteristic of flow for close control of steam or chilled water.
- Valves utilize direct mounting, electric or pneumatic linear valve actuators; Q5001 linkage with Modutrol Motor; or Q5020/Q5022A linkages with Direct Coupled Actuators to operate the valve.

Dimensions in inches (millimeters)



Valve Type: Globe Valve

Body Pattern: Two-way, Straight-through

Connection Type: Female NPT

Leakage Rating: 0.5% of Cv

Maximum Differential for Quiet Water Service: 20 psid (138 kPa)

Fluid Temperature Range: 40 F to 337 F (4 C to 169 C)

Stem Travel: 3/4 in. (20 mm)

Bonnet Size: 1-3/8 in. (35 mm)

Valve Action: Stem down to close

ANSI/ASME Rating: 150

Actuation: Must be purchased separately

Materials

(Body): Red Brass

(Stem): Stainless Steel

(Seat): V5011F: Brass; V5011G: Stainless Steel

(Plug/Ball/Disc): V5011F: Teflon disc; V5011G: Stainless steel plug with carbon-loaded Teflon disc

(Packing): V5011F: Teflon and Nitrile; V5011G: Teflon Cone

Approvals:

CRN Number: 0C0861.9087YTN

V5011F,G

BODY STYLE	PIPE SIZE (in.)	DIMENSIONS					
		A		B		C	
		in	mm	in	mm	in	mm
V5011F,G THREADED DIRECT BODY	1/2	2	51	1-3/4	45	3-3/8	86
	3/4	1-3/4	45	1-3/4	45	3-3/8	86
	1	1-7/8	48	1-3/4	45	4-1/4	108
	1-1/4	2	51	1-5/8	42	4-7/8	124
	1-1/2	2-7/8	73	1-5/8	42	5-5/8	143
	2	3-1/8	80	2	51	5-5/8	143
	2-1/2	2-3/4	70	2-3/8	61	7-1/2	191
	3	3-1/8	80	2-5/8	67	8-7/8	226

M2804A

Threaded Globe Valves

Product Number	Valve Size		Flow Capacity		Flow Characteristic	Controlled Fluid	Maximum Safe Operating Pressure		Materials Cartridge	Used With
	(inch)	DN	(Cv)	(Kv)			(psi)	(kPa)		
V5011F1105	2 1/2 in.	DN65	63 Cv	54 kvs	Equal Percentage	Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.	217 psi at 250 F water; 250 psi at 100 F water	1496 psi at 121 C water; 1724 kPa at 38 C water	—	Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425; ML6984/ML7984; Q5020/DCA
V5011G1111	2 1/2 in.	DN65	63 Cv	54 kvs	Linear	Chilled or hot water with up to 50% Glycol. Not for use with fuels; Steam	240 psi water at 150 F; 100 psi at 337 F steam	240 psi at 66 C; 690 kPa at 69C steam	—	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011F1113	3 in.	DN80	100 Cv	85 kvs	Equal Percentage	Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.	217 psi at 250 F water; 250 psi at 100 F water	1496 psi at 121 C water; 1724 kPa at 38 C water	Brass	Q5020/DCA; ML6984/ML7984; ML7420/ML7421A/ML7425; ML6420,21A,25; Q5001/Modutrol IV Motor; MP953
V5011G1129	3 in.	DN80	100 Cv	85 kvs	Linear	Chilled or hot water with up to 50% Glycol. Not for use with fuels; Steam	240 psi water at 150 F; 100 psi at 337 F steam	240 psi at 66 C; 690 kPa at 69C steam	—	ML7420/ML7421A/ML7425; ML6420,21A,25; Q5001/Modutrol IV Motor; MP953; Q5020/DCA; ML6984/ML7984

Threaded Globe Valves

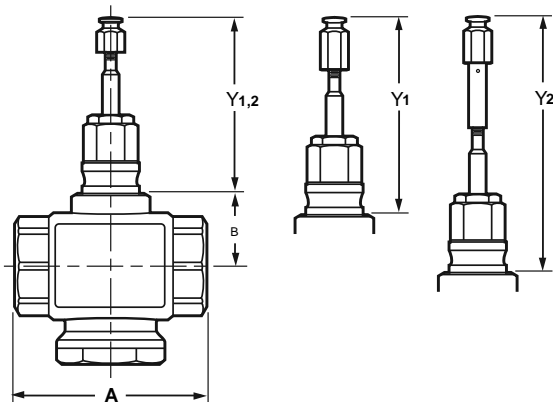
V5011N Two-way Globe Valves



Used for two-position or modulating control of steam and water and glycol solutions (to 50 percent concentration) in heating or cooling systems.

- Sizes range from 1/2 to 2 inches.
- Direct and reverse acting
- High pressure steam models with stainless steel trim
- Spring-loaded, self-adjusting packing.
- Stainless steel stem prevents corrosion.
- Valve designs provide equal percentage characteristics of flow for close control of water, and linear characteristic of flow for close control of steam or chilled water.
- Valves utilize direct mounting, electric or pneumatic linear valve actuators; Q5001 linkage with Modutrol Motor; or Q5020/Q5022A linkages with direct coupled rotary actuators to operate the valve.
- Not suitable for combustible gases.

Dimensions in inches (millimeters)



VALVE SIZE (IN)	A in. (mm)	B in. (mm)
1/2	3-1/4 (83)	1-9/16 (40)
3/4		
1	4-1/16 (103)	
1-1/4	4-3/16 (106)	
1-1/2	4-3/4 (120)	1-13/16 (47)
2	5-1/4 (134)	

VALVE	Y1 in. (mm)	Y2 ^a in. (mm)
V5011N1XXX OR V5011N2XXX	3-1/2 (89)	5-1/4 (133)
V5011N3XXX	4-3/16 (107)	5-15/16 (151)
	STEM FULLY UP	

^aY2 WITH STEM EXTENSION FOR MP953C,E (8 IN. ONLY)

M17378A

Valves with Equal Percentage Flow Characteristic

Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

Maximum Safe Operating Pressure:

217 psi at 248 F (1500 kPa at 120 C)

Maximum Close-off Pressure: 240 psi (1655 kPa)

Valve Type: Globe Valve

Body Pattern: Two-way

Connection Type: Female NPT

Leakage Rating: Seat: 0.05% of Cv

Maximum Differential for Quiet Water Service: 20 psid (138 kPa)

Maximum Differential Pressure Ratings (Close-off): 240 psi (1655 kPa)

Ambient Temperature Range: 36 F to 248 F water (2 C to 120 C water)

Stem Travel: 3/4 in. (20 mm)

Bonnet Size: 1-3/8 in. (35 mm)

ANSI/ASME Rating: 150

Actuation: Must be purchased separately

Materials

(Body): Red Brass

(Stem): Stainless Steel

(Packing): Teflon

Approvals:

CRN Number: 0C0861.9087YTN/0C0861.99

Materials

Cartridge: Brass

Plug/Ball/Disc: Brass

Product Number	Valve Size		Flow Capacity		Materials (Seat)	Valve Action	Used With
	(inch)	DN	(Cv)	(Kv)			
V5011N1008	1/2 in.	DN15	0.73 Cv	0.63 kvs	Stainless Steel	Stem down to close	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N1016	1/2 in.	DN15	1.2 Cv	1.0 kvs	Stainless Steel	Stem down to close	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N1024	1/2 in.	DN15	1.85 Cv	1.6 kvs	Stainless Steel	Stem down to close	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N1032	1/2 in.	DN15	2.9 Cv	2.5 kvs	Stainless Steel	Stem down to close	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N3004	1/2 in.	DN15	2.9 Cv	2.5 kvs	Stainless Steel	Stem up to close	MP953; ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N1040	1/2 in.	DN15	4.7 Cv	4.0 kvs	Stainless Steel	Stem down to close	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425

Threaded Globe Valves

Product Number	Valve Size		Flow Capacity		Materials (Seat)	Valve Action	Used With
	(inch)	DN	(Cv)	(Kv)			
V5011N3012	1/2 in.	DN15	4.7 Cv	4.0 kvs	Stainless Steel	Stem up to close	MP953; ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7426
V5011N1057	3/4 in.	DN20	7.3 Cv	6.3 kvs	Stainless Steel	Stem down to close	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N3020	3/4 in.	DN20	7.3 Cv	6.3 kvs	Integral Brass	Stem up to close	MP953; ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7427
V5011N1065	1 in.	DN25	11.7 Cv	10 kvs	Stainless Steel	Stem down to close	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N3038	1 in.	DN25	11.7 Cv	10 kvs	Integral Brass	Stem up to close	MP953; ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7428
V5011N1073	1 1/4 in.	DN32	18.7 Cv	16 kvs	Stainless Steel	Stem down to close	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N3046	1 1/4 in.	DN32	18.7 Cv	16 kvs	Integral Brass	Stem up to close	MP953; ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7429
V5011N1081	1 1/2 in.	DN40	29 Cv	25 kvs	Stainless Steel	Stem down to close	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N1099	2 in.	DN50	46.8 Cv	40 kvs	Stainless Steel	Stem down to close	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25

Valves with Linear Flow Characteristic

Controlled Fluid: Steam; Chilled or hot water with up to 50% Glycol.

Not for use with fuels

Maximum Safe Operating Pressure:

100 psi/337 F steam (690 kPa/169C steam)

Maximum Close-off Pressure: 240 psi (1655 kPa)

Materials

Cartridge: Stainless Steel

Plug/Ball/Disc: Stainless Steel

Seat: Stainless Steel

Product Number	Valve Size		Flow Capacity		Valve Action	Used With
	(inch)	DN	(Cv)	(Kv)		
V5011N2006	1/2 in.	DN15	0.73 Cv	0.63 kvs	Stem down to close	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N2014	1/2 in.	DN15	1.2 Cv	1.0 kvs	Stem down to close	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N2022	1/2 in.	DN15	1.85 Cv	1.6 kvs	Stem down to close	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N2030	1/2 in.	DN15	2.9 Cv	2.5 kvs	Stem down to close	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N2048	1/2 in.	DN15	4.7 Cv	4.0 kvs	Stem down to close	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N2055	3/4 in.	DN20	7.3 Cv	6.3 kvs	Stem down to close	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N2063	1 in.	DN25	11.7 Cv	10 kvs	Stem down to close	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N2071	1 1/4 in.	DN32	18.7 Cv	16 kvs	Stem down to close	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N2089	1 1/2 in.	DN40	29 Cv	25 kvs	Stem down to close	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N2097	2 in.	DN50	46.8 Cv	40 kvs	Stem down to close	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25

Threaded Globe Valves

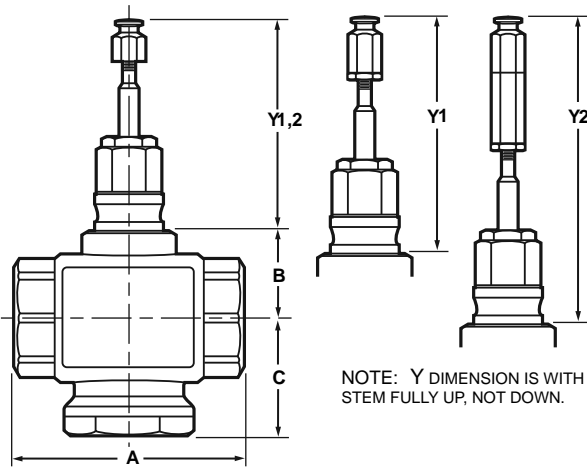
V5013N Three-Way Threaded Globe Valves



The V5013N is a three-way threaded globe valve that controls hot water, cold water, and glycol solutions (up to 50 percent concentration) in heating or cooling HVAC applications. The valves are used for mixing service to direct flow from one or two inlets to a common outlet in two-position or modulating control systems.

- Red brass body with NPT-threaded connections.
- Stainless steel stem and brass plug.
- Low seat leakage rating, < 0.05%.
- Spring-loaded, self adjusting packing.
- 50:1 rangeability per VDI/VDE 2173.
- Constant total flow throughout full stem travel.
- Accurate positioning to ensure state-of-the-art temperature control.
- Sizes range from 1/2 inch to 2 inches.
- Valves utilize direct mounting, electric or pneumatic valve actuators; Q5001 linkage with Modutrol Motor; or Q5020/Q5022 linkages with Direct Coupled Actuators to operate the valve.
- Repack and rebuild kits available for field servicing.
- Not suitable for combustible gases.

Dimensions in inches (millimeters)



VALVE SIZE	A	B	C	Y 1	Y 2 ^a
				STEM UP	
1/2 (15)	3-1/4 (83)	1-9/16 (39.7)	2-9/16 (65)	4-3/16 (106)	5-15/16 (151)
3/4 (20)	3-1/4 (83)	1-9/16 (39.7)	2-9/16 (65)		
1 (25)	4-1/16 (103)	1-9/16 (39.7)	2-5/8 (66.5)		
1-1/4 (32)	4-3/16 (106)	1-9/16 (39.7)	2-7/8 (72.5)		
1-1/2 (40)	4-3/4 (120)	1-13/16 (46.5)	3 (77)		
2 (50)	5-1/4 (134)	1-13/16 (46.5)	3-5/16 (83.5)		

^a Y2 WITH STEM EXTENSION FOR MP953C,E (8 IN. ONLY)

M12901A

Valve Type: Globe Valve

Body Pattern: Three-way mixing, A-B-AB porting

Flow Characteristic: Linear (B-AB), Equal Percentage (A-AB)

Connection Type: Female NPT

Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

Leakage Rating: 0.05% of Cv

Maximum Safe Operating Pressure: 217 psi at 248 F (1500 kPa at 120 C)

Maximum Differential for Quiet Water Service: 20 psid (138 kPa)

Maximum Differential Pressure Ratings (Close-off): 240 psi (1655 kPa)

Ambient Temperature Range: 36 F to 248 F water (2 C to 120 C water)

Stem Travel: 3/4 in. (20 mm)

Bonnet Size: 1-3/8 in. (35 mm)

Valve Action: Mixing

ANSI/ASME Rating: 150

Actuation: Must be purchased separately

Materials

(Body): Red Brass

(Stem): Stainless Steel

(Plug/Ball/Disc): Brass

(Packing): Teflon/EPDM

Approvals:

CRN Number: 0C0861.9087YTN/0C0861.123

Product Number	Valve Size		Flow Capacity		Materials	Used With
	(inch)	DN	(Cv)	(Kv)	(Seat)	
V5013N1030	1/2 in.	DN15	2.9 Cv	2.5 kvs	Stainless Steel	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML7420/ML7421A/ML7425; ML6420,21A,25
V5013N1048	1/2 in.	DN15	4.7 Cv	4.0 kvs	Stainless Steel	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7425
V5013N1055	3/4 in.	DN20	7.3 Cv	6.3 kvs	Integral Brass	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML7420/ML7421A/ML7425; ML6420,21A,25
V5013N1063	1 in.	DN25	11.7 Cv	10 kvs	Integral Brass	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7425
V5013N1071	1 1/4 in.	DN32	18.7 Cv	16 kvs	Brass	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML7420/ML7421A/ML7425; ML6420,21A,25
V5013N1089	1 1/2 in.	DN40	29 Cv	25 kvs	Brass	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7425
V5013N1097	2 in.	DN50	46.8 Cv	40 kvs	Brass	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML7420/ML7421A/ML7425; ML6420,21A,25

Globe Valve Accessories and Replacement Parts

Globe Valve Accessories

Product Number	Description	Used With
209116	Stem Button for 4 inch to 6 inch V5011 and V3350 valves	V3350; V5011
209117	Stem Button for 2 1/2 inch to 3 inch V5011 and V3350 valves	V5011; V3350
304466	Set Screw	—
311057	Lubricant, Tube	—
311095A	Stem and Disc holder, V5011A, C, F, Cv	V5011A
311184	Guide-Cv 4.0	—
311745	Disc Holder	—
311860	Plug, V5011A, F, 2 1/2 in., Cv 63	V5011A
313104	Disc, V5011, 1 in. NPT	V5011
313719	Switch Assembly	—
314539	Plug, V5011C, G, 3 in. NPT, Cv 100	V5011C
32003941-001	Seat Removal Tool	—
32003941-002	Seat Removal Tool	—

Globe Valve Replacement Parts

Product Number	Description	Used With
311432	White Packing 3/8 inch I.D.	V5011G1111; V5011G1129
311746	Disc holder for 3 in. valves	V5011G1129; V5011F1113
14002734-001	Grease Tube	—
14002734-002	Lubricant, packing, AMOCO H-100	—
311057	Lubricant, Tube	—

VGF Packing Kits

Product Number	Description	Used With
R43176754002	Packing kit for 2 1/2 in. and 3 in. ANSI 125 VGF valves	VGf21, VGf31 up to 3"
R43176755004	Packing kit for 2 1/2 in. and 3 in. ANSI 250 and pressure-balanced VGF valves	VGf21EP/LP; VGf22; VGf32; up to 3"
R43176755005	Packing kit for 4 in. to 6 in. VGF valves	VGf2; VGf3; 4 to 6"

Globe Valve Accessories and Replacement Parts

V5011; V5013 Valve Accessories and Replacement Parts

V5011 Replacement Seats

Valve	Pipe Size		Part Number (Old 150 psi)	All
	in.	C _v		
V5011A,C,F,G	3/4	2.5	310536	—
		6.3	—	310890
	1	4.0	310537	—
		6.3	310538	—
		10	—	311077
	1-1/4	16	—	311078
	2	—	311291	—
	2-1/2	63	—	311731
	3	100	—	311734

V5011 Replacement Plugs

Valve	Pipe Size		Part Number
	in.	C _v	
V5011A,F	2-1/2	63	311860
	3	100	311861
V5011C,G	3	100	314539

V5011 Replacement Discs for Threaded Valves

Valve	Pipe Size		Part Number	
	in.	C _v	V5011A,F (35 to 250 F)	V5011C,G (200 to 337 F)
V5011A,C,F,G Threaded	1/2	0.4 to 4.0	14004625-001	—
	3/4, 1	6.3, 10	—	14004625-012
	1-1/4	16	14004625-003	14004625-013
	1-1/2	25	14004625-004	14004625-014
	2	40	14004625-005	14004625-015
	2-1/2	63	14004625-006	14004625-016
	3	100	14004625-007	14004625-017

V5011 Replacement Parts

Valve	Pipe Size		Part Number	Description
	in.			
V5011H,J	1/2 to 1-1/4		310135	Spring for V5011H
			310137	Spacer (2) for V5011H
			310143	Packing V (3) for V5011H
			310498	Spring for V5011J
			310506	Follower V5011J
			310623	Packing Cone (3) V5011J
			313338	Stem
V5011A,C,F,G	1-1/2 to 3		310509	Packing Nut; Old V5011 150 PSI series and V5011C,G
			14004552-001	Packing Nut, V5011A&C Interim & V5011F,G
			14004623-001	Stem Button
			311619A	Stem Assembly, 3/4 in. Travel

V5013 Replacement Parts

Valve	Pipe Size		Part Number	Description
	in.			
V5013A (Flanged)	2-1/2, 3		312495	Stem Button, Anti-Spin
			312497	Packing Nut
	4 to 6		312498	Packing (5)
			311432	Packing (4)

Globe Valve Accessories and Replacement Parts

V5011; V5013 Repack and Rebuild Kits

V5011, V5013 Repack kits include packing, spacer, follower and spring for V5011 and V5013 Valves. They are used to repack leaking V5011 Valves with metal discs and all V5013 Three-Way Valves. They also can be used to repack V5011 Valves with rubber or Teflon discs if the disc and stem assembly are known to be in good repair. Otherwise, use the appropriate rebuild kit for complete repair of V5011 Valves with rubber or Teflon discs and threaded ends. Repack kits are listed in the table below.



CAUTION

For proper installation, use instructions packed with kits. V5011, V5013 Rebuild Kits include all the parts in the repack kits, plus a stem assembly and disc. Rebuild kits are available only for threaded V5011 Valves. They cannot be used with valves that have a metal-to-metal seat. Metal-to-metal seats are found on V5011C and V5011G valves with OS numbers of V5011C2282 or higher and V5011G1137 and higher.

NOTE: Rebuild kit C_v must match valve C_v. If the C_v is different, the kit will not work, even if the pipe size shown is the same. Some obsolete V5011A,C Valves were available with a smaller C_v than listed below. When ordering a rebuild kit for these valves, use C_v not pipe size.

Valve							Repack Kit Part Number		Rebuild Kit Number		Comments	
Connection	Size (in.)	C _v	Stroke (in.)	Stem Diameter (in.)	Water and/or 2-position steam	Modulating steam	for Water service	for Steam service	for Water service	for Steam service		
Threaded	1/2	0.4	3/4	1/4	— V5011A,F	V5011C,G	14003294-004 ^a	14003294-002	14002694-006	14002694-008	b, c	
		0.63										
		1										
		1.6										
		2.5										
		4										
Threaded	3/4	6.3	3/4	1/4					14002695-006	14002695-008		
		1							10			
		1-1/4							16	14003109-006		14003109-008
Threaded	1-1/2	25	3/4	3/8	V5011A,F	V5011C,G	14003295-004	14003295-002	14003110-006	14003110-008	b, c	
		2							40	14003111-006	14003111-008 ^a	b, c, d
		2-1/2							63			
		3							100			
Threaded	1/2	2.5	3/4	1/4	V5011H	V5011J	14003294-004 ^a	14003294-002	not available	not available	b, e	
		4										
		3/4							6.3			
		1							10			
Threaded	1/2	2.5	3/4	1/4	V5013A,F	—	14003294-004 ^a	—	not available	—		
		4										
		3/4							6.3			
		1							10			
Threaded	1-1/2	25	3/4	3/8	V5013A,F	—	14003295-004	—	not available	—		
		2							40			
Flange	2-1/2	63	3/4	3/8	V5011A1734	—	14003295-004	14003295-002	not available	not available	b	
		3			100				3/4	3/8	V5011A1767	
Flange	4	160	1-1/2	1/2	V5011A,B	—	14003296-002	14003296-002	not available	not available	b, f	
		5							250			
		6							360			

^a TRADELINE Kit.

^b The 1400xxxx-002, -004 Repack and -006, -008 Rebuild Kits contain the same parts as the -001, -003 Repack and -005, and -007 Rebuild Kits available from Honeywell Direct.

^c V5011G1137 through V5011G1228 Valves have metal-to-metal seats; rebuild kits are not available for metal-to-metal seat valves.

^d To rebuild a 2-1/2 or 3 in. threaded valve, order the rebuild kit for the 2 in. valve and the replacement disc for the 2-1/2 or 3 in. valve. See Valve Accessories and Replacement Parts section.

^e Rebuild kits are not available for reverse acting valves.

^f Repack kits with Teflon packing rings (14003296-002) are used with 4 through 6 in. valves (both water and steam service). Kits with rubber packing are not available for 4 through 6 in. valves.

Globe Valve Accessories and Replacement Parts

Valve							Repack Kit Part Number		Rebuild Kit Number		Comments
Connection	Size (in.)	C _v	Stroke (in.)	Stem Diameter (in.)	Water and/or 2-position steam	Modulating steam	for Water service	for Steam service	for Water service	for Steam service	
Flange	2-1/2	63	3/4	3/8	V5013B,C	—	14003295-004	—	not available	—	b, f
	3	100									
Flange	4	160	1-1/2	1/2	V5013B,C	—	14003296-002	—	not available	—	
	5	250									
	6	360									

^a TRADELINE Kit.

^b The 1400xxx-002, -004 Repack and -006, -008 Rebuild Kits contain the same parts as the -001, -003 Repack and -005, and -007 Rebuild Kits available from Honeywell Direct.

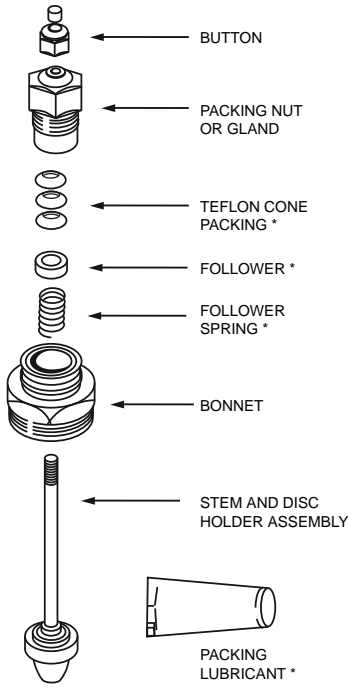
^c V5011G1137 through V5011G1228 Valves have metal-to-metal seats; rebuild kits are not available for metal-to-metal seat valves.

^d To rebuild a 2-1/2 or 3 in. threaded valve, order the rebuild kit for the 2 in. valve and the replacement disc for the 2-1/2 or 3 in. valve. See Valve Accessories and Replacement Parts section.

^e Rebuild kits are not available for reverse acting valves.

^f Repack kits with Teflon packing rings (14003296-002) are used with 4 through 6 in. valves (both water and steam service). Kits with rubber packing are not available for 4 through 6 in. valves.

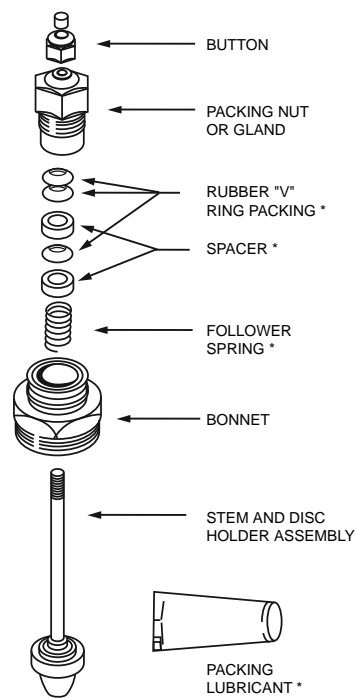
14003294-002 1/2 to 1-1/4 in. valve size, for steam service.



* INCLUDED IN KIT.

M8289A

14003294-004 1/2 to 1-1/4 in. valve size, for water service.

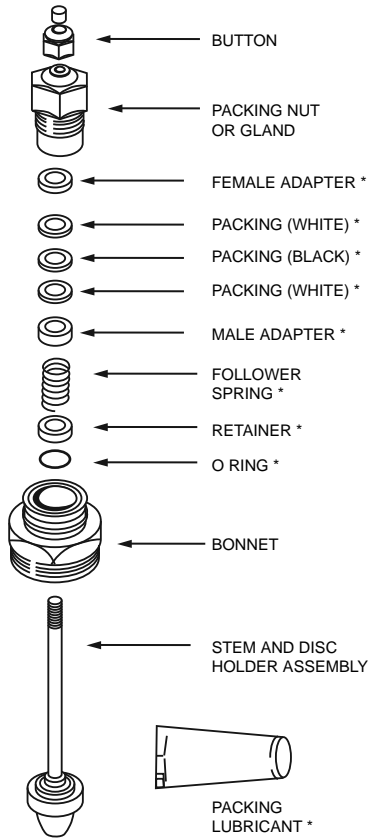


* INCLUDED IN KIT.

M8290A

Globe Valve Accessories and Replacement Parts

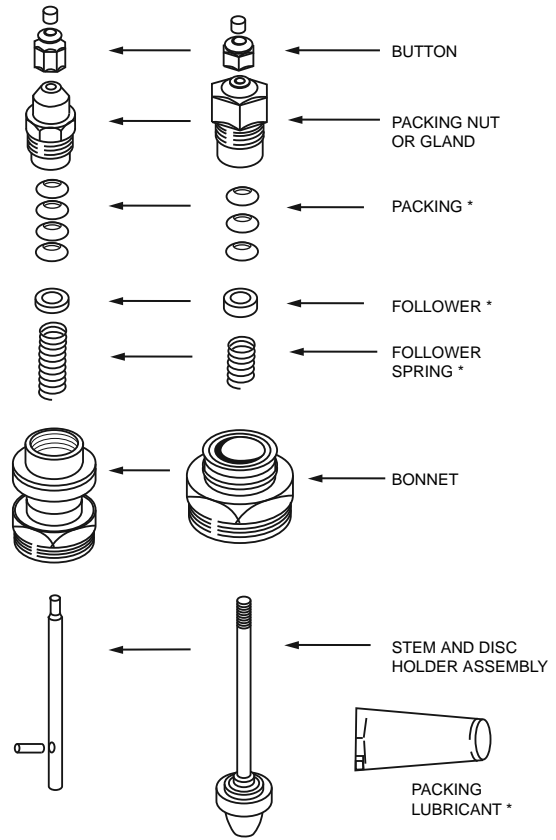
14003295-004 1-1/2 to 3 in. valve size, for water service.



* INCLUDED IN KIT.

M4902

14003295-002 1-1/2 to 3 in. valve size, for steam service.

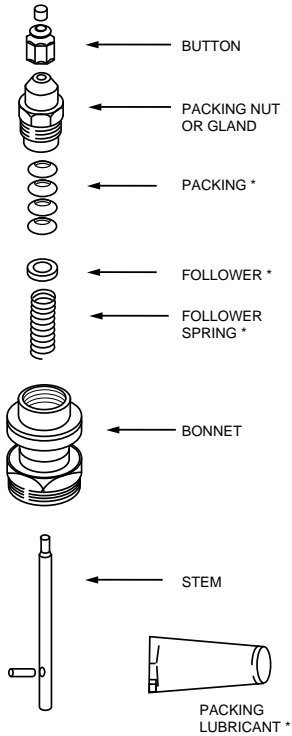


FLANGED VALVES

SCREWED VALVES

* INCLUDED IN KIT.
M4903A

14003296-002 4 to 6 in. pipe size, for steam service.

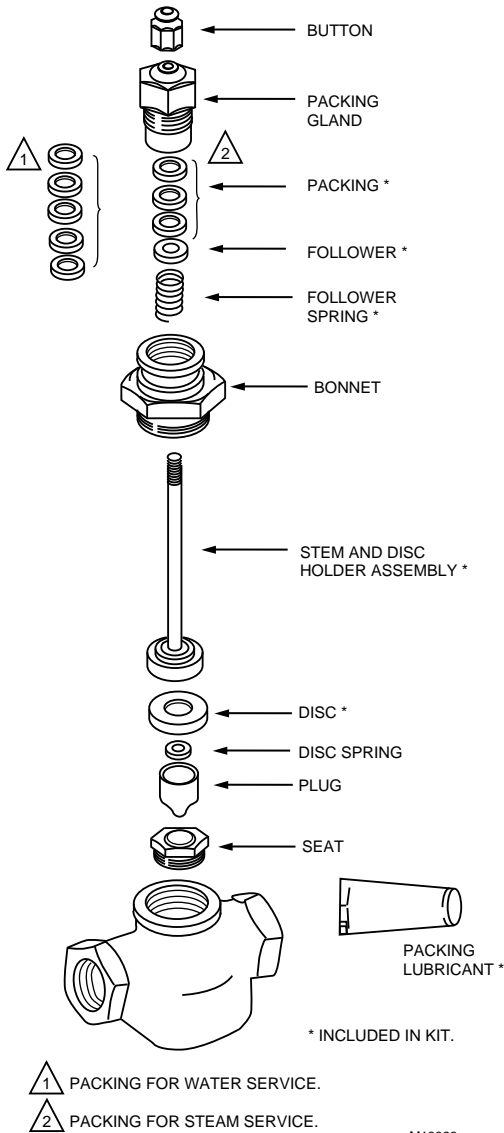


FLANGED VALVES

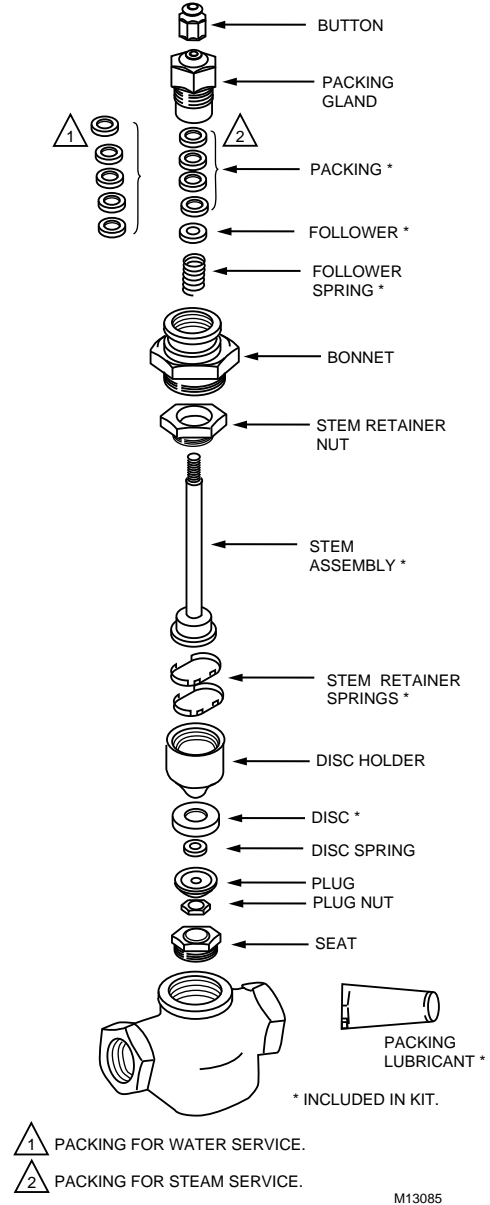
* INCLUDED IN KIT.
M13115

Globe Valve Accessories and Replacement Parts

Rebuild Kits for: 14002694-006, 14002695-006, 14003109-006, 1/2 to 1-1/4 in. valve size for water service; 14002694-008, 14002695-008, 14003109-008, 1/2 to 1-1/4 in. valve size for steam service.

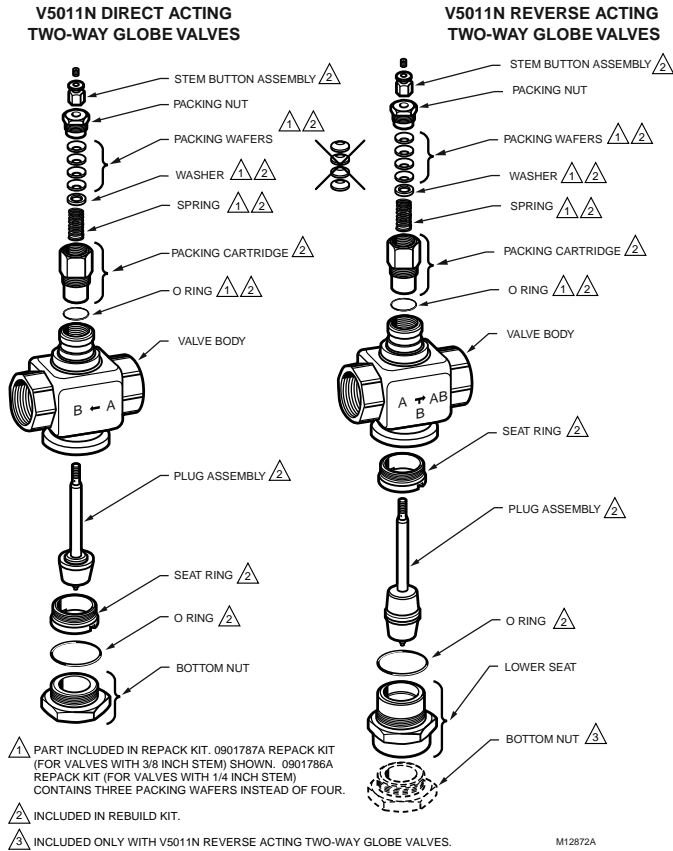


Rebuild Kits for: 14003110-006, 14003111-006, 1-1/2 to 3 in. valve size for water service; 14003110-008, 14003111-008, 1-1/2 to 3 in. valve size for steam service.



Globe Valve Accessories and Replacement Parts

V5011N Valve Rebuild and Repack Kits



Valve OS No.	Stem Diameter (in.)	Repack Kit	Rebuild Kit	Stem Button
V5011N1008	1/4	0901786A	0901746A	0901116A ^a
V5011N1016			0901747A	
V5011N1024			0901748A	
V5011N1032			0901749A	
V5011N1040			0901750A	
V5011N1057			0901751A	
V5011N1065			0901752A	
V5011N1073			0901753A	
V5011N1081	3/8	0901787A	0901754A	
V5011N1099			0901755A	
V5011N2022	1/4	0901786A	0903424A	
V5011N2030			0903425A	
V5011N2048			0903426A	
V5011N2055			0903427A	
V5011N2063			0903428A	
V5011N2071			0903429A	
V5011N2089			3/8	0901787A
V5011N2097	0903431A			
V5011N3004	1/4	0901786A	0901759A	
V5011N3012			0901760A	
V5011N3020			0901761A	
V5011N3038			0901762A	
V5011N3046			0901763A	

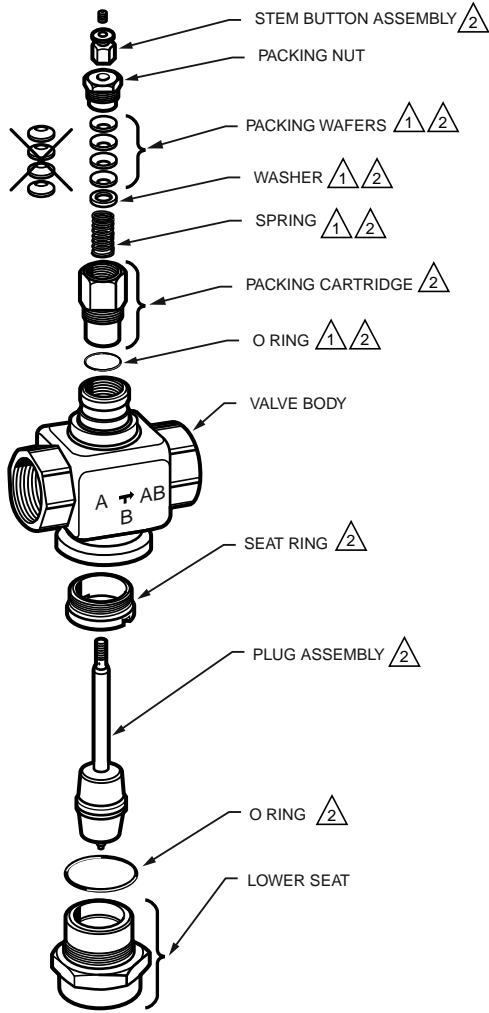
^aEach 0901116A contains 10 stem buttons.

Note: Seat removal tools are required to rebuild valves:
 32003941-001 for 1/2 in. through 1-1/4 in. sizes.
 32003941-002 for 1-1/2 in. through 2 in. sizes.

Globe Valve Accessories and Replacement Parts

V5013N Three-way Globe Valves

V5013N THREE-WAY GLOBE VALVES



1 PART INCLUDED IN REPACK KIT. 0901787A REPACK KIT (FOR VALVES WITH 3/8 INCH STEM) SHOWN. 0901786A REPACK KIT (FOR VALVES WITH 1/4 INCH STEM) CONTAINS THREE PACKING WAFERS INSTEAD OF FOUR.

2 INCLUDED IN REBUILD KIT.

M12871A

V5013N Replacement Parts

Valve OS No.	Stem Diameter (in.)	Repack Kit (Part No.)	Rebuild Kit (Part No.)	Stem Button (Part No.)
V5013N1030	1/4	0901786A	0901759A	0901116A ^a
V5013N1048			0901760A	
V5013N1055			0901761A	
V5013N1063			0901762A	
V5013N1071			0901763A	
V5013N1089	3/8	0901787A	0901764A	
V5013N1097			0901765A	

^aEach 0901116A contains 10 stem buttons.

NOTE: 32003941-001 Seat Removal Tool required to rebuild 1/2 in. valves. Other sizes do not require this tool.

Double-Seated Globe Valves

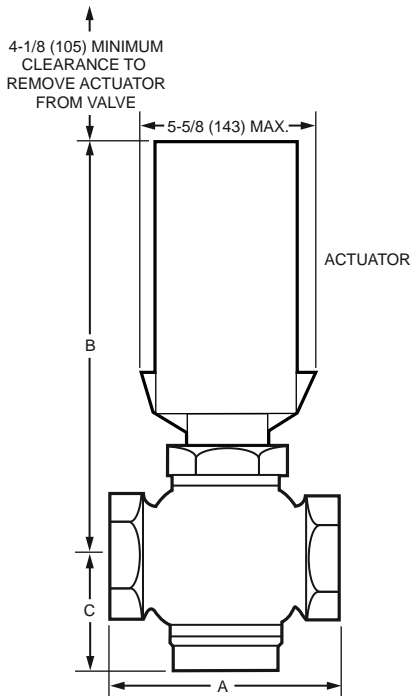
V5047A Double-Seated Globe Valves



Control high pressure steam, liquids, air or noncombustible gases where positive final shutoff is not required.

- Q5001D Valve Linkage and Modutrol motor required for operation.
- Suitable for two-position, floating, or proportioning control, depending on the motor and controller used.
- Provide high capacity with minimum pressure drop.
- Pipe sizes include 1, 1-1/4, 1-1/2, and 2 inches.
- Straight-through construction and threaded end connections.
- Cast iron body with stainless steel trim.
- Plug provides equal percentage characteristic of flow.
- V-port for either throttling or on-off service.
- Replaceable seat rings screw into body.
- Spring-loaded Teflon cone packing for minimum friction.

Dimensions in inches (millimeters)



VALVE SIZE	DIMENSIONS IN INCHES (MM)		
	A	B	C
1	4-3/8 (111)	17 (432)	2-3/8 (60)
1-1/4	4-5/8 (117)	17-3/16 (437)	2-9/16 (65)
1-1/2	5-1/2 (140)	17-1/2 (445)	3-1/8 (79)
2	6-1/2 (165)	17-3/4 (451)	3-3/8 (86)

M27555

Valve Type: Globe Valve

Body Pattern: Two-way

Valve Action: Stem down to close

Connection Type: Female NPT

Flow Characteristic: Equal Percentage

Controlled Fluid: Steam; Chilled or hot water with up to 50% Glycol.
Not for use with fuels

Leakage Rating: 0.005 of Cv

Maximum Safe Operating Pressure: 100 psi steam (690 kPa steam);
150 psi water (1034 kPa)

Ambient Temperature Range: 32 F to 337 F (0 C to 170 C)

Bonnet Size: 1-3/8 in. (35 mm)

ANSI/ASME Rating: 125

Actuation: Must be purchased separately

Comments: Double seated

Materials

(Body): Cast Iron

(Stem): Stainless Steel

(Seat): Stainless Steel

(Packing): Spring loaded non-adjustable Teflon V-ring

Product Number	Valve Size		Flow Capacity		Materials (Cartridge)	Stem Travel		Comments	Used With
	(inch)	DN	(Cv)	(Kv)		(inch)	(mm)		
V5047A1021	1 1/2 in.	DN40	30 Cv	25.7 kvs	Stainless Steel	9/16 in.	14 mm	Double seated	Q5001/Modutrol IV Motor
V5047A1039	2 in.	DN50	50 Cv	43 kvs	—	3/4 in.	20 mm	Double seated	Q5001/Modutrol IV Motor

Cage Valves

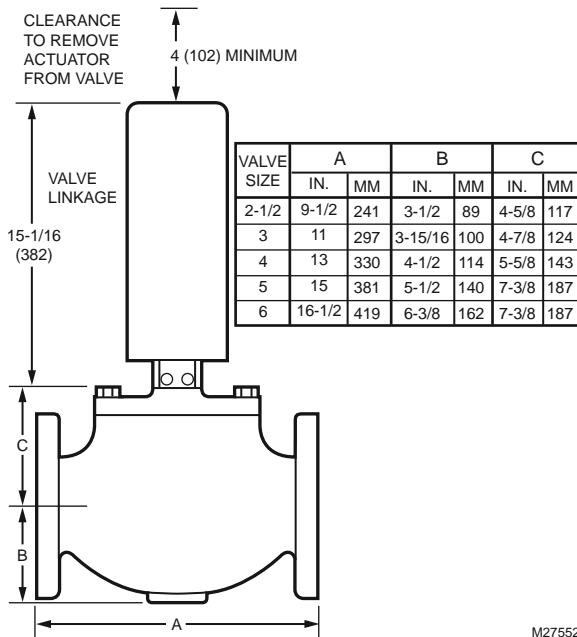
V5051A Single-Seated Cage Valves



Single-Seated Cage Valves control steam, air, liquids, or non-combustible gases in two-position, proportional, or floating control systems where line isolation is not required.

- Pressure balanced cage type construction.
- Low operating force allows fail safe operation with spring return actuator.
- Combines 1 3/8 in. bonnet with 1 1/2 in. stroke.
- Sizes range from 2-1/2 to 6 in. (DN65 to DN150).
- Spring-loaded Teflon V-ring packing.
- Requires Q5020C valve linkage with one rotary, direct coupled actuator, or Q5001D with Modutrol Motor.

Dimensions in inches (millimeters)



Valve Type: Cage Valves

Body Pattern: Two-way, Straight-through

Connection Type: Flanged

Flow Characteristic: Modified Linear

Controlled Fluid: Steam; Chilled or hot water with up to 50% Glycol.
Not for use with fuels

Leakage Rating: 0.01% of Cv, 0.03% of Cv @ 5 & 6 in.

Maximum Safe Operating Pressure: 55 psi steam (379 kPa steam);
150 psi water at 100F (1034 kPa water at 38 C)

Maximum Differential Pressure Ratings (Close-off): 150 psi (1034 kPa)

Ambient Temperature Range: 35 F to 300 F (2 C to 150 C)

Stem Travel: 1 1/2 in. (38 mm)

Bonnet Size: 1-3/8 in. (35 mm)

Valve Action: Stem down to close

ANSI/ASME Rating: 125

Actuation: Must be purchased separately

Comments: Q5001D1000 requires 1/2 in. 220867A Cam.

Materials

(Body): Cast Iron

(Stem): Stainless Steel

(Seat): Resilient

(Plug/Ball/Disc): Stainless Steel

(Packing): Teflon

Product Number	Valve Size		Flow Capacity		Used With
	(inch)	DN	(Cv)	(Kv)	
V5051A3004	2 1/2 in.	DN65	75 Cv	64.5 kvs	MP953 8 in., Q5001D/Modutrol IV Motor, or Q5020C/DCA
V5051A3012	3 in.	DN80	116 Cv	88 kvs	MP953 8 in., Q5001D/Modutrol IV Motor, or Q5020C/DCA
V5051A3020	4 in.	DN100	178 Cv	125 kvs	MP953 8 in., Q5001D/Modutrol IV Motor, or Q5020C/DCA
V5051A3038	5 in.	DN125	318 Cv	224 kvs	MP953 8 in., Q5001D/Modutrol IV Motor, or Q5020C/DCA
V5051A3046	6 in.	DN150	390 Cv	224 kvs	MP953 8 in., Q5001D/Modutrol IV Motor, or Q5020C/DCA

Cartridge Globe Valves

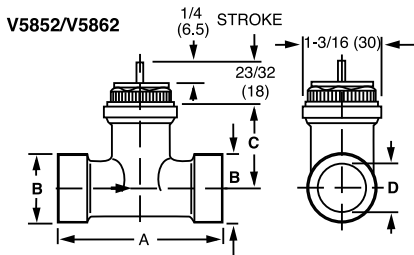
V5852; V5862 Two-way Cartridge Globe Valves



Two-way Cartridge Globe Valves control hot and/or chilled water for VAV terminal units, fan coil units, small reheaters and recoolers in electric/electronic temperature control systems. Used with the M6410 3-position floating Non-Spring Return Valve Actuator and the M7410 selectable 0 to 10 Vdc or 2 to 10 Vdc Non-Spring Return Actuator. The 1/2 in. and 3/4 in. valves are compatible with the M6435 floating Spring Return Actuator, the M7435 selectable 0 to 10 Vdc or 2 to 10 Vdc Spring Return Actuator, and the MP958 Pneumatic Actuator. Larger valves (1 in. through 1-1/2 in.) are pressure balanced, which results in higher close-off pressures.

- Long stroke allows wider range of control.
- Soft valve seat provides low leakage rate.
- Inserts for 1/2 in. and 3/4 in. valves are changeable without draining valve when used with an insert replacement tool.
- Brass body and Stainless Steel stem.
- Threaded plastic cover/manual handle allows manual operation.
- Easily installed in areas where space is limited.

Dimensions in inches (millimeters)



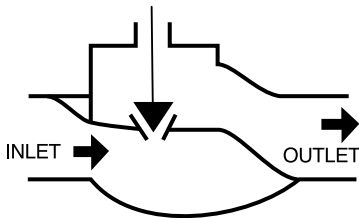
VALVE SIZE	A	B	C	D (NPT)	D (SWEAT)
1/2 (13)	3 (77)	3/4 (19)	1-5/16 (34)	1/2 (13)	5/8 (16)
3/4 (19)	3-1/2 (88)	1 (25)	1-1/4 (32)	3/4 (19)	7/8 (22)

NOTE: SOLDER ENDS CONFORM TO ANSI B16-18.

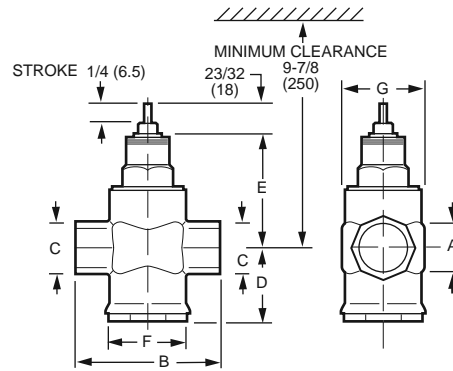
M18917

For 1/2 in. and 3/4 in. Valves

FLOW DIAGRAM

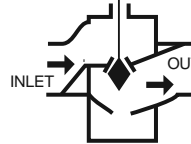


M18918

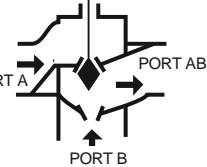


VALVE SIZE A (NPT)	B	C	D	E	F	G
1 (25)	4-1/8 (105)	1-5/8 (41)	2-1/16 (53)	3-5/8 (92)	2 (50)	1-3/4 (44)
1-1/4 (32)	4-15/16 (125)	2 (50)	2-7/16 (62)	3-5/8 (92)	2-3/16 (55)	2-1/4 (57)
1-1/2 (38)	5-1/8 (130)	2-3/16 (55)	2-9/16 (65)	3-7/8 (98)	2-3/8 (60)	2-5/8 (67)

V5862 FLOW



V5863 FLOW



M19619

Cartridge Globe Valves

Valve Type: Cartridge Globe Valve

Body Pattern: Two-way

Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

Leakage Rating:

1/2 in. and 3/4 in. valves: ANSI Class IV (0.01% of Cv maximum)

1 in., 1-1/4 in., 1-1/2 in. valves: ANSI Class III (less than 0.02% of Cv)

Maximum Safe Operating Pressure: 235 psi (1620 kPa)

Ambient Temperature Range: 36 F to 230 F (2 C to 110 C)

Stem Travel: 1/4 in. (6.4 mm)

Actuation: Must be purchased separately

Materials

(Body): Brass

(Stem): Stainless Steel

(Seat): Brass

(Cartridge): Brass

(Plug/Ball/Disc): Brass

Accessories:

0902807 Replacement Insert for 1/2 in. V5852/V5862, 1.9 Cv
Interchangeable with 0902808

0902808 Replacement Insert for 1/2 in. V5852/V5862, 1.2 Cv
Interchangeable with 0902807

0902809 Replacement Insert for 1/2 in. V5852/V5862, 0.74 Cv
Interchangeable with 0902810 or 090212

0902810 Replacement Insert for 1/2 in. V5852/V5862, 0.47 Cv
Interchangeable with 0902809 or 090212

Replacement Parts:

0902812 Replacement Insert for 1/2 in. V5852/V5862, 0.19 Cv
Interchangeable with 0902809 or 090210

0902814 Replacement Insert for 3/4 in. V5852/V5862, 2.9 Cv
Interchangeable with 0902815

0902815 Replacement Insert for 3/4 in. V5852/V5862, 4.9 Cv
Interchangeable with 0902814

0903827 Replacement Packing for 1 in. V5862/63

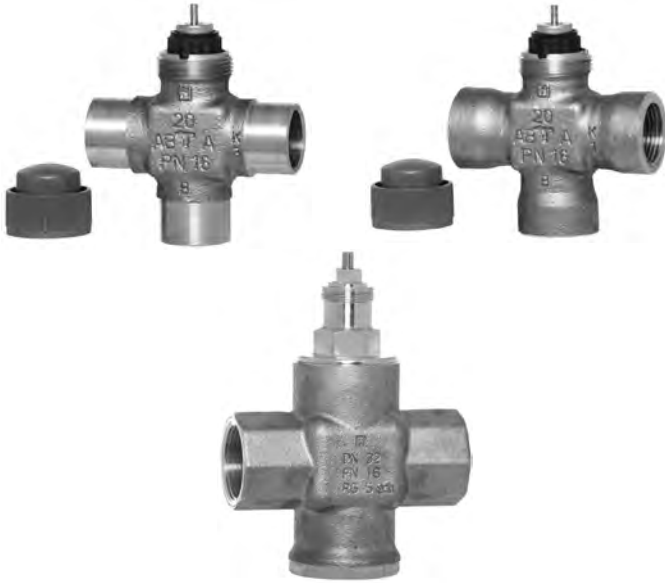
0903828 Replacement Packing for 1-1/4 in. V5862/63

0903829 Replacement Packing for 1-1/2 in. V5862/63

Product Number	Valve Size		Flow Capacity		Flow Characteristic	Connec-tion Type	Valve Action	Maximum Close-off Pressure		Used With
	(inch)	DN	(Cv)	(Kv)				(psi)	(kPa)	
V5852A2007	1/2 in.	DN15	0.19 Cv	0.16 kvs	Equal Percentage	Sweat (Female)	Stem down to close	232 psi	1600 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5852A2015	1/2 in.	DN15	0.29 Cv	0.25 kvs	Equal Percentage	Sweat (Female)	Stem down to close	232 psi	1600 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5852A2023	1/2 in.	DN15	0.47 Cv	0.41 kvs	Equal Percentage	Sweat (Female)	Stem down to close	232 psi	1600 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5852A2031	1/2 in.	DN15	0.7 Cv	0.6 kvs	Equal Percentage	Sweat (Female)	Stem down to close	232 psi	1600 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5852A2049	1/2 in.	DN15	1.2 Cv	1.0 kvs	Equal Percentage	Sweat (Female)	Stem down to close	174 psi	1200 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5852A2056	1/2 in.	DN15	1.9 Cv	1.6 kvs	Equal Percentage	Sweat (Female)	Stem down to close	174 psi	1200 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5852A2064	3/4 in.	DN20	2.9 Cv	2.5 kvs	Equal Percentage	Sweat (Female)	Stem down to close	58 psi	400 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5852A2072	3/4 in.	DN20	4.9 Cv	4.2 kvs	Equal Percentage	Sweat (Female)	Stem down to close	58 psi	400 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5862A2005	1/2 in.	DN15	0.19 Cv	0.16 kvs	Equal Percentage	Female NPT	Stem down to close	232 psi	1600 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5862A2013	1/2 in.	DN15	0.29 Cv	0.25 kvs	Equal Percentage	Female NPT	Stem down to close	232 psi	1600 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5862A2021	1/2 in.	DN15	0.47 Cv	0.41 kvs	Equal Percentage	Female NPT	Stem down to close	232 psi	1600 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5862A2039	1/2 in.	DN15	0.74 Cv	0.64 kvs	Equal Percentage	Female NPT	Stem down to close	232 psi	1600 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5862A2047	1/2 in.	DN15	1.2 Cv	1.0 kvs	Equal Percentage	Female NPT	Stem down to close	174 psi	1200 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5862A2054	1/2 in.	DN15	1.9 Cv	1.6 kvs	Equal Percentage	Female NPT	Stem down to close	174 psi	1200 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5862A2062	3/4 in.	DN20	2.9 Cv	2.5 kvs	Equal Percentage	Female NPT	Stem down to close	58 psi	400 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5862A2070	3/4 in.	DN20	4.9 Cv	4.2 kvs	Equal Percentage	Female NPT	Stem down to close	58 psi	400 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5862A3003	1 in.	DN25	5.5 Cv	4.8 kvs	Linear	Female NPT	Stem up to close	232 psi	1600 kPa	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5862A3011	1 in.	DN25	7.8 Cv	6.7 kvs	Linear	Female NPT	Stem up to close	232 psi	1600 kPa	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5862A3029	1 in.	DN25	11.0 Cv	9.5 kvs	Linear	Female NPT	Stem up to close	232 psi	1600 kPa	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5862A3037	1 1/4 in.	DN32	18 Cv	15.6 kvs	Linear	Female NPT	Stem up to close	174 psi	1200 kPa	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5862A3045	1 1/2 in.	DN40	25 Cv	21.6 kvs	Linear	Female NPT	Stem up to close	145 psi	1000 kPa	M6410A3017; M7410F3006; M6435A3000; M7435F3007

Cartridge Globe Valves

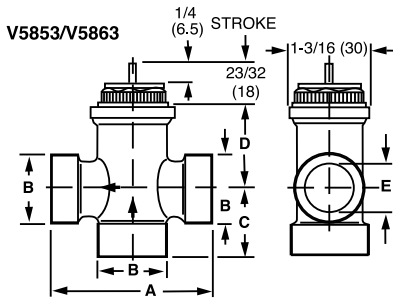
V5853; V5863 Three-way Cartridge Globe Valves



Three-way Cartridge Globe Valves control hot and/or chilled water for VAV terminal units, fan coil units, small reheaters and recoolers in electric/ electronic temperature control systems. Used with the M6410 3-position floating Non-Spring Return Valve Actuator and the M7410 selectable 0 to 10 Vdc or 2 to 10 Vdc Non-Spring Return Actuator. The 1/2 in. and 3/4 in. valves are also compatible with the M6435 floating Spring Return Actuator, the M7435 selectable 0 to 10 Vdc or 2 to 10 Vdc Spring Return Actuator, and the MP958 Pneumatic Actuator.

- Long stroke allows wider range of control.
- Soft valve seat provides low leakage rate.
- Inserts for 1/2 in. and 3/4 in. valves are changeable without draining valve when used with an insert replacement tool.
- Brass body and stainless steel stem.
- Threaded plastic cover/manual handle allows manual operation.
- Easily installed in areas where space is limited.

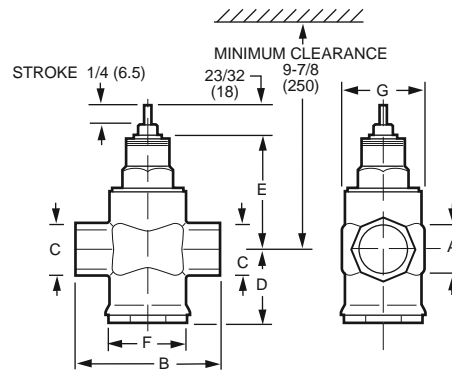
Dimensions in inches (millimeters)



VALVE SIZE	A	B	C	D	E (NPT)	E (SWEAT)
1/2 (13)	3 (77)	3/4 (19)	1-5/16 (34)	1-5/16 (34)	1/2 (13)	5/8 (16)
3/4 (19)	3-1/2 (88)	1 (25)	1-1/2 (38)	1-1/4 (32)	3/4 (19)	7/8 (22)

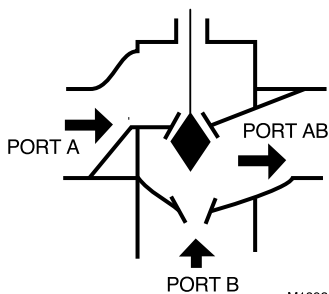
NOTE: SOLDER ENDS CONFORM TO ANSI B16-18.

M18919

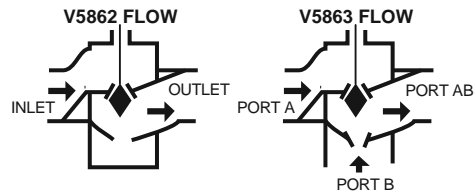


VALVE SIZE A (NPT)	B	C	D	E	F	G
1 (25)	4-1/8 (105)	1-5/8 (41)	2-1/16 (53)	3-5/8 (92)	2 (50)	1-3/4 (44)
1-1/4 (32)	4-15/16 (125)	2 (50)	2-7/16 (62)	3-5/8 (92)	2-3/16 (55)	2-1/4 (57)
1-1/2 (38)	5-1/8 (130)	2-3/16 (55)	2-9/16 (65)	3-7/8 (98)	2-3/8 (60)	2-5/8 (67)

FLOW DIAGRAM



M18920



M19619

Cartridge Globe Valves

Valve Type: Cartridge Globe Valve

Body Pattern: Three-way

Controlled Fluid: Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

Leakage Rating:

1/2 in. and 3/4 in. valves: ANSI Class IV (0.01% of Cv maximum)

1 in., 1-1/4 in., 1-1/2 in. valves: ANSI Class III (less than 0.02% of Cv)

Maximum Safe Operating Pressure: 235 psi (1620 kPa)

Maximum Differential Pressure Ratings (Close-off): 34 psi (234 kPa)

Ambient Temperature Range: 36 F to 230 F (2 C to 110 C)

Stem Travel: 1/4 in. (6.4 mm)

Actuation: Must be purchased separately

Materials

(Body): Brass

(Stem): Stainless Steel

(Seat): Brass

(Cartridge): Brass

(Plug/Ball/Disc): Brass

Accessories:

0903827 Replacement Packing for 1 in. V5862/63

Replacement Parts:

0902821 Replacement Insert for 1/2 in. V5853/V5863, 0.29 Cv
Interchangeable with 0902822 or 0902823 or 0902824

0902822 Replacement Insert for 1/2 in. V5853/V5863, 0.47 Cv
Interchangeable with 0902821 or 0902823 or 0902824

0902823 Replacement Insert for 1/2 in. V5853/V5863, 0.74 Cv
Interchangeable with 0902821 or 0902822 or 0902824

0902824 Replacement Insert for 1/2 in. V5853/V5863, 1.2 Cv
Interchangeable with 0902821 or 0902822 or 0902825

0902825 Replacement Insert for 1/2 in. V5853/V5863, 1.9 Cv
Interchangeable with 0902827

0902827 Replacement Insert for 3/4 in. V5853/V5863, 4.9 Cv
Interchangeable with 0902825

0903827 Replacement Packing for 1 in. V5862/63

0903828 Replacement Packing for 1-1/4 in. V5862/63

0903829 Replacement Packing for 1-1/2 in. V5862/63

Product Number	Valve Size		Flow Capacity		Flow Characteristic	Connec-tion Type	Valve Action	Maximum Close-off Pressure		Used With
	(inch)	DN	(Cv)	(Kv)				(psi)	(kPa)	
V5853A1008	3/4 in.	DN20	2.9 Cv	2.5 kvs	Equal Percentage	Sweat (Female)	Stem up to close	34 psi	234 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001
V5853A1016	3/4 in.	DN20	4.9 Cv	4.2 kvs	Equal Percentage	Sweat (Female)	Stem up to close	34 psi	234 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001
V5853A2006	1/2 in.	DN15	0.29 Cv	0.25 kvs	Equal Percentage	Sweat (Female)	Stem up to close	116 psi	800 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5853A2014	1/2 in.	DN15	0.47 Cv	0.41 kvs	Equal Percentage	Sweat (Female)	Stem up to close	116 psi	800 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5853A2022	1/2 in.	DN15	0.74 Cv	0.64 kvs	Equal Percentage	Sweat (Female)	Stem up to close	36 psi	248 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5853A2030	1/2 in.	DN15	1.2 Cv	1.0 kvs	Equal Percentage	Sweat (Female)	Stem up to close	36 psi	248 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5853A2048	1/2 in.	DN15	1.9 Cv	1.6 kvs	Equal Percentage	Sweat (Female)	Stem up to close	34 psi	234 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5853A2055	3/4 in.	DN20	2.9 Cv	2.5 kvs	Equal Percentage	Sweat (Female)	Stem up to close	7.25 psi	50 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5853A2063	3/4 in.	DN20	4.9 Cv	4.2 kvs	Equal Percentage	Sweat (Female)	Stem up to close	7.25 psi	50 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5863A1006	3/4 in.	DN20	2.9 Cv	2.5 kvs	Equal Percentage	Female NPT	Stem up to close	34 psi	234 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001
V5863A1014	3/4 in.	DN20	4.9 Cv	4.2 kvs	Equal Percentage	Female NPT	Stem up to close	34 psi	234 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001
V5863A2004	1/2 in.	DN15	0.29 Cv	0.25 kvs	Equal Percentage	Female NPT	Stem up to close	116 psi	800 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5863A2012	1/2 in.	DN15	0.47 Cv	0.41 kvs	Equal Percentage	Female NPT	Stem up to close	116 psi	800 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5863A2020	1/2 in.	DN15	0.74 Cv	0.64 kvs	Equal Percentage	Female NPT	Stem up to close	36 psi	248 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5863A2038	1/2 in.	DN15	1.2 Cv	1.0 kvs	Equal Percentage	Female NPT	Stem up to close	36 psi	248 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5863A2046	1/2 in.	DN15	1.9 Cv	1.6 kvs	Equal Percentage	Female NPT	Stem up to close	34 psi	234 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5863A2053	3/4 in.	DN20	2.9 Cv	2.5 kvs	Equal Percentage	Female NPT	Stem up to close	7.25 psi	50 kPa	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5863A2061	3/4 in.	DN20	4.9 Cv	4.2 kvs	Equal Percentage	Female NPT	Stem up to close	7.25 psi	50 kPa	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5863A3002	1 in.	DN25	5.5 Cv	4.8 kvs	Linear	Female NPT	Stem up to close port A to AB	232 psi	1600 kPa	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5863A3010	1 in.	DN25	7.8 Cv	6.7 kvs	Linear	Female NPT	Stem up to close port A to AB	232 psi	1600 kPa	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5863A3028	1 in.	DN25	11.0 Cv	9.5 kvs	Linear	Female NPT	Stem up to close port A to AB	232 psi	1600 kPa	M6410A3017; M7410F3006; M6435A3000; M7435F3007

Cartridge Globe Valves

Product Number	Valve Size		Flow Capacity		Flow Characteristic	Connection Type	Valve Action	Maximum Close-off Pressure		Used With
	(inch)	DN	(Cv)	(Kv)				(psi)	(kPa)	
V5863A3036	1 1/4 in.	DN32	18 Cv	15.6 kvs	Linear	Female NPT	Stem up to close port A to AB	174 psi	1200 kPa	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5863A3044	1 1/2 in.	DN40	25 Cv	21.6 kvs	Linear	Female NPT	Stem up to close port A to AB	145 psi	1000 kPa	M6410A3017; M7410F3006; M6435A3000; M7435F3007

Cartridge Globe Valve Accessories

Product Number	Description	Used With
WV108B	Brush Tool for Valve Cleaning 1/2 in. and 3/4 in. V5852/V5853/V5862/V5863	V5862; V5853; V5852; V5863
WV108M	Insert Replacement Tool for 1/2 in. and 3/4 in. V5852/V5853/V5862/V5863	V5853; V5862; V5852; V5863

Cartridge Globe Valve Replacement Parts

Product Number	Description	Used With
0902807	Replacement Insert for 1/2 in. V5852/V5862, 1.9Cv Interchangeable with 0902808	V5852A2056; V5862A2054
0902808	Replacement Insert for 1/2 in. V5852/V5862, 1.2 Cv Interchangeable with 0902807	V5852A2049; V5862A2047
0902809	Replacement Insert for 1/2 in. V5852/V5862, 0.74 Cv Interchangeable with 0902810 or 090212	V5852A2031; V5862A2039
0902810	Replacement Insert for 1/2 in. V5852/V5862, 0.47 Cv Interchangeable with 0902809 or 090212	V5852A2023; V5862A2021
0902811	Replacement Insert for 1/2 in. V5852/V5862, 0.29 Cv	V5852A2015; V5862A2013
0902812	Replacement Insert for 1/2 in. V5852/V5862, 0.19 Cv Interchangeable with 0902809 or 090210	V5852A2007; V5862A2005
0902814	Replacement Insert for 3/4 in. V5852/V5862, 2.9 Cv Interchangeable with 0902815	V5852A2064; V5862A2062
0902815	Replacement Insert for 3/4 in. V5852/V5862, 4.9 Cv Interchangeable with 0902814	V5852A2072; V5862A2070
0902821	Replacement Insert for 1/2 in. V5853/V5863, 0.29 Cv Interchangeable with 0902822 or 0902823 or 0902824	V5853A2006; V5863A2004
0902822	Replacement Insert for 1/2 in. V5853/V5863, 0.47 Cv Interchangeable with 0902821 or 0902823 or 0902824	V5853A2014; V5863A2012
0902823	Replacement Insert for 1/2 in. V5853/V5863, 0.74 Cv Interchangeable with 0902821 or 0902822 or 0902824	V5853A2022; V5863A2020
0902824	Replacement Insert for 1/2 in. V5853/V5863, 1.2 Cv Interchangeable with 0902821 or 0902822 or 0902823	V5853A2030; V5863A2038
0902825	Replacement Insert for 1/2 in. V5853/V5863, 1.9 Cv Interchangeable with 0902827	V5853A2048; V5863A2046
0902827	Replacement Insert for 3/4 in. V5853/V5863, 4.9 Cv Interchangeable with 0902825	V5853A1016; V5853A2063; V5863A1014; V5863A2061; V5853A2063; V5963A2061
0903827	Replacement Packing for 1 in. V5862/63	V5862A3003; V5862A3011; V5862A3029; V5863A3002; V5863A3010; V5863A3028
0903828	Replacement Packing for 1-1/4 in. V5862/63	V5862A3037; V5863A3036
0903829	Replacement Packing for 1-1/2 in. V5862/63	V5862A3045; V5863A3044

Cartridge Cage Valves

VCZA; VCZB Two-way Cartridge Cage Valves



Sweat Connection



Sweat Connection



Sweat Connection



NPT Connection



NPT Connection



NPT Connection

Two-way Cartridge Cage Valves are intended for hydronic applications in a normal indoor environment to control the flow of hot water or chilled water glycol solution to 60% concentration. These valves are designed for zone control of heating/cooling systems, or to control individual fan coil, baseboard radiator or convector applications. Depending on the model selected they can be controlled by SPST or SPDT two position controller, tristate (floating), or modulating proportional controller. For best control, outdoor temperature compensation of supply water temperature is recommended. For trouble-free operation of the product, good installation practice must include initial system flushing, chemical water treatment, and the use of a 50 micron (or finer) system side stream filter(s). Remove all filters before flushing.

Valve Type: Cartridge Cage Valve

Valve Action: Stem up to close A port

Body Pattern: Two-way, Straight-through

Connection Type: Sweat

Controlled Fluid: Chilled or hot water with up to 60% Glycol

Maximum Safe Operating Pressure: 300 psi (2068 kPa (20 Bar))

Maximum Differential Pressure Ratings (Close-off): (414 kPa (4 bar)); 60 psi

Fluid Temperature Range: 34 F to 203 F (1 C to 95 C)

Ambient Temperature Range: 32 F to 150 F (0 C to 65 C)

Stem Travel: 0.4 in. (10 mm)

- Quick open, linear, and equal percentage flow characteristics available
- Bi-directional installation
- 3000-series valves for floating and modulating non-fail safe applications
- 1000-series valves for two-position control
- High close-off rating independent of Cv
- Available with a variety of North American and international pipe fittings
- No tools required for actuator installation or removal
- Actuator removal does not require draining system
- Service is by replacement of cartridge, not valve body
- Cartridge replacement rebuilds valve to factory-new condition.

Materials

(Body): Bronze

(Stem): Stainless Steel

(Seat): EPDM O-ring seals on Noryl piston

(Cartridge): Ryton®, Noryl® engineering plastic

(Packing): EPDM rubber

Includes: Cartridge installation wrench

Approvals:

Canadian Standards Association: CSA Certified

Accessories:

40007029-002 Wrench for cartridge (included with sweat valves and all replacement cartridges)

Valves with Linear Flow Characteristic

Product Number	Valve Size		Flow Capacity		Timing (sec, min.) when used with VC series Actuator	Connection Type	Actuation	Comments	Used With
	(inch)	DN	(Cv)	(Kv)					
VCZAA1100	1/2 in.	DN15	3.5 Cv	3.03 kvs	On/Off models with 6 seconds	Sweat	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZAA3100	1/2 in.	DN15	3.5 Cv	3.03 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZAD1100	1/2 in.	DN15	3.1 Cv	2.66 kvs	On/Off models with 6 seconds	Flare	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type

Cartridge Cage Valves

Product Number	Valve Size		Flow Capacity		Timing (sec, min.) when used with VC series Actuator	Connection Type	Actuation	Comments	Used With
	(inch)	DN	(Cv)	(Kv)					
VCZAE1100	1/2 in.	DN15	3.2 Cv	2.74 kvs	On/Off models with 6 seconds	Inverted Flare	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZAL1100	3/4 in.	DN20	4.7 Cv	4.0 kvs	On/Off models with 6 seconds	Female NPT	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZAL3100	3/4 in.	DN20	4.7 Cv	4.0 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZAM1100	3/4 in.	DN20	4.6 Cv	3.9 kvs	On/Off models with 6 seconds	Sweat	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZAM3100	3/4 in.	DN20	4.7 Cv	4.0 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZAR1100	1 in.	DN25	6.6 Cv	5.7 kvs	On/Off models with 6 seconds	Female NPT	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZAR3100	1 in.	DN20	6.6 Cv	5.7 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZAS1100	1 in.	DN25	6.6 Cv	5.7 kvs	On/Off models with 6 seconds	Sweat	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZAS3100	1 in.	DN20	6.6 Cv	5.7 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZBB1100	1/2 in.	DN15	3.5 Cv	3.03 kvs	On/Off models with 6 seconds	Female NPT	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZBB3100	1/2 in.	DN15	3.5 Cv	3.03 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZBD1100	1 1/4 in.	DN32	7.0 Cv	6.5 kvs	On/Off models with 6 seconds	Female NPT	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZBD3100	1 1/4 in.	DN32	7.0 Cv	6.5 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZBE1100	1 1/4 in.	DN32	7.0 Cv	6.5 kvs	On/Off models with 6 seconds	Sweat	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZBE3100	1 1/4 in.	DN32	7.0 Cv	6.5 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34

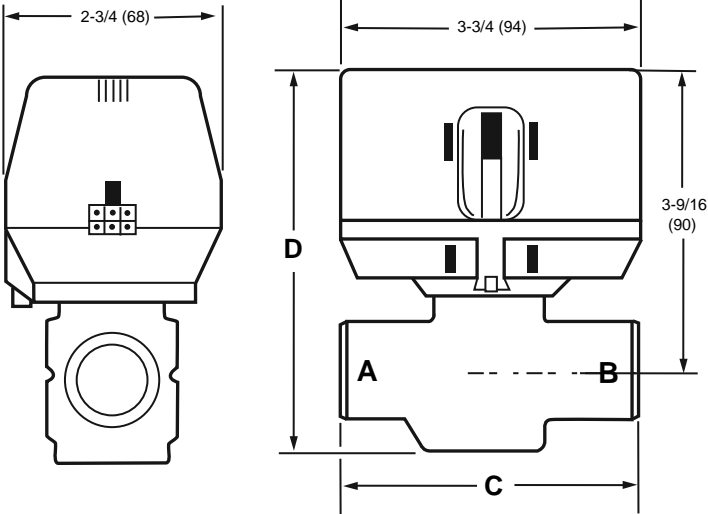
Cartridge Cage Valves

Valves with Modified Equal Percent Flow Characteristic

Product Number	Valve Size		Flow Capacity		Timing (sec, min.) when used with VC series Actuator	Connection Type	Actuation	Comments	Used With
	(inch)	DN	(Cv)	(Kv)					
VCZAA3400	1/2 in.	DN15	2.3 Cv	1.98 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZAA3500	1/2 in.	DN15	0.7 Cv	0.6 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZAA3600	1/2 in.	DN15	1.3 Cv	1.1 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZAA3800	1/2 in.	DN15	1.9 Cv	1.64 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZAL3400	3/4 in.	DN20	3.9 Cv	3.4 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934
VCZAL3800	3/4 in.	DN20	3.1 Cv	2.6 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934
VCZAM3400	3/4 in.	DN20	3.9 Cv	3.4 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934
VCZAM3800	3/4 in.	DN20	3.1 Cv	2.6 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934
VCZAR3400	1 in.	DN20	4.2 Cv	3.6 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934
VCZAS3400	1 in.	DN20	4.2 Cv	3.6 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934
VCZBB3400	1/2 in.	DN15	2.3 Cv	1.98 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934
VCZBB3500	1/2 in.	DN15	0.7 Cv	0.6 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZBB3600	1/2 in.	DN15	1.3 Cv	1.1 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZBB3800	1/2 in.	DN15	1.9 Cv	1.64 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34

Cartridge Cage Valves

Dimensions in inches (millimeters)



Pipe Fitting Sizes ⁴	C		D		Pipe Fitting Sizes ⁴	C		D	
	in.	mm	in.	mm		in.	mm	in.	mm
North American Standard									
3/8" FLARE ¹	3-7/8	98	4-3/8	111	1/2" BSPP (int.) ²	3-7/8	98	4-3/8	111
1/2" SWEAT	3-1/2	89			1/2" BSPT (int.)				
1/2" FLARE ¹	3-7/8	98			3/4" BSPP (int.)	3-11/16	94	4-7/16	113
1/2" INVERTED FLARE ¹					3/4" BSPT (int.)				
1/2" NPT (int.)					3/4" BSPP (ext.)				
3/4" NPT (int.)	3-11/16	94	4-7/16	113	22 mm Compression ³	4-7/16	112		
3/4" SWEAT							1" BSPP (int.)	3-11/16	94
1" NPT (int.)					1" BSPP (ext.)	3-11/17	95	4-7/17	114
1" SWEAT					1" BSPT (int.)	3-11/16	94	4-7/16	113
1-1/4" SWEAT	4-5/16	110	4-5/8	118	28 mm Compression ³	4-9/16	116		
1-1/4" NPT (int.)									

- ¹ NO ADAPTERS
- ² SUITABLE FOR USE AS 15 MM COMPRESSION FITTING
- ³ DIMENSIONS SHOWN WITH NUTS AND OLIVES INSTALLED
- ⁴ SOME MODELS NOT AVAILABLE IN ALL COUNTRIES

M18942

Cartridge Cage Valves

VCZM; VCZN Three-way Cartridge Cage Valves



Sweat Connection



Sweat Connection



NPT Connection



NPT Connection

Three-way Cartridge Cage Valves are intended for hydronic applications in a normal indoor environment to control the flow of hot water or chilled water glycol solution to 60% concentration. These valves are designed for zone control of heating/cooling systems, or to control individual fan coil, baseboard radiator or convector applications. Depending on the model selected they can be controlled by SPST or SPDT two position controller, tristate (floating), or modulating proportional controller. For best control, outdoor temperature compensation of supply water temperature is recommended. For trouble-free operation of the product, good installation practice must include initial system flushing, chemical water treatment, and the use of a 50 micron (or finer) system side stream filter(s). Remove all filters before flushing.

Valve Type: Cartridge Cage Valve

Valve Action: Stem up to close A port

Body Pattern: Three-way A-AB-B

Controlled Fluid: Chilled or hot water with up to 60% Glycol

Maximum Safe Operating Pressure: 300 psi (2068 kPa (20 Bar))

Maximum Differential Pressure Ratings (Close-off): (414 kPa (4 bar)); 60 psi

Fluid Temperature Range: 34 F to 203 F (1 C to 95 C)

Ambient Temperature Range: 32 F to 150 F (0 C to 65 C)

Stem Travel: 0.4 in. (10 mm)

Includes: Cartridge changing tool

- Quick open and linear flow characteristics available
- Mixing or diverting application
- A-AB-B body pattern
- 7000-series valves for floating and modulating non-fail safe applications
- 6000-series valves for two-position control
- High close-off rating independent of Cv
- Available with a variety of North American and international pipe fittings
- No tools required for actuator installation or removal
- Actuator removal does not require draining system
- Service is by replacement of cartridge, not valve body
- Cartridge replacement rebuilds valve to factory-new condition

Materials

(Body): Bronze

(Stem): Stainless Steel

(Seat): EPDM O-ring seals on Noryl piston

(Cartridge): Ryton®, Noryl® engineering plastic

(Packing): EPDM rubber

Approvals:

Canadian Standards Association: CSA Certified

Accessories:

40007029-002 Wrench for cartridge (included with sweat valves and all replacement cartridges)

Valves with Linear Flow Characteristic

Product Number	Valve Size		Flow Capacity		Timing (sec, min.) when used with VC series Actuator	Connec-tion Type	Actuation	Comments	Used With
	(inch)	DN	(Cv)	(Kv)					
VCZMD6100	1/2 in.	DN15	3.2 Cv	2.74 kvs	On/Off models with 6 seconds	Inverted Flare	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type
VCZMA7100	1/2 in.	DN15	3.7 Cv	3.2 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934
VCZNB6100	1/2 in.	DN15	3.7 Cv	3.2 kvs	On/Off models with 6 seconds	Female NPT	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type
VCZNB7100	1/2 in.	DN15	3.7 Cv	3.2 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934
VCZMA6100	1/2 in.	DN15	3.7 Cv	3.2 kvs	On/Off models with 6 seconds	Sweat	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type
VCZMC6100	1/2 in.	DN15	3.8 Cv	3.3 kvs	On/Off models with 6 seconds	Flare	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type

Cartridge Cage Valves

Product Number	Valve Size		Flow Capacity		Timing (sec, min.) when used with VC series Actuator	Connection Type	Actuation	Comments	Used With
	(inch)	DN	(Cv)	(Kv)					
VCZML6100	3/4 in.	DN20	6.6 Cv	5.7 kvs	On/Off models with 6 seconds	Sweat	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type
VCZMK6100	3/4 in.	DN20	6.6 Cv	5.7 kvs	On/Off models with 6 seconds	Female NPT	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type
VCZMK7100	3/4 in.	DN20	6.6 Cv	5.7 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934
VCZML7100	3/4 in.	DN20	6.6 Cv	5.7 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934
VCZMR7100	1 in.	DN25	8.3 Cv	7.1 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	Can be controlled by either a low or a line voltage SPDT or SPST or floating controller; characterized cartridge for use with floating and modulating actuators	VC6934, VC7934
VCZMS7100	1 in.	DN25	8.3 Cv	7.1 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	Can be controlled by either a low or a line voltage SPDT or SPST or floating controller; characterized cartridge for use with floating and modulating actuators	VC6934, VC7934
VCZMR6100	1 in.	DN25	8.3 Cv	7.1 kvs	On/Off models with 6 seconds	Female NPT	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type
VCZMS6100	1 in.	DN25	8.3 Cv	7.1 kvs	On/Off models with 6 seconds	Sweat	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type
VCZND6100	1 1/4 in.	DN32	9.0 Cv	7.7 kvs	On/Off models with 6 seconds	Female NPT	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type
VCZND7100	1 1/4 in.	DN32	9.0 Cv	7.7 kvs	2 minutes	Female NPT	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934
VCZNE6100	1 1/4 in.	DN32	9.0 Cv	7.7 kvs	On/Off models with 6 seconds	Sweat	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type
VCZNE7100	1 1/4 in.	DN32	9.0 Cv	7.7 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934

Valves with Modified Equal Percent Flow Characteristic

Comments: Characterized cartridge for use with non-fail safe floating and modulating actuators

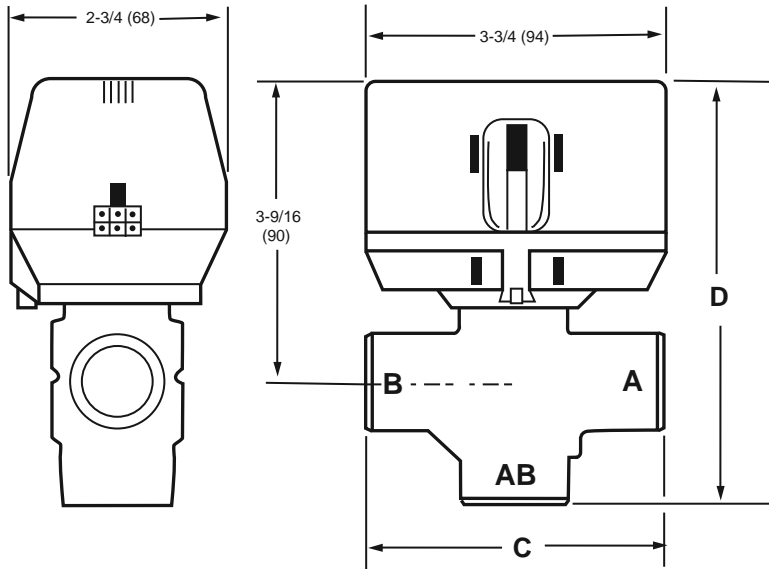
Timing (sec, min.) when used with VC series Actuator: 2 minutes

Actuation: Proportional non-fail safe, purchase separately

Product Number	Valve Size		Flow Capacity		Connection Type	Used With
	(inch)	DN	(Cv)	(Kv)		
VCZMA7400	1/2 in.	DN15	2.7 Cv	2.3 kvs	Sweat	VC6930/31/34; VC7930/31/34
VCZMA7500	1/2 in.	DN15	0.7 Cv	0.6 kvs	Sweat	VC6930/31/34; VC7930/31/34
VCZMA7600	1/2 in.	DN15	1.5 Cv	1.3 kvs	Sweat	VC6930/31/34; VC7930/31/34
VCZMA7800	1/2 in.	DN15	1.5 Cv	1.3 kvs	Sweat	VC6930/31/34; VC7930/31/34
VCZMK7400	3/4 in.	DN20	4.2 Cv	3.6 kvs	Female NPT	VC6930/31/34; VC7930/31/34
VCZMK7800	3/4 in.	DN20	3.2 Cv	2.7 kvs	Female NPT	VC6930/31/34; VC7930/31/34
VCZML7400	3/4 in.	DN20	4.2 Cv	3.6 kvs	Sweat	VC6930/31/34; VC7930/31/34
VCZML7800	3/4 in.	DN20	3.2 Cv	2.7 kvs	Sweat	VC6930/31/34; VC7930/31/34
VCZNB7400	1/2 in.	DN15	2.7 Cv	2.3 kvs	Female NPT	VC6930/31/34; VC7930/31/34
VCZNB7500	1/2 in.	DN15	0.7 Cv	0.6 kvs	Female NPT	VC6930/31/34; VC7930/31/34
VCZNB7600	1/2 in.	DN15	1.5 Cv	1.3 kvs	Female NPT	VC6930/31/34; VC7930/31/34

Cartridge Cage Valves

Dimensions in inches (millimeters)



Pipe Fitting Sizes ⁴ North American Standard	C		D		Pipe Fitting Sizes ⁴	C		D	
	in.	mm	in.	mm		in.	mm	in.	mm
3/8" FLARE ¹	3-7/8	98	5-11/32	136	1/2" BSPP (int.) ²	3-7/8	98	5-11/32	136
1/2" SWEAT	3-1/2	89	5-1/8	130	1/2" BSPT (int.)				
1/2" FLARE ¹	3-7/8	98	5-11/32	136	3/4" BSPP (int.)	3-11/16	94	5-1/8	130
1/2" INVERTED FLARE ¹					3/4" BSPT (int.)				
1/2" NPT (int.)					3/4" BSPP (ext.)				
3/4" NPT (int.)	3-11/16	94	5-1/8	130	22 mm Compression ³	4-7/16	112	5-1/2	140
3/4" SWEAT			5-3/16	132	1" BSPP (int.)	3-11/16	94	5-11/32	136
1" NPT (int.)				136	1" BSPP (ext.)	3-11/17	95	5-11/33	137
1" SWEAT			5-11/32		1" BSPT (int.)	3-11/16	94	5-11/32	136
1-1/4" SWEAT			4-5/16	110	5-5/8	142	28 mm Compression ³	4-9/16	116
1-1/4" NPT (int.)									

¹ NO ADAPTERS

M18943

² SUITABLE FOR USE AS 15 MM COMPRESSION FITTING

³ DIMENSIONS SHOWN WITH NUTS AND OLIVES INSTALLED

⁴ SOME MODELS NOT AVAILABLE IN ALL COUNTRIES

VC Series Valve and Fail-Safe Actuator Assemblies



The Fail Safe VC6936 Floating and VC7936 Modulating Control valves provides proportional control of hot or chilled water in

Valve Type: Cartridge Cage Valve

Valve Action: Stem up to close A port

Controlled Fluid: Chilled or hot water with up to 60% Glycol

Maximum Safe Operating Pressure: 300 psi (2068 kPa (20 Bar))

Maximum Differential Pressure Ratings (Close-off):

60 psi (414 kPa (4 bar))

Fluid Temperature Range: 34 F to 203 F (1 C to 95 C)

Ambient Temperature Range: 32 F to 150 F (0 C to 65 C)

Stem Travel: 0.4 in. (10 mm)

commercial heating and cooling applications, such as unit ventilators. On a power failure, this patented actuator design drives the valve to the fail safe position, either fully open or closed according to the installer's wiring connections.

These actuators use a microprocessor-controlled, low voltage stepper motor with a super capacitor-based power supply capable of storing enough power to drive the valve to its when 24V power is removed from the actuator.

A VC hydronic valve consists of a valve body, a replaceable characterized cartridge assembly and a Honeywell VC6900 or VC7900-series actuator, providing proportional flow control. Three-way bodies may be used in either diverting or mixing applications. VC valves use cam-operated cartridge travel to resist water hammer. Limit switches prevent motor overrun. For best control, outdoor temperature compensation of supply water temperature is recommended.

Timing (sec, min.): For VC6936: 2 minutes; For VC7936: installer-selectable 60 or 120 seconds.

Materials

(Body): Bronze

(Stem): Stainless Steel

(Seat): EPDM O-ring seals on Noryl piston

(Cartridge): Ryton®, Noryl® engineering plastic

(Packing): EPDM rubber

Approvals:

Canadian Standards Association: CSA Certified

Two-way, Straight-through Valves

Comments: Characterized cartridge for use with non-fail safe floating and modulating actuators

Product Number	Valve Size		Flow Capacity		Connec-tion Type	Flow Characteristic	Actuation	Includes
	(inch)	DN	(Cv)	(Kv)				
VC6936AA1100	1/2 in.	DN15	3.5 Cv	3.1 kvs	Sweat	Linear	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936AA1400	1/2 in.	DN15	2.3 Cv	1.98 kvs	Sweat	Modified Equal Percent	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936AA1500	1/2 in.	DN15	0.7 Cv	0.6 kvs	Sweat	Modified Equal Percent	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936AA1600	1/2 in.	DN15	1.3 Cv	1.1 kvs	Sweat	Modified Equal Percent	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936AA1800	1/2 in.	DN15	1.9 Cv	1.6 kvs	Sweat	Modified Equal Percent	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936AL1100	3/4 in.	DN20	4.7 Cv	4.1 kvs	Female NPT	Linear	Floating (24V SP3T) fail-safe	—
VC6936AL1400	3/4 in.	DN20	3.9 Cv	3.4 kvs	Female NPT	Modified Equal Percent	Floating (24V SP3T) fail-safe	—
VC6936AL1800	3/4 in.	DN20	3.1 Cv	2.6 kvs	Female NPT	Modified Equal Percent	Floating (24V SP3T) fail-safe	—
VC6936AM1100	3/4 in.	DN20	4.7 Cv	4.1 kvs	Sweat	Linear	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936AM1400	3/4 in.	DN20	3.9 Cv	3.4 kvs	Sweat	Modified Equal Percent	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936AM1800	3/4 in.	DN20	3.1 Cv	2.6 kvs	Sweat	Modified Equal Percent	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936AR1100	1 in.	DN20	6.6 Cv	5.7 kvs	Female NPT	Linear	Floating (24V SP3T) fail-safe	—
VC6936AR1400	1 in.	DN20	4.2 Cv	3.6 kvs	Female NPT	Modified Equal Percent	Floating (24V SP3T) fail-safe	—
VC6936AS1100	1 in.	DN20	6.6 Cv	5.7 kvs	Sweat	Linear	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936AS1400	1 in.	DN20	4.2 Cv	3.6 kvs	Sweat	Modified Equal Percent	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936BB1100	1/2 in.	DN15	3.5 Cv	3.1 kvs	Female NPT	Linear	Floating (24V SP3T) fail-safe	—
VC6936BB1400	1/2 in.	DN15	2.3 Cv	1.98 kvs	Female NPT	Modified Equal Percent	Floating (24V SP3T) fail-safe	—
VC6936BB1500	1/2 in.	DN15	0.7 Cv	0.6 kvs	Female NPT	Modified Equal Percent	Floating (24V SP3T) fail-safe	—
VC6936BB1600	1/2 in.	DN15	1.3 Cv	1.1 kvs	Female NPT	Modified Equal Percent	Floating (24V SP3T) fail-safe	—
VC6936BB1800	1/2 in.	DN15	1.9 Cv	1.6 kvs	Female NPT	Modified Equal Percent	Floating (24V SP3T) fail-safe	—
VC6936BD1100	1 1/4 in.	DN32	7 Cv	6.0 kvs	Female NPT	Linear	Floating (24V SP3T) fail-safe	—
VC6936BE1100	1 1/4 in.	DN32	7 Cv	6.0 kvs	Sweat	Linear	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC7936AA1100	1/2 in.	DN15	3.5 Cv	3.1 kvs	Sweat	Linear	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936AA1400	1/2 in.	DN15	2.3 Cv	1.98 kvs	Sweat	Modified Equal Percent	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936AA1500	1/2 in.	DN15	0.7 Cv	0.6 kvs	Sweat	Modified Equal Percent	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936AA1600	1/2 in.	DN15	1.3 Cv	1.1 kvs	Sweat	Modified Equal Percent	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936AA1800	1/2 in.	DN15	1.9 Cv	1.6 kvs	Sweat	Modified Equal Percent	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936AL1100	3/4 in.	DN20	4.7 Cv	4.1 kvs	Female NPT	Linear	Modulating/Floating/PWM fail-safe	—
VC7936AL1400	3/4 in.	DN20	3.9 Cv	3.4 kvs	Female NPT	Modified Equal Percent	Modulating/Floating/PWM fail-safe	—
VC7936AL1800	3/4 in.	DN20	3.1 Cv	2.6 kvs	Female NPT	Modified Equal Percent	Modulating/Floating/PWM fail-safe	—

Commercial Components

Cartridge Cage Valves

Product Number	Valve Size		Flow Capacity		Conne- ction Type	Flow Characteristic	Actuation	Includes
	(inch)	DN	(Cv)	(Kv)				
VC7936AM1100	3/4 in.	DN20	4.7 Cv	4.1 kvs	Sweat	Linear	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936AM1400	3/4 in.	DN20	3.9 Cv	3.4 kvs	Sweat	Modified Equal Percent	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936AM1800	3/4 in.	DN20	3.1 Cv	2.6 kvs	Sweat	Modified Equal Percent	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936AR1100	1 in.	DN20	6.6 Cv	5.7 kvs	Female NPT	Linear	Modulating/Floating/PWM fail-safe	—
VC7936AR1400	1 in.	DN20	4.2 Cv	3.6 kvs	Female NPT	Modified Equal Percent	Modulating/Floating/PWM fail-safe	—
VC7936AS1100	1 in.	DN20	6.6 Cv	5.7 kvs	Sweat	Linear	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936AS1400	1 in.	DN20	4.2 Cv	3.6 kvs	Sweat	Modified Equal Percent	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936BB1100	1/2 in.	DN15	3.5 Cv	3.1 kvs	Female NPT	Linear	Modulating/Floating/PWM fail-safe	—
VC7936BB1400	1/2 in.	DN15	2.3 Cv	1.98 kvs	Female NPT	Modified Equal Percent	Modulating/Floating/PWM fail-safe	—
VC7936BB1500	1/2 in.	DN15	0.7 Cv	0.6 kvs	Female NPT	Modified Equal Percent	Modulating/Floating/PWM fail-safe	—
VC7936BB1600	1/2 in.	DN15	1.3 Cv	1.1 kvs	Female NPT	Modified Equal Percent	Modulating/Floating/PWM fail-safe	—
VC7936BB1800	1/2 in.	DN15	1.9 Cv	1.6 kvs	Female NPT	Modified Equal Percent	Modulating/Floating/PWM fail-safe	—
VC7936BD1100	1 1/4 in.	DN32	7 Cv	6.0 kvs	Female NPT	Linear	Modulating/Floating/PWM fail-safe	—
VC7936BE1100	1 1/4 in.	DN32	7 Cv	6.0 kvs	Sweat	Linear	Modulating/Floating/PWM fail-safe	Cartridge changing tool

Three-way, A-AB-B Valves

Comments: Characterized cartridge for use with non-fail safe floating and modulating actuators

Product Number	Valve Size		Flow Capacity		Conne- ction Type	Flow Characteristic	Actuation	Includes
	(inch)	DN	(Cv)	(Kv)				
VC6936MA6100	1/2 in.	DN15	3.7 Cv	3.2 kvs	Sweat	Linear	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936MA6400	1/2 in.	DN15	2.7 Cv	2.3 kvs	Sweat	Modified Equal Percent	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936MA6500	1/2 in.	DN15	0.7 Cv	0.6 kvs	Sweat	Modified Equal Percent	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936MA6600	1/2 in.	DN15	1.5 Cv	1.3 kvs	Sweat	Modified Equal Percent	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936MK6100	3/4 in.	DN20	6.6 Cv	5.7 kvs	Female NPT	Linear	Floating (24V SP3T) fail-safe	—
VC6936MK6400	3/4 in.	DN20	4.2 Cv	3.6 kvs	Female NPT	Modified Equal Percent	Floating (24V SP3T) fail-safe	—
VC6936MK6800	3/4 in.	DN20	3.2 Cv	2.7 kvs	Female NPT	Modified Equal Percent	Floating (24V SP3T) fail-safe	—
VC6936ML6100	3/4 in.	DN20	6.6 Cv	5.7 kvs	Sweat	Linear	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936ML6400	3/4 in.	DN20	4.2 Cv	3.6 kvs	Sweat	Modified Equal Percent	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936ML6800	3/4 in.	DN20	3.2 Cv	2.7 kvs	Sweat	Modified Equal Percent	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC6936NB6100	1/2 in.	DN15	3.7 Cv	3.2 kvs	Female NPT	Linear	Floating (24V SP3T) fail-safe	—
VC6936NB6400	1/2 in.	DN15	2.7 Cv	2.3 kvs	Female NPT	Modified Equal Percent	Floating (24V SP3T) fail-safe	—
VC6936NB6500	1/2 in.	DN15	0.7 Cv	0.6 kvs	Female NPT	Modified Equal Percent	Floating (24V SP3T) fail-safe	—
VC6936NB6600	1/2 in.	DN15	1.5 Cv	1.3 kvs	Female NPT	Modified Equal Percent	Floating (24V SP3T) fail-safe	—
VC6936ND6100	1 1/4 in.	DN32	9 Cv	7.8 kvs	Female NPT	Linear	Floating (24V SP3T) fail-safe	—
VC6936NE6100	1 1/4 in.	DN32	9 Cv	7.8 kvs	Sweat	Linear	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC7936MA6100	1/2 in.	DN15	3.7 Cv	3.2 kvs	Sweat	Linear	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936MA6400	1/2 in.	DN15	2.7 Cv	2.3 kvs	Sweat	Modified Equal Percent	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936MA6500	1/2 in.	DN15	0.7 Cv	0.6 kvs	Sweat	Modified Equal Percent	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936MA6600	1/2 in.	DN15	1.5 Cv	1.3 kvs	Sweat	Modified Equal Percent	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936MA6800	1/2 in.	DN15	1.5 Cv	1.3 kvs	Sweat	Modified Equal Percent	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936MK6100	3/4 in.	DN20	6.6 Cv	5.7 kvs	Female NPT	Linear	Modulating/Floating/PWM fail-safe	—
VC7936MK6400	3/4 in.	DN20	4.2 Cv	3.6 kvs	Female NPT	Modified Equal Percent	Modulating/Floating/PWM fail-safe	—
VC7936MK6800	3/4 in.	DN20	3.2 Cv	2.7 kvs	Female NPT	Modified Equal Percent	Modulating/Floating/PWM fail-safe	—
VC7936ML6100	3/4 in.	DN20	6.6 Cv	5.7 kvs	Sweat	Linear	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936ML6400	3/4 in.	DN20	4.2 Cv	3.6 kvs	Sweat	Modified Equal Percent	Modulating/Floating/PWM fail-safe	Cartridge changing tool
VC7936ML6800	3/4 in.	DN20	3.2 Cv	2.7 kvs	Sweat	Modified Equal Percent	Modulating/Floating/PWM fail-safe	Cartridge changing tool

Three-way, A-AB-B Valves



Comments: Can be controlled by either a low or a line voltage SPDT or SPST or floating controller; characterized cartridge for use with floating and modulating actuators

Product Number	Valve Size		Flow Capacity		Conne- ction Type	Flow Characteristic	Actuation	Includes
	(inch)	DN	(Cv)	(Kv)				
VC6936MR6100	1 in.	DN25	8.3 Cv	7.2 kvs	Female NPT	Linear	Floating (24V SP3T) fail-safe	—
VC6936MS6100	1 in.	DN25	8.3 Cv	7.2 kvs	Sweat	Linear	Floating (24V SP3T) fail-safe	Cartridge changing tool
VC7936MR6100	1 in.	DN25	8.3 Cv	7.2 kvs	Female NPT	Linear	Modulating/Floating/PWM fail-safe	—
VC7936MS6100	1 in.	DN25	8.3 Cv	7.2 kvs	Sweat	Linear	Modulating/Floating/PWM fail-safe	Cartridge changing tool

Cartridge Cage Valve Accessories

Product Number	Description
40007029-002	Wrench for cartridge (included with sweat valves and all replacement cartridges)

VCZZ Valve Replacement Cartridges

Product Number	Description	
VCZZ1000	Replacement cartridge, silver spring, for VC series 2-way valves, with quick open flow for use w/ 2-position actuators. Includes cartridge wrench.	
VCZZ1100	Replacement cartridge, silver spring, for VC series 2-way valves, with Linear flow for use w/ 2-position or fail safe proportional actuators. Includes cartridge wrench.	
VCZZ1400	Replacement cartridge, silver spring, for VC series 2-way valves, with Equal Percentage flow for use with fail safe proportional actuators. Includes cartridge wrench.	
VCZZ1400	Replacement cartridge, silver spring, for VC series 2-way valves, with Equal Percentage flow for use with fail safe proportional actuators. Includes cartridge wrench.	
VCZZ1500	Replacement cartridge, silver spring, for VC series 2-way valves, with Equal Percentage Extra Low flow for use with fail safe proportional actuators. Includes cartridge wrench.	
VCZZ1600	Replacement cartridge, silver spring, for VC series 2-way valves, with Equal Percentage Low flow for use with fail safe proportional actuators. Includes cartridge wrench.	
VCZZ3100	Replacement cartridge, red spring, for VC series with Linear flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ3400	Replacement cartridge, red spring, for VC series with Equal Percentage flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ3500	Replacement cartridge, red spring, for VC series with Equal Percentage Extra Low flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ3600	Replacement cartridge, red spring, for VC series with Equal Percentage Low flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ3800	Replacement cartridge, red spring, for VC series with Equal Percentage flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ6000	Replacement cartridge, silver spring, for VC series 3-way valves, with quick open flow, for use w/2-position actuators. Includes cartridge wrench.	
VCZZ6000	Replacement cartridge, silver spring, for VC series 3-way valves, with quick open flow, for use w/2-position actuators. Includes cartridge wrench.	
VCZZ6100	Replacement cartridge, silver spring, for VC series 3-way valves, with Linear flow, for use w/2-position or fail safe proportional actuators. Includes cartridge wrench.	
VCZZ6100	Replacement cartridge, silver spring, for VC series 3-way valves, with Linear flow, for use w/2-position or fail safe proportional actuators. Includes cartridge wrench.	
VCZZ7100	Replacement cartridge, red spring, for VC series with Linear flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ7400	Replacement cartridge, red spring, for VC series with Equal Percentage flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ7500	Replacement cartridge, red spring, for VC series with Equal Percentage Extra Low flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ7600	Replacement cartridge, red spring, for VC series with Equal Percentage Low flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ7800	Replacement cartridge, red spring, for VC series with Equal Percentage flow for proportional control (non-fail safe). Includes cartridge wrench.	

VCZ Valve Accessories

Product Number	Description	Used With
272866	VC flushing kit for VC 2 or 3-way valves, package of 10	VCZA, VCZB, VCZM, VCZN

Fan Coil Valves

VU52; VU53 Two-way Fan Coil Valves



Two-way Fan Coil Valves, the VU53 high pressure zone valves are used to control the flow of hot or chilled water in commercial HVAC equipment such as fan coil units, terminal reheat coils and

Valve Type: Fan Coil Valve

Actuation: Must be purchased separately

Flow Characteristic: Quick opening

Body Pattern: Two-way, Straight-through

Controlled Fluid: Chilled or hot water with up to 60% Glycol

Maximum Safe Operating Pressure: 300 psig (2068 kPa)

Ambient Temperature Range: 34 F to 125 F at 200 F Fluid (1 to 52 C @ 94 C Fluid)

convectors. **IMPORTANT** These valves are not for use in systems containing dissolved oxygen.

- Compact construction for easy installation.
- Fits under the cover of most baseboard convectors with actuator fitted to valve body.
- VU52 and VU53 provide 2-way, straight-through control of water.
- Available in normally closed (VU53) or normally open (VU52) configurations.
- 300 psi (2,000 kPa, PN20) operating pressure rating.
- Patented ball seal provides long service life, soft close off.
- Triple O-ring seal provides three lines of defense against corrosion and water leakage around drive shaft.
- Quick opening flow curve.
- Available with NPT end connections for iron or steel piping.

Materials

(Body): Brass

(Stem): Brass

(Seat): Brass

(Plug/Ball/Disc): Buna-N rubber

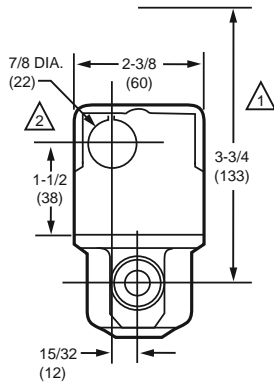
(Packing): EPDM rubber

Approvals:

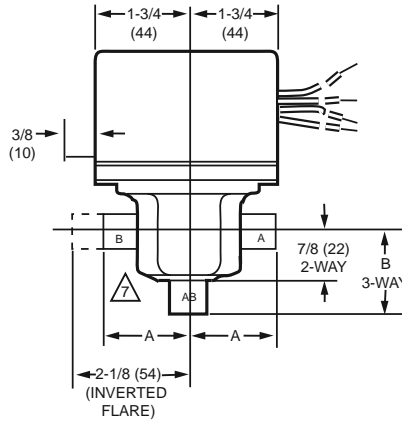
Canadian Standards Association: CSA C/US

Product Number	Valve Size		Flow Capacity		Connection Type	Valve Action	Maximum Close-off Pressure		Used With
	(inch)	DN	(Cv)	(Kv)			(psi)	(kPa)	
VU52N1001	3/4 in.	DN20	8.0 Cv	7.0 kvs	Female NPT	Normally Open	10 psi	69 kPa	VU444 Actuator, VU844 Actuator
VU52N1019	1/2 in.	DN15	3.5 Cv	3.0 kvs	Female NPT	Normally Open	20 psi	138 kPa	VU444 Actuator, VU844 Actuator
VU52N1027	1/2 in.	DN15	1.0 Cv	0.9 kvs	Female NPT	Normally Open	50 psi	345 kPa	VU444 Actuator, VU844 Actuator
VU52N1035	1/2 in.	DN15	2.4 Cv	2.1 kvs	Female NPT	Normally Open	30 psi	207 kPa	VU444 Actuator, VU844 Actuator
VU52S2002	1/2 in.	DN15	1.0 Cv	0.9 kvs	Sweat	Normally Open	50 psi	345 kPa	VU444 Actuator, VU844 Actuator
VU52S2010	1/2 in.	DN15	2.4 Cv	2.1 kvs	Sweat	Normally Open	30 psi	207 kPa	VU444 Actuator, VU844 Actuator
VU52S2028	1/2 in.	DN15	3.5 Cv	3.0 kvs	Sweat	Normally Open	20 psi	138 kPa	VU444 Actuator, VU844 Actuator
VU52S2036	3/4 in.	DN20	3.5 Cv	3.0 kvs	Sweat	Normally Open	20 psi	138 kPa	VU444 Actuator, VU844 Actuator
VU52S2044	3/4 in.	DN20	5.0 Cv	4.3 kvs	Sweat	Normally Open	15 psi	103 kPa	VU444 Actuator, VU844 Actuator
VU52S2051	3/4 in.	DN20	8.0 Cv	7.0 kvs	Sweat	Normally Open	10 psi	69 kPa	VU444 Actuator, VU844 Actuator
VU53F1024	1/2 in.	DN15	3.5 Cv	3.0 kvs	Inverted Flare	Normally Closed	20 psi	138 kPa	VU443 Actuator, VU843 Actuator
VU53N1009	1/2 in.	DN15	3.5 Cv	3.0 kvs	Female NPT	Normally Closed	20 psi	138 kPa	VU443 Actuator, VU843 Actuator
VU53N1017	3/4 in.	DN20	8.0 Cv	7.0 kvs	Female NPT	Normally Closed	10 psi	69 kPa	VU443 Actuator, VU843 Actuator
VU53N1026	1 in.	DN25	8.0 Cv	7.0 kvs	Female NPT	Normally Closed	10 psi	69 kPa	VU443 Actuator, VU843 Actuator
VU53N1033	3/4 in.	DN20	3.5 Cv	3.0 kvs	Female NPT	Normally Closed	20 psi	138 kPa	VU443 Actuator, VU843 Actuator
VU53N1041	1/2 in.	DN15	1.0 Cv	0.9 kvs	Female NPT	Normally Closed	50 psi	345 kPa	VU443 Actuator, VU843 Actuator
VU53N1058	1/2 in.	DN15	2.4 Cv	2.1 kvs	Female NPT	Normally Closed	30 psi	207 kPa	VU443 Actuator, VU843 Actuator
VU53N1066	3/4 in.	DN20	5.0 Cv	4.3 kvs	Female NPT	Normally Closed	15 psi	103 kPa	VU443 Actuator, VU843 Actuator
VU53S2000	1 in.	DN25	8.0 Cv	7.0 kvs	Sweat	Normally Closed	10 psi	69 kPa	VU443 Actuator, VU843 Actuator
VU53S2018	1/2 in.	DN15	1.0 Cv	0.9 kvs	Sweat	Normally Closed	50 psi	345 kPa	VU443 Actuator, VU843 Actuator
VU53S2026	1/2 in.	DN15	2.4 Cv	2.1 kvs	Sweat	Normally Closed	30 psi	207 kPa	VU443 Actuator, VU843 Actuator
VU53S2034	1/2 in.	DN15	3.5 Cv	3.0 kvs	Sweat	Normally Closed	20 psi	138 kPa	VU443 Actuator, VU843 Actuator
VU53S2042	3/4 in.	DN20	3.5 Cv	3.0 kvs	Sweat	Normally Closed	20 psi	138 kPa	VU443 Actuator, VU843 Actuator
VU53S2059	3/4 in.	DN20	8.0 Cv	7.0 kvs	Sweat	Normally Closed	10 psi	69 kPa	VU443 Actuator, VU843 Actuator
VU53S2075	3/4 in.	DN20	5.0 Cv	4.3 kvs	Sweat	Normally Closed	15 psi	103 kPa	VU443 Actuator, VU843 Actuator

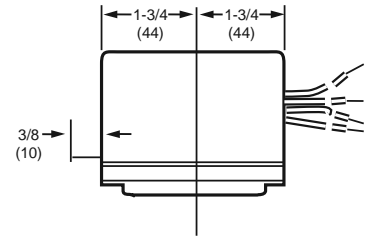
Dimensions in inches (millimeters)



VU53 VALVE WITH VU448 ACTUATOR



VU53 AND VU54 VALVE WITH ACTUATOR



VU5 ACTUATOR

- HEIGHT NEEDED TO REMOVE ACTUATOR OR COVER
- OPENING FOR 1/2 IN. CONDUIT ON OPPOSITE SITE OF MANUAL LEVER FOR ALL MODELS.

VALVE BODY SIZE	A	B
1/2 IN. SWEAT	1-5/6 (33)	1-5/6 (33)
3/4 IN. SWEAT	1-3/8 (35)	1-11/16 (43)
1 IN. SWEAT	1-11/16 (43)	1-11/16 (43)
1/2 IN. NPT	1-3/8 (35)	1-5/16 (33)
3/4 IN. NPT	1-11/16 (43)	1-7/16 (37)
1 IN. NPT	1-11/16 (43)	1-7/16 (37)

M18261A

VU54 Three-way Fan Coil Valves



Three-way Fan Coil Valve, the VU54 high pressure zone valves are used to control the flow of hot or chilled water in commercial HVAC equipment such as fan coil units, terminal reheat coils and convectors.

IMPORTANT These valves are not for use in systems containing dissolved oxygen.

- Compact construction for easy installation.
- Fits under the cover of most baseboard convectors with actuator fitted to valve body.
- VU54 provides three-way diverting control of water.
- 300 psi (2,000 kPa, PN20) operating pressure rating.
- Patented ball seal provides long service life, soft close off.
- Triple O-ring seal provides three lines of defense against corrosion and water leakage around drive shaft.
- Quick opening flow curve.
- Choice of NPT end connections for iron or steel piping.

Materials

- (Body):** Brass
- (Stem):** Brass
- (Seat):** Brass
- (Plug/Ball/Disc):** Buna-N rubber
- (Packing):** EPDM rubber

Approvals:

Canadian Standards Association: CSA C/US

- Valve Type:** Fan Coil Valve
- Valve Action:** Mixing
- Body Pattern:** Three-way A-AB-B
- Flow Characteristic:** quick opening
- Controlled Fluid:** Chilled or hot water with up to 60% Glycol
- Maximum Safe Operating Pressure:** 300 psig (2068 kPa)
- Ambient Temperature Range:** 34 F to 125 F at 200 F Fluid (1 to 52 C @ 94 C Fluid)
- Actuation:** Must be purchased separately

Product Number	Valve Size		Flow Capacity		Connection Type	Maximum Close-off Pressure		Used With
	(inch)	DN	(Cv)	(Kv)		(psi)	(kPa)	
VU54N1007	1/2 in.	DN15	4.0 Cv	3.4 kvs	Female NPT	20 psi	138 kPa	VU444 Actuator, VU844 Actuator
VU54N1015	3/4 in.	DN20	7.0 Cv	6.5 kvs	Female NPT	10 psi	69 kPa	VU444 Actuator, VU844 Actuator
VU54N1023	1 in.	DN25	7.0 Cv	6.5 kvs	Female NPT	10 psi	69 kPa	VU444 Actuator, VU844 Actuator
VU54N1031	3/4 in.	DN20	4.0 Cv	3.4 kvs	Female NPT	20 psi	138 kPa	VU444 Actuator, VU844 Actuator
VU54N1049	3/4 in.	DN20	5.0 Cv	4.3 kvs	Female NPT	15 psi	103 kPa	VU444 Actuator, VU844 Actuator
VU54S2008	1/2 in.	DN15	4.0 Cv	3.4 kvs	Sweat	10 psi	69 kPa	VU444 Actuator, VU844 Actuator
VU54S2016	3/4 in.	DN20	7.0 Cv	6.5 kvs	Sweat	10 psi	69 kPa	VU444 Actuator, VU844 Actuator
VU54S2024	1 in.	DN25	7.0 Cv	6.5 kvs	Sweat	10 psi	69 kPa	VU444 Actuator, VU844 Actuator
VU54S2040	1/2 in.	DN15	3.0 Cv	2.6 kvs	Sweat	25 psi	172 kPa	VU444 Actuator, VU844 Actuator
VU54S2057	3/4 in.	DN20	5.0 Cv	4.3 kvs	Sweat	15 psi	103 kPa	VU444 Actuator, VU844 Actuator

Cartridge Globe Valve Actuators

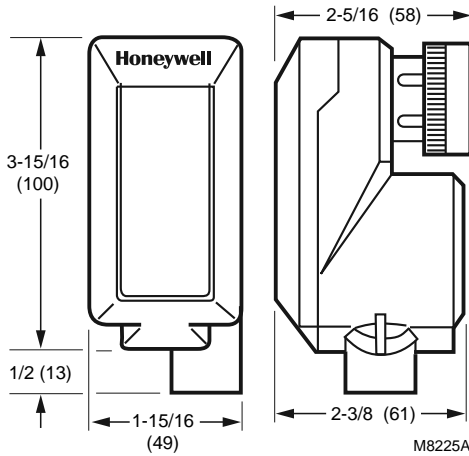
M6410; M7410 Cartridge Globe Valve Actuator



Cartridge Globe Valve Actuator are small electric actuators for individual room control that provide floating or modulating control of V5852, V5862 two-way or V5853, V5863 three-way valves.

- Suitable for Excel/IRC system or other controllers providing specified signals.
- Magnetic coupling for torque limitation independent of voltage supply and self-adjustment of the close-off port.
- No mounting tools required.
- Small size allows installation in limited space of fan coil units, induction units, and small reheaters or recoolers.
- Visual position indication (red pin).

Dimensions in inches (millimeters)



Actuator Type: Valve

Fail Safe Mode: Stays in place

Cable Entry: Threaded conduit connector

Electrical Protection: Class I Insulation (24 Vac)

Ingress Protection Rating: IP42

Electrical Connections: Plenum-rated cable

Feedback: No

Timing (Nominal Driving @ 60 Hz): 125 sec

Frequency: 50 Hz; 60 Hz

Manual operation: None (use valve dust cap)

Mounting: Threads onto V58XX valve bonnet

Number of Internal Auxiliary Switches: 0

Stroke: 1/4 in. (6 mm)

Supply Voltage: 24 Vac +10/-30%

Materials: Low Maintenance Plastic Housing

Operating Humidity Range (% RH): 5 to 95% RH

Medium Temperature: 266 F Maximum (130 C Maximum)

Ambient Temperature Range: 32 F to 122 F (0 C to 50 C)

Storage Temperature Range: -40 F to +158 F (-40 C to +70 C)

Weight: 0.3125 lb (0.15 kg)

Includes: 1/2 in. conduit hub

Approvals:

Underwriters Laboratories, Inc. UL94-5V

Product Number	(Rated) Stem Force		Control Signal	Power Consumption	Input Impedance	Comments	Used With
	(lb-in.)	(Nm)		(Driving)			
M6410A1029	40.5 lbf	180 N	SPDT 2-position; Floating	0.7 VA	—	—	1/2 inch and 3/4 inch V58XX Globe Valves
M6410A3017	67.5 lbf	300 N	SPDT 2-position; Floating	0.7 VA	—	High force for metal-seated valves—	1 inch to 1-1/2 inch V58XX Globe Valves
M7410F1000	40.5 lbf	180 N	2 to 10 Vdc; 0 to 10 Vdc	1.4 VA	100K ohm	Direct/Reverse Acting Switch	1/2 inch and 3/4 inch V58XX Globe Valves
M7410F3006	67.5 lbf	300 N	2 to 10 Vdc; 0 to 10 Vdc	1.4 VA	100K ohm	High force for metal-seated valves; Direct/Reverse Acting Switch	1 inch to 1-1/2 inch V58XX Globe Valves

Cartridge Globe Valve Actuators

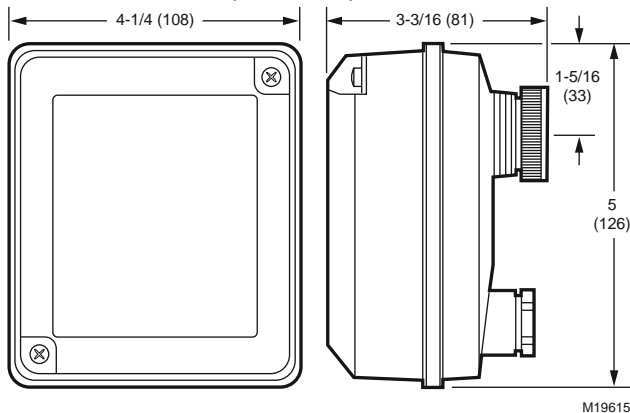
M6435; M7435 Cartridge Globe Valve Actuator



Cartridge Globe Valve Spring Return Actuators are small electric actuators for individual room control that provide floating or modulating control of V5852, V5862 two-way or V5853, V5863 three-way valves.

- Stem actuator retracts up on power failure. Fail safe mode depends on valve seat rest position.
- Suitable for Excel/IRC system or other controllers providing specified signals.
- Magnetic coupling for torque limitation independent of voltage supply and self-adjustment of the close-off port.
- No mounting tools required.
- Compact size allows installation in limited space of fan coil units, induction units, and small reheaters or recoolers.
- Visual position indication (red disk).

Dimensions in inches (millimeters)



M19615

Spring Return Timing (nominal): 10 sec

Cable Entry: Threaded conduit connector

Electrical Protection: Class I Insulation (24 Vac)

Ingress Protection Rating: IP54

Electrical Connections: Screw terminals

Number of Internal Auxiliary Switches: 0

Feedback: No

Timing (Nominal Driving @ 60 Hz): 50 sec

Frequency: 50 Hz; 60 Hz

Manual operation: None (use valve dust cap)

Mounting: Threads onto V58XX valve bonnet

Stroke: 1/4 in. (6 mm)

Supply Voltage: 24 Vac +20%, -15%

Materials: Low Maintenance Plastic Housing

Operating Humidity Range (% RH): 5 to 95% RH

Medium Temperature: 266 F Maximum (130 C Maximum)

Ambient Temperature Range: 32 F to 122 F (0 C to 50 C)

Storage Temperature Range: -40 F to +158 F (-40 C to +70 C)

Weight: 1.1 lb (0.5 kg)

Includes: 1/2 in. conduit hub

Actuator Type: Valve

Fail Safe Mode: Spring Return, operator retracts up (Normally open for 1/2 in. and 3/4 in. V5852 and V5862. Normally closed for all other V58XX valves.)

Spring Return Direction: Stem up

Approvals:

Underwriters Laboratories, Inc. UL94-5V

Product Number	(Rated) Stem Force		Spring Return Torque		Control Signal	Power Consumption (Driving)	Input Impedance	Comments	Used With
	(lb-in.)	(Nm)	(lb-in.)	(Nm)					
M6435A1004	40.5 lbf	180 N	40.5 lbf	180 N	SPDT 2-position; Floating	10 VA	—	—	1/2 inch and 3/4 inch V58XX Globe Valves
M6435A3000	90 lbf	400 N	90 lbf	400 N	SPDT 2-position; Floating	10 VA	—	High force for metal-seated valves	1 inch to 1-1/2 inch V58XX Globe Valves
M7435F1001	40.5 lbf	180 N	40.5 lbf	180 N	2 to 10 Vdc; 0 to 10 Vdc	5 VA	100K ohm	Direct/Reverse Acting Switch	1/2 inch and 3/4 inch V58XX Globe Valves
M7435F3007	90 lbf	400 N	90 lbf	400 N	2 to 10 Vdc; 0 to 10 Vdc	5 VA	100K ohm	High force for metal-seated valves; Direct/Reverse Acting Switch	1 inch to 1-1/2 inch V58XX Globe Valves

VC Valve Actuators

VC Series Two-position Actuators



Actuator Type: Valve
Fail Safe Mode: Stays in place
Dimensions, Approximate: 2.8 in. high x 3.7 in. wide x 2.7 in. deep
 (70 mm high x 94 mm wide x 68 mm deep)
Electrical Protection: Double Insulated
Ingress Protection Rating: IP40
Timing (Nominal Driving @ 60 Hz): 6 sec

Frequency: 60 Hz
Manual operation: Lever
Mounting: Direct Coupled
Shaft Adapter Type: Self-alignment
Stroke: 0.4 in. (10 mm)
Materials: Plastic housing
Operating Humidity Range (% RH): 5 to 95% RH, non-condensing
Medium Temperature: 203 F (95 C)
Ambient Temperature Range: 32 F to 150 F (0 C to 65 C)
Temperature Ratings (Shipping): -40 F to +150 F (-40 C to +65 C)
Storage Temperature Range: -40 F to +150 F (-40 C to +65 C)
Weight: 0.57 lb (0.26 kg)
Closeoff: 60 psid
Used With: VC Series Valve, 1000 Series 2-way and 6000 Series 3-way

Approvals:
Canadian Standards Association: CSA Certified: LR1322-367
CE: 89/336/ECC, 73/23/EEC
Underwriters Laboratories, Inc. UL Recognized, File# MH11826

Product Number	Control Signal	Supply Voltage	Internal Auxiliary Switch		Switch Ratings	Power Consumption (Driving)	Cable Entry	Electrical Connections	Electrical Connection Length		Comments	Includes
			Type	Number					(inch)	(m)		
VC2110ZZ03	SPDT 2-position	24 Vac	—	0	—	6 VA	—	Plenum-rated cable	—	—	—	—
VC2114ZZ11	SPDT; Two position	24 Vac	—	0	—	6 VA	Molded strain relief, conduit clamp	Plenum-rated cable	5 ft.	1.5 m	—	Flexible conduit adapter
VC2714ZZ11	On/Off switch; SPDT	24 Vac	SPDT	1	2.2A (5 to 110 Vac)/1.0A (110 to 277 Vac) Inductive; Min. DC switching capability: 5 mA @ 24 Vac.	6 VA	Molded strain relief, conduit clamp	Plenum-rated cable	5 ft.	1.5 m	—	3/8 in. flex conduit adapter
VC4011ZZ11	Two position; SPST	100 to 130V	—	0	—	6 VA	Molded strain relief	Cable	39 in.	1 m	—	—
VC4013ZZ11	Two position; SPST	200 to 240V	—	0	—	6 VA	Molded strain relief	Cable	39 in.	1 m	—	—
VC8111ZZ11	Two position; SPST	24 Vac	—	0	—	6 VA	Molded strain relief	Cable	39 in.	1 m	—	—
VC8114ZZ11	Two position; SPST	24 Vac	—	0	—	6 VA	Molded strain relief, conduit clamp	Plenum-rated cable	5 ft.	1.5 m	—	Flexible conduit adapter
VC8711ZZ11	Two position; SPST	24 Vac	SPDT	1	2.2A (5 to 110 Vac)/1.0A (110 to 277 Vac) Inductive; Min. DC switching capability: 5 mA @ 24 Vac.	6 VA	Molded strain relief	Cable	39 in.	1 m	—	—
VC8714ZZ11	Two position; SPST	24 Vac	SPDT	1	2.2A (5 to 110 Vac)/1.0A (110 to 277 Vac) Inductive; Min. DC switching capability: 5 mA @ 24 Vac.	6 VA	Molded strain relief, conduit clamp	Plenum-rated cable	5 ft.	1.5 m	—	Flexible conduit adapter
VC8715ZZ11	Two position; SPST	24 Vac	SPST	1	2.2A (5 to 110 Vac) Inductive; Min. DC switching capability: 5 mA @ 24V	6 VA, 3W standby for thermostat anticipator	Molded strain relief	Cable	39 in.	1 m	With additional current draw for compatibility with Honeywell power stealing thermostats	—

VC Series Proportional Actuators



Control central heating and/or cooling systems, fan coil systems, radiators and convectors. Depending on the model selected, it can be controlled by a low voltage SPST or SPDT switch, pulse-width modulated 24 Vac signal, or floating input, modulating controller such as a room thermostat, Aquastat control, flow switch or a 0/2 to 10 Vdc controller.

- Use with two-way or three-way valves.
- Double insulated actuator.
- Five foot plenum-rated cable.
- Quick and easy replacement of moving parts.
- Actuator head installation does not require draining the system.
- Selectable/switchable electronic fail safe normally open or normally closed.
- Available with valve bodies with 1000-series 2-way and 6000-series 3-way cartridges for new construction.
- All VC Series actuator-valve combinations provide 60 psi close-off.

Actuator Type: Valve

Fail Safe Mode: Stays in place

Cable Entry: Molded strain relief, conduit clamp

Dimensions, Approximate: 2.8 in. high x 3.7 in. wide x 2.7 in. deep
(70 mm high x 94 mm wide x 68 mm deep)

Electrical Protection: Double Insulated

Ingress Protection Rating: IP40

Electrical Connection Length: 5 ft. (1.5 m)

Timing (Nominal Driving @ 60 Hz): 120 sec

Frequency: 50 Hz; 60 Hz

Power Consumption (Driving): 6 VA

Manual operation: Lever

Mounting: Direct Coupled

Shaft Adapter Type: Self-alignment

Stroke: 0.4 in. (10 mm)

Materials: Plastic housing

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Medium Temperature: 203 F (95 C)

Ambient Temperature Range: 32 F to 150 F (0 C to 65 C)

Temperature Ratings (Shipping): -40 F to +150 F (-40 C to +65 C)

Storage Temperature Range: -40 F to +150 F (-40 C to +65 C)

Weight: 0.84 lb (0.38 kg)

Closeoff: 60 psid

Approvals:

Canadian Standards Association: CSA Certified: LR1322-367

Underwriters Laboratories, Inc. Listed 94-5V

Product Number	Control Signal	Supply Voltage	Internal Auxiliary Switch		Switch Ratings	Cable Entry	Electrical Connections	Electrical Connection Length		Used With	Includes
			Type	Number				(inch)	(m)		
VC6834ZZ11	24 Vac; SP3T (tri-state) Floating	24 Vac	SPDT	1	2.2A (5 to 110 Vac)/1.0A (110 to 277 Vac) Inductive; Min. DC switching capability: 5 mA @ 24 Vac.	Molded strain relief, conduit clamp	Plenum-rated cable	5 ft.	1.5 m	3000 Series 2-way and 7000 Series VC valve bodies only	Flexible conduit adapter
VC6930ZZ03	24 Vac SPDT; SP3T (tri-state) Floating	24 Vac	—	0	—	—	6-pin Molex(TM) connector	—	—	VC Series Valve	5 in. Molex harness
VC6931ZZ11	24 Vac; SP3T (tri-state) Floating	24 Vac	—	0	—	Molded strain relief	Cable	39 in.	1 m	3000 Series 2-way and 7000 Series VC valve bodies only	Flexible conduit adapter
VC6934ZZ11	24 Vac; SP3T (tri-state) Floating	24 Vac	—	0	—	Molded strain relief, conduit clamp	Plenum-rated cable	5 ft.	1.5 m	3000 Series 2-way and 7000 Series VC valve bodies only	Flexible conduit adapter
VC7931ZZ11	2 to 10 Vdc	24 Vac	—	0	—	Molded strain relief	Cable	39 in.	1 m	3000 Series 2-way and 7000 Series VC valve bodies only	—
VC7934ZZ11	2 to 10 Vdc	24 Vac	—	0	—	Molded strain relief, conduit clamp	Plenum-rated cable	5 ft.	1.5 m	3000 Series 2-way and 7000 Series VC valve bodies only	Flexible conduit adapter

VC Valve Actuators

VC Series Fail Safe Proportional Actuators



Actuator Type: Valve
Fail Safe Mode: N.O. or N.C., switchable electronic
Cable Entry: Molded strain relief, conduit clamp
Dimensions, Approximate: 2.8 in. high x 3.7 in. wide x 2.7 in. deep
 (70 mm high x 94 mm wide x 68 mm deep)
Number of Internal Auxiliary Switches: 0
Electrical Protection: Double Insulated
Ingress Protection Rating: IP40
Electrical Connections: Plenum-rated cable
Electrical Connection Length: 5 ft. (1.5 m)
Frequency: 50 Hz; 60 Hz
Manual operation: Lever
Mounting: Direct Coupled
Shaft Adapter Type: Self-alignment
Stroke: 0.4 in. (10 mm)
Materials: Plastic housing

Control central heating and/or cooling systems, fan coil systems, radiators and convectors. Depending on the model selected, it can be controlled by either a low or line voltage SPST or SPDT or floating or modulating controller such as a room thermostat, Aquastat control, flow switch or a 0/2 to 10 Vdc controller.

- Use with two-way or three-way valves.
- Minimal actuator power consumption.
- Double insulated actuator.
- Five foot plenum-rated cable electrical connections available.
- Quick and easy replacement of moving parts.
- Actuator head installation does not require draining the system.
- Selectable/switchable electronic fail safe normally open or normally closed.
- Includes valve bodies with 1000-series 2-way and 3000-series 3-way cartridges.
- All VC Series actuator-valve combinations provide 60 psi close-off.

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing
Medium Temperature: 203 F (95 C)
Ambient Temperature Range: 32 F to 150 F (0 C to 65 C)
Temperature Ratings (Shipping): -40 F to +150 F (-40 C to +65 C)
Storage Temperature Range: -40 F to +150 F (-40 C to +65 C)
Maximum Differential Pressure Ratings (Close-off): 60 psid
Spring Return Timing (Nominal): 12 sec.
Weight: 0.84 lb (0.38 kg)
Includes: Flexible conduit adapter
Used With: VC Series Valves with 1000-series 2-way and 6000-series 3-way proportional cartridges

Approvals:
Canadian Standards Association: CSA Certified: LR1322-367
CE: 89/336/ECC, 73/23/EEC
Underwriters Laboratories, Inc. Listed 94-5V

Product Number	Control Signal	Supply Voltage	Timing (seconds)	Power Consumption	Comments
			Nominal Driving @ 60 Hz	(Driving)	
VC6936ZZ11-530	24 Vac SPDT SP3T (tri-state) Floating	24 Vac	120 sec	12 Watts, 18 VA inrush	Power failure reposition installer-selectable for NC/NO. Use with series 60 controller (TB6980 or XL10). Replaces VC6936ZZ11-524/526/527.
VC7936ZZ11-529	On/Off; 24V Pulse Width Modulation; 2 to 10 Vdc; 24 Vac Floating	24 Vac	120 sec; 60 sec	12 Watts, 18 VA inrush	Power failure reposition installer-selectable for NC/NO. Use with series 60/70/80 controller (TB6980, XL15, or XL10). Replaces VC7936ZZ11-523

VU443, VU444; VU843; VU844 Fan Coil Actuators



The VU844 Fan Coil Valve Actuators are used in conjunction with the VU52, VU53 and VU54 valves for controlling the flow of hot or

Actuator Type: Valve
Fail Safe Mode: Spring Return
Control Signal: Two position; SPST
Electrical Connections: Leads
Frequency: 60 Hz
Maximum Differential Pressure Ratings (Close-off): Depends on Cv rating of valves
Timing (Maximum Driving @ 60 Hz): 15 sec
Power Consumption (Driving): 6 watts
Manual operation: Lever
Stroke: 22 deg.

chilled water in commercial HVAC equipment such as fan coil units, terminal reheat coils and convectors. These valves are humidity resistant and are suitable for use in condensing, non-corrosive environments.

- Compact construction for easy installation.
- Fits under the cover of most baseboard convectors with actuator fitted to valve body.
- One-button, quick release. Secure 3-point, metal latch to valve body.
- Spring return operation.
- Stainless steel case and aluminum cover. Rust-proof nickel-plated motors available.
- Line or low voltage, rust-resistant motors.
- Manual opener for installation and valve operation on power failure.
- Valve returns to automatic position when power is restored.
- Actuator may be reinstalled or serviced without draining the system or disassembling the valve.
- Slotted conduit hole for faster wiring.

Materials: Stainless Case, Aluminum Cover

Medium Temperature: 200 F (94 C)

Ambient Temperature Range: 34 F to 125 F ambient at 200 F Fluid (1 C to 52 C ambient at 93 C Fluid)

Comments: For controlling the flow of hot or chilled water in commercial HVAC equipment such as fan coil units, terminal reheat coils and convectors

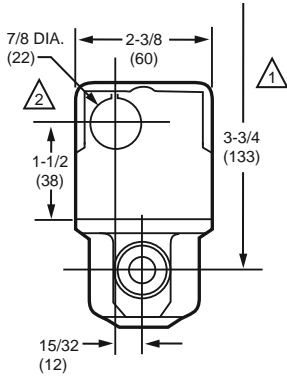
Approvals:

Canadian Standards Association: Certified C/US

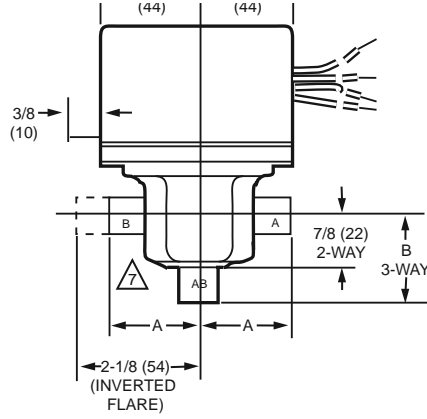
Product Number	Supply Voltage	Spring Return Timing (Nominal (sec))	Electrical Connection Length		Internal Auxiliary Switch		Switch Ratings	Stroke	Additional Comments	Used With
			(inch)	(m)	Type	Number				
VU443A1008	120V	4 sec.	6 in.	0.15 m	—	0	—	22 deg.	—	2-way NC VU valve body (VU53)
VU443A1024	208V	4 sec.	18 in.	0.5 m	—	0	—	22 deg.	—	2-way NC VU valve body (VU53)
VU443A1057	277V	4 sec.	18 in.	0.5 m	—	0	—	22 deg.	—	2-way NC VU valve body (VU53)
VU443A1115	230V	4 sec.	6 in.	0.15 m	—	0	—	22 deg.	—	2-way NC VU valve body (VU53)
VU443A1180	120V	4 sec.	6 in.	0.15 m	—	0	—	22 deg.	Nickel plated motor for added humidity resistance	2-way NC VU valve body (VU53)
VU443E1009	120V	4 sec.	18 in.	0.5 m	SPST, N.O.	1	1 A Pilot Duty	22 deg.	Aux Switch Rating - Inductive: 2.2 A from 5 to 110 Vac, 1.0 A from 110 to 277 Vac	2-way NC VU valve body (VU53)
VU444A1007	120V	6 sec.	6 in.	0.15 m	—	0	—	45 deg.	—	2-way NO (VU52) or 3-way VU valve body (VU54)
VU444A1098	227V	6 sec.	18 in.	0.5 m	—	0	—	45 deg.	—	2-way NO (VU52) or 3-way VU valve body (VU54)
VU444A1106	230V	6 sec.	6 in.	0.15 m	—	0	—	45 deg.	—	2-way NO (VU52) or 3-way VU valve body (VU54)
VU444A1155	120V	6 sec.	6 in.	0.15 m	—	0	—	45 deg.	Nickel plated motor for added humidity resistance	2-way NO (VU52) or 3-way VU valve body (VU54)
VU843A1004	24V	4 sec.	6 in.	0.15 m	—	0	—	22 deg.	—	2-way NC VU valve body (VU53)
VU843A1087	24V	4 sec.	6 in.	0.15 m	—	0	—	22 deg.	Nickel plated motor for added humidity resistance	2-way NC VU valve body (VU53)
VU844A1003	24V	6 sec.	6 in.	0.15 m	—	0	—	45 deg.	—	2-way NO (VU52) or 3-way VU valve body (VU54)
VU844A1060	24V	6 sec.	6 in.	0.15 m	—	0	—	45 deg.	Nickel plated motor for added humidity resistance	2-way NO (VU52) or 3-way VU valve body (VU54)

Fan Coil Actuators

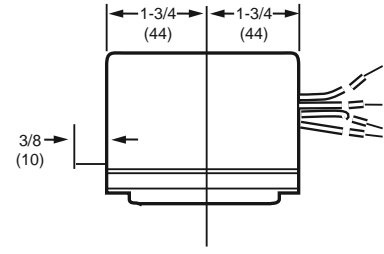
Dimensions in inches (millimeters)





VU53 VALVE WITH VU448 ACTUATOR



VU53 AND VU54 VALVE WITH ACTUATOR



VU5 ACTUATOR

-  HEIGHT NEEDED TO REMOVE ACTUATOR OR COVER
-  OPENING FOR 1/2 IN. CONDUIT ON OPPOSITE SITE OF MANUAL LEVER FOR ALL MODELS.

VALVE BODY SIZE	A	B
1/2 IN. SWEAT	1-5/6 (33)	1-5/6 (33)
3/4 IN. SWEAT	1-3/8 (35)	1-11/16 (43)
1 IN. SWEAT	1-11/16 (43)	1-11/16 (43)
1/2 IN. NPT	1-3/8 (35)	1-5/16 (33)
3/4 IN. NPT	1-11/16 (43)	1-7/16 (37)
1 IN. NPT	1-11/16 (43)	1-7/16 (37)

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VU Series Fan Coil Actuator Accessories

Product Number	Description	Used With
272885C	Nickel-plated replacement motor for 24V VU-series valve actuators	VU843A, VU844A
272885D	Nickel-plated replacement motor for 120 VU-series valve actuators	VU443A1008/A1180/E1009; VU444A1007/A1155

Direct Coupled Valve Actuators

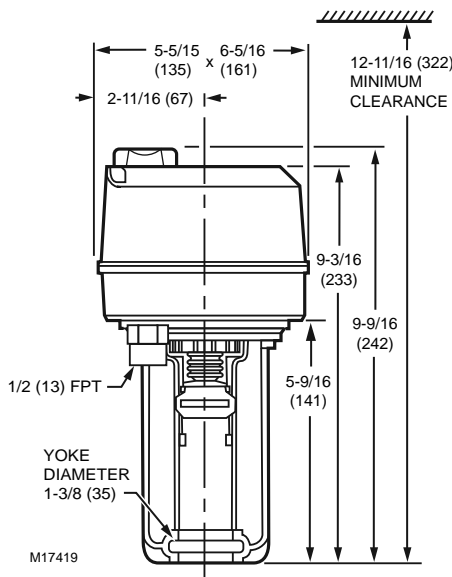
ML6420; ML7420 Non-Spring Return Direct Coupled Globe Valve Actuators



Direct Coupled Globe Valve Actuators provide floating or modulating control of chilled water, hot water, or steam, and mount directly on VGF series, V5011, and V5013 globe valves from 1/2 to 3 inches.

- Easy and quick installation on valves with 1 3/8 in. bonnet and 3/4 in. stroke.
- No separate linkage required.
- Conduit connector standard.
- No adjustments required on linkage.
- Accurate valve positioning.
- Low power consumption.
- High close-off ratings.
- Force limiting end switches.
- Manual operator.
- Synchronous motor.
- Maintenance free.
- ML7420 has an internal selector plug that can be used to reverse the direction of action.

Dimensions in inches (millimeters)



Actuator Type: Valve

Fail Safe Mode: Stays in place

Cable Entry: Conduit connector and one knockout on actuator case

Electrical Protection: Class I Insulation (24 Vac)

Ingress Protection Rating: IP54

Electrical Connections: Screw terminals

Number of Internal Auxiliary Switches: 0

Frequency: 50 Hz; 60 Hz

Manual operation: Knob

Mounting: Directly on V5011/V5013 Globe Valves and VGF Flanged Globe Valves (3/4 in. or 20mm stroke)

Stroke: 3/4 in. (20 mm)

Supply Voltage: 24 Vac \pm 15%

Materials: ABS-FR Plastic, aluminum yoke

Operating Humidity Range (% RH): 5 to 95% RH

Medium Temperature: 300 F Maximum (150 C Maximum)

Ambient Temperature Range: 14 F to 122 F (-10 C to +50 C)

Storage Temperature Range: -40 F to +158 F (-40 C to +70 C)

Weight: 2.9 lb (1.3 kg)

Approvals:

Canadian Standards Association: Certified

CE: Listed

Underwriters Laboratories, Inc. UL94-5V

Includes: 1/2 in. conduit hub; 1/2 in. flexible conduit adapter

Accessories:

312495 Large stem button provides anti-spin for globe valves up to 3 in. (1/4-28UNF stem) with ML6420, ML7420, ML6421A, ML7421A, ML6425, and ML7425 actuators. Not required with ML6984/7984 actuators or Q5022A linkage; not compatible with Q5020 linkage.

43191679-111 Potentiometer, 10k ohm, for ML6425, ML7425

43191679-112 Potentiometer, 220 ohm for ML6425, ML7425

43191680-105 Dual Auxiliary Switch for CREVAL actuators

43196000-001 High Temperature Kit for actuators with 3/4 inch (20 mm) stroke, stem button attachment

Product Number	(Rated) Stem Force		Control Signal	Feedback	Timing (seconds)		Power Consumption (Driving)	Input Impedance
	(lb-in.)	(Nm)			Nominal Driving @ 60 Hz			
ML6420A3049	135 lbf	600 N	SPDT 2-position, Floating	—	60 sec		6 VA	—
ML6420A3056	135 lbf	600 N	SPDT 2-position, Floating	—	30 sec		6 VA	—
ML7420A3055	135 lbf	600 N	2 to 10 Vdc, 0 to 10 Vdc	2-10 Vdc	60 sec		7 VA	1K ohm
ML7420A3063	135 lbf	600 N	2 to 10 Vdc, 0 to 10 Vdc	2-10 Vdc	30 sec		7 VA	1K ohm

Direct Coupled Valve Actuators

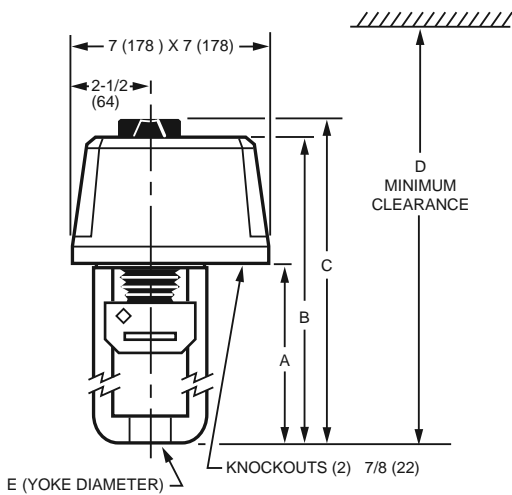
ML6421; ML7421 Non-Spring Return Direct Coupled Globe Valve Actuators



Direct Coupled Globe Valve Actuators provide floating or modulating control of chilled water, hot water, or steam, and mount directly on VGF series, V5011, and V5013 valves. These Non-Spring Return High Force Actuators will operate 1-1/2 to 6 inch valves.

- Easy and quick installation on valves with 1 3/8 in. bonnet and 3/4 in. stroke, or with 1 7/8 in. bonnet and 1 1/2 in. stroke.
- High force for VGF Pressure-balanced valves.
- No separate linkage required.
- Conduit connector standard.
- No adjustments required on linkage.
- Accurate valve positioning.
- Low power consumption.
- High close-off ratings.
- Force limiting end switches.
- Manual operator.
- Synchronous motor.
- Maintenance free.

Dimensions in inches (millimeters)



	ML6421A, ML7421A	ML6421B, ML7421B
A	5-5/8 (142)	8 (204)
B	9-3/8 (239)	11-7/8 (301)
C	10-3/8 (264)	12-3/4 (326)
D	14-1/4 (360)	16-7/8 (430)
E	1-3/8 (35)	1-7/8 (48)

M16827

Actuator Type: Valve

Fail Safe Mode: Stays in place

Cable Entry: Two knockout holes for 1/2 in. conduit standard on actuator case

Electrical Protection: Class I Insulation (24 Vac)

Ingress Protection Rating: IP54

Electrical Connections: Screw terminals

Number of Internal Auxiliary Switches: 0

Frequency: 50 Hz; 60 Hz

Manual operation: Knob

Mounting: Directly on V5011/V5013 Globe Valves and VGF Flanged Globe Valves

Supply Voltage: 24 Vac +10%, -30%

Materials: ABS Plastic

Operating Humidity Range (% RH): 5 to 95% RH

Medium Temperature: 300 F Maximum (150 C Maximum)

Ambient Temperature Range: 14 F to 122 F (-10 C to +50 C)

Storage Temperature Range: -40 F to +158 F (-40 C to +70 C)

Weight: 5.1 lb (2.3 kg)

Approvals:

Canadian Standards Association: Certified

CE: Recognized

Underwriters Laboratories, Inc. UL94-5V

Includes: 1/2 in. conduit hub; 1/2 in. flexible conduit adapter

Accessories:

312495 Large stem button provides anti-spin for globe valves up to 3 in. (1/4-28UNF stem) with ML6420, ML7420, ML6421A, ML7421A, ML6425, and ML7425 actuators. Not required with ML6984/7984 actuators or Q5022A linkage; not compatible with Q5020 linkage.

43191679-101 Auxiliary Potentiometer for ML6421A

43191679-102 220 ohm Auxiliary Potentiometer for ML6421B

43191680-102 Dual Auxiliary Switch for CREVAL actuators

43196000-001 High Temperature Kit for actuators with 3/4 inch (20 mm) stroke, stem button attachment

43196000-038 High Temperature Kit for actuators with 1-1/2 inch (38 mm) stroke, stem button attachment

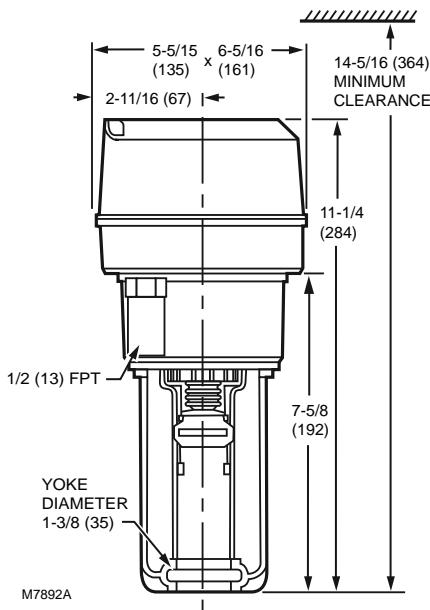
Product Number	(Rated) Stem Force		Control Signal	Feedback	Timing (seconds)	Power Consumption (Driving)	Stroke	
	(lb.-in.)	(Nm)			Nominal Driving @ 60 Hz		(inch)	(mm)
ML6421A1017	405 lbf	1800 N	SPDT 2-position; Floating	—	95 sec	11 VA	3/4 in.	20 mm
ML6421B1040	405 lbf	1800 N	SPDT 2-position; Floating	—	175 sec	11 VA	1 1/2 in.	38 mm
ML7421A1032	405 lbf	1800 N	2 to 10 Vdc0 to 10 Vdc	2-10 Vdc	95 sec	12 VA	3/4 in.	20 mm
ML7421B1023	405 lbf	1800 N	2 to 10 Vdc0 to 10 Vdc	2-10 Vdc	175 sec	12 VA	1 1/2 in.	38 mm

Direct Coupled Valve Actuators

ML6425; ML7425 Spring Return Direct Coupled Globe Valve Actuators



Dimensions in inches (millimeters)



Direct Coupled Globe Valve Actuators provide floating and modulating control of chilled water, hot water, and steam, and mount directly on VGF series, V5011, and V5013 globe valves. These Spring Return Actuators will operate 1/2 to 3 inch valves.

- Easy and quick installation on valves with 1 3/8 in. bonnet and 3/4 in. stroke.
- No separate linkage required.
- Conduit connector standard.
- No adjustments required on linkage.
- Accurate valve positioning.
- Low power consumption.
- High close-off ratings.
- Force limiting end switches.
- Internal manual operator.
- Synchronous motor.
- Maintenance free.

Actuator Type: Valve

Spring Return Timing (Nominal): 12 sec

Cable Entry: Conduit connector and one knockout on actuator case

Electrical Protection: Class I Insulation (24 Vac)

Ingress Protection Rating: IP54

Electrical Connections: Screw terminals

Number of Internal Auxiliary Switches: 0

Frequency: 50 Hz; 60 Hz

Manual operation: Manual override winding

Mounting: Directly on V5011/V5013 Globe Valves and VGF Flanged Globe Valves (3/4 in. or 20mm stroke)

Stroke: 3/4 in. (20 mm)

Timing, Nominal Driving @ 60 Hz (seconds): 90 sec

Materials: ABS-FR Plastic, aluminum yoke

Operating Humidity Range (% RH): 5 to 95% RH

Medium Temperature: 300 F Maximum (150 C Maximum)

Ambient Temperature Range: 14 F to 122 F (-10 C to +50 C)

Storage Temperature Range: -40 F to +158 F (-40 C to +70 C)

Weight: 5.1 lb (2.3 kg)

Approvals:

CE: Recognized

Underwriters Laboratories, Inc. UL94-5V

Includes: 1/2 in. conduit hub; 1/2 in. flexible conduit adapter

Accessories:

312495 Large stem button provides anti-spin for globe valves up to 3 in. (1/4-28UNF stem) with ML6420, ML7420, ML6421A, ML7421A, ML6425, and ML7425 actuators. Not required with ML6984/7984 actuators or Q5022A linkage; not compatible with Q5020 linkage.

43191679-111 Potentiometer, 10k ohm, for ML6425, ML7425

43191679-112 Potentiometer, 220 ohm for ML6425, ML7425

43191680-105 Dual Auxiliary Switch for CREVAL actuators

43196000-001 High Temperature Kit for actuators with 3/4 inch (20 mm) stroke, stem button attachment

Product Number	(Rated) Stem Force		Spring Return Torque		Fail Safe Mode	Control Signal	Feedback	Supply Voltage	Power Consumption (Driving)
	(lb-in.)	(Nm)	(lb-in.)	(Nm)					
ML6425A3022	135 lbf	600 N	135 lbf	600 N	Stem down on power failure	SPDT 2-position; Floating	—	24 Vac	11 VA
ML6425B3013	135 lbf	600 N	135 lbf	600 N	Stem up on power failure	SPDT 2-position; Floating	—	24 Vac	11 VA
ML7425A3013	135 lbf	600 N	135 lbf	600 N	Stem down on power failure	2 to 10 Vdc0 to 10 Vdc	2-10 Vdc	24 Vac ±15%	12 VA
ML7425B3012	135 lbf	600 N	135 lbf	600 N	Stem up on power failure	2 to 10 Vdc0 to 10 Vdc	2-10 Vdc	24 Vac ±15%	12 VA

Direct Coupled Valve Actuators

ML6984 Direct Coupled Linear Valve Actuators



The ML6984 is a self-contained, self-adjusting, motorized linkage that mounts directly onto V5011 two-way or V5013 three-way valves and provides up to 25 mm (1 in.) of linear travel (stem lift). For use with low voltage 3-wire SPDT Series 20 (on-off); Series 60 (floating) electromechanical (dry) contacts; or electronic (triac output) controllers (3-wire installation).

- Allows the use of one common transformer power supply for multiple actuators and controllers.
- Self-contained, motorized valve linkage.
- Linkage self-adjusts to valve stroke of 12 to 25 mm (1/2 to 1 in.).
- Multi-pose mounting.
- Strong valve seat closing force 160 lbf (710 N).
- Compact size for easy installation in confined area.
- One device for either 24 Vac or 28 Vdc power supply application.
- Electronic current sensing provides internal protection and positive full closing force.
- Field-addable position feedback/auxiliary switch module available (5-wire control wiring only).
- Compatible with 3-wire control systems.

Actuator Type: Valve
Fail Safe Mode: Stays in place
Cable Entry: 7/8 in. hole for 1/2 in. conduit
External Auxiliary Switches Available: 272630D
Number of Internal Auxiliary Switches: 0
Electrical Protection: NEMA 3R
Ingress Protection Rating: NEMA 3R, IP54 (mounted in vertical position)
Electrical Connections: Screw terminals
Feedback: Position feedback available w/ 272630D; 2-10 Vdc
Frequency: 50 Hz; 60 Hz
Manual operation: None
Mounting: Screws onto 1/4-28 UNF threaded valve stem
Stroke: 1/2 to 1 in. (13 to 25 mm)
Supply Voltage: 24 Vac; 28 Vdc
Materials: UV-stabilized plastic cover, aluminum base & yoke

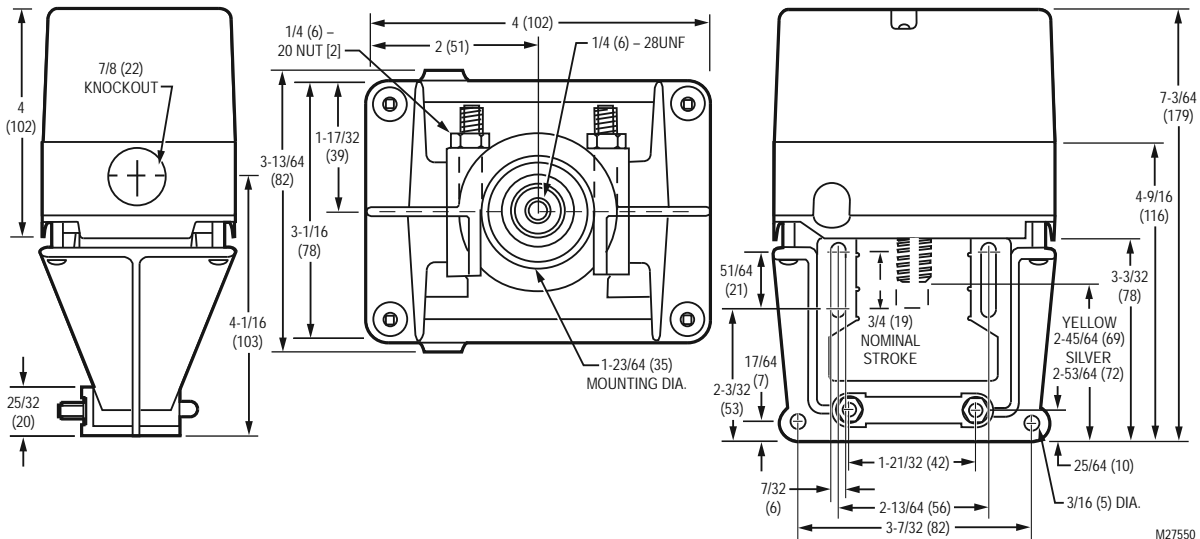
Operating Humidity Range (% RH): 15 to 95% RH at 104 F (40 C)
Medium Temperature: 300 F Maximum (150 C Maximum)
Ambient Temperature Range: 32 F to 130 F (0 C to 50 C)
Temperature Ratings (Shipping): -40 F to +150 F (-40 C to +65 C)
Storage Temperature Range: -40 F to +150 F (-40 C to +65 C)
Weight: 2.2 lb (1 kg)

Approvals:
Includes: Screw terminals
Comments: 3 or 5-wire operation. (3-wire required for XL10 controllers)

Accessories:
272629A Adapter Kit for mounting ML6984/ML7984 to V5045 and VGF non-pressure balanced 2-way valves
272630D Position feedback and SPDT pilot duty auxiliary switch (5-wire mode only)

Product Number	(Rated) Stem Force		Control Signal	Timing (seconds)	Switch Ratings	Power Consumption		Used With
	(lb.-in.)	(Nm)		Nominal Driving @ 60 Hz		(Driving)	(Holding)	
ML6984A4000	160 lbf	710 N	SPDT 2-position; Floating	63 at 3/4 in stroke	24 Vac	6 VA	12 VA	V5011/13, VGF21, and VGF22 up to 3 in.; V5045 w/ 272629A

Dimensions in inches (millimeters)



Direct Coupled Valve Actuators

ML7984 Direct Coupled Linear Valve Actuators



The ML7984 is a self-contained, self-adjusting, motorized linkage that mounts directly onto V5011 two-way or V5013 three-way valves and provides up to 25 mm (1 in.) of linear stem travel. For use with Series 70 2-10Vdc, 4-20mA; Series 90 135 ohm; and Electronic (Super Mod) modulating signals controllers.

- Allows the use of one common transformer power supply for multiple actuators and controllers.
- Self-contained, motorized valve linkage.
- Linkage self-adjusts to valve stroke from 12 to 25 mm (1/2 - 1 in.).
- Multi-pose mounting.
- Strong valve seat closing force 160 lbf (710 N).
- Compact size for easy installation in confined area.
- One device for either Vac or Vdc power supply application.
- Electronic current sensing provides internal protection and positive full closing force.
- Field-addable position feedback/auxiliary switch module available.

Actuator Type: Valve
Fail Safe Mode: Stays in place
Cable Entry: 7/8 in. hole for 1/2 in. conduit
External Auxiliary Switches Available: 272630D
Number of Internal Auxiliary Switches: 0
Electrical Protection: NEMA 3R
Ingress Protection Rating: NEMA 3R, IP54 (mounted in vertical position)
Electrical Connections: Screw terminals
Feedback: Position feedback available w/ 272630D; 2-10 Vdc
Frequency: 50 Hz; 60 Hz
Manual operation: None
Mounting: Screws onto 1/4-28 UNF threaded valve stem
Stroke: 1/2 to 1 in. (13 to 25 mm)
Supply Voltage: 24 Vac; 28 Vdc

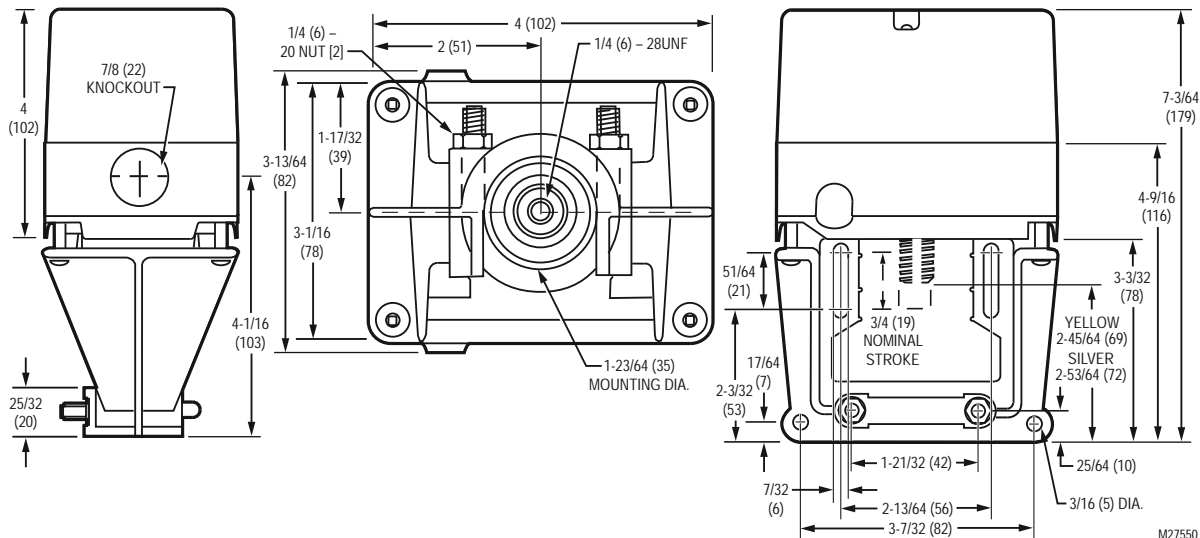
Materials: UV-stabilized plastic cover, aluminum base & yoke
Operating Humidity Range (% RH): 15 to 95% RH at 104 F (40 C)
Ambient Temperature Range: 32 F to 130 F (0 C to 55 C)
Temperature Ratings (Shipping): -40 F to +150 F (-40 C to +65 C)
Storage Temperature Range: -40 F to +150 F (-40 C to +65 C)
Weight: 2.2 lb (1 kg)

Approvals:
Includes: Screw terminals
Comments: Direct/Reverse Acting Switch

Accessories:
272629A Adapter Kit for mounting ML6984/ML7984 to V5045 and VGF non-pressure balanced 2-way valves
272630D Position feedback and SPDT pilot duty auxiliary switch (5-wire mode only)


Product Number	(Rated) Stem Force		Control Signal	Timing (seconds)	Switch Ratings	Power Consumption		Input Impedance	Used With
	(lb-in.)	(Nm)		Nominal Driving @ 60 Hz		(Driving)	(Holding)		
ML7984A4009	160 lbf	710 N	SuperMod2 to 10 Vdc 4 to 20 mA 135 ohm potentiometer	63 at 3/4 in stroke	24 Vac	6 VA	12 VA	Voltage - 20 Kohm, Current - 237ohm	V5011/13, VGF21, and VGF22 up to 3 in.; V5045 w/ 272629A

Dimensions in inches (millimeters)



Valve Actuator Accessories

Valve Actuator Accessories

Product Number	Description	Used With	
114191A	Auxiliary Switch Assembly	—	
127834A	Switch (made)	—	
272629A	Adapter Kit for mounting ML6984/ML7984 to V5045 and VGF non-pressure balanced 2-way valves	ML6984 or ML7984, V5045; VGF21ES; VGF21LS, VGF22ES; VGF22LS	
272630D	Position feedback and SPDT pilot duty auxiliary switch	ML6984/ML7984 Series 4000 and higher (ML6984 in 5-wire mode only)	
43191679-101	Auxiliary Potentiometer for ML6421A	ML6421A	
43191679-102	220 ohm Auxiliary Potentiometer for ML6421B	ML6421B	
43191679-111	Potentiometer, 10k ohm, for ML6425, ML7425	ML6425 or ML7425	
43191679-112	Potentiometer, 220 ohm for ML6425, ML7425	ML6425 or ML7425	
43191680-102	Dual Auxiliary Switch for CREVAL actuators	ML6421, ML7421	
43191680-105	Dual Auxiliary Switch for CREVAL actuators	ML6420, ML6425, ML7420, ML7425	
43196000-001	High Temperature Kit for actuators with 3/4 inch (20 mm) stroke, stem button attachment	ML6420, ML6421, ML6425, ML7420, ML7421, or ML7425; (Not compatible with Q5022A)	
43196000-038	High Temperature Kit for actuators with 1-1/2 inch (38 mm) stroke, stem button attachment	ML6421, ML7421; (Not compatible with Q5022B)	

SmartVFD COMPACT



select the capabilities you need. Our compact line lets you customize the drive features to the application, eliminating waste. The COMPACT provide the perfect balance, with essential features like a standard PI Controller and the ability to program without the need for line voltage. It is a true micro drive and is among the smallest, most streamlined VFDs on the market, which saves space in your equipment cabinet. And because you choose only the options you need to keep your installed cost low. Along with the compact size for installation ease, the intuitive user interface makes commissioning a breeze.

- Easy commissioning
 - Intuitive user interface
 - PID controller included, standard
 - Program without the need for a main power supply
- Easy installation
 - The most streamlined VFDs on the market
 - DIN rail or screw mounting
 - Side-by-side mounting
- Easy communication
 - Up to seven programming control inputs
 - Up to three programmable control outputs
 - Several fieldbus options available

You already know the energy savings variable frequency drives (VFDs) deliver. With the Honeywell SmartVFD COMPACT, you

Drive Family: SmartVFD COMPACT

Acceleration time: 0.1 - 3000 sec

Deceleration time: .1 - 3000 sec

Analog Current Input: 0 (4) - 20 mA, 250 ohm differential

Analog Voltage Input: 0 - 10 Vdc, 200K ohm

Analog Current Output: 0 (4) - 20 mA, max 500 ohm

Digital Output: Open collector, max. load 48V/50mA

Continuous Output Current:

overload 1.5 x High overload current (1min/10min)

overload 1.1 x Low overload current (1min/10min)

Relay Output: Max. switching load: 250Vac/2A or 250Vdc/0,4A

Reference Output Voltage: Maximum Load 10mA

Auxiliary Voltage: ± 20%, max. load 50 mA

Starting Torque: Depends on the Motor

Peak Current: 2 x I_N, 2 secs in every 20 sec period

Frequency (Hz): 0 Hz to 320 Hz

Operating Temperature: 14 to 122 F (-10 to 50 C)

Type of Enclosure: Open Chassis

Product Number	Voltage	Horsepower	Frame Type	Software	Type of RFI Filter	Current Rating	Dimensions, Approximate		Weight		Description
							(inch)	(mm)	(lb)	(kg)	
HVFD1B0003F00	230v 1/3	0.3 HP	1	Full	No filter	0.25A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 1-Phase 208/230v .3hp Full IO Open No EMC
HVFD1B0003F01	230v 1/3	0.3 HP	1	Full	EMC Filter	0.25A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 1-Phase 208/230v .3hp Full IO Open EMC
HVFD1B0005F00	230v 1/3	0.5 HP	1	Full	No filter	0.37A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 1-Phase 208/230v .5hp Full IO Open No EMC
HVFD1B0005F01	230v 1/3	0.5 HP	1	Full	EMC Filter	0.37A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 1-Phase 208/230v .5hp Full IO Open EMC
HVFD1B0007F00	230v 1/3	0.7 HP	1	Full	No filter	0.55A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 1-Phase 208/230v .75hp Full IO Open No EMC
HVFD1B0007F01	230v 1/3	0.7 HP	1	Full	EMC Filter	0.55A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 1-Phase 208/230v .75hp Full IO Open EMC
HVFD1B0010F00	230v 1/3	1 HP	1	Full	No filter	0.75A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 1-Phase 208/230v 1hp Full IO Open No EMC
HVFD1B0010F01	230v 1/3	1 HP	1	Full	EMC Filter	0.75A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 1-Phase 208/230v 1hp Full IO Open EMC
HVFD1B0015F00	230v 1/3	1.5 HP	2	Full	No filter	1.1A	7.7 x 3.5 x 4	195 mm x 90 mm x 102 mm	1.5 lb	0.68 kg	Compact VFD 1-Phase 208/230v 1.5hp Full IO Open No EMC
HVFD1B0015F01	230v 1/3	1.5 HP	2	Full	EMC Filter	1.1A	7.7 x 3.5 x 4	195 mm x 90 mm x 102 mm	1.5 lb	0.68 kg	Compact VFD 1-Phase 208/230v 1.5hp Full IO Open EMC
HVFD1B0020F00	230v 1/3	2 HP	2	Full	No filter	1.5A	7.7 x 3.5 x 4	195 mm x 90 mm x 102 mm	1.5 lb	0.68 kg	Compact VFD 1-Phase 208/230v 2hp Full IO Open No EMC
HVFD1B0020F01	230v 1/3	2 HP	2	Full	EMC Filter	1.5A	7.7 x 3.5 x 4	195 mm x 90 mm x 102 mm	1.5 lb	0.68 kg	Compact VFD 1-Phase 208/230v 2hp Full IO Open EMC
HVFD1B0030F00	230v 1/3	3 HP	3	Full	No filter	2.2	9.9 x 3.9 x 4.3	251 x 100 x 109	2.2 lb	1 kg	Compact VFD 1-Phase 208/230v 3hp Full IO Open No EMC
HVFD1B0030F01	230v 1/3	3 HP	3	Full	EMC Filter	2.2	9.9 x 3.9 x 4.3	251 x 100 x 109	2.2 lb	1 kg	Compact VFD 1-Phase 208/230v 3hp Full IO Open EMC

Commercial Components

SmartVFD COMPACT

Product Number	Voltage	Horse-power	Frame Type	Software	Type of RFI Filter	Current Rating	Dimensions, Approximate		Weight		Description
							(inch)	(mm)	(lb)	(kg)	
HVFDCD3C0005F00	460v 3/3	0.5 HP	1	Full	No filter	0.37A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 3-Phase 460v .5hp Full IO Open No EMC
HVFDCD3C0005F01	460v 3/3	0.5 HP	1	Full	EMC Filter	0.37A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 3-Phase 460v .5hp Full IO Open EMC
HVFDCD3C0007F00	460v 3/3	0.7 HP	1	Full	No filter	0.55A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 3-Phase 460v .75hp Full IO Open No EMC
HVFDCD3C0007F01	460v 3/3	0.7 HP	1	Full	EMC Filter	0.55A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 3-Phase 460v .75hp Full IO Open EMC
HVFDCD3C0010F00	460v 3/3	1 HP	1	Full	No filter	0.75A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 3-Phase 460v 1hp Full IO Open No EMC
HVFDCD3C0010F01	460v 3/3	1 HP	1	Full	EMC Filter	0.75A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 3-Phase 460v 1hp Full IO Open EMC
HVFDCD3C0015F00	460v 3/3	1.5 HP	1	Full	No filter	1.1A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 3-Phase 460v 1.5hp Full IO Open No EMC
HVFDCD3C0015F01	460v 3/3	1.5 HP	1	Full	EMC Filter	1.1A	6.2 x 2.6 x 3.9	157 x 66 x 98	1.2 lb	0.54 kg	Compact VFD 3-Phase 460v 1.5hp Full IO Open EMC
HVFDCD3C0020F00	460v 3/3	2 HP	2	Full	No filter	1.5A	7.7 x 3.5 x 4	195 mm x 90 mm x 102 mm	1.5 lb	0.68 kg	Compact VFD 3-Phase 460v 2hp Full IO Open No EMC
HVFDCD3C0020F01	460v 3/3	2 HP	2	Full	EMC Filter	1.5A	7.7 x 3.5 x 4	195 mm x 90 mm x 102 mm	1.5 lb	0.68 kg	Compact VFD 3-Phase 460v 2hp Full IO Open EMC
HVFDCD3C0030F00	460v 3/3	3 HP	2	Full	No filter	2.2	7.7 x 3.5 x 4	195 mm x 90 mm x 102 mm	1.5 lb	0.68 kg	Compact VFD 3-Phase 460v 3hp Full IO Open No EMC
HVFDCD3C0030F01	460v 3/3	3 HP	2	Full	EMC Filter	2.2	7.7 x 3.5 x 4	195 mm x 90 mm x 102 mm	1.5 lb	0.68 kg	Compact VFD 3-Phase 460v 3hp Full IO Open EMC
HVFDCD3C0040F00	460v 3/3	4 HP	3	Full	No filter	3	9.9 x 3.9 x 4.3	251 x 100 x 109	2.2 lb	1 kg	Compact VFD 3-Phase 460v 4hp Full IO Open No EMC
HVFDCD3C0040F01	460v 3/3	4 HP	3	Full	EMC Filter	3	9.9 x 3.9 x 4.3	251 x 100 x 109	2.2 lb	1 kg	Compact VFD 3-Phase 460v 4hp Full IO Open EMC
HVFDCD3C0050F00	460v 3/3	5 HP	3	Full	No filter	4	9.9 x 3.9 x 4.3	251 x 100 x 109	2.2 lb	1 kg	Compact VFD 3-Phase 460v 5hp Full IO Open No EMC
HVFDCD3C0050F01	460v 3/3	5 HP	3	Full	EMC Filter	4	9.9 x 3.9 x 4.3	251 x 100 x 109	2.2 lb	1 kg	Compact VFD 3-Phase 460v 5hp Full IO Open EMC
HVFDCD3C0075F00	460v 3/3	7.5 HP	3	Full	No filter	5.5 A	9.9 x 3.9 x 4.3	251 x 100 x 109	2.2 lb	1 kg	Compact VFD 3phase 460v 7.5hp Full-IO Open No EMC
HVFDCD3C0075F01	460v 3/3	7.5 HP	3	Full	EMC Filter	5.5 A	9.9 x 3.9 x 4.3	251 x 100 x 109	2.2 lb	1 kg	Compact VFD 3-Phase 460v 7.5hp Full IO Open EMC

Compact Variable Frequency Drive Accessories

Product Number	Description
HVFDCABLE	Compact VFD Commissioning Cable And USB Adaptor
HVFDCDMCA	Compact VFD Commissioning Device
HVFDCDMCAKIT	Compact VFD Commissioning Kit
HVFDCDNEMA1FR1	Compact VFD NEMA 1 Kit
HVFDCDNEMA1FR2	Compact VFD NEMA 1 Kit
HVFDCDNEMA1FR3	Compact VFD NEMA 1 Kit
HVFDCDTRAINER	Compact VFD Training Demonstration Kit

SmartVFD HVAC and SmartVFD BYPASS



The Honeywell SmartVFD HVAC and BYPASS are designed specifically for commercial buildings to deliver the energy savings that building owners and facility managers need. The SmartVFD HVAC makes installation and commissioning easy for you and energy savings easy for your customers.

- **Start-up Wizards**—All you have to do is tell the VFD whether you have a pump or a fan, enter nominal motor information, and you are up and running.
- **Graphic Interface**—The easy-to-use keypad and interface deliver menu-driven programming and monitoring for fast, uniform commissioning. It's also easy for the building owner or manager to learn and use, helping to reduce service calls. Plus, a manual is built into the keypad for easy access when needed.
- **Built-in Communications**—With BACnet®, N2 and Modbus built in, your customers will enjoy a lower total installed cost and reliable communications with the building management system.
- **PC Software Wizards**—Commissioning, programming and troubleshooting are all a snap thanks to these guided Startup and PID wizards.
- **Built-in PLC**—Another reason why SmartVFD HVAC is a great value for your customer, the built-in PLC eliminates the need for an expensive external controller.
- **DC Choke** for harmonic protection.
- **Standard RIF Filter**—Ensures that EMC/RFI requirements are met.
- **Bypass Options**—Meets specifications and system critical applications with a comprehensive bypass offering.
- **Real-Time Clock**—Battery included.
- **Fire Mode** for safe operation.
- **Motor Switch Ride-Through**—easy, fault-free maintenance.

Drive Family: SmartVFD HVAC
Acceleration time: 0.1 - 3000 sec
Deceleration time: .1 - 3000 sec
Analog Current Input: 0 (4) - 20 mA, 250 ohm differential
Analog Voltage Input: 0 - 10 Vdc, 200K ohm
Analog Current Output: 0 (4) - 20 mA, max 500 ohm
Digital Output: Open collector, max. load 48V/50mA
Continuous Output Current:
 overload 1.5 x High overload current (1min/10min)
 overload 1.1 x Low overload current (1min/10min)

Relay Output: Max. switching load: 250Vac/2A or 250Vdc/0,4A
Reference Output Voltage: Maximum Load 10mA
Auxiliary Voltage: ± 20%, max. load 50 mA
Starting Torque: Depends on the Motor
Peak Current: 2 x IN, 2 secs in every 20 sec period
Frequency (Hz): 0 Hz to 320 Hz
Operating Temperature: 14 to 122 F (-10 to 50 C)
Type of RFI Filter: EMC Filter

SmartVFD HVAC

Product Number	Voltage	Horse-power	Frame Type	Type of Enclosure	Current Rating	Dimensions, Approximate		Weight		Description
						(inch)	(mm)	(lb)	(kg)	
HVFDSD3C0015G100	480 Vac	1.5 HP	4	NEMA 1	3.4A	5x13x7.5	128x328x190	13 lb	5.9 kg	VFD, 480vac, 1.5HP, Graphical, NEMA 1
HVFDSD3C0015G200	480 Vac	1.5 HP	4	NEMA 12	3.4A	5x13x7.5	128x328x190	13 lb	5.9 kg	VFD, 480vac, 1.5HP, Graphical, NEMA 12
HVFDSD3C0015G300	480 Vac	1.5 HP	4	NEMA 3R	3.4A	21x20x10	533x508x250	60 lb	27.3 kg	VFD, 480vac, 1.5HP, Graphical, NEMA 3R
HVFDSD3C0020G100	480 Vac	2.0 HP	4	NEMA 1	4.8A	5x13x7.5	128x328x190	13 lb	5.9 kg	VFD, 480vac, 2HP, Graphical, NEMA 1
HVFDSD3C0020G200	480 Vac	2.0 HP	4	NEMA 12	4.8A	5x13x7.5	128x328x190	13 lb	5.9 kg	VFD, 480vac, 2HP, Graphical, NEMA 12
HVFDSD3C0020G300	480 Vac	2.0 HP	4	NEMA 3R	4.8A	21x20x10	533x508x250	60 lb	27.3 kg	VFD, 480vac, 2HP, Graphical, NEMA 3R
HVFDSD3C0030G100	480 Vac	3.0 HP	4	NEMA 1	5.6A	5x13x7.5	128x328x190	13 lb	5.9 kg	VFD, 480vac, 3HP, Graphical, NEMA 1
HVFDSD3C0030G200	480 Vac	3.0 HP	4	NEMA 12	5.6A	5x13x7.5	128x328x190	13 lb	5.9 kg	VFD, 480vac, 3HP, Graphical, NEMA 12
HVFDSD3C0030G300	480 Vac	3.0 HP	4	NEMA 3R	5.6A	21x20x10	533x508x250	60 lb	27.3 kg	VFD, 480vac, 3HP, Graphical, NEMA 3R
HVFDSD3C0040G100	480 Vac	4 HP	4	NEMA 1	8A	5x13x7.5	128x328x190	13 lb	5.9 kg	VFD, 480vac, 4HP, Graphical, NEMA 1
HVFDSD3C0040G200	480 Vac	4 HP	4	NEMA 12	8A	5x13x7.5	128x328x190	13 lb	5.9 kg	VFD, 480vac, 4HP, Graphical, NEMA 12
HVFDSD3C0040G300	480 Vac	4 HP	4	NEMA 3R	8A	21x20x10	533x508x250	60 lb	27.3 kg	VFD, 480vac, 4HP, Graphical, NEMA 3R
HVFDSD3C0050G100	480 Vac	5 HP	4	NEMA 1	9.6A	5x13x7.5	128x328x190	13 lb	5.9 kg	VFD, 480vac, 5HP, Graphical, NEMA 1
HVFDSD3C0050G200	480 Vac	5 HP	4	NEMA 12	9.6A	5x13x7.5	128x328x190	13 lb	5.9 kg	VFD, 480vac, 5HP, Graphical, NEMA 12
HVFDSD3C0050G300	480 Vac	5 HP	4	NEMA 3R	9.6A	21x20x10	533x508x250	60 lb	27.3 kg	VFD, 480vac, 5HP, Graphical, NEMA 3R
HVFDSD3C0075G100	480 Vac	7.5 HP	4	NEMA 1	12A	5x13x7.5	128x328x190	13 lb	5.9 kg	VFD, 480vac, 7.5HP, Graphical, NEMA 1
HVFDSD3C0075G200	480 Vac	7.5 HP	4	NEMA 12	12A	5x13x7.5	128x328x190	13 lb	5.9 kg	VFD, 480vac, 7.5HP, Graphical, NEMA 12
HVFDSD3C0075G300	480 Vac	7.5 HP	4	NEMA 3R	12A	21x20x10	533x508x250	60 lb	27.3 kg	VFD, 480vac, 7.5HP, Graphical, NEMA 3R
HVFDSD3C0100G100	480 Vac	10 HP	5	NEMA 1	16A	5.5x16.5x8.5	144x419x214	22 lb	10 kg	VFD, 480vac, 10HP, Graphical, NEMA 1
HVFDSD3C0100G200	480 Vac	10 HP	5	NEMA 12	16A	5.5x16.5x8.5	144x419x214	22 lb	10 kg	VFD, 480vac, 10HP, Graphical, NEMA 12
HVFDSD3C0100G300	480 Vac	10 HP	5	NEMA 3R	16A	21x24x10	533x609x250	68 lb	30.9 kg	VFD, 480vac, 10HP, Graphical, NEMA 3R

SmartVFD HVAC

Product Number	Voltage	Horse-power	Frame Type	Type of Enclosure	Current Rating	Dimensions, Approximate		Weight		Description
						(inch)	(mm)	(lb)	(kg)	
HVFSD3C0150G100	480 Vac	15 HP	5	NEMA 1	23A	5.5x16.5x8.5	144x419x214	22 lb	10 kg	VFD, 480vac, 15HP, Graphical, NEMA 1
HVFSD3C0150G200	480 Vac	15 HP	5	NEMA 12	23A	5.5x16.5x8.5	144x419x214	22 lb	10 kg	VFD, 480vac, 15HP, Graphical, NEMA 12
HVFSD3C0150G300	480 Vac	15 HP	5	NEMA 3R	23A	21x24x10	533x609x250	68 lb	30.9 kg	VFD, 480vac, 15HP, Graphical, NEMA 3R
HVFSD3C0200G100	480 Vac	20 HP	5	NEMA 1	31A	5.5x16.5x8.5	144x419x214	22 lb	10 kg	VFD, 480vac, 20HP, Graphical, NEMA 1
HVFSD3C0200G200	480 Vac	20 HP	5	NEMA 12	31A	5.5x16.5x8.5	144x419x214	22 lb	10 kg	VFD, 480vac, 20HP, Graphical, NEMA 12
HVFSD3C0200G300	480 Vac	20 HP	5	NEMA 3R	31A	21x24x10	533x609x250	68 lb	30.9 kg	VFD, 480vac, 20HP, Graphical, NEMA 3R
HVFSD3C0250G100	480 Vac	25 HP	6	NEMA 1	38A	7.7x21.9x9	195x557x229	44 lb	20 kg	VFD, 480vac, 25HP, Graphical, NEMA 1
HVFSD3C0250G200	480 Vac	25 HP	6	NEMA 12	38A	7.7x21.9x9	195x557x229	44 lb	20 kg	VFD, 480vac, 25HP, Graphical, NEMA 12
HVFSD3C0250G300	480 Vac	25 HP	6	NEMA 3R	38A	34x36x12	863x914x305	137 lb	62.3 kg	VFD, 480vac, 25HP, Graphical, NEMA 3R
HVFSD3C0300G100	480 Vac	30 HP	6	NEMA 1	46A	7.7x21.9x9	195x557x229	44 lb	20 kg	VFD, 480vac, 30HP, Graphical, NEMA 1
HVFSD3C0300G200	480 Vac	30 HP	6	NEMA 12	46A	7.7x21.9x9	195x557x229	44 lb	20 kg	VFD, 480vac, 30HP, Graphical, NEMA 12
HVFSD3C0300G300	480 Vac	30 HP	6	NEMA 3R	46A	34x36x12	863x914x305	137 lb	62.3 kg	VFD, 480vac, 30HP, Graphical, NEMA 3R
HVFSD3C0400G100	480 Vac	40 HP	6	NEMA 1	61A	7.7x21.9x9	195x557x229	44 lb	20 kg	VFD, 480vac, 40HP, Graphical, NEMA 1
HVFSD3C0400G200	480 Vac	40 HP	6	NEMA 12	61A	7.7x21.9x9	195x557x229	44 lb	20 kg	VFD, 480vac, 40HP, Graphical, NEMA 12
HVFSD3C0400G300	480 Vac	40 HP	6	NEMA 3R	61A	34x36x12	863x914x305	137 lb	62.3 kg	VFD, 480vac, 40HP, Graphical, NEMA 3R

SmartVFD BYPASS

Product Number	Voltage	Horse-power	Frame Type	Type of Enclosure	Bypass	Current Rating	Contactor	Dimensions, Approximate		Weight		Description
								(inch)	(mm)	(lb)	(kg)	
HVFDSB3C0015G110	480 Vac	1.5 HP	4	NEMA 1	—	3.4A	—	8.9x31.7x10.7	226x805x272	38 lb	17.3 kg	VFD, 480vac, 1.5HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0015G120	480 Vac	1.5 HP	4	NEMA 1	BYPASS	3.4A	2 contactor	8.9x31.7x10.7	226x805x272	38 lb	17.3 kg	VFD, 480vac, 1.5HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0015G130	480 Vac	1.5 HP	4	NEMA 1	BYPASS	3.4A	3 contactor	8.9x38.7x10.7	226x983x272	44 lb	20 kg	VFD, 480vac, 1.5HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0015G220	480 Vac	1.5 HP	4	NEMA 12	BYPASS	3.4A	2 contactor	16x36x10	406x914x254	53 lb	24.1 kg	VFD, 480vac, 1.5HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0015G231	480 Vac	1.5 HP	4	NEMA 12	Auto-Bypass	3.4A	3 contactor	16x36x10	406x914x254	53 lb	24.1 kg	VFD, 480vac, 1.5HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0015G320	480 Vac	1.5 HP	4	NEMA 3R	BYPASS	3.4A	2 contactor	20x24x10	508x609x254	54 lb	24.5 kg	VFD, 480vac, 1.5HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0015G332	480 Vac	1.5 HP	4	NEMA 3R	Auto-bypass and HOA	3.4A	3 contactor	20x24x10	508x609x254	54 lb	24.5 kg	VFD, 480vac, 1.5HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFDSB3C0020G110	480 Vac	2.0 HP	4	NEMA 1	—	4.8A	—	8.9x31.7x10.7	226x805x272	38 lb	17.3 kg	VFD, 480vac, 2HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0020G120	480 Vac	2.0 HP	4	NEMA 1	BYPASS	4.8A	2 contactor	8.9x31.7x10.7	226x805x272	38 lb	17.3 kg	VFD, 480vac, 2HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0020G130	480 Vac	2.0 HP	4	NEMA 1	BYPASS	4.8A	3 contactor	8.9x38.7x10.7	226x983x272	44 lb	20 kg	VFD, 480vac, 2HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0020G220	480 Vac	2.0 HP	4	NEMA 12	BYPASS	4.8A	2 contactor	16x36x10	406x914x254	53 lb	24.1 kg	VFD, 480vac, 2HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0020G231	480 Vac	2.0 HP	4	NEMA 12	Auto-Bypass	4.8A	3 contactor	16x36x10	406x914x254	53 lb	24.1 kg	VFD, 480vac, 2HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0020G320	480 Vac	2.0 HP	4	NEMA 3R	BYPASS	4.8A	2 contactor	20x24x10	508x609x254	54 lb	24.5 kg	VFD, 480vac, 2HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc

SmartVFD HVAC

Product Number	Voltage	Horsepower	Frame Type	Type of Enclosure	Bypass	Current Rating	Contactor	Dimensions, Approximate		Weight		Description
								(inch)	(mm)	(lb)	(kg)	
HVFSB3C0020G332	480 Vac	2.0 HP	4	NEMA 3R	Auto-bypass and HOA	4.8A	3 contactor	20x24x10	508x609x254	54 lb	24.5 kg	VFD, 480vac, 2HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFSB3C0030G110	480 Vac	3.0 HP	4	NEMA 1	—	5.6A	—	8.9x31.7x10.7	226x805x272	38 lb	17.3 kg	VFD, 480vac, 3HP, Graphical, NEMA 1, Fused Disc Only,
HVFSB3C0030G120	480 Vac	3.0 HP	4	NEMA 1	BYPASS	5.6A	2 contactor	8.9x31.7x10.7	226x805x272	38 lb	17.3 kg	VFD, 480vac, 3HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFSB3C0030G130	480 Vac	3.0 HP	4	NEMA 1	BYPASS	5.6A	3 contactor	8.9x38.7x10.7	226x983x272	44 lb	20 kg	VFD, 480vac, 3HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFSB3C0030G220	480 Vac	3.0 HP	4	NEMA 12	BYPASS	5.6A	2 contactor	16x36x10	406x914x254	53 lb	24.1 kg	VFD, 480vac, 3HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFSB3C0030G231	480 Vac	3.0 HP	4	NEMA 12	Auto-Bypass	5.6A	3 contactor	16x36x10	406x914x254	53 lb	24.1 kg	VFD, 480vac, 3HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFSB3C0030G320	480 Vac	3.0 HP	4	NEMA 3R	BYPASS	5.6A	2 contactor	20x24x10	508x609x254	54 lb	24.5 kg	VFD, 480vac, 3HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFSB3C0030G332	480 Vac	3.0 HP	4	NEMA 3R	Auto-bypass and HOA	5.6A	3 contactor	20x24x10	508x609x254	54 lb	24.5 kg	VFD, 480vac, 3HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFSB3C0040G110	480 Vac	4 HP	4	NEMA 1	—	8A	—	8.9x31.7x10.7	226x805x272	38 lb	17.3 kg	VFD, 480vac, 4HP, Graphical, NEMA 1, Fused Disc Only,
HVFSB3C0040G120	480 Vac	4 HP	4	NEMA 1	BYPASS	8A	2 contactor	8.9x31.7x10.7	226x805x272	38 lb	17.3 kg	VFD, 480vac, 4HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFSB3C0040G130	480 Vac	4 HP	4	NEMA 1	BYPASS	8A	3 contactor	8.9x38.7x10.7	226x983x272	44 lb	20 kg	VFD, 480vac, 4HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFSB3C0040G220	480 Vac	4 HP	4	NEMA 12	BYPASS	8A	2 contactor	16x36x10	406x914x254	53 lb	24.1 kg	VFD, 480vac, 4HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFSB3C0040G231	480 Vac	4 HP	4	NEMA 12	Auto-Bypass	8A	3 contactor	16x36x10	406x914x254	53 lb	24.1 kg	VFD, 480vac, 4HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFSB3C0040G320	480 Vac	4 HP	4	NEMA 3R	BYPASS	8A	2 contactor	20x24x10	508x609x254	54 lb	24.5 kg	VFD, 480vac, 4HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFSB3C0040G332	480 Vac	4 HP	4	NEMA 3R	Auto-bypass and HOA	8A	3 contactor	20x24x10	508x609x254	54 lb	24.5 kg	VFD, 480vac, 4HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFSB3C0050G110	480 Vac	5 HP	4	NEMA 1	—	9.6A	—	8.9x31.7x10.7	226x805x272	38 lb	17.3 kg	VFD, 480vac, 5HP, Graphical, NEMA 1, Fused Disc Only,
HVFSB3C0050G120	480 Vac	5 HP	4	NEMA 1	BYPASS	9.6A	2 contactor	8.9x31.7x10.7	226x805x272	38 lb	17.3 kg	VFD, 480vac, 5HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFSB3C0050G130	480 Vac	5 HP	4	NEMA 1	BYPASS	9.6A	3 contactor	8.9x38.7x10.7	226x983x272	44 lb	20 kg	VFD, 480vac, 5HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFSB3C0050G220	480 Vac	5 HP	4	NEMA 12	BYPASS	9.6A	2 contactor	16x36x10	406x914x254	53 lb	24.1 kg	VFD, 480vac, 5HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFSB3C0050G231	480 Vac	5 HP	4	NEMA 12	Auto-Bypass	9.6A	3 contactor	16x36x10	406x914x254	53 lb	24.1 kg	VFD, 480vac, 5HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFSB3C0050G320	480 Vac	5 HP	4	NEMA 3R	BYPASS	9.6A	2 contactor	20x24x10	508x609x254	54 lb	24.5 kg	VFD, 480vac, 5HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFSB3C0050G332	480 Vac	5 HP	4	NEMA 3R	Auto-bypass and HOA	9.6A	3 contactor	20x24x10	508x609x254	54 lb	24.5 kg	VFD, 480vac, 5HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA

SmartVFD HVAC

Product Number	Voltage	Horse-power	Frame Type	Type of Enclosure	Bypass	Current Rating	Contactor	Dimensions, Approximate		Weight		Description
								(inch)	(mm)	(lb)	(kg)	
HVFDSB3C0075G110	480 Vac	7.5 HP	4	NEMA 1	—	12A	—	8.9x31.7x10.7	226x805x272	38 lb	17.3 kg	VFD, 480vac, 7.5HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0075G120	480 Vac	7.5 HP	4	NEMA 1	BYPASS	12A	2 contactor	8.9x31.7x10.7	226x805x272	38 lb	17.3 kg	VFD, 480vac, 7.5HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0075G130	480 Vac	7.5 HP	4	NEMA 1	BYPASS	12A	3 contactor	8.9x38.7x10.7	226x983x272	44 lb	20 kg	VFD, 480vac, 7.5HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0075G220	480 Vac	7.5 HP	4	NEMA 12	BYPASS	12A	2 contactor	16x36x10	406x914x254	53 lb	24.1 kg	VFD, 480vac, 7.5HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0075G231	480 Vac	7.5 HP	4	NEMA 12	Auto-Bypass	12A	3 contactor	16x36x10	406x914x254	53 lb	24.1 kg	VFD, 480vac, 7.5HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0075G320	480 Vac	7.5 HP	4	NEMA 3R	BYPASS	12A	2 contactor	20x24x10	508x609x254	54 lb	24.5 kg	VFD, 480vac, 7.5HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0075G332	480 Vac	7.5 HP	4	NEMA 3R	Auto-bypass and HOA	12A	3 contactor	20x24x10	508x609x254	54 lb	24.5 kg	VFD, 480vac, 7.5HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFDSB3C0100G110	480 Vac	10 HP	5	NEMA 1	—	16A	—	8.9x34.5x10.7	226x876x272	55 lb	25 kg	VFD, 480vac, 10HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0100G120	480 Vac	10 HP	5	NEMA 1	BYPASS	16A	2 contactor	8.9x34.5x10.7	226x876x272	55 lb	25 kg	VFD, 480vac, 10HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0100G130	480 Vac	10 HP	5	NEMA 1	BYPASS	16A	3 contactor	8.9x41.5x10.7	226x1054x272	48 lb	21.8 kg	VFD, 480vac, 10HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0100G220	480 Vac	10 HP	5	NEMA 12	BYPASS	16A	2 contactor	16x36x10	406x914x254	64 lb	29.1 kg	VFD, 480vac, 10HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0100G231	480 Vac	10 HP	5	NEMA 12	Auto-Bypass	16A	3 contactor	16x36x10	406x914x254	64 lb	29.1 kg	VFD, 480vac, 10HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0100G320	480 Vac	10 HP	5	NEMA 3R	BYPASS	16A	2 contactor	24x30x10	609x752x254	78 lb	35.5 kg	VFD, 480vac, 10HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0100G332	480 Vac	10 HP	5	NEMA 3R	Auto-bypass and HOA	16A	3 contactor	24x30x10	609x752x254	78 lb	35.5 kg	VFD, 480vac, 10HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFDSB3C0150G110	480 Vac	15 HP	5	NEMA 1	—	23A	—	8.9x34.5x10.7	226x876x272	55 lb	25 kg	VFD, 480vac, 15HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0150G120	480 Vac	15 HP	5	NEMA 1	BYPASS	23A	2 contactor	8.9x34.5x10.7	226x876x272	55 lb	25 kg	VFD, 480vac, 15HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0150G130	480 Vac	15 HP	5	NEMA 1	BYPASS	23A	3 contactor	8.9x41.5x10.7	226x1054x272	48 lb	21.8 kg	VFD, 480vac, 15HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0150G220	480 Vac	15 HP	5	NEMA 12	BYPASS	23A	2 contactor	16x36x10	406x914x254	64 lb	29.1 kg	VFD, 480vac, 15HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0150G231	480 Vac	15 HP	5	NEMA 12	Auto-Bypass	23A	3 contactor	16x36x10	406x914x254	64 lb	29.1 kg	VFD, 480vac, 15HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0150G320	480 Vac	15 HP	5	NEMA 3R	BYPASS	23A	2 contactor	24x30x10	609x752x254	78 lb	35.5 kg	VFD, 480vac, 15HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0150G332	480 Vac	15 HP	5	NEMA 3R	Auto-bypass and HOA	23A	3 contactor	24x30x10	609x752x254	78 lb	35.5 kg	VFD, 480vac, 15HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA

SmartVFD HVAC

Product Number	Voltage	Horsepower	Frame Type	Type of Enclosure	Bypass	Current Rating	Contactor	Dimensions, Approximate		Weight		Description
								(inch)	(mm)	(lb)	(kg)	
HVFDSB3C0200G110	480 Vac	20 HP	5	NEMA 1	—	31A	—	8.9x34.5x10.7	226x876x272	55 lb	25 kg	VFD, 480vac, 20HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0200G120	480 Vac	20 HP	5	NEMA 1	BYPASS	31A	2 contactor	8.9x34.5x10.7	226x876x272	55 lb	25 kg	VFD, 480vac, 20HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0200G130	480 Vac	20 HP	5	NEMA 1	BYPASS	31A	3 contactor	8.9x41.5x10.7	226x1054x272	48 lb	21.8 kg	VFD, 480vac, 20HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0200G220	480 Vac	20 HP	5	NEMA 12	BYPASS	31A	2 contactor	16x44x10	406x1118x254	70 lb	31.8 kg	VFD, 480vac, 20HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0200G231	480 Vac	20 HP	5	NEMA 12	Auto-Bypass	31A	3 contactor	16x44x10	406x1118x254	70 lb	31.8 kg	VFD, 480vac, 20HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0200G320	480 Vac	20 HP	5	NEMA 3R	BYPASS	31A	2 contactor	24x30x10	609x752x254	78 lb	35.5 kg	VFD, 480vac, 20HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0200G332	480 Vac	20 HP	5	NEMA 3R	Auto-bypass and HOA	31A	3 contactor	24x30x10	609x752x254	78 lb	35.5 kg	VFD, 480vac, 20HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFDSB3C0250G110	480 Vac	25 HP	6	NEMA 1	—	38A	—	12.4x45x12.6	314x1143x320	85 lb	38.6 kg	VFD, 480vac, 25HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0250G120	480 Vac	25 HP	6	NEMA 1	BYPASS	38A	2 contactor	12.4x45x12.6	314x1143x320	85 lb	38.6 kg	VFD, 480vac, 25HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0250G130	480 Vac	25 HP	6	NEMA 1	BYPASS	38A	3 contactor	12.4x55x12.6	314x1397x320	96 lb	43.6 kg	VFD, 480vac, 25HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0250G220	480 Vac	25 HP	6	NEMA 12	BYPASS	38A	2 contactor	16x50x10	406x1270x254	120 lb	54.5 kg	VFD, 480vac, 25HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0250G231	480 Vac	25 HP	6	NEMA 12	Auto-Bypass	38A	3 contactor	16x50x10	406x1270x254	120 lb	54.5 kg	VFD, 480vac, 25HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0250G320	480 Vac	25 HP	6	NEMA 3R	BYPASS	38A	2 contactor	30x36x12	762x914x305	124 lb	56.4 kg	VFD, 480vac, 25HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0250G332	480 Vac	25 HP	6	NEMA 3R	Auto-bypass and HOA	38A	3 contactor	30x36x12	762x914x305	124 lb	56.4 kg	VFD, 480vac, 25HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFDSB3C0300G110	480 Vac	30 HP	6	NEMA 1	—	46A	—	12.4x45x12.6	314x1143x320	85 lb	38.6 kg	VFD, 480vac, 30HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0300G120	480 Vac	30 HP	6	NEMA 1	BYPASS	46A	2 contactor	12.4x45x12.6	314x1143x320	85 lb	38.6 kg	VFD, 480vac, 30HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0300G130	480 Vac	30 HP	6	NEMA 1	BYPASS	46A	3 contactor	12.4x55x12.6	314x1397x320	96 lb	43.6 kg	VFD, 480vac, 30HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0300G220	480 Vac	30 HP	6	NEMA 12	BYPASS	46A	2 contactor	16x50x10	406x1270x254	120 lb	54.5 kg	VFD, 480vac, 30HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0300G231	480 Vac	30 HP	6	NEMA 12	Auto-Bypass	46A	3 contactor	16x50x10	406x1270x254	120 lb	54.5 kg	VFD, 480vac, 30HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0300G320	480 Vac	30 HP	6	NEMA 3R	BYPASS	46A	2 contactor	30x36x12	762x914x305	124 lb	56.4 kg	VFD, 480vac, 30HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0300G332	480 Vac	30 HP	6	NEMA 3R	Auto-bypass and HOA	46A	3 contactor	30x36x12	762x914x305	124 lb	56.4 kg	VFD, 480vac, 30HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA

SmartVFD HVAC

Product Number	Voltage	Horse-power	Frame Type	Type of Enclosure	Bypass	Current Rating	Contactor	Dimensions, Approximate		Weight		Description
								(inch)	(mm)	(lb)	(kg)	
HVFDSB3C0400G110	480 Vac	40 HP	6	NEMA 1	—	61A	—	12.4x45x12.6	314x114x320	85 lb	38.6 kg	VFD, 480vac, 40HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0400G120	480 Vac	40 HP	6	NEMA 1	BYPASS	61A	2 contactor	12.4x45x12.6	314x114x320	85 lb	38.6 kg	VFD, 480vac, 40HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0400G130	480 Vac	40 HP	6	NEMA 1	BYPASS	61A	3 contactor	12.4x55x12.6	314x139x320	96 lb	43.6 kg	VFD, 480vac, 40HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0400G220	480 Vac	40 HP	6	NEMA 12	BYPASS	61A	2 contactor	20x54x10	508x137x254	136 lb	61.8 kg	VFD, 480vac, 40HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0400G231	480 Vac	40 HP	6	NEMA 12	Auto-Bypass	61A	3 contactor	20x54x10	508x137x254	136 lb	61.8 kg	VFD, 480vac, 40HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0400G320	480 Vac	40 HP	6	NEMA 3R	BYPASS	61A	2 contactor	30x36x12	762x914x305	124 lb	56.4 kg	VFD, 480vac, 40HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0400G332	480 Vac	40 HP	6	NEMA 3R	Auto-bypass and HOA	61A	3 contactor	30x36x12	762x914x305	124 lb	56.4 kg	VFD, 480vac, 40HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA

NXL Variable Frequency Drives



Variable Frequency Drives (VFD) accept a control input and then output tailored PWM control signal to operate (motors, fans, pumps, etc.) with maximum efficiency. The VFD can be field-programmed without any extra devices or computer connections.

- Multi-Control applications built in.
- Easy commissioning through software or control panel.
- Devices can be wall-mounted or panel-mounted.
- Eleven protective functions (see Form 63-2599, Users Manual, Technical Data sections).
- Open Chassis, NEMA 1 and NEMA 12 enclosures.
- Compact Size.
- Insulated gate bi-polar transistor (IGBT) technology.
- Modbus Standard

Drive Family: NXL

Acceleration time: 0 - 3000 sec

Deceleration time: 0 - 3000 sec

Analog Current Input: 0 (4) - 20 mA, 250 ohm differential

Analog Voltage Input: 0 - 10 Vdc, 200K ohm

Analog Current Output: 0 (4) - 20 mA, max 500 ohm

Digital Output: 50 mA/48v open collector

Continuous Output Current: overload 1.5 x High overload current (1min/10min); overload 1.1 x Low overload current (1min/10min)

Relay Output: 24 Vdc/8A; 125 Vdc/0.4A; 250 Vac/8A

Reference Output Voltage: +10V, +3%, max 10mA

Auxiliary Voltage: 24V, ± 15%, max 250 mA

Starting Current: 2 x high overload current, 2 seconds every 20 seconds

Starting Torque: 200% High; 150% Low

Frequency: 0 Hz to 320 Hz

Operating Temperature: High Overload 14 to 122 (High Overload -10 to 50); Low Overload 14 to 104 (Low Overload -10 to 40)

Type of RFI Filter: Industrial filter

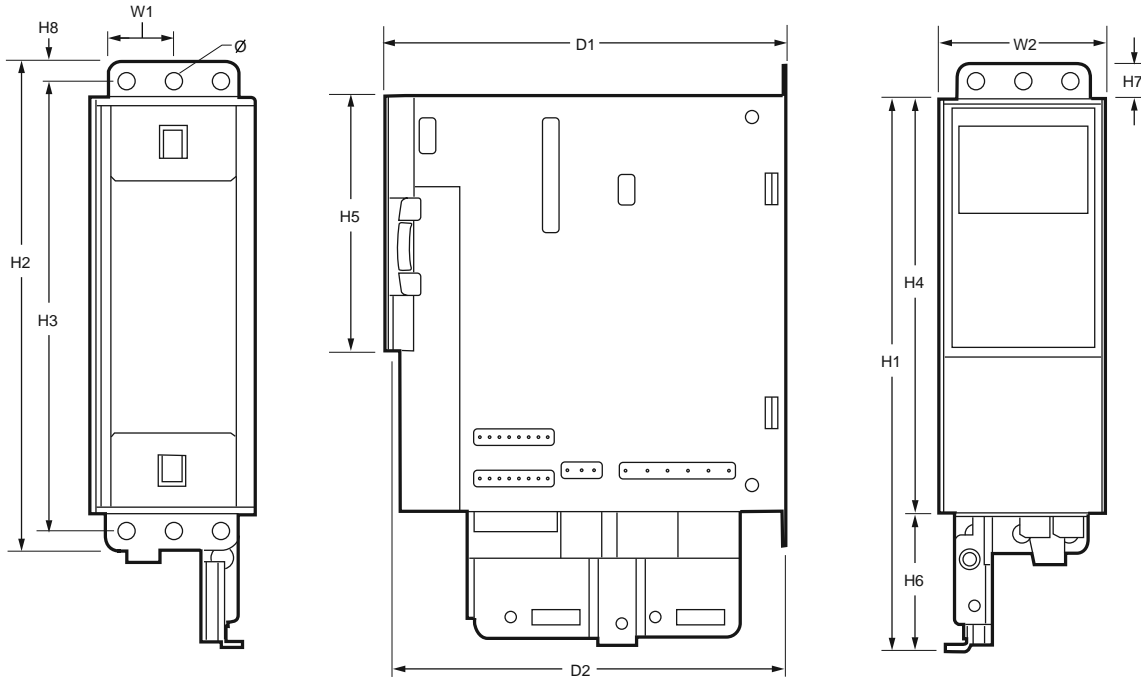
Bypass: Drive only, no bypass

Product Number	Voltage	Horse-power	Frame Type	Layout	Type of Enclosure	Current Rating	Dimensions, Approximate		Weight	
							(inch)	(mm)	(lb)	(kg)
NXL0005B1006	230 Vac; 208 Vac	0.5 HP	MF2	Stand-alone drive	Open Chassis	2.4A	2.4 x 5.1 x 5.9	61 x 130 x 150	2.2 lb	0.99 kg
NXL0007B1004	230 Vac; 208 Vac	0.75 HP	MF3	Stand-alone drive	Open Chassis	3.7 A	3.3 x 7.3 x 6.9	83.8 x 185.4 x 175.3	4.19 lb	1.9 kg
NXL0010B1009	230 Vac; 208 Vac	1 HP	MF3	Stand-alone drive	Open Chassis	4.8 A	3.3 x 7.3 x 6.9	83.8 x 185.4 x 175.3	4.19 lb	1.9 kg
NXL0015B1004	230 Vac; 208 Vac	1.5 HP	MF3	Stand-alone drive	Open Chassis	6.6A	3.3 x 7.3 x 6.9	83.8 x 185.4 x 175.3	4.19 lb	1.9 kg
NXL0007A1006	460 Vac	0.75 HP	MF2	Stand-alone drive	Open Chassis	1.9A	2.4 x 5.1 x 5.9	61 x 130 x 150	2.2 lb	0.99 kg
NXL0010A1001	460 Vac	1 HP	MF2	Stand-alone drive	Open Chassis	2.4A	2.4 x 5.1 x 5.9	61 x 130 x 150	2.2 lb	0.99 kg
NXL0015A1006	460 Vac	1.5 HP	MF3	Stand-alone drive	Open Chassis	3.3A	3.3 x 7.3 x 6.9	83.8 x 185.4 x 175.3	4.19 lb	1.9 kg
NXL0015A1014	460 Vac	1.5 HP	MF3	Stand-alone drive	NEMA 1	3.3A	5 x 11.5 x 7.5	128 x 292 x 190	11 lb	5.0 kg
NXL0015A1204	460 Vac	1.5 HP	MF3	Stand-alone drive	NEMA 12	3.3A	5 x 11.5 x 7.5	128 x 292 x 190	11 lb	5.0 kg
NXL0100A1002	460 Vac	10 HP	MF5	Stand-alone drive	NEMA 1	16A	5.7 x 15.4 x 8.4	144 x 391 x 214	17.9 lb	8.1 kg
NXL0100A1200	460 Vac	10 HP	MF5	Stand-alone drive	NEMA 12	16A	5.7 x 15.4 x 8.4	144 x 391 x 214	17.9 lb	8.1 kg
NXL0150A1001	460 Vac	15 HP	MF5	Stand-alone drive	NEMA 1	23 A	5.7 x 15.4 x 8.4	144 x 391 x 214	17.9 lb	8.1 kg
NXL0150A1209	460 Vac	15 HP	MF5	Stand-alone drive	NEMA 12	23 A	5.7 x 15.4 x 8.4	144 x 391 x 214	17.9 lb	8.1 kg
NXL0020A1009	460 Vac	2 HP	MF3	Stand-alone drive	Open Chassis	4.3 A	3.3 x 7.3 x 6.9	83.8 x 185.4 x 175.3	4.19 lb	1.9 kg
NXL0020A1017	460 Vac	2 HP	MF3	Stand-alone drive	NEMA 1	4.3 A	5 x 11.5 x 7.5	128 x 292 x 190	11 lb	5.0 kg
NXL0020A1207	460 Vac	2 HP	MF3	Stand-alone drive	NEMA 12	4.3 A	5 x 11.5 x 7.5	128 x 292 x 190	11 lb	5.0 kg
NXL0200A1001	460 Vac	20 HP	MF5	Stand-alone drive	NEMA 1	31.0 A	5.7 x 15.4 x 8.4	144 x 391 x 214	17.9 lb	8.1 kg
NXL0200A1209	460 Vac	20 HP	MF5	Stand-alone drive	NEMA 12	31.0 A	5.7 x 15.4 x 8.4	144 x 391 x 214	17.9 lb	8.1 kg
NXL0250A1000	460 Vac	25 HP	MF6	Stand-alone drive	NEMA 1	38 A	7.7 x 20.4 x 9.1	195 x 519 x 237	41.8 lb	19.0 kg
NXL0250A1208	460 Vac	25 HP	MF6	Stand-alone drive	NEMA 12	38 A	7.7 x 20.4 x 9.1	195 x 519 x 237	41.8 lb	19.0 kg
NXL0030A1007	460 Vac	3 HP	FR4	Vertical	NEMA 1					
NXL0030A1015	460 Vac	3 HP	MF3	Stand-alone drive	NEMA 1	5.6A	5 x 11.5 x 7.5	128 x 292 x 190	11 lb	5.0 kg
NXL0030A1205	460 Vac	3 HP	MF3	Stand-alone drive	NEMA 12	5.6A	5 x 11.5 x 7.5	128 x 292 x 190	11 lb	5.0 kg
NXL0300A1000	460 Vac	30 HP	MF6	Stand-alone drive	NEMA 1	46 A	7.7 x 20.4 x 9.2	195 x 519 x 237	41.8 lb	19.0 kg
NXL0300A1208	460 Vac	30 HP	MF6	Stand-alone drive	NEMA 12	46 A	7.7 x 20.4 x 9.2	195 x 519 x 237	41.8 lb	19.0 kg
NXL0040A1005	460 Vac	4 HP	MF4	Stand-alone drive	NEMA 1	7.6A	5 x 11.5 x 7.5	128 x 292 x 190	11 lb	5.0 kg
NXL0040A1203	460 Vac	4 HP	MF4	Stand-alone drive	NEMA 12	7.6A	5 x 11.5 x 7.5	128 x 292 x 190	11 lb	5.0 kg
NXL0400A1009	460 Vac	40 HP	MF6	Stand-alone drive	NEMA 1	61A	7.7 x 20.4 x 9.3	195 x 519 x 237	41.8 lb	19.0 kg
NXL0400A1207	460 Vac	40 HP	MF6	Stand-alone drive	NEMA 12	61A	7.7 x 20.4 x 9.3	195 x 519 x 237	41.8 lb	19.0 kg

Variable Frequency Drives

Product Number	Voltage	Horse-power	Frame Type	Layout	Type of Enclosure	Current Rating	Dimensions, Approximate		Weight	
							(inch)	(mm)	(lb)	(kg)
NXL0050A1002	460 Vac	5 HP	MF4	Stand-alone drive	NEMA 1	9A	5 x 11.5 x 7.5	128 x 292 x 190	11 lb	5.0 kg
NXL0050A1200	460 Vac	5 HP	MF4	Stand-alone drive	NEMA 12	9A	5 x 11.5 x 7.5	128 x 292 x 190	11 lb	5.0 kg
NXL0075A1003	460 Vac	7.5 HP	MF4	Stand-alone drive	NEMA 1	12A	5 x 11.5 x 7.5	128 x 292 x 190	11 lb	5.0 kg
NXL0075A1201	460 Vac	7.5 HP	MF4	Stand-alone drive	NEMA 12	12A	5 x 11.5 x 7.5	128 x 292 x 190	11 lb	5.0 kg

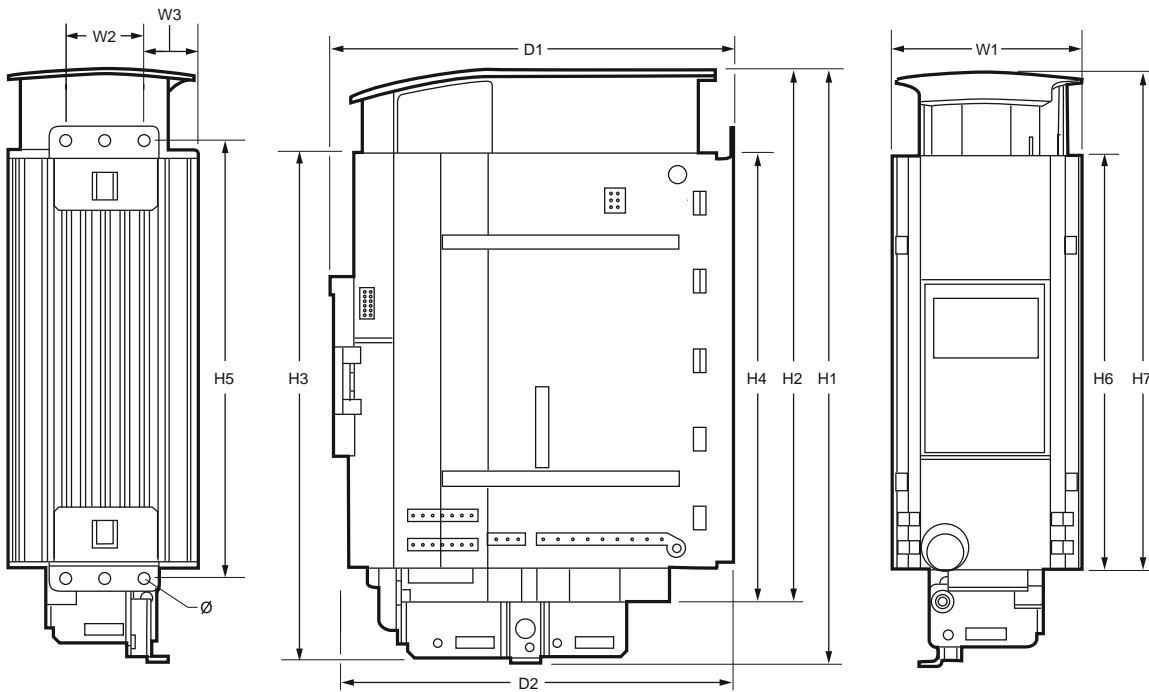
Dimensions in inches (millimeters)



TYPE	DIMENSIONS (INCH)												
	W1	W2	H1	H2	H3	H4	H5	H6	H7	H8	D1	D2	Ø
MF2	1.18	2.36	6.77	5.98	5.51	5.12	3.15	1.65	0.43	0.24	5.91	5.67	0.24

M19555

Variable Frequency Drives



TYPE	DIMENSIONS (INCH)												
	W1	W2	W3	H1	H2	H3	H4	H5	H6	H7	D1	D2	Ø
MF3	1.31	1.38	0.91	10.31	9.25	8.78	7.83	7.60	7.24	8.66	6.77	6.54	0.24

M19556

Variable Frequency Drives

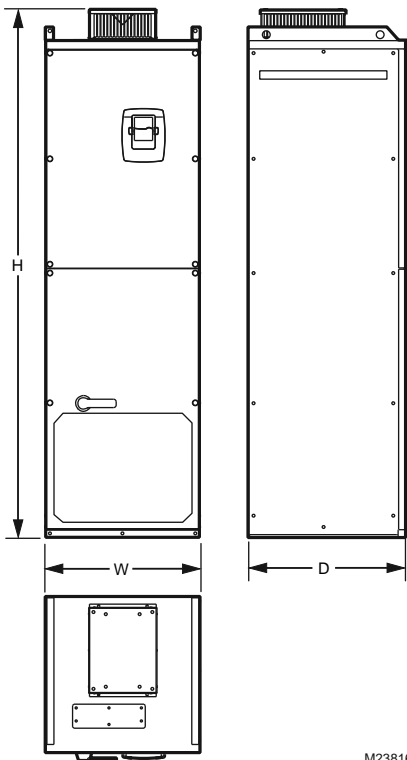
NXP Variable Frequency Drives



Variable Frequency Drives (VFD) accept a control input and then output tailored PWM control signal to operate (motors, fans, pumps, etc.) with maximum efficiency. The VFD can be field-programmed without any extra devices or computer connections

- Seven configurable applications built in.
- Easy commissioning through software or control panel.
- Devices are free-standing to ensure secure installation.
- Insulated gate bi-polar transistor (IGBT) technology.

Dimensions in inches (millimeters)



M23816

Drive Family: NXP

Acceleration time: 0 - 3000 sec

Deceleration time: 0 - 3000 sec

Analog Current Input: 0 (4) - 20 mA, 250 ohm differential

Analog Voltage Input: 0 - 10 Vdc, 200K ohm

Analog Current Output: 0 (4) - 20 mA, max 500 ohm

Digital Output: 50 mA/48v open collector

Continuous Output Current: overload 1.5 x High overload current (1min/10min); overload 1.1 x Low overload current (1min/10min)

Relay Output: 24 Vdc/8A; 125 Vdc/0.4A; 250 Vac/8A

Reference Output Voltage: +10V, +3%, max 10mA

Auxiliary Voltage: 24V, ±15%, max 250 mA

Starting Current: 2 x high overload current, 2 seconds every 20 seconds

Starting Torque: 200% High; 150% Low

Frequency: 0 Hz to 320 Hz

Operating Temperature: High Overload 14 to 122 (High Overload -10 to 50); Low Overload 14 to 104 (Low Overload -10 to 40)

Type of RFI Filter: Industrial filter

Layout: Stand-alone drive

Type of Enclosure: NEMA 1

Bypass: Drive only, no bypass

Product Number	Voltage	Horsepower	Frame Type	Current Rating	Dimensions, Approximate		Weight (lb)	Weight (kg)
					(inch)	(mm)		
NXP3000A1003	460 Vac	300 HP	FR10	385 A	23.4 x 79.5 x 23.7	595 x 2018 x 602	595.25 lb	270.0 kg
NXP3500A1008	460 Vac	350 HP	FR10	460 A	23.4 x 79.5 x 23.7	595 x 2018 x 602	595.25 lb	270.0 kg
NXP4500A1006	460 Vac	450 HP	FR10	520A	23.4 x 79.5 x 23.7	595 x 2018 x 602	595.25 lb	270.0 kg

Variable Frequency Drives

NXS Variable Frequency Drives



Variable Frequency Drives (VFD) accept a control input and then output tailored PWM control signal to operate (fans, pumps, etc.) with maximum efficiency. The VFD can be field-programmed without any extra devices or computer connections.

- Seven configurable applications built in.
- Easy commissioning through software or control panel.
- Devices can be wall-mounted or panel-mounted.
- Eleven protective functions (see Form 63-2600, Users Manual, Technical Data sections).
- Compact Size.
- Insulated gate bi-polar transistor (IGBT) technology.
- Modbus, BacNet, Device Net, Profibus, LdbBus, NS available as options cards.+

Drive Family: NXS

Acceleration time: 0 - 3000 sec

Deceleration time: 0 - 3000 sec

Analog Current Input: 0 (4) - 20 mA, 250 ohm differential

Analog Voltage Input: 0 - 10 Vdc, 200K ohm

Analog Current Output: 0 (4) - 20 mA, max 500 ohm

Digital Output: 50 mA/48v open collector

Continuous Output Current: overload 1.5 x High overload current (1min/10min); overload 1.1 x Low overload current (1min/10min)

Relay Output: 24 Vdc/8A; 125 Vdc/0.4A; 250 Vac/8A

Reference Output Voltage: +10V, +3%, max 10mA

Auxiliary Voltage: 24V, ±15%, max 250 mA

Starting Current: 2 x high overload current, 2 seconds every 20 seconds

Starting Torque: 200% High; 150% Low

Frequency: 0 Hz to 320 Hz

Operating Temperature: High Overload 14 to 122 (High Overload -10 to 50); Low Overload 14 to 104 (Low Overload -10 to 40)

Type of RFI Filter: Industrial filter

Bypass: Drive only, no bypass

Voltage: 208 Vac; 230 Vac

Product Number	Horsepower	Frame Type	Layout	Type of Enclosure	Current Rating	Dimensions, Approximate		Weight	
						(inch)	(mm)	(lb)	(kg)
NXS0010B1000	1 HP	FR4	Stand-alone drive	NEMA 1	4.8 A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0010B1208	1 HP	FR4	Stand-alone drive	NEMA 12	4.8 A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0015B1005	1.5 HP	FR4	Stand-alone drive	NEMA 1	6.6A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0015B1203	1.5 HP	FR4	Stand-alone drive	NEMA 12	6.6A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0020B1008	2 HP	FR4	Stand-alone drive	NEMA 1	7.8A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0020B1206	2 HP	FR4	Stand-alone drive	NEMA 12	7.8A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0030B1006	3 HP	FR4	Stand-alone drive	NEMA 1	11A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0030B1204	3 HP	FR4	Stand-alone drive	NEMA 12	11A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0040B1004	4 HP	FR4	Stand-alone drive	NEMA 1	12.5A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	17.9 lb	8.1 kg
NXS0040B1202	4 HP	FR4	Stand-alone drive	NEMA 12	12.5A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	17.9 lb	8.1 kg
NXS0050B1001	5 HP	FR5	Stand-alone drive	NEMA 1	17.5A	5.7 x 15.4 x 8.4	144.8 x 391.2 x 213.4	17.9 lb	8.1 kg
NXS0050B1209	5 HP	FR5	Stand-alone drive	NEMA 12	17.5A	5.7 x 15.4 x 8.4	144.8 x 391.2 x 213.4	17.9 lb	8.1 kg
NXS0075B1002	7.5 HP	FR5	Stand-alone drive	NEMA 1	25 A	5.7 x 15.4 x 8.4	144.8 x 391.2 x 213.4	17.9 lb	8.1 kg
NXS0075B1200	7.5 HP	FR5	Stand-alone drive	NEMA 12	25 A	5.7 x 15.4 x 8.4	144.8 x 391.2 x 213.4	17.9 lb	8.1 kg
NXS0100B1001	10 HP	FR5	Stand-alone drive	NEMA 1	31.0 A	5.7 x 15.4 x 8.4	144.8 x 391.2 x 213.4	40.8 lb	18.5 kg
NXS0100B1209	10 HP	FR5	Stand-alone drive	NEMA 12	31.0 A	5.7 x 15.4 x 8.4	144.8 x 391.2 x 213.4	40.8 lb	18.5 kg
NXS0150B1000	15 HP	FR6	Stand-alone drive	NEMA 1	48 A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0150B1208	15 HP	FR6	Stand-alone drive	NEMA 12	48 A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0200B1000	20 HP	FR6	Stand-alone drive	NEMA 1	61A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	77.2 lb	35.0 kg
NXS0200B1208	20 HP	FR6	Stand-alone drive	NEMA 12	61A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	77.2 lb	35.0 kg
NXS0250B1009	25 HP	FR7	Stand-alone drive	NEMA 1	75A	9.3 x 23.3 x 10.1	236.2 x 519.9 x 256.5	77.2 lb	35.0 kg
NXS0250B1207	25 HP	FR7	Stand-alone drive	NEMA 12	75A	9.3 x 23.3 x 10.1	236.2 x 519.9 x 256.5	77.2 lb	35.0 kg
NXS0300B1009	30 HP	FR7	Stand-alone drive	NEMA 1	88A	9.3 x 23.3 x 10.1	236.2 x 519.9 x 256.5	77.2 lb	35.0 kg
NXS0400B1008	40 HP	FR8	Stand-alone drive	NEMA 1	114A	9.3 x 23.3 x 10.1	236.2 x 519.9 x 256.5	127.9 lb	58.0 kg
NXS0400B1206	40 HP	FR8	Stand-alone drive	NEMA 12	114A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS0500B1007	50 HP	FR8	Stand-alone drive	NEMA 1	143A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg

Variable Frequency Drives

Product Number	Horse-power	Frame Type	Layout	Type of Enclosure	Current Rating	Dimensions, Approximate		Weight	
						(inch)	(mm)	(lb)	(kg)
NXS0500B1205	50 HP	FR8	Stand-alone drive	NEMA 12	143A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS0600B1006	60 HP	FR8	Stand-alone drive	NEMA 1	169A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS0600B1204	60 HP	FR8	Stand-alone drive	NEMA 12	169A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS0750B1004	75 HP	FR8	Stand-alone drive	NEMA 1	205 A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg

Voltage: 460 Vac

Product Number	Horse-power	Frame Type	Layout	Type of Enclosure	Current Rating	Dimensions, Approximate		Weight	
						(inch)	(mm)	(lb)	(kg)
NXS0015A1007	1.5 HP	FR4	Stand-alone drive	NEMA 1	3.3A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0015A1205	1.5 HP	FR4	Stand-alone drive	NEMA 12	3.3A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0020A1000	2 HP	FR4	Stand-alone drive	NEMA 1	4.3 A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0020A1208	2 HP	FR4	Stand-alone drive	NEMA 12	4.3 A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0030A1008	3 HP	FR4	Stand-alone drive	NEMA 1	5.6A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0030A1206	3 HP	FR4	Stand-alone drive	NEMA 12	5.6A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0040A1006	4 HP	FR4	Stand-alone drive	NEMA 1	7.6A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0040A1204	4 HP	FR4	Stand-alone drive	NEMA 12	7.6A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0050A1003	5 HP	FR4	Stand-alone drive	NEMA 1	9A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0050A1201	5 HP	FR4	Stand-alone drive	NEMA 12	9A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0075A1004	7.5 HP	FR4	Stand-alone drive	NEMA 1	12A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0075A1202	7.5 HP	FR4	Stand-alone drive	NEMA 12	12A	5.4 x 11.5 x 7.5	137.2 x 292.1 x 190.5	11 lb	5.0 kg
NXS0100A1003	10 HP	FR5	Stand-alone drive	NEMA 1	16A	5.7 x 15.4 x 8.4	144.8 x 391.2 x 213.4	17.9 lb	8.1 kg
NXS0100A1201	10 HP	FR5	Stand-alone drive	NEMA 12	16A	5.7 x 15.4 x 8.4	144.8 x 391.2 x 213.4	17.9 lb	8.1 kg
NXS0150A1002	15 HP	FR5	Stand-alone drive	NEMA 1	23 A	5.7 x 15.4 x 8.4	144.8 x 391.2 x 213.4	17.9 lb	8.1 kg
NXS0150A1200	15 HP	FR5	Stand-alone drive	NEMA 12	23 A	5.7 x 15.4 x 8.4	144.8 x 391.2 x 213.4	17.9 lb	8.1 kg
NXS0200A1002	20 HP	FR5	Stand-alone drive	NEMA 1	31.0 A	5.7 x 15.4 x 8.4	144.8 x 391.2 x 213.4	17.9 lb	8.1 kg
NXS0200A1200	20 HP	FR5	Stand-alone drive	NEMA 12	31.0 A	5.7 x 15.4 x 8.4	144.8 x 391.2 x 213.4	17.9 lb	8.1 kg
NXS0250A1001	25 HP	FR6	Stand-alone drive	NEMA 1	38 A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0250A1209	25 HP	FR6	Stand-alone drive	NEMA 12	38 A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0300A1001	30 HP	FR6	Stand-alone drive	NEMA 1	46 A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0300A1209	30 HP	FR6	Stand-alone drive	NEMA 12	46 A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0400A1000	40 HP	FR6	Stand-alone drive	NEMA 1	61A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0400A1208	40 HP	FR6	Stand-alone drive	NEMA 12	61A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0500A1009	50 HP	FR7	Stand-alone drive	NEMA 1	72A	9.3 x 23.3 x 10.1	236.2 x 519.9 x 256.5	77.2 lb	35.0 kg
NXS0500A1207	50 HP	FR7	Stand-alone drive	NEMA 12	72A	9.3 x 23.3 x 10.1	236.2 x 519.9 x 256.5	77.2 lb	35.0 kg
NXS0600A1008	60 HP	FR7	Stand-alone drive	NEMA 1	87A	9.3 x 23.3 x 10.1	236.2 x 519.9 x 256.5	77.2 lb	35.0 kg
NXS0600A1206	60 HP	FR7	Stand-alone drive	NEMA 12	87A	9.3 x 23.3 x 10.1	236.2 x 519.9 x 256.5	77.2 lb	35.0 kg
NXS0750A1006	75 HP	FR7	Stand-alone drive	NEMA 1	105A	9.3 x 23.3 x 10.1	236.2 x 519.9 x 256.5	77.2 lb	35.0 kg
NXS0750A1204	75 HP	FR7	Stand-alone drive	NEMA 12	105A	9.3 x 23.3 x 10.1	236.2 x 519.9 x 256.5	77.2 lb	35.0 kg
NXS1000A1002	100 HP	FR8	Stand-alone drive	NEMA 1	140A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS1000A1200	100 HP	FR8	Stand-alone drive	NEMA 12	140A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS1250A1009	125 HP	FR8	Stand-alone drive	NEMA 1	170A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS1250A1207	125 HP	FR8	Stand-alone drive	NEMA 12	170A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS1500A1007	150 HP	FR8	Stand-alone drive	NEMA 1	205 A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS1500A1205	150 HP	FR8	Stand-alone drive	NEMA 12	205 A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS2000A1000	200 HP	FR9	Stand-alone drive	NEMA 1	261 A	18.9 x 45.3 x 14.3	480 x 1150 x 362	321.9 lb	146.0 kg
NXS2500A1005	250 HP	FR9	Stand-alone drive	NEMA 1					

Voltage: 575 Vac

Product Number	Horse-power	Frame Type	Layout	Type of Enclosure	Current Rating	Dimensions, Approximate		Weight	
						(inch)	(mm)	(lb)	(kg)
NXS0030C1004	3 HP	FR6	Stand-alone drive	NEMA 1	4.5 A	7.7 x 20.4 x 9.3	195 x 519 x 237	40.8 lb	18.5 kg
NXS0030C1202	3 HP	FR6	Stand-alone drive	NEMA 12	4.5 A	7.7 x 20.4 x 9.3	195 x 519 x 237	40.8 lb	18.5 kg

Variable Frequency Drives

Product Number	Horse-power	Frame Type	Layout	Type of Enclosure	Current Rating	Dimensions, Approximate		Weight	
						(inch)	(mm)	(lb)	(kg)
NXS0040C1002	4 HP	FR6	Stand-alone drive	NEMA 1	5.5 A	7.7 x 20.4 x 9.3	195 x 519 x 237	40.8 lb	18.5 kg
NXS0040C1200	4 HP	FR6	Stand-alone drive	NEMA 12	5.5 A	7.7 x 20.4 x 9.3	195 x 519 x 237	40.8 lb	18.5 kg
NXS0050C1009	5 HP	FR6	Stand-alone drive	NEMA 1	7.5A	7.7 x 20.4 x 9.3	195 x 519 x 237	40.8 lb	18.5 kg
NXS0050C1207	5 HP	FR6	Stand-alone drive	NEMA 12	7.5A	7.7 x 20.4 x 9.3	195 x 519 x 237	40.8 lb	18.5 kg
NXS0075C1000	7.5 HP	FR6	Stand-alone drive	NEMA 1	10A	7.7 x 20.4 x 9.3	195 x 519 x 237	40.8 lb	18.5 kg
NXS0075C1208	7.5 HP	FR6	Stand-alone drive	NEMA 12	10A	7.7 x 20.4 x 9.3	195 x 519 x 237	40.8 lb	18.5 kg
NXS0100C1009	10 HP	FR6	Stand-alone drive	NEMA 1	13.5A	7.7 x 20.4 x 9.3	195 x 519 x 237	40.8 lb	18.5 kg
NXS0100C1207	10 HP	FR6	Stand-alone drive	NEMA 12	13.5A	7.7 x 20.4 x 9.3	195 x 519 x 237	40.8 lb	18.5 kg
NXS0150C1008	15 HP	FR6	Stand-alone drive	NEMA 1	18A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0150C1206	15 HP	FR6	Stand-alone drive	NEMA 12	18A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0200C1008	20 HP	FR6	Stand-alone drive	NEMA 1	22A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0200C1206	20 HP	FR6	Stand-alone drive	NEMA 12	22A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0250C1007	25 HP	FR6	Stand-alone drive	NEMA 1	27 A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0250C1205	25 HP	FR6	Stand-alone drive	NEMA 12	27 A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0300C1007	30 HP	FR6	Stand-alone drive	NEMA 1	34.0 A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0300C1205	30 HP	FR6	Stand-alone drive	NEMA 12	34.0 A	7.7 x 20.4 x 9.3	195.6 x 518.2 x 236.2	40.8 lb	18.5 kg
NXS0400C1006	40 HP	FR7	Stand-alone drive	NEMA 1	41.0 A	16 x 62 x 12	406 x 1575 x 330	77.2 lb	35.0 kg
NXS0400C1204	40 HP	FR7	Stand-alone drive	NEMA 12	41.0 A	9.3 x 23.3 x 10.1	236.2 x 519.9 x 256.5	77.2 lb	35.0 kg
NXS0500C1005	50 HP	FR7	Stand-alone drive	NEMA 1	52A	16 x 62 x 12	406 x 1575 x 330	77.2 lb	35.0 kg
NXS0500C1203	50 HP	FR7	Stand-alone drive	NEMA 12	52A	16 x 62 x 12	406 x 1575 x 330	77.2 lb	35.0 kg
NXS0600C1004	60 HP	FR8	Stand-alone drive	NEMA 1	62A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS0600C1202	60 HP	FR8	Stand-alone drive	NEMA 12	62A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS0750C1002	75 HP	FR8	Stand-alone drive	NEMA 1	80A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS0750C1200	75 HP	FR8	Stand-alone drive	NEMA 12	80A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS1000C1008	100 HP	FR8	Stand-alone drive	NEMA 1	100A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS1000C1206	100 HP	FR8	Stand-alone drive	NEMA 12	100A	11.2 x 28.4 x 12.3	284.5 x 721.4 x 312.4	127.9 lb	58.0 kg
NXS1250C1005	125 HP	FR9	Stand-alone drive	NEMA 1	125A	18.9 x 45.3 x 14.3	480 x 1150 x 362	321.9 lb	146.0 kg
NXS1250C1203	125 HP	FR9	Stand-alone drive	NEMA 12	125A	18.9 x 45.3 x 14.3	480 x 1150 x 362	321.9 lb	146.0 kg
NXS1500C1003	150 HP	FR9	Stand-alone drive	NEMA 1	144A	18.9 x 45.3 x 14.3	480 x 1150 x 362	321.9 lb	146.0 kg
NXS1500C1201	150 HP	FR9	Stand-alone drive	NEMA 12	144A	18.9 x 45.3 x 14.3	480 x 1150 x 362	321.9 lb	146.0 kg
NXS2000C1006	200 HP	FR9	Stand-alone drive	NEMA 1	208 A	18.9 x 45.3 x 14.3	480 x 1150 x 362	321.9 lb	146.0 kg
NXS2000C1204	200 HP	FR9	Stand-alone drive	NEMA 12	208 A	18.9 x 45.3 x 14.3	480 x 1150 x 362	321.9 lb	146.0 kg

Variable Frequency Drives with Bypass

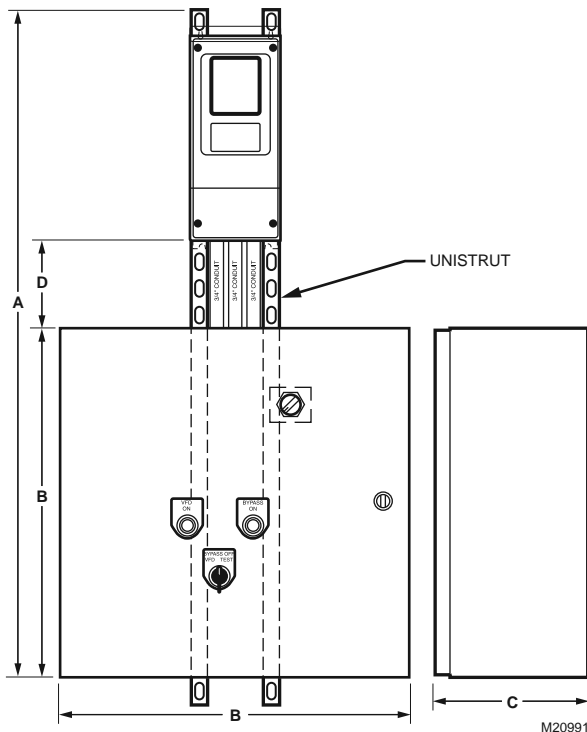
NXL Variable Frequency Drives with Cool Blue bypass



Variable Frequency Drives (VFD) accept a control input and then output tailored PWM control signal to operate (motors, fans, pumps, etc.) with maximum efficiency. The VFD can be field-programmed without any extra devices or computer connections.

- Seven configurable applications built in.
- Easy commissioning through software or control panel.
- Devices can be wall-mounted or panel-mounted.
- Eleven protective functions (see Form 63-2600, Users Manual, Technical Data sections).
- Insulated gate bi-polar transistor (IGBT) technology.
- Modbus, BacNet, Device Net, Profibus, LobBus, NS available as options cards.

Dimensions in inches (millimeters)



Drive Family: NXL

Acceleration time: 0 - 3000 sec

Deceleration time: 0 - 3000 sec

Analog Current Input: 0 (4) - 20 mA, 250 ohm differential

Analog Voltage Input: 0 - 10 Vdc, 200K ohm

Analog Current Output: 0 (4) - 20 mA, max 500 ohm

Digital Output: 50 mA/48v open collector

Continuous Output Current: overload 1.5 x High overload current (1min/10min); overload 1.1 x Low overload current (1min/10min)

Relay Output: 24 Vdc/8A; 125 Vdc/0.4A; 250 Vac/8A

Reference Output Voltage: +10V, +3%, max 10mA

Auxiliary Voltage: 24V, ±15%, max 250 mA

Starting Current: 2 x high overload current, 2 seconds every 20 seconds

Starting Torque: 200% High; 150% Low

Frequency: 0 Hz to 320 Hz

Operating Temperature: High Overload 14 to 122 (High Overload -10 to 50); Low Overload 14 to 104 (Low Overload -10 to 40)

Type of RFI Filter: Industrial filter

Layout: Vertical

Drive Input Fuses: No

Variable Frequency Drives with Bypass

Voltage: 460 Vac
 Type of Enclosure: NEMA 1
 Bypass: Cool Blue

Product Number	Horsepower	Frame Type	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Pilot Lights	Dimensions, Approximate		Weight (lb)
									(inch)	(mm)	
NXBJ0015CL10200000	1.5 HP	FR4	3.3A	Two Contactor	No	No Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0015CL103F1110	1.5 HP	FR4	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0020CL10200000	2 HP	FR4	4.3 A	Two Contactor	No	No Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0020CL103F1110	2 HP	FR4	4.3 A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0030CL10200000	3 HP	FR4	5.6A	Two Contactor	No	No Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0030CL103F1110	3 HP	FR4	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0040CL10200000	4 HP	FR4	7.6A	Two Contactor	No	No Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0040CL103F1110	4 HP	FR4	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0050CL10200000	5 HP	FR4	0.37A	Two Contactor	No	No Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0050CL103F1110	5 HP	FR4	0.37A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0075CL10200000	7.5 HP	FR4	—	Two Contactor	No	No Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0075CL103F1110	7.5 HP	FR4	—	Three Contactor	Yes	Fused Disconnect	Yes	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0100CL10200000	10 HP	FR5	16A	Two Contactor	No	No Disconnect	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0100CL103F1110	10 HP	FR5	16A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0150CL10200000	15 HP	FR5	23 A	Two Contactor	No	No Disconnect	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0150CL103F1110	15 HP	FR5	23 A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0200CL10200000	20 HP	FR5	31 A	Two Contactor	No	No Disconnect	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0200CL103F1110	20 HP	FR5	31 A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0250CL10200000	25 HP	FR6	38 A	Two Contactor	No	No Disconnect	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0250CL103F1110	25 HP	FR6	38 A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0300CL10200000	30 HP	FR6	46 A	Two Contactor	No	No Disconnect	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0300CL103F1110	30 HP	FR6	46 A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0400CL10200000	40 HP	FR6	61A	Two Contactor	No	No Disconnect	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0400CL103F1110	40 HP	FR6	61A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb

Voltage: 460 Vac
 Type of Enclosure: NEMA 1
 Bypass: Disconnect Only

Product Number	Horsepower	Frame Type	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Pilot Lights	Dimensions, Approximate		Weight (lb)
									(inch)	(mm)	
NXBJ0015DL100F0000	1.5 HP	FR4	3.3A	—	No	Fused Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0020DL100F0000	2 HP	Call Customer Care	4.3 A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0030DL100F0000	3 HP	FR4	5.6A	—	No	Fused Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0040DL100F0000	4 HP	Call Customer Care	7.6A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0050DL100F0000	5 HP	Call Customer Care	0.37A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0075DL100F0000	7.5 HP	FR4	—	—	No	Fused Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0100DL100F0000	10 HP	FR4	16A	—	No	Fused Disconnect	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0150DL100F0000	15 HP	FR4	23 A	—	No	Fused Disconnect	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0200DL100F0000	20 HP	FR4	31 A	—	No	Fused Disconnect	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0250DL100F0000	25 HP	FR4	38 A	—	No	Fused Disconnect	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0300DL100F0000	30 HP	Call Customer Care	46 A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0400DL100F0000	40 HP	Call Customer Care	61A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care

Variable Frequency Drives with Bypass

Voltage: 460 Vac
Type of Enclosure: NEMA 12
Bypass: Cool Blue

Product Number	Horsepower	Frame Type	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Pilot Lights	Dimensions, Approximate		Weight (lb)
									(inch)	(mm)	
NXBJ0015CL20200000	1.5 HP	FR4	3.3A	Two Contactor	No	No Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0015CL203F1110	1.5 HP	FR4	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0020CL20200000	2 HP	FR4	4.3 A	Two Contactor	No	No Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0020CL203F1110	2 HP	FR4	4.3 A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0030CL20200000	3 HP	FR4	5.6A	Two Contactor	No	No Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0030CL203F1110	3 HP	FR4	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0040CL20200000	4 HP	FR4	7.6A	Two Contactor	No	No Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0040CL203F1110	4 HP	FR4	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0050CL20200000	5 HP	FR4	0.37A	Two Contactor	No	No Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0050CL203F1110	5 HP	FR4	0.37A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0075CL20200000	7.5 HP	FR4	—	Two Contactor	No	No Disconnect	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0075CL203F1110	7.5 HP	FR4	—	Three Contactor	Yes	Fused Disconnect	Yes	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0100CL20200000	10 HP	FR5	16A	Two Contactor	No	No Disconnect	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0100CL203F1110	10 HP	FR5	16A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0150CL20200000	15 HP	FR5	23 A	Two Contactor	No	No Disconnect	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0150CL203F1110	15 HP	FR5	23 A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0200CL20200000	20 HP	FR5	31 A	Two Contactor	No	No Disconnect	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0200CL203F1110	20 HP	FR5	31 A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0250CL20200000	25 HP	FR6	38 A	Two Contactor	No	No Disconnect	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0250CL203F1110	25 HP	FR6	38 A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0300CL20200000	30 HP	FR6	46 A	Two Contactor	No	No Disconnect	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0300CL203F1110	30 HP	FR6	46 A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0400CL20200000	40 HP	FR6	61A	Two Contactor	No	No Disconnect	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0400CL203F1110	40 HP	FR6	61A	Three Contactor	Yes	Fused Disconnect	Yes	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb

Voltage: 460 Vac
Type of Enclosure: NEMA 12
Bypass: Disconnect Only

Product Number	Horsepower	Frame Type	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Pilot Lights	Dimensions, Approximate		Weight (lb)
									(inch)	(mm)	
NXBJ0015DL200F0000	1.5 HP	Call Customer Care	3.3A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0020DL200F0000	2 HP	Call Customer Care	4.3 A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0030DL200F0000	3 HP	Call Customer Care	5.6A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0040DL200F0000	4 HP	Call Customer Care	7.6A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0050DL200F0000	5 HP	Call Customer Care	0.37A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0075DL200F0000	7.5 HP	Call Customer Care	—	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0100DL200F0000	10 HP	Call Customer Care	16A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0150DL200F0000	15 HP	Call Customer Care	23 A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0200DL200F0000	20 HP	Call Customer Care	31 A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0250DL200F0000	25 HP	Call Customer Care	38 A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0300DL200F0000	30 HP	Call Customer Care	46 A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ0400DL200F0000	40 HP	Call Customer Care	61A	—	No	Fused Disconnect	No	No	Call Customer Care	Call Customer Care	Call Customer Care

Variable Frequency Drives with Bypass

Voltage: 460 Vac

Type of Enclosure: NEMA 3R

Bypass: Cool blue

Product Number	Horsepower	Frame Type	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Pilot Lights	Dimensions, Approximate		Weight (lb)
									(inch)	(mm)	
NXBJ0150CL30200000	15 HP	FR5	23 A	Two Contactor	No	No Disconnect	No	No	24 x 30 x 10	600 x 750 x 250	78 lb

Voltage: 460 Vac

Type of Enclosure: NEMA 3R

Bypass: Disconnect Only

Product Number	Horsepower	Frame Type	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Pilot Lights	Dimensions, Approximate		Weight (lb)
									(inch)	(mm)	
NXBJ0015DL300F0000	1.5 HP	Call Customer Care	3.3A	—	No	Fused Disconnect	No	No	Call Customer Care		
NXBJ0020DL300F0000	2 HP	Call Customer Care	4.3 A	—	No	Fused Disconnect	No	No	Call Customer Care		
NXBJ0030DL300F0000	3 HP	Call Customer Care	5.6A	—	No	Fused Disconnect	No	No	Call Customer Care		
NXBJ0040DL300F0000	4 HP	Call Customer Care	7.6A	—	No	Fused Disconnect	No	No	Call Customer Care		
NXBJ0050DL300F0000	5 HP	Call Customer Care	0.37A	—	No	Fused Disconnect	No	No	Call Customer Care		
NXBJ0075DL300F0000	7.5 HP	Call Customer Care	—	—	No	Fused Disconnect	No	No	Call Customer Care		
NXBJ0100DL300F0000	10 HP	Call Customer Care	16A	—	No	Fused Disconnect	No	No	Call Customer Care		
NXBJ0150DL300F0000	15 HP	Call Customer Care	23 A	—	No	Fused Disconnect	No	No	Call Customer Care		
NXBJ0200DL300F0000	20 HP	Call Customer Care	31 A	—	No	Fused Disconnect	No	No	Call Customer Care		
NXBJ0250DL300F0000	25 HP	Call Customer Care	38 A	—	No	Fused Disconnect	No	No	Call Customer Care		
NXBJ0300DL300F0000	30 HP	Call Customer Care	46 A	—	No	Fused Disconnect	No	No	Call Customer Care		
NXBJ0400DL300F0000	40 HP	Call Customer Care	61A	—	No	Fused Disconnect	No	No	Call Customer Care		

Voltage: 460 Vac

Type of Enclosure: NEMA 3R with Cooling Fan and Heat Strip

Disconnect Type: Fused Disconnect

Product Number	Horsepower	Frame Type	Bypass	Current Rating	Contactor	Control Transformer	Drive Input Disconnect	Pilot Lights	Dimensions, Approximate		Weight (lb)
									(inch)	(mm)	
NXBJ0200CL602F0000	20 HP	FR5	Cool Blue	31 A	Two Contactor	No	No	No	24 x 30 x 10	600 x 750 x 250	78 lb
NXBJ0200DL602F0000	20 HP	FR5	Disconnect only	31 A	—	No	No	No	24 x 30 x 10	600 x 750 x 250	78 lb
NXBJ0300CL602F0000	30 HP	FR6	Cool Blue	46 A	Two Contactor	No	No	No	30 x 36 x 12	750 x 900 x 300	124 lb
NXBJ0300DL602F0000	30 HP	FR5	Disconnect only	46 A	—	No	No	No	30 x 36 x 12	750 x 900 x 300	124 lb

Variable Frequency Drives with Bypass

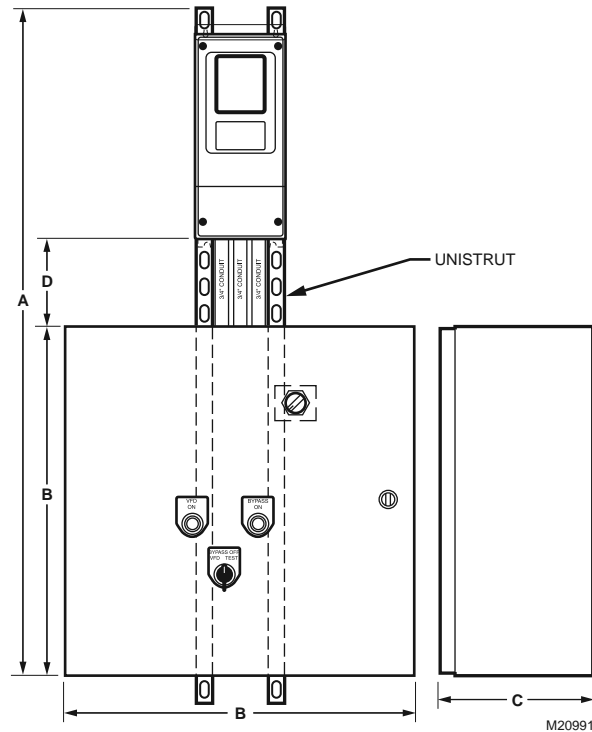
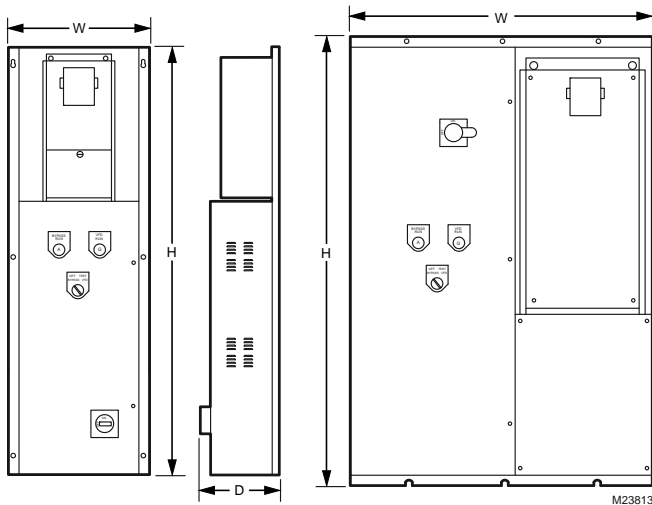
NXS Variable Frequency Drives with Cool Blue bypass



Variable Frequency Drives (VFD) accept a control input and then output tailored PWM control signal to operate (motors, fans, pumps, etc.) with maximum efficiency. The VFD can be field-programmed without any extra devices or computer connections.

- Seven configurable applications built in.
- Easy commissioning through software or control panel.
- Devices can be wall-mounted or panel-mounted.
- Eleven protective functions (see Form 63-2600, Users Manual, Technical Data sections).
- Insulated gate bi-polar transistor (IGBT) technology.
- Modbus, BacNet, Device Net, Profibus, LobBus, NS available as options cards.

Dimensions in inches (millimeters)



Drive Family: NXL
Acceleration time: 0 - 3000 sec
Deceleration time: 0 - 3000 sec
Analog Current Input: 0 (4) - 20 mA, 250 ohm differential
Analog Voltage Input: 0 - 10 Vdc, 200K ohm
Analog Current Output: 0 (4) - 20 mA, max 500 ohm
Digital Output: 50 mA/48v open collector
Continuous Output Current: overload 1.5 x High overload current (1min/10min); overload 1.1 x Low overload current (1min/10min)
Relay Output: 24 Vdc/8A; 125 Vdc/0.4A; 250 Vac/8A

Reference Output Voltage: +10V, +3%, max 10mA
Auxiliary Voltage: 24V, ±15%, max 250 mA
Starting Current: 2 x high overload current, 2 seconds every 20 seconds
Starting Torque: 200% High; 150% Low
Frequency: 0 Hz to 320 Hz
Operating Temperature: High Overload 14 to 122 (High Overload -10 to 50); Low Overload 14 to 104 (Low Overload -10 to 40)
Type of RFI Filter: Industrial filter

Variable Frequency Drives with Bypass

Voltage: 208 Vac
 Type of Enclosure: NEMA 1
 Bypass: Cool Blue

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBK0010CS10200000	1 HP	FR4	Vertical	—	4.8A	Two Contactor	No	No Disconnect	No	N	No	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBK0010CS103F1110	1 HP	FR4	Vertical	—	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	Y	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBK0010CS113F1110	1 HP	FR4	Vertical	—	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBK0010CS133F1110	1 HP	FR4	Vertical	Hand Off Auto	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBK0010DS100F0000	1 HP	FR4	Vertical	—	4.8A		No	No Disconnect	No	N	No	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBK0015CS10200000	1.5 HP	FR4	Vertical	—	6.6A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0015CS103F1110	1.5 HP	FR4	Vertical	—	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0015CS113F1110	1.5 HP	FR4	Vertical	—	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBK0015CS133F1110	1.5 HP	FR4	Vertical	Hand Off Auto	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBK0020CS10200000	2 HP	FR4	Vertical	—	7.8A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0020CS103F1110	2 HP	FR4	Vertical	—	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0020CS113F1110	2 HP	FR4	Vertical	—	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBK0020CS133F1110	2 HP	FR4	Vertical	Hand Off Auto	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBK0030CS10200000	3 HP	FR4	Vertical	—	0.46A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0030CS103F1110	3 HP	FR4	Vertical	—	0.46A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0030CS113F1110	3 HP	FR4	Vertical	—	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBK0030CS133F1110	3 HP	FR4	Vertical	Hand Off Auto	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBK0040CS10200000	4 HP	FR4	Vertical	—	12.5A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0040CS103F1110	4 HP	FR4	Vertical	—	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0040CS113F1110	4 HP	FR4	Vertical	—	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBK0040CS133F1110	4 HP	FR4	Vertical	Hand Off Auto	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBK0050CS10200000	5 HP	FR5	Vertical	—	17.5A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBK0050CS103F1110	5 HP	FR5	Vertical	—	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBK0050CS113F1110	5 HP	FR5	Vertical	—	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBK0050CS133F1110	5 HP	FR5	Vertical	Hand Off Auto	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBK0075CS10200000	7.5 HP	FR5	Vertical	—	25 A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBK0075CS103F1110	7.5 HP	FR5	Vertical	—	25 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBK0075CS113F1110	7.5 HP	FR5	Vertical	—	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBK0075CS133F1110	7.5 HP	FR5	Vertical	Hand Off Auto	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBK0100CS10200000	10 HP	FR5	Vertical	—	31 A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb

Commercial Components

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBK0100CS103F1110	10 HP	FR5	Vertical	—	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBK0100CS113F1110	10 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBK0100CS133F1110	10 HP	FR5	Vertical	Hand Off Auto	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBK0150CS10200000	15 HP	FR6	Vertical	—	48 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBK0150CS103F1110	15 HP	FR6	Vertical	—	48 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBK0150CS112F0010	15 HP	FR6	Vertical	Auto bypass	48 A	Two Contactor	No	Fused Disconnect	Yes	No	No	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBK0150CS113F1110	15 HP	FR6	Vertical	—	48A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBK0150CS133F1110	15 HP	FR6	Vertical	Hand Off Auto	48A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBK0200CS10200000	20 HP	FR6	Vertical	—	61A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBK0200CS103F1110	20 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBK0200CS113F1110	20 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBK0200CS133F1110	20 HP	FR6	Vertical	Hand Off Auto	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBK0250CS10200000	25 HP	FR7	Vertical	—	75A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBK0250CS103F1110	25 HP	FR7	Vertical	—	75A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 12	400 x 1550 x 300	154 lb
NXBK0250CS113F1110	25 HP	FR7	Vertical	—	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBK0250CS133F1110	25 HP	FR7	Vertical	Hand Off Auto	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBK0300CS10200000	30 HP	FR7	Vertical	—	88A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBK0300CS103F1110	30 HP	FR7	Vertical	—	88A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 12	400 x 1550 x 300	154 lb
NXBK0300CS113F1110	30 HP	FR7	Vertical	—	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBK0300CS133F1110	30 HP	FR7	Vertical	Hand Off Auto	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBK0400CS10200000	40 HP	FR8	Side by Side	—	114A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBK0400CS103F1110	40 HP	FR8	Side by Side	—	114A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBK0400CS113F1110	40 HP	FR7	Vertical	—	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBK0400CS133F1110	40 HP	FR7	Vertical	Hand Off Auto	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBK0500CS10200000	50 HP	FR8	Side by Side	—	140A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBK0500CS103F1110	50 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBK0500CS113F1110	50 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBK0500CS133F1110	50 HP	FR8	Side by Side	Hand Off Auto	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBK0600CS10200000	60 HP	FR8	Side by Side	—	170A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBK0600CS103F1110	60 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBK0600CS113F1110	60 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBK0600CS133F1110	60 HP	FR8	Side by Side	Hand Off Auto	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBK0750CS10200000	75 HP	FR8	Side by Side	—	205 A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBK0750CS103F1110	75 HP	FR8	Side by Side	—	205 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBK0750CS113F1110	75 HP	FR8	Side by Side	—	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBK0750CS133F1110	75 HP	FR8	Side by Side	Hand Off Auto	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb

Voltage: 208 Vac

Type of Enclosure: NEMA 1

Bypass: Disconnect only

Product Number	Horsepower	Frame Type	Layout	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
											(inch)	(mm)	
NXBK0015DS100F0000	1.5 HP	Call Customer Care	Vertical	6.6A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0020DS100F0000	2 HP	Call Customer Care	Vertical	7.8A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0030DS100F0000	3 HP	Call Customer Care	Vertical	0.46A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0040DS100F0000	4 HP	Call Customer Care	Vertical	12.5A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0050DS100F0000	5 HP	Call Customer Care	Vertical	17.5A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0075DS100F0000	7.5 HP	FR5	Vertical	25 A	—	No	Fused Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBK0100DS100F0000	10 HP	Call Customer Care	Vertical	31 A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0150DS100F0000	15 HP	Call Customer Care	Vertical	48 A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0200DS100F0000	20 HP	Call Customer Care	Vertical	61A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0250DS100F0000	25 HP	Call Customer Care	Vertical	75A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0250DS200F0000	25 HP	Call Customer Care	Vertical	75A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0250DS300F0000	25 HP	Call Customer Care	Vertical	75A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0300DS100F0000	30 HP	Call Customer Care	Vertical	88A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0400DS100F0000	40 HP	Call Customer Care	Side by Side	114A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0500DS100F0000	50 HP	Call Customer Care	Side by Side	140A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0600DS100F0000	60 HP	Call Customer Care	Side by Side	170A	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0750DS100F0000	75 HP	Call Customer Care	Side by Side	205 A	—	No	Fused Disconnect	No	No	No	Call Customer Care		

Voltage: 208 Vac

Type of Enclosure: NEMA 12

Bypass: Cool Blue

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBK0010CS20200000	1 HP	FR4	Vertical	—	4.8A	Two Contactor	No	No Disconnect	No	N	No	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBK0010CS203F1110	1 HP	FR4	Vertical	—	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBK0010CS213F1110	1 HP	FR4	Vertical	—	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBK0010CS233F1110	1 HP	FR4	Vertical	Hand Off Auto	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBK0010DS200F0000	1 HP	FR4	Vertical	—	4.8A		No	No Disconnect	No	N	No	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBK0015CS20200000	1.5 HP	FR4	Vertical	—	6.6A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0015CS203F1110	1.5 HP	FR4	Vertical	—	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0015CS213F1110	1.5 HP	FR4	Vertical	—	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBK0015CS233F1110	1.5 HP	FR4	Vertical	Hand Off Auto	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBK0020CS20200000	2 HP	FR4	Vertical	—	7.8A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0020CS203F1110	2 HP	FR4	Vertical	—	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0020CS213F1110	2 HP	FR4	Vertical	—	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBK0020CS233F1110	2 HP	FR4	Vertical	Hand Off Auto	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBK0030CS20200000	3 HP	FR4	Vertical	—	0.46A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0030CS203F1110	3 HP	FR4	Vertical	—	0.46A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0030CS213F1110	3 HP	FR4	Vertical	—	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBK0030CS233F1110	3 HP	FR4	Vertical	Hand Off Auto	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBK0040CS20200000	4 HP	FR4	Vertical	—	12.5A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0040CS203F1110	4 HP	FR4	Vertical	—	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBK0040CS213F1110	4 HP	FR4	Vertical	—	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBK0040CS233F1110	4 HP	FR4	Vertical	Hand Off Auto	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBK0050CS20200000	5 HP	FR5	Vertical	—	17.5A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBK0050CS203F1110	5 HP	FR5	Vertical	—	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBK0050CS213F1110	5 HP	FR5	Vertical	—	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBK0050CS233F1110	5 HP	FR5	Vertical	Hand Off Auto	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBK0075CS20200000	7.5 HP	FR5	Vertical	—	25 A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBK0075CS203F1110	7.5 HP	FR5	Vertical	—	25 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBK0075CS213F1110	7.5 HP	FR5	Vertical	—	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBK0075CS233F1110	7.5 HP	FR5	Vertical	Hand Off Auto	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBK0100CS20200000	10 HP	FR5	Vertical	—	31 A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBK0100CS203F1110	10 HP	FR5	Vertical	—	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBK0100CS213F1110	10 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	44H x 10D x 16W	1078H x 245D x 392W	70 lb
NXBK0100CS233F1110	10 HP	FR5	Vertical	Hand Off Auto	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	44H x 10D x 16W	1078H x 245D x 392W	70 lb
NXBK0150CS20200000	15 HP	FR6	Vertical	—	48 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBK0150CS203F1110	15 HP	FR6	Vertical	—	48 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBK0150CS213F1110	15 HP	FR6	Vertical	—	48A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	50H x 10D x 16W	1225H x 245D x 392W	120 lb
NXBK0150CS233F1110	15 HP	FR6	Vertical	Hand Off Auto	48A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	50H x 10D x 16W	1225H x 245D x 392W	120 lb
NXBK0200CS20200000	20 HP	FR6	Vertical	—	61A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBK0200CS203F1110	20 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBK0200CS213F1110	20 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 10D x 20W	1323H x 245D x 490W	136 lb
NXBK0200CS233F1110	20 HP	FR6	Vertical	Hand Off Auto	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 10D x 20W	1323H x 245D x 490W	136 lb
NXBK0250CS20200000	25 HP	FR7	Vertical	—	75A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBK0250CS213F1110	25 HP	FR7	Vertical	—	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBK0250CS233F1110	25 HP	FR7	Vertical	Hand Off Auto	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBK0300CS20200000	30 HP	FR7	Vertical	—	88A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBK0300CS213F1110	30 HP	FR7	Vertical	—	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBK0300CS233F1110	30 HP	FR7	Vertical	Hand Off Auto	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBK0400CS20200000	40 HP	FR8	Side by Side	—	114A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBK0400CS213F1110	40 HP	FR7	Vertical	—	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	64H x 12D x 24W	1568H x 294D x 588W	200 lb
NXBK0400CS233F1110	40 HP	FR7	Vertical	Hand Off Auto	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	64H x 12D x 24W	1568H x 294D x 588W	200 lb
NXBK0500CS20200000	50 HP	FR8	Side by Side	—	140A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBK0500CS213F1110	50 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBK0500CS233F1110	50 HP	FR8	Side by Side	Hand Off Auto	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBK0600CS20200000	60 HP	FR8	Side by Side	—	170A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBK0600CS213F1110	60 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBK0600CS233F1110	60 HP	FR8	Side by Side	Hand Off Auto	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBK0750CS20200000	75 HP	FR8	Side by Side	—	205 A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBK0750CS21200000	75 HP	FR8	Side by Side	—	205A	Two Contactor	No	No Disconnect	No	N	No	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBK0750CS213F1110	75 HP	FR8	Side by Side	—	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBK0750CS233F1110	75 HP	FR8	Side by Side	Hand Off Auto	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb

Variable Frequency Drives with Bypass

Voltage: 208 Vac
Type of Enclosure: NEMA 12
Bypass: Disconnect only

Product Number	Horsepower	Frame Type	Layout	Current Rating	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
										(inch)	(mm)	
NXBK0015DS200F0000	1.5 HP	Call Customer Care	Vertical	6.6A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0020DS200F0000	2 HP	Call Customer Care	Vertical	7.8A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0030DS200F0000	3 HP	Call Customer Care	Vertical	0.46A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0040DS200F0000	4 HP	Call Customer Care	Vertical	12.5A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0050DS200F0000	5 HP	Call Customer Care	Vertical	17.5A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0075DS200F0000	7.5 HP	Call Customer Care	Vertical	25 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0100DS200F0000	10 HP	Call Customer Care	Vertical	31 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0150DS200F0000	15 HP	Call Customer Care	Vertical	48 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0200DS200F0000	20 HP	Call Customer Care	Vertical	61A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0250DS200F0000	25 HP	Call Customer Care	Vertical	75A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0300DS200F0000	30 HP	Call Customer Care	Vertical	88A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0400DS200F0000	40 HP	Call Customer Care	Side by Side	114A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0500DS200F0000	50 HP	Call Customer Care	Side by Side	140A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0600DS200F0000	60 HP	Call Customer Care	Side by Side	170A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0750DS200F0000	75 HP	Call Customer Care	Side by Side	205 A	No	Fused Disconnect	No	No	No	Call Customer Care		

Voltage: 208 Vac
Type of Enclosure: NEMA 3R
Bypass: Cool Blue

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBK0010CS30000000	1 HP	FR4	Vertical	—	4.8A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0010CS30200000	1 HP	FR4	Vertical	—	4.8A	Two Contactor	No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0010CS303F1110	1 HP	FR4	Vertical	—	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0010CS313F1110	1 HP	FR4	Vertical	—	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0010CS333F1110	1 HP	FR4	Vertical	Hand Off Auto	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0010DS300F0000	1 HP	FR4	Vertical	—	4.8A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0015CS30000000	1.5 HP	FR4	Vertical	—	6.6A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0015CS303F1110	1.5 HP	FR4	Vertical	—	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0015CS313F1110	1.5 HP	FR4	Vertical	—	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0015CS333F1110	1.5 HP	FR4	Vertical	Hand Off Auto	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0020CS30000000	2 HP	FR4	Vertical	—	7.8A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0020CS30200000	2 HP	FR4	Vertical	—	7.8A	Two Contactor	No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBK0020CS303F1110	2 HP	FR4	Vertical	—	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0020CS313F1110	2 HP	FR4	Vertical	—	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0020CS333F1110	2 HP	FR4	Vertical	Hand Off Auto	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0030CS30000000	3 HP	FR4	Vertical	—	11A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0030CS303F1110	3 HP	FR4	Vertical	—	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0030CS313F1110	3 HP	FR4	Vertical	—	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0030CS333F1110	3 HP	FR4	Vertical	Hand Off Auto	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0040CS30000000	4 HP	FR4	Vertical	—	12.5A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0040CS303F1110	4 HP	FR4	Vertical	—	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0040CS313F1110	4 HP	FR4	Vertical	—	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0040CS333F1110	4 HP	FR4	Vertical	Hand Off Auto	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBK0050CS30000000	5 HP	FR5	Vertical	—	17.5A		No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBK0050CS303F1110	5 HP	FR5	Vertical	—	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBK0050CS313F1110	5 HP	FR5	Vertical	—	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBK0050CS333F1110	5 HP	FR5	Vertical	Hand Off Auto	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBK0075CS30000000	7.5 HP	FR5	Vertical	—	25A		No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBK0075CS30200000	7.5 HP	FR5	Vertical	—	25A	Two Contactor	No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBK0075CS303F1110	7.5 HP	FR5	Vertical	—	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBK0075CS313F1110	7.5 HP	FR5	Vertical	—	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBK0075CS333F1110	7.5 HP	FR5	Vertical	Hand Off Auto	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBK0100CS30000000	10 HP	FR5	Vertical	—	31A		No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBK0100CS303F1110	10 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBK0100CS313F1110	10 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBK0100CS333F1110	10 HP	FR5	Vertical	Hand Off Auto	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBK0150CS30000000	15 HP	FR6	Vertical	—	48A		No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBK0150CS313F1110	15 HP	FR6	Vertical	—	48A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBK0150CS333F1110	15 HP	FR6	Vertical	Hand Off Auto	48A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBK0200CS30000000	20 HP	FR6	Vertical	—	61A		No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBK0200CS303F1110	20 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBK0200CS313F1110	20 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBK0200CS333F1110	20 HP	FR6	Vertical	Hand Off Auto	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBK0250CS30000000	25 HP	FR7	Vertical	—	75A		No	No Disconnect	No	N	No	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBK0250CS30200000	25 HP	FR7	Vertical	—	75A	Two Contactor	No	No Disconnect	No	N	No	48H x 12D x 36W	1176H x 294D x 882W	193 lb

Commercial Components

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBK0250CS303F1110	25 HP	FR7	Vertical	—	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBK0250CS313F1110	25 HP	FR7	Vertical	—	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBK0250CS333F1110	25 HP	FR7	Vertical	Hand Off Auto	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBK0300CS30000000	30 HP	FR7	Vertical	—	88A		No	No Disconnect	No	N	No	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBK0300CS303F1110	30 HP	FR7	Vertical	—	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBK0300CS313F1110	30 HP	FR7	Vertical	—	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBK0300CS333F1110	30 HP	FR7	Vertical	Hand Off Auto	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBK0400CS30000000	40 HP	FR7	Vertical	—	114A		No	No Disconnect	No	N	No	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBK0400CS303F1110	40 HP	FR7	Vertical	—	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBK0400CS313F1110	40 HP	FR7	Vertical	—	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBK0400CS333F1110	40 HP	FR7	Vertical	Hand Off Auto	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBK0400CS603F1110	40 HP	FR7	Vertical	—	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBK0500CS303F1110	50 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBK0500CS313F1110	50 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBK0500CS333F1110	50 HP	FR8	Side by Side	Hand Off Auto	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBK0600CS30200000	60 HP	FR8	Side by Side	—	170A	Two Contactor	No	No Disconnect	No	N	No	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBK0600CS303F1110	60 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBK0600CS313F1110	60 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBK0600CS333F1110	60 HP	FR8	Side by Side	Hand Off Auto	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBK0750CS303F1110	75 HP	FR8	Side by Side	—	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBK0750CS313F1110	75 HP	FR8	Side by Side	—	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBK0750CS333F1110	75 HP	FR8	Side by Side	Hand Off Auto	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb

Voltage: 208 Vac

Type of Enclosure: NEMA 3R

Bypass: Disconnect only

Product Number	Horsepower	Frame Type	Layout	Current Rating	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
										(inch)	(mm)	
NXBK0015DS300F0000	1.5 HP	Call Customer Care	Vertical	6.6A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0020DS300F0000	2 HP	Call Customer Care	Vertical	7.8A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0030DS300F0000	3 HP	Call Customer Care	Vertical	0.46A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0040DS300F0000	4 HP	Call Customer Care	Vertical	12.5A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0050DS300F0000	5 HP	Call Customer Care	Vertical	17.5A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0075DS300F0000	7.5 HP	Call Customer Care	Vertical	25 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0100DS300F0000	10 HP	Call Customer Care	Vertical	31 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0150DS300F0000	15 HP	Call Customer Care	Vertical	48 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0200DS300F0000	20 HP	Call Customer Care	Vertical	61A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0250DS300F0000	25 HP	Call Customer Care	Vertical	75A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0300DS300F0000	30 HP	Call Customer Care	Vertical	88A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0400DS300F0000	40 HP	Call Customer Care	Side by Side	114A	No	Fused Disconnect	No	No	No	Call Customer Care		

Variable Frequency Drives with Bypass

Product Number	Horse-power	Frame Type	Layout	Current Rating	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
										(inch)	(mm)	
NXBK0500DS300F0000	50 HP	Call Customer Care	Side by Side	140A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0600DS300F0000	60 HP	Call Customer Care	Side by Side	170A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBK0750DS300F0000	75 HP	Call Customer Care	Side by Side	205 A	No	Fused Disconnect	No	No	No	Call Customer Care		

Voltage: 230 Vac
Type of Enclosure: NEMA 1
Bypass: Cool Blue

Product Number	Horse-power	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBS0010CS10200000	1 HP	FR4	Vertical	—	4.8A	Two Contactor	No	No Disconnect	No	N	No	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBS0010CS103F1110	1 HP	FR4	Vertical	—	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBS0010CS113F1110	1 HP	FR4	Vertical	—	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBS0010CS133F1110	1 HP	FR4	Vertical	Hand Off Auto	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBS0010DS100F0000	1 HP	FR4	Vertical	—	4.8A		No	No Disconnect	No	N	No	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBS0015CS10200000	1.5 HP	FR4	Vertical	—	6.6A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0015CS103F1110	1.5 HP	FR4	Vertical	—	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0015CS113F1110	1.5 HP	FR4	Vertical	—	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBS0015CS133F1110	1.5 HP	FR4	Vertical	Hand Off Auto	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBS0020CS10200000	2 HP	FR4	Vertical	—	7.8A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0020CS103F1110	2 HP	FR4	Vertical	—	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0020CS113F1110	2 HP	FR4	Vertical	—	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBS0020CS133F1110	2 HP	FR4	Vertical	Hand Off Auto	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBS0030CS10200000	3 HP	FR4	Vertical	—	11A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0030CS103F1110	3 HP	FR4	Vertical	—	11A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0030CS113F1110	3 HP	FR4	Vertical	—	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBS0030CS133F1110	3 HP	FR4	Vertical	Hand Off Auto	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBS0040CS10200000	4 HP	FR4	Vertical	—	12.5A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0040CS103F1110	4 HP	FR4	Vertical	—	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0040CS113F1110	4 HP	FR4	Vertical	—	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBS0040CS133F1110	4 HP	FR4	Vertical	Hand Off Auto	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBS0050CS10200000	5 HP	FR5	Vertical	—	17.5A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBS0050CS103F1110	5 HP	FR5	Vertical	—	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBS0050CS113F1110	5 HP	FR5	Vertical	—	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBS0050CS133F1110	5 HP	FR5	Vertical	Hand Off Auto	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBS0075CS10200000	7.5 HP	FR5	Vertical	—	25 A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBS0075CS103F1110	7.5 HP	FR5	Vertical	—	25 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb

Commercial Components

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBS0075CS113F1110	7.5 HP	FR5	Vertical	—	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBS0075CS133F1110	7.5 HP	FR5	Vertical	Hand Off Auto	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBS0100CS10200000	10 HP	FR5	Vertical	—	31 A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBS0100CS103F1110	10 HP	FR5	Vertical	—	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBS0100CS113F1110	10 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBS0100CS133F1110	10 HP	FR5	Vertical	Hand Off Auto	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBS0150CS10200000	15 HP	FR6	Vertical	—	48 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBS0150CS103F1110	15 HP	FR6	Vertical	—	48 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBS0150CS113F1110	15 HP	FR6	Vertical	—	48A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBS0150CS133F1110	15 HP	FR6	Vertical	Hand Off Auto	48A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBS0200CS10200000	20 HP	FR6	Vertical	—	61A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBS0200CS103F1110	20 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBS0200CS113F1110	20 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBS0200CS133F1110	20 HP	FR6	Vertical	Hand Off Auto	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBS0250CS10200000	25 HP	FR7	Vertical	—	75A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBS0250CS103F1110	25 HP	FR7	Vertical	—	75A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 12	400 x 1550 x 300	154 lb
NXBS0250CS113F1110	25 HP	FR7	Vertical	—	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBS0250CS133F1110	25 HP	FR7	Vertical	Hand Off Auto	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBS0300CS10200000	30 HP	FR7	Vertical	—	88A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBS0300CS103F1110	30 HP	FR7	Vertical	—	88A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 12	400 x 1550 x 300	154 lb
NXBS0300CS113F1110	30 HP	FR7	Vertical	—	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBS0300CS133F1110	30 HP	FR7	Vertical	Hand Off Auto	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBS0400CS10200000	40 HP	FR8	Side by Side	—	114A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBS0400CS103F1110	40 HP	FR8	Side by Side	—	114A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBS0400CS113F1110	40 HP	FR7	Vertical	—	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBS0400CS133F1110	40 HP	FR7	Vertical	Hand Off Auto	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBS0500CS10200000	50 HP	FR8	Side by Side	—	140A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBS0500CS103F1110	50 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBS0500CS113F1110	50 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBS0500CS133F1110	50 HP	FR8	Side by Side	Hand Off Auto	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBS0600CS10200000	60 HP	FR8	Side by Side	—	170A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBS0600CS103F1110	60 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBS0600CS113F1110	60 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBS0600CS133F1110	60 HP	FR8	Side by Side	Hand Off Auto	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBS0750CS10200000	75 HP	FR8	Side by Side	—	205 A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBS0750CS103F1110	75 HP	FR8	Side by Side	—	205 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBS0750CS113F1110	75 HP	FR8	Side by Side	—	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBS0750CS133F1110	75 HP	FR8	Side by Side	Hand Off Auto	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb

Voltage: 230 Vac

Type of Enclosure: NEMA 1

Bypass: Disconnect only

Product Number	Horsepower	Frame Type	Layout	Current Rating	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
										(inch)	(mm)	
NXBS0015DS100F0000	1.5 HP	Call Customer Care	Vertical	6.6A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0020DS100F0000	2 HP	Call Customer Care	Vertical	7.8A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0030DS100F0000	3 HP	FR4	Vertical	11A	No	Fused Disconnect	No	No	No	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBS0040DS100F0000	4 HP	Call Customer Care	Vertical	12.5A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0050DS100F0000	5 HP	Call Customer Care	Vertical	17.5A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0075DS100F0000	7.5 HP	Call Customer Care	Vertical	25 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0100DS100F0000	10 HP	Call Customer Care	Vertical	31 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0150DS100F0000	15 HP	Call Customer Care	Vertical	48 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0200DS100F0000	20 HP	FR5	Vertical	61A	No	Fused Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBS0250DS100F0000	25 HP	Call Customer Care	Vertical	75A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0300DS100F0000	30 HP	Call Customer Care	Vertical	88A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0400DS100F0000	40 HP	Call Customer Care	Vertical	114A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0500DS100F0000	50 HP	Call Customer Care	Side by Side	140A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0600DS100F0000	60 HP	Call Customer Care	Side by Side	170A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0750DS100F0000	75 HP	Call Customer Care	Side by Side	205 A	No	Fused Disconnect	No	No	No	Call Customer Care		

Variable Frequency Drives with Bypass

Voltage: 230 Vac
 Type of Enclosure: NEMA 12
 Bypass: Cool Blue

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBS0010CS20200000	1 HP	FR4	Vertical	—	4.8A	Two Contactor	No	No Disconnect	No	N	No	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBS0010CS203F1110	1 HP	FR4	Vertical	—	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBS0010CS213F1110	1 HP	FR4	Vertical	—	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBS0010CS233F1110	1 HP	FR4	Vertical	Hand Off Auto	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBS0010DS200F0000	1 HP	FR4	Vertical	—	4.8A		No	No Disconnect	No	N	No	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBS0015CS20200000	1.5 HP	FR4	Vertical	—	6.6A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0015CS203F1110	1.5 HP	FR4	Vertical	—	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0015CS213F1110	1.5 HP	FR4	Vertical	—	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBS0015CS233F1110	1.5 HP	FR4	Vertical	Hand Off Auto	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBS0020CS20200000	2 HP	FR4	Vertical	—	7.8A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0020CS203F1110	2 HP	FR4	Vertical	—	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0020CS213F1110	2 HP	FR4	Vertical	—	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBS0020CS233F1110	2 HP	FR4	Vertical	Hand Off Auto	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBS0030CS20200000	3 HP	FR4	Vertical	—	11A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0030CS203F1110	3 HP	FR4	Vertical	—	11A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0030CS213F1110	3 HP	FR4	Vertical	—	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBS0030CS233F1110	3 HP	FR4	Vertical	Hand Off Auto	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBS0040CS20200000	4 HP	FR4	Vertical	—	12.5A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0040CS203F1110	4 HP	FR4	Vertical	—	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBS0040CS213F1110	4 HP	FR4	Vertical	—	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBS0040CS233F1110	4 HP	FR4	Vertical	Hand Off Auto	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBS0050CS20200000	5 HP	FR5	Vertical	—	17.5A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBS0050CS203F1110	5 HP	FR5	Vertical	—	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBS0050CS213F1110	5 HP	FR5	Vertical	—	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBS0050CS233F1110	5 HP	FR5	Vertical	Hand Off Auto	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBS0075CS20200000	7.5 HP	FR5	Vertical	—	25 A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBS0075CS203F1110	7.5 HP	FR5	Vertical	—	25 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBS0075CS213F1110	7.5 HP	FR5	Vertical	—	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBS0075CS233F1110	7.5 HP	FR5	Vertical	Hand Off Auto	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBS0100CS20200000	10 HP	FR5	Vertical	—	31 A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBS0100CS203F1110	10 HP	FR5	Vertical	—	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBS0100CS213F1110	10 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	44H x 10D x 16W	1078H x 245D x 392W	70 lb

Variable Frequency Drives with Bypass

Product Number	Horse-power	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBS0100CS233F1110	10 HP	FR5	Vertical	Hand Off Auto	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	44H x 10D x 16W	1078H x 245D x 392W	70 lb
NXBS0150CS20200000	15 HP	FR6	Vertical	—	48 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBS0150CS203F1110	15 HP	FR6	Vertical	—	48 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBS0150CS213F1110	15 HP	FR6	Vertical	—	48A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	50H x 10D x 16W	1225H x 245D x 392W	120 lb
NXBS0150CS233F1110	15 HP	FR6	Vertical	Hand Off Auto	48A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	50H x 10D x 16W	1225H x 245D x 392W	120 lb
NXBS0200CS20200000	20 HP	FR6	Vertical	—	61A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBS0200CS203F1110	20 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBS0200CS213F1110	20 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 10D x 20W	1323H x 245D x 490W	136 lb
NXBS0200CS233F1110	20 HP	FR6	Vertical	Hand Off Auto	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 10D x 20W	1323H x 245D x 490W	136 lb
NXBS0250CS20200000	25 HP	FR7	Vertical	—	75A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBS0250CS213F1110	25 HP	FR7	Vertical	—	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBS0250CS233F1110	25 HP	FR7	Vertical	Hand Off Auto	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBS0300CS20200000	30 HP	FR7	Vertical	—	88A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBS0300CS213F1110	30 HP	FR7	Vertical	—	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBS0300CS233F1110	30 HP	FR7	Vertical	Hand Off Auto	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBS0400CS20200000	40 HP	FR8	Side by Side	—	114A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBS0400CS213F1110	40 HP	FR7	Vertical	—	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	64H x 12D x 24W	1568H x 294D x 588W	200 lb
NXBS0400CS233F1110	40 HP	FR7	Vertical	Hand Off Auto	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	64H x 12D x 24W	1568H x 294D x 588W	200 lb
NXBS0500CS20200000	50 HP	FR8	Side by Side	—	140A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBS0500CS213F1110	50 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBS0500CS233F1110	50 HP	FR8	Side by Side	Hand Off Auto	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBS0600CS20200000	60 HP	FR8	Side by Side	—	170A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBS0600CS213F1110	60 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBS0600CS233F1110	60 HP	FR8	Side by Side	Hand Off Auto	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBS0750CS20200000	75 HP	FR8	Side by Side	—	205 A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	914.4 x 1371.6 x 406.4	360 lb
NXBS0750CS213F1110	75 HP	FR8	Side by Side	—	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBS0750CS233F1110	75 HP	FR8	Side by Side	Hand Off Auto	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb

Voltage: 230 Vac
Type of Enclosure: NEMA 12
Bypass: Disconnect only

Product Number	Horse-power	Frame Type	Layout	Current Rating	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
										(inch)	(mm)	
NXBS0015DS200F0000	1.5 HP	Call Customer Care	Vertical	6.6A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0020DS200F0000	2 HP	Call Customer Care	Vertical	7.8A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0030DS200F0000	3 HP	Call Customer Care	Vertical	11A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0040DS200F0000	4 HP	Call Customer Care	Vertical	12.5A	No	Fused Disconnect	No	No	No	Call Customer Care		

Commercial Components

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Current Rating	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
										(inch)	(mm)	
NXBS0050DS200F0000	5 HP	Call Customer Care	Vertical	17.5A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0075DS200F0000	7.5 HP	Call Customer Care	Vertical	25 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0100DS200F0000	10 HP	Call Customer Care	Vertical	31 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0150DS200F0000	15 HP	Call Customer Care	Vertical	48 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0200DS200F0000	20 HP	Call Customer Care	Vertical	61A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0250DS200F0000	25 HP	Call Customer Care	Vertical	75A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0300DS200F0000	30 HP	Call Customer Care	Vertical	88A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0400DS200F0000	40 HP	Call Customer Care	Vertical	114A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0500DS200F0000	50 HP	Call Customer Care	Side by Side	140A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0600DS200F0000	60 HP	Call Customer Care	Side by Side	170A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0750DS200F0000	75 HP	Call Customer Care	Side by Side	205 A	No	Fused Disconnect	No	No	No	Call Customer Care		

Voltage: 230 Vac

Type of Enclosure: NEMA 3R

Bypass: Cool Blue

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBS0010CS30000000	1 HP	FR4	Vertical	—	4.8A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0010CS30200000	1 HP	FR4	Vertical	—	4.8A	Two Contactor	No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0010CS303F1110	1 HP	FR4	Vertical	—	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0010CS313F1110	1 HP	FR4	Vertical	—	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0010CS333F1110	1 HP	FR4	Vertical	Hand Off Auto	4.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0010DS300F0000	1 HP	FR4	Vertical	—	4.8A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0015CS30000000	1.5 HP	FR4	Vertical	—	6.6A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0015CS30200000	1.5 HP	FR4	Vertical	—	6.6A	Two Contactor	No	No Disconnect	No	No	No	20 x 24 x 10	500 x 600 x 250	54 lb
NXBS0015CS303F1110	1.5 HP	FR4	Vertical	—	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0015CS313F1110	1.5 HP	FR4	Vertical	—	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0015CS333F1110	1.5 HP	FR4	Vertical	Hand Off Auto	6.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0020CS30000000	2 HP	FR4	Vertical	—	7.8A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0020CS30200000	2 HP	FR4	Vertical	—	7.8A	Two Contactor	No	No Disconnect	No	No	No	20 x 24 x 10	500 x 600 x 250	54 lb
NXBS0020CS303F1110	2 HP	FR4	Vertical	—	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0020CS313F1110	2 HP	FR4	Vertical	—	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0020CS333F1110	2 HP	FR4	Vertical	Hand Off Auto	7.8A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0030CS30000000	3 HP	FR4	Vertical	—	11A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0030CS30200000	3 HP	FR4	Vertical	—	11A	Two Contactor	No	No Disconnect	No	No	No	20 x 24 x 10	500 x 600 x 250	54 lb
NXBS0030CS303F1110	3 HP	FR4	Vertical	—	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0030CS313F1110	3 HP	FR4	Vertical	—	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0030CS333F1110	3 HP	FR4	Vertical	Hand Off Auto	11A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0040CS30000000	4 HP	FR4	Vertical	—	12.5A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBS0040CS303F1110	4 HP	FR4	Vertical	—	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0040CS313F1110	4 HP	FR4	Vertical	—	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0040CS333F1110	4 HP	FR4	Vertical	Hand Off Auto	12.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBS0050CS30000000	5 HP	FR5	Vertical	—	17.5A		No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBS0050CS303F1110	5 HP	FR5	Vertical	—	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBS0050CS313F1110	5 HP	FR5	Vertical	—	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBS0050CS333F1110	5 HP	FR5	Vertical	Hand Off Auto	17.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBS0075CS30000000	7.5 HP	FR5	Vertical	—	25A		No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBS0075CS303F1110	7.5 HP	FR5	Vertical	—	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBS0075CS313F1110	7.5 HP	FR5	Vertical	—	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBS0075CS333F1110	7.5 HP	FR5	Vertical	Hand Off Auto	25A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBS0100CS30000000	10 HP	FR5	Vertical	—	31A		No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBS0100CS30200000	10 HP	FR5	Vertical	—	31A	Two Contactor	No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBS0100CS303F1110	10 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBS0100CS313F1110	10 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBS0100CS333F1110	10 HP	FR5	Vertical	Hand Off Auto	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBS0150CS30000000	15 HP	FR6	Vertical	—	48A		No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBS0150CS303F1110	15 HP	FR6	Vertical	—	48A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBS0150CS313F1110	15 HP	FR6	Vertical	—	48A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBS0150CS333F1110	15 HP	FR6	Vertical	Hand Off Auto	48A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBS0200CS30000000	20 HP	FR6	Vertical	—	61A		No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBS0200CS303F1110	20 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBS0200CS313F1110	20 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBS0200CS333F1110	20 HP	FR6	Vertical	Hand Off Auto	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBS0250CS30000000	25 HP	FR7	Vertical	—	75A		No	No Disconnect	No	N	No	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBS0250CS303F1110	25 HP	FR7	Vertical	—	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBS0250CS313F1110	25 HP	FR7	Vertical	—	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBS0250CS333F1110	25 HP	FR7	Vertical	Hand Off Auto	75A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBS0300CS30000000	30 HP	FR7	Vertical	—	88A		No	No Disconnect	No	N	No	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBS0300CS30200000	30 HP	FR7	Vertical	—	88A	Two Contactor	No	No Disconnect	No	N	No	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBS0300CS303F1110	30 HP	FR7	Vertical	—	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBS0300CS313F1110	30 HP	FR7	Vertical	—	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb

Commercial Components

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Dis-connect Type	Drive Input Dis-connect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBS0300CS333F1110	30 HP	FR7	Vertical	Hand Off Auto	88A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBS0400CS30000000	40 HP	FR7	Vertical	—	114A		No	No Disconnect	No	N	No	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBS0400CS303F1110	40 HP	FR7	Vertical	—	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBS0400CS313F1110	40 HP	FR7	Vertical	—	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBS0400CS333F1110	40 HP	FR7	Vertical	Hand Off Auto	114A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBS0500CS303F1110	50 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBS0500CS313F1110	50 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBS0500CS333F1110	50 HP	FR8	Side by Side	Hand Off Auto	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBS0600CS303F1110	60 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBS0600CS313F1110	60 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBS0600CS333F1110	60 HP	FR8	Side by Side	Hand Off Auto	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBS0750CS30200000	75 HP	FR8	Side by Side	—	205 A	Two Contactor	No	No Disconnect	No	No	No	60 x 12 x 34	152 x 30.5 x 86	440 lb
NXBS0750CS303F1110	75 HP	FR8	Side by Side	—	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBS0750CS313F1110	75 HP	FR8	Side by Side	—	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBS0750CS333F1110	75 HP	FR8	Side by Side	Hand Off Auto	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb

Voltage: 230 Vac
Type of Enclosure: NEMA 3R
Bypass: Disconnect only

Product Number	Horsepower	Frame Type	Layout	Current Rating	Control Transformer	Dis-connect Type	Drive Input Dis-connect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
										(inch)	(mm)	
NXBS0015DS300F0000	1.5 HP	Call Customer Care	Vertical	6.6A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0020DS300F0000	2 HP	Call Customer Care	Vertical	7.8A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0030DS300F0000	3 HP	Call Customer Care	Vertical	11A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0040DS300F0000	4 HP	Call Customer Care	Vertical	12.5A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0050DS300F0000	5 HP	Call Customer Care	Vertical	17.5A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0075DS300F0000	7.5 HP	Call Customer Care	Vertical	25 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0100DS300F0000	10 HP	Call Customer Care	Vertical	31 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0150DS300F0000	15 HP	Call Customer Care	Vertical	48 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0200DS300F0000	20 HP	Call Customer Care	Vertical	61A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0250DS300F0000	25 HP	Call Customer Care	Vertical	75A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0300DS300F0000	30 HP	Call Customer Care	Vertical	88A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0400DS300F0000	40 HP	Call Customer Care	Vertical	114A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0500DS300F0000	50 HP	Call Customer Care	Side by Side	140A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0600DS300F0000	60 HP	Call Customer Care	Side by Side	170A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBS0750DS300F0000	75 HP	Call Customer Care	Side by Side	205 A	No	Fused Disconnect	No	No	No	Call Customer Care		

Variable Frequency Drives with Bypass

Voltage: 460 Vac
 Type of Enclosure: NEMA 1
 Bypass: Cool Blue

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBJ0015CL113F1110	1.5 HP	FR4	Vertical	—	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0015CS10200000	1.5 HP	FR4	Vertical	—	3.3A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0015CS103F1110	1.5 HP	FR4	Vertical	—	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0015CS113F1110	1.5 HP	FR4	Vertical	—	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0015CS133F1110	1.5 HP	FR4	Vertical	Hand Off Auto	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0020CL113F1110	2 HP	FR4	Vertical	—	4.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0020CS10200000	2 HP	FR4	Vertical	—	4.3 A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0020CS103F1110	2 HP	FR4	Vertical	—	4.3 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0020CS113F1110	2 HP	FR4	Vertical	—	4.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0020CS133F1110	2 HP	FR4	Vertical	Hand Off Auto	4.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0030CL113F1110	3 HP	FR4	Vertical	—	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0030CS10200000	3 HP	FR4	Vertical	—	5.6A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0030CS103F1110	3 HP	FR4	Vertical	—	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0030CS113F1110	3 HP	FR4	Vertical	—	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0030CS133F1110	3 HP	FR4	Vertical	Hand Off Auto	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0040CL113F1110	4 HP	FR4	Vertical	—	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0040CS10200000	4 HP	FR4	Vertical	—	7.6A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0040CS103F1110	4 HP	FR4	Vertical	—	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0040CS113F1110	4 HP	FR4	Vertical	—	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0040CS133F1110	4 HP	FR4	Vertical	Hand Off Auto	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0050CL113F1110	5 HP	FR4	Vertical	—	9A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0050CS10200000	5 HP	FR4	Vertical	—	0.37A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0050CS103F1110	5 HP	FR4	Vertical	—	0.37A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0050CS113F1110	5 HP	FR4	Vertical	—	9A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0050CS133C1110	5 HP	FR4	Vertical	Hand Off Auto	9A	Three Contactor	No	Circuit Breaker Disconnect	No	N	No	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0050CS133F1110	5 HP	FR4	Vertical	Hand Off Auto	9A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0075CL113F1110	7.5 HP	FR4	Vertical	—	12A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb
NXBJ0075CS10200000	7.5 HP	FR4	Vertical	—	—	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0075CS103F1110	7.5 HP	FR4	Vertical	—	—	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0075CS113F1110	7.5 HP	FR4	Vertical	Auto bypass	—	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0075CS133F1110	7.5 HP	FR4	Vertical	Hand Off Auto	12A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	40H x 9.5D x 9.5W	1016H x 241D x 231W	43 lb

Commercial Components

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBJ0100CL113F1110	10 HP	FR5	Vertical	—	16A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBJ0100CS10200000	10 HP	FR5	Vertical	—	16A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0100CS103F1110	10 HP	FR5	Vertical	—	16A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0100CS113F1110	10 HP	FR5	Vertical	Auto bypass	16A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0100CS133F1110	10 HP	FR5	Vertical	Hand Off Auto	16A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBJ0150CL113F1110	15 HP	FR5	Vertical	—	23A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBJ0150CS10200000	15 HP	FR5	Vertical	—	23 A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0150CS103C1110	15 HP	FR5	Vertical	—	23A	Three Contactor	No	Circuit Breaker Disconnect	No	N	No	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBJ0150CS103F1110	15 HP	FR5	Vertical	—	23 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0150CS113F1110	15 HP	FR5	Vertical	Auto bypass	23 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0150CS12200000	15 HP	FR5	Vertical	—	23A	Two Contactor	No	No Disconnect	No	N	No	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBJ0150CS133F1110	15 HP	FR5	Vertical	Hand Off Auto	23A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBJ0200CL113F1110	20 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBJ0200CS10200000	20 HP	FR5	Vertical	—	31 A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0200CS103C1110	20 HP	FR5	Vertical	—	31A	Three Contactor	No	Circuit Breaker Disconnect	No	N	No	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBJ0200CS103F1110	20 HP	FR5	Vertical	—	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0200CS113F1110	20 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBJ0200CS12200000	20 HP	FR5	Vertical	—	31A	Two Contactor	No	No Disconnect	No	N	No	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBJ0200CS133F1110	20 HP	FR5	Vertical	Hand Off Auto	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	46H x 10.5D x 11W	1168H x 257D x 279W	62 lb
NXBJ0250CL113F1110	25 HP	FR6	Vertical	—	38A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBJ0250CS10200000	25 HP	FR6	Vertical	—	38 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBJ0250CS103F1110	25 HP	FR6	Vertical	—	38 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBJ0250CS113F1110	25 HP	FR6	Vertical	—	38A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBJ0250CS12200000	25 HP	FR6	Vertical	—	38A	Two Contactor	No	No Disconnect	No	N	No	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBJ0250CS13200100	25 HP	FR6	Vertical	Hand Off Auto	38A	Two Contactor	No	No Disconnect	No	N	No	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBJ0250CS133F1110	25 HP	FR6	Vertical	Hand Off Auto	38A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBJ0300CL113F1110	30 HP	FR6	Vertical	—	46A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBJ0300CS10200000	30 HP	FR6	Vertical	—	46 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBJ0300CS103F1110	30 HP	FR6	Vertical	—	46 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0300CS113F1110	30 HP	FR6	Vertical	—	46A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBJ0300CS133F1110	30 HP	FR6	Vertical	Hand Off Auto	46A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBJ0400CL113F1110	40 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBJ0400CS10200000	40 HP	FR6	Vertical	—	61A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0400CS103F1110	40 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0400CS113F1110	40 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBJ0400CS123F1110	40 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBJ0400CS133F1110	40 HP	FR6	Vertical	Hand Off Auto	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBJ0500CS10200000	50 HP	FR7	Vertical	—	72A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ0500CS103C1110	50 HP	FR7	Vertical	—	72A	Three Contactor	No	Circuit Breaker Disconnect	No	N	No	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBJ0500CS103F1110	50 HP	FR7	Vertical	—	72A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ0500CS113F1110	50 HP	FR7	Vertical	—	72A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBJ0500CS133F1110	50 HP	FR7	Vertical	Hand Off Auto	72A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBJ0600CS10200000	60 HP	FR7	Vertical	—	87A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ0600CS103F1110	60 HP	FR7	Vertical	—	87A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ0600CS113F1110	60 HP	FR7	Vertical	—	87A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBJ0600CS133F1110	60 HP	FR7	Vertical	Hand Off Auto	87A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBJ0750CS10200000	75 HP	FR7	Vertical	—	105A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ0750CS103C1110	75 HP	FR7	Vertical	—	105A	Three Contactor	No	Circuit Breaker Disconnect	No	N	No	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBJ0750CS103F1110	75 HP	FR7	Vertical	—	105A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ0750CS113F1110	75 HP	FR7	Vertical	—	105A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBJ0750CS123F1110	75 HP	FR7	Vertical	—	105A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBJ0750CS133F1110	75 HP	FR7	Vertical	Hand Off Auto	105A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBJ1000CS10200000	100 HP	FR8	Side by Side	—	140A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBJ1000CS10300000	100 HP	FR8	Side by Side	—	140A	Three Contactor	No	No Disconnect	No	N	No	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBJ1000CS103F1110	100 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBJ1000CS113F1110	100 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBJ1000CS133F1110	100 HP	FR8	Side by Side	Hand Off Auto	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBJ1250CS10200000	125 HP	FR8	Side by Side	—	170A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBJ1250CS103F1110	125 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBJ1250CS113F1110	125 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb

Commercial Components

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBJ1250CS133F1110	125 HP	FR8	Side by Side	Hand Off Auto	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBJ1500CS10200000	150 HP	FR8	Side by Side	—	205 A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBJ1500CS103F1110	150 HP	FR8	Side by Side	—	205 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBJ1500CS113F1110	150 HP	FR8	Side by Side	—	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBJ1500CS133F1110	150 HP	FR8	Side by Side	Hand Off Auto	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBJ2000CS103F1110	200 HP	Call Customer Care	Side by Side	—	261 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	Call Customer Care	Call Customer Care	Call Customer Care
NXBJ2000CS113F1110	200 HP	FR9	Free standing Drive	—	261A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBJ2000CS133F1110	200 HP	FR9	Free standing Drive	Hand Off Auto	261A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBJ2500CS113F1110	250 HP	FR9	Free standing Drive	—	300A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBJ2500CS133F1110	250 HP	FR9	Free standing Drive	Hand Off Auto	300A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb

Voltage: 460 Vac
Type of Enclosure: NEMA 1
Bypass: Disconnect only

Product Number	Horsepower	Frame Type	Layout	Current Rating	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
										(inch)	(mm)	
NXBJ0015DS100F0000	1.5 HP	Call Customer Care	Vertical	3.3A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0020DS100F0000	2 HP	Call Customer Care	Vertical	4.3 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0030DS100F0000	3 HP	Call Customer Care	Vertical	5.6A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0040DS100F0000	4 HP	Call Customer Care	Vertical	7.6A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0050DS100F0000	5 HP	Call Customer Care	Vertical	0.37A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0075DS100F0000	7.5 HP	Call Customer Care	Vertical	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0100DS100F0000	10 HP	Call Customer Care	Vertical	16A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0150DS100F0000	15 HP	Call Customer Care	Vertical	23 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0200DS100F0000	20 HP	Call Customer Care	Vertical	31 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0250DS100F0000	25 HP	Call Customer Care	Vertical	38 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0300DS100F0000	30 HP	Call Customer Care	Vertical	46 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0400DS100F0000	40 HP	FR4	Vertical	61A	No	Fused Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0500DS100F0000	50 HP	Call Customer Care	Vertical	72A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0600DS100F0000	60 HP	FR7	Vertical	87A	No	Fused Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ0750DS100F0000	75 HP	FR7	Vertical	105A	No	Fused Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ1000DS100F0000	100 HP	Call Customer Care	Side by Side	140A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ1250DS100F0000	125 HP	Call Customer Care	Side by Side	170A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ1500DS100F0000	150 HP	Call Customer Care	Side by Side	205 A	No	Fused Disconnect	No	No	No	Call Customer Care		

Variable Frequency Drives with Bypass

Voltage: 460 Vac
 Type of Enclosure: NEMA 12
 Bypass: Cool Blue

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBJ0015CL213F1110	1.5 HP	FR4	Vertical	—	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0015CL233F1110	1.5 HP	FR4	Vertical	Hand Off Auto	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0015CS20200000	1.5 HP	FR4	Vertical	—	3.3A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0015CS203F1110	1.5 HP	FR4	Vertical	—	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0015CS213F1110	1.5 HP	FR4	Vertical	—	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0015CS233F1110	1.5 HP	FR4	Vertical	Hand Off Auto	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0020CL213F1110	2 HP	FR4	Vertical	—	4.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0020CS20200000	2 HP	FR4	Vertical	—	4.3 A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0020CS203F1110	2 HP	FR4	Vertical	—	4.3 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0020CS213F1110	2 HP	FR4	Vertical	—	4.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0020CS233F1110	2 HP	FR4	Vertical	Hand Off Auto	4.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0030CL213F1110	3 HP	FR4	Vertical	—	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0030CS20200000	3 HP	FR4	Vertical	—	5.6A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0030CS203F1110	3 HP	FR4	Vertical	—	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0030CS213F1110	3 HP	FR4	Vertical	—	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0030CS233F1110	3 HP	FR4	Vertical	Hand Off Auto	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0040CL213F1110	4 HP	FR4	Vertical	—	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0040CS20200000	4 HP	FR4	Vertical	—	7.6A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0040CS203F1110	4 HP	FR4	Vertical	—	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0040CS213F1110	4 HP	FR4	Vertical	—	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0040CS233F1110	4 HP	FR4	Vertical	Hand Off Auto	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0050CL213F1110	5 HP	FR4	Vertical	—	9A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0050CL233F1110	5 HP	FR4	Vertical	Hand Off Auto	9A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0050CS20200000	5 HP	FR4	Vertical	—	0.37A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0050CS203F1110	5 HP	FR4	Vertical	—	0.37A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0050CS213F1110	5 HP	FR4	Vertical	—	9A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0050CS233F1110	5 HP	FR4	Vertical	Hand Off Auto	9A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0075CL213F1110	7.5 HP	FR4	Vertical	—	12A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb
NXBJ0075CS20200000	7.5 HP	FR4	Vertical	—	—	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0075CS203F1110	7.5 HP	FR4	Vertical	—	—	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBJ0075CS213F1110	7.5 HP	FR4	Vertical	—	12A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	53 lb

Commercial Components

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBJ0075CS233F1110	7.5 HP	FR5	Vertical	Hand Off Auto	12A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBJ0100CL213F1110	10 HP	FR5	Vertical	—	16A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBJ0100CL233F1110	10 HP	FR5	Vertical	Hand Off Auto	16A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBJ0100CS20200000	10 HP	FR5	Vertical	—	16A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0100CS203F1110	10 HP	FR5	Vertical	—	16A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0100CS213F1110	10 HP	FR5	Vertical	—	16A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBJ0100CS233F1110	10 HP	FR5	Vertical	Hand Off Auto	16A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBJ0150CL213F1110	15 HP	FR5	Vertical	—	23A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBJ0150CL233F1110	15 HP	FR5	Vertical	Hand Off Auto	23A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBJ0150CS20200000	15 HP	FR5	Vertical	—	23 A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0150CS203F1110	15 HP	FR5	Vertical	—	23 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0150CS213F1110	15 HP	FR5	Vertical	—	23A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBJ0150CS233F1110	15 HP	FR5	Vertical	Hand Off Auto	23A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 10D x 16W	882H x 245D x 392W	64 lb
NXBJ0200CL213F1110	20 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	44H x 10D x 16W	1078H x 245D x 392W	70 lb
NXBJ0200CL233F1110	20 HP	FR5	Vertical	Hand Off Auto	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	44H x 10D x 16W	1078H x 245D x 392W	70 lb
NXBJ0200CS20200000	20 HP	FR5	Vertical	—	31 A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0200CS203F1110	20 HP	FR5	Vertical	—	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBJ0200CS213F1110	20 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	44H x 10D x 16W	1078H x 245D x 392W	70 lb
NXBJ0200CS233F1110	20 HP	FR5	Vertical	Hand Off Auto	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	44H x 10D x 16W	1078H x 245D x 392W	70 lb
NXBJ0250CL213F1110	25 HP	FR6	Vertical	—	38A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	50H x 10D x 16W	1225H x 245D x 392W	120 lb
NXBJ0250CL233F1110	25 HP	FR6	Vertical	Hand Off Auto	38A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	50H x 10D x 16W	1225H x 245D x 392W	120 lb
NXBJ0250CS20200000	25 HP	FR6	Vertical	—	38 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0250CS203F1110	25 HP	FR6	Vertical	—	38 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBJ0250CS213F1110	25 HP	FR6	Vertical	—	38A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	50H x 10D x 16W	1225H x 245D x 392W	120 lb
NXBJ0250CS233F1110	25 HP	FR6	Vertical	Hand Off Auto	38A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	50H x 10D x 16W	1225H x 245D x 392W	120 lb
NXBJ0300CL213F1110	30 HP	FR6	Vertical	—	46A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	50H x 10D x 16W	1225H x 245D x 392W	120 lb
NXBJ0300CS20200000	30 HP	FR6	Vertical	—	46 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBJ0300CS203F1110	30 HP	FR6	Vertical	—	46 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBJ0300CS213F1110	30 HP	FR6	Vertical	—	46A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	50H x 10D x 16W	1225H x 245D x 392W	120 lb
NXBJ0300CS233F1110	30 HP	FR6	Vertical	Hand Off Auto	46A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	50H x 10D x 16W	1225H x 245D x 392W	120 lb
NXBJ0400CL213F1110	40 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 10D x 20W	1323H x 245D x 490W	136 lb
NXBJ0400CS20200000	40 HP	FR6	Vertical	—	61A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBJ0400CS203F1110	40 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBJ0400CS213F1110	40 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 10D x 20W	1323H x 245D x 490W	136 lb
NXBJ0400CS233F1110	40 HP	FR6	Vertical	Hand Off Auto	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 10D x 20W	1323H x 245D x 490W	136 lb
NXBJ0500CS20200000	50 HP	FR7	Vertical	—	72A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ0500CS203F1110	50 HP	FR7	Vertical	—	72A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ0500CS213F1110	50 HP	FR7	Vertical	—	72A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBJ0500CS233F1110	50 HP	FR7	Vertical	Hand Off Auto	72A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBJ0600CS20200000	60 HP	FR7	Vertical	—	87A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ0600CS203F1110	60 HP	FR7	Vertical	—	87A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ0600CS213F1110	60 HP	FR7	Vertical	—	87A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBJ0600CS233F1110	60 HP	FR7	Vertical	Hand Off Auto	87A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBJ0750CS20200000	75 HP	FR7	Vertical	—	105A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ0750CS203F1110	75 HP	FR7	Vertical	—	105A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBJ0750CS213F1110	75 HP	FR7	Vertical	—	105A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBJ0750CS233F1110	75 HP	FR7	Vertical	Hand Off Auto	105A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	58H x 10D x 20W	1421H x 245D x 490W	150 lb
NXBJ1000CS20200000	100 HP	FR8	Side by Side	—	140A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBJ1000CS203F1110	100 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBJ1000CS213F1110	100 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBJ1000CS233F1110	100 HP	FR8	Side by Side	Hand Off Auto	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBJ1250CS20200000	125 HP	FR8	Side by Side	—	170A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBJ1250CS203F1110	125 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBJ1250CS213F1110	125 HP	FR8	Side by Side	—	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBJ1250CS233F1110	125 HP	FR8	Side by Side	Hand Off Auto	170A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBJ1500CS20200000	150 HP	FR8	Side by Side	—	205 A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBJ1500CS203F1110	150 HP	FR8	Side by Side	—	205 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBJ1500CS213F1110	150 HP	FR8	Side by Side	—	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb
NXBJ1500CS233F1110	150 HP	FR8	Side by Side	Hand Off Auto	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	350 lb

Voltage: 460 Vac
Type of Enclosure: NEMA 12
Bypass: Disconnect only

Product Number	Horsepower	Frame Type	Layout	Current Rating	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
										(inch)	(mm)	
NXBJ0015DS200F0000	1.5 HP	Call Customer Care	Vertical	3.3A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0020DS200F0000	2 HP	Call Customer Care	Vertical	4.3 A	No	Fused Disconnect	No	No	No	Call Customer Care		

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Current Rating	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate			Weight (lb)
										(inch)	(mm)	(lb)	
NXBJ0030DS200F0000	3 HP	Call Customer Care	Vertical	5.6A	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ0040DS200F0000	4 HP	Call Customer Care	Vertical	7.6A	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ0050DS200F0000	5 HP	Call Customer Care	Vertical	0.37A	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ0075DS200F0000	7.5 HP	Call Customer Care	Vertical	—	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ0100DS200F0000	10 HP	Call Customer Care	Vertical	16A	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ0150DS200F0000	15 HP	Call Customer Care	Vertical	23 A	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ0200DS200F0000	20 HP	Call Customer Care	Vertical	31 A	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ0250DS200F0000	25 HP	Call Customer Care	Vertical	38 A	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ0300DS200F0000	30 HP	Call Customer Care	Vertical	46 A	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ0400DS200F0000	40 HP	Call Customer Care	Vertical	61A	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ0500DS200F0000	50 HP	Call Customer Care	Vertical	72A	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ0600DS200F0000	60 HP	Call Customer Care	Vertical	87A	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ0750DS200F0000	75 HP	FR7	Vertical	105A	No	Fused Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb	
NXBJ1000DS200F0000	100 HP	Call Customer Care	Side by Side	140A	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ1250DS200F0000	125 HP	Call Customer Care	Side by Side	170A	No	Fused Disconnect	No	No	No	Call Customer Care			
NXBJ1500DS200F0000	150 HP	Call Customer Care	Side by Side	205 A	No	Fused Disconnect	No	No	No	Call Customer Care			

Voltage: 460 Vac

Type of Enclosure: NEMA 3R

Bypass: Cool Blue

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate			Weight (lb)
												(inch)	(mm)	(lb)	
NXBJ0015CL30000000	1.5 HP	FR4	Vertical	—	205A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb	
NXBJ0015CL303F1110	1.5 HP	FR4	Vertical	—	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb	
NXBJ0015CL313F1110	1.5 HP	FR4	Vertical	—	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb	
NXBJ0015CS30000000	1.5 HP	FR4	Vertical	—	3.3A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb	
NXBJ0015CS303F1110	1.5 HP	FR4	Vertical	—	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb	
NXBJ0015CS313F1110	1.5 HP	FR4	Vertical	—	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb	
NXBJ0015CS333F1110	1.5 HP	FR4	Vertical	Hand Off Auto	3.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb	
NXBJ0015CS60000000	1.5 HP	FR4	Vertical	—	3.3A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb	
NXBJ0020CL303F1110	2 HP	FR4	Vertical	—	4.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb	
NXBJ0020CL313F1110	2 HP	FR4	Vertical	—	4.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb	
NXBJ0020CS30000000	2 HP	FR4	Vertical	—	4.3A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb	
NXBJ0020CS303F1110	2 HP	FR4	Vertical	—	4.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb	
NXBJ0020CS313F1110	2 HP	FR4	Vertical	—	4.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb	

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBJ0020CS333F1110	2 HP	FR4	Vertical	Hand Off Auto	4.3A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0030CL30000000	3 HP	FR4	Vertical	—	5.6A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0030CL303F1110	3 HP	FR4	Vertical	—	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0030CL313F1110	3 HP	FR4	Vertical	—	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0030CS30000000	3 HP	FR4	Vertical	—	5.6A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0030CS303F1110	3 HP	FR4	Vertical	—	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0030CS313F1110	3 HP	FR4	Vertical	—	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0030CS333F1110	3 HP	FR4	Vertical	Hand Off Auto	5.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0040CL30000000	4 HP	FR4	Vertical	—	7.6A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0040CL303F1110	4 HP	FR4	Vertical	—	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0040CL313F1110	4 HP	FR4	Vertical	—	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0040CS30000000	4 HP	FR4	Vertical	—	7.6A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0040CS303F1110	4 HP	FR4	Vertical	—	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0040CS313F1110	4 HP	FR4	Vertical	—	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0040CS333F1110	4 HP	FR4	Vertical	Hand Off Auto	7.6A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0050CL30000000	5 HP	FR4	Vertical	—	9A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0050CL303F1110	5 HP	FR4	Vertical	—	9A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0050CL313F1110	5 HP	FR4	Vertical	—	9A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0050CS30000000	5 HP	FR4	Vertical	—	9A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0050CS30200000	5 HP	FR4	Vertical	—	0.37A	Two Contactor	No	No Disconnect	No	No	No	20 x 24 x 10	500 x 600 x 250	54 lb
NXBJ0050CS303F1110	5 HP	FR4	Vertical	—	9A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0050CS313F1110	5 HP	FR4	Vertical	—	9A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0050CS333F1110	5 HP	FR4	Vertical	Hand Off Auto	9A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0075CL30000000	7.5 HP	FR4	Vertical	—	12A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0075CL303F1110	7.5 HP	FR4	Vertical	—	12A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0075CL313F1110	7.5 HP	FR4	Vertical	—	12A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0075CS30000000	7.5 HP	FR4	Vertical	—	12A		No	No Disconnect	No	N	No	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0075CS303F1110	7.5 HP	FR4	Vertical	—	12A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0075CS313F1110	7.5 HP	FR4	Vertical	—	12A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0075CS333F1110	7.5 HP	FR4	Vertical	Hand Off Auto	12A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	24H x 10D x 20W	588H x 245D x 490W	54 lb
NXBJ0100CL30000000	10 HP	FR5	Vertical	—	16A		No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0100CL303F1110	10 HP	FR5	Vertical	—	16A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0100CL313F1110	10 HP	FR5	Vertical	—	16A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb

Commercial Components

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBJ0100CS30000000	10 HP	FR5	Vertical	—	16A		No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0100CS303F1110	10 HP	FR5	Vertical	—	16A	Three Contactor	Yes	Fused Disconnect	Yes	Y	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0100CS313F1110	10 HP	FR5	Vertical	—	16A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0100CS333F1110	10 HP	FR5	Vertical	Hand Off Auto	16A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0100CS603F1110	10 HP	FR5	Vertical	—	16A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0150CL30000000	15 HP	FR5	Vertical	—	23A		No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0150CL303F1110	15 HP	FR5	Vertical	—	23A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0150CL313F1110	15 HP	FR5	Vertical	—	23A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0150CL602F0000	15 HP	FR5	Vertical	—	23A	Two Contactor	No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0150CS30000000	15 HP	FR5	Vertical	—	23A		No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0150CS30200000	15 HP	FR5	Vertical	—	23 A	Two Contactor	No	No Disconnect	No	No	No	24 x 30 x 10	600 x 750 x 250	78 lb
NXBJ0150CS313F1110	15 HP	FR5	Vertical	—	23A	Three Contactor	Yes	Fused Disconnect	Yes	Y	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0150CS333F1110	15 HP	FR5	Vertical	Hand Off Auto	23A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0150CS603F1110	15 HP	FR5	Vertical	—	23A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0200CL30000000	20 HP	FR5	Vertical	—	31A		No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0200CL303F1110	20 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0200CL313F1110	20 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0200CS30000000	20 HP	FR5	Vertical	—	31A		No	No Disconnect	No	N	No	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0200CS303F1110	20 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0200CS313F1110	20 HP	FR5	Vertical	—	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0200CS333F1110	20 HP	FR5	Vertical	Hand Off Auto	31A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	30H x 10D x 24W	735H x 245D x 588W	78 lb
NXBJ0200CS60200000	20 HP	FR5	Vertical	—	31 A	Two Contactor	No	No Disconnect	No	No	No	24 x 30 x 10	600 x 750 x 250	78 lb
NXBJ0250CL30000000	25 HP	FR6	Vertical	—	38A		No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0250CL303F1110	25 HP	FR6	Vertical	—	38A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0250CL313F1110	25 HP	FR6	Vertical	—	38A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0250CS30000000	25 HP	FR6	Vertical	—	38A		No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0250CS303F1110	25 HP	FR6	Vertical	—	38A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0250CS313F1110	25 HP	FR6	Vertical	—	38A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0250CS333F1110	25 HP	FR6	Vertical	Hand Off Auto	38A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0250DS400F0000	25 HP	FR6	Vertical	—	38A		No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0300CL30000000	30 HP	FR6	Vertical	—	46A		No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0300CL303F1110	30 HP	FR6	Vertical	—	46A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0300CL313F1110	30 HP	FR6	Vertical	—	46A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBJ0300CS30000000	30 HP	FR6	Vertical	—	46A		No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0300CS30200000	30 HP	FR6	Vertical	—	46A	Two Contactor	No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0300CS303F1110	30 HP	FR6	Vertical	—	46A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0300CS313F1110	30 HP	FR6	Vertical	—	46A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0300CS333F1110	30 HP	FR6	Vertical	Hand Off Auto	46A	Three Contactor	Yes	Fused Disconnect	Yes	Y	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0400CL30000000	40 HP	FR6	Vertical	—	61A		No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0400CL303F1110	40 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0400CL313F1110	40 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0400CL602F0000	40 HP	FR6	Vertical	—	61A	Two Contactor	No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0400CS30000000	40 HP	FR6	Vertical	—	61A		No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0400CS303F1110	40 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0400CS313F1110	40 HP	FR6	Vertical	—	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0400CS333F1110	40 HP	FR6	Vertical	Hand Off Auto	61A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0400CS623F1100	40 HP	FR6	Vertical	—	61A	Three Contactor	No	No Disconnect	No	N	No	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBJ0500CS30000000	50 HP	FR7	Vertical	—	72A		No	No Disconnect	No	N	No	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ0500CS303F1110	50 HP	FR7	Vertical	—	72A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ0500CS313F1110	50 HP	FR7	Vertical	—	72A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ0500CS333F1110	50 HP	FR7	Vertical	Hand Off Auto	72A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ0600CS30000000	60 HP	FR7	Vertical	—	87A		No	No Disconnect	No	N	No	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ0600CS30200000	60 HP	FR7	Vertical	—	87A	Two Contactor	No	No Disconnect	No	N	No	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ0600CS303F1110	60 HP	FR7	Vertical	—	87A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ0600CS313F1110	60 HP	FR7	Vertical	—	87A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ0600CS333F1110	60 HP	FR7	Vertical	Hand Off Auto	87A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ0750CS30000000	75 HP	FR7	Vertical	—	105A		No	No Disconnect	No	N	No	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ0750CS303F1110	75 HP	FR7	Vertical	—	105A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ0750CS313F1110	75 HP	FR7	Vertical	—	105A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ0750CS333F1110	75 HP	FR7	Vertical	Hand Off Auto	105A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ0750CS602F0000	75 HP	FR7	Vertical	—	105A	Two Contactor	No	No Disconnect	No	N	No	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBJ1000CS303F1110	100 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBJ1000CS313F1110	100 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBJ1000CS333F1110	100 HP	FR8	Side by Side	Hand Off Auto	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBJ1250CS303F1110	125 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBJ1250CS313F1110	125 HP	FR8	Side by Side	—	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb

Commercial Components

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Dis-connect Type	Drive Input Dis-connect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBJ1250CS333F1110	125 HP	FR8	Side by Side	Hand Off Auto	140A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBJ1500CS30200000	150 HP	FR8	Side by Side	—	205A	Two Contactor	No	No Disconnect	No	N	No	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBJ1500CS303F1110	150 HP	FR8	Side by Side	—	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBJ1500CS313F1110	150 HP	FR8	Side by Side	—	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBJ1500CS333F1110	150 HP	FR8	Side by Side	Hand Off Auto	205A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb

Voltage: 460 Vac
Type of Enclosure: NEMA 3R
Bypass: Disconnect only

Product Number	Horsepower	Frame Type	Layout	Current Rating	Control Transformer	Dis-connect Type	Drive Input Dis-connect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
										(inch)	(mm)	
NXBJ0015DS300F0000	1.5 HP	Call Customer Care	Vertical	3.3A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0020DS300F0000	2 HP	Call Customer Care	Vertical	4.3 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0030DS300F0000	3 HP	Call Customer Care	Vertical	5.6A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0040DS300F0000	4 HP	Call Customer Care	Vertical	7.6A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0050DS300F0000	5 HP	Call Customer Care	Vertical	0.37A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0075DS300F0000	7.5 HP	Call Customer Care	Vertical	—	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0100DS300F0000	10 HP	Call Customer Care	Vertical	16A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0150DS300F0000	15 HP	Call Customer Care	Vertical	23 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0200DS300F0000	20 HP	Call Customer Care	Vertical	31 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0250DS300F0000	25 HP	Call Customer Care	Vertical	38 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0300DS300F0000	30 HP	Call Customer Care	Vertical	46 A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0400DS300F0000	40 HP	Call Customer Care	Vertical	61A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0500DS300F0000	50 HP	Call Customer Care	Vertical	72A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0600DS300F0000	60 HP	Call Customer Care	Vertical	87A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ0750DS300F0000	75 HP	FR7	Vertical	105A	No	Fused Disconnect	No	No	No	36 x 48 x 12	900 x 1200 x 300	193 lb
NXBJ1000DS300F0000	100 HP	Call Customer Care	Side by Side	140A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ1250DS300F0000	125 HP	Call Customer Care	Side by Side	170A	No	Fused Disconnect	No	No	No	Call Customer Care		
NXBJ1500DS300F0000	150 HP	Call Customer Care	Side by Side	205 A	No	Fused Disconnect	No	No	No	Call Customer Care		

Voltage: 575 Vac
Type of Enclosure: NEMA 1
Bypass: Cool Blue

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Dis-connect Type	Drive Input Dis-connect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBL0030CS10200000	3 HP	FR4	Vertical	—	4.5 A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0030CS103F1110	3 HP	FR4	Vertical	—	4.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBL0030CS113F1110	3 HP	FR6	Vertical	—	4.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0030CS133F1110	3 HP	FR6	Vertical	Hand Off Auto	4.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0040CS10200000	4 HP	FR4	Vertical	—	5.5 A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0040CS103F1110	4 HP	FR4	Vertical	—	5.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0040CS113F1110	4 HP	FR6	Vertical	—	5.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0040CS133F1110	4 HP	FR6	Vertical	Hand Off Auto	5.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0050CS10200000	5 HP	FR4	Vertical	—	7.5A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0050CS103F1110	5 HP	FR4	Vertical	—	7.5A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0050CS113F1110	5 HP	FR6	Vertical	—	7.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0050CS133F1110	5 HP	FR6	Vertical	Hand Off Auto	7.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0075CS10200000	7.5 HP	FR4	Vertical	—	0.42A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0075CS103F1110	7.5 HP	FR4	Vertical	—	0.42A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0075CS113F1110	7.5 HP	FR6	Vertical	—	10A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0075CS133F1110	7.5 HP	FR6	Vertical	Hand Off Auto	10A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0100CS10200000	10 HP	FR5	Vertical	—	13.5A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBL0100CS103F1110	10 HP	FR5	Vertical	—	13.5A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBL0100CS113F1110	10 HP	FR6	Vertical	—	13.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0100CS133F1110	10 HP	FR6	Vertical	Hand Off Auto	13.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0150CS10200000	15 HP	FR5	Vertical	—	18A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBL0150CS103F1110	15 HP	FR5	Vertical	—	18A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBL0150CS113F1110	15 HP	FR6	Vertical	—	18A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0150CS133F1110	15 HP	FR6	Vertical	Hand Off Auto	18A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0200CS10200000	20 HP	FR5	Vertical	—	22A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBL0200CS103F1110	20 HP	FR5	Vertical	—	22A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBL0200CS113F1110	20 HP	FR6	Vertical	—	22A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0200CS133F1110	20 HP	FR6	Vertical	Hand Off Auto	22A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0250CS10200000	25 HP	FR6	Vertical	—	27 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBL0250CS103F1110	25 HP	FR6	Vertical	—	27 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBL0250CS113F1110	25 HP	FR6	Vertical	—	27A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0250CS133F1110	25 HP	FR6	Vertical	Hand Off Auto	27A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0300CS10200000	30 HP	FR6	Vertical	—	34 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBL0300CS103F1110	30 HP	FR6	Vertical	—	34 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBL0300CS113F1110	30 HP	FR6	Vertical	—	34A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb

Commercial Components

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBL0300CS133F1110	30 HP	FR6	Vertical	Hand Off Auto	34A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	53H x 12D x 14W	1298H x 294D x 343W	99 lb
NXBL0400CS10200000	40 HP	FR6	Vertical	—	41 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBL0400CS103F1110	40 HP	FR6	Vertical	—	41 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBL0400CS113F1110	40 HP	FR7	Vertical	—	41A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBL0400CS133F1110	40 HP	FR7	Vertical	Hand Off Auto	41A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBL0500CS10200000	50 HP	FR7	Vertical	—	52A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBL0500CS103F1110	50 HP	FR7	Vertical	—	52A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBL0500CS113F1110	50 HP	FR7	Vertical	—	52A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBL0500CS133F1110	50 HP	FR7	Vertical	Hand Off Auto	52A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	62H x 13D x 16W	1574H x 339D x 406W	154 lb
NXBL0600CS10200000	60 HP	FR7	Vertical	—	62A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBL0600CS103F1110	60 HP	FR7	Vertical	—	62A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBL0600CS113F1110	60 HP	FR8	Side by Side	—	62A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBL0600CS133F1110	60 HP	FR8	Side by Side	Hand Off Auto	62A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBL0750CS10200000	75 HP	FR7	Vertical	—	80A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBL0750CS103F1110	75 HP	FR7	Vertical	—	80A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBL0750CS113F1110	75 HP	FR8	Side by Side	—	80A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBL0750CS133F1110	75 HP	FR8	Side by Side	Hand Off Auto	80A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBL1000CS10200000	100 HP	FR8	Side by Side	—	100A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBL1000CS103F1110	100 HP	FR8	Side by Side	—	100A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBL1000CS113F1110	100 HP	FR8	Side by Side	—	100A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBL1000CS133F1110	100 HP	FR8	Side by Side	Hand Off Auto	100A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	54H x 16D x 36W	1350H x 400D x 900W	360 lb
NXBL1250CS10200000	125 HP	FR8	Side by Side	—	125A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBL1250CS103F1110	125 HP	FR8	Side by Side	—	125A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBL1500CS10200000	150 HP	FR8	Side by Side	—	144A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBL1500CS103F1110	150 HP	FR8	Side by Side	—	144A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	900 x 1350 x 400	360 lb

Voltage: 575 Vac
Type of Enclosure: NEMA 12
Bypass: Cool Blue

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBL0030CS20200000	3 HP	FR4	Vertical	—	4.5 A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0030CS203F1110	3 HP	FR4	Vertical	—	4.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0030CS213F1110	3 HP	FR6	Vertical	—	4.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0030CS233F1110	3 HP	FR6	Vertical	Hand Off Auto	4.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBL0040CS20200000	4 HP	FR4	Vertical	—	5.5 A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0040CS203F1110	4 HP	FR4	Vertical	—	5.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0040CS213F1110	4 HP	FR6	Vertical	—	5.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0040CS233F1110	4 HP	FR6	Vertical	Hand Off Auto	5.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0050CS20200000	5 HP	FR4	Vertical	—	7.5A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0050CS203F1110	5 HP	FR4	Vertical	—	7.5A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0050CS213F1110	5 HP	FR6	Vertical	—	7.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0050CS233F1110	5 HP	FR6	Vertical	Hand Off Auto	7.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0075CS20200000	7.5 HP	FR4	Vertical	—	0.42A	Two Contactor	No	No Disconnect	No	No	No	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0075CS203F1110	7.5 HP	FR4	Vertical	—	0.42A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	9.5 x 40 x 9.5	237.5 x 1000 x 237.5	43 lb
NXBL0075CS213F1110	7.5 HP	FR6	Vertical	—	10A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0075CS233F1110	7.5 HP	FR6	Vertical	Hand Off Auto	10A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0100CS20200000	10 HP	FR5	Vertical	—	13.5A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBL0100CS203F1110	10 HP	FR5	Vertical	—	13.5A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBL0100CS213F1110	10 HP	FR6	Vertical	—	13.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0100CS233F1110	10 HP	FR6	Vertical	Hand Off Auto	13.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0150CS20200000	15 HP	FR5	Vertical	—	18A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBL0150CS203F1110	15 HP	FR5	Vertical	—	18A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBL0150CS213F1110	15 HP	FR6	Vertical	—	18A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0150CS233F1110	15 HP	FR6	Vertical	Hand Off Auto	18A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0200CS20200000	20 HP	FR5	Vertical	—	22A	Two Contactor	No	No Disconnect	No	No	No	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBL0200CS203F1110	20 HP	FR5	Vertical	—	22A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	11 x 46 x 10.5	275 x 1150 x 262.5	62 lb
NXBL0200CS213F1110	20 HP	FR6	Vertical	—	22A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0200CS233F1110	20 HP	FR6	Vertical	Hand Off Auto	22A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0250CS20200000	25 HP	FR6	Vertical	—	27 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBL0250CS203F1110	25 HP	FR6	Vertical	—	27 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBL0250CS213F1110	25 HP	FR6	Vertical	—	27A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0250CS233F1110	25 HP	FR6	Vertical	Hand Off Auto	27A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0300CS20200000	30 HP	FR6	Vertical	—	34 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 mm x 1325 mm x 300 mm	99 lb
NXBL0300CS203F1110	30 HP	FR6	Vertical	—	34 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBL0300CS213F1110	30 HP	FR6	Vertical	—	34A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0300CS233F1110	30 HP	FR6	Vertical	Hand Off Auto	34A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	99 lb
NXBL0400CS20200000	40 HP	FR6	Vertical	—	41 A	Two Contactor	No	No Disconnect	No	No	No	14 x 53 x 12	350 x 1325 x 300	99 lb

Commercial Components

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBL0400CS203F1110	40 HP	FR6	Vertical	—	41 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	14 x 53 x 12	350 x 1325 x 300	99 lb
NXBL0400CS213F1110	40 HP	FR7	Vertical	—	41A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	154 lb
NXBL0400CS233F1110	40 HP	FR7	Vertical	Hand Off Auto	41A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	154 lb
NXBL0500CS20200000	50 HP	FR7	Vertical	—	52A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBL0500CS203F1110	50 HP	FR7	Vertical	—	52A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBL0500CS213F1110	50 HP	FR7	Vertical	—	52A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	154 lb
NXBL0500CS233F1110	50 HP	FR7	Vertical	Hand Off Auto	52A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	154 lb
NXBL0600CS20200000	60 HP	FR7	Vertical	—	62A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBL0600CS203F1110	60 HP	FR7	Vertical	—	62A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBL0600CS213F1110	60 HP	FR8	Side by Side	—	62A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	360 lb
NXBL0600CS233F1110	60 HP	FR8	Side by Side	Hand Off Auto	62A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	360 lb
NXBL0750CS20200000	75 HP	FR7	Vertical	—	80A	Two Contactor	No	No Disconnect	No	No	No	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBL0750CS203F1110	75 HP	FR7	Vertical	—	80A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	16 x 62 x 13	400 x 1550 x 325	154 lb
NXBL0750CS213F1110	75 HP	FR8	Side by Side	—	80A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	360 lb
NXBL0750CS233F1110	75 HP	FR8	Side by Side	Hand Off Auto	80A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	360 lb
NXBL1000CS20200000	100 HP	FR8	Side by Side	—	100A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBL1000CS203F1110	100 HP	FR8	Side by Side	—	100A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBL1000CS213F1110	100 HP	FR8	Side by Side	—	100A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	360 lb
NXBL1000CS233F1110	100 HP	FR8	Side by Side	Hand Off Auto	100A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 14D x 36W	1176H x 343D x 882W	360 lb
NXBL1250CS20200000	125 HP	FR8	Side by Side	—	125A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBL1250CS203F1110	125 HP	FR8	Side by Side	—	125A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBL1500CS20200000	150 HP	FR8	Side by Side	—	144A	Two Contactor	No	No Disconnect	No	No	No	36 x 54 x 16	900 x 1350 x 400	360 lb
NXBL1500CS203F1110	150 HP	FR8	Side by Side	—	144A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	36 x 54 x 16	900 x 1350 x 400	360 lb

Voltage: 575 Vac

Type of Enclosure: NEMA 3R

Bypass: Cool Blue

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBL0030CS303F1110	3 HP	FR6	Vertical	—	4.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0030CS313F1110	3 HP	FR6	Vertical	—	4.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0030CS333F1110	3 HP	FR6	Vertical	Hand Off Auto	4.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0040CS303F1110	4 HP	FR6	Vertical	—	5.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0040CS313F1110	4 HP	FR6	Vertical	—	5.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0040CS333F1110	4 HP	FR6	Vertical	Hand Off Auto	5.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb

Variable Frequency Drives with Bypass

Product Number	Horsepower	Frame Type	Layout	Additional Features	Current Rating	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight (lb)
												(inch)	(mm)	
NXBL0050CS303F1110	5 HP	FR6	Vertical	—	7.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0050CS313F1110	5 HP	FR6	Vertical	—	7.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0050CS333F1110	5 HP	FR6	Vertical	Hand Off Auto	7.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0075CS303F1110	7.5 HP	FR6	Vertical	—	10A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0075CS313F1110	7.5 HP	FR6	Vertical	—	10A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0075CS333F1110	7.5 HP	FR6	Vertical	Hand Off Auto	10A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0100CS303F1110	10 HP	FR6	Vertical	—	13.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0100CS313F1110	10 HP	FR6	Vertical	—	13.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0100CS333F1110	10 HP	FR6	Vertical	Hand Off Auto	13.5A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0150CS303F1110	15 HP	FR6	Vertical	—	18A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0150CS313F1110	15 HP	FR6	Vertical	—	18A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0150CS333F1110	15 HP	FR6	Vertical	Hand Off Auto	18A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0200CS303F1110	20 HP	FR6	Vertical	—	22A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0200CS313F1110	20 HP	FR6	Vertical	—	22A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0200CS333F1110	20 HP	FR6	Vertical	Hand Off Auto	22A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0250CS303F1110	25 HP	FR6	Vertical	—	27A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0250CS313F1110	25 HP	FR6	Vertical	—	27A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0250CS333F1110	25 HP	FR6	Vertical	Hand Off Auto	27A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0300CS303F1110	30 HP	FR6	Vertical	—	34A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0300CS313F1110	30 HP	FR6	Vertical	—	34A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0300CS333F1110	30 HP	FR6	Vertical	Hand Off Auto	34A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	36H x 12D x 30W	882H x 294D x 735W	124 lb
NXBL0400CS303F1110	40 HP	FR7	Vertical	—	41A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBL0400CS313F1110	40 HP	FR7	Vertical	—	41A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBL0400CS333F1110	40 HP	FR7	Vertical	Hand Off Auto	41A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBL0500CS303F1110	50 HP	FR7	Vertical	—	52A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBL0500CS313F1110	50 HP	FR7	Vertical	—	52A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBL0500CS333F1110	50 HP	FR7	Vertical	Hand Off Auto	52A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	48H x 12D x 36W	1176H x 294D x 882W	193 lb
NXBL0600CS303F1110	60 HP	FR8	Side by Side	—	62A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBL0600CS313F1110	60 HP	FR8	Side by Side	—	62A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb
NXBL0600CS333F1110	60 HP	FR8	Side by Side	Hand Off Auto	62A	Three Contactor	Yes	Fused Disconnect	Yes	N	Yes	60H x 14D x 36W	1470H x 343D x 882W	440 lb

Variable Frequency Drives with Bypass

Variable Frequency Drive Accessories

Product Number	Description	Used With
32004193-002	CX Series Keypad Display, Alphanumeric Display	CX Series VFD
32006627-001	RFI filter for NXL units up to 3HP, 460v	NXL
32006628-001	Panel mount kit, NEMA 12, 6ft	NXS
32006629-001	Blank display	NXS
32006629-002	Alphanumeric Display	NXS
32006629-003	7 segment display for NXL	NXL
32006629-004	Variable Frequency Drive RS232 Adapter	—
32006629-010	2m RS232 SERIAL LINK CABLE,	NXS/NXL
32006629-011	1,5M RS232 PC-CABLE FOR NXS/NXL MODELS	NXS/NXL
32006630-001	Lonbus Card	NXS/NXL
32006630-002	Modbus Card	NXS/NXL
32006630-003	2 RO (NO/NC)	NXS/NXL
32006630-004	6DI/DO Programmable	NXS/NXL
32006630-005	6DI, 1DO, 2AI, 1AO	NXS/NXL
32006630-006	1RO (NO/NC), 1RO (NO)	NXS/NXL
32006630-007	3RO (NO)	NXS/NXL
32006630-008	1AI (mA), 2AO (mA),	NXS/NXL
32006630-013	BACnet card	NXS/NXL
32006662-001	NXL demo	NXL
32006662-002	NXS demo	NXS

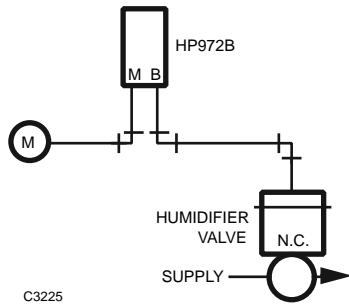
Variable Frequency Drive Replacement Parts

Product Number	Description	Voltage	Horsepower	Used With
32006803-001	Control Module NXS	—	—	NXS
32006803-002	Fan assembly up to 7.5HP	—	up to 7.5 HP	NXS
32006803-003	Fan assembly 10 - 20 HP	—	10 - 20 HP	NXS
32006803-004	Fan assembly 25 - 40 HP	—	25 - 40 HP	NXS
32006803-005	Fan assembly 50 - 75HP	—	50 - 75 HP	NXS
32006803-006	Fan assembly 100 - 150HP	—	100 - 150 HP	NXS
32006803-008	Power Module 2 HP	460 Vac	2 HP	NXS

HP970 Pneumatic Humidistat



HP970 Typical Piping



Application: Humidity

Dimensions, Approximate: 3 1/4 in. high x 2 in. wide x 1 5/8 in. deep
(83 mm high x 51 mm wide x 41 mm deep)

Airflow Usage: 0.011 scfm (5.2 mL/s)

Maximum Operating Temperature: 45 F to 125 F (7 C to 52 C)

Maximum Storage Temperature: -30 to +150 F (-34 to +66 C)

Maximum Operating Pressure: 25 psi (170 kPa)

Two-pipe, single setpoint, pneumatic humidistat used to provide proportional control of pneumatic valves on humidification or dehumidification systems.

- Durable HP970 series humidistat.
- Pilot operated for high capacity.
- Direct Acting (DA) and Reverse Acting (RA) models are available.
- Vertical or horizontal mounting.
- Backplate has molded air connections; no separate fittings needed.
- Variety of cover finishes and display styles available.

Accessories:

305965 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with $\pm 4\%$ accuracy

14002362-001 Duct Sampling Chamber

14002430-001 Thermostat Guard

14003192-001 Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations

14004406-910H Humidistat Satin Chrome Cover Kit with setpoint display and Honeywell logo for vertical and horizontal mounting, scale range 15 to 75% RH

AK3863 Honeywell Thermostat Tool Kit, TP970/TP900

CCT729A Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.

CCT735A Thermostat Calibration Tool includes Allen wrench for cover installation.

Replacement Parts:

14001865-001 Filter Cartridge Assembly

14002053-001 Back Plate Assembly

14002573-001 Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972

14003192-001 Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations

Product Number	Action	Number of Pipes	Scale Range (% RH)	Throttling Range (% RH)	Setpoint	Comments
HP970A1009	Direct Acting	2	15 to 75% RH	3 to 15% RH	Single	Order Cover Separately
HP970B1007	Reverse Acting	2	15 to 75% RH	3 to 15% RH	Single	Order Cover Separately
HP970B1015	Reverse Acting	2	65 to 95% RH	3 to 15% RH	Single	Order Cover Separately

Pneumatic Humidistats

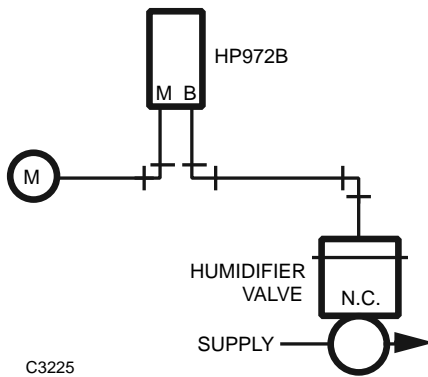
HP972 Pneumatic Humidistat



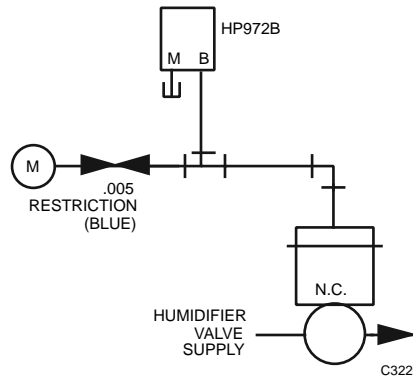
A proportioning pneumatic humidistat used on one- or two-pipe installations for controlling actuators on valves and dampers in air conditioning systems for humidification or dehumidification control.

- Durable HP970 series humidistat.
- Snap-on mounting to backplate.
- Vertical or horizontal mounting.
- Backplate has molded air connections; no separate fittings needed.
- Variety of cover finishes and display styles available.
- Wide throttling range.

Typical Two-Pipe HP972B Hook-up



Typical One-pipe HP972B Hook-up



Application: Humidity

Dimensions, Approximate: 3 1/4 in. high x 2 in. wide x 1 5/8 in. deep
(83 mm high x 51 mm wide x 41 mm deep)

Airflow Usage: 0.011 scfm (5.2 mL/s)

Maximum Operating Temperature: 45 F to 125 F (7 C to 52 C)

Maximum Storage Temperature: -30 to +150 F (-34 to +66 C)

Maximum Operating Pressure: 25 psi (170 kPa)

Accessories:

305965 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with ±4% accuracy

14002362-001 Duct Sampling Chamber

14002430-001 Thermostat Guard

14003192-001 Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations

14004406-910H Humidistat Satin Chrome Cover Kit with setpoint display and Honeywell logo for vertical and horizontal mounting, scale range 15 to 75% RH

AK3863 Honeywell Thermostat Tool Kit, TP970/TP900

CCT729A Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.

CCT735A Thermostat Calibration Tool includes Allen wrench for cover installation.

Replacement Parts:

14001865-001 Filter Cartridge Assembly

14002053-001 Back Plate Assembly

14002496-003 Nylon element assembly, with Spring



14002573-001 Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972

Product Number	Action	Number of Pipes	Scale Range (% RH)	Throttling Range (% RH)	Setpoint	Comments
HP972B1005	Reverse Acting	1 or 2	15 to 75% RH	7 to 35% RH	Single	Order Cover Separately

Humidistat Cover Assemblies

Product Number	Scale Range (% RH)	Description	Used With
14004406-910H	15 to 75% RH	Satin Chrome Cover with set of 4 vertical and horizontal mount scale plates with 15-75% RH or Blank.	HP972, HP970

Humidistat Accessories

Product Number	Description	Used With	
CCT729A	Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.	HP970, HP972	
CCT735A	Thermostat Calibration Tool includes Allen wrench for cover installation.	HP970, HP972	

Replacement Parts

Product Number	Description	Used With
14002496-003	Nylon element assembly, with Spring	HP972B; HP970B1015

Pneumatic Thermostats

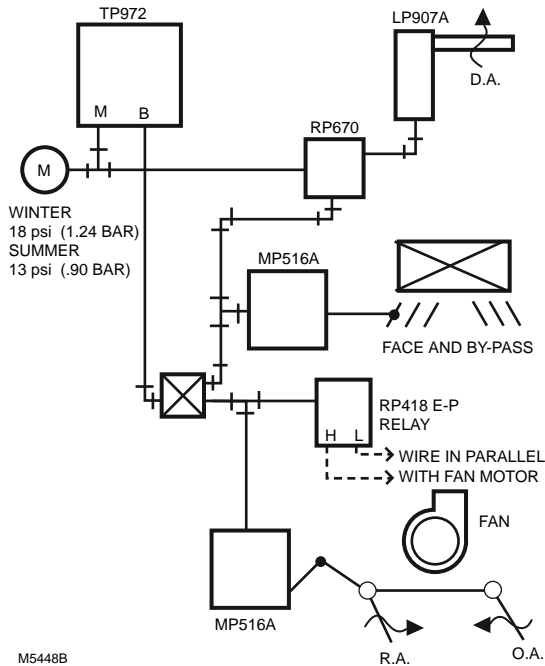
LP907 Airstream Insertion Pneumatic Thermostat



One-pipe, single setpoint, pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems. Commonly used as discharge controllers for unit ventilators.

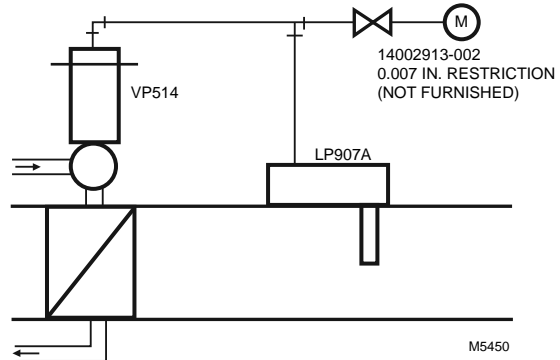
- Rod and tube insertion sensing element.
- Wide throttling range.
- Gage tee and tank valve facilitate checking line pressures.

Typical Heating/Cooling Application



M5448B

Typical Duct Mounted Application



Application Type: Low Limit controller

Dimensions, Approximate: 5 7/16 in. high x 1 1/16 in. wide x 2 1/4 in. deep (138 mm high x 27 mm wide x 57 mm deep)

Airflow Usage: 0.011 scfm (5.2 mL/s)

Air Connections: Barb fittings 1/4 in. (6 mm) poly tubing

Mounting: Insertion with locknut on boss of insertion shank

Setpoint Temperature Range: 40 F to 140 F (4 C to 60)

Operating Temperature: 40 F to 140 F (4 C to 60 C)

Storage Temperature: 150 F maximum (66 C maximum)

Remote Bulb: Yes

Sensor Element: Invar rod and seamless brass tube, 18 3/4 in. (476 mm) long and 11/32 in. (9 mm) diameter

Maximum Operating Pressure: 25 psi (170 kPa)

Includes: Fittings for mounting on sheet metal duct. Order restrictor separately.

Accessories:

14002913-002 .005 in. Blue Filter Restriction Assembly; Inlet: 1/4 in., Outlets: 5/32 in. and 5/32 in.; Order in Quantities of 10

14002913-003 External Restriction Assembly. 0.007 in. Restriction, Red, Inlet 1/4 in.; Outlet 1/4 in. and 5/32 in.

CCT2085 Pneumatic Fitting - Gauge Adapter fits any standard 1/8 in. NPT gauge,

Product Number	Action	Number of Pipes	Setpoint	Capacity	Throttling Range		Sensor Element
					(F)	(C)	
LP907A1002	Direct Acting	1	Single	Low	10 F to 70 F	6 C to 39 C	Invar rod and seamless brass tube, 18 3/4 in. (476 mm) long and 11/32 in. (9 mm) diameter
LP907A1044	Direct Acting	1	Single	Low	5 F to 35 F	3 C to 19 C	Invar rod and seamless brass tube, 18 3/4 in. (476 mm) long and 11/32 in. (9 mm) diameter

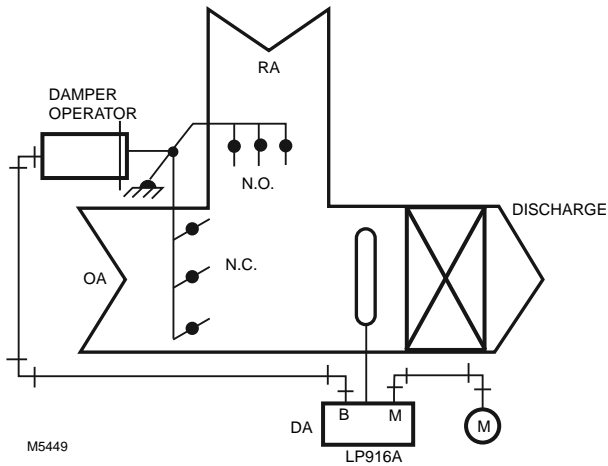
LP916 Pneumatic Thermostat



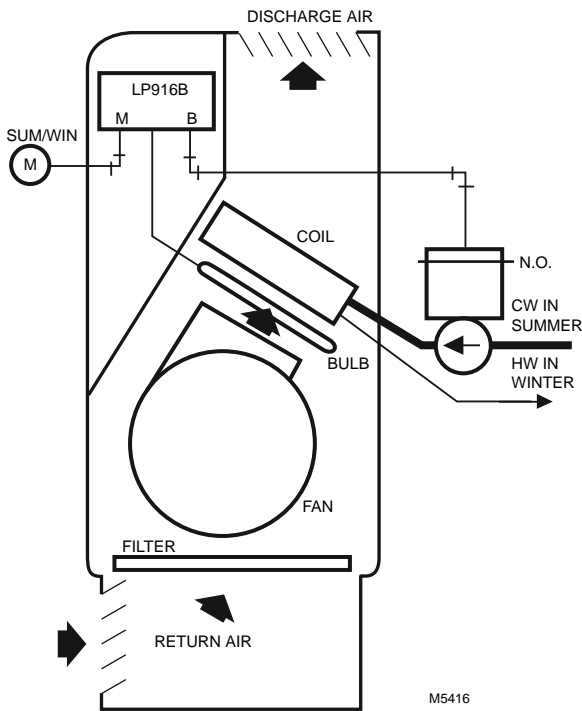
Two-pipe, single temperature, unit mounted, remote bulb pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems.

- Liquid filled remote bulb.
- Direct Acting (DA), Reverse Acting (RA) and Heating/Cooling (DA/RA) models are available.

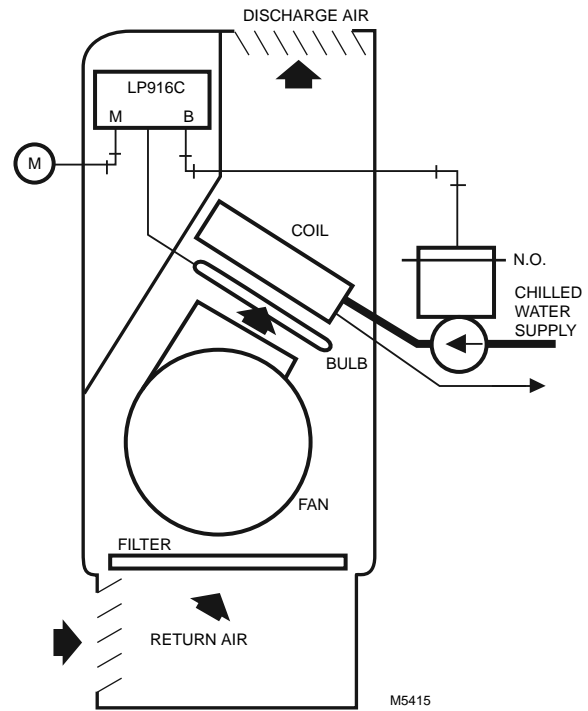
Typical LP916A Mixed Air Application



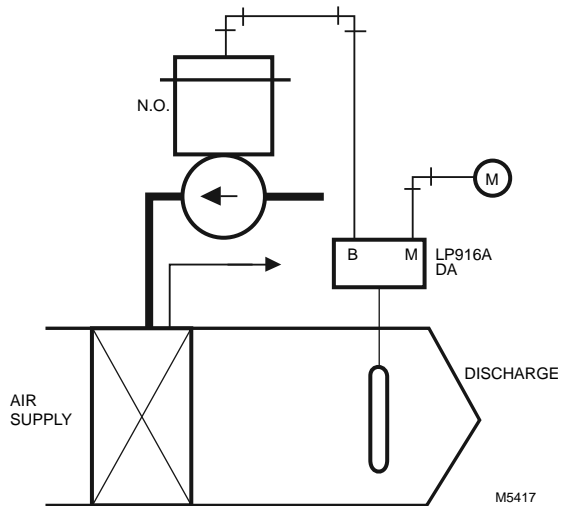
Typical LP916B Fan Coil Application, Heating/Cooling with Seasonal Changeover



Typical LP916C Fan Coil Application, Cooling Only



Typical LP916A Duct Mounted Heating Application



Pneumatic Thermostats

Application Type: Unit Ventilator

Dimensions, Approximate: 4 3/4 in. high x 3 3/4 in. wide x 3 in. deep
(121 mm high x 95 mm wide x 76 mm deep)

Airflow Usage: 0.022 scfm (10.4 mL/s) with 0.007 in. restriction

Air Connections: Barb fittings 1/4 in. (6 mm)

Mounting: In compartment of a unit ventilator

Number of Pipes: 2

Setpoint: Single

Operating Temperature: 135 F maximum (57 C maximum)

Storage Temperature: 150 F maximum (66 C maximum)

Remote Bulb: Yes

Sensor Element: Bulb 1/2 x 5 7/8 in., capillary 36 in. (914 mm) long

Maximum Operating Pressure: 25 psi (170 kPa)

Accessories:

107324A Capillary Holder Assembly for duct insertion, 8 3/8 in. long

Replacement Parts:

14003113-002 Repair kit containing 0.007 in. restrictor plate, filters, and gaskets

Product Number	Action	Sensor Element	Setpoint Temperature Range		Changeover		Throttling Range		Scale Markings	Includes	Comments
			(F)	(C)	(psi)	(kPa)	(F)	(C)			
LP916A1019	Direct Acting	Bulb 1/2 x 5 7/8 in., capillary 36 in. (914 mm) long	65 F to 85 F	19 C to 30 C	—	—	3.5 F	2 C	Warmer/Cooler	Integral Mounting Bracket and 304528A Bag Assembly (mounting hardware). Order bulb hangers (316297-00021) separately.	—
LP916A1134	Direct Acting	Bulb 3/8 x 7 in., capillary 36 in. (914 mm) long	65 F to 85 F	19 C to 30 C	—	—	3.5 F	2 C	Warmer/Cooler	Integral Mounting Bracket, (2) 316297-00021 Bulb Hangers and 304528A Bag Assembly (mounting hardware).	—
LP916A1175	Direct Acting	Bulb 3/8 x 7 in., capillary 36 in. (914 mm) long	40 F to 80 F	4 C to 26 C	—	—	7 F	13 C	40 F to 80 F	Integral Mounting Bracket, (2) 316297-00021 Bulb Hangers and 304528A Bag Assembly (mounting hardware).	—
LP916B1017	Direct Acting Heating, Reverse Acting Cooling	Bulb 1/2 x 5 7/8 in., capillary 36 in. (914 mm) long	65 F to 85 F	19 C to 30 C	Heat 18 psi, Cool 13 psi	Heat 124 kPa, Cool 90 kPa	3.5 F	2 C	Warmer/Cooler	Integral Mounting Bracket and 304528A Bag Assembly (mounting hardware). Order bulb hangers (316297-00021) separately.	—
LP916B1058	Direct Acting Heating, Reverse Acting Cooling	Bulb 1/2 x 5 7/8 in., capillary 36 in. (914 mm) long	65 F to 85 F	19 C to 30 C	Heat 18 psi, Cool 9 psi	Heat 124 kPa, Cool 62 kPa	3.5 F	2 C	Warmer/Cooler	Integral Mounting Bracket and 304528A Bag Assembly (mounting hardware). Order bulb hangers (316297-00021) separately.	—
LP916B1074	Direct Acting Heating, Reverse Acting Cooling	Bulb 3/8 x 7 in., capillary 36 in. (914 mm) long	65 F to 85 F	19 C to 30 C	Heat 18 psi, Cool 13 psi	Heat 124 kPa, Cool 90 kPa	3.5 F	2 C	Warmer/Cooler	Order Mounting Bracket, Knob, Bulb Hangers, and Scale Plate separately.	—
LP916B1082	Direct Acting Heating, Reverse Acting Cooling	Bulb 3/8 x 7 in., capillary 36 in. (914 mm) long	65 F to 85 F	19 C to 30 C	Heat 18 psi, Cool 13 psi	Heat 124 kPa, Cool 90 kPa	3.5 F	2 C	Warmer/Cooler	Integral Mounting Bracket, (2) 316297-00021 Bulb Hangers and 304528A Bag Assembly (mounting hardware).	New installation model
LP916B1090	Direct Acting Heating, Reverse Acting Cooling	Bulb 3/8 x 9 in., capillary 36 in. (914 mm) long	65 F to 85 F	19 C to 30 C	Heat 18 psi, Cool 13 psi	Heat 124 kPa, Cool 90 kPa	3.5 F	2 C	Warmer/Cooler	Integral Mounting Bracket, (2) 316297-00021 Bulb Hangers and 304528A Bag Assembly (mounting hardware).	—
LP916C1023	Reverse Acting	Bulb 3/8 x 9 in., capillary 36 in. (914 mm) long	60 F to 80 F	15 C to 26 C	—	—	3.5 F	2 C	60 F to 80 F	Integral Mounting Bracket, (2) 316297-00021 Bulb Hangers and 304528A Bag Assembly (mounting hardware).	—

TP9600 Pneumatic Thermostat



Application Type: Wall Thermostat
Dimensions, Approximate: 3 1/4 in. high x 2 in. wide x 1 5/8 in. deep (83 mm high x 51 mm wide x 41 mm deep)
Airflow Usage: 0.011 scfm (5.2 mL/s)
Air Connections: Barb fittings 5/32 in. (4 mm)
Mounting: Vertical Wall Mounting
Operating Temperature: 50 F to 100 F (10 C to 38 C)
Storage Temperature: 150 F maximum (66 C maximum)
Throttling Range: 2 F to 10 F (1 C to 5 C)
Sensor Element: Bimetal
Maximum Operating Pressure: 25 psi (170 kPa)

Accessories:

305965 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with $\pm 4\%$ accuracy
14002362-001 Duct Sampling Chamber
14002430-001 Thermostat Guard
14002913-001 .005 in. Blue Filter Restriction Assembly; Inlet: 1/4 in., Outlets: 1/4 in. and 5/32 in.; Order in Quantities of 10
14002913-004 External Restriction Assembly. 0.005 in. Restriction, Blue Inlet 1/4 in.; Outlet 5/32 in. and 5/32 in.

Pneumatic thermostat for proportional control of pneumatic valves and actuators with one- or two-pipe systems. Available with two cover options, the TP9600 is not only affordable and easy to install, but it controls temperature with the reliability that only Honeywell can provide.

- TP9600 delivers the Honeywell TP970s unparalleled sensing and control.
- Redesigned models fit your high-volume pneumatic applications.
- Backplate mounts quickly.
- Thermostat snaps onto backplate.
- Cover is mounted and locked into place with concealed setscrews.
- Attractive Euro-contoured design comes with choice of two cover options.
- Neutral taupe color blends with today's commercial interiors.
- Adapter kits are available to retrofit most pneumatic jobs.
- Branch line capacity Low for TP9630 and TP9633 Branch line capacity High for TP9600, TP9610, TP9603, TP9620.

14003192-001 Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations

14004439-001 Setpoint Extension

14004911-001 Taupe Convertastat wall plate with 2 screws

AK3863 Honeywell Thermostat Tool Kit, TP970/TP900

CCT729A Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.

CCT735A Thermostat Calibration Tool includes Allen wrench for cover installation.

Replacement Parts:

14001865-001 Filter Cartridge Assembly

14002053-001 Back Plate Assembly

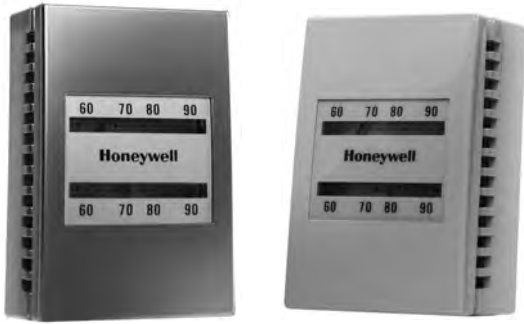
14002573-001 Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972

14003192-001 Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations

Product Number	Action	Number of Pipes	Setpoint	Setpoint Temperature Range		Changeover		Includes
				(F)	(C)	(psi)	(kPa)	
TP9600A1007	Direct Acting	2	Single	59 F to 90 F	15 C to 32 C	—	—	Cover, Setpoint, and Thermometer are Visible
TP9600B1006	Reverse Acting	2	Single	59 F to 90 F	15 C to 32 C	—	—	Cover, Setpoint, and Thermometer are Visible
TP9603A1001	Direct Acting	2	Single	59 F to 90 F	15 C to 32 C	—	—	Blank Cover, Setpoint, and Thermometer are Not Visible
TP9610A1006	Direct Acting	2	Day/Night	Day: 59 F to 90 F, Night: 50 F to 75 F	Day: 15 C to 30 C, Night: 10 C to 27 C	Day 13 psi, Night 18 psi	Day 90 kPa, Night 124 kPa	Cover, Setpoint, and Thermometer are Visible
TP9620A1005	Direct Acting Heating, Reverse Acting Cooling	2	Single	60 F to 90 F	16 C to 32 C	Heat 18 psi, Cool 13 psi	Heat 124 kPa, Cool 90 kPa	Cover, Setpoint, and Thermometer are Visible
TP9630A1004	Direct Acting	1 or 2	Single	60 F to 90 F	16 C to 32 C	—	—	Cover, Setpoint, and Thermometer are Visible
TP9630B1003	Reverse Acting	1 or 2	Single	60 F to 90 F	16 C to 32 C	—	—	Cover, Setpoint, and Thermometer are Visible

Pneumatic Thermostats

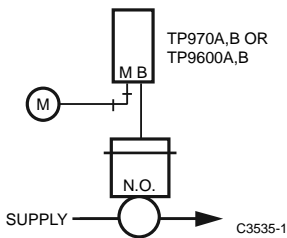
TP970 Pneumatic Thermostat



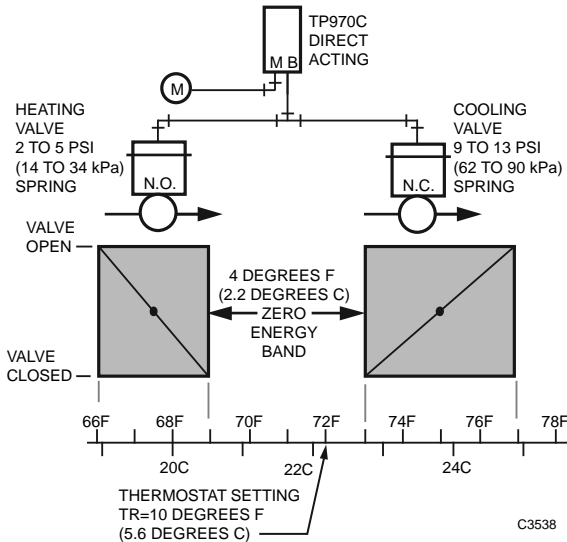
Two-pipe, single setpoint, pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell two-pipe pneumatic thermostats.

- Honeywell's best pneumatic thermostat-TP970 series.
- Shock-resistant, suspension-mounted thermostats provide dependable performance and responsiveness year in and year out.
- Pilot operated for high capacity.
- Direct Acting (DA) and Reverse Acting (RA) models are available.
- Wide throttling range models for Zero Energy Band (ZEB) operation are available.
- Adapter plate in Convertastat® and Modernization kits covers existing thermostat wall mark.
- Backplate has molded air connections-no separate fittings needed.
- Universal locking cover with satin chrome finish and horizontal, vertical, or blank window options.
- Typical Wide Throttling Range Application.

Typical Standard Throttling Range Piping



Typical Wide Throttling Range Piping



Application Type: Heating

Dimensions, Approximate: 3 1/4 in. high x 2 in. wide x 1 5/8 in. deep
(83 mm high x 51 mm wide x 41 mm deep)

Airflow Usage: 0.011 scfm (5.2 mL/s)

Mounting: Wall

Number of Pipes: 2

Setpoint: Single

Operating Temperature: 100 F maximum

Storage Temperature: 150 F maximum (66 C maximum)

Sensor Element: Bimetal

Maximum Operating Pressure: 25 psi (170 kPa)

Accessories:

305965 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with $\pm 4\%$ accuracy

14002362-001 Duct Sampling Chamber

14002430-001 Thermostat Guard

14003192-001 Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations

14004439-001 Setpoint Extension

14004447-001 Setpoint Cam Assembly for TP970A1004, A1012, A1020, A1038, A1046, A1053, A1095, A2004, A2012, A2020, A2038, A2053, A2095; TP970C; TP972A1143, A2143; TP973A1001, A1019, A1127

14004447-002 Setpoint Cam Assembly for TP970B1002, B1010, B1028, B1036, B2002, B2010, B2028, B2036; TP970D; TP972A1002, A1010, A1028, A1044, A2002, A2010, A2028, A2044; TP973B1009, B1017, B1025, B1108

114004447-005 Setpoint Cam Assembly for TP970B1044; TP972A1051, A1101

14004459-001 Repair kit consisting of a thermometer assembly, a thermometer post and a 60 to 90F aluminum scaleplate

AK3863 Honeywell Thermostat Tool Kit, TP970/TP900

CCT729A Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.

CCT735A Thermostat Calibration Tool includes Allen wrench for cover installation.

Replacement Parts:

14001865-001 Filter Cartridge Assembly

14002053-001 Back Plate Assembly

14002573-001 Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972

14004459-001 Repair kit consisting of a thermometer assembly, a thermometer post and a 60 to 90F aluminum scaleplate

Pneumatic Thermostats

Product Number	Action	Setpoint Temperature Range		Throttling Range		Includes	Comments**
		(F)	(C)	(F)	(C)		
TP970A2004	Direct Acting	59 F to 90 F		2 F to 10 F (factory set 4 F)	-16 C to -12 C (factory set -15 C)	Order Cover Separately	—
TP970A2012	Direct Acting	40 F to 70 F		2 F to 10 F (factory set 4 F)	-16 C to -12 C (factory set -15 C)	Order Cover Separately	—
TP970A2020	Direct Acting		15 C to 30 C	33 F to 41 F (factory set 35 C)	1 C to 5 C (factory set 2 C)	Order Cover Separately	—
TP970A2038	Direct Acting	59 F to 90 F		2 F to 10 F (factory set 4 F)	-16 C to -12 C (factory set -15 C)	Thermostat, large wall plate and satin chrome cover.	Modernization kit used to convert older Honeywell Thermostats.
TP970A2145	Direct Acting	59 F to 90 F		2 F to 10 F (factory set 4 F)	-16 C to -12 C (factory set -15 C)	Thermostat, small wall plate and satin chrome cover.	Convertastat Kit
TP970A2234	Direct Acting		15 C to 30 C	33 F to 41 F (factory set 35 C)	1 C to 5 C (factory set 2 C)	Thermostat, small wall plate and satin chrome cover.	Convertastat Kit
TP970A2242	Direct Acting	59 F to 90 F		2 F to 10 F (factory set 4 F)	-16 C to -12 C (factory set -15 C)	Thermostat, small wall plate and beige cover.	Convertastat Kit
TP970A2259	Direct Acting	59 F to 90 F		2 F to 10 F (factory set 4 F)	-16 C to -12 C (factory set -15 C)	Thermostat and satin chrome cover.	Tradeline Kit
TP970B2002	Reverse Acting	59 F to 90 F		2 F to 10 F (factory set 4 F)	-16 C to -12 C (factory set -15 C)	Order Cover Separately	—
TP970B2010	Reverse Acting		15 C to 30 C	33 F to 41 F (factory set 35 C)	1 C to 5 C (factory set 2 C)	Order Cover Separately	—
TP970B2077	Reverse Acting	59 F to 90 F		2 F to 10 F (factory set 4 F)	-16 C to -12 C (factory set -15 C)	Thermostat, small wall plate and satin chrome cover.	Convertastat Kit
TP970B2150	Reverse Acting		15 C to 30 C	33 F to 41 F (factory set 35 C)	1 C to 5 C (factory set 2 C)	Thermostat, small wall plate and satin chrome cover.	Convertastat Kit
TP970B2166	Reverse Acting	59 F to 90 F		2 F to 10 F (factory set 4 F)	1 C to 5 C (factory set 2 C)	Thermostat, small wall plate and beige cover.	Convertastat Kit
TP970B2182	Reverse Acting	59 F to 90 F		2 F to 10 F (factory set 4 F)	-16 C to -12 C (factory set -15 C)	Thermostat and satin chrome cover.	Tradeline Kit
TP970C2000	Direct Acting	59 F to 90 F		5 F to 25 F	-15 C to -3 C	Order Cover Separately	Wide Throttling Range 5-25 F

A **Tradeline Kit includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows (horizontal (F), vertical (F) and blank) for new installations or to convert newer, small size Honeywell or competitor thermostat, not requiring a wall plate adapter.

A **Convertastat Kit™** includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows (horizontal (F), vertical (F) and blank) and a small Universal Wall Plate Adapter to convert newer, small size Honeywell or competitor thermostats.

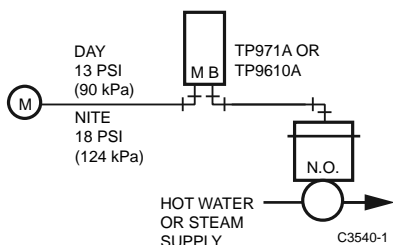
A **Modernization Kit** includes a TP970 Series thermostat with Satin Chrome Universal Cover, Windows (horizontal (F), vertical (F) and blank) and a large Universal Wall Plate Adapter to convert older thermostats.

Pneumatic Thermostats

TP971 Pneumatic Day/Night Thermostat



TP971 Typical Piping



Application Type: Wall Thermostat, Day/Night operation
Dimensions, Approximate: 3 1/4 in. high x 2 in. wide x 1 5/8 in. deep
 (83 mm high x 51 mm wide x 41 mm deep)
Airflow Usage: 0.011 scfm (5.2 mL/s)
Mounting: Wall
Setpoint: Day/Night
Operating Temperature: 100 F maximum
Storage Temperature: 150 F maximum (66 C maximum)
Sensor Element: Bimetal
Maximum Operating Pressure: 25 psi (170 kPa)

Pneumatic thermostat with night setback used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell two-pipe pneumatic thermostats.

- Durable TP970 series thermostat Pilot operated for high capacity.
- Direct Acting (DA) and Reverse Acting (RA) models are available.
- Three-pipe thermostats are available for unit ventilator applications where the outdoor damper must operate when the thermostat is manually set to day operation.
- Adapter plate in thermostat kits covers existing thermostat watermark.
- Backplate has molded air connections—no separate fittings needed.
- Universal Locking cover with satin chrome finish and horizontal, vertical, or blank window options—other covers available.

Accessories:

- 305965** 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with $\pm 4\%$ accuracy
- 14002362-001** Duct Sampling Chamber
- 14002430-001** Thermostat Guard
- 14003192-001** Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations
- 14004439-001** Setpoint Extension
- 14004447-003** Setpoint Cam Assembly for TP971A, C, D; TP972A1168, A2168, A2176
- AK3863** Honeywell Thermostat Tool Kit, TP970/TP900
- CCT729A** Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.
- CCT735A** Thermostat Calibration Tool includes Allen wrench for cover installation.

Replacement Parts:

- 14001865-001** Filter Cartridge Assembly
- 14002053-001** Back Plate Assembly
- 14002573-001** Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972

Product Number	Action	Number of Pipes	Setpoint Temperature Range		Changeover		Throttling Range		Includes	Comments **
			(F)	(C)	(psi)	(kPa)	(F)	(C)		
TP971A2003	Direct Acting Heating, two temp.	2	Day: 59 F to 90 F, Night: 50 F to 80 F	—	Day 13 psi, Night 18 psi	Day 90 kPa, Night 124 kPa	2 F to 10 F	1 C to 5 C	Order Cover Separately	—
TP971A2011	Direct Acting Heating, two temp.	2	—	Day: 15 C to 30 C, Night: 10 C to 27 C	Day 13 psi, Night 18 psi	Day 90 kPa, Night 124 kPa	2 F to 10 F	1 C to 5 C	Order Cover Separately	—
TP971A2029	Direct Acting Heating, two temp.	2	Day: 59 F to 90 F, Night: 50 F to 80 F	—	Day 16 psi, Night 21 psi	Day 110 kPa, Night 144 kPa	2 F to 10 F	1 C to 5 C	Order Cover Separately	—
TP971A2052	Direct Acting Heating, two temp.	2	—	Day: 15 C to 30 C, Night: 10 C to 27 C	Day 16 psi, Night 21 psi	Day 110 kPa, 144 kPa	2 F to 10 F	1 C to 5 C	Order Cover Separately	—
TP971A2086	Direct Acting Heating, two temp.	2	Day: 59 F to 90 F, Night: 50 F to 80 F	—	Day 20 psi, Night 25 psi	Day 137 kPa, Night 172 kPa	2 F to 10 F	1 C to 5 C	Order Cover Separately	—
TP971A2102	Direct Acting Heating, two temp.	2	Day: 59 F to 90 F, Night: 50 F to 80 F	—	Day 13 psi, Night 18 psi or 16-20 psi	Day 90 kPa, Night 124 kPa	2 F to 10 F	1 C to 5 C	Thermostat, small wall plate and satin chrome cover.	Convertastat Kit
TP971B2001	Reverse Acting Heating, two temp.	2	Day: 59 F to 90 F, Night: 50 F to 80 F	—	Day 13 psi, Night 18 psi	Day 90 kPa, Night 124 kPa	2 F to 10 F	1 C to 5 C	Order Cover Separately	—

Pneumatic Thermostats

Product Number	Action	Number of Pipes	Setpoint Temperature Range		Changeover		Throttling Range		Includes	Comments **
			(F)	(C)	(psi)	(kPa)	(F)	(C)		
TP971B2019	Reverse Acting Heating, two temp.	2	Day: 59 F to 90 F, Night: 50 F to 80 F		Day 16 psi, Night 21 psi	Day 110 kPa, Night 144 kPa	2 F to 10 F	1 C to 5 C	Order Cover Separately	—
TP971B2043	Reverse Acting Heating, two temp.	2	Day: 59 F to 90 F, Night: 50 F to 80 F		Day 20 psi, Night 25 psi	Day 137 kPa, Night 172 kPa	2 F to 10 F	1 C to 5 C	Order Cover Separately	—
TP971C2009	Direct Acting Heating, two temp.	3	Day: 59 F to 90 F, Night: 50 F to 80 F		Day 13 psi, Night 18 psi	Day 90 kPa, Night 124 kPa	2 F to 10 F	1 C to 5 C	Order Cover Separately	Has secondary branch line
TP971C2017	Direct Acting Heating, two temp.	3		Day: 15 C to 30 C, Night: 10 C to 27 C	Day 13 psi, Night 18 psi	Day 90 kPa, Night 124 kPa	2 F to 10 F	1 C to 5 C	Order Cover Separately	Has secondary branch line
TP971C2025	Direct Acting Heating, two temp.	3	Day: 59 F to 90 F, Night: 50 F to 80 F		Day 16 psi, Night 21 psi	Day 110 kPa, Night 144 kPa	2 F to 10 F	1 C to 5 C	Order Cover Separately	Has secondary branch line

A **Tradeline Kit includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows (horizontal (F), vertical (F) and blank) for new installations or to convert newer, small size Honeywell or competitor thermostat, not requiring a wall plate adapter.

A **Convertastat Kit™** includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows (horizontal (F), vertical (F) and blank) and a small Universal Wall Plate Adapter to convert newer, small size Honeywell or competitor thermostats.

A **Modernization Kit** includes a TP970 Series thermostat with Satin Chrome Universal Cover, Windows (horizontal (F), vertical (F) and blank) and a large Universal Wall Plate Adapter to convert older thermostats.

Pneumatic Thermostats

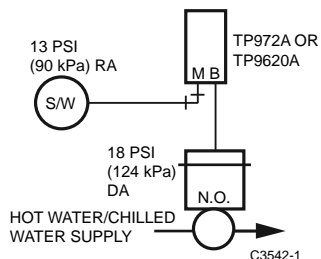
TP972 Pneumatic Heating/Cooling Thermostat



Two-pipe, one- or two-temperature, pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell two-pipe pneumatic thermostats.

- Durable TP970 Series Thermostat. Pilot operated for high capacity.
- Two-temperature energy conservation model available.
- Adapter plate in Convertastat® kits covers existing thermostat wall mark.
- Backplate has molded air connections-no separate fittings needed.
- Universal locking cover with satin chrome finish and horizontal, vertical, or blank window options with Tradeline model-other covers available.

TP972 Typical Piping



Application Type: Wall Thermostat, Heat/Cool Operation

Dimensions, Approximate: 3 1/4 in. high x 2 in. wide x 1 5/8 in. deep (83 mm high x 51 mm wide x 41 mm deep)

Action: Direct acting heating, reverse acting cooling

Airflow Usage: 0.011 scfm (5.2 mL/s)

Mounting: Wall

Operating Temperature: 100 F maximum

Storage Temperature: 150 F maximum (66 C maximum)

Sensor Element: Bimetal

Maximum Operating Pressure: 25 psi (170 kPa)

Throttling Range: 2F to 10 F (1 C to 5 C)

Accessories:

305965 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with ±4% accuracy

14002362-001 Duct Sampling Chamber

14002430-001 Thermostat Guard

14003192-001 Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations

14004439-001 Setpoint Extension

14004447-001 Setpoint Cam Assembly for TP970A1004, A1012, A1020, A1038, A1046, A1053, A1095, A2004, A2012, A2020, A2038, A2053, A2095; TP970C; TP972A1143, A2143; TP973A1001, A1019, A1127

14004447-002 Setpoint Cam Assembly for TP970B1002, B1010, B1028, B1036, B2002, B2010, B2028, B2036; TP970D; TP972A1002, A1010, A1028, A1044, A2002, A2010, A2028, A2044; TP973B1009, B1017, B1025, B1108

14004447-003 Setpoint Cam Assembly for TP971A, C, D; TP972A1168, A2168, A2176

14004447-005 Setpoint Cam Assembly for TP970B1044; TP972A1051, A1101

AK3863 Honeywell Thermostat Tool Kit, TP970/TP900

CCT729A Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.

CCT735A Thermostat Calibration Tool includes Allen wrench for cover installation.

Replacement Parts:

14001865-001 Filter Cartridge Assembly

14002573-001 Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972

Product Number	Number of Pipes	Set-point	Setpoint Temperature Range		Changeover		Includes	Comments
			(F)	(C)	(psi)	(kPa)		
TP972A2002	2	Single	59 F to 90 F	—	Heat 18 psi, Cool 13 psi	Heat 124 kPa, Cool 90 kPa	Order Cover Separately	—
TP972A2010	2	Single	—	15 C to 30 C	Heat 18 psi, Cool 13 psi	Heat 124 kPa, Cool 90 kPa	Order Cover Separately	—
TP972A2036	2	Dual	Heating 50 F to 75 F, Cooling 60 F to 90 F	—	Heat 18 psi, Cool 13 psi	Heat 124 kPa, Cool 90 kPa	Energy Conservation Model, Order Cover Separately	Two concealed setpoint knobs
TP972A2143	2	Single	59 F to 90 F	—	Heat 14 psi, Cool 19 psi	Heat 96 kPa, Cool 131 kPa	Order Cover Separately	—
TP972A2192	2	Single	59 F to 90 F	—	Heat 18 psi, Cool 13 psi	Heat 124 kPa, Cool 90 kPa	Thermostat, small wall plate and satin chrome cover	Convertastat Kit

*A **Tradeline Kit** includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows (horizontal (F), vertical (F) and blank) for new installations or to convert newer, small size Honeywell or competitor thermostat, not requiring a wall plate adapter.

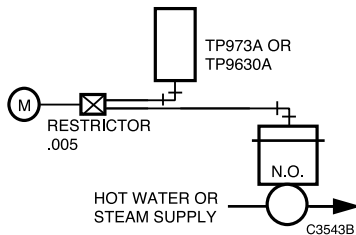
A **Convertastat Kit™** includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows (horizontal (F), vertical (F) and blank) and a small Universal Wall Plate Adapter to convert newer, small size Honeywell or competitor thermostats.

A **Modernization Kit** includes a TP970 Series thermostat with Satin Chrome Universal Cover, Windows (horizontal (F), vertical (F) and blank) and a large Universal Wall Plate Adapter to convert older thermostats.

TP973 Pneumatic Thermostat



TP973 Typical Piping (One-pipe)



Application Type: Wall Thermostat, Single Temperature
Dimensions, Approximate: 3 1/4 in. high x 2 in. wide x 1 5/8 in. deep (83 mm high x 51 mm wide x 41 mm deep)
Airflow Usage: 0.011 scfm (5.2 mL/s)
Mounting: Wall
Number of Pipes: 1 or 2
Setpoint: Single
Operating Temperature: 100 F
Storage Temperature: 150 F maximum (66 C maximum)
Sensor Element: Bimetal
Maximum Operating Pressure: 25 psi (170 kPa)

Accessories:

305965 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with $\pm 4\%$ accuracy
14002362-001 Duct Sampling Chamber
14002430-001 Thermostat Guard
14002913-004 External Restriction Assembly. 0.005 in. Restriction, Blue Inlet 1/4 in.; Outlet 5/32 in. and 5/32 in.

One- or two-pipe, single temperature, low capacity, pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell pneumatic thermostats.

- Durable TP970 Series Thermostat. Direct Acting (DA) and Reverse Acting (RA) models are available.
- Backplate has molded air connections-no separate fittings needed.
- Universal locking cover with satin chrome finish and horizontal, vertical, or blank window options available.
- Other Covers Available.
- Low capacity thermostat.
- Built in restrictor for two-pipe applications.

- 14003192-001** Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations
14004439-001 Setpoint Extension
14004447-001 Setpoint Cam Assembly for TP970A1004, A1012, A1020, A1038, A1046, A1053, A1095, A2004, A2012, A2020, A2038, A2053, A2095; TP970C; TP972A1143, A2143; TP973A1001, A1019, A1127
14004447-002 Setpoint Cam Assembly for TP970B1002, B1010, B1028, B1036, B2002, B2010, B2028, B2036; TP970D; TP972A1002, A1010, A1028, A1044, A2002, A2010, A2028, A2044; TP973B1009, B1017, B1025, B1108
AK3863 Honeywell Thermostat Tool Kit, TP970/TP900
CCT729A Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.
CCT735A Thermostat Calibration Tool includes Allen wrench for cover installation.

Replacement Parts:

- 14001865-001** Filter Cartridge Assembly
14002053-001 Back Plate Assembly
14002573-001 Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972
14003192-001 Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations
14002573-001 Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972

Product Number	Action	Setpoint Temperature Range		Throttling Range		Includes	Comments**
		(F)	(C)	(F)	(C)		
TP973A2076	Direct Acting	59 F to 90 F	—	2 F to 10 F	1 C to 5 C	Order Cover Separately	For one-pipe order an external 0.005 in. restriction
TP973A2084	Direct Acting	—	15 C to 30 C	2 F to 10 F	1 C to 5 C	Order Cover Separately	For one-pipe order an external 0.005 in. restriction
TP973A2209	Direct Acting	59 F to 90 F	—	2 F to 10 F	1 C to 5 C	Thermostat and Satin Chrome Cover	Tradeline Kit. For one-pipe application-order an external.005 in. restriction
TP973B2066	Reverse Acting	59 F to 90 F	—	2 F to 10 F	1 C to 5 C	Order Cover Separately	For one-pipe order an external 0.005 in. restriction
TP973B2074	Reverse Acting	—	15 C to 30 C	2 F to 10 F	1 C to 5 C	Order Cover Separately	For one-pipe order an external 0.005 in. restriction
TP973B2171	Reverse Acting	59 F to 90 F	—	2 F to 10 F	1 C to 5 C	Thermostat and Satin Chrome Cover	Tradeline Kit. For one-pipe application-order an external.005 in. restriction

**A Tradeline Kit includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows (horizontal (F), vertical (F) and blank) for new installations or to convert newer, small size Honeywell or competitor thermostat, not requiring a wall plate adapter.

A Convertastat Kit™ includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows (horizontal (F), vertical (F) and blank) and a small Universal Wall Plate Adapter to convert newer, small size Honeywell or competitor thermostats.

A Modernization Kit includes a TP970 Series thermostat with Satin Chrome Universal Cover, Windows (horizontal (F), vertical (F) and blank) and a large Universal Wall Plate Adapter to convert older thermostats.

Pneumatic Thermostats

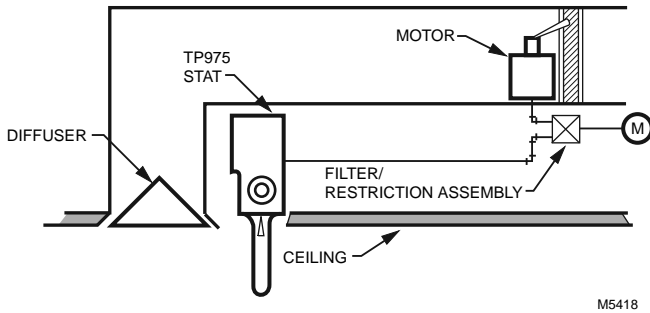
TP975 Pneumatic Diffuser Thermostat



One-pipe, single temperature, low-capacity pneumatic thermostat used to provide proportional control of pneumatic valves and mixing boxes in heating and air conditioning systems. It mounts in a slot or light troffer diffuser or a return air grill.

- Two-way setpoint indicator for vertical or horizontal mounting.
- Detents in 1 F (0.5 C) increments for blind operation.

TP975 Typical Piping



Application Type: Single temperature, low capacity, pneumatic thermostat

Dimensions, Approximate: 1 in. high x 2 1/2 in. wide x 1 1/8 in. deep
(25 mm high x 63 mm wide x 27 mm deep)

Airflow Usage: 0.011 scfm (5.2 mL/s)

Mounting: Wall

Operating Temperature: 110 F maximum (43 C maximum)

Storage Temperature: 150 F maximum (66 C maximum)

Sensor Element: Bimetal

Maximum Operating Pressure: 30 psi (207 kPa)

Accessories:

14002913-001 .005 in. Blue Filter Restriction Assembly; Inlet: 1/4 in., Outlets: 1/4 in. and 5/32 in.; Order in Quantities of 10


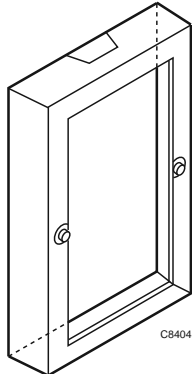
14002913-004 External Restriction Assembly. 0.005 in. Restriction, Blue Inlet 1/4 in; Outlet 5/32 in. and 5/32 in.

Product Number	Action	Number of Pipes	Setpoint	Setpoint Temperature Range		Throttling Range		Comments	Sensor Element
				(F)	(C)	(F)	(C)		
TP975A1009	Direct Acting	1	Single	67 F to 83 F	1 C to 5 C	2 F to 10 F	1 C to 5 C	Requires external 0.005 in. restrictor	Bimetal

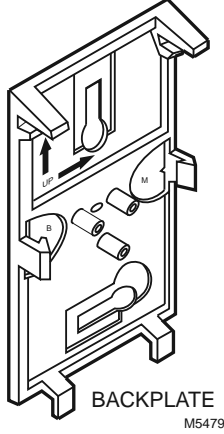
Pneumatic Thermostat Accessories

Product Number	Description	Used With	
14001491-002	Two-Pipe Airhead, tubing assembly for wall box	TP970, TP972, TP971, TP973, TP9600, HP970	
14001494-002	2 Pipe Airhead Assembly	—	
14001496-001	Mounting Plate for TP970 to 2 in.x 4 in. Electrical Box	TP970	
14001527-001	Three pipe straight white connector	TP970, TP972, TP971, TP973, TP9600, HP970	
14001614-001	Shallow wall plate assembly	TP970, TP972, TP971, TP973, TP9600, HP970	
14001615-002	Two-pipe plastic tube assembly for shallow wall	TP970, TP972, TP971, TP973, TP9600, HP970	
14001616-002	Thermostat fitting plastic	—	
14001918-001	Branchline Pressure plug	TP970, TP972, TP971, TP973, TP9600, HP970	
14002136-004	Black Trim plate	TP970, TP972, TP971, TP973, TP9600, HP970	
14002136-005	Beige Trim plate	TP970, TP972, TP971, TP973, TP9600, HP970	
14002136-006	Premier White Trim Plate	TP970, TP972, TP971, TP973, TP9600, HP970	
14002136-007	Taupe Trim Plate	TP9600	
14002172-001	Gage Tap repair plug	TP970, TP972, TP971, TP973, TP9600, HP970	
14002362-001	Duct Sampling Chamber	TP970, TP972, TP971, TP973, TP974, TP9600, HP970	
14002430-001	Thermostat Guard	TP970, TP972, TP971, TP973, TP9600, HP970	
14002573-002	Modernization Kit to convert 3 pipe Honeywell TP911C & competitive three pipe pneumatic	TP971C	
14002636-001	Base for 14002362-001 Sampling Chamber	14002362-001	
14002913-001	.005 in. Blue Filter Restriction Assembly; Inlet: 1/4 in., Outlets: 1/4 in. and 5/32 in.; Order in Quantities of 10	—	
14002913-002	.005 in. Blue Filter Restriction Assembly; Inlet: 1/4 in., Outlets: 5/32 in. and 5/32 in.; Order in Quantities of 10	—	
14003113-002	Repair kit containing 0.007 in. restrictor plate, filters, and gaskets	LP916	

Pneumatic Thermostats



Product Number	Description	Used With	
14003203-001	Bag assembly	—	
14004068-001	Mounting Hardware	—	
14004401-002	Convertastat Wall Plate	—	
14004401-004	Adaptor plate for Convertastat, beige	—	
14004437-001	Insert Cover	—	
14004438-001	Insert Cover	—	
14004438-002	Insert Cover	—	
14004439-001	Setpoint Extension	—	
14004447-001	Setpoint Cam Assembly for TP970A1004, A1012, A1020, A1038, A1046, A1053, A1095, A2004, A2012, A2020, A2038, A2053, A2095; TP970C; TP972A1143, A2143; TP973A1001, A1019, A1127	TP970A, TP970C, TP972A2143, TP979A	
14004447-002	Setpoint Cam Assembly for TP970B1002, B1010, B1028, B1036, B2002, B2010, B2028, B2036; TP970D; TP972A1002, A1010, A1028, A1044, A2002, A2010, A2028, A2044; TP973B1009, B1017, B1025, B1108	TP970B, TP970D, TP972A2002, TP972A2010, TP973B2108, TP979B	
14004447-003	Setpoint Cam Assembly for TP971A, C, D; TP972A1168, A2168, A2176	TP971A, TP971C, TP971D	
14004447-005	Setpoint Cam Assembly for TP970B1044; TP972A1051, A1101	TP970B, TP972A	
14004458-001	Stand-Off Ring for surface or flush mounting	TP970, TP972, TP971, TP973, TP9600, HP970	
14004459-001	Repair kit consisting of a thermometer assembly, a thermometer post and a 60 to 90F aluminum scaleplate	TP970	
14004505-001	Twin elbow connector	TP970, TP972, TP971, TP973, TP9600, HP970	
14004558-001	Six inch main branch tube-spring assembly	TP970, TP972, TP971, TP973, TP9600, HP970	
14004911-001	Taupe Convertastat wall plate with 2 screws	TP9600	
311699	Tubing Spring	LP916	
316016A	General purpose mounting assembly, includes 3 3/4 in. mounting bracket, scale plate, knob, bulb hangers, screws, and nuts	LP916	
316016C	Knob and scale plate assembly with screws	LP916	
316016M	Knob, large scale plate and hanger assembly with screws	LP916	
AK3863	Honeywell Thermostat Tool Kit, TP970/TP900	HP970, HP972, TP970	

Pneumatic Thermostat Replacement Parts





Product Number	Description	Used With	
14000742-002	Two-pipe straight red connector	TP970, TP972, TP971, TP973, TP9600, HP970	
14001865-001	Filter Cartridge Assembly	TP970, TP972, TP971, TP973, TP9600, HP970	
14001957-001	Plug, BLP Tap,	TP970	
14002053-001	Back Plate Assembly	TP970, TP972, TP971, TP973, TP9600, HP970	
14002573-001	Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972	TP970, TP9600, TP972, HP970, HP971, TP971A, HP972, TP973, TP974	
14003192-001	Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations	TP970, TP972, TP971, TP973, TP9600, HP970	
14004405-005	Window thermostat with scale indicator of 60 to 90 F, two clear windows, gray background, Honeywell logo in middle.	TP970	
14004406-901	Thermostat Cover Assembly satin chrome with assembly-cover [chrome] (14004402-001), window thermostat (14004405-020)	TP970	
14004447-007	assembly Cam with cam (14004429-002), Bushing (14002025-001), Screw (14004444-001)	TP970	
14004459-003	Repair plate package assembly includes: thermostat assembly - 14004440-001, pointer - 144002124-001, scale plate - 14004434-003, post, thermostat assembly - 14004436-001, box, plastic - 14004645-002.	TP970	
14004460-003	Package assembly-repair (Bracket) with Bracket assembly (14002387-004), Box, Plastic (14004645-002)	TP970	
14004610-001	Zinc plate metal stud Adapter	TP970	

Pneumatic Thermostats

TP9600 Series Standard Covers

Product Number	Description	Used With	
14004910-001	Fahrenheit scale (60 to 90 F) Taupe Thermostat Cover Kit with thermometer and setpoint display visible and Honeywell logo for vertical mounting.	TP9600	
14004910-004	Taupe Thermostat Cover with setpoint and thermometer concealed with Honeywell logo, for vertical mounting	TP9600	

TP970 Series Standard Covers

Product Number	Description	Comments	Used With	
14004406-910	Satin Chrome Thermostat Cover Kit - includes window inserts for 60 to 90 F setpoint display for vertical and horizontal mounting, or 60 to 90 F thermometer display and setpoint display for vertical and horizontal mounting.	—	TP970 TP972 TP971 TP973	
14004407-910	Beige Thermostat Cover Kit - includes window inserts for 60 to 90 F setpoint display for vertical and horizontal mounting, or 60 to 90 F thermometer display and setpoint display for vertical and horizontal mounting.	See Specification Data sheet, Form No. 77-1003 for details	TP970 TP972 TP971 TP973	
14004787-910	Bright Chrome Thermostat Cover Kit - includes window inserts for 60 to 90 F setpoint display for vertical and horizontal mounting, or 60 to 90 F thermometer display and setpoint display for vertical and horizontal mounting	—	TP970 TP971 TP972 TP973	
14004878-910	Premier White Thermostat Cover Kit - includes window inserts for 60 to 90 F setpoint display for vertical and horizontal mounting, or 60 to 90 F thermometer display and setpoint display for vertical and horizontal mounting	—	TP970 TP971 TP972 TP973	

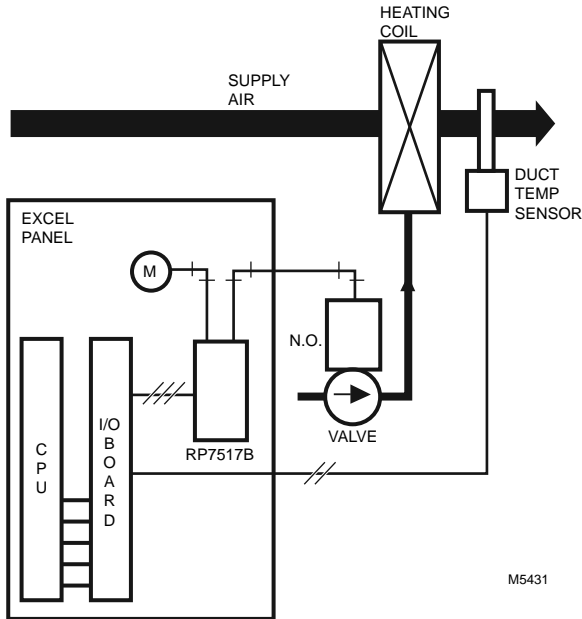
RP7517 Electronic-Pneumatic Transducer



Electronic-Pneumatic Transducers are used in electronic-pneumatic control systems to convert a proportional electric output signal from a controller into a direct-acting, proportional pneumatic signal.

- Screw mounting or snap rail (models with cover).
- Factory calibrated.
- Dual barb fittings.
- High accuracy.

RP7517 Typical Piping/Wiring



Application: Electric to pneumatic Transducer

Action: Direct Acting

Airflow Usage: 0.025 scfm (117mL/s)

Connections: Dual barb-fittings for 1/4 in. or 5/32 in. O.D. plastic tubing

Current: 16 mA

Maximum Operating Temperature: 131 F (55 C)

Maximum Operating Pressure: 30 psi (205 kPa)

Pressure Ranges: 0 to 18 psi (0 to 125 kPa)

Nominal High End: (110 kPa with 125 kPa main pressure at 12 Vdc)
16 psi with 18 psi main pressure at 12 Vdc

Nominal Low End: 0.5 psi at 0 Vdc (3.5 kPa at 0 Vdc)

Output Pressure Range: 3 to 15 psi (21 to 103 kPa)

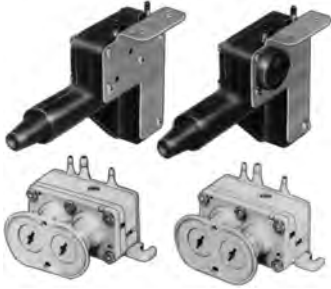
Humidity Ratings: 5 to 95% RH

Capacity: 0.45 scfm (211 mL/s)

Product Number	Electrical Connections	Dimensions, Approximate		Input Signal	Voltage	Includes
		(inch)	(mm)			
RP7517A1009	30 in. (762 mm) lead wire	2 7/16 in. wide x 3 5/8 in. high x 2 in. deep	62 mm wide x 92 mm high x 52 mm deep	2 to 10 Vdc	Powered by Control signal	With cover, without internal power supply (2-wire)
RP7517A1017	screw terminals for 14 to 22 gage wire	2 7/16 in. wide x 3 3/8 in. high x 1 7/8 in. deep	62 mm wide x 86 mm high x 48 mm deep	2 to 10 Vdc	Powered by Control signal	Without cover, without internal power supply for panel mounting (2 wire)
RP7517B1016	30 in. (762 mm) lead wire	2 7/16 in. wide x 3 5/8 in. high x 2 in. deep	62 mm wide x 92 mm high x 52 mm deep	2 to 10 Vdc at 0.1 mA max	24 Vac external transformer	With cover, external transformer required, 24 Vac, 50/60 Hz, (3 wire)
RP7517B1024	screw terminals for 14 to 22 gage wire	2 7/16 in. wide x 3 3/8 in. high x 1 7/8 in. deep	62 mm wide x 86 mm high x 48 mm deep	2 to 10 Vdc at 0.1 mA max	24 Vac external transformer	Without cover, external transformer required, 24 Vac, 50/60 Hz, (3 wire)

Pneumatic Velocity Sensors/Controllers

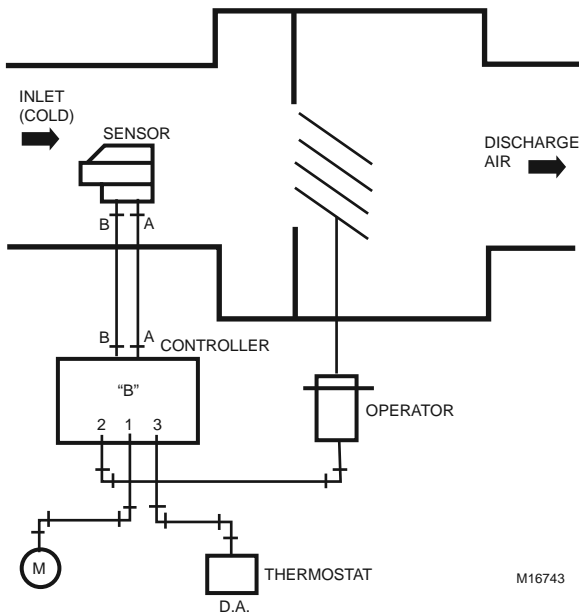
CP980 Velocitrol Velocity Sensor/Controller



An ultra-sensitive air velocity sensor and pneumatic controller, control pneumatic damper actuators in heating and air conditioning systems to provide constant air velocity in the duct regardless of the static pressure.

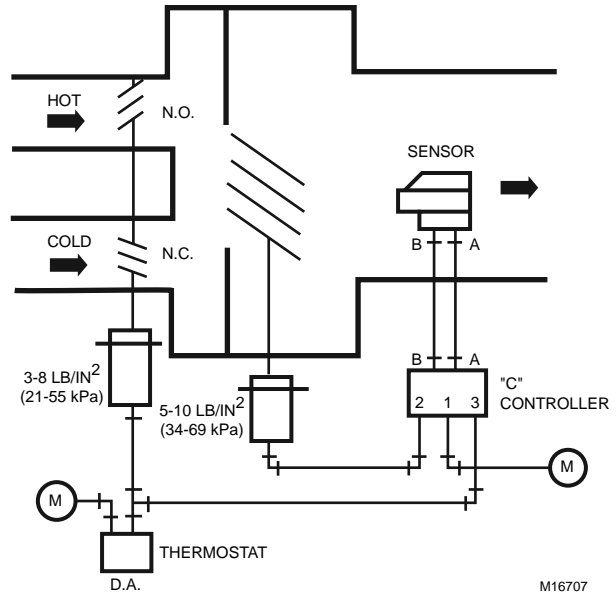
- State-of-the-art design provides reliable operation.
- Not position sensitive.
- Direct Acting (DA) and Reverse Acting (RA) models are available.
- Insensitive to static pressure changes.
- Accurate control throughout entire velocity range.
- Graduated scales for minimum and maximum velocity adjustments.
- Velocity reset by thermostat demand.
- Adaptable to many terminal unit control strategies.

Single Duct, Variable Constant Volume Application



M16743

Dual Duct, Variable Constant Volume Application



M16707

Application: Velocitrol Air Velocity Sensor

Dimensions, Approximate: Controller: 1 3/4 in. high x 3 1/4 in. wide x 2 3/8 in. deep / Sensor: 3 3/16 in. high x 1 3/4 in. wide x 4 3/16 in. long with orifice and 3 3/8 in. long without orifice
(Controller: 44 mm high x 83 mm wide x 60 mm deep / Sensor: 81 mm high x 45 mm wide x 107 mm long with orifice and 86 mm long without orifice.)

Airflow Usage: 0.029 scfm (13.7 mL/s), includes supply for bleed type thermostats for type B, does not include thermostat air for type C controller

Remote Sensor: Yes

Humidity Ratings: 5 to 95% RH

Temperature Range: 40 F to 130 F (5 C to 55 C)

Maximum Operating Pressure: 30 psi (207 kPa)

Product Number	Control Range		Reset Pressure Range		Description	Comments
	(fpm)	(m/s)	(psi)	(kPa)		
CP980C1065	500 fpm up to 3500 fpm by changing orifice	2.5 m/s up to 17.8 m/s by changing orifice	1 to 15 psi	7 to 103 kPa	Direct acting Pneumatic Velocity Controller, uses "B" type supply unit	For normally open damper and one-pipe thermostat
CP980D1063	500 fpm up to 3500 fpm by changing orifice	2.5 m/s up to 17.8 m/s by changing orifice	1 to 15 psi	7 to 103 kPa	Reverse acting Pneumatic Velocity Controller, uses "B" type supply unit	For normally closed damper and one-pipe thermostat
CP980E1060	500 fpm up to 3500 fpm by changing orifice	2.5 m/s up to 17.8 m/s by changing orifice	9 to 15 psi	62 to 103 kPa	Direct acting Pneumatic Velocity Controller for reheat sequencing, uses "C" type supply unit	For normally open damper and two-pipe thermostat
CP980F1068	500 fpm up to 3500 fpm by changing orifice	2.5 m/s up to 17.8 m/s by changing orifice	9 to 15 psi	62 to 103 kPa	Reverse acting Pneumatic Velocity Controller for reheat sequencing, uses "C" type supply unit	For normally closed damper and two-pipe thermostat

Pneumatic Velocity Sensors/Controllers

CP980C,D,E, and F Cross-Reference Table

Current Order Number (Less Orifice)	Orifice Order No.	Velocity Range ft/min (m/s)	Orifice Set	Replaces Honeywell		
				Original Set Less Orifice	Interim Matched Set (Less Orifice)	Matched Set (Includes Orifice)
CP980C1065	None	500 (2.5)	None	—	—	—
	14003642-002	750 (3.8)	Green	—	—	CP980C1016
	14003642-003	1500 (7.6)	White	—	—	CP980C1024
	14003642-004	2000 (10.2)	Blue	—	—	CP980C1032
	14003749-001	2500 (12.7)	Black	—	—	CP980C1040
	14003749-002	3500 (17.8)	Gray	—	—	CP980C1057
CP980D1063	None	500 (2.5)	None	CP980A1002/	CP980B1000	—
	14003642-002	750 (3.8)	Green	RP980A1006	or	CP980D1014
	14003642-003	1500 (7.6)	White	or	CP980B1018	CP980D1022
	14003642-004	2000 (10.2)	Blue	CP980A1002/	—	CP980D1030
	14003749-001	2500 (12.7)	Black	RP980B1004	—	CP980D1048
	14003749-002	3500 (17.8)	Gray	CP980A1010/	CP980B1034	CP980D1055
			or			
			RP980A1006			
			or			
			RP980A1010/			
			RP980B1004			
CP980E1060	None	500 (2.5)	None	—	—	—
	14003642-002	750 (3.8)	Green	—	—	CP980E1011
	14003642-003	1500 (7.6)	White	—	—	CP980E1029
	14003642-004	2000 (10.2)	Blue	—	—	CP980E1037
	14003749-001	2500 (12.7)	Black	—	—	CP980E1045
	14003749-002	3500 (17.8)	Gray	—	—	CP980E1052
CP980F1068	None	500 (2.5)	None	CP980A1002/	CP980B1026	—
	14003642-002	750 (3.8)	Green	RP980C1002	—	CP980F1019
	14003642-003	1500 (7.6)	White	CP980A1010/	CP980B1059 ^a	CP980F1027
	14003642-004	2000 (10.2)	Blue	RP980C1002 ^a	—	CP980F1035
	14003749-001	2500 (12.7)	Black	—	—	CP980F1043
	14003749-002	3500 (17.8)	Gray	—	—	CP980F1050

Pneumatic Velocity Control Accessories and Replacement Parts

Product Number	Description	Used With
14003514-001	Sensor for CP980E Velocitrol Velocity Control	CP980E
14003617-002	Velocitrol Supply Module "B"	—
14003642-002	Orifice Green, Velocity Range 750 ft/min (3.8 m/s)	CP980
14003642-003	Orifice White, Velocity Range 1500 ft/min (7.6 m/s)	CP980
14003642-004	Orifice Blue, Velocity Range 2000 ft/min (10.2 m/s)	CP980
14003749-001	Orifice Black, Velocity Range 2500 ft/min (12.7 m/s)	CP980
14003749-002	Orifice Gray, Velocity Range 3500 ft/min (17.8 m/s)	CP980
14003749-003	Orifice Yellow	CP980
14003882-001	Direct Acting Velocitrol sensor plate assembly including Base plate (14003480-001), Diaphragm (14003504-001), top plate assembly (14003525-002), gasket (14003885-001), valve plate assembly (14003897-001), knob (14003886-001), diaphragm (14003886-001)	CP980E; CP980C
14003931-006	Stainless steel SCCM flow Restriction of 120-160 at 100 kPa	CP980E; CP980C
316155A	Cover Assembly, RP908	RP908

Pneumatic Temperature Controllers

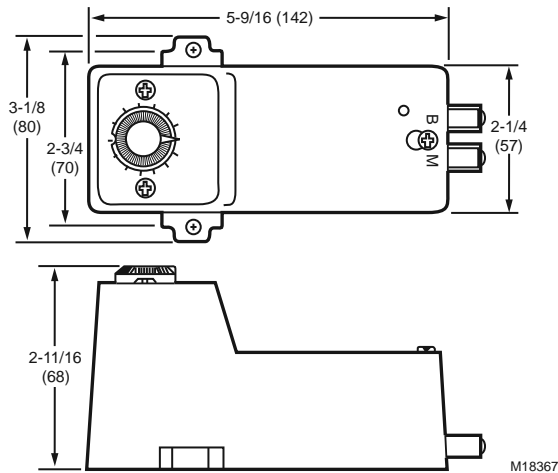
LP920 Remote Bulb Temperature Controllers



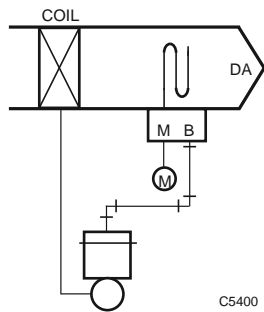
Two-pipe, single temperature, pneumatic temperature controller used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell two-pipe pneumatic temperature controller.

- Fahrenheit or Celsius scales for all adjustments.
- Pilot operated for high capacity.
- Direct Acting (DA) and Reverse Acting (RA) models are available.
- Adjustable setpoint and throttling ranges.
- Scales in bold type for high visibility.
- Replaceable filter cartridge.
- Single point or averaging elements.

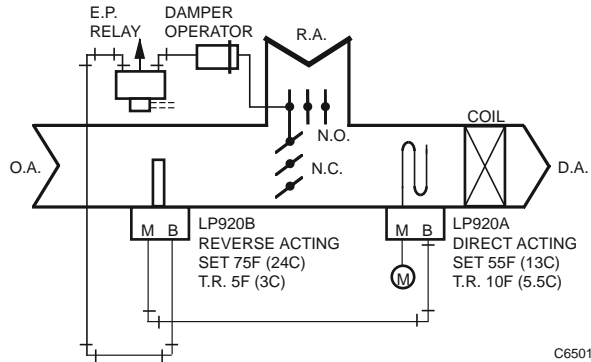
Dimensions in inches (millimeters)



Typical coil discharge control



Typical mixed air control



Airflow Usage: 0.011 scfm (5.2 mL/s)

Maximum Operating Temperature: Element: 230 F, Controller: 150 F
(Element: 110 C, Controller: 66 C)

Maximum Storage Temperature: 150 F (66 C)

Maximum Operating Pressure: 30 psi (207 kPa)

Throttling Range: Factory set at 10 F with adjustment range of 5 to 25 F (Factory set at 6K with adjustment range of 3 to 15 K)

Remote Bulb Sensor: yes

Accessories:

315904B 1/2 in. NPT stainless steel Well, 7 5/16 in. (186 mm) long

315046B Well, 1/2 NPT Copper, 7 1/2 in. (191 mm) long

14001865-001 Filter Cartridge Assembly

14002172-001 Gage Tap repair plug

Replacement Parts:

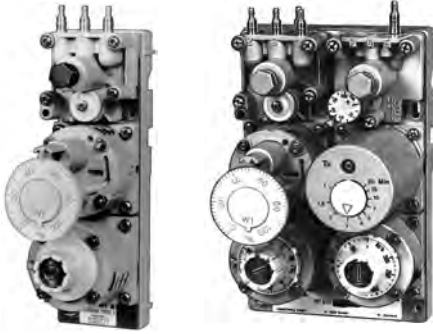
14001865-001 Filter Cartridge Assembly

14002172-001 Gage Tap repair plug

Product Number	Application	Action	Number of Pipes	Scale Range		Comments	Includes
				(F)	(C)		
LP920A1005	Remote Bulb Temperature	Direct Acting	2	30 F to 150 F	-1 C to +66 C	Scale plate is reversible for F and C applications	8 ft (2.4 m) averaging element for duct mounting
LP920A1013	Remote Bulb Temperature	Direct Acting	2	30 F to 150 F	-1 C to +66 C	Scale plate is reversible for F and C applications	3/8 x 5 1/4 in. (10 x 133 mm) bulb with 3 in. (76 mm) capillary, well mount
LP920A1021	Remote Bulb Temperature	Direct Acting	2	30 F to 150 F	-1 C to +66 C	Scale plate is reversible for F and C applications	3/8 x 5 1/4 in. (10 x 133 mm) bulb with 10 in. (254 mm) capillary, integral duct mount
LP920A1039	Remote Bulb Temperature	Direct Acting	2	30 F to 150 F	-1 C to +66 C	Scale plate is reversible for F and C applications	3/8 x 5 1/4 in. (10 x 133 mm) bulb with 5 ft. (1.5 m) capillary, remote duct mount
LP920B1037	Remote Bulb Temperature	Reverse Acting	2	30 F to 150 F	-1 C to +66 C	Scale plate is reversible for F and C applications	3/8 x 5 1/4 in. (10 x 133 mm) bulb with 5 ft. (1.5 m) capillary, remote duct mount

Pneumatic Temperature Controllers

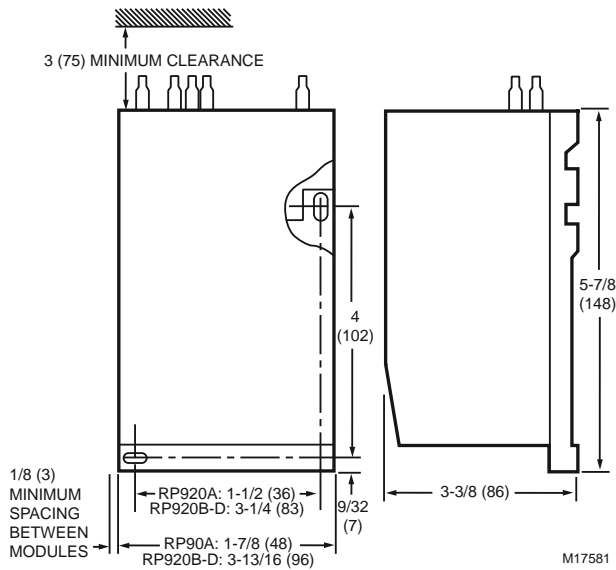
RP920 Pneumatic Controller



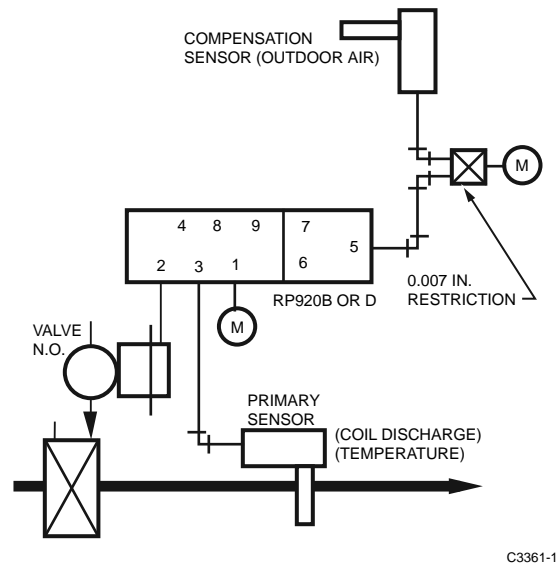
Proportional, high capacity, single or dual input pneumatic controller used in conjunction with remote sensors to provide proportional (P) or proportional plus integral (P+I) control of temperature, humidity, pressure, or dewpoint for heating and air conditioning systems. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell controllers.

- Proportional plus integral control option minimizes offset.
- Miniature diaphragm technology provides high degree of accuracy and reliability.
- Direct Acting models can be converted to Reverse Acting (RA) function in field.
- Field adjustable compensation start point.
- Local or remote setpoint field option. Integral action cut-off provides trouble-free automatic startup.
- Transparent cover (optional) provides protection while allowing easy reading of settings and gages.
- Corrosion resistant construction.

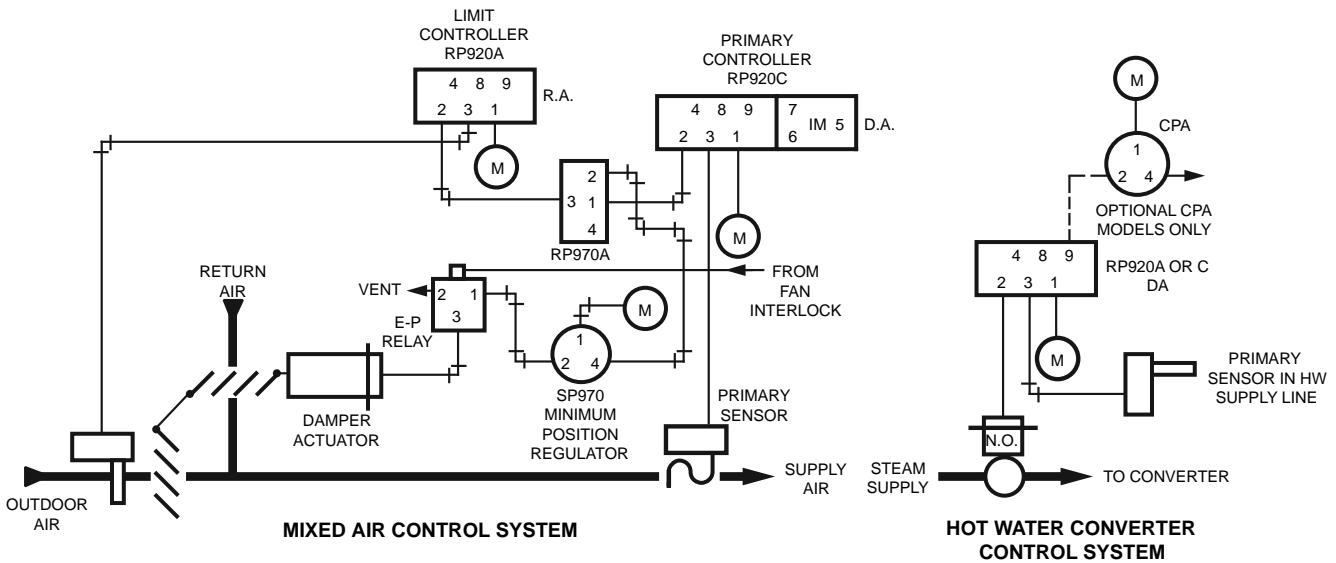
Dimensions in inches (millimeters)



Typical Dual-Input Control System



Typical Single-Input Control System



Pneumatic Temperature Controllers

Airflow Usage: 0.07 scfm (33.0 mL/s) with 1 psi (7kPa) pressure drop at 18 psi (124 kPa) main air supply

Connections: Air: Combination 5/32 in. by 1/4 in. barb. Optional accessory 14003755-001 (barb fitting for port 4,6,7, or 8 for all RP920).

Input Signal: 3 to 15 psi (21 to 103 kPa)

Maximum Operating Temperature: 130 F (54 C)

Temperature Range: 40 F to 130 F (5 C to 55 C)

Maximum Operating Pressure: 30 psi (207 kPa)

Output Pressure Range:

3 to 13 psi, output signal maximum is Mainline Pressure minus 1/2 psi (21 to 90 kPa, output signal maximum is Mainline Pressure minus 7 kPa)

Humidity Ratings: 5 to 95% RH

Remote Bulb Sensor: no

Remote Control Point Adjustment: Yes

Comments: All RP920s can be converted to reverse acting in the field. For additional technical information see literature Form no. 85-0224 and 95-7392EF.

Accessories:

305616 1-1/2 in. diameter, 1/8 NPT center stem back mount Receiver gauge (0 to 2 in. w.c. scale) with $\pm 2\%$ accuracy

305929 1-1/2 in. diameter, 1/8 NPT center back stem mount Receiver gauge (-40 to +160 F scale) with $\pm 2\%$ accuracy

305930 1-1/2 in. diameter, 1/8 NPT center back stem mount Receiver gauge (0 to 200 F scale) with $\pm 2\%$ accuracy

305931 1-1/2 in. diameter, 1/8 NPT center back stem mount Receiver gauge (40 to 240 F scale) with $\pm 2\%$ accuracy

305965 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with $\pm 4\%$ accuracy

305972 Receiver gauge, 1-1/2 in. 1/8 NPT center back, temperature 50 to 100F

305986 Receiver Gauge. -20 to 80 F scale 1-1/2 in. diameter, 1/2 NPT connection

14000786-001 Receiver Gauge, 25 F-125 F scale, 1 1/2 in. diameter, 1/8 in. NPT connection

14000786-002 Receiver Gauge, -5 to 55 C scale, 1 1/2 in. diameter, 1/8 in. NPT connection

14000786-003 Receiver Gauge, 15 to 75% RH scale, 1 1/2 in. diameter, 1/8 in. NPT connection

14000786-004 Receiver Gauge, 65 to 95% RH scale, 1 1/2 in. diameter, 1/8 in. NPT connection

14000786-005 Receiver Gauge, 15 to 85% RH scale, 1 1/2 in. diameter, 1/8 in. NPT connection

14004267-001 Temperature and Humidity scaleplate insert for setpoint knob for all RP920

14004322-001 DIN Rail Mount

14505694-003 13 3/4 inch (350 mm) long mounting rail for RP920

14505694-004 17 3/4 inch (450 mm) long mounting rail for RP920

43188057-010 Clear plastic cover for all RP920A pneumatic controllers

43188123-010 Clear plastic cover for all RP920B, RP920C, RP920D pneumatic controllers

Replacement Parts:

14001865-001 Filter Cartridge Assembly

14002172-001 Gage Tap repair plug

14003757-001 Seal screw for port 8 and O-ring repair parts for RP920

14004277-003 Setpoint module with gasket with CPA for RP920

14004278-002 Compensation module with gasket for RP920B and RP920D

14004533-001 Connector block with gasket and CPA for RP920

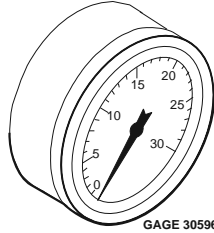
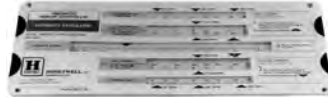
43915905-110 O-ring for filter in RP920

43188059-001 Setpoint knob for all RP920 pneumatic controllers

Product Number	Application	Action	Capacity	Number of Sensors	Includes
RP920A1025	Proportional pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.021 scfm (10 mL/s)	single	With remote control point adjustment capability.
RP920A1033	Proportional pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.021 scfm (10 mL/s)	single	Without remote control point adjustment capability.
RP920B1023	Proportional pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.046 scfm (21.7 mL/s)	dual	With remote control point adjustment capability.
RP920B1031	Proportional pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.046 scfm (21.7 mL/s)	dual	Without remote control point adjustment capability.
RP920C1021	Proportional plus integral pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.021 scfm (10 mL/s)	single	With remote control point adjustment capability.
RP920C1039	Proportional plus integral pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.021 scfm (10 mL/s)	single	Without remote control point adjustment capability.
RP920D1029	Proportional plus integral pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.046 scfm (21.7 mL/s)	dual	With remote control point adjustment capability.

Pneumatic Temperature Controllers

Pneumatic Temperature Controller Accessories

Product Number	Description	Used With	
14000786-001	Receiver Gauge, 25 F-125 F scale, 1 1/2 in. diameter, 1/8 in. NPT connection	RP920	
14000786-002	Receiver Gauge, -5 to 55 C scale, 1 1/2 in. diameter, 1/8 in. NPT connection	RP920	
14000786-003	Receiver Gauge, 15 to 75% RH scale, 1 1/2 in. diameter, 1/8 in. NPT connection	RP920	
14000786-004	Receiver Gauge, 65 to 95% RH scale, 1 1/2 in. diameter, 1/8 in. NPT connection	RP920	
14000786-005	Receiver Gauge, 15 to 85% RH scale, 1 1/2 in. diameter, 1/8 in. NPT connection	RP920	
14002696-001	Repair kit including filters, screens, washers, gaskets, O-rings, and restrictors for RP908A and RP908B controllers	RP908	
14004278-002	Compensation module with gasket for RP920B and RP920D	RP920	
14505694-003	13 3/4 inch (350 mm) long mounting rail for RP920	RP920	
14505694-004	17 3/4 inch (450 mm) long mounting rail for RP920	RP920	
305616	1-1/2 in. diameter, 1/8 NPT center stem back mount Receiver gauge (0 to 2 in. w.c. scale) with $\pm 2\%$ accuracy	RP920	
305617	1-1/2 in. diameter, 1/8 NPT center stem back mount Receiver gauge (1.0 to 3.0 in. w.c. scale) with $\pm 2\%$ accuracy	RP920	
305929	1-1/2 in. diameter, 1/8 NPT center back stem mount Receiver gauge (-40 to +160 F scale) with $\pm 2\%$ accuracy	RP920	
305930	1-1/2 in. diameter, 1/8 NPT center back stem mount Receiver gauge (0 to 200 F scale) with $\pm 2\%$ accuracy	RP920	
305931	1-1/2 in. diameter, 1/8 NPT center back stem mount Receiver gauge (40 to 240 F scale) with $\pm 2\%$ accuracy	RP920	
305965	1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with $\pm 4\%$ accuracy	RP920	 <p>GAGE 305965 0-30 PSI (0-207 kPa) C8402</p>
305972	Receiver gauge, 1-1/2 in. 1/8 NPT center back, temperature 50 to 100F	RP920	
43188057-010	Clear plastic cover for all RP920A pneumatic controllers	RP920	
43188123-010	Clear plastic cover for all RP920B, RP920C, RP920D pneumatic controllers	RP920	
CCT813	Slide Rule for Calculating Pneumatic Controller Settings for all RP908 and RP920's.	RP908; RP920	

Pneumatic Temperature Controller Replacement Parts

Product Number	Description	Used With
14003757-001	Seal screw for port 8 and O-ring repair parts for RP920	RP920
14004277-003	Setpoint module with gasket with CPA for RP920	RP920
14004533-001	Connector block with gasket and CPA for RP920	RP920
43188059-001	Setpoint knob for all RP920 pneumatic controllers	RP920
43915905-110	O-ring for filter in RP920	RP920

Pneumatic Pressure Controllers

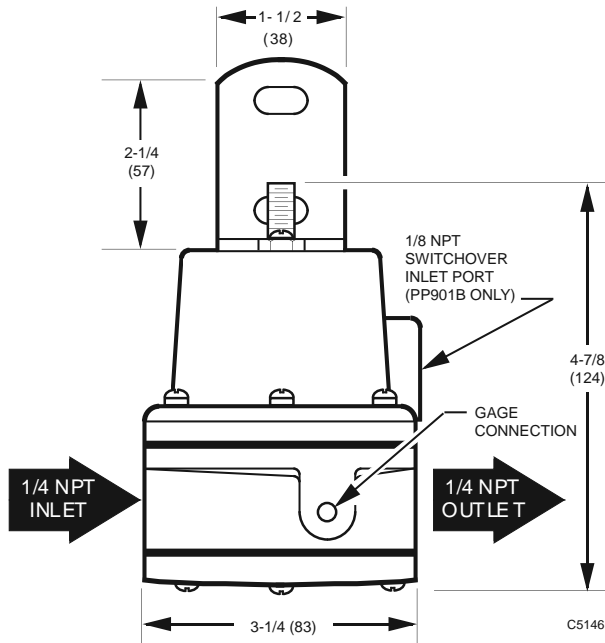
PP901; PP902 Pressure Reducing Valves



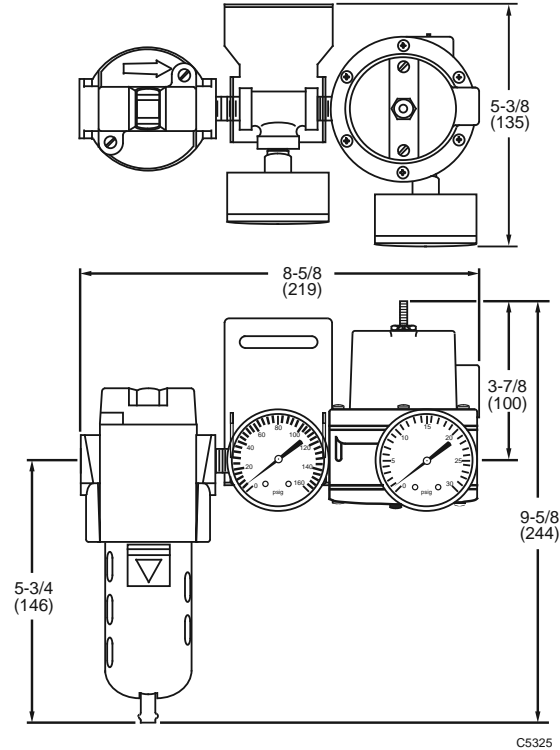
Used to control the pressure of the air delivered to pneumatic control systems. Models available for single-pressure systems or two-pressure systems (Day/Night or Summer/Winter) requiring two independently regulated pressure settings. Dual-pressure units switch from the lower settings to the higher settings when main air is applied to the pilot port. Models also available including a sub-micron filter assembly and pressure gauges. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman and older Honeywell pressure reducing valves.

- Built-in adjustable safety relief valve for limiting downstream pressure.
- For two-pressure models: Pressure changes accomplished with manual switch or automatically with electric pneumatic switch.
- Adjustable stops for desired settings.

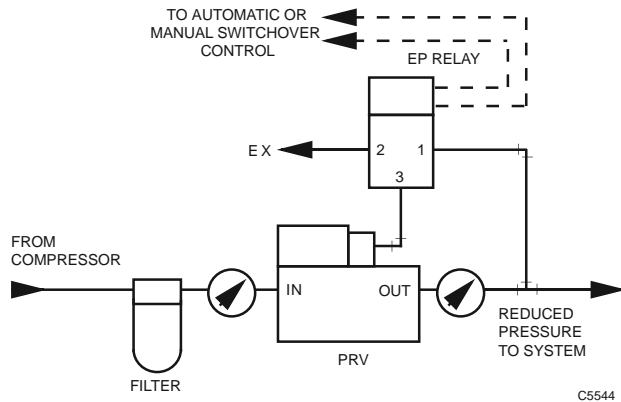
PP901 Dimensions in inches (millimeters)



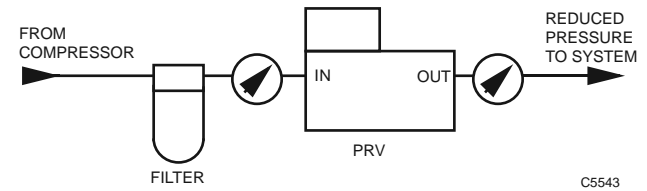
PP902 Dimensions in inches (millimeters)



PP902D Typical Operation



PP902C Typical Operation



Application Type: Pressure Reducing

Connection Size: Inlet and out air: 1/4 in. NPT (female) Air gage: 1/8 in. NPT (female)

Inlet Pressure Range: 45 to 150 psi (310 to 1034 kPa)

Mounting: Bracket furnished

Accessories:

- 305917** 2 in. diameter, 1/4 NPT center stem back mount Pressure Indicating gauge (0 to 160 psi scale) with $\pm 3\%$ accuracy
- 305965** 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with $\pm 4\%$ accuracy
- 804191E** 2-1/2 in. diameter, panel-mounted Pneumatic Pressure Indicating Gauge (0 to 160 psi), 1/8 in. NPT connection, $\pm 3\%$ accuracy

Pneumatic Pressure Controllers

Replacement Parts:

316134B PP901A & B Diaphragm Repair Kit
316203A Pressure Regulator Valve Assembly, PP901A & PP901B, PP902A,B.

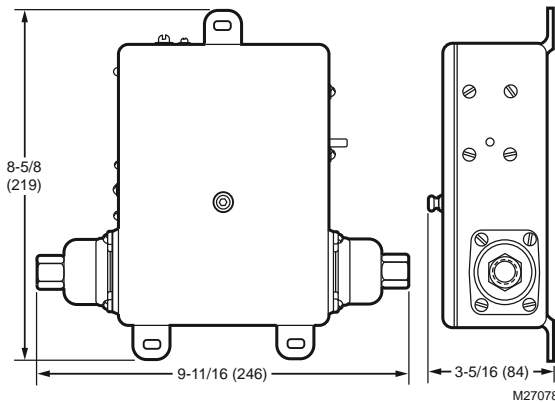
14003121-002 Filter for PP902A or B
14004203-001 Filter cartridge kit for PP902C and PP902D.
14004205-002 Filter Station Assembly for PP901, PP902A or B

Product Number	Output Pressure Range		Description	Includes
	(psi)	(kPa)		
PP901A1004	primary pressure: adj. 0 to 25 psi.	primary pressure: adj. 0 to 172 kPa.	High Pressure Diaphragm Operated Reducing Valve with Built-in Adjustable Relief Valve for Single Pressure Systems. Includes Mounting Bracket and Gage Taps But No Gages.	Gage tapping to measure the regulated pressure.
PP901B1002	primary pressure: adj. 0 to 25 psi; secondary pressure: adj. 0 to 5 psi above primary rating	primary pressure: adj. 0 to 172 kPa; secondary pressure: adj. 0 to 34kPa above primary setting.	High Pressure Diaphragm Operated Reducing Valve with Built-in Adjustable Relief Valve for Dual Pressure Systems. Includes Mounting Bracket and Gage Taps But No Gages.	Gage tapping to measure the regulated pressure.
PP902C1009	primary pressure: adj. 0 to 25 psi	primary pressure: adj. 0 to 172 kPa.	Pressure Reducing Valve for Single Pressure Systems, consists of a PP901A Valve, a sub-micron filter station, 2 psig gages, Interconnecting Pipe Fittings, and a Mounting Bracket	Submicron filter assembly and two psig gages.
PP902D1007	primary pressure: adj. 0 to 25 psi; secondary pressure: adj. 0 to 5 psi above primary rating	primary pressure: adj. 0 to 172 kPa; secondary pressure: adj. 0 to 34kPa above primary setting.	Pressure Reducing Valve for Dual Pressure Systems, consists of a PP901B Valve, a sub-micron filter station, 2 psig gages, Interconnecting Pipe Fittings, and a Mounting Bracket	Submicron filter assembly and two psig gages.

PP903 Pneumatic Differential Pressuretrol



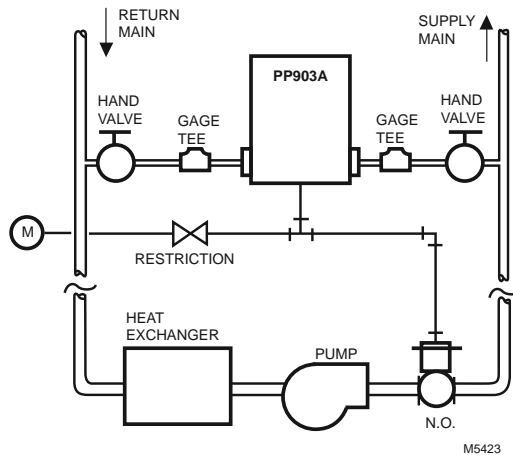
Dimensions in inches (millimeters)



One-pipe, pressure operated device used to provide proportional control of pneumatic valve or damper actuators by varying the pressure to the actuators in relation to the pressure difference between two separate water pressures. Replacement devices are available for Johnson, Powers, Robertshaw, and older Honeywell pneumatic pressure controllers.

- Easily accessible adjustments.
- Direct Acting (DA) or Reverse Acting (RA) setting.
- Mounting lugs for quick mounting.

PP903A Typical Piping



Application Type: Differential Pressure
Action: Reverse Acting, Direct Acting
Connection Size: Input: 1/4 in. NPT; Branch Line: 1/8 in. NPT

Pressure Range: 0 to 300 psi (0 to 2068 kPa)
Approximate Throttling Range, Midscale (max.): 25 psi (172 kPa)
Mounting: Lugs for 3-point surface mounting

Product Number	Actuator Force		Maximum Operating Pressure		Differential Pressure Range	
	(psi)	(kPa)	(psi)	(kPa)	(psi)	(kPa)
PP903A1036	7.5 psi	52 kPa	18 psi	124 kPa	5 to 65 psi	34 to 448 kPa

Pneumatic Pressure Controllers

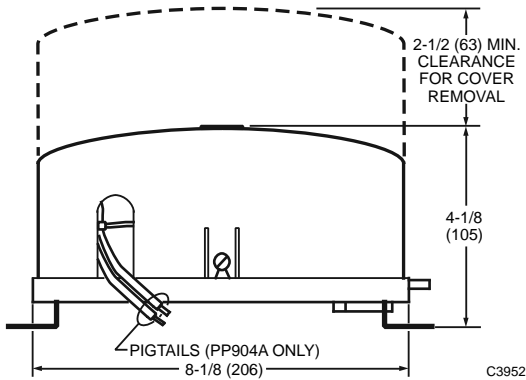
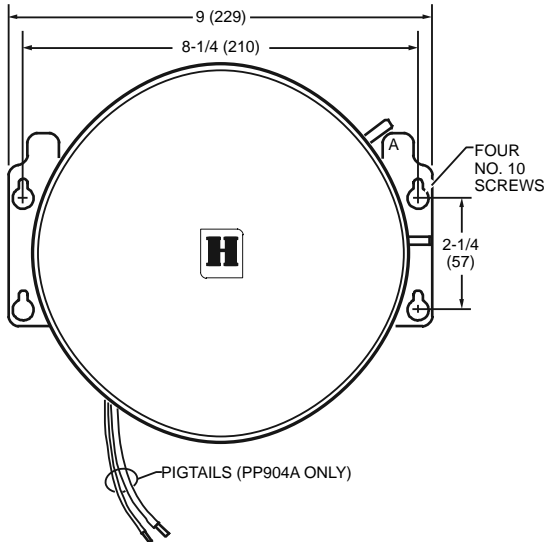
PP904 Static Pressure Regulators



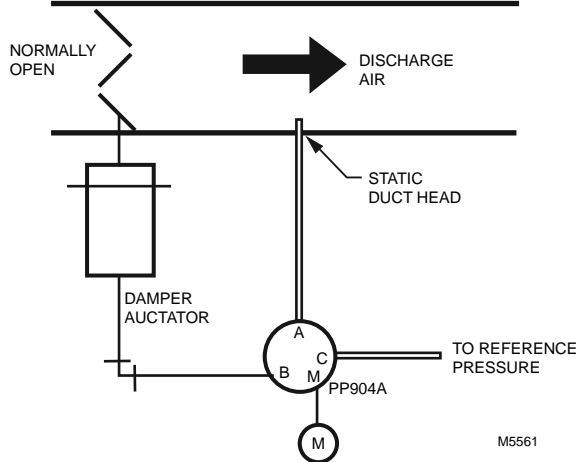
One- or two-pipe, direct- or reverse-acting, low- or high-capacity controller used with pneumatic actuators to regulate static or differential pressure in central fan installations. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Adjustable setpoint and throttling range (Zero and span).
- Direct Acting (DA) and Reverse Acting (RA).
- Sharp-barb, push-on connectors for plastic tubing.
- Field calibration possible.

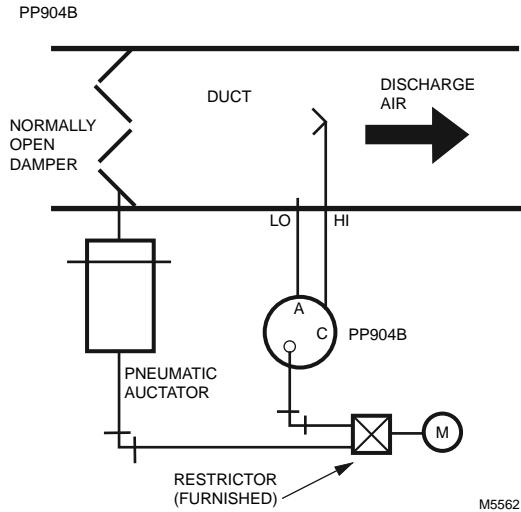
Dimensions in inches (millimeters)



PP904A Typical Piping



PP904B Typical Piping



Application Type: Static or Differential Pressure
Action: Reverse Acting, Direct Acting
Airflow Usage: 0.022 scfm (10.0 mL/s) at 18 psi (124 kPa)
Connections: Main: Sharp-barbed fittings for 1/4 in. diameter tubing;
 Branch: Sharp-barbed fittings for 5/32 in. diameter tubing
Mainline Air Pressure (min.): 16 psi (112 kPa)
Mainline Air Pressure (max.): 25 psi (175 kPa)
Maximum Operating Pressure: 25 psi (170 kPa)

Maximum Safe Static Pressure: 28 in. wc (7 kPa)
Mounting: Duct mount
Temperature Range: 40 F to 120 F (5 C to 50 C)

Accessories:
301298B Outdoor Static Pressure Head
14004238-001 Static Pressure Duct Head for 1/4 in., 6 mm diameter Plastic Tubing

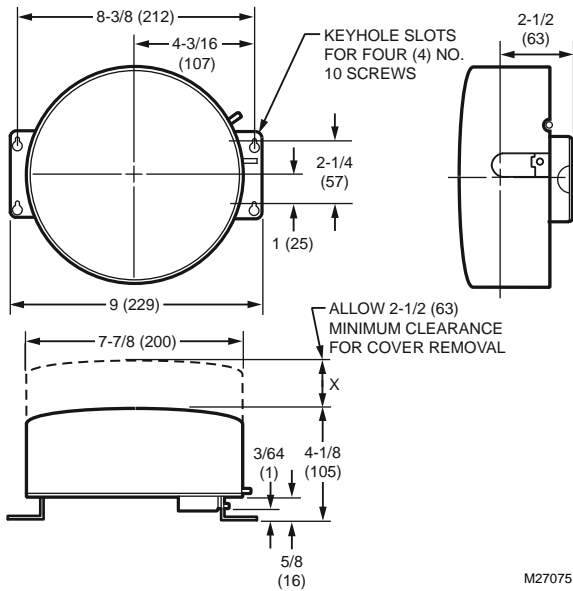
Product Number	Number of Pipes	Setpoint Range		Throttling Range (in. wc)	Description	Comments
		(in. wc)	(kPa)			
PP904A1035	2	0 to ±8 in. wc (adjustable)	0 to ±2 kPa (adjustable)	0.03 to 0.5 in. wc (adjustable)	One pipe Pneumatic Static Pressure Regulator, static or differential pressure, direct or reverse action with high capacity BLP	High capacity branchline pressure
PP904B1009	1	0 to ±8 in. wc (adjustable)	0 to ±2 kPa (adjustable)	0.06 to 0.5 in. wc (adjustable)	Two pipe Pneumatic Static Pressure Regulator, static or differential pressure, direct or reverse action with low capacity BLP	Low capacity branchline pressure

Pneumatic Pressure Controllers

PP905 Static Pressure Sensor

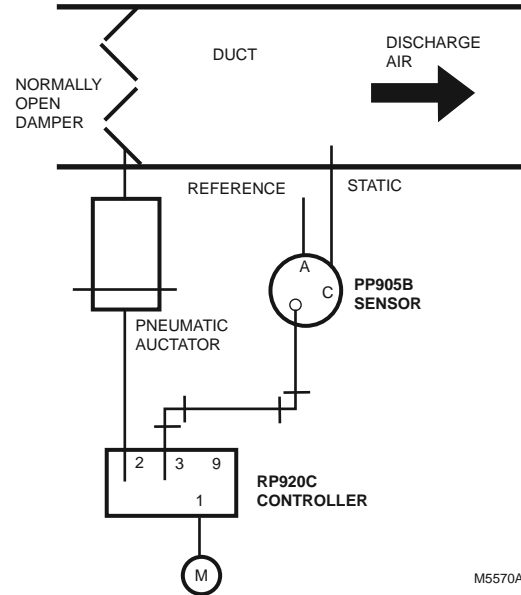


Dimensions in inches (millimeters)



M27075

PP905 in Pneumatic Static Pressure Application



M5570A

Application Type: Static Pressure
Action: Can be set for Direct Acting or Reverse Acting
Dimensions, Approximate: 8 in high, 9 in wide, 4 1/8 in deep (203 mm high, 228 mm wide, 105 mm deep)
Airflow Usage: 0.021 cfm (9.9 ml/s)
Connections: Push-on barb for 1/4 in (6 mm) Diameter tubing
Mainline Air Pressure (min.): 16 psi (112 kPa)
Mainline Air Pressure (max.): 25 psi (175 kPa)

Pressure Range: 2 in. wc (0.5 kPa)
Maximum Safe Static Pressure: 28 in. wc (7 kPa)
Mounting: Duct mount
Temperature Range: 40 F to 120 F (4 C to 50 C)

Accessories:
14004238-001 Static Pressure Duct Head for 1/4 in., 6 mm diameter Plastic Tubing

Product Number	Maximum Operating Pressure		Output Pressure Range		Setpoint Range		Span (Non-Adjustable)		Comments
	(psi)	(kPa)	(psi)	(kPa)	(in. wc)	(kPa)	(in. wc)	(kPa)	
PP905B1008	25 psi	172 kPa	3 psi to 15 psi	21 kPa to 103 kPa	0 in. wc. to 7 in. wc. (Adjustable)	0 kPa to 1.7 kPa (Adjustable)	2 in. wc.	0.5 kPa	The setpoint determines the midpoint of the span.

Pneumatic Pressure Controllers

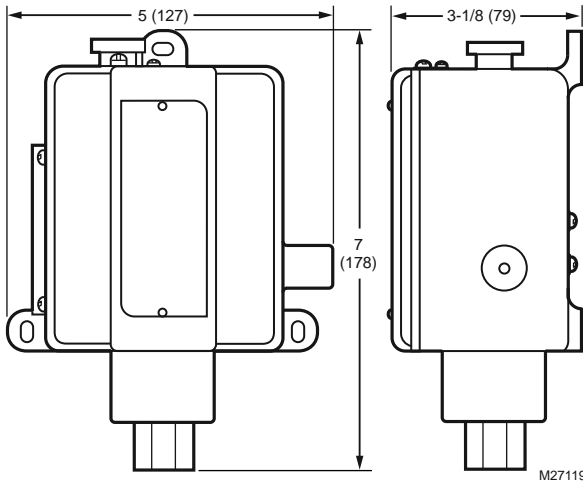
PP97 Pneumatic Pressure Control



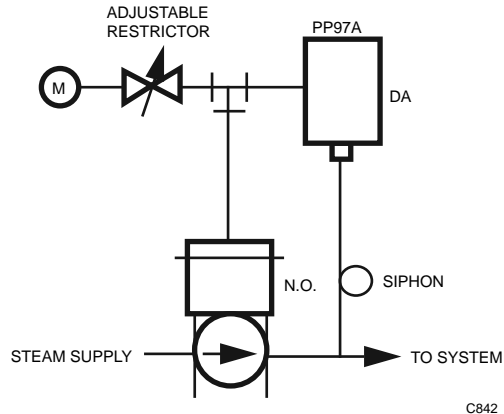
One-pipe, pressure operated device that provides proportional control of pneumatic valves to control steam, air, noncorrosive gas, or noncorrosive liquid pressure. Replacement devices are available for Johnson, Powers, Robertshaw, and older Honeywell pneumatic pressure controllers.

- Easily accessible adjustments.
- Direct Acting (DA) or Reverse Acting (RA) setting.

Dimensions in inches (millimeters)



PP97A Typical Piping



Application Type: Proportional Pressure

Action: Reverse Acting, Direct Acting

Connection Size: Bellows: 1/4 in., NPT; Air: 1/8 in. NPT

Approximate Throttling Range, Midscale (max.): 1.5 psi (10 kPa)

Mounting: Lugs for 3-point surface mounting

Product Number	Maximum Operating Pressure		Setpoint Range		Description
	(psi)	(kPa)	(psi)	(kPa)	
PP97A1035	25 psi	172 kPa	0 to 15 psi	0 to 103 kPa	Pneumatic Pressure Controller, Proportional Pressure, Action: Direct or Reverse, Output: Proportional Pressure, 0 to 15 psi pressure range
PP97A1076	350 psi	2413 kPa	10 to 300 psi	69 to 2068 kPa	Pneumatic Pressure Controller, Proportional Pressure, Action: Direct or Reverse, Output: Proportional Pressure, 10 to 300 psi pressure range

Pneumatic Pressure Controllers

UEC24014 Differential Pressure Switch



Differential pressure switches open or close a switch contact in response to a change in sensed differential pressure.

- NEMA Enclosures.
- UL and CSA Listed.
- Gold Clad Contacts.
- Brass Pipe Connection.
- Pipe or Surface Mount.

Dimensions, Approximate: 3 1/2 in. high x 2 3/8 in. wide
(89 mm high x 58 mm wide)

Connection Size: Pipe connection: Brass, 1/4 in. NPT
Electric connection: terminal strip, 16 AWG max.

Pressure Range: 150 psi at either port (1034 kPa at either port)

Mounting: Pipe or surface

Temperature Range: 30 F to 160 F (-1 C to +71 C)

Approvals:

Canadian Standards Association: Approved

Factory Mutual: Approved

NEMA Standard: NEMA 1

Underwriters Laboratories, Inc. Certified

Product Number	Differential Pressure Range		Description
	(kPa)	(psi)	
UEC24014M262	28 to 310 kPa	4 to 45 psi	Pneumatic, Type of control: Pneumatic, NEMA 1, 150 psi at either end
UEC24014M262M900	28 to 310 kPa	4 to 45 psi	Pneumatic, Type of control: Pneumatic, NEMA 4, 150 psi at either end

Pneumatic Pressure Controller Accessories and Replacement Parts

Product Number	Description	Used With
14003121-002	Filter for PP902A or B	PP902A,B
14004203-001	Filter cartridge kit for PP902C and PP902D.	PP902C,D
14004205-002	Filter Station Assembly for PP901, PP902A or B	PP901; PP902A,B
14004238-001	Static Pressure Duct Head for 1/4 in., 6 mm diameter Plastic Tubing	PP904
301298B	Outdoor Static Pressure Head	PP904

Pneumatic Humidity Sensors

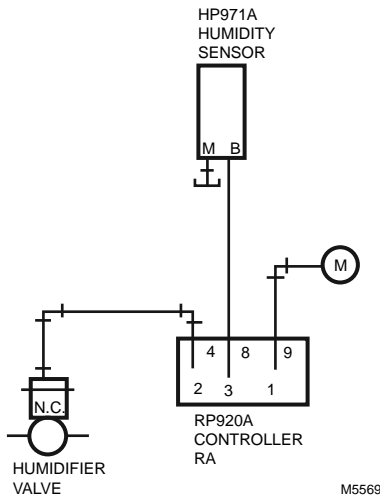
HP971 Pneumatic Humidity Sensor



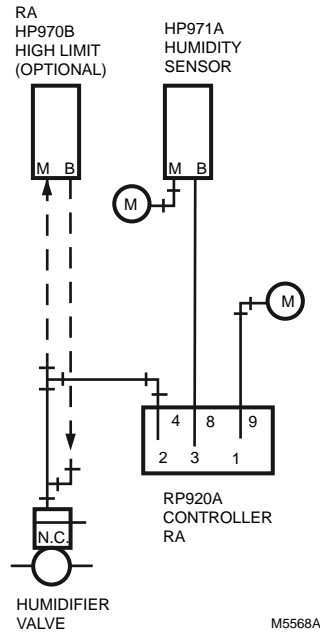
One- or two-pipe, direct-acting humidity sensor used with RP908/ RP920 Controllers to provide proportional control of pneumatic valve or damper actuators in systems requiring humidification or dehumidification control.

- Corrosion resistant materials.
- Simple plug-in air head connections.
- Factory calibrated.
- Continuous relative humidity indication available by using receiver gage.
- Integral or external restriction can be used.

HP971A One-Pipe Application



HP971A Two-Pipe Application



Application Type: Humidity Sensor
Dimensions, Approximate: 3 1/4 in. high x 2 in. wide x 1 5/8 in. deep
 (88 mm high x 51 mm wide x 41 mm deep)
Action: Direct Acting
Airflow Usage: 0.022 scfm (10.4 mL/s)
Connections: Push-on barb for 5/32 in. (4 mm) O.D. tubing

Maximum Operating Temperature: 125 F (52 C)
Maximum Operating Pressure: 25 psi (172 kPa)
Output Pressure Range: 3 psi to 15 psi (21 kPa to 103 kPa)
Supply Pressure: 16-21 psi (110-145 kPa)
Comments: Order cover separately

Product Number	Number of Pipes	Sensor Range	Mounting
HP971A1008	1 or 2	15 to 75% RH	Vertical or Horizontal Wall Mounting or Mounted in Duct Sampling Chamber
HP971A1024	1 or 2	15 to 85% RH	Vertical or Horizontal Wall Mounting or Mounted in Duct Sampling Chamber

Pneumatic Temperature Sensors

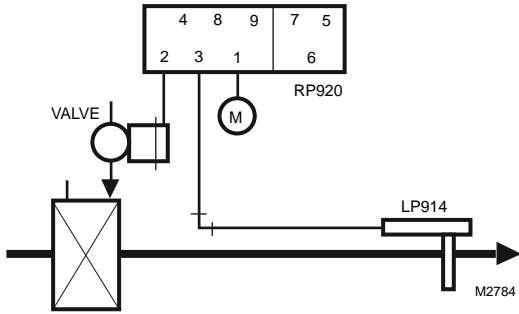
LP914 Pneumatic Temperature Sensor



One-pipe, direct-acting temperature sensor used with RP908/ RP920 Controllers to provide proportional control of pneumatic valve or damper actuators. Rod and tube insertion element for duct, well, or through-the-wall mounting.

- Corrosion resistant.
- Continuous temperature indication available by using receiver gage.

LP914 Typical Piping Duct-Mounted Applications



Application Type: Temperature Sensor

Dimensions, Approximate: Body: 2 in. high x 2 1/2 in. wide
(Body: 51 mm high x 64 mm wide)

Action: Direct Acting

Airflow Usage: 0.019 scfm (540 sccm)

Connections: Push-on barb for 5/32 in. (4 mm) and 1/4 in. (6 mm) O.D. tubing

Maximum Operating Temperature: 265 F (129 C)

Maximum Operating Pressure: 25 psi (172 kPa)

Output Pressure Range: 3 psi to 15 psi (21 kPa to 103 kPa)

Supply Pressure: 18 psi (124 kPa)

Accessories:

315046A Well, 1/2 NPT Copper, 15 1/2 in. (392 mm) long

315046B Well, 1/2 NPT Copper, 7 1/2 in. (191 mm) long

315904A Well, 1/2 NPT Stainless Steel, 15 7/16 in., 394 mm

315904B 1/2 in. NPT stainless steel Well, 7 5/16 in. (186 mm) long

311085/0107 Sunshield for LP914A1011

Replacement Parts:

315602 Inner Filter

14004664-001 0.36 inch diameter Wool felt filter

Product Number	Number of Pipes	Sensor Element	Element Length		Temperature Sensing Range		Mounting
			sq in.	sq cm	(F)	(C)	
LP914A1003	1	Rod and tube	15 in.	381 mm	-40 F to +160 F	-40 C to +71 C	Duct mount
LP914A1011	1	Rod and tube	27 in.	686 mm	-40 F to +160 F	-40 C to +71 C	Wall
LP914A1029	1	Rod and tube	15 in.	381 mm	40 F to 240 F	5 C to 115 C	Well
LP914A1045	1	Rod and tube	7 in.	178 mm	-40 F to +160 F	-40 C to +71 C	Duct mount
LP914A1052	1	Rod and tube	7 in.	178 mm	40 F to 240 F	5 C to 115 C	Well
LP914A1060	1	Rod and tube	7 in.	178 mm	-40 F to +160 F	-40 C to +71 C	Well
LP914A1144	1	Rod and tube	15 in.	381 mm	25 F to 125 F	-4 C to +52 C	Duct mount
LP914A1151	1	Rod and tube	15 in.	381 mm	-40 F to +160 F	-40 C to +71 C	Duct mount
LP914A1177	1	Rod and tube	15 in.	381 mm	40 F to 240 F	5 C to 115 C	Well
LP914A1193	1	Rod and tube	6 1/2 in.	165 mm	-40 F to +160 F	-40 C to +71 C	Duct mount
LP914A1201	1	Rod and tube	6 1/2 in.	165 mm	40 F to 240 F	5 C to 115 C	Well
LP914A1235	1	Rod and tube	15 in.	381 mm	25 F to 125 F	-4 C to +52 C	Duct mount
LP914A1268	1	Rod and tube	15 in.	381 mm	40 F to 240 F	5 C to 115 C	Duct or Well mount

Pneumatic Temperature Sensors

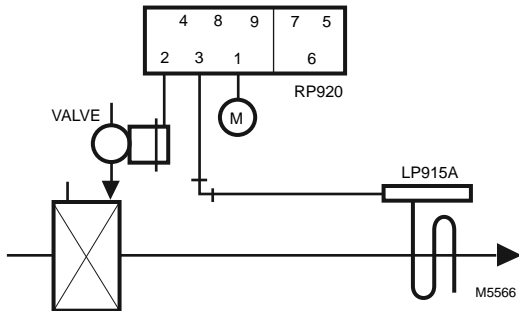
LP915 Pneumatic Temperature Sensor



One-pipe, direct-acting temperature sensor used with RP908/ RP920 Controllers to provide proportional control of pneumatic valve or damper actuators. Averaging, liquid-filled element for duct mounting.

- Easily formed into variety of configurations to assure sensing of average temperatures.
- Continuous temperature indication available by using receiver gage.

LP915A Typical Piping Duct-Mounted Application



Application Type: Temperature Sensor

Dimensions, Approximate: 3 in. high x 1 7/8 in. wide x 1 1/2 in. deep
(76 mm high x 44 mm wide x 33 mm deep)

Action: Direct Acting

Airflow Usage: 0.019 scfm (540 sccm)

Connections: Push-on barb for 5/32 in. (4 mm) and 1/4 in. (6 mm) O.D. tubing

Maximum Operating Temperature: 225 F (118 C)

Maximum Operating Pressure: 25 psi (172 kPa)

Output Pressure Range: 3 psi to 15 psi (21 kPa to 103 kPa)

Supply Pressure: 18 psi (124 kPa)

Product Number	Number of Pipes	Sensor Element	Element Length		Temperature Sensing Range		Mounting
			sq in.	sq cm	(F)	(C)	
LP915A1044	1	Liquid-filled	18 1/2 ft	5.6m	0 F to 200 F	-18 C to +93 C	Duct mount
LP915A1051	1	Liquid-filled	8 7/8 ft	2.7m	0 F to 200 F	-18 C to +93 C	Duct mount
LP915A1077	1	Liquid-filled	18 1/2 ft	5.6m	25 F to 125 F	-4 C to +52 C	Duct mount

Pneumatic Temperature Sensors

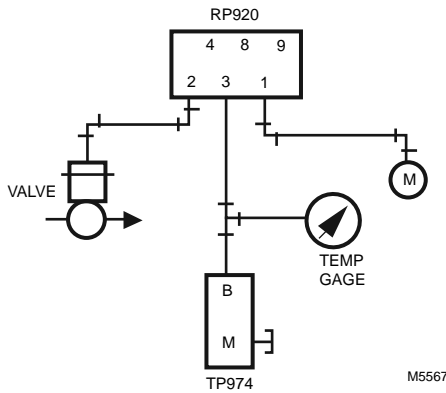
TP974 Pneumatic Temperature Sensor



One- or two-pipe direct-acting temperature sensor used with RP908/RP920 Controllers to provide proportional control of pneumatic valve and damper actuators.

- Plug-in air connections.
- High efficiency air filter.
- Bimetal element.
- Continuous temperature indication available by using receiver gage.

TP974A Typical Piping



Application Type: Temperature Sensor

Dimensions, Approximate: 3 1/4 in. high x 2 in. wide x 1 5/8 in. deep
(83 mm high x 51 mm wide x 41 mm deep)

Action: Direct Acting

Airflow Usage: 0.019 scfm (9 mL/s)

Maximum Operating Temperature: 110 F (43 C)

Maximum Operating Pressure: 25 psi (170 kPa)

Output Pressure Range: 3 psi to 15 psi (21 kPa to 103 kPa)

Supply Pressure: 16 to 25 psi (110 to 172 kpa)

Product Number	Number of Pipes	Sensor Element	Temperature Sensing Range		Mounting	Comments
			(F)	(C)		
TP974A2000	1 or 2	Bimetal	50 F to 100 F	10 C to 38 C	Vertical or Horizontal Wall Mounting	Order Cover Separately

Pneumatic Sensor Accessories

Product Number	Description	Used With
309379	Screen for LP914	LP914
311085/0107	Sunshield for LP914A1011	LP914A1011
314439	Duct Mounting Clip for Averaging capillary	LP915
315046A	Well, 1/2 NPT Copper, 15 1/2 in. (392 mm) long	LP914
315046B	Well, 1/2 NPT Copper, 7 1/2 in. (191 mm) long	LP914
315602	Inner Filter	LP914, LP915, LP907
315904A	Well, 1/2 NPT Stainless Steel, 15 7/16 in., 394 mm	LP914
315904B	1/2 in. NPT stainless steel Well, 7 5/16 in. (186 mm) long	LP914

Pneumatic Sensor Replacement Parts

Product Number	Description	Used With
14004664-001	0.36 inch diameter Wool felt filter	LP915A

Pneumatic Relays

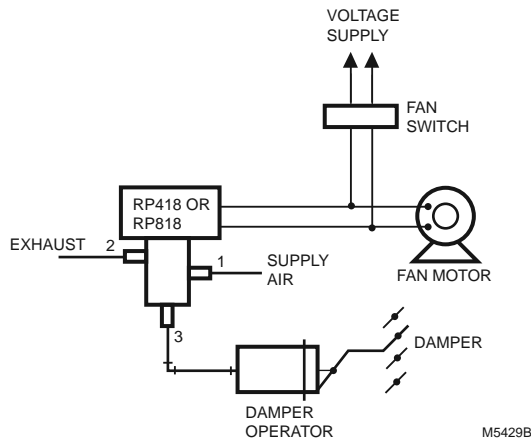
RP418, RP818 Electric/Pneumatic Relay



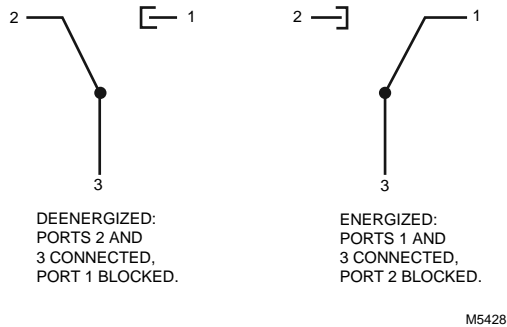
Electrically operated pneumatic switches used to interlock an electrical system and a pneumatic control system. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Usable as a diverting relay, a selector relay, or a stop and bleed relay.
- Mount and operate in any position.
- Available with lead wires or junction box.
- Line or low voltage models available.

RP418 & RP818 Typical Piping and Wiring



Internal Connections



Type: Electric/Pneumatic Relay
Dimensions, Approximate: 2 7/8 in. high x 3 13/16 in. wide x 1 1/4 in. deep (73 mm high x 97 mm wide x 32 mm deep)
Mounting: Surface
Airflow Usage: 0.42 scfm (200 mL/s) at 20 psi (138 kPa) supply with 1 psi (7 kPa) pressure drop
Air Connections: Barbed fitting for 1/4 in. O.D. plastic tubing
Capacity: 0.075 Cv minimum
Operation: Energized: ports 1 and 3 connected, port 2 blocked
 De-energized: ports 2 and 3 connected, port 1 blocked

Operating Humidity Range: 5 to 95% RH
Temperature Range: 0 F to 100 F (-18 C to +38 C)
Maximum Safe Operating Pressure: 50 psi (340 kPa)

Approvals:
Canadian Standards Association: Listed: File No. LR50900
Canadian Underwriters Laboratories, Inc. Listed: File No. LR50900
Underwriters Laboratories, Inc. Component Recognized File: MP1502, Vol. 11, Sec. 1UL Listed: Guide Y10Z

Product Number	Mounting	Voltage rating at 50 Hz	Voltage rating at 60 Hz	Frequency	Electrical Connections	Includes
RP418A1008	Surface	208 Vac	—	50 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418A1057	Surface	120 Vac	—	50 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418A1065	Surface	440 Vac	480 Vac	50 Hz; 60 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418A1073	Surface	—	277 Vac	60 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418A1081	Surface	—	208 Vac	60 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418A1099	Surface	220 Vac	240 Vac	50 Hz; 60 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418A1107	Surface	110 Vac	120 Vac	50 Hz; 60 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP418B1014	Panel mount	208 Vac	—	50 Hz	15 in. (380 mm) leads	—
RP418B1022	Panel mount	240 Vac	—	50 Hz	15 in. (380 mm) leads	—
RP418B1030	Panel mount	120 Vac	—	50 Hz	15 in. (380 mm) leads	—
RP418B1048	Panel mount	440 Vac	480 Vac	50 Hz; 60 Hz	15 in. (380 mm) leads	—
RP418B1055	Panel mount	—	208 Vac	60 Hz	15 in. (380 mm) leads	—
RP418B1071	Panel mount	110 Vac	120 Vac	50 Hz; 60 Hz	15 in. (380 mm) leads	—
RP818A1004	Surface	—	24 Vac	60 Hz	Junction Box and 15 in. (380 mm) leads	Junction Box
RP818B1002	Panel mount	—	24 Vac	60 Hz	15 in. (380 mm) leads	—
RP818B1010	Panel mount	24 Vac	—	50 Hz	15 in. (380 mm) leads	—

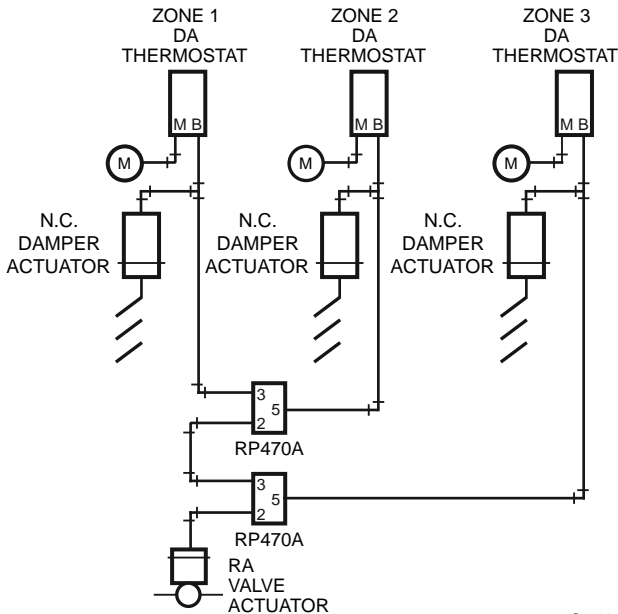
RP470 Pneumatic Selector Relay



Three-port relays used in HVAC systems to perform a variety of relay functions; transmit the higher of two input signals, lock out one pressure signal when a second signal is higher, or transmit the lower of two pressure signals. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Uses diaphragm-logic technology.
- In-line, wall, or panel mounted.
- Sharp-barb air connections.
- Molded plastic construction.

RP470A Higher-of-Two Pressures Application



C4492

Type: Pneumatic Three-port Selector Relay
Dimensions, Approximate: 1 1/2 in. diameter x 1 in. deep (38 mm diameter x 25 mm deep)
Mounting: Wall or In-line or panel
Air Connections: Barb fittings 5/32 in. (4 mm) O.D. plastic tubing
Capacity: 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)
Operating Humidity Range: 5 to 95% RH
Temperature Range: 0 F to 140 F (-18 C to +60 C)
Maximum Safe Operating Pressure: 30 psi (205 kPa)

Product Number	Operation	Mounting	Normal Operating Output Pressure		Includes
			(psi)	(kPa)	
RP470A1003	Higher-of-two-pressures selector relay	Wall or In-line or panel	0 to 20 psi	0 to 138 kPa	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel
RP470B1001	Repeater relay; Lower-of-two pressures; Lockout	Wall or In-line or panel	0 to 20 psi	0 to 138 kPa	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel

Pneumatic Relays

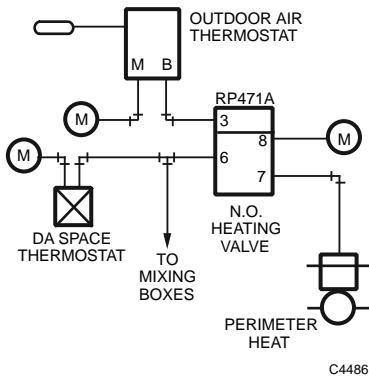
RP471 Snap-Acting Pneumatic Relay



The four port, snap acting relay converts a proportional air pressure change from a controller to a positive (two-position) pressure change. It can also divert a supply line to one of two branches. Replacement device is available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Manually adjustable switching pressure.
- Sharp barb connections for 5/32 inch (4 mm) O.D. plastic tubing.
- Molded plastic construction with neoprene diaphragms and stainless steel lever.
- Mounts in any position with mounting clip.

RP471A Typical Piping



Type: Pneumatic, four-port, snap acting relay

Dimensions, Approximate: 1 1/2 in. diameter x 2 3/4 in. deep
(38 mm diameter x 70 mm deep)

Mounting: Wall or Panel

Air Connections: Barb fittings 5/32 in. (4 mm) O.D. plastic tubing

Capacity: 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

Operation: Proportional to 2-position converter

Operating Humidity Range: 5 to 95% RH

Temperature Range: 0 F to 140 F (-18 C to +60 C)

Maximum Safe Operating Pressure: 30 psi (205 kPa)

Setpoint Range: Adjustable between 3 to 15 psi

(Adjustable between 21 to 103 kPa)

Nominal Switch Differential: 0.5 psi (3 kPa)

Product Number	Operation	Mounting	Differential Pressure Range		Description	Includes
			(psi)	(kPa)		
RP471A1002	Proportional to 2-position converter	Wall or Panel	1 psi maximum	7 kPa maximum	Wall or Panel Mounted Pneumatic, four-port, snap acting relay, SPDT	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel

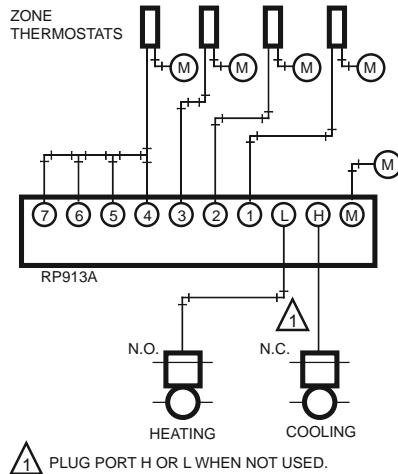
Pneumatic Relays

RP913 Pneumatic Load Analyzer



A diaphragm logic pressure selector selects the highest and/or lowest branch pressure input from zone thermostats to operate final control elements in pneumatic control applications.

RP913A Typical Piping



C4483

Replacement devices are available for Johnson, Powers, Robertshaw, and Barber-Colman devices.

- Seven input manifold containing logic diaphragm, air filter, and restrictions.
- Ten sharp barb connectors for all piping requirements.
- Large integral filter assures clean air to the manifold.
- Requires no field adjustment, and plastic construction results in minimum maintenance.
- Two analyzers can be connected together to increase inputs to twelve.

Type: Load Analyzer Relay, 7 input

Dimensions, Approximate: 3/4 in. high x 6 1/2 in. long x 2 1/16 in. deep (19 mm high x 165 mm long x 52 mm deep)

Mounting: Wall or In-line or panel

Airflow Usage: 0.04 scfm (0.019 mL/s)

Air Connections: Barb fittings (10) for 1/4 in. (6 mm) O.D. plastic tubing

Capacity: 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

Operating Humidity Range: 5 to 95% RH

Temperature Range: 0 F to 140 F (-18 C to +60 C)

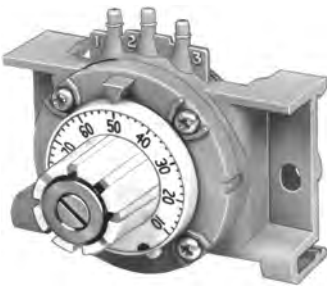
Maximum Safe Operating Pressure: 25 psi (172 kPa)

Replacement Parts:

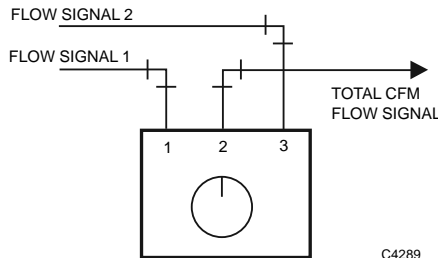
14001865-001 Filter Cartridge Assembly

Product Number	Operation	Mounting	Description
RP913A1008	Selects highest and/or lowest branch pressure input to operate final control elements	Wall or In-line or panel	Wall, in-Line or Panel Mounted Load Analyzer Relay, 7 input

RP922 Pneumatic Potentiometer



Typical Wiring Diagram for RP922



C4289

A three-port pneumatic potentiometer can sum two input pressures, average two input pressures, be an adjustable flow restriction, or be an adjustable pressure supply. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- High efficiency integral filters for all ports.
- High reliability, no internal moving parts.
- Compact size.
- High accuracy.

Type: Pneumatic Averaging/Ratio Relay

Dimensions, Approximate: 2 7/16 in. wide x 1 5/8 in. deep x 2 7/8 in. high (62 mm wide x 42 mm deep x 73 mm high)

Mounting: Wall or panel or Snap onto DIN rail

Airflow Usage: Average of two input pressures

Air Connections: Barb fittings 5/32 in. (4 mm) O.D. plastic tubing

Operation: Can sum two input pressures, average two input pressures, be adjustable flow restriction or be an adjustable pressure supply.

Operating Humidity Range: 5 to 95% RH

Maximum Safe Operating Pressure: 30 psi (205 kPa)

Product Number	Operation	Mounting	Description
RP922A1007	Can sum two input pressures, average two input pressures, be adjustable flow restriction or be an adjustable pressure supply.	Wall or panel or Snap onto DIN rail	Wall, Snap onto DIN rail or panel mounted Pneumatic Averaging/Ratio Relay

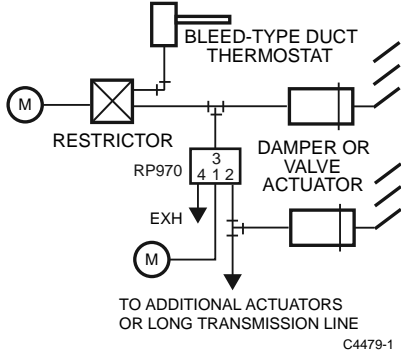
RP970 Pneumatic Capacity Relay



Direct acting, modulating relay provides increased capacity of the branchline pressure to the final control device. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- In-line, wall, or panel mounted.
- Sharp-barb air connections.
- Molded plastic construction with neoprene diaphragms.
- Mounting clip provided.

RP970 Typical Piping



Type: Pneumatic Capacity Relay
Dimensions, Approximate: 1 1/2 in. diameter, 1 1/2 in. deep (38 mm dia., 38 mm deep)
Airflow Usage: 0.002 scfm (1.0 mL/s) maximum
Air Connections: Barb fittings, Port 1: 1/4 in. (6 mm) O.D. plastic tubing; Other Ports: 5/32 in. (4 mm) O.D. plastic tubing
Capacity: 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)
Operation: Provides increased capacity of branchline pressure to final control device
Operating Humidity Range: 5 to 95% RH
Temperature Range: 0 F to 140 F (-18 C to +60 C)
Maximum Safe Operating Pressure: 30 psi (205 kPa)

Accessories:
14003203-003 Conversion Kit to convert Johnson, Powers, Robertshaw, Barber Coleman and older Honeywell switches

Product Number	Operation	Action	Mounting	Normal Operating Output Pressure		Includes
				(psi)	(kPa)	
RP970A1008	Provides increased capacity of branchline pressure to final control device	Direct Acting	Wall or In-line or panel	0 to 20 psi	0 to 138 kPa	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel

Pneumatic Relays

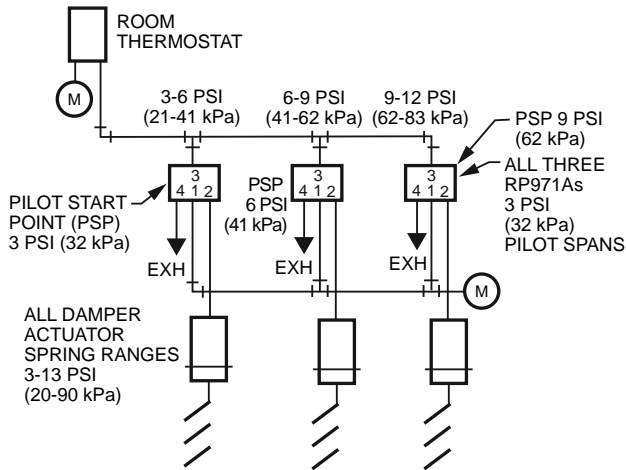
RP971 Pneumatic Ratio Relay



A four port non-bleed pneumatic relay which produces a modulating pressure output, proportional in a fixed ratio to pilot input changes. It is used to control pneumatic valve or damper actuators in sequence from a single thermostat. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Adjustable pilot start point pressures.
- Two pilot pressure spans available.
- Four sharp-barb air connections.
- Molded plastic construction with neoprene.
- Mounting clip provided.

RP971A Typical Piping



C4478-1

Type: Pneumatic, Four Port Ratio Relay

Dimensions, Approximate: 2 in. diameter x 2 5/8 in. deep
(52 mm dia. x 67 mm deep)

Action: Direct Acting

Airflow Usage: 0.002 scfm (1.0 mL/s) maximum

Air Connections: Barb fittings, Port 1: 1/4 in. (6 mm) O.D. plastic tubing; Other Ports: 5/32 in. (4 mm) O.D. plastic tubing

Capacity: 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

Operation: Produces modulating pressure output proportional to pilot pressure input changes

Operating Humidity Range: 5 to 95% RH

Temperature Range: 0 F to 140 F (-18 C to +60 C)

Maximum Safe Operating Pressure: 30 psi (205 kPa)

Pilot Start Pressure: Adjustable 0 to 10 psi (Adjustable 0 to 69 kPa)

Accessories:

14003203-003 Conversion Kit to convert Johnson, Powers, Robertshaw, Barber Coleman and older Honeywell switches
801629T Clip for surface mounting

Product Number	Mounting	Pilot Input Span		Output Span		Includes
		(psi)	(kPa)	(psi)	(kPa)	
RP971A1007	Wall or In-line or panel	3 psi input span for 3 to 13 psi output	—	3 to 13 psi	21 to 90 kPa	14003030-002 Mounting Clip and scaleplate with psi markings
RP971A1015	Wall or In-line or panel	5 psi input span for 3 to 13 psi output	—	3 to 13 psi	21 to 90 kPa	14003030-002 Mounting Clip and scaleplate with psi markings
RP971A1023	Wall or In-line or panel	—	21 kPa input span for 21 to 90 kPa output	3 to 13 psi	21 to 90 kPa	14003030-002 Mounting Clip and scaleplate with kPa markings
RP971A1031	Wall or In-line or panel	—	34 kPa input span for 34 to 90 kPa output	3 to 13 psi	21 to 90 kPa	14003030-002 Mounting Clip and scaleplate with kPa markings

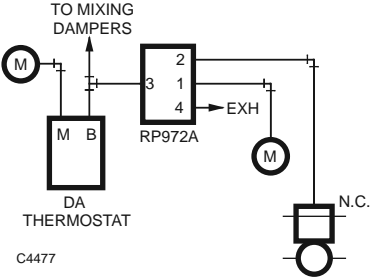
RP972 Pneumatic Reversing Relay



A modulating relay suitable for all types of heating and air conditioning control systems to reverse and increase the capacity of the branchline pressure to the final control element. The output varies inversely with the input with an adjustable offset. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Reverse acting.
- In-line mounting or can be wall or panel mounted with mounting clip provided.
- Molded plastic construction with neoprene diaphragms.

RP972A Typical Piping



Type: Pneumatic Reversing Relay
Dimensions, Approximate: 1 1/2 in. diameter x 2 1/4 in. deep (38 mm diameter x 57 mm deep)

Action: Reverse Acting
Airflow Usage: 0.002 scfm (1.0 mL/s) maximum
Air Connections: Barb fittings for three 5/32 in. (4 mm) and one 1/4 in. (6 mm) O.D. plastic tubing
Capacity: 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)
Operation: Output varies inversely with input with an adjustable offset
Operating Humidity Range: 5 to 95% RH
Temperature Range: 0 F to 140 F (-18 C to +60 C)
Maximum Safe Operating Pressure: 30 psi (205 kPa)

Accessories:
14003203-003 Conversion Kit to convert Johnson, Powers, Robertshaw, Barber Coleman and older Honeywell switches

Product Number	Operation	Action	Mounting	Includes
RP972A1006	Output varies inversely with input with an adjustable offset	Reverse Acting	Wall or In-line or panel	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel

Pneumatic Relays

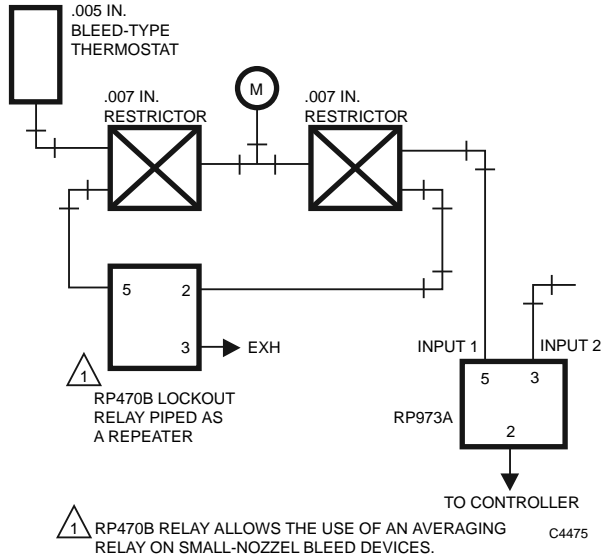
RP973 Pneumatic Averaging Relay



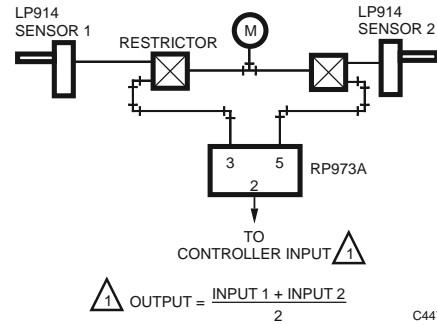
A three-port relay used in HVAC systems averages the signals from two thermostats to control a single device such as a heating coil valve for a multizone unit. The pneumatic averaging relay provides an output pressure equal to the average of two input pressures. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- In-line, wall or panel mounted.
- Sharp-barb air connections.
- Molded plastic construction.

RP973A Typical Piping



Typical Averaging Application



Type: Pneumatic Three-Port Averaging Relay
Dimensions, Approximate: 1 1/2 in. high x 7/8 in. wide x 15/16 in. deep (38 mm high x 22 mm wide x 24 mm deep)
Airflow Usage: 0.007 scfm (3.303 mL/s) maximum
Air Connections: Barb fittings 5/32 in. (4 mm) O.D. plastic tubing
Capacity: 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)
Operating Humidity Range: 5 to 95% RH
Temperature Range: 32 F to 125 F (0 C to 52 C)
Maximum Safe Operating Pressure: 30 psi (205 kPa)

Product Number	Operation	Mounting	Normal Operating Output Pressure		Normal Operating Input Pressure		Description
			(psi)	(kPa)	(psi)	(kPa)	
RP973A1005	Output pressure equals average of two input pressures	Wall or In-line or panel	3 to 15 psi	21 to 103 kPa	3 to 15 psi	21 to 103 kPa	Output is the average of the two inputs. Pneumatic Three-Port Averaging Relay.

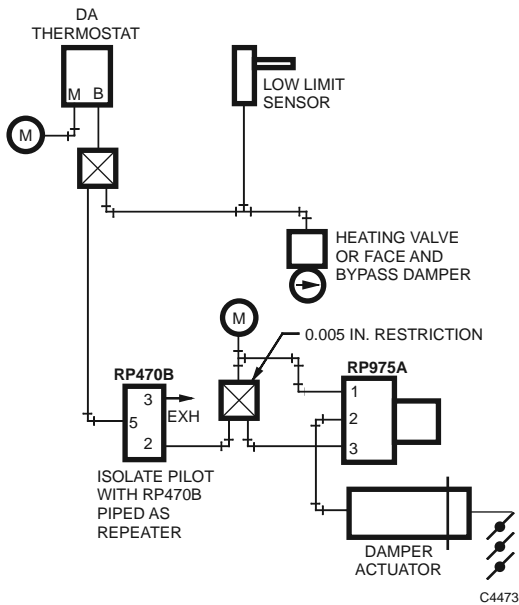
RP975 Pneumatic Hesitation Relay



A three-port hesitation relay provides minimum outside air damper position plus controlled ventilation for large volume unit ventilators. Replacement devices are available for Johnson, Powers, and Barber-Colman devices.

- Manually adjustable minimum position. In-line, wall or panel mounted.
- Sharp-barb air connections.
- Molded plastic construction.

Typical Piping With Isolation Circuit



Type: Pneumatic Three-Port Hesitation relay

Dimensions, Approximate: 2 1/4 in. high x 2 1/2 in. wide x 3 3/4 in. deep (57 mm high x 63 mm wide x 96 mm deep)

Airflow Usage: 0.022 scfm (10 mL/s)

Air Connections: Barb fittings 5/32 in. (4 mm) O.D. plastic tubing

Capacity: 0.003 scfm (1.65 mL/s)

Operation: Provides minimum outside air damper position

Knob Rotation: Knob has two (2) internal breakaway stops that limit rotation to 188 degrees. Each stop, when removed, adds 56 degrees of rotation. Maximum rotation is 300 degrees.

Operating Humidity Range: 5 to 95% RH

Temperature Range: 32 F to 125 F (0 C to 52 C)

Maximum Safe Operating Pressure: 30 psi (205 kPa)

Replacement Parts:

14003203-003 Conversion Kit to convert Johnson, Powers, Robertshaw, Barber Coleman and older Honeywell switches

Product Number	Operation	Mounting	Description	Includes
RP975A1003	Provides minimum outside air damper position	Wall or In-line or panel	Pneumatic Three-Port Hesitation Relay	14003030-001, 1 1/2 in. Mounting Clip for mounting relay to wall or panel. Also includes scaleplate and knob, factory mounted and calibrated. Use with MP909 or MP918 Damper Actuator having a 7 to 13 psi (50 to 90 kPa) spring range

Pneumatic Relay Accessories and Replacement Parts

Product Number	Description	Used With
14003030-001	Mounting Clip	RP470, RP471, SP970
14003638-001	Bag Assembly, Mounting Hardware for RP418	RP418

Pneumatic Switches

CLEPAS Air Pressure Switch



Senses differential air pressure in HVAC systems and provides an on/off output. A typical application is sensing fan shutdown in a unit ventilator to close the outdoor air damper.

- Reliable pneumatic operation.
- Adjustable setpoint (switching pressure).
- Eliminates electrical interlock wiring.

Dimensions, Approximate: 6 1/8 in. high x 4 1/8 in. wide x 2 13/16 in. deep (156 mm high x 105 mm wide x 72 mm deep)

Air Connections: Sensing Inputs: 1/4 in. compression fittings; Control Air: Barb for 1/4 in. (6 mm) or 3/8 in. (10 mm) O.D. plastic tubing

Temperature Range: 0 F to 135 F (-18 C to +57 C)

Switch Type: On/Off Pneumatic Airflow Switch

Product Number	Mounting	Switching Pressures		Switching Action	Description
		(psi)	(kPa)		
CLEPAS2100	Vertical Mount	0.15 to 2.0 in. w.c. 0.15 to 12.0 in. w.c.	0.037 to 0.50 kPa 0.037 to 2.99 kPa	On/Off	Pneumatic Airflow Differential Pressure Switch, Low Setpoint Range
CLEPAS2200	Vertical Mount	0.15 to 12.0 in. w.c.	0.037 to 2.99 kPa	On/Off	Pneumatic Airflow Differential Pressure Switch, High Setpoint Range

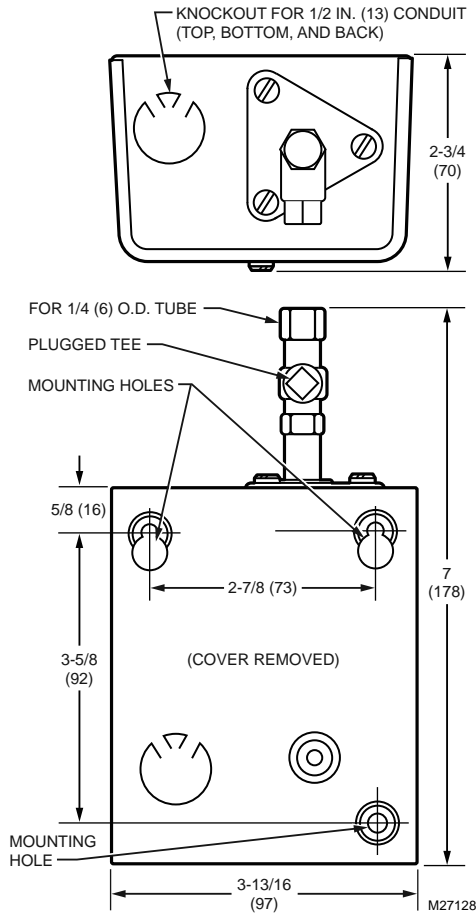
P643 Pneumatic/Electric Switch



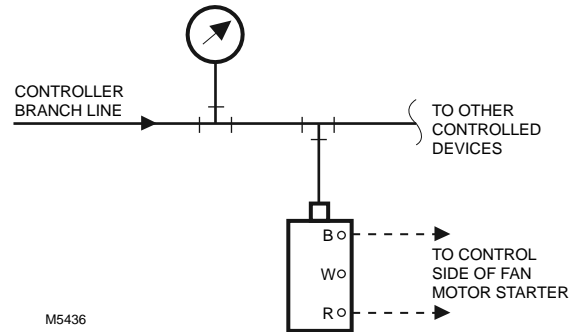
Used to convert a pneumatic signal from a controller to an electrical switching action to provide start and stop control of equipment such as fans and pumps. Replacement devices available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell pneumatic/electric switches. Adjustable setpoint.

- Adjustable differential.
- Externally visible scales.
- Heavy-duty switch.
- Integral gage connection.

Dimensions in inches (millimeters)



P643A Typical Piping



Air Connections: Compression fitting 1/4 in. (6 mm) O.D. tubing

Current: 120 Vac: 8.0 AFL, 48.0 LRA, 17.0 A resistive

208/240 Vac: 5.1 AFL, 30.6 ALR, 17.0 A resistive

270 Vac: 17.0 A resistive

480 Vac: 3.5 AFL, 21.0 ALR, 10.0 A resistive

Frequency: 50 Hz; 60 Hz

Temperature Range: -30 F to +125 F (-34 C to +52 C)

Maximum Safe Operating Pressure: 25 psi (170 kPa)

Switch Operation: Converts pneumatic signal to electrical switching action

Switch Type: Pneumatic/Electric Switch

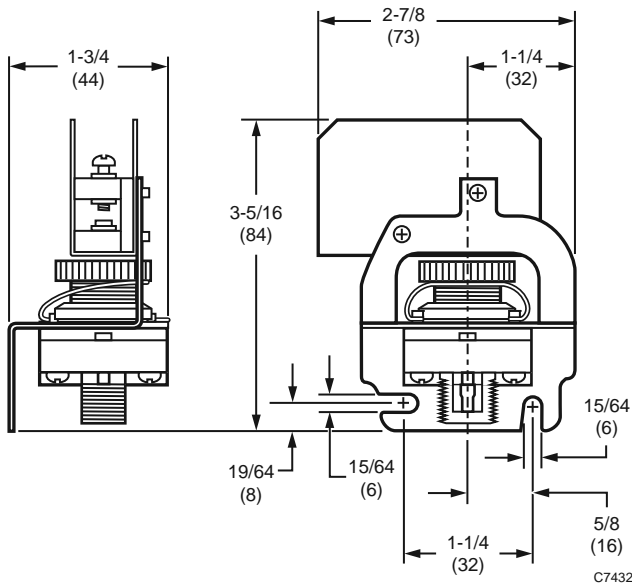
Mounting: Holes in back of case

Approvals:
Underwriters Laboratories, Inc. Listed SDFY

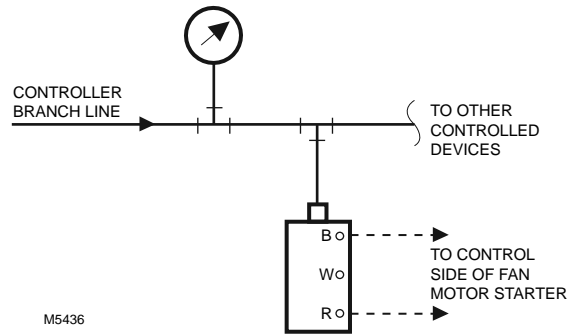
Product Number	Electrical Connections	Differential Pressure Range		Switching Pressures		Voltage	Description	Includes
		(psi)	(kPa)	(psi)	(kPa)			
P643A1007	Knockouts (3) for 1/2 in. conduit	3 to 13 psi adjustable	20 to 90 kPa adjustable	0 to 22.5 psi	0 to 155 kPa	120 Vac; 208 Vac; 240 Vac; 277 Vac; 480 Vac	Pneumatic/Electric Switch including SPDT switch and adjustable differential	SPDT switch

Pneumatic Switches

P658E Dimensions in inches (millimeters)



P658 Typical Piping

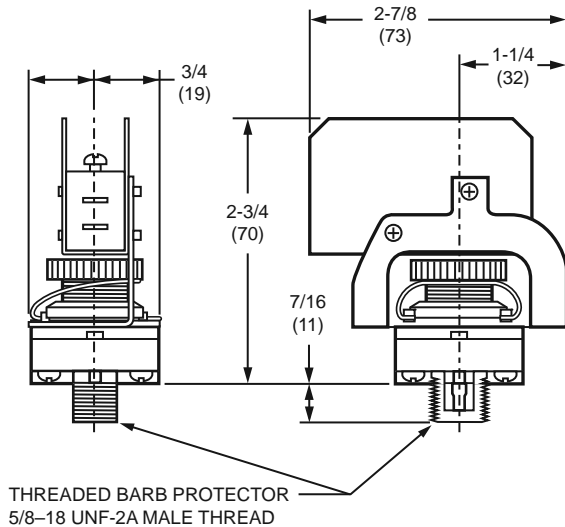


Air Connections: Barb fitting for 1/4 in. (6 mm) O.D. plastic tubing
Frequency: 60 Hz
Operating Humidity Range: 5 to 95% RH, 80 F (27C) max wet bulb
Temperature Range: 40 F to 140 F (4 C to 66 C)
Maximum Safe Operating Pressure: 30 psi (207 kPa)
Switch Operation: Converts pneumatic signal to electrical switching action (SPDT)
Switch Type: Pneumatic/Electric Switch
Pilot Duty Ratings: 750 VA @ 125, 250 or 277 Vac

Electrical Connections
P658A and P658B: Screw terminals
P658E and P658F: 1/4 in. quick-connect male terminals

Approvals:
Underwriters Laboratories, Inc. Category SDFY or SDFY2

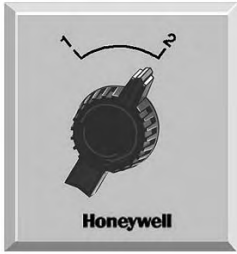
P658F Dimensions in inches (millimeters)



Product Number	Mounting	Differential Pressure Range		Setpoint Range (Field Adjustable)		Motor Load	Resistive Load	Switching Action	Calibration
		(psi)	(kPa)	(psi)	(kPa)				
P658A1013	Surface (includes case)	2 psi	14 kPa	2 to 24 psi	14 to 165 kPa	1 hp @ 125 Vac, 2 hp @ 250 or 277 Vac	25A @ 125, 250 or 480 Vac	Make R-W on pressure rise to setpoint plus differential. Make R-B on pressure fall to setpoint	Factory Calibrated at 10 psi
P658B1012	Panel mount	2 psi	14 kPa	2 to 24 psi	14 to 165 kPa	1 hp @ 125 Vac, 2 hp @ 250 or 277 Vac	25A @ 125, 250 or 480 Vac	Make R-W on pressure rise to setpoint plus differential. Make R-B on pressure fall to setpoint	Factory Calibrated at 10 psi
P658E1001	Panel mount	1 psi	7 kPa	2 to 17 psi	14 to 117 kPa	3/4 hp @ 125, 250 or 277 Vac	25A @ 125, 250 or 277 Vac; 10A @ 480 Vac	Make COM-NC on pressure fall to setpoint. Make COM-NO on pressure rise to setpoint plus differential	No Factory Calibration
P658E1167	Panel mount	1 psi	7 kPa	2 to 25 psi	14 to 172 kPa	3/4 hp @ 125, 250 or 277 Vac	25A @ 125, 250 or 277 Vac; 10A @ 480 Vac	Make COM-NC on pressure fall to setpoint. Make COM-NO on pressure rise to setpoint plus differential	No Factory Calibration
P658F1000	Panel, through double D hole secured with hex nut	1 psi	7 kPa	2 to 17 psi	14 to 117 kPa	3/4 hp @ 125, 250 or 277 Vac	25A @ 125, 250 or 277 Vac; 10A @ 480 Vac	Make COM-NC on pressure fall to setpoint. Make COM-NO on pressure rise to setpoint plus differential	No Factory Calibration

Pneumatic Switches

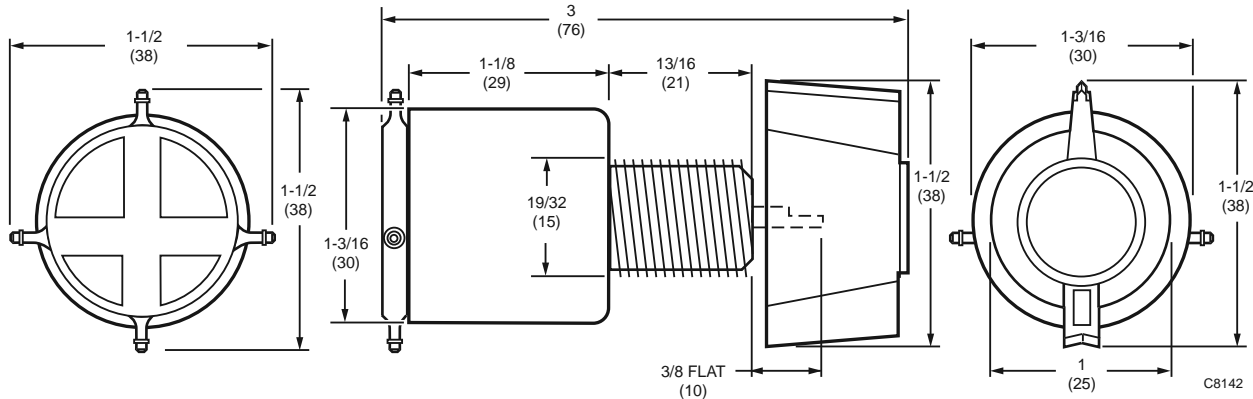
SP470 Pneumatic Diverting Switches



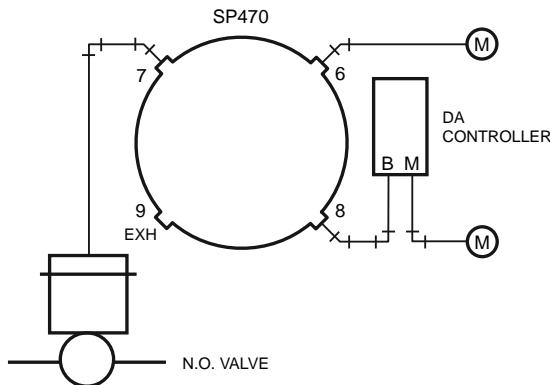
Pneumatic diverting switch used to manually divert, block, or bleed air in pneumatic air lines to revise control sequence with a change in conditions. Commonly applied on Day-Night, Summer-Winter, On-Off-Auto, or Start-Stop functions. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell switches.

- Available in two-position or three-position devices.
- Mountable on a panel up to 7/16 in. (11 mm) thick.
- Complete with knob and scaleplate.

Dimensions in inches (millimeters)



SP470A Typical three-position application

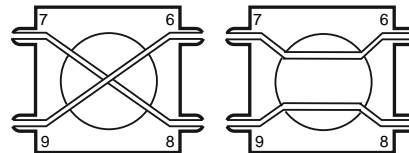


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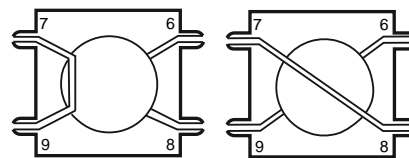
- POSITION 1, VALVES OPEN: PORTS 7 AND 9 CONNECTED, PORTS 6 AND 8 BLOCKED
- POSITION 2, VALVE AUTO: PORTS 7 AND 8 CONNECTED, PORTS 6 AND 9 BLOCKED
- POSITION 3, VALVE CLOSED: PORTS 7 AND 6 CONNECTED, PORTS 8 AND 9 BLOCKED

C4290

SP470A Switches



TWO-POSITION SWITCH



THREE-POSITION SWITCH

C1887

Air Connections: Barb fitting for 5/32 in. (4 mm) O.D. plastic tubing
Airflow Usage: 0.175 scfm (82.6 mL/s) minimum at 1 psi pressure drop
Operating Humidity Range: 5 to 95% RH
Temperature Range: 20 F to 140 F (-7 C to +60 C)

Maximum Safe Operating Pressure: 30 psi (207 kPa)

Switch Operation: Used to manually divert, block or bleed pneumatic air lines

Switch Type: Two or Three Position Pneumatic Diverting Switch

Product Number	Mounting	Description	Includes
SP470A1000	Panel mount	Pneumatic Manual Switch, 4 port, 2-position interchange	Mounting nuts, knob, and two-position scaleplate
SP470A1018	Panel mount	Pneumatic Manual Switch, 4 port, 3-position, Port 7 is common	Mounting nuts, knob, and three-position scaleplate

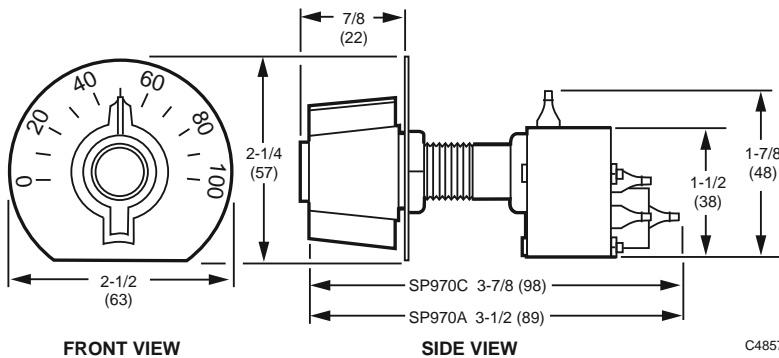
SP970 Pneumatic Manual or Minimum Position Switches



Used to manually position a remote damper actuator or to reset the setpoint of a pneumatic controller. They can also provide minimum damper position by setting a minimum pressure limit in the branch line to the damper actuator. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell switches.

- Two spans available as shipped. Six spans with breakaway stops on knob.
- Pilot bleed and isolated pilot models available.
- Wall or panel mounting.

Dimensions in inches (millimeters)



Air Connections: Barb fitting for 5/32 in. (4 mm) O.D. plastic tubing
Airflow Usage: 0.022 scfm (9.8 mL/s)
Capacity: 0.021 scfm (9.4 mL/s) below minimum position. Above minimum position, device feeding pilot determines capacity
Operating Humidity Range: 5 to 95% RH
Temperature Range: 0 F to 140 F (-18 C to +60 C)
Maximum Safe Operating Pressure: 30 psi (207 kPa)

Switch Operation: Used to manually position a remote damper actuator or reset setpoint of pneumatic controller
Switch Type: Three-port pneumatic manual or minimum position switch
Mounting: Panel or Wall
Comments: The setpoint knob normally rotates 188 degrees. Two breakaway stops on the knob allow rotation of 244 degrees and 300 degrees.

Product Number	Output Span		Description	Includes
	(psi)	(kPa)		
SP970A1005	10 psi (with 188 degree knob rotation) 13 psi (with 244 degree knob rotation) 16 psi (with 300 degree knob rotation)	69 kPa (with 188 degree knob rotation) 90 kPa (with 244 degree knob rotation) 110 kPa (with 300 degree knob rotation)	Manual Pressure Regulator or Provides minimum branch line pressure when used with a high capacity device (like a RP920).	Knob, 0 to 100% scale plate and locknuts
SP970A1013	5 psi (with 188 degree knob rotation) 6.5 psi (with 244 degree knob rotation) 8 psi (with 300 degree knob rotation)	34 kPa (with 188 degree knob rotation) 45 kPa (with 244 degree knob rotation) 56 kPa (with 300 degree knob rotation)	Manual Pressure Regulator or Provides minimum branch line pressure when used with a high capacity device.	Knob, 0 to 100% scale plate and locknuts
SP970C1001	10 psi (with 188 degree knob rotation) 13 psi (with 244 degree knob rotation) 16 psi (with 300 degree knob rotation)	69 kPa (with 188 degree knob rotation) 90 kPa (with 244 degree knob rotation) 110 kPa (with 300 degree knob rotation)	Manual Pressure Regulator or Provides minimum branch line pressure when used with a low capacity device.	Knob, 0 to 100% scale plate and locknuts
SP970C1043	5 psi (with 188 degree knob rotation) 6.5 psi (with 244 degree knob rotation) 8 psi (with 300 degree knob rotation)	34 kPa (with 188 degree knob rotation) 45 kPa (with 244 degree knob rotation) 56 kPa (with 300 degree knob rotation)	Manual Pressure Regulator or Provides minimum branch line pressure when used with a low capacity device.	Knob, 0 to 100% scale plate and locknuts

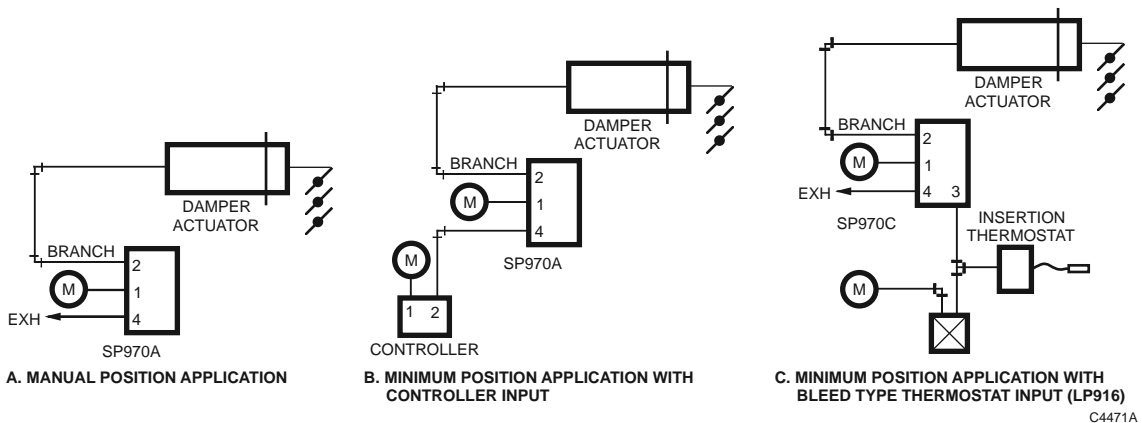
Pneumatic Switch Replacement Parts

Product Number	Description	Used With
14003022-003	Final Assembly, manual and minimum position switch, 10 psi span	SP970A
14003078-003	Pneumatic 2-Position Switch	SP470A
14003199-002	Bag assembly with two scale plates, knob assembly and nuts for SP470A	SP470A

Pneumatic Switches

SP970 Operation

SP970 Typical Piping



Operation

SP970A Three Port Switches

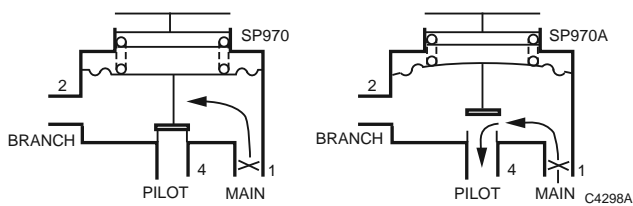
PRESSURE REGULATOR OPERATION

Main line air flows through the restriction into the branchline chamber and out the nozzle. Branchline pressure increases until it is strong enough to compress the spring and lift the diaphragm off the nozzle. Air flow out the nozzle is controlled by the balance between the branchline pressure and spring force. See Typical Piping Diagram A Above.

MINIMUM POSITION OPERATION

See Typical Piping Diagram B above. An external signal is connected to Port 4 (Exhaust Port). When the external signal is greater than the spring load, the nozzle opens and branchline pressure is the same as the external signal. When the external signal is less than the spring load, branchline pressure is controlled as described above. See Operation Diagram below.

SP970A Operation

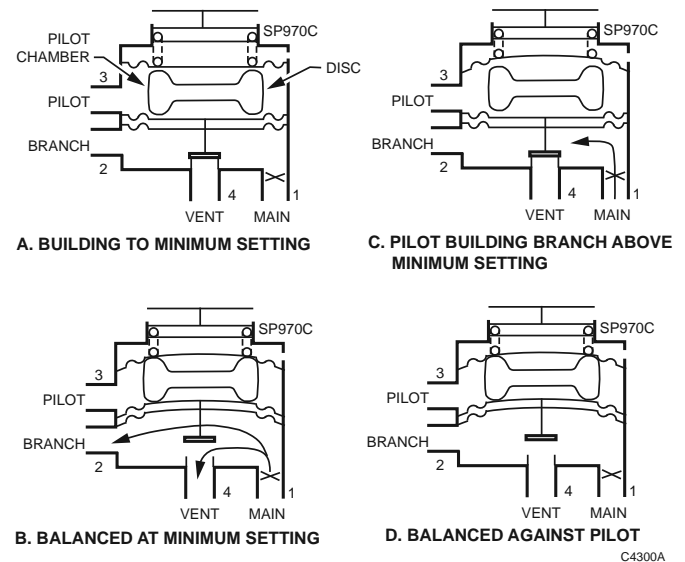


SP970C Four Port Switches

These minimum position devices have a separate dead-ended chamber connected to Port 3 to receive an external signal. When the external signal is less than the spring load, the signal has no effect and functions similar to the SP970A as a pressure regulator. When the external signal is greater than the spring load, the spring load is isolated and the device duplicates the input signal. See Operation Diagram below.

Piping Diagram C above shows a typical four-port SP970C application. The minimum-position switch keeps the pneumatic actuator at a minimum position until the thermostat pressure is greater than the minimum position valves. The thermostat then controls the actuator.

SP970C Operation



Pneumatic Damper Actuators

Pneumatic Damper Actuator Torque Ratings

TORQUE (LB-IN.) DELIVERED TO A 90-DEGREE STROKE DAMPER SHAFT:

Actuator	Spring Range Psi (kPa)	Stroke in. (mm)	Delivered Torque lb-in. (N•m)				
			Shaft Retracted	Midstroke ^a	Shaft Extended		
					13 psi (90 kPa) main	18 psi (129 kPa) main	20 psi (138 kPa) main
MP913	10-15 (69-103)	1 (25)	11 (1.243)	2 (0.226)	0 (0)	3 (3.339)	5 (0.565)
	5-10 (34-69)	1 (25)	6 (0.678)	2 (0.226)	3 (0.339)	9 (1.017)	13 (1.469)
MP916	3-12 (21-83)	2-1/4 (57)	41 (4.632)	26 (2.937)	14 (1.582)	138 (15.6)	109 (12.315)
	4-8 (27-55)	2-1/4 (57)	51 (6.214)	26 (2.937)	69 (7.796)	138 (15.6)	166 (18.755)
	5-12 (34-83)	2-1/4 (57)	69 (7.796)	26 (2.937)	14 (1.582)	82 (9.264)	109 (12.315)
MP909D	3-8 (21-55)	2-3/8 (60)	10.7 (1.209)	7.6 (0.859)	17.9 (2.023)	35.7 (4.034)	42.8 (4.836)
	5-10 (34-70)	2-3/8 (60)	17.9 (1.98)	7.6 (0.859)	10.7 (1.209)	28.6 (3.232)	35.7 (4.034)
	8-13 (55-90)	2-3/8 (60)	28.6 (3.232)	7.6 (0.859)	0 (0)	17.9 (2.023)	25.0 (2.825)
	5-10 (34-70)	3 (76)	22.5 (2.543)	9.5 (1.974)	13.5 (1.526)	36 (4.008)	45 (5.085)
MP909E	2.5-6.5 (17-45)	3.1 (79)	25.6 (2.893)	22 (2.486)	66.5 (7.515)	118 (13.33)	138 (15.59)
	3-13 (21-90)	4 (101)	39.6 (4.475)	28 (3.164)	0 (0)	66 (7.058)	92.4 (10.44)
	5-10 (34-70)	4 (101)	66 (7.458)	28 (3.164)	39.6 (4.475)	105.6 (11.93)	132 (14.92)
	5-10 (34-70)	3.1 (79)	51.2 (5.786)	22 (2.486)	30.7 (3.469)	81.8 (9.243)	102 (11.53)
	9-13 (62-90)	3.1 (79)	92.1 (10.41)	22 (2.486)	0 (0)	51.2 (5.786)	71.7 (8.102)
MP909H	9-13 (62-90) plus positioner	3.1 (79)	92.1 (10.41)	b	0 (0)	66 (7.1)	92.4 (10.44)
MP918A	8-13 (55-90) plus positioner	3-1/2 (89)	333 (37.63)	b	0 (0)	208 (23.5)	292 (33)
MP918B	3-7 (21-49)	3-1/2 (89)	125 (14.3)	88 (9.944)	250 (28.25)	458 (51.53)	541 (61.3)
	3-13 (21-90)	3-1/2 (89)	125 (14.3)	88 (9.944)	0 (0)	208 (23.5)	292 (33)
	5-10 (34-70)	3-1/2 (89)	208 (23.5)	88 (9.944)	125 (14.3)	333 (37.63)	416 (47.01)
	8-13 (55-90)	3-1/2 (89)	333 (37.63)	88 (9.944)	0 (0)	208 (23.5)	292 (33)
MP920	7-13 (34-90)	6 (152)	520 (58.75)	158 (17.85)	0 (0)	372 (42.03)	521 (58.86)

^a Torque in this column is for modulating service only.

^b The lesser of retracted or extended shaft torque.

The following reference formulas are valid for actuators mounted on fixed brackets only.

Most dampers operate through a 90-degree arc. The amount of torque that a pneumatic actuator can deliver to the damper shaft may be calculated from the net force delivered and the length of stroke of the actuator using the following equations:

$$T_R = \frac{F_R \times S}{2}$$

$$T_E = \frac{F_E \times S}{2}$$

$$T_M = 1.5 \times A \times 0.707S$$

T_R = Torque with actuator shaft retracted.

T_E = Torque with actuator shaft extended.

T_M = Midstroke torque.

F_R = Force exerted by actuator with shaft retracted.

F_E = Force exerted by actuator with shaft extended.

A = Effective area of actuator diaphragm.

S = Actuator stroke.

The midstroke is significant only for modulating service and is based on the premise that an input pressure change no greater than 1.5 psi (10 kPa) should cause the actuator to reposition the damper.

Pneumatic Damper Actuators

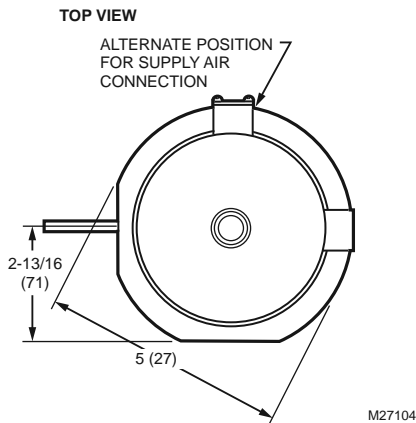
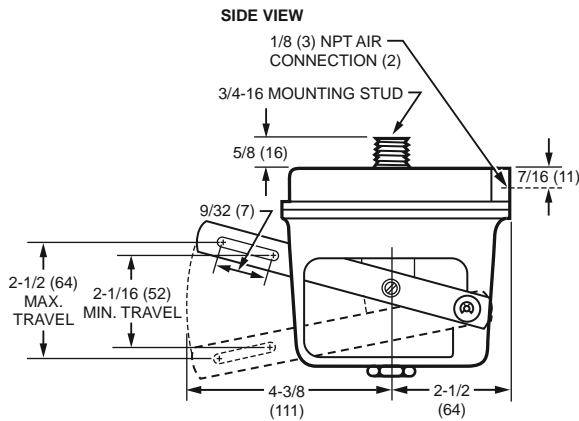
MP516 Pneumatic Unit Ventilator Damper Actuator



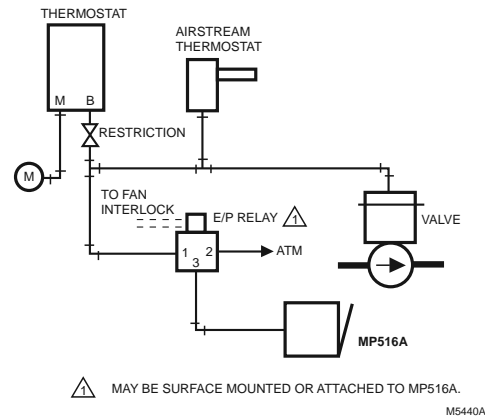
Used to control the damper on unit ventilators. Can be adapted to various unit ventilator control cycles. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell unit ventilator damper actuators.

- Constructed of strong zinc die castings.
- Hesitation feature available for unit ventilator cycles requiring a minimum percentage of outdoor air.

Dimensions in inches (millimeters)



MP516A Typical Piping



Actuator Type: Damper

Fail Safe Mode: Spring Return

Air Connections: 1/8 in. NPT

Stroke: 2-1/8 in. to 2-1/2 in. (54 mm to 63 mm)

Diaphragm Effective Area: (71 sq cm) 11 sq in.

Temperature Range: -20 F to +160 F (-29 C to +71 C)

Maximum Operating Pressure: 25 psi (172 kPa)

Humidity Range: 5 to 95% RH

Accessories:

- 26025B** Damper crank arm for 3/8 in. (9.5 mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.
- 27174B** Damper crank arm for 7/16 in. (11.1 mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.
- 27520C** Push Rod (5/16 in. dia., 12 in. length)
- 27520G** Push Rod (5/16 in. dia., 24 in. length)
- 27520K** Push Rod (5/16 in. dia., 36 in. length)
- 27520L** Push Rod (5/16 in. dia., 48 in. length)
- 309389J** Mounting Bracket and Linkage
- 312867C** Damper Crank Arm for 1/2 in. (12.7mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 45-60-75-90 degrees
- 315321** Crankarm Balljoint (with 1/4 in male threads), fits 5/16 in. diameter pushrod

Product Number	Actuator Force	Spring Range		Comments
		(psi)	(kPa)	
MP516A1087	Medium	3 psi to 12 psi	21 kPa to 83 kPa	The lever arm moves to the desired minimum position as air pressure increases from 0 to 3 psi, hesitates from 3 to 8 psi, and completes its stroke from 8-12 psi.
MP516A1095	Medium	4 psi to 8 psi	28 kPa to 55 kPa	No hesitation.
MP516A1103	Medium	5 psi to 12 psi	34 kPa to 83 kPa	No hesitation.

Pneumatic Damper Actuators

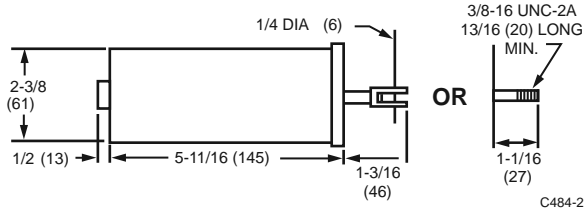
MP909D Pneumatic Damper Actuator



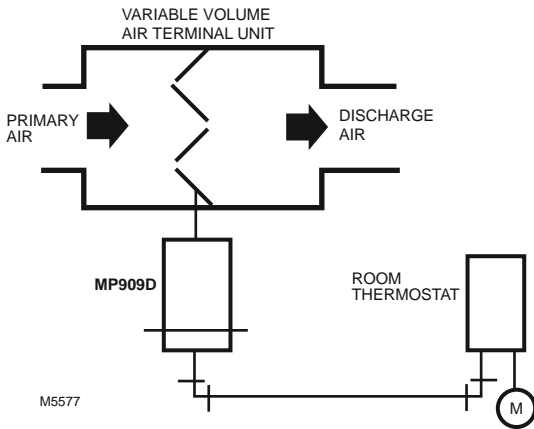
Used for pneumatic proportional control of variable volume terminal units and small damper. Available in various operating ranges for either individual or sequence operation with other actuators. Replacement devices are available for Johnson, Powers, Robertshaw, and older Honeywell actuator models.

- Rugged ribbed aluminum body.
- Low-friction shaft bearing.
- Close tolerance on operating range and stroke.
- Protected barb connector.
- Versatile mounting and connecting hardware options.
- Positive leakproof seal.

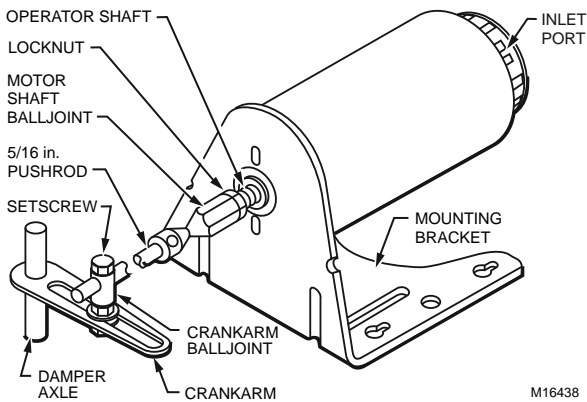
Dimensions in inches (millimeters)



MP909D Piping Diagram



MP909D Ball Joint Linkage



Actuator Type: Damper

Actuator Force: Low

Fail Safe Mode: Spring Return

Air Connections: Barbed fitting for 3/32 in. O.D. tubing

Stroke: 2.4 in. (61 mm)

Diaphragm Effective Area: 3 sq in. (19.4 sq cm)

Temperature Range: 50 F to 140 F (10 C to 60 C)

Maximum Operating Pressure: 30 psi (207 kPa)

Humidity Range: 5 to 95% RH

Approvals:

Underwriters Laboratories, Inc. Components Recognized: Report R18118

Accessories:

14002850-001 Angle Bracket 5 3/8 in, 137 mm, long, 5 in, 127 mm, wide

14003640-001 Angle Bracket 3 in. (76 mm) long, 3 3/4 in. (95 mm) wide, 2 3/4 in. (70 mm) high

26025B Damper crank arm for 3/8 in. (9.5 mm) diameter axle.

Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.

27174B Damper crank arm for 7/16 in. (11.1 mm) diameter axle.

Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.

27520C Push Rod (5/16 in. dia., 12 in. length)

27520G Push Rod (5/16 in. dia., 24 in. length)

27520K Push Rod (5/16 in. dia., 36 in. length)

27520L Push Rod (5/16 in. dia., 48 in. length)

312867C Damper Crank Arm for 1/2 in. (12.7mm) diameter axle.

Elongated slot for linkage connection. Slot scaled for 45-60-75-90 degrees

315321 Crankarm Balljoint (with 1/4 in male threads), fits 5/16 in. diameter pushrod

315781 Motor shaft balljoint with 3/8 - 16 UNC female threads, fits 5/16 inch diameter pushrods.

Pneumatic Damper Actuators

Product Number	Air Connections	Spring Range		Stroke		Includes
		(psi)	(kPa)	(inch)	(mm)	
MP909D1201	Barbed fitting for 3/32 in. O.D. tubing	3 psi to 8 psi	21 kPa to 55 kPa	2.4 in.	61 mm	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint
MP909D1219	Barbed fitting for 3/32 in. O.D. tubing	8 psi to 13 psi	55 kPa to 90 kPa	2.4 in.	61 mm	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint
MP909D1227	Barbed fitting for 3/32 in. O.D. tubing	5 psi to 10 psi	34 kPa to 69 kPa	2.4 in.	61 mm	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint
MP909D1318	Barbed fitting for 3/32 in. O.D. tubing	8 psi to 13 psi	55 kPa to 90 kPa	2.4 in.	61 mm	14002850-001 - External Mounting Bracket with Balljoint
MP909D1334	Barbed fitting for 3/32 in. O.D. tubing	5 psi to 10 psi	34 kPa to 69 kPa	2.4 in.	61 mm	14003640-001 - 90 degree Angled Mounting Bracket with Ball Joint
MP909D1342	Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	5 psi to 10 psi	34 kPa to 69 kPa	2.4 in.	61 mm	3/8 in.-16 Threaded Shaft and 14003640-001 - 90 degree Angled Mounting Bracket
MP909D1367	Barbed fitting for 3/32 in. O.D. tubing	5 psi to 10 psi	34 kPa to 69 kPa	3 in.	76 mm	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint
MP909D1441	Barbed fitting for 3/32 in. O.D. tubing	5 psi to 10 psi	34 kPa to 69 kPa	3 in.	76 mm	Small clevis on shaft. No mounting bracket or ball joint
MP909D1474	Barbed fitting for 1/4 in. O.D. tubing	5 psi to 10 psi	34 kPa to 69 kPa	2.4 in.	61 mm	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint
MP909D1508	Barbed fitting for 1/4 in. O.D. tubing	8 psi to 13 psi	55 kPa to 90 kPa	2.4 in.	61 mm	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint
MP909D1516	Barbed fitting for 1/4 in. O.D. tubing	5 psi to 10 psi	34 kPa to 69 kPa	2.4 in.	61 mm	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint
MP909D1524	Barbed fitting for 1/4 in. O.D. tubing	5 psi to 10 psi	34 kPa to 69 kPa	3 in.	76 mm	31578 ball joint and 14003640-001 - 90 degree Angled Mounting Bracket

Pneumatic Damper Actuators

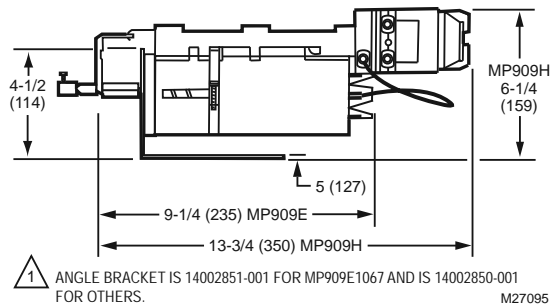
MP909E,H Pneumatic Damper Actuators



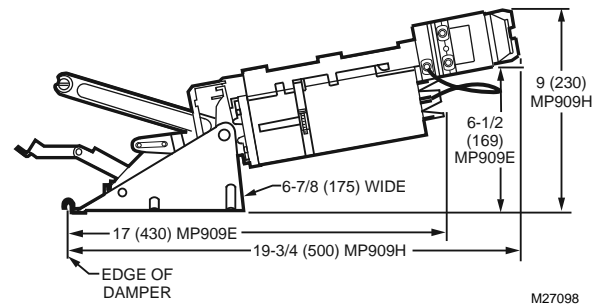
These actuators are used for proportional control of variable volume terminal units, mixing boxes, and small to medium sized dampers. They are available in various operating ranges for either independent operation or sequence operation with other actuators. The MP909E has an optional adjustable stroke feature. The MP909H includes a positive positioner. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell actuator models.

- Rolling diaphragm operated.
- Low friction shaft bearing.
- Close tolerance on operating range and stroke.
- Non-overlapping spring ranges for sequencing.
- Corrosion resistant materials.
- Reliable long life.

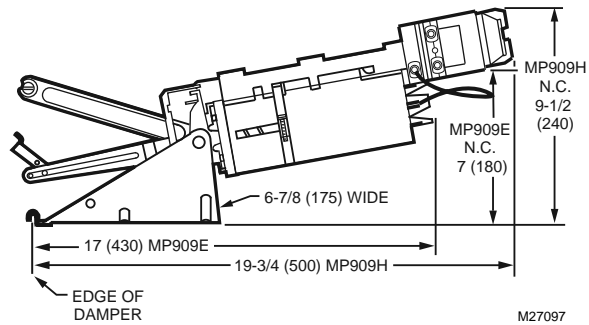
Dimensions in inches (millimeters)
Actuator with Fixed External Mounting Bracket



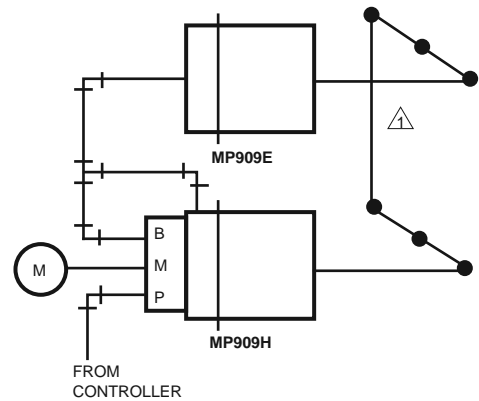
Dimensions in inches (millimeters)
Actuator with Internal N.O. Trunnion Mounting Bracket



Dimensions in inches (millimeters)
Actuator with Internal N.C. Trunnion Mounting Bracket



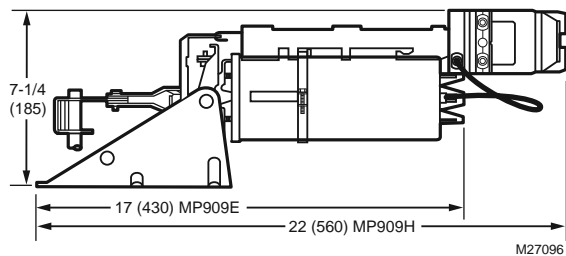
MP909E,H Piping Diagram



▲ SECTIONS OF LARGE DAMPER REQUIRING MORE THAN ONE OPERATOR MUST BE LINKED

M5575

Dimensions in inches (millimeters)
Actuator with External Trunnion Mounting Bracket



Actuator Type: Damper
Actuator Force: Medium
Fail Safe Mode: Spring Return
Air Connections: Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing
Diaphragm Effective Area: 6.6 sq in. (43 sq cm)
Humidity Range: 5 to 95% RH
Underwriters Laboratories, Inc. Components Recognized: Report R18118

Pneumatic Damper Actuators

Accessories:

- 14002850-001** Angle Bracket 5 3/8 in, 137 mm, long, 5 in, 127 mm, wide
14003640-001 Angle Bracket 3 in. (76 mm) long, 3 3/4 in. (95 mm) wide, 2 3/4 in. (70 mm) high
14004062-001 External Trunnion Mounting Bracket
14004062-002 Internal N.C. Trunnion Mounting Bracket
14004062-003 Internal N.O. Trunnion Mounting Bracket
14004106-001 Actuator pushrod for conversion of internal N.C. to external
14004107-001 Crankarm Assembly for conversion from internal N.C. to external Trunnion mounting
14004210-001 Feedback Spring Kit includes orange spring (3 psi [21kPa]), yellow spring (5 psi [34 kPa]), and blue spring (10 psi [69 kPa]).
14004236-001 Coupler, actuator shaft to 5/16 in, 8 mm, pushrod
14004241-002 Hitch Pin (Six Sets)
14004242-001 MP918 Top Mount Operator Assembly
14004667-001 Offset Crank arm assembly with 2 screws (304725-062), nuts (14004102-001), crank arm (14004655-001) for 1/2 in. Drive Axle

- 27518** Crankarm balljoint with 1/4 - 28 UNF male threads, fits 5-16 inch diameter push rods
26025B Damper crank arm for 3/8 in. (9.5 mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.
27520C Push Rod (5/16 in. dia., 12 in. length)
27520G Push Rod (5/16 in. dia., 24 in. length)
27520K Push Rod (5/16 in. dia., 36 in. length)
27520L Push Rod (5/16 in. dia., 48 in. length)
312867C Damper Crank Arm for 1/2 in. (12.7mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 45-60-75-90 degrees
312867H Externally mounted Linkage Kit
314440A MP909 - Clevis, Clevis Pin and Cotter Pin Assembly
315321 Crankarm Balljoint (with 1/4 in male threads), fits 5/16 in. diameter pushrod
315781 Motor shaft balljoint with 3/8 - 16 UNC female threads, fits 5/16 inch diameter pushrods.

Replacement Parts:

- 14004137-001** Retrofit Kit for adding positive positioner to MP909E or repair of MP909H

Product Number	Air Connections	Temperature Range		Maximum Operating Pressure		Spring Range		Stroke		Includes
		(F)	(C)	(psi)	(kPa)	(psi)	(kPa)	(inch)	(mm)	
MP909E1018	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	3 psi to 13 psi	21 kPa to 90 kPa	4 in.	102 mm	315781 Balljoint, Linkage Kit 14002061-006 and 14002850-001 Fixed External Mounting Bracket with Balljoint
MP909E1026	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	3 psi to 13 psi	21 kPa to 90 kPa	4 in.	102 mm	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or linkage
MP909E1034	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	5 psi to 10 psi	34 kPa to 69 kPa	4 in.	102 mm	315781 Balljoint, Linkage Kit 14002061-006 and 14002850-001 Fixed External Mounting Bracket with Balljoint
MP909E1059	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	5 psi to 10 psi	34 kPa to 69 kPa	2 3/4 in.	70 mm	Actuator only. 3/8 in.-16 Threaded Shaft with stroke stops. No Mounting Bracket
MP909E1067	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	5 psi to 10 psi	34 kPa to 69 kPa	3 in.	79 mm	Fixed external unitary mounting bracket and clevis shaft with stroke stops
MP909E1083	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	2.5 psi to 6.5 psi	17 kPa to 45 kPa	3 in.	79 mm	315781 Balljoint, Linkage Kit 14002061-006 and 14002850-001 Fixed External Mounting Bracket with Balljoint
MP909E1109	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	2.5 psi to 6.5 psi	17 kPa to 45 kPa	2 3/4 in.	70 mm	Actuator only. 3/8 in.-16 Threaded Shaft with stroke stops. No Mounting Bracket
MP909E1158	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	9 psi to 13 psi	62 kPa to 90 kPa	3 in.	79 mm	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket
MP909E1174	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	9 psi to 13 psi	62 kPa to 90 kPa	3 in.	70 mm	14002850-001 - Fixed External Mounting Bracket with 315781 Balljoint
MP909E1240	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	5 psi to 10 psi	34 kPa to 69 kPa	3 in.	79 mm	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket
MP909E1349	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	3 psi to 13 psi	21 kPa to 90 kPa	4 in.	102 mm	Internal N.C. trunnion mounting bracket
MP909E1356	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	3 psi to 13 psi	21 kPa to 90 kPa	4 in.	102 mm	External trunnion mounting bracket

Pneumatic Damper Actuators

Product Number	Air Connections	Temperature Range		Maximum Operating Pressure		Spring Range		Stroke		Includes
		(F)	(C)	(psi)	(kPa)	(psi)	(kPa)	(inch)	(mm)	
MP909E1364	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	5 psi to 10 psi	34 kPa to 69 kPa	4 in.	102 mm	External trunnion mounting bracket
MP909E1372	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	2.5 psi to 6.5 psi	17 kPa to 45 kPa	3 in.	70 mm	External trunnion mounting bracket
MP909E1380	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	9 psi to 13 psi	62 kPa to 90 kPa	3 in.	79 mm	External trunnion mounting bracket
MP909E1398	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	9 psi to 13 psi	62 kPa to 90 kPa	3 in.	79 mm	Internal N.C. trunnion mounting bracket
MP909E1422	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	5 psi to 10 psi	34 kPa to 69 kPa	4 in.	102 mm	14004062-003 Internal N.O. Mounting Bracket with crankarm and pushrod assembly
MP909E1463	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-28 F to +160 F	-33 C to +71 C	29 psi	200 kPa	5 psi to 10 psi	34 kPa to 69 kPa	4 in.	102 mm	14002850-001 - Fixed External Mounting Bracket
MP909H1331	Positioner: Pilot 5/32 in. barb, Main 1/4 in. barb, Branch 1/4 in. barb. Actuator: combination 5/32 in. and 1/4 in. barb	-20 F to +160 F	-29 C to +71 C	25 psi	172 kPa	Positive positioner 10 psi span (5 psi spring included)	Positive positioner 69 kPa span (34 kPa spring included)	4 in.	102 mm	315781 Balljoint, Positive Positioner, and 14002850-001 - Fixed External Mounting Bracket with Balljoint
MP909H1368	Positioner: Pilot 5/32 in. barb, Main 1/4 in. barb, Branch 1/4 in. barb. Actuator: combination 5/32 in. and 1/4 in. barb	-20 F to +160 F	-29 C to +71 C	25 psi	172 kPa	Positive positioner 10 psi span (5 psi spring included)	Positive positioner 69 kPa span (34 kPa spring included)	4 in.	102 mm	External Trunnion Bracket, Positive Positioner
MP909H1392	Positioner: Pilot 5/32 in. barb, Main 1/4 in. barb, Branch 1/4 in. barb. Actuator: combination 5/32 in. and 1/4 in. barb	-20 F to +160 F	-29 C to +71 C	25 psi	172 kPa	Positive positioner 10 psi span (5 psi spring included)	Positive positioner 69 kPa span (34 kPa spring included)	4 in.	102 mm	Mounting bracket for internal N.C. Trunnion mounting, positive positioner

Pneumatic Damper Actuators

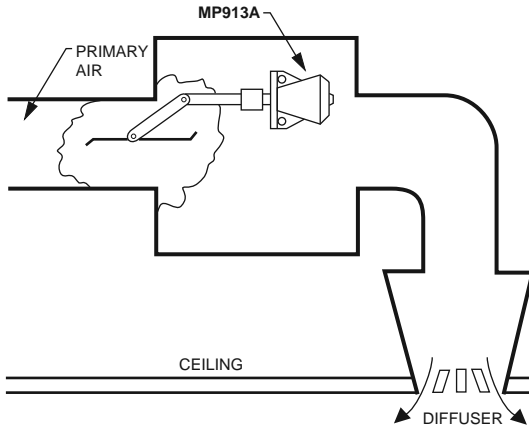
MP913 Pneumatic Variable Volume Damper Actuator



Provides proportional control of variable volume dampers in small high velocity mixing boxes. Replacement devices are available for Johnson and Robertshaw devices. Suitable for direct replacement only, do not attempt to replace larger damper actuators with this unit.

- Compact in size.
- Neoprene rolling diaphragm.
- The MP913 Operator can be used with or without a crankarm.

MP913A Typical Piping



M5438

Actuator Type Damper

Dimensions, Approximate 2 5/8 in. high (add 3/4 in. for shaft) x 2 1/4 in. diameter [67 mm high (add 19 mm for shaft) x 57 mm diameter]

Actuator Force Low

Fail Safe Mode Spring Return

Air Connections Barbed fitting for 1/4 in. O.D. plastic tubing

Stroke 1 in. (25 mm)

Temperature Range 50 F to 140 F (10 C to 60 C)

Maximum Operating Pressure 30 psi (207 kPa)

Humidity Range 5 to 95% RH

Accessories:

315321 Crankarm Balljoint (with 1/4 in male threads), fits 5/16 in. diameter pushrod

315781 Motor shaft balljoint with 3/8 - 16 UNC female threads, fits 5/16 inch diameter pushrods.

27520C Push Rod (5/16 in. dia., 12 in. length)

27520G Push Rod (5/16 in. dia., 24 in. length)

27520K Push Rod (5/16 in. dia., 36 in. length)

27520L Push Rod (5/16 in. dia., 48 in. length)

Product Number	Air Connections	Diaphragm Effective Area		Spring Range		Includes
		sq in.	sq cm	(psi)	(kPa)	
MP913A1003	Barbed fitting for 1/4 in. O.D. plastic tubing	2.2 sq in.	14 sq cm	10 psi to 15 psi	69 kPa to 103 kPa	14002808-001 - Flat Mounting Bracket. Shaft has 1/8 in. diameter hole for a roll pin.
MP913A1011	Barbed fitting for 1/4 in. O.D. plastic tubing	2.2 sq in.	14 sq cm	10 psi to 15 psi	69 kPa to 103 kPa	14003640-001 - 90 degree Angled Mounting Bracket and 3/8 in.-16 Threaded Shaft
MP913A1029	Barbed fitting for 1/4 in. O.D. plastic tubing	2.2 sq in.	14 sq cm	5 psi to 10 psi	34 kPa to 69 kPa	14003640-001 - 90 degree Angled Mounting Bracket and 3/8 in.-16 Threaded Shaft
MP913A1037	Barbed fitting for 1/4 in. O.D. plastic tubing	2.2 sq in.	14 sq cm	5 psi to 10 psi	34 kPa to 69 kPa	14003640-001 - 90 degree Angled Mounting Bracket. Shaft has 1/8 in. diameter hole for a roll pin.
MP913A1177	Barbed fitting for 1/4 in. O.D. plastic tubing	2.2 sq in.	14 sq cm	3 psi to 13 psi	21 kPa to 90 kPa	14002809-001 - 90 degree Angled Mounting Bracket (3-point attachment) and 3/8 inch - 16 threaded shaft

Pneumatic Damper Actuators

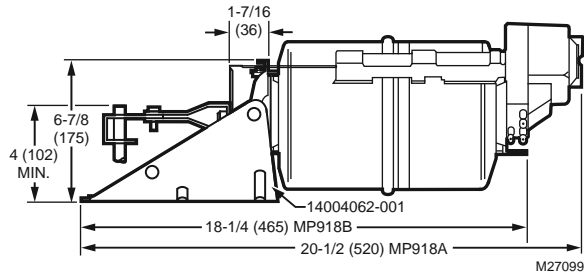
MP918A,B Pneumatic Damper Actuators



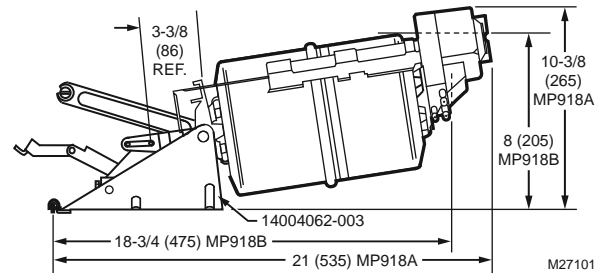
Used for proportional control of medium- to large-size dampers in HVAC systems. The MP918A,B are rolling diaphragm, piston-type actuators. The MP918A has a positive positioner. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell actuator models.

- Rolling diaphragm operated.
- Low friction shaft bearing.
- Close tolerance on operating range and stroke.
- Versatile mounting and connecting hardware.
- Non-overlapping spring ranges for sequencing.
- Reliable-long life.

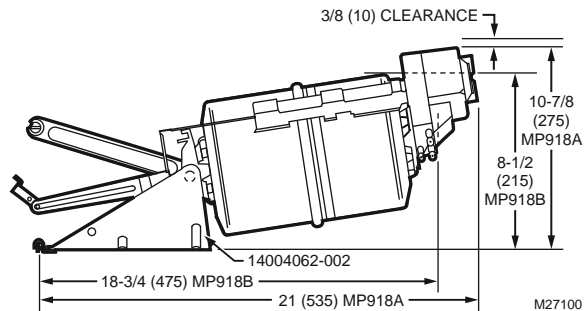
Dimensions in inches (millimeters)
Actuator with External Trunnion Mounting Bracket



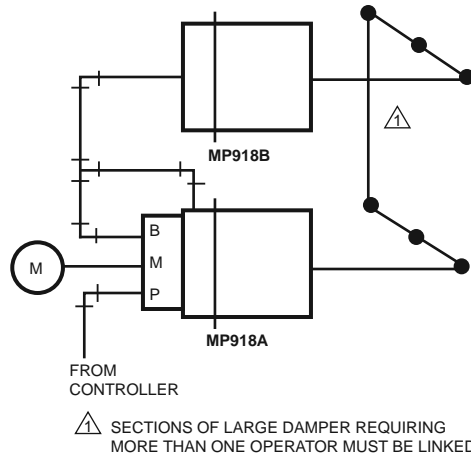
Dimensions in inches (millimeters)
Actuator with Internal N.O. Trunnion Mounting Bracket



Dimensions in inches (millimeters)
Actuator with Internal N.C. Trunnion Mounting Bracket



MP918A and B Typical Piping



M5576

Actuator Type: Damper
Actuator Force: High
Fail Safe Mode: Spring Return
Air Connections: 5/32 in. push-on barb (Pilot), 1/4 in. push-on barb (main.)
Stroke: 3 1/2 in. (90 mm)
Diaphragm Effective Area: (154 sq cm) 23.8 sq in.
Temperature Range: -20 F to +158 F (-29 C to +70 C)
Maximum Operating Pressure: (172 kPa) 25 psi
Humidity Range: 5 to 95% RH

Approvals:
 Underwriters Laboratories, Inc. Components Recognized: Report R18118

Accessories:
14004062-001 External Trunnion Mounting Bracket
14004062-002 Internal N.C. Trunnion Mounting Bracket
14004062-003 Internal N.O. Trunnion Mounting Bracket
14004106-001 Actuator pushrod for conversion of internal N.C. to external

14004107-001 Crankarm Assembly for conversion from internal N.C. to external Trunnion mounting
14004210-001 Feedback Spring Kit includes orange spring (3 psi [21kPa]), yellow spring (5 psi [34 kPa]), and blue spring (10 psi [69 kPa]).
14004236-001 Coupler, actuator shaft to 5/16 in, 8mm, pushrod
14004241-002 Hitch Pin (Six Sets)
14004242-001 MP918 Top Mount Operator Assembly
14004667-001 Offset Crank arm assembly with 2 screws (304725-062), nuts (14004102-001), crank arm (14004655-001) for 1/2 in. Drive Axle
CCT2718 Threaded rod for shaft extension
CCT2725 Rod coupling for shaft extension

Replacement Parts:
14004264-001 MP918 Repair kit including Positive Positioner, bracket assembly and fittings
14004264-002 MP918 Positive Positioner Retrofit Kit - includes 10 psi feedback spring

Pneumatic Controls

Pneumatic Damper Actuators

Product Number	Air Connections	Temperature Range		Maximum Operating Pressure		Spring Range		Includes
		(F)	(C)	(psi)	(kPa)	(psi)	(kPa)	
MP918A1024	5/32 in. push-on barb (Pilot), 1/4 in. push-on barb (main.)	-20 F to +158 F	-29 C to +70 C	25 psi	172 kPa	Positive positioner 10 psi span (5 psi spring included)	Positive positioner 69 kPa span (34 kPa spring included)	14004062-001 - External Trunnion Mounting Bracket with crankarm assembly. Positive Positioner
MP918A1057	5/32 in. push-on barb (Pilot), 1/4 in. push-on barb (main.)	-20 F to +158 F	-29 C to +70 C	25 psi	172 kPa	Positive positioner 10 psi span (5 psi spring included)	Positive positioner 69 kPa span (34 kPa spring included)	14004062-002 - Internal N.C. Trunnion Mounting Bracket with pushrod assembly. Positive Positioner
MP918A1081	5/32 in. push-on barb (Pilot), 1/4 in. push-on barb (main.)	-20 F to +158 F	-29 C to +70 C	25 psi	172 kPa	Positive positioner 10 psi span (5 psi spring included)	Positive positioner 69 kPa span (34 kPa spring included)	14004062-003 - Internal N.O. Trunnion Mounting Bracket with pushrod assembly. Positive Positioner
MP918B1006	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 F to +158 F	-40 C to +70 C	29 psi	200 kPa	3 psi to 13 psi	20 kPa to 90 kPa	14004062-001 - External Trunnion Mounting Bracket with crankarm assembly
MP918B1014	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 F to +158 F	-40 C to +70 C	29 psi	200 kPa	3 psi to 13 psi	20 kPa to 90 kPa	14004062-001 - Internal N.C. Trunnion Mounting Bracket with pushrod assembly
MP918B1022	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 F to +158 F	-40 C to +70 C	29 psi	200 kPa	3 psi to 13 psi	20 kPa to 90 kPa	14004062-003 Internal N.O. Trunnion Mounting Bracket with pushrod assembly
MP918B1030	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 F to +158 F	-40 C to +70 C	29 psi	200 kPa	3 psi to 13 psi	20 kPa to 90 kPa	Actuator only. No Mounting Bracket
MP918B1048	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 F to +158 F	-40 C to +70 C	29 psi	200 kPa	5 psi to 10 psi	34 kPa to 69 kPa	14004062-001 - External Trunnion Mounting Bracket with crankarm assembly
MP918B1063	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 F to +158 F	-40 C to +70 C	29 psi	200 kPa	3 psi to 7 psi	20 kPa to 48 kPa	14004062-001 - External Trunnion Mounting Bracket with crankarm assembly
MP918B1071	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 F to +158 F	-40 C to +70 C	29 psi	200 kPa	3 psi to 7 psi	20 kPa to 48 kPa	14004062-002 Internal N.C. Trunnion Mounting Bracket with pushrod assembly
MP918B1089	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 F to +158 F	-40 C to +70 C	29 psi	200 kPa	8 psi to 13 psi	55 kPa to 90 kPa	14004062-001 - External Trunnion Mounting Bracket with crankarm assembly
MP918B1097	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 F to +158 F	-40 C to +70 C	29 psi	200 kPa	8 psi to 13 psi	55 kPa to 90 kPa	14004062-002 Internal N.C. Trunnion Mounting Bracket with pushrod assembly
MP918B1105	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 F to +158 F	-40 C to +70 C	29 psi	200 kPa	8 psi to 13 psi	55 kPa to 90 kPa	14004062-003 Internal N.O. Trunnion Mounting Bracket with pushrod assembly
MP918B1113	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 F to +158 F	-40 C to +70 C	29 psi	200 kPa	8 psi to 13 psi	55 kPa to 90 kPa	Actuator only. No Mounting Bracket
MP918B1196	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 F to +158 F	-40 C to +70 C	29 psi	200 kPa	8 psi to 13 psi	55 kPa to 90 kPa	14004062-001 - External Trunnion Mounting Bracket with crankarm assembly.

Pneumatic Damper Actuators

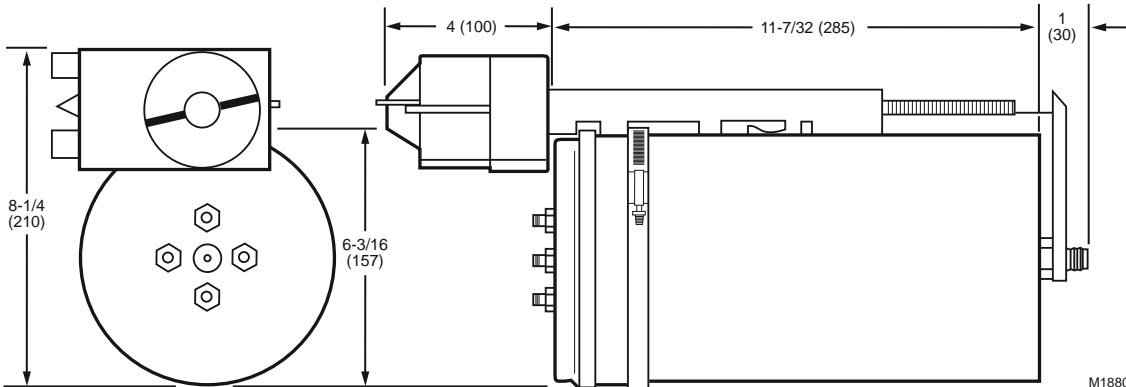
MP920 Pneumatic Damper Actuator



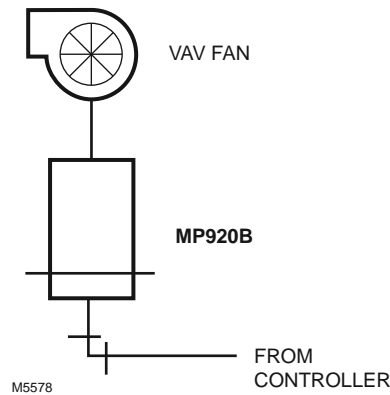
Provides proportional control of large dampers in HVAC systems or inlet vanes on a VAV fan. Positive positioner available separately. Replacement devices are available for Robertshaw actuator models.

- Rolling diaphragm operated.
- Fail safe on over pressure.
- Actuator can be swivel mounted from either end to pipe, floor, or wall surface.
- Optional positive positioner provides accurate positioning under varying load conditions.

Dimensions in inches (millimeters)



MP920B Typical Piping



Actuator Type: Damper

Actuator Force: High

Fail Safe Mode: Spring Return

Air Connections: Barbed fitting for 1/4 in. O.D. plastic tubing

Temperature Range: -20 F to +158 F (-30 C to +70 C)

Maximum Operating Pressure: 29 psi (200 kPa)

Humidity Range: 5 to 95% RH

Accessories:

14004062-001 External Trunnion Mounting Bracket

14004241-002 Hitch Pin (Six Sets)

14004345-001 Positive Positioner Kit, 10 psi feedback spring

AK3556 Pipe Mounting Assembly for 1-1/4 in. pipe

AK3557 Short Clevis Bag Assembly for 3/8-16 threaded rod

AK3558 Swivel Bracket Bag Assembly

AK3559 Long Clevis Bag Assembly with actuator shaft coupling for 5/8-11 threaded rod

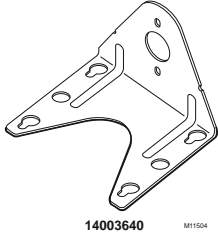
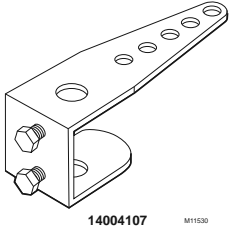
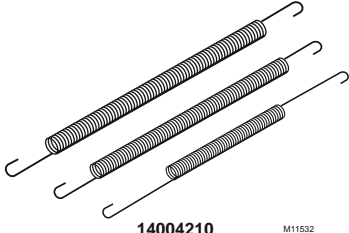
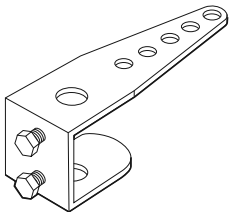
AK3560 Balljoint, 3/8-24 threaded stud with couplings for 5/8-11 threaded rod and actuator shaft

AK3561 Balljoint, 3/8-24 threaded stud with couplings for 3/8-16 threaded rod

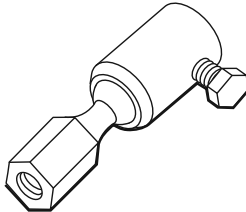
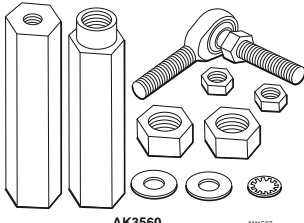
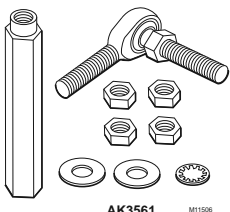
Product Number	Diaphragm Effective Area		Spring Range		Stroke		Includes
	sq cm	sq in.	(psi)	(kPa)	(inch)	(mm)	
MP920B1002	160 sq cm	24.8 sq in.	7.25 psi to 13 psi	50 kPa to 90 kPa	6 in.	150 mm	Actuator only. No Bracket. Order positive positioner, mounting and connecting hardware separately. See Installation Instructions form no. 95-6053

Pneumatic Damper Actuators

Pneumatic Damper Actuator Parts and Accessories

Product Number	Description	Used With	
14001213-001	MP904A and B Diaphragm	MP904A,B	
14002061-001	Damper Linkage Kit w/ Template	MP909E,F	
14002850-001	Angle Bracket 5 3/8 in, 137 mm, long, 5 in, 127 mm, wide	MP909D,E	
14003640-001	Angle Bracket 3 in. (76 mm) long, 3 3/4 in. (95 mm) wide, 2 3/4 in. (70 mm) high	MP913; MP909D	
14004062-001	External Trunnion Mounting Bracket	MP918A,B; MP909E,H	
14004062-002	Internal N.C. Trunnion Mounting Bracket	MP918A,B; MP909E,H	
14004062-003	Internal N.O. Trunnion Mounting Bracket	MP918A,B; MP909E,H	
14004106-001	Actuator pushrod for conversion of internal N.C. to external	MP918A,B; MP909E,H	
14004106-002	Push rod assembly for internal N.C.	MP918A,B; MP909E,H	
14004107-001	Crankarm Assembly for conversion from internal N.C. to external Trunnion mounting	MP918A,B; MP909E,H	
14004136-001	MP904 Positive Positioner Retrofit Kit	MP904A	
14004137-001	Retrofit Kit for adding positive positioner to MP909E or repair of MP909H	MP909E; MP909H	
14004210-001	Feedback Spring Kit includes orange spring (3 psi [21kPa]), yellow spring (5 psi [34 kPa]), and blue spring (10 psi [69 kPa]).	MP909H; MP918A	
14004236-001	Coupler, actuator shaft to 5/16 in, 8 mm, pushrod	MP918	
14004237-002	Bag assembly including 4 hex head slotted drill point screws (14004513-001)	MP918A,B; MP909E,H	
14004241-002	Hitch Pin (Six Sets)	MP918A,B; MP909E,H	
14004242-001	MP918 Top Mount Operator Assembly	MP918A,B	
14004264-001	MP918 Repair kit including Positive Positioner, bracket assembly and fittings	MP918A	
14004264-002	MP918 Positive Positioner Retrofit Kit - includes 10 psi feedback spring	MP918B	
14004324-001	Kit for Alternate External Top-Mount, MP909E,H MP918A,B	MP918A,B; MP909E,H	
14004345-001	Positive Positioner Kit, 10 psi feedback spring	MP920B	
14004350-001	Steel Clevis Pin (1/4 x 7/8)	MP918;	

Pneumatic Damper Actuators

Product Number	Description	Used With	
14004577-001	MP953 A, C, and E (Direct Acting, 5 in. diameter) Yoke/ Base Assembly	MP953A,C,E	
26025B	Damper crank arm for 3/8 in. (9.5 mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.	MP516; MP909D; MP909E, H	
27174B	Damper crank arm for 7/16 in. (11.1 mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.	MP516; MP513	
309292	MP516A Diaphragm	MP516	
309389J	Mounting Bracket and Linkage	MP516	
312809C	MP904A and B Tube and Diaphragm Assembly	MP904A,B	
312817	MP953C (5 in. diameter) Cover	MP953C (5 in.)	
312867C	Damper Crank Arm for 1/2 in. (12.7mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 45-60-75-90 degrees	MP516; MP909D; MP909E; MP909H	
312867H	Externally mounted Linkage Kit	MP516; MP909D,E,H	
314100	MP909A Replacement Diaphragm	MP909A	
314231	MP909B Replacement Diaphragm	MP909B	
314316A	Crank Arm Assembly	MP516	
314440A	MP909 - Clevis, Clevis Pin and Cotter Pin Assembly	MP909	
314503	MP909C Replacement Diaphragm	MP909C	
315321	Crankarm Balljoint (with 1/4 in male threads), fits 5/16 in. diameter pushrod	MP516; MP909D,E,H; MP913	
315321G	Crankarm and Linkage	MP909A,D	
315439/0062	Clevis	MP909D	
315781	Motor shaft balljoint with 3/8 - 16 UNC female threads, fits 5/16 inch diameter pushrods.	MP909D,E,H; MP913	 <p>315781 M11503</p>
315782	Balljoint (9/16 in.-18 UNC) accepts 5/16 in. Pushrod	MP920B	
AK3558	Swivel Bracket Bag Assembly	MP920B	
AK3560	Balljoint, 3/8-24 threaded stud with couplings for 5/8-11 threaded rod and actuator shaft	MP920B	 <p>AK3560 M11507</p>
AK3561	Balljoint, 3/8-24 threaded stud with couplings for 3/8-16 threaded rod	MP920B	 <p>AK3561 M11506</p>
CCT2718	Threaded rod for shaft extension	MP918	
CCT2725	Rod coupling for shaft extension	MP918	

Pneumatic Valve Actuators

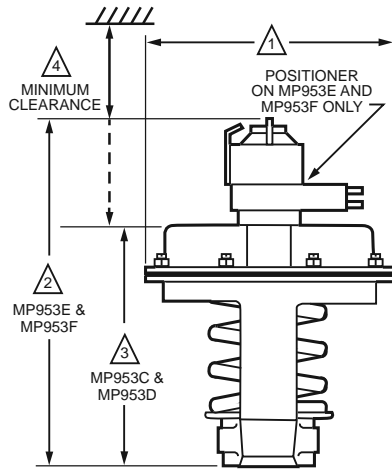
MP953C,D Pneumatic Coil Valve Actuators



Pneumatic actuators provide proportional control of steam or hot or cold liquids in HVAC systems by operating V5011, V5013, and VGF valve assemblies. Replacement devices are available for older Honeywell actuators.

- Rolling diaphragm for long life and low hysteresis.
- Easily attached to valve.
- Can be installed after piping valve.
- Slide lock feature permits simple engagement to valve stem.
- Direct- or reverse-action control.
- Does not include positive positioner.

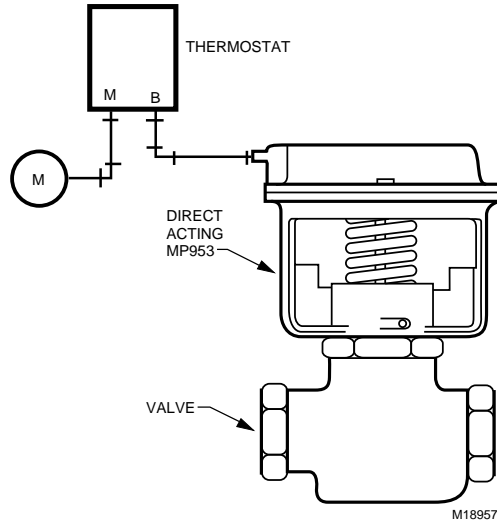
Dimensions in inches (millimeters)



OPERATION SIZE NOMINAL DIA.	1	2	3	4
5 INCH	5-1/8 (130)	9-1/4 (235)	4-5/8 (117)	4-3/8 (111)
7-1/8 INCH	7-1/8 (181)	10-1/2 (267)	5-5/8 (143)	4-3/8 (111)
8 INCH	8-1/4 (210)	11-1/8 (283)	6-1/2 (165)	5-3/8 (137)
13 INCH	13-1/2 (343)	18-1/8 (460)	10 (254)	7-11/16 (195)

M13903

Typical MP953C,D Operation



Actuator Type: Valve

Fail Safe Mode: Spring Return

Air Connections: Dual barbed fitting for 5/32 in. O.D. and 1/4 in. O.D. plastic tubing

Temperature Range: 0 F to 140 F (-18 C to +60 C)

Maximum Operating Pressure: (172 kPa) 25 psi

Humidity Range: 5 to 95% RH

Product Number	Action	Actuator Force	Spring Range		Diameter (in.)	Stroke		For Valves with Bonnet Size		Includes
			(psi)	(kPa)		(inch)	(mm)	(inch)	(mm)	
MP953C1000	Direct Acting	Low	2 psi to 7 psi	14 kPa to 48 kPa	5 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	—
MP953C1018	Direct Acting	Low	8 psi to 12 psi	55 kPa to 83 kPa	5 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	—
MP953C1026	Direct Acting	Low	4 psi to 11 psi	28 kPa to 76 kPa	5 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	—
MP953C1067	Direct Acting	Medium	2 psi to 7 psi	14 kPa to 48 kPa	8 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	311851-062 Stem Extension Assembly
MP953C1075	Direct Acting	Medium	8 psi to 12 psi	55 kPa to 83 kPa	8 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	
MP953C1083	Direct Acting	Medium	4 psi to 11 psi	28 kPa to 76 kPa	8 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	
MP953C1471	Direct Acting	High	2 psi to 7 psi	14 kPa to 48 kPa	13 in.	1-1/2 in.	38 mm	1 7/8 in.	47.6 mm	312466-605 Stem Extension Assembly
MP953C1489	Direct Acting	High	4 psi to 11 psi	28 kPa to 76 kPa	13 in.	1-1/2 in.	38 mm	1 7/8 in.	47.6 mm	
MP953C1547	Direct Acting	Medium	3 psi to 15 psi	21 kPa to 104 kPa	8 in.	1-1/2 in.	38 mm	1 7/8 in.	47.6 mm	—
MP953C1554	Direct Acting	High	2 psi to 7 psi	14 kPa to 48 kPa	13 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	14004697-001 Stem Extension Assembly
MP953C1562	Direct Acting	High	4 psi to 11 psi	28 kPa to 76 kPa	13 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	
MP953D1107	Reverse Acting	Medium	8 psi to 13 psi	55 kPa to 90 kPa	7-1/8 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	—
MP953D1131	Reverse Acting	Medium	4 psi to 11 psi	28 kPa to 76 kPa	7-1/8 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	—
MP953D1172	Reverse Acting	Medium	3 psi to 7 psi	21 kPa to 48 kPa	7-1/8 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	—

Pneumatic Valve Actuators

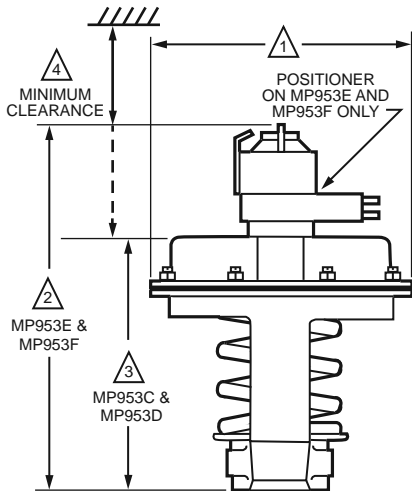
MP953E,F Pneumatic Coil Valve Actuators



Pneumatic actuators provide proportional control of steam or hot or cold liquids in HVAC systems by operating V5011, V5013, and VGF valve assemblies. Replacement devices are available for older Honeywell actuators.

- Rolling diaphragm for long life and low hysteresis.
- Easily attached to valve.
- Can be installed after piping valve.
- Slide lock feature permits simple engagement to valve stem.
- Direct- or reverse-action control.
- Integral positive positioner relay provides positive positioning under varying load conditions.

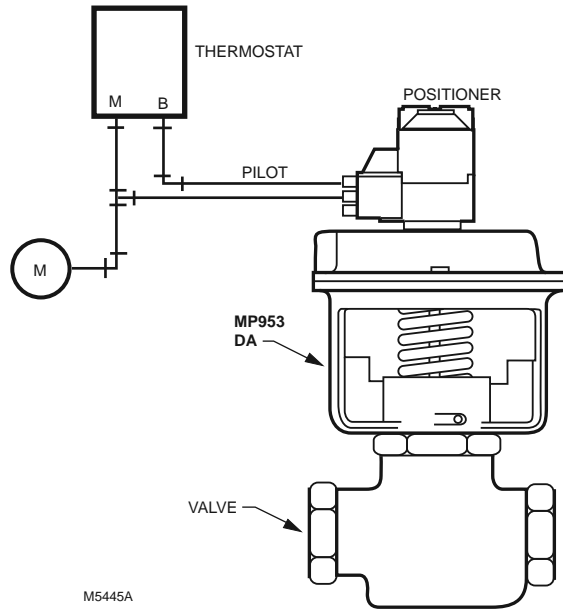
Dimensions in inches (millimeters)



OPERATION SIZE NOMINAL DIA.	1	2	3	4
5 INCH	5-1/8 (130)	9-1/4 (235)	4-5/8 (117)	4-3/8 (111)
7-1/8 INCH	7-1/8 (181)	10-1/2 (267)	5-5/8 (143)	4-3/8 (111)
8 INCH	8-1/4 (210)	11-1/8 (283)	6-1/2 (165)	5-3/8 (137)
13 INCH	13-1/2 (343)	18-1/8 (460)	10 (254)	7-11/16 (195)

M13903

Typical Piping for MP953E,F Pneumatic Valve Actuator Wiring



M5445A

Actuator Type: Valve
Action: Direct Acting
Fail Safe Mode: Spring Return
Air Connections: Pilot: Barbed fitting for 5/32 in. O.D. plastic tubing
 Main: Barbed fitting for 1/4 in. O.D. plastic tubing
Temperature Range: 0 F to 140 F (-18 C to +60 C)
Maximum Operating Pressure: (172 kPa) 25 psi
Humidity Range: 5 to 95% RH

Product Number	Actuator Force	Spring Range		Diameter (in.)	Stroke		For Valves with Bonnet Size		Includes
		(psi)	(kPa)		(inch)	(mm)	(inch)	(mm)	
MP953E1285	Medium	4 psi to 11 psi	28 kPa to 76 kPa	8 in.	1 1/2 in.	38 mm	1-3/8 in.	35 mm	Positive Positioner with 5 psi (35 kPa) range
MP953E1301	Low	4 psi to 11 psi	28 kPa to 76 kPa	5 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	Positive Positioner with 3 psi range (21kPa)
MP953E1319	Low	4 psi to 11 psi	28 kPa to 76 kPa	5 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	Positive Positioner with 5 psi range (35 kPa)
MP953E1327	Low	4 psi to 11 psi	28 kPa to 76 kPa	5 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	Positive Positioner with 10 psi range (70 kPa)
MP953E1368	Medium	4 psi to 11 psi	28 kPa to 76 kPa	8 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	311851-062 Stem Extension Assembly and Positive Positioner with 3 psi range
MP953E1376	Medium	4 psi to 11 psi	28 kPa to 76 kPa	8 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	311851-062 Stem Extension Assembly and Positive Positioner with 5 psi range
MP953E1384	Medium	4 psi to 11 psi	28 kPa to 76 kPa	8 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	311851-062 Stem Extension Assembly and Positive Positioner with 10 psi range

Pneumatic Controls

Pneumatic Valve Actuators

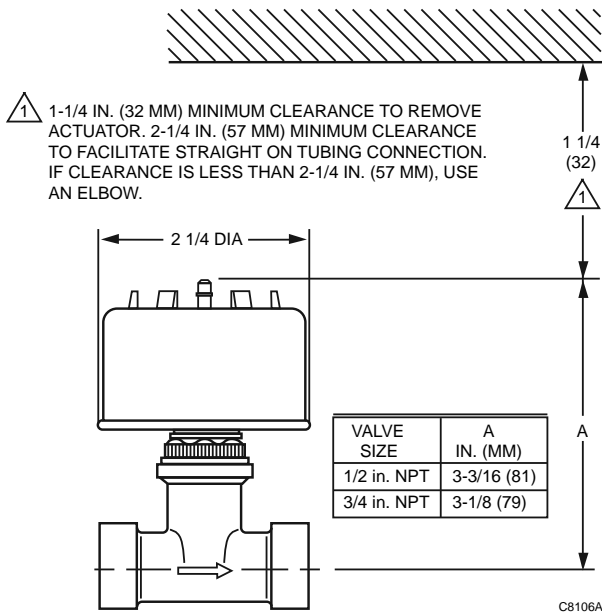
Product Number	Actuator Force	Spring Range		Diameter (in.)	Stroke		For Valves with Bonnet Size		Includes
		(psi)	(kPa)		(inch)	(mm)	(inch)	(mm)	
MP953E1400	High	4 psi to 11 psi	28 kPa to 76 kPa	13 in.	1 1/2 in.	38 mm	1 7/8 in.	47.6 mm	312466-605 Stem Extension Assembly and Positive Positioner with 5 psi range
MP953E1418	High	4 psi to 11 psi	28 kPa to 76 kPa	13 in.	1 1/2 in.	38 mm	1 7/8 in.	47.6 mm	312466-605 Stem Extension Assembly and Positive Positioner with 10 psi range
MP953E1435	High	4 psi to 11 psi	28 kPa to 76 kPa	13 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	14004697-001 Stem Extension Assembly and Positive Positioner with 5 psi range (35 kPa)
MP953E1443	High	4 psi to 11 psi	28 kPa to 76 kPa	13 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	Positive Positioner with 10 psi range and 14004697-001 Stem Extension Assembly
MP953F1093	Medium	8 psi to 13 psi	55 kPa to 90 kPa	7 1/8 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	Positive Positioner with 3 psi range and EPDM diaphragm
MP953F1101	Medium	8 psi to 13 psi	55 kPa to 90 kPa	7 1/8 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	Positive Positioner with 5 psi range and EPDM diaphragm
MP953F1119	Medium	8 psi to 13 psi	55 kPa to 90 kPa	7 1/8 in.	3/4 in.	19 mm	1-3/8 in.	35 mm	Positive Positioner with 10 psi range and EPDM diaphragm

MP958 Pneumatic Valve Actuators

The MP958 Pneumatic Valve Actuator is direct-acting and used only with Honeywell V5852A2xx, V5862A2xx, V5853A2xx, and V5863A2xx Terminal Unit Valves to control hot and/or chilled water.



Dimensions in inches (millimeters)

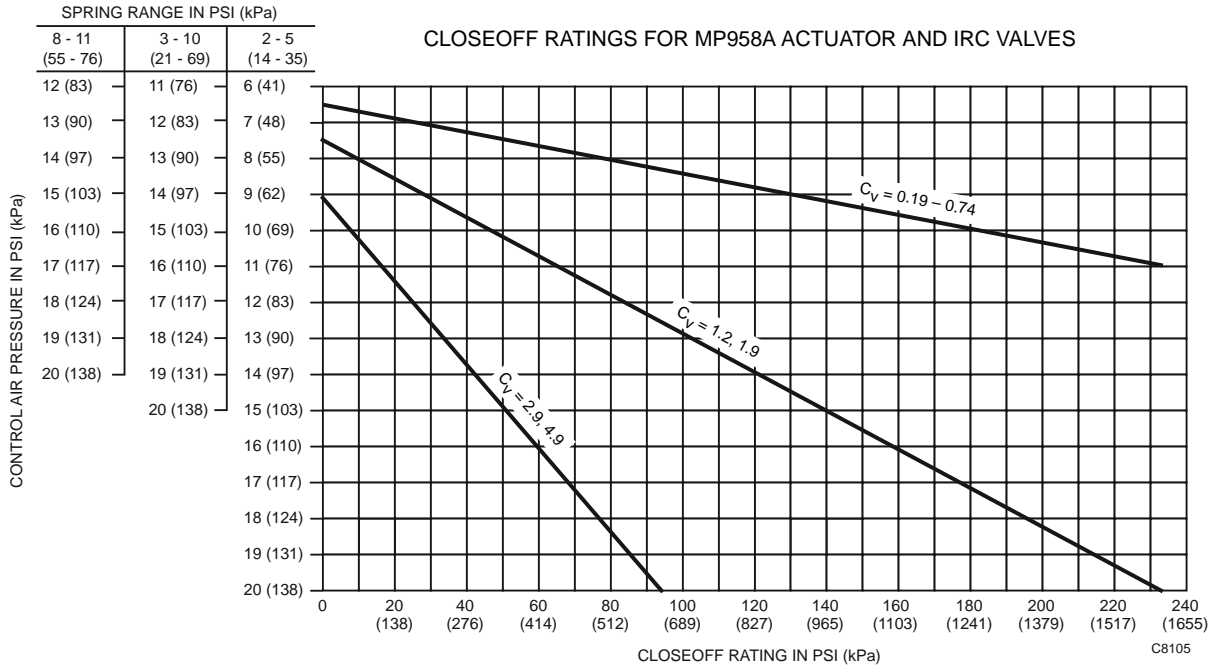


Actuator Type: Valve
Action: Direct Acting
Fail Safe Mode: Spring Return
Air Connections: Barbed fitting for 1/4 in. O.D. plastic tubing
Maximum Operating Pressure: 30 psi

Product Number	Actuator Force	Spring Range		Comments
		(psi)	(kPa)	
MP958A1009	Low	2 psi to 5 psi	14 kPa to 35 kPa	Only works with V5852A2xx, V5862A2xx, V5853A2xx, V5863A2xx
MP958A1017	Low	3 psi to 10 psi	21 kPa to 69 kPa	Only works with V5852A2xx, V5862A2xx, V5853A2xx, V5863A2xx
MP958A1025	Low	8 psi to 11 psi	55 kPa to 76 kPa	Only works with V5852A2xx, V5862A2xx, V5853A2xx, V5863A2xx

Pneumatic Valve Actuators

Close-off ratings



Pneumatic Valve Actuators

Pneumatic Valve Actuator Parts and Accessories

Product Number	Description	Used With
14002039-001	MP953D Diaphragm Sleeve	MP953B,D,F
14002040-002	MP953D Diaphragm	MP953B,D,F
14003124-002	MP953B,D,F Diaphragm Repair Kit (includes 14002039-001 and 14002040-002)	MP953B,D,F
14004138-001	MP953B,F (Reverse Acting) Positive Positioner Retrofit Kit	MP953B,F
14004139-001	MP953A,E (Direct Acting, 8 in. and 13 in. diameter, 3/4 in. stroke) Positive Positioner Retrofit Kit	MP953A,E
14004140-001	MP953A,E (Direct Acting, 8 in. and 13 in. diameter, 1-1/2 in. stroke) Positive Positioner Retrofit Kit	MP953A,E
14004211-001	MP953E (8 in. and 13 in. diameter, 3/4 in. stroke) Feedback Spring Kit	MP953E
14004212-001	MP953E (8 in. and 13 in. diameter, 1-1/2 in. stroke) Feedback Spring Kit	MP953E
14004213-001	MP953F (Reverse Acting) Feedback Spring Kit	MP953F
14004214-001	MP953A,E (5 in. diameter) 3/4 inch stroke Positive Positioner Retrofit Kit	MP953A,E
14004298-001	Thread forming Screw, Size 4-40	MP953D,F
14004298-003	MP953C,E (5 in. dia.) and MP953B,D,F (7-1/8 in. dia.) Actuator Base Screw, size 1/4-20	MP953B,D,F; MP953C,E (5 in.)
14004578-001	MP953 B, D, and F (Reverse Acting, 7-1/8 in. diameter) Yoke/Base Assembly	MP953B,D,F
14004667-001	Offset Crank arm assembly with 2 screws (304725-062), nuts (14004102-001), crank arm (14004655-001) for 1/2 in. Drive Axle	Pneumatic Actuators
14004697-001	Stem extension for 13 in. MP953C,E with 3/4 in. Stroke	MP953C,E
310664	MP953A, C and E (5 in. and 8 in. models only) Tension Spring	MP953A,C,E
310665/0062	Spring Support for MP953	MP953A,C,E (5 in.)
310668	MP953A, C and E (5 in. diameter) High Temperature Silicone Diaphragm - Old Style	MP953A,C,E;
311393	White Spring, 4-11 psi	MP953C,E;
311616	MP953A, C and E (5 in. diameter) Main Spring (2-7 psi spring range - Brown)	MP953A,C,E (5 in.)
311618	MP953A, C and E (5 in. diameter) Main Spring (8-12 psi spring range - Gray)	MP953A,C,E (5 in.)
311749/0605	Cup diaphragm, 8 in. for MP953A, C, E	MP953A,C,E (8 in.)
311750	MP953A, C and E (8 in. diameter) Regular Temperature Neoprene Diaphragm - New Style	MP953A,C,E
311851/0062	Stem extension for 8 in. dia. 3/4 in. stroke MP953A,C,E	MP953A,C,E (8 in.)
311852	Brown Spring for MP953A,C 3/4 inch stroke (8 inch diameter), 2-7 psi range	MP953A,C (8 in., 2-7 psi)
311855	Gray spring for MP953C (8 inch diameter), 8-12 psi range	MP953C
311863	Stem Retainer for the MP953C,E (8 in. diameter)	MP953C,E
312099	1-1/2 in. stroke Spider for 13 in. MP953C and E	MP953C,E
312203	Black Spring for MP953D,F for 8-13 psi range	MP953D,F
312466/0605	Stem Extension for MP953C1489, MP953C1471, MP953E1392, MP953E1400, and MP953E1418	MP953C,E
312471	White Spring for MP953C,E (13 in. dia. 1/2 in. stroke)	MP953C,E (13 in.)
312505	MP953A,C,E (13 in. diameter) regular temperature Neoprene diaphragm - new style	MP953A,C,E
312760	MP953A,C,E (5 in. diameter) regular temperature Neoprene diaphragm - new style	MP953A,C,E
313745	MP953A, C and E (5 in. diameter) High Temperature Silicone Diaphragm - New Style	MP953A,C,E
314153	MP953A, C and E (8 in. diameter) High Temperature Silicone Diaphragm - New Style	MP953A,C,E
314646A/0062	Plate, Spring for 13 in. diameter MP953A,C,E	MP953A,C,E
314650A	MP953B, D and F (Reverse Acting) Support Assembly (for Series-2 actuators only, use this Support Assembly and 316059A Yoke Assembly to Convert Series-1 MO/MP953)	MP953B,D,F
314651A	MP953B,D,F (Reverse Acting) yoke assembly for support assembly- with nylon insert for use with old style actuators not made with a Helicoil insert in yoke	MP953B,D,F
314652	Spring for MP953D,F (used in yoke assembly)	MP953D,F
314683/0062	Stem Retainer for 13 in. diameter MP953A,C,E (Latches on Stem Button)	MP953A,C,E (13 in.)
315020	Cup for MP953C,E (13 inch diameter)	MP593C,E (13 in.)
316059A	MP953B, D and F (Reverse Acting) Yoke Assembly for Support Assembly- with helicoil insert	MP953B,D,F

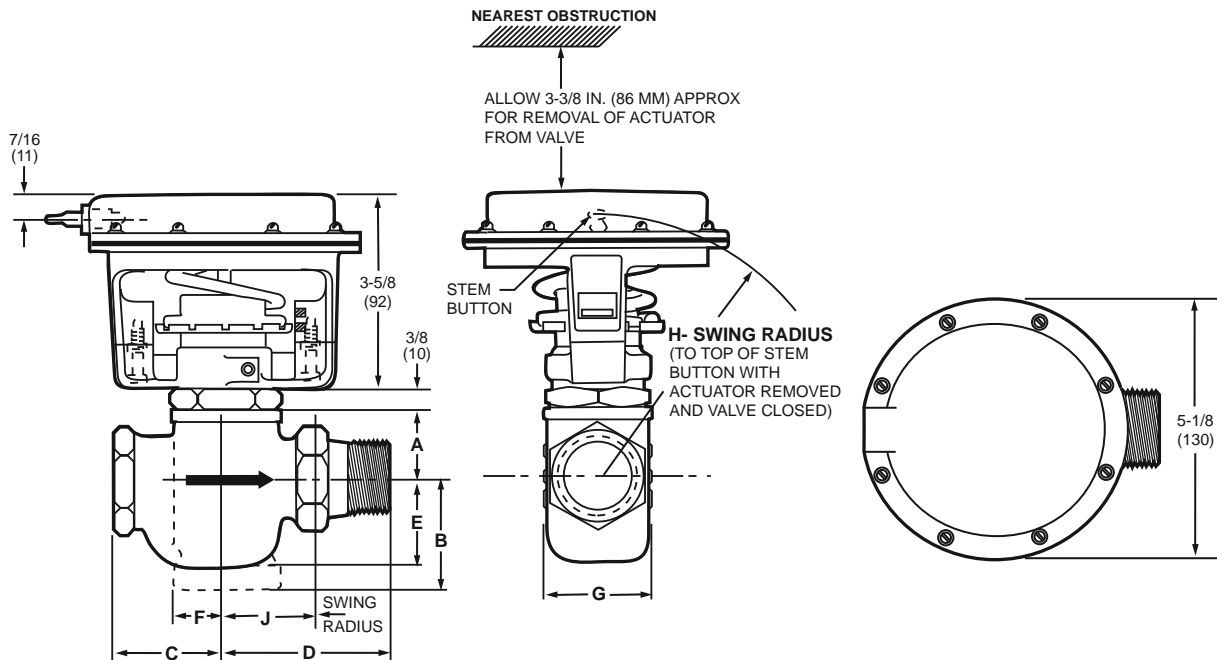
VP512 Unit Vent Pneumatic Control Valve



A normally open, single seated, straight-through or angle globe valve used for proportional control of steam or hot water in unit ventilator applications. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Equal percentage, high lift throttling guide provides accurate control over wide load variations.
- Molded replaceable composition disc for tight shut-off.
- Replaceable brass seat.
- Self-adjusting, spring-loaded Teflon® packing.
- Back-seating allows repacking without shutting down or draining system.
- Rotatable actuator for aligning air connection with control air piping.
- Integral union connection to simplify installation and service.

Dimensions in inches (millimeters)

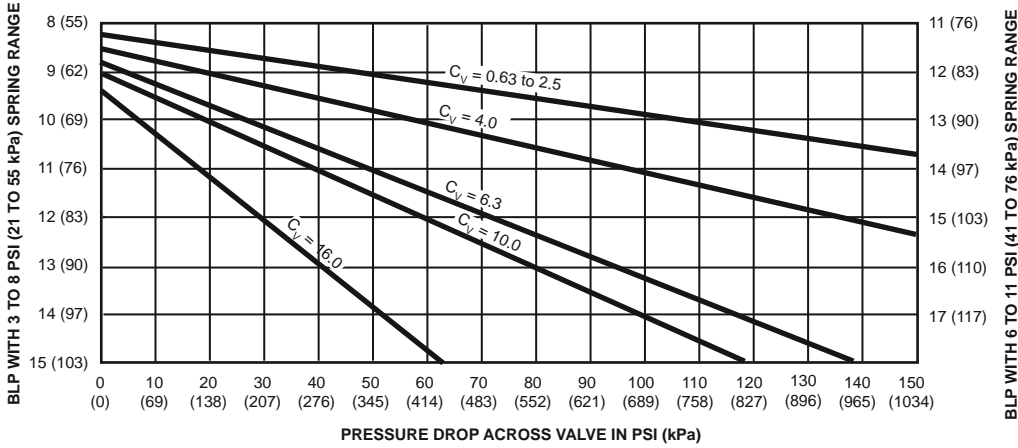


VALVE SIZE	BODY TYPE	A	B	C	D	E	F	G	H	J
1	STRAIGHT	1-3/8 (35)	---	2-1/4 (57)	3 (76)	1-5/8 (41)	---	1-31/32 (50)	4-1/2 (114)	---
	ANGLE	1-3/8 (35)	2-1/8 (54)	---	3 (76)	---	1-1/16 (27)	1-31/32 (50)	---	1-29/32 (48)
1 1/4	STRAIGHT	1-9/16 (40)	---	2-1/2 (64)	3-3/4 (95)	1-1/2 (38)	---	2-9/16 (65)	4-13/16 (122)	---
	ANGLE	1-9/16 (40)	2-1/8 (54)	---	3-3/4 (95)	---	1-3/16 (30)	2-9/16 (65)	---	2-15/32 (63)
1 1/2	STRAIGHT	1-11/16 (43)	---	2-7/8 (73)	4-1/4 (108)	1-3/8 (35)	---	3-9/32 (83)	5-5/32 (131)	---
	ANGLE	1-11/16 (43)	2-1/8 (54)	---	4-1/4 (108)	---	1-3/8 (35)	3-9/32 (83)	---	2-15/16 (75)

M18805A

Pneumatic Valves

Close-off Ratings at various Branchline Pressures



CLOSE-OFF RATINGS AT VARIOUS BRANCH LINE PRESSURES

M18956B

Valve Type: Globe Valve

Body Pressure: 150 psi

Air Connections: Dual barbed for 5/32 in. or 1/4 in. plastic tubing

Valve Action: Proportional Normally Open

Controlled Medium: Steam; Water

Operating Humidity Range (% RH): 5 to 95% RH

Temperature Range: For Water: 115 F to 240 F

For Steam: 212 F to 275 F

Maximum Temperature Differential: For Water: 140 F

Maximum Actuator Temperature: 160 F

Maximum Diaphragm Pressure: 25 psi (172 kPa)

Accessories:

312817AA Actuator Assembly, 3 to 8 psi, 21 to 55 kPa, and 1/2 in. stroke.

312817AB Actuator Assembly, 6 to 11 psi, 41 to 76 kPa and 1/2 in. stroke.

Replacement Parts:

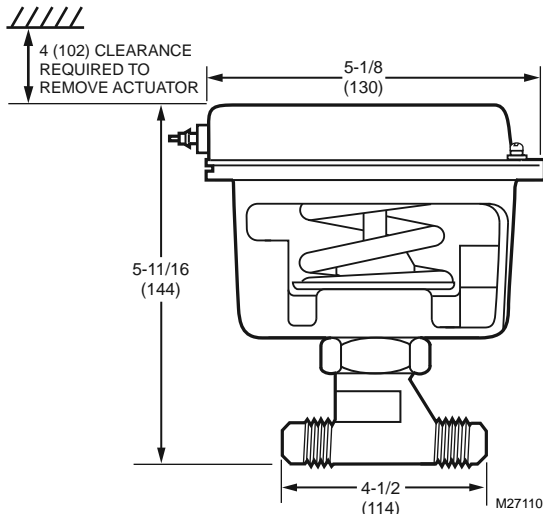
14002863-001 Valve rebuild kit for 3/4 to 1 1/4 in valves with Cv of 6.3 or 10

Product Number	End Connection Size		Body Pattern	Valve Action	Type of End Connection	Capacity		Close-off Ratings at Branch Line Pressure	Spring Range	
	(inch)	(mm)				(Cv)	(Kv)		(psi)	(kPa)
VP512A1726	1 in.	25 mm	Two-way, Straight-through	Proportional Normally Open	Inlet - Internal NPT Outlet - External NPT Union	10 Cv	8.57 Kv	78 psi at 13 psi	3 psi to 8 psi	21 kPa to 55 kPa
VP512A1742	1 in.	25 mm	Two-way, Right Angle	Proportional Normally Open	Inlet - Internal NPT Outlet - External NPT Union	10 Cv	8.57 Kv	78 psi at 13 psi	3 psi to 8 psi	21 kPa to 55 kPa
VP512A1767	1 1/4 in.	32 mm	Two-way, Straight-through	Proportional Normally Open	Inlet - Internal NPT Outlet - External NPT Union	16 Cv	13.7 Kv	40 psi at 13 psi	3 psi to 8 psi	21 kPa to 55 kPa
VP512A1783	1 1/4 in.	32 mm	Two-way, Right Angle	Proportional Normally Open	Inlet - Internal NPT Outlet - External NPT Union	16 Cv	13.7 Kv	40 psi at 13 psi	3 psi to 8 psi	21 kPa to 55 kPa

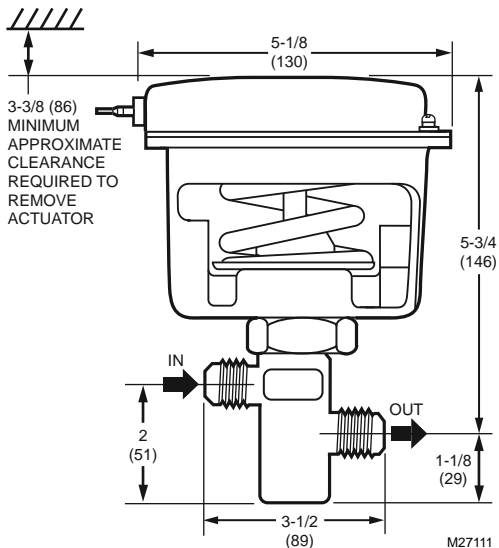
VP513 Pneumatic Water Valve



Dimensions in inches (millimeters)



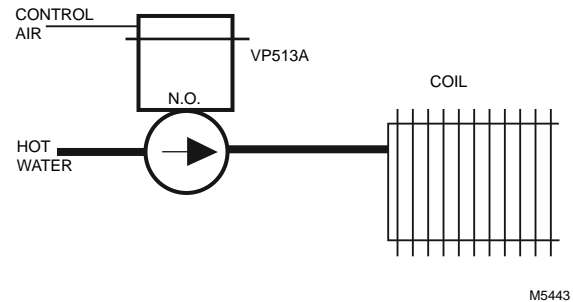
Dimensions in inches (millimeters)



Single-seated, straight-through, pneumatic valves used for proportional control of unit air conditioners using hot and/or chilled water. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Available in normally-open (A models) or normally-closed models (B models).
- Straight-through pattern.
- Rotating actuator for aligning air connection with control air piping.
- Molded replaceable composition disc for tight shut-off.
- Flare tube connections.
- Small physical size.

VP513 Typical Piping Diagram



Valve Type: Unitary
Body Pressure: 250 psi (1724 kPa)
Air Connections: 1/8 in. NPT
Valve Action: Proportional Normally Open
Controlled Medium: Water
Type of End Connection: 45 deg. SAE flare
Operating Humidity Range (% RH): 5 to 95% RH
Temperature Range: 35 F to 250 F (2 C to 121 C)
Maximum Actuator Temperature: 160 F (71 C)
Maximum Diaphragm Pressure: 25 psi (172 kPa)

Accessories:

- 312817T** Actuator assembly, 3 to 10 psi, 21 to 69 kPa, and 1/2 in. stroke.
- 312817U** Actuator Assembly, 3 to 7 psi, 21 to 48 kPa, and 1/2 in. stroke.
- 312817V** Actuator Assembly, 8 to 12 psi, 55 to 83 kPa, and 1/2 in. stroke.

Replacement Parts:

- 14002734-002** Lubricant, packing, AMOCO H-100
- 310143** Black Packing, 3 required
- 310135** Packing Spring, 1 Required
- 312760** MP953A,C,E (5 in. diameter) regular temperature Neoprene diaphragm - new style

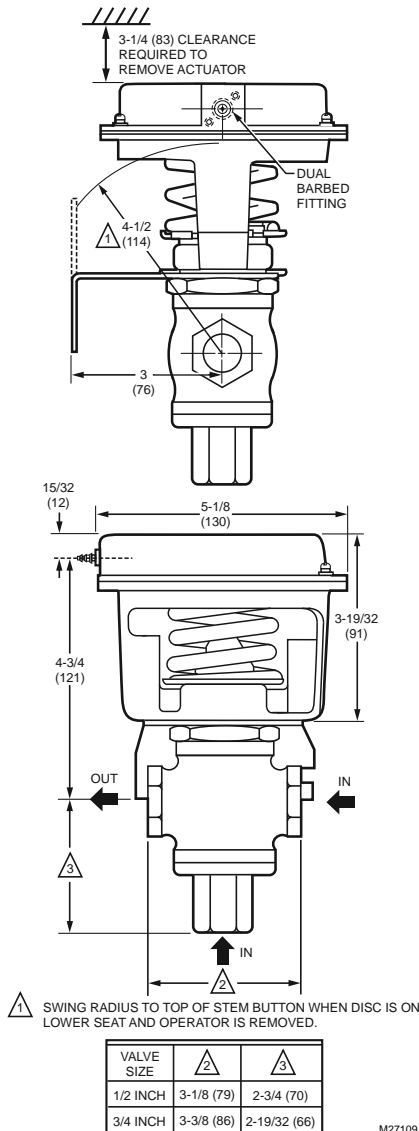
Pneumatic Valves

Product Number	End Connection Size		Body Pattern	Capacity		Close-off Ratings at Branch Line Pressure	Spring Range	
	(inch)	(mm)		(Cv)	(Kv)		(psi)	(kPa)
VP513A1048	O.D.: 7/8 in.; Nominal: 3/4 in.	O.D.: 22.2 mm; Nominal: 19.1 mm	Two-way, Straight-through	2.5 Cv	2.16 Kv	79 psid (545 kPa) at 13 psi (90 kPa)	3 psi to 10 psi	21 kPa to 69 kPa
VP513A1055	O.D.: 7/8 in.; Nominal: 3/4 in.	O.D.: 22.2 mm; Nominal: 19.1 mm	Two-way, Straight-through	4 Cv	3.46 Kv	79 psid (545 kPa) at 13 psi (90 kPa)	3 psi to 10 psi	21 kPa to 69 kPa
VP513A1188	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	Two-way, Straight-through	2.5 Cv	2.16 Kv	79 psid (545 kPa) at 13 psi (90 kPa)	3 psi to 7 psi	21 kPa to 48 kPa
VP513A1204	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	Two-way, Straight-through	2.5 Cv	2.16 Kv	79 psid (545 kPa) at 13 psi (90 kPa)	3 psi to 10 psi	21 kPa to 69 kPa
VP513B1012	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	Two-way, Straight- through, Offset	1.0 Cv	0.86 Kv	50 psid (345 kPa) at 7 psi (48 kPa)	9 psi to 13 psi	62 kPa to 90 kPa
VP513B1038	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	Two-way, Straight- through, Offset	1.6 Cv	1.38 Kv	50 psid (345 kPa) at 7 psi (48 kPa)	9 psi to 13 psi	62 kPa to 90 kPa
VP513B1053	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	Two-way, Straight- through, Offset	2.5 Cv	2.16 Kv	50 psid (345 kPa) at 7 psi (48 kPa)	9 psi to 13 psi	62 kPa to 90 kPa

VP519 Two-Position Three-Way Air Valve



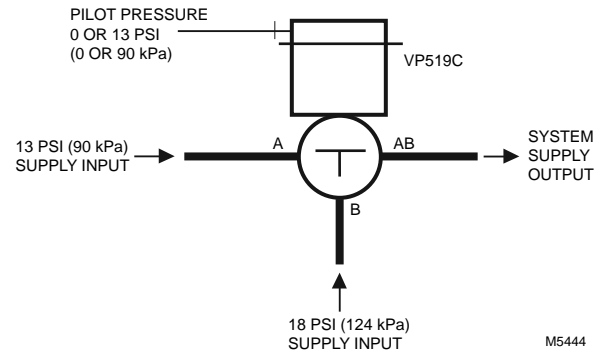
Dimensions in inches (millimeters)



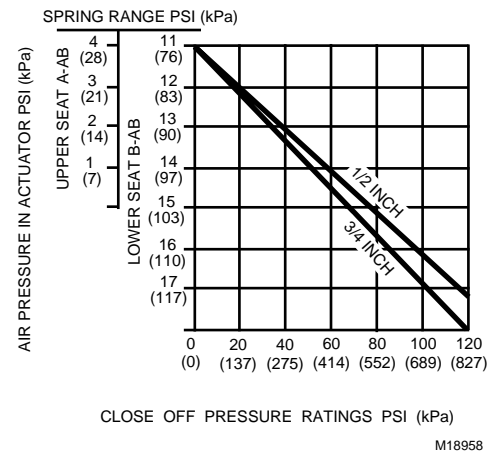
Two-position, three-way, pneumatic air valve used to control main airflow in large Day-Nite or Summer-Winter pneumatic control systems. Replacement device is available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Spring-loaded, self-adjusting Teflon® cone packing.
- Removable composition upper and lower discs.
- Actuator can be rotated on valve bonnet for alignment with air piping.
- Right-angle mounting bracket permits mounting on a wall or panel.
- Cast bronze body, 1/4 in. stroke.

VP519 Typical Piping Diagram



Close-off Ratings for the VP519



- Valve Type:** Globe Valve
Body Pattern: Three-way
Valve Action: Two Position
Body Pressure: 150 psi (1034 kPa)
Air Connections: Dual barbed for 5/32 in. or 1/4 in. plastic tubing
Type of End Connection: NPT
Operating Humidity Range (% RH): 5 to 95% RH
Temperature Range: 35 F to 115 F (2 C to 46 C)
Maximum Actuator Temperature: 160 F (71 C)
Maximum Diaphragm Pressure: 25 psi (172 kPa)

Replacement Parts:

- 312760 MP953A,C,E (5 in. diameter) regular temperature Neoprene diaphragm - new style
- 313744A Actuator Replacement Assembly for the VP519 Valve
- 14003294-002 Valve Repack Kit, Steam or water application

Product Number	End Connection Size		Capacity		Close-off Ratings at Branch Line Pressure	Spring Range	
	(inch)	(mm)	(Cv)	(Kv)		(psi)	(kPa)
VP519C1006	1/2 in.	12.7 mm	5.5 Cv	4.75 Kv	120 psid at 18 psi	6 psi to 9 psi	41 kPa to 62 kPa

Pneumatic Valves

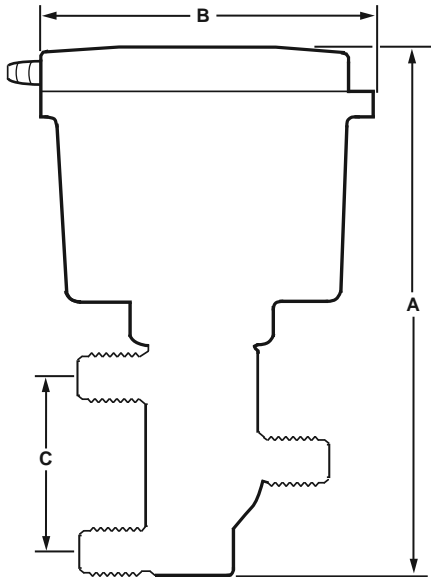
VP522 Pneumatic Sequencing Water Valve



Three-pipe, sequencing, pneumatically operated water valve for controlling both hot and cold water flow in fan-coil and induction units. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Corrosion resistant.
- Molded-in composition discs for tight shutoff.
- Flare connections for easy installation.
- Operator rotates 360 degrees for convenient air piping alignment.

Dimensions in inches (millimeters)



VALVE SIZE	A IN INCHES (mm)	B IN INCHES (mm)	C IN INCHES (mm)
3/8 IN.	9-13/16 (249)	5-1/8 (130)	3-5/8 (92)
1/2 IN.	9-15/16 (252)	5-1/8 (130)	3-5/32 (80)
3/4 IN.	9-15/16 (252)	5-1/8 (130)	3-5/32 (80)

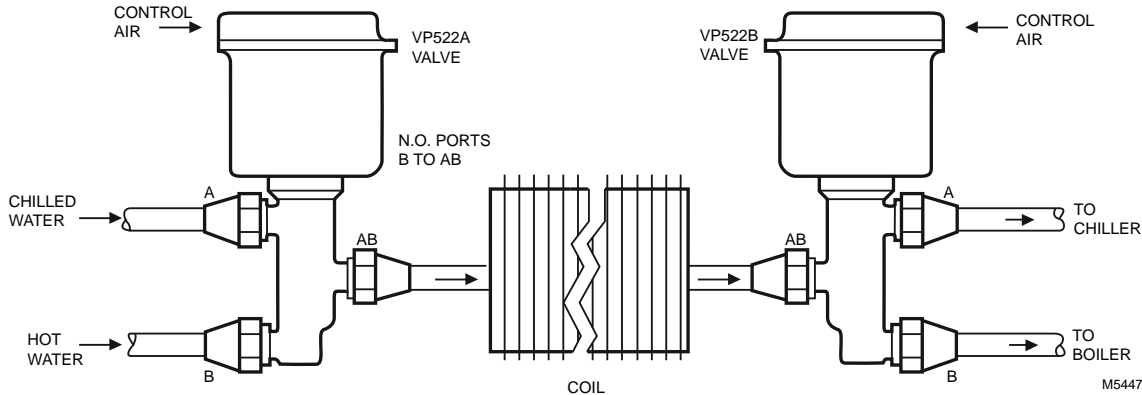
C4671A

Operating Sequence on Control Air Pressure Increase

VP522A		AIR PRESSURE psi (kPa)	VP522B
3/8 IN.	1/2 IN. & 3/4 IN.		ALL SIZES
HOT PORT OPEN 100%	HOT PORT OPEN 100%	0 (0)	HOT PORT OPEN 100%
		1 (7)	
		2 (14)	
HOT PORT CLOSES	HOT PORT CLOSES	3 (21)	HOT PORT CLOSES
		4 (28)	
		5 (34)	
BOTH PORTS CLOSED	BOTH PORTS CLOSED	6 (41)	BOTH PORTS CLOSED
		7 (48)	
		8 (55)	
COLD PORT OPENS	COLD PORT OPENS	9 (62)	COLD PORT OPENS
		10 (69)	
		11 (76)	
COLD PORT OPEN 100%	COLD PORT OPEN 100%	12 (83)	COLD PORT OPEN 100%
		13 (90)	
		14 (97)	
		15 (103)	

M13864

Typical VP522 Operation Diagram



M5447

Pneumatic Valves

Valve Type: Unitary
Body Pressure: 250 psi (1724 kPa)
Air Connections: 1/8 in. NPT
Controlled Medium: Water
Type of End Connection: 45 deg. SAE flare
Operating Humidity Range (% RH): 5 to 95% RH
Temperature Range: 35 F to 250 F (2 C to 121 C)
Maximum Actuator Temperature: 160 F (71 C)
Maximum Diaphragm Pressure: 25 psi (172 kPa)

313824A Rebuild kit, include Stem and Disc holder, button with screw, packing and instruction, VP522A1005
314459A Rebuild kit, include Stem and Disc holder, button with screw, packing and instruction, VP522A1039
314459B Rebuild kit, includes stem and disc holder, Button with screw, packing and instructions, VP522A1047
315407A Rebuild kit, include Stem and Disc holder, button with screw, packing and instruction for the VP522B1003
312760 MP953A,C,E (5 in. diameter) regular temperature Neoprene diaphragm - new style
312817S Actuator for VP522A1039, VP522A1047, VP522A1237
312817W Actuator for VP522B1003

Replacement Parts:

312817Y Actuator assembly for VP522B1011 andVP522B1029

Product Number	Body Pattern	Valve Action	End Connection Size		Capacity		Close-off Ratings at Branch Line Pressure	Spring Range	
			(inch)	(mm)	(Cv)	(Kv)		(psi)	(kPa)
VP522A1005	Three-way Mixing	Proportional/ Sequencing	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	Port A: 1.5 Cv, Port B: 1.5 Cv	Port A: 1.3 Kv, Port B: 1.3 Kv	50 psid at 13 psi	3 psi to 11.5 psi	21 kPa to 79 kPa
VP522A1039	Three-way Mixing	Proportional/ Sequencing	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	Port A: 2.5 Cv, Port B: 1.6 Cv	Port A: 2.2 Kv, Port B: 1.4 Kv	50 psid at 13 psi	2 psi to 13 psi	14 kPa to 90 kPa
VP522A1047	Three-way Mixing	Proportional/ Sequencing	O.D.: 7/8 in.; Nominal: 3/4 in.	O.D.: 22.2 mm; Nominal: 19.1 mm	Port A: 4 Cv, Port B: 2.5 Cv	Port A: 3.5 Kv, Port B: 2.2 Kv	45 psid at 13 psi	2 psi to 13 psi	14 kPa to 90 kPa
VP522B1003	Three-way Diverting, Sequencing	Diverting/ Sequencing	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	Port A: 1.5 Cv, Port B: 1.5 Cv	Port A: 1.3 Kv, Port B: 1.3 Kv	15 psid at 13 psi	Adjustable	Adjustable
VP522B1011	Three-way Diverting, Sequencing	Diverting/ Sequencing	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	Port A: 2.5 Cv, Port B: 2.5 Cv	Port A: 2.2 Kv, Port B: 2.2 Kv	15 psid at 13 psi	Adjustable	Adjustable
VP522B1029	Three-way Diverting, Sequencing	Diverting/ Sequencing	O.D.: 7/8 in.; Nominal: 3/4 in.	O.D.: 22.2 mm; Nominal: 19.1 mm	Port A: 4 Cv, Port B: 3.5 Cv	Port A: 3.5 Kv, Port B: 3.0 Kv	15 psid at 13 psi	Adjustable	Adjustable

Pneumatic Valves

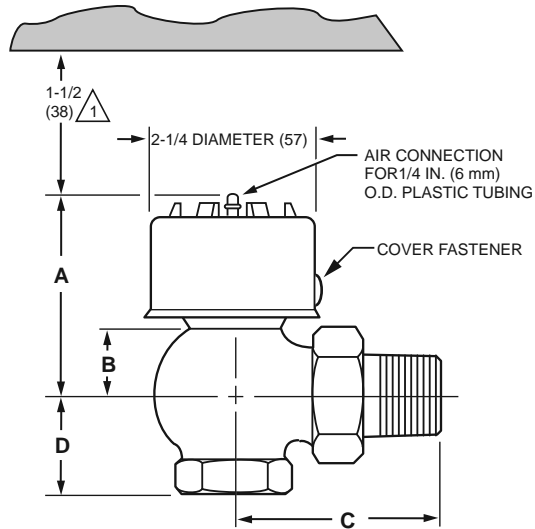
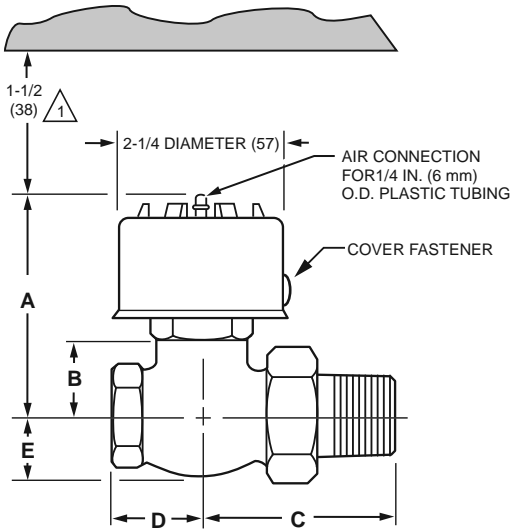
VP525C Pneumatic Radiator Valve



Normally-open, single-seated pneumatic radiator valve with straight through or angle body construction provides proportional control of two-pipe, hot water or steam systems. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Available in several capacities and spring ranges for various application requirements.
- Easily replaceable actuator assembly for convenience of service.
- Compact size for installation where space is limited.
- Can be repacked without shutting down system.

Dimensions in inches (millimeters)

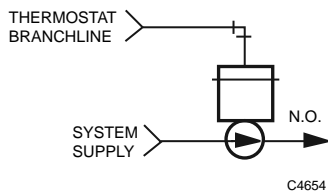


1 1-1/2 in. (38 mm) MINIMUM CLEARANCE TO REMOVE ACTUATOR. 2 1/2 in. (63 mm) MINIMUM CLEARANCE TO FACILITATE STRAIGHT ON TUBING CONNECTION. IF CLEARANCE IS LESS THAN 2 1/2 in. (63 mm) USE AN ELBOW.

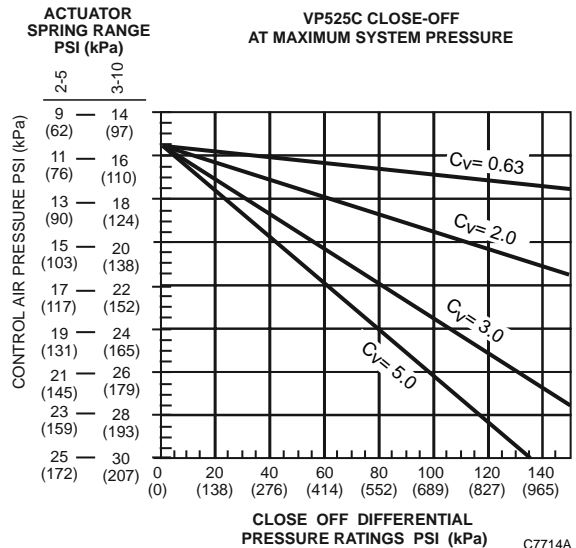
M16449A

BODY STYLE	SIZE NPT	A	B	C	D	E
STRAIGHT THRU – MALE UNION OUTLET	1/2	3-1/2 (90)	1-3/8 (35)	2-1/2 (63)	1-3/8 (35)	3/4 (19)
	3/4	3-1/2 (90)	1-3/8 (35)	3 (76)	1-5/8 (41)	1-1/8 (29)
ANGLE – MALE UNION OUTLET	1/2	3-1/4 (83)	1 (25)	2-5/8 (66)	1-1/8 (29)	
	3/4	3-1/8 (80)	1 (25)	3 (76)	1-1/4 (32)	

VP525C Typical Piping Diagram



Close-off Ratings at various Control Air Pressures



Pneumatic Valves

Valve Type: Unitary
Body Pattern: Two-way
Body Pressure: 150 psi (1034 kPa)
Air Connections: Push on for 1/4 in. O.D. plastic tubing
Valve Action: Proportional Normally Open
Controlled Medium: Steam; Water
Operating Humidity Range (% RH): 5 to 95% RH
Temperature Range: 40 F to 240 F (4 C to 116 C)
Maximum Safe Actuator Diaphragm Temperature: 230 F (110 C)
Maximum Diaphragm Pressure: 30 psi (205 kPa)

Accessories:

14003648-001 Vandalism Resistant Assembly, Cover assembly with 1/8 in NPT air Connection and push-in retainer to replace standard Cover
14004932-001 Pneumatic Valve Adapter (M6410/M7410 linkage and a green main spring to allow to retrofit an electric actuator)

Replacement Parts:

14002560-007 Repair stem assembly for 1/2 inch, 2.0 Cv VP525C or to Upgrade, 2.0 Cv VP525A

14002560-008 Repair stem assembly for 1/2 and 3/4 inch, 3.0 Cv VP525C or to Upgrade 1/2 and 3/4 inch, 3.0 Cv VP525A
14002560-009 Repair stem assembly for 3/4 inch, 5.0 Cv VP525C or to Upgrade, 5.0 Cv VP525A
14002560-013 Repair stem assembly for 1/2 inch, 0.63 Cv VP525C or to Upgrade, 0.63 Cv VP525A
14003299-001 Repair Top & Insert for 5/8 in. OD, 1.6 Cv VP525A solder body
14003300-001 Repair Top & Insert for 7/8 in. OD, 2.5 Cv VP525A solder body
14004897-001 Repair Top & Insert for 1/2 inch NPT, 0.63 Cv VP525C or to upgrade 1/2 NPT, 0.63 Cv VP525A
14004897-002 Repair Top & Insert for 1/2 inch NPT, 2.0 Cv VP525C or to upgrade 1/2 NPT, 2.0 Cv VP525A
14004897-003 Repair Top & Insert for 3/4 inch NPT, 3.0 Cv VP525C or to upgrade 3/4 NPT, 3.0 Cv VP525A
14004897-004 Repair Top & Insert for 3/4 inch NPT, 5.0 Cv VP525C or to upgrade 3/4 NPT, 5.0 Cv VP525A
310208 White Packing
316027/0042 Green Spring, 2 to 5 psi

Product Number	End Connection Size		Type of End Connection	Capacity		Close-off Ratings at Branch Line Pressure	Spring Range		Comments	Includes
	(inch)	(mm)		(Cv)	(Kv)		(psi)	(kPa)		
VP525C1008	1/2 in.	12.7 mm	NPT- Straight Male Union	0.63 Cv	0.54 Kv	150 psid (1034 kPa) at 20 psi (138 kPa)	3 psi to 10 psi	21 kPa to 69 kPa	Replacement for VP525A1408	2-5 psi spring is packed in box
VP525C1016	1/2 in.	12.7 mm	NPT- Straight Male Union	2 Cv	1.73 Kv	110 psid (759 kPa) at 20 psi (138 kPa)	3 psi to 10 psi	21 kPa to 69 kPa	Replacement for VP525A1077 and VP525A1416	2-5 psi spring is packed in box
VP525C1024	3/4 in.	19.1 mm	NPT- Straight Male Union	3 Cv	2.59 Kv	55 psid (379 kPa) at 20 psi (138 kPa)	3 psi to 10 psi	21 kPa to 69 kPa	Replacement for VP525A1150	2-5 psi spring is packed in box
VP525C1032	3/4 in.	19.1 mm	NPT- Straight Male Union	5 Cv	4.32 Kv	42 psid (290 kPa) at 20 psi (138 kPa)	3 psi to 10 psi	21 kPa to 69 kPa	Replacement for VP525A1192 and VP525A1200	2-5 psi spring is packed in box
VP525C1040	1/2 in.	12.7 mm	NPT- Angle Male union	2 Cv	1.73 Kv	110 psid (759kPa) at 20 psi (138 kPa)	3 psi to 10 psi	21 kPa to 69 kPa	Replacement for VP525A1085	2-5 psi spring is packed in box
VP525C1057	3/4 in.	19.1 mm	NPT- Angle Male union	3 Cv	2.59 Kv	55 psid (379 kPa) at 20 psi (138 kPa)	3 psi to 10 psi	21 kPa to 69 kPa	Replacement for VP525A1168	2-5 psi spring is packed in box
VP525C1065	3/4 in.	19.1 mm	NPT- Angle Male union	5 Cv	4.32 Kv	42 psid (290 kPa) at 20 psi (138 kPa)	3 psi to 10 psi	21 kPa to 69 kPa	Replacement for VP525A1218 and VP525A1226	2-5 psi spring is packed in box
VP525C1073	1/2 in.	12.7 mm	NPT- Straight Male Union	3 Cv	2.59 Kv	55 psid (379 kPa) at 20 psi (138 kPa)	3 psi to 10 psi	21 kPa to 69 kPa	Replacement for VP525A1101 and VP525A1119	2-5 psi spring is packed in box
VP525C1081	1/2 in.	12.7 mm	NPT- Angle Male union	3 Cv	2.59 Kv	55 psid (379 kPa) at 20 psi (138 kPa)	3 psi to 10 psi	21 kPa to 69 kPa	Replacement for VP525A1127 and VP525A1135	2-5 psi spring is packed in box

Pneumatic Valves

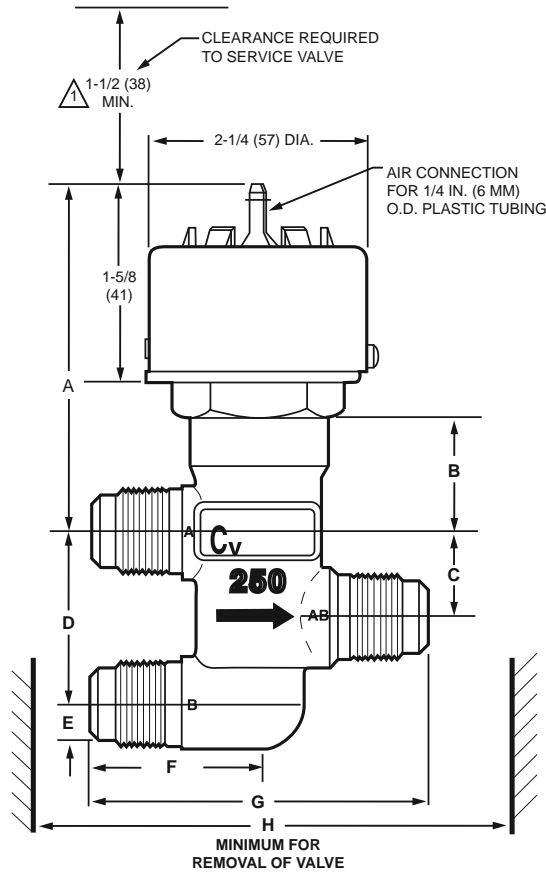
VP526 Three-Way High Pressure Water Valve



Three-way pneumatic mixing valve provides proportional control of hot and/or cold water in unit air conditioners and fan coil systems. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Small size permits installation where space is limited.
- Direct-acting, rolling diaphragm actuator with integral high temperature plastic air connector for 1/4 in. (6-mm) O.D. plastic tubing.
- Spring loaded, self-adjusting Buna-N "V"-ring packing replaceable.
- Brass seats (integral lower, removable upper) and contoured plug provide metal-to-metal seating.
- Stainless steel stem.
- Linear and constant total flow throughout full plug travel.

Dimensions in inches (millimeters)

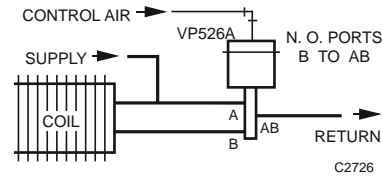


VALVE SIZE	COPPER TUBING (O.D.)	IN. (MM)							
		A	B	C	D	E	F	G	H
3/8	1/2	3-1/16 (78)	7/8 (22)	13/16 (20)	1-1/2 (38)	3/8 (10)	1-1/2 (38)	3 (76)	5-3/4 (146)
1/2	5/8	3-3/8 (85)	1-3/16 (30)	7/8 (22)	1-3/4 (44)	7/16 (11)	1-11/16 (43)	3-7/16 (87)	6-1/4 (159)

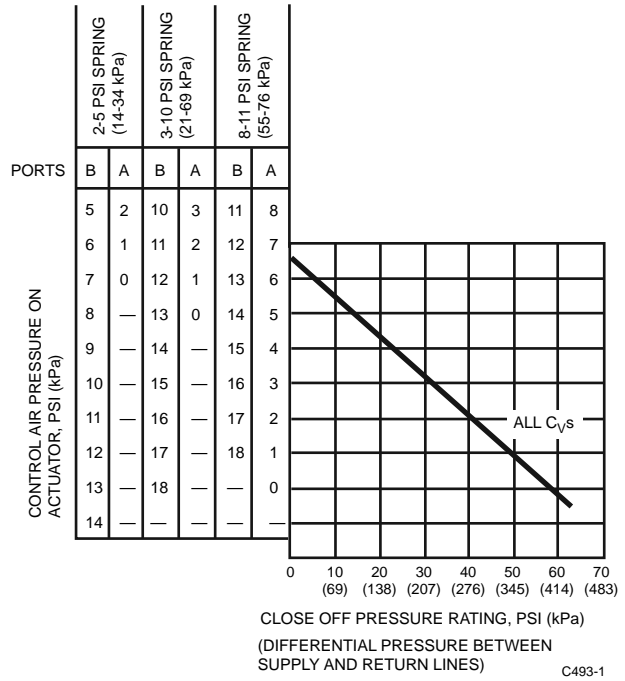
△ ALLOW 1-1/2 IN. (38 MM) MINIMUM CLEARANCE FOR REMOVING ACTUATOR. ALLOW 2-1/2 IN. (63 MM) TO FACILITATE STRAIGHT ON TUBING. IF CLEARANCE IS LESS THAN 2-1/2 IN. (63 MM), USE AN ELBOW.

M18807A

VP526 Typical Piping Diagram



Close-off Ratings for the VP526



Pneumatic Valves

Valve Type: Unitary
Body Pattern: Three-way Mixing
Body Pressure: 250 psi (1724 kPa)
Air Connections: Push on for 1/4 in. O.D. plastic tubing
Valve Action: Proportional Normally Open Ports B to AB
Controlled Medium: Water
Type of End Connection: 45 deg. SAE flare
Operating Humidity Range (% RH): 5 to 95% RH
Temperature Range: 35 F to 250 F (2 C to 121 C)
Maximum Safe Actuator Diaphragm Temperature: 230 F (110 C)
Maximum Diaphragm Pressure: 29 psi (200 kPa)

Accessories:

14003648-001 Vandalism Resistant Assembly, Cover assembly with 1/8 in NPT air Connection and push-in retainer to replace standard Cover

Replacement Parts:

14003102-001 Replacement top assembly
14003297-001 Valve repack kit for VP526A, VP527A, or VP531A valves with 3/16 inch stem
315917 Diaphragm

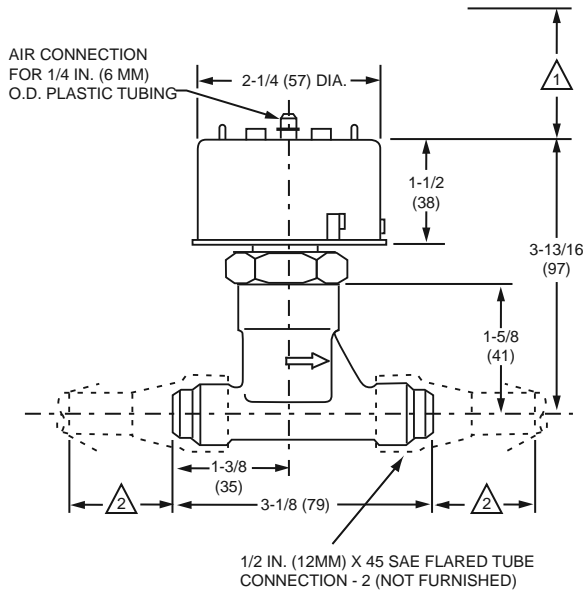
Product Number	End Connection Size		Capacity		Close-off Ratings at Branch Line Pressure for Port A	Close-off Ratings at Branch Line Pressure for Port B	Spring Range	
	(inch)	(mm)	(Cv)	(Kv)			(psi)	(kPa)
VP526A1001	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	1.6 Cv	1.38 Kv	14 psid at 0 psi	50 psid at 17 psi	3 psi to 10 psi	21 kPa to 69 kPa
VP526A1019	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	2.5 Cv	2.16 Kv	14 psid at 0 psi	50 psid at 17 psi	3 psi to 10 psi	21 kPa to 69 kPa
VP526A1027	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	1.6 Cv	1.38 Kv	5 psid at 0 psi	50 psid at 12 psi	2 psi to 5 psi	14 kPa to 34 kPa
VP526A1035	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	2.5 Cv	2.16 Kv	5 psid at 0 psi	50 psid at 12 psi	2 psi to 5 psi	14 kPa to 34 kPa
VP526A1043	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	1.6 Cv	1.38 Kv	58 psid at 0 psi	50 psid at 18 psi	8 psi to 11 psi	55 kPa to 76 kPa
VP526A1050	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	2.5 Cv	2.16 Kv	58 psid at 0 psi	50 psid at 18 psi	8 psi to 11 psi	55 kPa to 76 kPa
VP526A1068	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	1.0 Cv	0.86 Kv	14 psid at 0 psi	50 psid at 17 psi	3 psi to 10 psi	21 kPa to 69 kPa
VP526A1076	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	1.6 Cv	1.38 Kv	14 psid at 0 psi	50 psid at 17 psi	3 psi to 10 psi	21 kPa to 69 kPa
VP526A1084	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	1.0 Cv	0.86 Kv	5 psid at 0 psi	50 psid at 12 psi	2 psi to 5 psi	14 kPa to 34 kPa
VP526A1092	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	1.6 Cv	1.38 Kv	5 psid at 0 psi	50 psid at 12 psi	2 psi to 5 psi	14 kPa to 34 kPa
VP526A1100	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	1.0 Cv	0.86 Kv	58 psid at 0 psi	50 psid at 18 psi	8 psi to 11 psi	55 kPa to 76 kPa
VP526A1118	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	1.6 Cv	1.38 Kv	58 psid at 0 psi	50 psid at 18 psi	8 psi to 11 psi	55 kPa to 76 kPa

Pneumatic Valves

VP527 Pneumatic Water Valve



Dimensions in inches (millimeters)



1 ALLOW 1-1/2 IN. (38 MM) MINIMUM CLEARANCE TO SERVICE VALVE, 2-1/2 IN. (63 MM) CLEARANCE TO CONNECT TUBING STRAIGHT TO CONNECTOR. IF CLEARANCE IS LESS THAN 2-1/2 IN. (63 MM), USE AN ELBOW CONNECTOR.

2 ALLOW 1-3/8 IN. (35 MM) MINIMUM CLEARANCE TO REMOVE VALVE.

M18348A

Valve Type: Unitary

Body Pattern: Two-way

Body Pressure: 250 psi (1724 kPa)

Air Connections: Push on for 1/4 in. O.D. plastic tubing

Valve Action: Proportional Normally Open

Controlled Medium: Water

Type of End Connection: 45 deg. SAE flare

Operating Humidity Range (% RH): 5 to 95% RH

Temperature Range: 35 F to 250 F (2 C to 121 C)

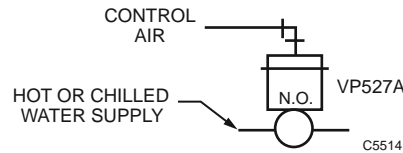
Maximum Safe Actuator Diaphragm Temperature: 230 F (110 C)

Maximum Diaphragm Pressure: 30 psi (205 kPa)

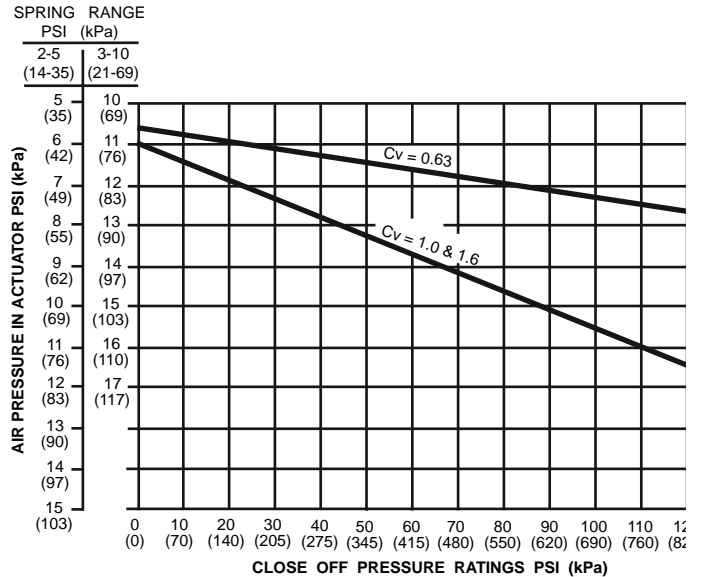
Normally open, single-seated, high pressure valve provides proportional control of hot and/or cold water in unit air conditioners and fan coil units. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Small size permits installation where space is limited.
- Forged brass, straight-through body with end connections threaded for 45 degrees SAE flare fitting nuts.
- Spring-loaded, self-adjusting, Buna-N "V"-ring packing is replaceable without shutting system down.
- High-temperature rolling diaphragm actuator (aluminum cover) and high-temperature plastic diaphragm retaining cup with integral air connection for 1/4 in. (6 mm) O.D. plastic tubing.
- Integral seat and brass plug with removable composition disc provides equal percentage flow.
- Stainless steel stem, 3/16 in. (5 mm) diameter.

VP527 Typical Piping Diagram



Close-off Ratings vs. Control Air Pressure



Accessories:

14003648-001 Vandalism Resistant Assembly, Cover assembly with 1/8

in NPT air Connection and push-in retainer to replace standard Cover

14004932-001 Pneumatic Valve Adapter (M6410/M7410 linkage and a

green main spring to allow to retrofit an electric actuator)

Replacement Parts:

14003102-001 Replacement top assembly

14003297-001 Valve repack kit for VP526A, VP527A, or VP531A valves

with 3/16 inch stem

14003475-001 Valve Rebuild Kit for 1/2 in. valve with 0.4 or 0.63 Cv

14003476-001 Valve Rebuild Kit for 1/2 in. valve with 1 or 1.6 Cv

315917 Diaphragm

Pneumatic Valves

Product Number	End Connection Size		Capacity		Close-off Ratings at Branch Line Pressure	Spring Range	
	(inch)	(mm)	(Cv)	(Kv)		(psi)	(kPa)
VP527A1018	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	0.63 Cv	0.54 Kv	130 psid at 13 psi	3 psi to 10 psi	21 kPa to 69 kPa
VP527A1026	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	1.0 Cv	0.86 Kv	45 psid at 13 psi	3 psi to 10 psi	21 kPa to 69 kPa
VP527A1034	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	1.6 Cv	1.38 Kv	45 psid at 13 psi	3 psi to 10 psi	21 kPa to 69 kPa
VP527A1059	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	0.63 Cv	0.54 Kv	130 psid at 8 psi	2 psi to 5 psi	14 kPa to 34 kPa
VP527A1067	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	1.0 Cv	0.86 Kv	45 psid at 8 psi	2 psi to 5 psi	14 kPa to 34 kPa
VP527A1075	O.D.: 1/2 in.; Nominal: 3/8 in.	O.D.: 12.7 mm; Nominal: 9.5 mm	1.6 Cv	1.38 Kv	45 psid at 8 psi	2 psi to 5 psi	14 kPa to 34 kPa

Pneumatic Valves

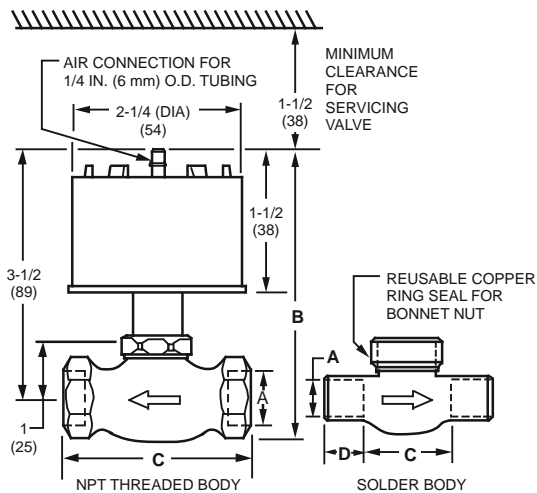
VP531C Pneumatic Terminal Unit Valve



Normally-open, single-seated valve provides proportional control of steam or hot or cold water in terminal units. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Available in several capacities and spring ranges for various application requirements.
- Easily replaceable actuator assembly for convenience of service.
- Compact size for use inside most unit enclosures.

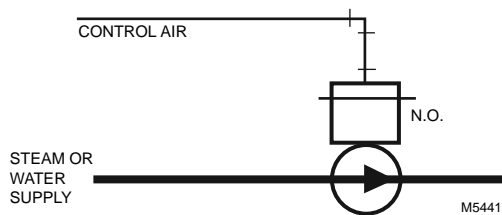
Dimensions in inches (millimeters)



BODY SIZE	A	B	C	D
1/2 IN. NPT (1.6 OR 2.3 CV)	1/2 IN. PIPE	4-1/8 IN. (104 MM)	2-9/32 IN. (58 MM)	-
3/4 IN. NPT (2.6 OR 3.3 CV)	3/4 IN. PIPE	4-3/16 IN. (106 MM)	2-7/16 IN. (61 MM)	-
1/2 IN. SOLDER (1.6 CV)	5/8 IN. (16 MM) O.D. COPPER TUBING	4-1/8 IN. (104 MM)	1-5/8 IN. (41 MM)	1/2 IN. (13 MM)
3/4 IN. SOLDER (2.6 OR 3.3 CV)	7/8 IN. (22 MM) O.D. COPPER TUBING	4-3/16 IN. (106 MM)	1-1/2 IN. (38 MM)	3/4 IN. (19 MM)

C7987B

VP531C Typical Piping Diagram



Valve Type: Unitary

Body Pattern: Two-way

Body Pressure: 150 psi (1034 kPa)

Air Connections: Push on for 1/4 in. O.D. plastic tubing

Valve Action: Proportional Normally Open

Controlled Medium: Steam; Water

Operating Humidity Range (% RH): 5 to 95% RH

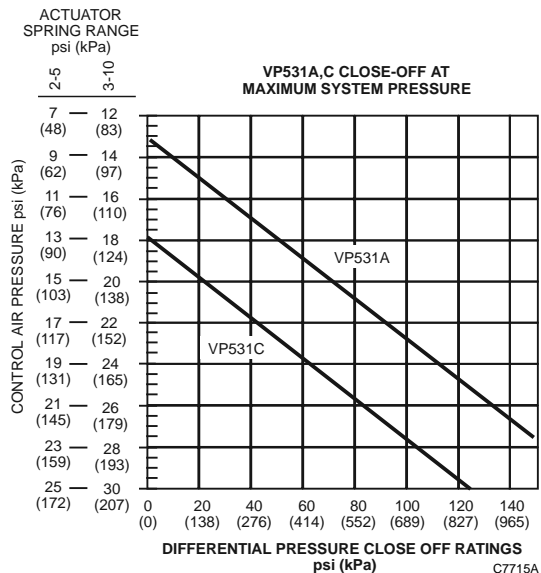
Temperature Range: 40 F to 240 F (140 F max difference, alternating hot and cold water service)

(4 C to 116 C (78 K max difference, alternating hot and cold water service))

Maximum Safe Actuator Diaphragm Temperature: 230 F (110 C)

Maximum Diaphragm Pressure: 30 psi (205 kPa)

Close-off Ratings for the VP531C



Accessories:

- 14003648-001** Vandalism Resistant Assembly, Cover assembly with 1/8 in NPT air Connection and push-in retainer to replace standard Cover
- 14004932-001** Pneumatic Valve Adapter (M6410/M7410 linkage and a green main spring to allow to retrofit an electric actuator)

Replacement Parts:

- 14003102-001** Replacement top assembly
- 14002560-010** Repair stem assembly, 1.6 Cv VP531C or to Upgrade, 1.6 Cv VP531A
- 14002560-011** Repair stem assembly for 2.6 Cv VP531C or to Upgrade 2.6 Cv VP531A
- 14002560-012** Repair stem assembly for 3.3 Cv VP531C or to Upgrade 3.3 Cv VP531A
- 14003297-002** Teflon packing kit for VP531C or VP531A upgrade valves
- 14004898-001** Repair Top & Insert for NPT and Solder body, 1.6 Cv VP531C or to upgrade NPT and solder body, 1.6 Cv VP531A
- 14004898-002** Repair Top & Insert for NPT and Solder body, 2.3 and 2.6 Cv VP531C or to upgrade NPT and solder body, 2.3 and 2.6 Cv VP531A
- 14004898-003** Repair Top & Insert for NPT and Solder body, 3.3 Cv VP531C or to upgrade NPT and solder body, 3.3 Cv VP531A
- 315913/0041** Orange Spring, 3 to 10 psi for VP525, VP526, VP527, VP531
- 316027/0042** Green Spring, 2 to 5 psi
- 316026** Yellow Spring, 8-11 psi
- 14004932-001** Pneumatic Valve Adapter (M6410/M7410 linkage and a green main spring to allow to retrofit an electric actuator)

Pneumatic Valves

Product Number	End Connection Size		Type of End Connection	Capacity		Close-off Ratings at Branch Line Pressure	Spring Range		Comments	Includes
	(inch)	(mm)		(Cv)	(Kv)		(psi)	(kPa)		
VP531C1000	1/2 in.	12.7 mm	NPT	1.6 Cv	1.38 Kv	70 psid at 20 psi (with 2 to 5 psi spring)	2 psi to 5 psi	14 kPa to 34 kPa	Replacement for VP531A1004 and VP531A1012	3-10 psi spring is packed in box
VP531C1018	3/4 in.	19.1 mm	NPT	2.6 Cv	2.24 Kv	70 psid at 20 psi (with 2 to 5 psi spring)	2 psi to 5 psi	14 kPa to 34 kPa	Replacement for VP531A1046 and VP531A1053	3-10 psi spring is packed in box
VP531C1026	3/4 in.	19.1 mm	NPT	3.3 Cv	2.85 Kv	70 psid at 20 psi (with 2 to 5 psi spring)	2 psi to 5 psi	14 kPa to 34 kPa	Replacement for VP531A1061 and VP531A1079	3-10 psi spring is packed in box
VP531C1034	O.D.: 5/8 in.; Nominal: 1/2 in.	O.D.: 15.9 mm; Nominal: 12.7 mm	Solder	1.6 Cv	1.38 Kv	70 psid at 20 psi (with 2 to 5 psi spring)	2 psi to 5 psi	14 kPa to 34 kPa	Replacement for VP531A1087 and VP531A1095	3-10 psi spring is packed in box
VP531C1042	O.D.: 7/8 in.; Nominal: 3/4 in.	O.D.: 22.2 mm; Nominal: 19.1 mm	Solder	2.6 Cv	2.24 Kv	70 psid at 20 psi (with 2 to 5 psi spring)	2 psi to 5 psi	14 kPa to 34 kPa	Replacement for VP531A1103 and VP531A1111	3-10 psi spring is packed in box
VP531C1059	O.D.: 7/8 in.; Nominal: 3/4 in.	O.D.: 22.2 mm; Nominal: 19.1 mm	Solder	3.3 Cv	2.85 Kv	70 psid at 20 psi (with 2 to 5 psi spring)	2 psi to 5 psi	14 kPa to 34 kPa	Replacement for VP531A1129 and VP531A1137	3-10 psi spring is packed in box
VP531C1067	1/2 in.	12.7 mm	NPT	2.3 Cv	1.99 Kv	70 psid at 20 psi (with 2 to 5 psi spring)	2 psi to 5 psi	14 kPa to 34 kPa	Replacement for VP531A1020 and VP531A1038	3-10 psi spring is packed in box

Pneumatic Valve Accessories

Product Number	Description	Used With
14002864-001	Valve rebuild kit for 1/2 to 3/4 in valves with Cv of 4 or less	VP512
14003102-001	Replacement top assembly	VP526; VP525; VP527; VP531
14003115-001	Valve rebuild kit for 1/2 in. valves with 2 Cv or less. Not for Solder Bodies.	VP525A
14003116-001	Valve rebuild kit for 3/4 in. valves with 2 Cv or less valves. Not for Solder Bodies.	VP525A
14003117-001	Valve rebuild kit for 3/4 in. valves with 3 Cv. Not for Solder Bodies.	VP525A
14003118-001	Valve rebuild kit for 3/4 in. valves with 5 Cv. Not for solder bodies.	VP525A
14003119-001	Valve rebuild kit for 1/2 in. valves with 3 Cv. Not for solder bodies.	VP525A
14003310-001	Stem assembly for valves with 1.6 Cv	VP531A
14003311-001	Stem assembly for valves with 2.3 or 2.6 Cv	VP531A
14003312-001	Stem assembly for valves with 3.3 Cv	VP531A
14003313-001	Base	VP526A; VP527A; VP525A,C; VP531A,C
14003315-001	Gland	VP526A; VP527A; VP525A,C; VP531A,C
14003373-001	Rep Bonnet Assembly	VP513A
14004553-003	Stem & plug Assembly for valves with 2.0 Cv	VP525A
14004554-003	Stem & plug Assembly for valves with 3.0 Cv	VP525A
14004555-003	Stem & plug Assembly for valves with 5.0 Cv	VP525A
14003381-001	Brass Hex Bonnet, 1 3/8 diameter	VP526A; VP527A
14003648-001	Vandalism Resistant Assembly, Cover assembly with 1/8 in NPT air Connection and push-in retainer to replace standard Cover	VP526A; VP527A; VP525A,C; VP531A,C
14003873-001	Red Spring, 2 to 5 psi	VP526A
14004932-001	Pneumatic Valve Adapter (M6410/M7410 linkage and a green main spring to allow to retrofit an electric actuator)	VP525; VP527; VP531
312817AA	Actuator Assembly, 3 to 8 psi, 21 to 55 kPa, and 1/2 in. stroke.	VP513; VP517; VP512
312817AB	Actuator Assembly, 6 to 11 psi, 41 to 76 kPa and 1/2 in. stroke.	VP513; VP517; VP512
312817S	Actuator for VP522A1039, VP522A1047, VP522A1237	VP522A1039; VP522A1047; VP522A1237
312817T	Actuator assembly, 3 to 10 psi, 21 to 69 kPa, and 1/2 in. stroke.	VP517A; VP513A

Pneumatic Valves

Product Number	Description	Used With
312817U	Actuator Assembly, 3 to 7 psi, 21 to 48 kPa, and 1/2 in. stroke.	VP517A; VP513A
312817V	Actuator Assembly, 8 to 12 psi, 55 to 83 kPa, and 1/2 in. stroke.	VP513
312817W	Actuator for VP522B1003	VP522B1003
312817Y	Actuator assembly for VP522B1011 and VP522B1029	VP522B1011; VP522B1029
313241A	Disc holder for VP513A	VP513A
313824A	Rebuild kit, include Stem and Disc holder, button with screw, packing and instruction, VP522A1005	VP522A1005
314459A	Rebuild kit, include Stem and Disc holder, button with screw, packing and instruction, VP522A1039	VP522A1039
314459B	Rebuild kit, includes stem and disc holder, Button with screw, packing and instructions, VP522A1047	VP522A1047
315407A	Rebuild kit, include Stem and Disc holder, button with screw, packing and instruction for the VP522B1003	VP522B1003
316027/0042	Green Spring, 2 to 5 psi	VP525; VP527; VP531
316324A	Disc holder assemble for VP527A1026 and VP527A1067	VP527A1026; VP527A1067
CCT3833	Valve Seat Removal Wrench for 5/8 in. OD (1/2 in. nominal) and 7/8 in. OD (3/4 in. nominal) VP513B; VP517A; VP522A, B; VP526 Valves	VP517A; VP513B; VP526; VP522A, B
CCT3843	Valve Seat Removal Wrench for 1/2 in. OD (3/8 in. nominal) VP522; VP526 Valves	VP526; VP522

Pneumatic Valve Replacement Parts

Product Number	Description	Used With
1400639-001	Washer	VP526
14001046-004	Fastener	VP526A; VP527A; VP525A,C; VP531A,C
14002560-002	Stem and Disk Assembly	VP527A1018; VP527A1059
14002560-004	Stem and Disk Assembly	VP527A1034; VP527A1075
14002560-006	Stem and Disk Holder Assembly. For 0.63 Cv VP525 Valve	VP525
14002560-007	Repair stem assembly for 1/2 inch, 2.0 Cv VP525C or to Upgrade, 2.0 Cv VP525A	VP525A; VP525C
14002560-008	Repair stem assembly for 1/2 and 3/4 inch, 3.0 Cv VP525C or to Upgrade 1/2 and 3/4 inch, 3.0 Cv VP525A	VP525A; VP525C
14002560-009	Repair stem assembly for 3/4 inch, 5.0 Cv VP525C or to Upgrade, 5.0 Cv VP525A	VP525A; VP525C
14002560-010	Repair stem assembly, 1.6 Cv VP531C or to Upgrade, 1.6 Cv VP531A	VP531A; VP531C
14002560-011	Repair stem assembly for 2.6 Cv VP531C or to Upgrade 2.6 Cv VP531A	VP531A; VP531C
14002560-012	Repair stem assembly for 3.3 Cv VP531C or to Upgrade 3.3 Cv VP531A	VP531A; VP531C
14002560-013	Repair stem assembly for 1/2 inch, 0.63 Cv VP525C or to Upgrade, 0.63 Cv VP525A	VP525A; VP525C
14002863-001	Valve rebuild kit for 3/4 to 1 1/4 in valves with Cv of 6.3 or 10	VP512
14003297-001	Valve repack kit for VP526A, VP527A, or VP531A valves with 3/16 inch stem	VP526A; VP527A; VP531A
14003297-002	Teflon packing kit for VP531C or VP531A upgrade valves	VP531A; VP531C
14003299-001	Repair Top & Insert for 5/8 in. OD, 1.6 Cv VP525A solder body	VP525A
14003300-001	Repair Top & Insert for 7/8 in. OD, 2.5 Cv VP525A solder body	VP525A
14003308-001	Valve Bonnet	VP531A; VP531C
14003314-001	1 1/4 inch hex stainless steel Bonnet nut, Finish zinc plate with Dichromate treatment.	VP531A; VP531C
14003352-001	Seal washer, 1 1/64 outside diameter X 7/8 inside diameter	VP531A; VP531C
14003382-001	Brass Hex Bonnet 1-1/2 in. diameter	VP526A; VP525C
14003475-001	Valve Rebuild Kit for 1/2 in. valve with 0.4 or 0.63 Cv	VP527A
14003476-001	Valve Rebuild Kit for 1/2 in. valve with 1 or 1.6 Cv	VP527A
14004845-001	Green Packing Spring	VP525A; VP525C; VP531C;
14004897-001	Repair Top & Insert for 1/2 inch NPT, 0.63 Cv VP525C or to upgrade 1/2 NPT, 0.63 Cv VP525A	VP525A; VP525C
14004897-002	Repair Top & Insert for 1/2 inch NPT, 2.0 Cv VP525C or to upgrade 1/2 NPT, 2.0 Cv VP525A	VP525A; VP525C
14004897-003	Repair Top & Insert for 3/4 inch NPT, 3.0 Cv VP525C or to upgrade 3/4 NPT, 3.0 Cv VP525A	VP525A; VP525C
14004897-004	Repair Top & Insert for 3/4 inch NPT, 5.0 Cv VP525C or to upgrade 3/4 NPT, 5.0 Cv VP525A	VP525A; VP525C

Pneumatic Valves

Product Number	Description	Used With
14004898-001	Repair Top & Insert for NPT and Solder body, 1.6 Cv VP531C or to upgrade NPT and solder body, 1.6 Cv VP531A	VP531A; VP531C
14004898-002	Repair Top & Insert for NPT and Solder body, 2.3 and 2.6 Cv VP531C or to upgrade NPT and solder body, 2.3 and 2.6 Cv VP531A	VP531A; VP531C
14004898-003	Repair Top & Insert for NPT and Solder body, 3.3 Cv VP531C or to upgrade NPT and solder body, 3.3 Cv VP531A	VP531A; VP531C
310135	Packing Spring, 1 Required	VP513A,B; VP522A,B
310137	Spacer for VP513 or VP517 Valves	VP513A,B; VP522A,B
310143	Black Packing, 3 required	VP513A,B; VP522A,B
310208	White Packing	VP525C; VP531C
312826	O-Ring	—;
313051	1/2 inch valve Union Nut for VP525	VP501; VP500; VP525A,C
313052	3/4 inch valve Union Nut for VP525	VP501; VP500; VP525A,C
313102	Disc for VP513A Valves	VP513A
313744A	Actuator Replacement Assembly for the VP519 Valve	VP519C
314482	Stainless Steel Stem for 1/4 inch VP517A Valves	VP522A; VP517A
314526	Orange Spring with Blue stripe, 3 to 10 psi, 1/2 in. stroke	VP517A; VP513A; 312817T
315800A	O-Ring for VP513B, VP525, VP527 or VP531 Valves	VP513B; VP525; VP527; VP531
315911/0021	Cup with keyhole for VP525, VP526, VP527, VP531	VP526A; VP527A; VP525A,C; VP531A,C
315913/0041	Orange Spring, 3 to 10 psi for VP525, VP526, VP527, VP531	VP526A; VP527A; VP525A,C; VP531A,C
315917	Diaphragm	VP526A; VP527A; VP525A,C; VP531A,C
315939	Spring	VP513B
316026	Yellow Spring, 8-11 psi	VP526A
316207	Stem for VP526A	VP526A
316208	Valve Seat	VP526A
316209	Plug 1.0 Cv	VP526A
316210	Plug for VP526	VP526A1118, VP526A1076, VP526A1092
316322	Plug	VP527A1026; VP527A1067
316336	Disc	VP527A1026; VP527A1067
320047	Retaining Ring	VP526A

Pneumatic Gauges

Gauges for Pneumatics

Product Number	Description
14004904-001	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (-40 to 160 F), ± 2% accuracy. Replaces 14506495-001(gauge) + 14505846-001
14004904-002	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (0 to 200 F), ± 2% accuracy. Replaces 4506495-001(gauge) + 14505846-002
14004904-003	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (40 to 240 F), ± 2% accuracy, Replaces 14506495-001(gauge) + 14505846-003
14004904-004	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (3 to 15 psi), ± 2% accuracy, Replaces 14506495-001(gauge) + 14505846-022
14004904-005	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (0 to 20 psi), ± 2% accuracy, Replaces 14506495-001(gauge) + 14505846-023
14004904-006	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (25 to 125 F), ± 2% accuracy, Replaces 14506495-001(gauge) + 14505846-004
14004904-007	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (50 to 100 F), ± 2% accuracy, Replaces 14506495-001(gauge) + 14505846-005
14004904-008	2-1/2 in. diameter, Pneumatic Receiver gauge (-20 to 80 F), ± 2% accuracy
14004904-009	2-1/2 in. diameter, Pneumatic Receiver gauge (0 to 2 in. wc), ± 2% accuracy
14004904-010	2-1/2 in. diameter, Pneumatic Receiver gauge (15 to 85% RH), ± 2% accuracy
14004904-011	2-1/2 in. diameter, Pneumatic Receiver gauge (15 to 75% RH), ± 2% accuracy
14004904-012	2-1/2 in. diameter, Pneumatic Receiver gauge (15 to 95% RH), ± 2% accuracy
14004904-101	2-1/2 in. diameter, Pneumatic Receiver gauge (-40 to 160 F), ± 1% accuracy. Replaces 14506495-101(gauge) + 14505846-001
14004904-102	2-1/2 in. diameter, Pneumatic Receiver gauge (0 to 200 F), ± 1% accuracy. Replaces 14506495-101(gauge) + 14505846-002
14004904-103	2-1/2 in. diameter, Pneumatic Receiver gauge (40 to 240 F), ± 1% accuracy. Replaces 14506495-101(gauge) + 14505846-003
14004904-104	2-1/2 in. diameter, Pneumatic Receiver gauge (3 to 15 psi), ± 1% accuracy. Replaces 14506495-101(gauge) + 14505846-022
14004904-105	2-1/2 in. diameter, Pneumatic Receiver gauge (0 to 20 psi), ± 1% accuracy. Replaces 14506495-101(gauge) + 14505846-023
14004904-106	2-1/2 in. diameter, Pneumatic Receiver gauge (25 to 125 F), ± 1% accuracy. Replaces 14506495-101(gauge) + 14505846-004
14004904-107	2-1/2 in. diameter, Pneumatic Receiver gauge (50 to 100 F), ± 1% accuracy. Replaces 14506495-101(gauge) + 14505846-005
14004905-001	3-1/2 in. diameter, Pneumatic Receiver gauge (-40 to 160 F), ± 2% accuracy
14004905-002	3-1/2 in. diameter, Pneumatic Receiver gauge (0 to 200 F), ± 2% accuracy. Replaces 14506496-001(gauge) + 14505846-102
14004905-003	3-1/2 in. diameter, Pneumatic Receiver gauge (40 to 240 F), ± 2% accuracy. Replaces 14506496-001(gauge) + 14505846-103
14004905-004	3-1/2 in. diameter, Pneumatic Receiver gauge (3 to 15 psi), ± 2% accuracy. Replaces 14506496-001(gauge) + 14505846-122
14004905-005	3-1/2 in. diameter, Pneumatic Receiver gauge (0 to 20 psi), ± 2% accuracy. Replaces 14506496-001(gauge) + 14505846-123
14004905-006	3-1/2 in. diameter, Pneumatic Receiver gauge (25 to 125 F), ± 2% accuracy. Replaces 14506496-001(gauge) + 14505846-104
14004905-007	3-1/2 in. diameter, Pneumatic Receiver gauge (50 to 100 F), ± 2% accuracy. Replaces 14506496-001(gauge) + 14505846-105
14004905-008	3-1/2 in. diameter, Pneumatic Receiver gauge (-20 to 80 F), ± 2% accuracy
14004905-009	3-1/2 in. diameter, Pneumatic Receiver gauge (0 to 2 in. wc), ± 2% accuracy
14004905-010	3-1/2 in. diameter, Pneumatic Receiver gauge (15 to 85% RH), ± 2% accuracy
14004905-011	3-1/2 in. diameter, Pneumatic Receiver gauge (15 to 75% RH), ± 2% accuracy
14004905-012	3-1/2 in. diameter Pneumatic Receiver gauge (15 to 95% RH), ± 2% accuracy
14004905-101	3-1/2 in. diameter, Pneumatic Receiver gauge (-40 to 160 F), ± 1% accuracy. Replaces 14506496-101(gauge) + 14505846-101
14004905-102	3-1/2 in. diameter, Pneumatic Receiver gauge (0 to 200 F), ± 1% accuracy. Replaces 14506496-101(gauge) + 14505846-102
14004905-103	3-1/2 in. diameter, Pneumatic Receiver gauge (40 to 240 F), ± 1% accuracy. Replaces 14506496-101(gauge) + 14505846-103
14004905-104	3-1/2 in. diameter, Pneumatic Receiver gauge (3 to 15 psi), ± 1% accuracy. Replaces 14506496-101(gauge) + 14505846-122
14004905-105	3-1/2 in. diameter, Pneumatic Receiver gauge (0 to 20 psi), ± 1% accuracy. Replaces 14506496-101(gauge) + 14505846-123
14004905-106	3-1/2 in. diameter, Pneumatic Receiver gauge (25 to 125 F), ± 1% accuracy. Replaces 14506496-101(gauge) + 14505846-104
14004905-107	3-1/2 in. diameter, Pneumatic Receiver gauge (50 to 100 F), ± 1% accuracy. Replaces 14506496-101(gauge) + 14505846-105
305911	Gauge, 2 in., 0-160PSI, 1/8 in. NPT
305912	Gauge, 0-100PSI, 2 in., 1/8 in. NPT
305914	2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with ± 3% accuracy
305917	2 in. diameter, 1/4 NPT center stem back mount Pressure Indicating gauge (0 to 160 psi scale) with ± 3% accuracy
305923	1-1/2 in. diameter, 1/8 NPT stem on bottom mount Pressure Indicating gauge (0 to 30 psi scale) with ± 4% accuracy
305925	Gauge, 0-30 PSI, 2 in., 1/8 in. NPT
305935	3-1/2 in. diameter, surface mounted 1/8 NPT stem on bottom Receiver gauge (-40 to +160 F scale) with ± 2% accuracy

Pneumatic Accessories





Product Number	Description
305986	Receiver Gauge. -20 to 80 F scale 1-1/2 in. diameter, 1/2 NPT connection
804190C	3-1/2 in. diameter, panel-mounted Pneumatic Pressure Indicating Gauge (0 to 60 psi), 1/8 in. NPT connection, ±3% accuracy
804191B	2-1/2 in. diameter, panel-mounted Pneumatic Pressure Indicating Gauge (0 to 30 psi), 1/4 in. barbed connection, ±3% accuracy
804191C	2-1/2 in. diameter, panel-mounted Pneumatic Pressure Indicating Gauge (0 to 60 psi), 1/8 in. NPT connection, ±3% accuracy
804191E	2-1/2 in. diameter, panel-mounted Pneumatic Pressure Indicating Gauge (0 to 160 psi), 1/8 in. NPT connection, ±3% accuracy

Pneumatic Accessories











Product Number	Description	Used With
14002913-003	External Restriction Assembly. 0.007 in. Restriction, Red, Inlet 1/4 in; Outlet 1/4 in. and 5/32 in.	LP907
14002913-004	External Restriction Assembly. 0.005 in. Restriction, Blue Inlet 1/4 in; Outlet 5/32 in. and 5/32 in.	—
14002913-005	External Restriction Assembly. 0.007 in. Restriction, Blue Inlet 1/4 in; Outlet 5/32 in. and 5/32 in.	—
14002913-007	External Restriction Assembly. 0.013 in. Restriction, Gray and Red, Inlet 1/4 in; Outlet 1/4 in. and 1/4 in.	—
14002914-001	Internal Restriction Assembly, 0.005 in. Restriction, Blue	RP975; SP970
14002914-002	Internal Restriction Assembly, 0.013 in. Restriction, Gray	—
14002914-004	Internal Restriction Assembly, 0.008 in. Restriction, Red	—
14003078-004	Three position switch, same as SP470A1018 without the scaleplate	SP470A1018
14003428-001	Amber tint filter bowl 4 1/64 inch long x 2 59/64 inch diameter including Bushing (313003)	WP251A
14003519-001	0-30 psi Gauge Kit with Fittings for Copper or Poly Tubing	—
14003567-001	Barbed cap with liner of low density polyethylene	14002913
14004239-001	Total air flow pick-up Tube assembly	PP904A
14004441-003	Bag assembly, with Spring [silver] (14001992-001) window [vertical. Logo] (14004405-001), window [horizontal. Logo] (14004405-002), window [vertical. 60-90] (14004405-005), 1 window [horizontal. 60-90] (14004405-014)	—
14004441-015	Bag assembly with window [vertical. Logo], window [horizontal. Logo], window [vertical. 60-90], window [horizontal. 60-90], Cover insert, setpoint, and window [vertical. 60-90]	—
14004559-001	Adaptor assemblies consisting of 5/32 in. tube and 5/32 to 1/4 in. barb fitting for TP970 connections	Pneumatic Fittings
14004596-004	1 1/4 in. Bonnet for V5011/V5013	V5011; V5013
14501547-001	ISD Central relay panel	—
14501600-001	Resistor Assembly PPK, End of Line Resistor, 1.91K Ohms Single Zone Fire Alarm Panels	—
14501600-003	Resistor Assembly PPK, End of Line Resistor, 1.91K Ohms Single Zone Fire Alarm Panels	—
14502286-003	Plate for SC 806	SC806
14502412-005	Lightning Suppressor for Lighting Products	—
14502412-006	Lightning Suppressor for Lighting Products	—
14502412-009	Lightning Suppressor for Lighting Products	—
14502412-010	Lightning Suppressor for Lighting Products	—
14502412-011	Lightning Suppressor for Lighting Products	—
14502412-012	Lightning Suppressor for Lighting Products	—
14502412-014	Lightning Suppressor for Lighting Products	—
14505159-001	Tamper Switch for Cabinet	—
14505393-001	Isolation Transformer, 24V/50-60 Hz	—
14505928-001	Lock & Key for Cabinet	—
14506587-004	Base for TC804, TC805 Smoke Detector	—
14506635-001	Rough-in Ring, for Half-sized (18 in. x 18 in.) Standard Cabinet (19 in. x 24 in. x 9 in.).	—
14506635-002	Rough-in Ring for Full-sized (36 in. x 36 in.) Standard Cabinet (38 in. x 24 in. x 9 in.).	—
14506636-001	Door with Lock for Half-sized (18 in. x 18 in.) Standard Cabinet.	—
14506636-002	Door with Lock for Full-sized (36 in. x 36 in.) Standard Cabinet.	—
15753207-004	Back Coverplate for Half-sized (18 in. x 18 in.) Standard Cabinet.	—
301572A/0767	Thermostat Key	—
310418A	Pneumatic External Adjustable Restrictor	—
310543	Seat, Valve, Removable, V5005	—
311680	Plug, Orifice, Rubber, TP, LP Thermostats	—
314963	Spring	—

Pneumatic Accessories









Product Number	Description	Used With
315559E	Pneumatic "Tee" Restrictor	—
316134B	PP901A & B Diaphragm Repair Kit	PP901A,B
316203A	Pressure Regulator Valve Assembly, PP901A & PP901B, PP902A,B.	—
802550	Toggle Switch	—

Product Number	Description	Used With	
AK3052W1C	Pneumatic Tubing, Polyethylene Flame Retardant Plastic (5/32 in. O.D. x 0.030 in. wall thickness), Carton qty = 3000 ft	—	
AK3053W1C	Pneumatic Tubing, Polyethylene Flame Retardant Plastic (1/4 in. O.D. x 0.040 in. wall thickness), Black with Colored Markings, without Fittings, Carton qty = 1500 ft	—	
AK3056C	Pneumatic Tubing, Polyethylene Flame Retardant Plastic (3/8 in. O.D. x 0.062 in. wall thickness), Black with 1 through 2 White Markings, without Fittings, Carton qty = 1000 ft	—	
AK3061C	Pneumatic Tubing, Polyethylene Flame Retardant Plastic (1/2 in. O.D. x 0.062 in. wall thickness), Black with 1 through 2 White Markings, without Fittings, Carton qty = 500 ft	—	
AK3071A	3/8 in. White Stripes	—	
AK3071B	3/8 in. Red Stripes	—	
AK3071D	3/8 in. Yellow Stripes	—	
AK3071G	3/8 in. Violet Stripes	—	
AK3240C	Polyethylene Pneumatic Twin Tubing, includes two 5/32 in. O.D. x 0.030 in. Wall Thickness Tubings, Black with Joining Web without Fittings, Carton qty = 1000 ft	—	
AK3241C	Polyethylene Pneumatic Twin Tubing, includes two 1/4 in. O.D. x 0.040 in. Wall Thickness Tubings, Flame Retardant, Black with Joining Web without Fittings, Carton qty = 5000 ft	—	
AK3470B	Condensate Trap, 1/2 in., for 1 h.p. or larger compressors	—	
AK3470C	Condensate Trap, 3/8 in., for 3/4 h.p. or smaller compressors	—	
AK3486	Coalescing In-line Pneumatic Filter Kit includes Two Filters with integral barbed fitting for individual devices	—	
AK3997	Free Standing Mounting Kit for one General Purpose Cabinet	—	
ARR262	Miniature Pressure Regulator (0-125 psi Range), no gauge	—	
ARR262-S31	Miniature Pressure Regulator (0-125 psi Range), includes 0-160 psi gauge	—	
ARR262-S32	Miniature Pressure Regulator (0-60 psi Range), includes 0-60 psi gauge	—	
ARR262-S34	Arrow PRV 0-60	—	
ARR262I	Miniature Pressure Regulator (0-20 psi Range), no gauge	—	
ARRBK1611	Arrow PRV	—	
CCT1421	1/4 in. Brass Compression Union	—	
CCT1435T	Pneumatic Fitting - 1/4 in. x 1/8 in. NPT Brass Compression Adapter to NPT,	—	
CCT1529	Pneumatic Fitting - 1/4 in. Brass Compression Tee,	—	
CCT1531	Pneumatic Fitting - 3/8 in. Brass Compression Tee,	—	
CCT1532	Pneumatic Fitting - 1/2 in. Brass Compression Tee,	—	

Pneumatic Accessories

Product Number	Description	Used With	
CCT1571	Pneumatic Fitting - 1/4 in. Plastic Ferrule (white) for use with plastic tubing and standard compression fittings,	—	
CCT1572	Pneumatic Fitting - 3/8 in. Plastic Ferrule (white) for use with plastic tubing and standard compression fittings,	—	
CCT1573	Pneumatic Fitting - 1/2 in. Plastic Ferrule (white) for use with plastic tubing and standard compression fittings,	—	
CCT1575	Pneumatic Fitting - 1/4 in. Brass Insert for Plastic Tubing,	—	
CCT1576	Pneumatic Fitting - 3/8 in. Brass Insert for Plastic Tubing,	—	
CCT1577	Pneumatic Fitting - 1/2 in. Brass Insert for Plastic Tubing,	—	
CCT1589B	Pneumatic Fitting - 1/4 in.x1/8 in. FPT 90 Barbed Female Street Ells,	—	
CCT1590BT	Pneumatic Fitting - 1/4 in. Barbed x 1/8 in. NPT Male Adapter, Taped,	—	
CCT1594B	Pneumatic Fitting - 1/4 in. Barbed x 1/8 in. FPT Female Adapter,	—	
CCT1595BT	Pneumatic Fitting - 1/4 in. barbed x 1/8 in. NPT 90 Barbed Male Street Ells,	—	
CCT1598B	Pneumatic Fitting - 3/8 in. barbed x 3/8 in. barbed 90 Elbow	—	
CCT1599BT	Pneumatic Fitting - combination 5/32 in. and 1/4 in. Barbed x 1/8 in. NPT Male Adapter,	—	
CCT1602	Pneumatic Fitting - In-line gauge Tee (5/32 in. barbed x 5/32 in. barbed x 1/8 in. FPT),	—	
CCT1606B	Pneumatic Fitting - 5/32 in. barbed x 1/4 in. barbed (brass) plastic tubing coupling, reducing,	—	
CCT1607B	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. barbed (brass) plastic tubing coupling,	—	
CCT1608B	Pneumatic Fitting - 3/8 in. barbed x 3/8 in. barbed (brass) plastic tubing coupling,	—	
CCT1610B	Pneumatic Fitting - 3/8 in. barbed x 1/4 in. barbed (brass) plastic tubing coupling,	—	
CCT1611B	Pneumatic Fitting - 1/2 in. barbed x 3/8 in. barbed (brass) plastic tubing coupling,	—	
CCT1612B	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. barbed x 1/4 in. barbed (brass) Straight Tee,	—	
CCT1613B	Pneumatic Fitting - 3/8 in. barbed x 3/8 in. barbed x 3/8 in. barbed (brass) Straight Tee,	—	











Pneumatic Accessories

Product Number	Description	Used With	
CCT1614B	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. barbed x 1/8 in. FPT In-line gauge Tee,	—	
CCT1615B	Pneumatic Fitting - 3/8 in. barbed x 3/8 in. barbed x 1/4 in. barbed Reducing Tee,	—	
CCT1616B	Pneumatic Fitting - 1/2 in. barbed x 1/2 in. barbed x 1/4 in. barbed Reducing Tee,	—	
CCT1617B	Pneumatic Fitting - 1/2 in. barbed x 1/2 in. barbed (brass) plastic tubing coupling,	—	
CCT1618B	Pneumatic Fitting - 1/2 in. barbed x 1/2 in. barbed x 3/8 in. barbed Reducing Tee,	—	
CCT1619B	Pneumatic Fitting - Bulkhead Barb, 1/4 in. barbed x 1/4 in. Compression Nuts (for panels 5/16 in. thick),	—	
CCT1620B	Pneumatic Fitting - 1/2 in. barbed x 1/2 in. barbed x 1/2 in. barbed (brass) Straight Tee,	—	
CCT1622	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. barbed x 1/8 in. FPT In-line gauge Tee with mounting tabs,	—	
CCT1623	Pneumatic Fitting - 1/4 in. Spring Clamp for Pneumatic Tubing,	—	
CCT1628B	Pneumatic Fitting - 5/32 in. barbed x 5/32 in. barbed (brass) plastic tubing coupling,	—	
CCT1629B	Pneumatic Fitting - 1/2 in. barbed x 1/4 in. barbed (brass) plastic tubing coupling,	—	
CCT1630B	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. barbed x 5/32 in. barbed Reducing Tee,	—	
CCT1631B	Pneumatic Fitting - 3/8 in. barbed x 3/8 in. barbed x 5/32 in. barbed Reducing Tee,	—	
CCT1633BT	Pneumatic Fitting - 1/4 in. Barbed x 1/4 in. NPT Male Adapter,	—	
CCT1635B	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. Compression Adapter,	—	




Pneumatic Accessories

Product Number	Description	Used With	
CCT1637B	Pneumatic Fitting - 5/32 in. barbed x 5/32 in. barbed x 5/32 in. barbed (brass) Straight Tee,	—	
CCT1640	Pneumatic Fitting - 1/4 in. Tubing Plug,	—	
CCT1641	Pneumatic Fitting - 5/32 in. barbed x 5/32 in. Brass barbed 90 Elbow,	—	
CCT1642	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. barbed 90 Elbow,	—	
CCT1643	Pneumatic Fitting - 1/4 in. barbed x 5/32 in. barbed 90 Elbow	—	
CCT1650	90 degree brass elbow	—	
CCT1692T	Pneumatic Fitting - 1/4 in. NPT x 1/8 in. FPT (brass) Pipe Bushing Taped,	—	
CCT1694T	Pneumatic Fitting - 3/8 in. NPT x 1/4 in. FPT Brass Reducing Pipe Bushing, Taped.	—	
CCT1696T	Pneumatic Fitting - 1/2 in. NPT x 1/4 in. FPT Brass Reducing Pipe Bushing, Taped.	—	
CCT1801	Pneumatic Fitting - Rubber Cap for 1/4 in. O.D. Pneumatic Tubing.	—	
CCT1802	Pneumatic Fitting - Rubber Grommet for 1/4 in. hole used to install capillary in duct	—	
CCT1807A	Plastic Cap for 3/8 in. Tubing.	—	
CCT1809	Pneumatic Fitting - Plastic Cap for 1/2 in. O.D. Pneumatic Tubing.	—	
CCT1815	Pneumatic Fitting - Aluminum Barb Plug for 5/32 in. x 5/32 in. O.D. Pneumatic Tubing (no air passage).	—	
CCT1820	Plastic Bushing for 1/2 in. EMP or K.O.	—	
CCT2083T	Pneumatic Fitting - Tank Valve with CCT2084 Cap, 1/8 in. NPT.	—	
CCT2085	Pneumatic Fitting - Gauge Adapter fits any standard 1/8 in. NPT gauge.	LP907	
CCT2090A	Air Check Diode Valve 1/4 in. O.D. Brass, 1.2 SCFM.	—	
CCT2091	Pneumatic Fitting - Air Check Diode Valve FPT for 1/4 in. O.D. Pneumatic Tubing (4.4 scfm)	—	
CCT2092	Pneumatic Fitting - Air Check Diode Valve FPT for 3/8 in. O.D. Pneumatic Tubing (7.5 scfm)	—	
CCT2093	Pneumatic Fitting - Air Check Diode Valve FPT for 1/2 in. O.D. Pneumatic Tubing (12.7 scfm)	—	

Pneumatic Accessories

Product Number	Description	Used With	
CCT2127B	Pneumatic Fittings - 1/4 in. barbed x 1/4 in. barbed Pneumatic Needle Valve,	—	
CCT2564	Pneumatic Fittings - Plated Single Straps for 1/4 in. O.D. Copper Tubing,	—	
CCT2565	Pneumatic Fittings - Plated Single Straps for 3/8 in. O.D. Copper Tubing,	—	
CCT2566	Pneumatic Fittings - Plated Single Straps for 1/2 in. O.D. Copper Tubing,	—	
CCT2626	Pneumatic Fittings - Copper Gang Straps (6 in. wide) for 1/4 in. or 3/8 in. O.D. Copper Tubing,	—	
CCT2627	Pneumatic Fittings - Copper Gang Straps (36 in. wide) for 1/4 in. or 3/8 in. O.D. Copper Tubing,	—	
CCT2628	Pneumatic Fittings - Zinc-plated Steel Universal Gang Straps (24 in. wide) for 1/8 in. through 3/4 in. O.D. Copper Tubing,	—	
CCT2630	Pneumatic Fittings - Aluminum Universal Gang Straps (24 in. wide) for 1/8 in. through 3/4 in. O.D. Copper Tubing,	—	
CCT2762	Pneumatic Fittings - Adhesive Straps (1 in. wide) for 3/8 in. O.D. Tubing,	—	
CCT720B	Tubing Bender for 1/4 in. O.D. Pneumatic Tubing	—	
CCT722B	Tubing Bender for 3/8 in. O.D. Pneumatic Tubing	—	
CCT814	Slide Rule for Calculating Pneumatic Valve and Main Air Sizing	—	
CCT817C	Replacement gauge for the DSP3356 Pneumatic Control Calibration Kit	—	
CCT819	Proportional Band and Authority Setting Adjustment Tool for all RP920's	—	
CCT852	Pressure Bulb Assembly	—	
CCT853	Pneumatic Tubing for Test Equipment, 11/32 in. O.D. x 5/32 in. Latex Tubing (10 ft lengths)	—	
CCT948	Valve Seat Removal Wrench, 2 5/8 in. for V5011 and V5013 (2-1/2 in. Valves)	—	
CCT950	Tubing holder. This tubing holder is used in combination with CCT951 to insert 5/32 in. and 1/4 in. fittings in plastic tubing.	—	
CCT951	Fitting holder: This fitting holder is used in combination with CCT950 to insert 5/32 in. and 1/4 in. fittings in plastic tubing.	—	
CCT970	Thermometer Calibration Tool for Pneumatic Thermostats (TP970-family)	—	

Pneumatic Accessories

Product Number	Description	Used With	
DSP3356	Calibration Training Kit	—	
HKN03708008	Separator Drain, Assembly with 16 oz. Metal Bowl (for HKN8015)	—	
HKN03708304	Separator Drain. Assembly with 16 oz. Metal Bowl (for HKN8005, HKN8010, & HKN8210)	—	
HKN05417007	Drain Snap-Trap #05.4170-07	—	
HKN07132	Filter Cartridge for HKN13023 Oil Removal Filter	—	
HKN07341	Filter Sleeve Kit (for HKN8005, HKN8010 & HKN8210)	HKN8005; HKN8010; HKN8210	
HKN07342	Filter Sleeve Kit (for HKN8015, HKN8025 & HKN8035)	HKN8015; HKN8025; HKN8035	
HKN07444101	Separator/Drain. Cartridge (for HKN8005, HKN8010 & HKN8210)	HKN8005; HKN8010; HKN8210	
HKN17012	Bypass Valve Kit, 15 scfm	—	
HKN44604363	Filter Element, 40 microns with gaskets (for HKN8010, HKN8210, HKN8015, HKN8025 & HKN8210)	HKN8010; HKN8210; HKN8015; HKN8025	
HKN44604364	Filter Element, 40 microns with gaskets (for HKN8045, HKN8055, HKN8070 & HKN80100)	HKN8015; HKN8045; HKN8055; HKN8070; HKN80100	
HKN59301891	High Temperature Sensor, thermo-disc (for HKN8005, HKN8010, HKN8015, HKN8025 & HKN8210)	HKN8005; HKN8010; HKN8210; HKN8015; HKN8025	
HKN61052391	Fan Motor (for HKN8010, HKN8210, HKN8015, HKN8025 & HKN8035, 115VAC/1phase/60Hertz Models only)	HKN8010; HKN8210; HKN8015; HKN8025; HKN8035	
HKN63504548	Dual Light Assembly (for HKN8010, HKN8210, HKN8015, HKN8025 & HKN8035, 115VAC/1phase/60Hertz Models only)	HKN8010; HKN8210; HKN8015; HKN8025; HKN8035	
HKNRDMK1	Maintenance Kit, Hankison Part No.RDMK1	—	
MJK100	Pneumatic Fittings Kit - Includes an assortment of fittings most often required for replacement or repair of pneumatic devices.	—	
MQP800	Pneumatic Calibration Kit with two 0-30 psi gauges	—	
P246A1009	Static Pressure Regulator	—	

Pneumatic Definitions and Abbreviations

Definitions and Abbreviations

Actuator (Damper)—A mechanical device that operates a final control element (e.g., valve, damper). **Actuator (Valve)**—The part of an automatic control valve that moves the stem up and down based on an electric, electronic, or pneumatic signal from a controller. For butterfly or other rotary valves, the actuator rotates the stem. The actuator and valve can be two separate devices or together they can be one device.

BLP—See Branchline pressure.

Body rating (actual)—The correlation between safe, permissible flowing fluid pressure and flowing fluid temperature of the valve body (exclusive of the packing, disc, etc.). The nominal valve body rating is the permissible pressure at a specific temperature.

EXAMPLE:

A cast iron, screwed-end valve has a 125 psi nominal body rating. The actual valve body ratings may be 125 psi at 380 F and 175 psi at 175 F.

Body rating (nominal)—The theoretical pressure rating, expressed in psi, of the valve body exclusive of packing, disc, etc. The nominal rating is often cast on the valve body and provides a way to classify the valve by pressure. A valve of specified body material and nominal body rating often has characteristics such as pressure-temperature ratings, wall thickness, and end connections which are determined by a society such as ANSI (American National Standards Institute). Figure 2 shows typical ANSI pressure-temperature ratings for valves. Note that the nominal body rating is not the same as the actual body rating.

Body—The valve casting through which the controlled fluid flows.

Bonnet—The part that screws to the top of the valve body and contains the packing that seals and guides the valve stem.

Branch line—The air line from a controller to the controlled device.

Branchline pressure (BLP)—A varying air pressure signal from a controller to an actuator, carried by the branch line. Can go from zero to full main line pressure.

British thermal unit (Btu)—The amount of heat required to raise one pound of water one degree Fahrenheit.

Btu—See British thermal unit.

Close-off rating of three-way valves—The maximum pressure difference between either of the two inlet ports and the outlet port for mixing valves, or the pressure difference between the inlet port and either of the two outlet ports for diverting valves.

Close-off rating—The maximum pressure drop that a valve can withstand without leakage while in the full closed position. The close-off rating is a function of actuator power to hold the valve closed against pressure drop, but structural parts such as the stem can be the limiting factor.

EXAMPLE:

A valve with a close-off rating of 10 psi could have 40 psi upstream pressure and 30 psi downstream pressure. Note that in applications where failure of the valve to close is hazardous, the maximum upstream pressure must not exceed the valve close-off rating, regardless of the downstream pressure.

The valve close-off rating is independent of the actual valve body rating. See definition of BODY RATING (ACTUAL) in this section.

Control point—The actual value of the controlled variable (setpoint plus or minus offset).

Control valve—A device used to control the flow of fluids such as steam, water, or air.

Controlled variable—The quantity or condition that is measured and controlled (e.g., temperature, relative humidity, pressure).

Controller—A device that senses the controlled variable (or receives an input signal from a remote sensing element), compares the signal with the setpoint, and outputs a control signal (branchline pressure) to an actuator.

Cv—See Flow coefficient.

DA—See Direct acting or Discharge air.

Damper—A device used to control the flow of air in a duct or through a wall louver.

Dew-point temperature—The temperature at which water vapor from the air begins to form droplets and settles or condenses on surfaces that are colder than the air. The more moisture the air contains, the higher its dew point temperature. When dry-bulb and wet-bulb temperatures of the air are known, the dew-point temperature can be plotted on the psychrometric chart.

Differential—A term that applies to two-position devices. The range through which the controlled variable must pass in order to move the final control element from one to the other of its two possible positions. The difference between cut-in and cut-out temperatures, pressures, etc.

Direct acting (DA)—A direct-acting thermostat or controller increases the branchline pressure on an increase in the measured variable and decreases the branchline pressure on a decrease in the variable. A direct-acting actuator extends on an increase in branchline pressure and retracts on a decrease in pressure.

Direction of flow—The correct flow of the controlled fluid through the valve is usually indicated on the valve body. If the flow of the fluid goes against the indicated direction, the disc can slam into the seat as it approaches the closed position. The result is excessive valve wear, hammering, and oscillations. In addition, the actuator must work harder to reopen the closed valve since it must overcome the pressure exerted by the fluid on top of the disc rather than have the fluid assist in opening the valve by exerting pressure under the disc.

Discharge air (DA)—Conditioned air that has passed through a coil. Also, air discharged from a supply duct outlet into a space.

Disc—The part of the plug assembly that contacts the valve seat to close off flow of the controlled fluid. Certain valve plug assemblies are built so the part of the assembly contacting the seat is replaceable. This type of plug is called a renewable disc plug assembly. Renewable discs are usually made of a composition material softer than metal. Valves with all metal or nonrenewable discs may have to be "ground in" to restore a damaged seating surface. Note that the term disc can mean both the plug and disc together.

Dry-bulb temperature—The temperature read directly on an ordinary thermometer as degrees Fahrenheit (F) or degrees Celsius (C).

Equal percentage—A valve which changes the existing flow an equal percentage (regardless of flow rate) for similar movements in stem travel (at any point in the flow range).

Final control element—A device such as a valve or damper that acts to change the value of the manipulated variable. Positioned by an actuator.

Pneumatic Definitions and Abbreviations

Flow coefficient (capacity index)—Used to state the flow capacity of a control valve for specified conditions. Currently, in this catalog, two flow coefficients Kv, or Cv are used. The flow coefficients have the following relationships:

$$A_v = 0.000240 C_v$$

$$K_v = 0.865 C_v$$

The flow coefficient Kv is water flow in cubic meters per hour with a static pressure loss across the valve of 10^5 pascals (1 bar) within the temperature range of 5 to 40 C and can be determined from the formula:

$$K_v = Q \sqrt{\frac{\Delta p_{K_v}}{\Delta p} \cdot \frac{\rho}{\rho_w}} \quad M2807$$

Where:

- Q = volumetric flow in cubic meters per hour.
- ρ = fluid density in kilograms per cubic meter.
- ρ_w = density of water in kilograms per cubic meter.
- Δp_{K_v} = static pressure loss of 10^5 pascals.
- Δp = static pressure loss across the valve in pascals.

The flow coefficient Cv is water flow in gallons per minute with a pressure loss across the valve of one pound per square inch within the temperature range of 40 to 100 F and can be determined for other conditions from the formula:

$$C_v = Q \sqrt{\frac{1}{\Delta p} \cdot \frac{\rho}{\rho_w}} \quad M2810$$

Where:

- Q = volumetric flow in US gallons per minute.
- ρ = fluid density in pounds per cubic foot.
- ρ_w = density of water in pounds per cubic foot within the temperature range of 40 to 100 F.
- Δp = static pressure loss across the valve in pounds per square inch.

K—Kelvin used in Standard International Units (SI) to express a temperature range.

Kv—See Flow coefficient.

Linear—A valve which provides a flow-to-lift relationship that is directly proportional. It provides equal flow changes for equal lift changes, regardless of percentage of valve opening. When plotted on rectilinear coordinates, the relationship approximates a straight diagonal line.

Linkage—A device which connects an actuator to a damper or control valve. To open and close a damper, the typical linkage consists of an actuator crankarm, balljoints, pushrod, and damper crank arm. In a valve application, the linkage connects the actuator to the valve and translates the rotary output of the actuator to the linear action of the valve stem.

M—See Main line.

MA—See Mixed air.

Main line (M)—The air line from the air supply system to controllers and other devices. Usually plastic or copper tubing.

Maximum pressure and temperature—The maximum pressure and temperature limitations of fluid flow that a valve can withstand. These ratings may be due to valve packing, body, or disc material or actuator limitations. The actual valve body ratings are exclusively for the valve body and the maximum pressure and temperature ratings are for the complete valve (body and trim). Note that the maximum pressure and temperature ratings may be less than the actual valve body ratings.

EXAMPLE:

The body of a valve, exclusive of packing, disc, etc., has a pressure and temperature rating of 125 psi at 380 F. If the valve contains a composition disc that can withstand a temperature of only

115 C, then the temperature limit of the disc becomes the maximum temperature rating for the valve.

Measuring element—Same as sensing element.

Mixed air (MA)—Typically a mixture of outdoor air and return air from the space.

mL/s—milliliters per second.

Modulating—Varying or adjusting by small increments. Also called “proportioning”.

Offset—A sustained deviation between the actual system control point and its controller setpoint under stable operating conditions. Usually applies to proportional (modulating) control.

Plug—The part that varies the opening for the fluid to flow through the valve body. The following describes the three most common types of plugs:

- A contoured plug has a shaped end that is usually end-guided at the top or bottom (or both) of the valve body. The shaped end controls fluid flow through the valve.
- A quick-opening plug is flat and is either end-guided or guided by wings riding in the valve seat ring. The flat plug provides maximum flow soon after it lifts from the valve seat.
- A V-port plug has a cylinder, called a skirt, that rides up and down in the valve seat ring. The skirt guides the plug and varies the flow area via its shaped openings.

Port—The opening in the valve seat.

Pressure drop (critical)—The flow of a gaseous controlled fluid through the valve increases as the pressure drop increases until reaching a critical point. This point is the critical pressure drop, denoted $\Delta P_{\text{Critical}}$.

$$\Delta P_{\text{Critical}} = 50\% \times P_1 \text{ (Absolute upstream pressure)}$$

When critical pressure is reached, any increase in pressure is dissipated in noise and cavitation rather than increase in flow. The noise and cavitation can destroy valve and adjacent piping components.

Pressure drop—The difference in upstream and downstream pressures of the fluid flowing through the valve. Pressure drop is denoted ΔP .

Proportional band—As applied to pneumatic control systems, the change in the controlled variable required to change the controller output pressure from 3 to 13 psi. Usually expressed as a percentage of sensor span.

Quick-opening—A valve which provides maximum possible flow as soon as the stem starts to lift the disc from the valve seat.

RA—See Reverse acting and Return air.

Relative humidity—The ratio of the measured amount of moisture in the air to the maximum amount of moisture the air can hold at the same temperature and pressure. Relative humidity is expressed in percent of saturation. Air with a relative humidity of 35, for example, is holding 35 percent of the moisture that it is capable of holding at that temperature and pressure.

Restrictor—A device in an air line that limits the flow of air.

Return air (RA)—Air from the conditioned space which is passed through the air handling unit and returned to the conditioned space.

Reverse acting (RA)—A reverse-acting thermostat or controller decreases the branchline pressure on an increase in the measured variable and increases the branchline pressure on a decrease in the variable. A reverse-acting valve actuator retracts on an increase in branchline pressure and extends on a decrease in pressure.

scfm—standard cubic feet per minute.

Seat—The stationary part of the valve body that has a raised lip to contact the valve disc when closing off flow of the controlled fluid.

Sensing element—A device that detects and measures the controlled variable (e.g., temperature, humidity).

Pneumatic Definitions and Abbreviations

Setpoint—The value on the controller scale at which the controller is set (e.g., the desired room temperature set on a thermostat). The desired control point.

Sling psychrometer—A device commonly used to measure the wet-bulb temperature. It consists of two identical thermometers mounted on a common base. The base is pivoted on a handle so it can be whirled through the air. One thermometer measures dry-bulb temperature. The bulb of the other thermometer is encased in a water-soaked wick. This thermometer measures wet-bulb temperature. Some models provide slide rule construction which allows converting the dry-bulb and wet-bulb readings to relative humidity.

Although commonly used, sling psychrometers can cause inaccurate readings, especially at low relative humidities, because of factors such as inadequate air flow past the wet-bulb wick, too much wick wetting from a continuous water feed, thermometer calibration error, and human error. To take more accurate readings, especially in low relative humidity conditions, motorized psychrometers are recommended.

Stem—The shaft that runs through the valve bonnet and connects an actuator to the valve plug.

Thermostat—A device that responds to changes in temperature and outputs a control signal (branchline pressure). Usually mounted on a wall in the controlled space.

Throttling range—Same as proportional band, except expressed in values of the controlled variable (e.g., degrees, percent relative humidity, pounds per square inch) rather than in percent.

Tight shut-off/close-off—A valve condition in which virtually no leakage of the controlled fluid occurs in the closed position. Generally, only single-seated valves provide tight shut-off. Double-seated valves typically have a one to three percent leakage in the closed position.

Trim—All parts of the valve that contact the controlled fluid. Trim includes the stem, packing, plug, disc, and seat; it does *not* include the valve body.

Wet-bulb temperature—The temperature read on a thermometer with the mercury bulb encased in a wet wick (stocking or sock) and with an air flow of 900 feet per minute across the wick. Water evaporation causes the temperature reading to be lower than the ambient dry-bulb temperature by an amount proportional to the moisture content of the air. The temperature reduction is sometimes called the evaporative effect. When the reading stops falling, the value read is the wet-bulb temperature.

The wet-bulb and dry-bulb temperatures are the easiest air properties to measure. When they are known, they can be used to determine other air properties on a psychrometric chart.

Product Selection Matrix for CE Sequence Primary/Programmer Relay Modules:

For 230 Vac nominal applications—

Fuel	Burner Type	Relay Module Type
Single	Atmospheric	EC7810
Single	Atmospheric with fan	EC7820
Combination or single	On/Off Controlled Power Burner	EC7830
Combination or single	Full Modulation Power Burner	EC7850

For 120 Vac nominal applications—

Fuel	Burner Type	Relay Module Type
Combination or single	On/Off Controlled Power Burner	RM7830
Combination or single	Full Modulation Power Burner	RM7850

Use the following pages to select the following *required* devices:

Relay Module, 1 per burner
Subbase, 1 per relay module
Purge Timer Card, 1 per relay module
Flame Amplifier, 1 per relay module

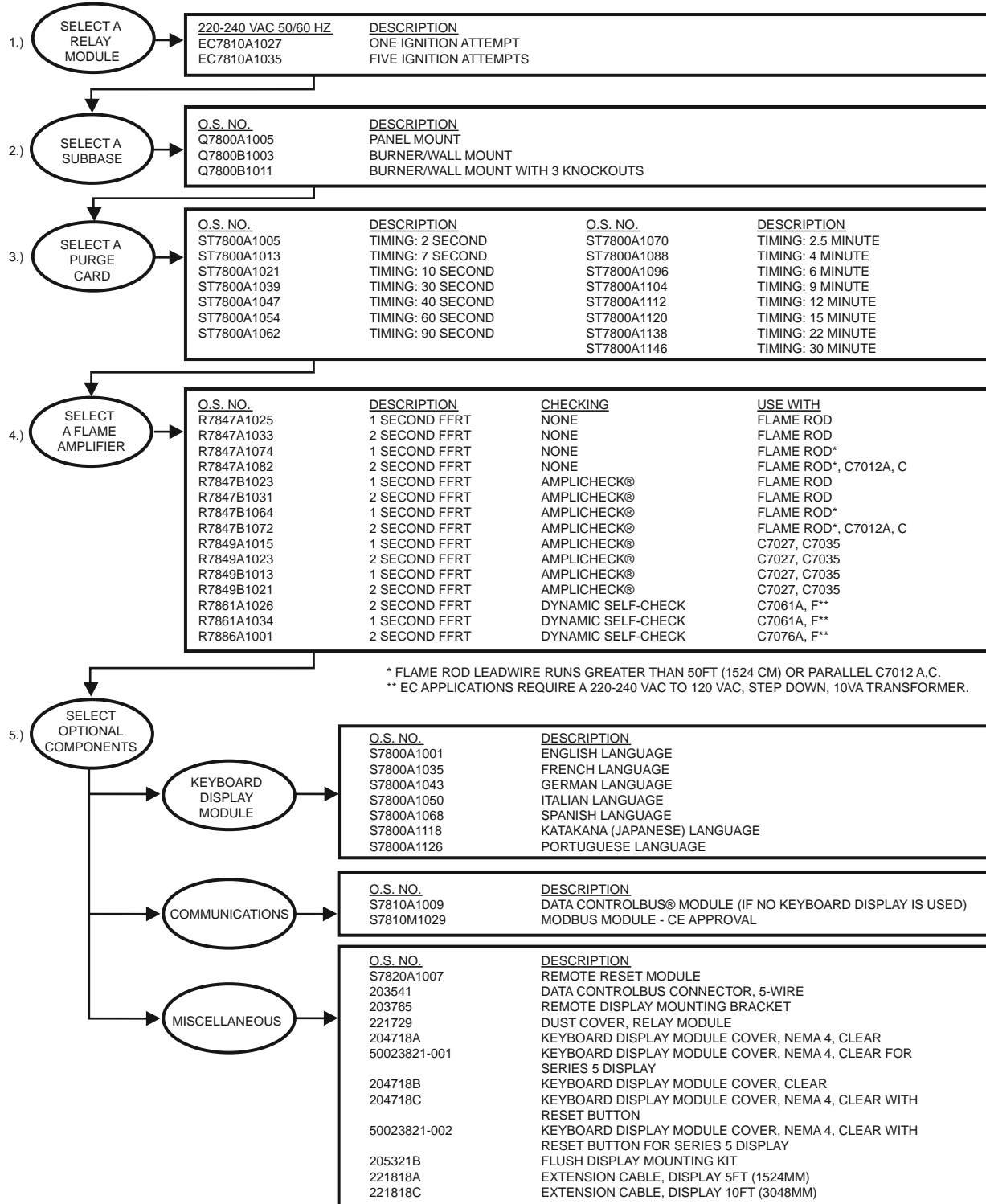
Some products are available only through Authorized Flame Safeguard Wholesalers and/or Distributors.

Use the following pages to select the following *optional* devices:

Keyboard Display module, up to 1 mounted to relay module, remote as desired
Communications, network and ControlBus™ modules to service selected relays
Miscellaneous, as required to complete installation

Product Selection Matrix

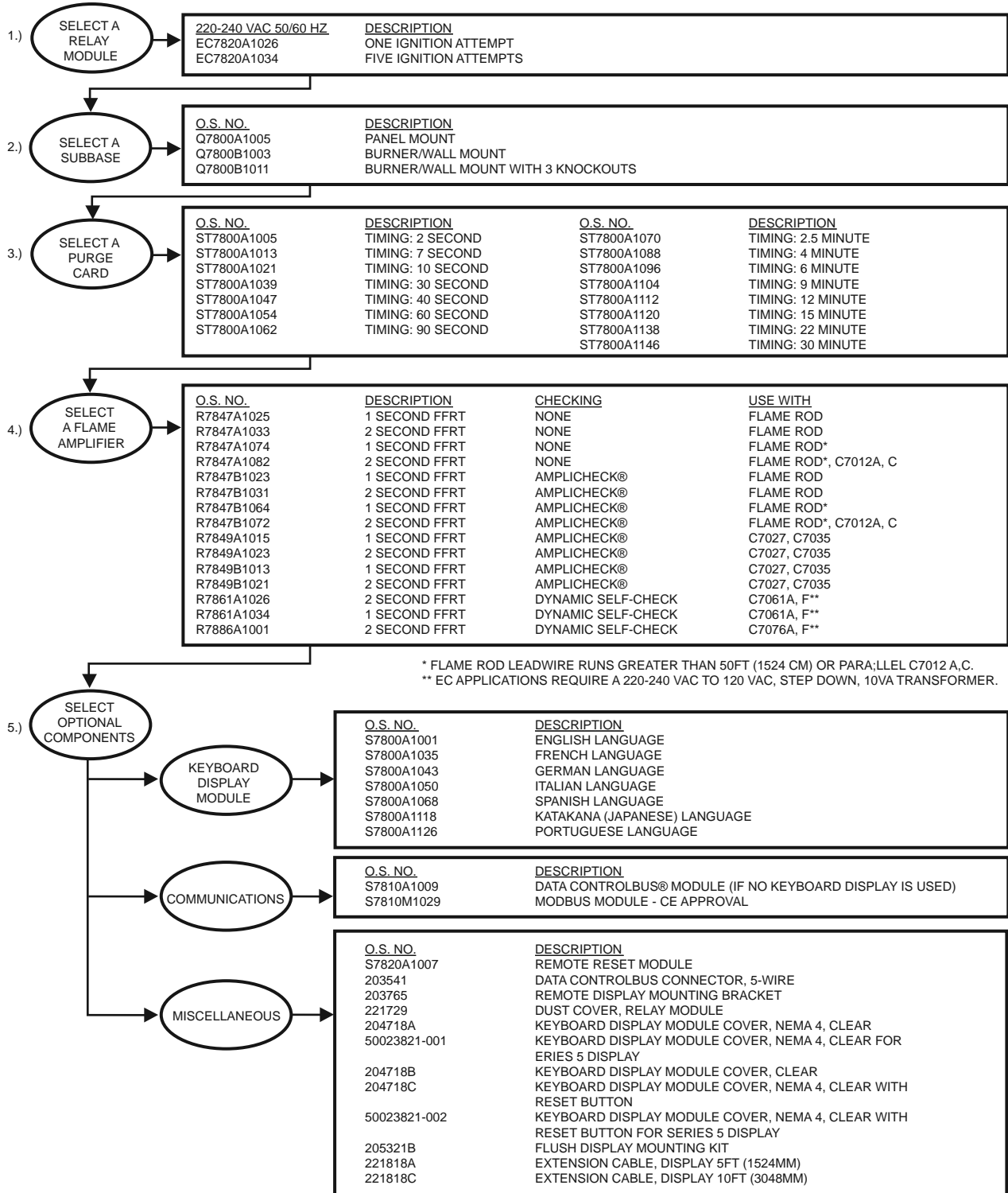
PRODUCT SELECTION MATRIX FOR EC7810 PROGRAMMER RELAY MODULES:



M15515F

Product Selection Matrix

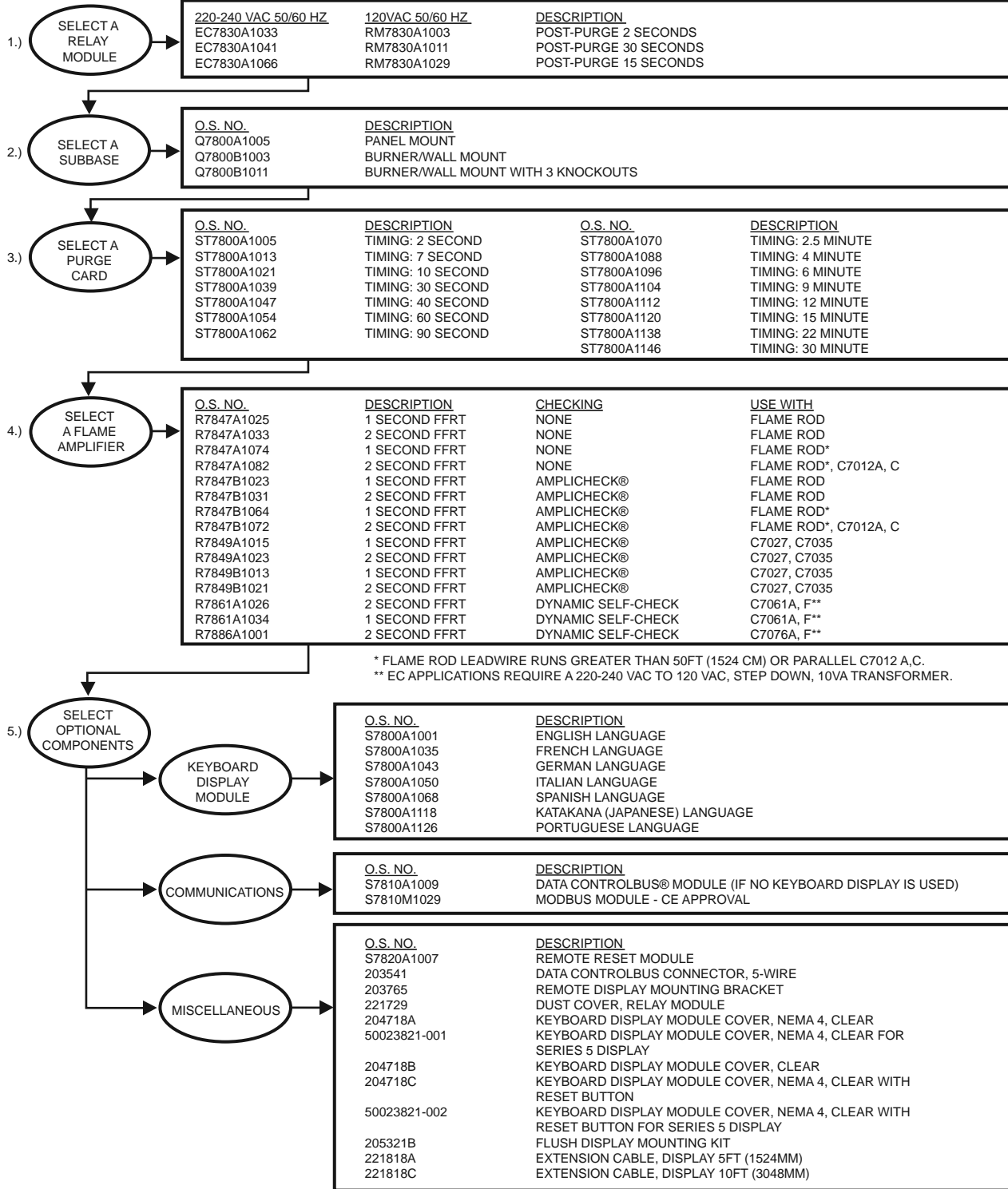
PRODUCT SELECTION MATRIX FOR EC7820 PROGRAMMER RELAY MODULES:



M15516F

Product Selection Matrix

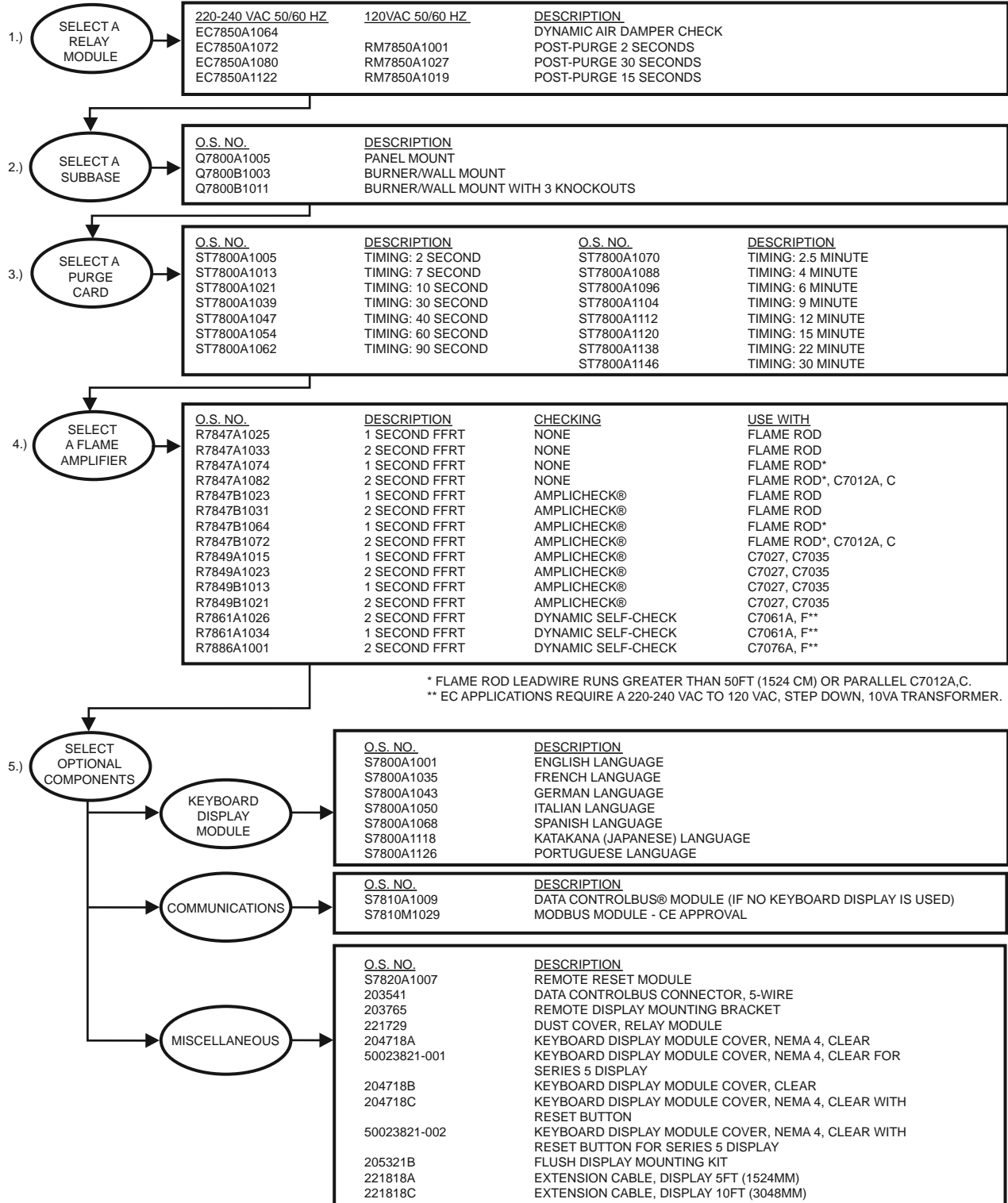
PRODUCT SELECTION MATRIX FOR EC/RM7830 PROGRAMMER RELAY MODULES:



M15517F

Product Selection Matrix

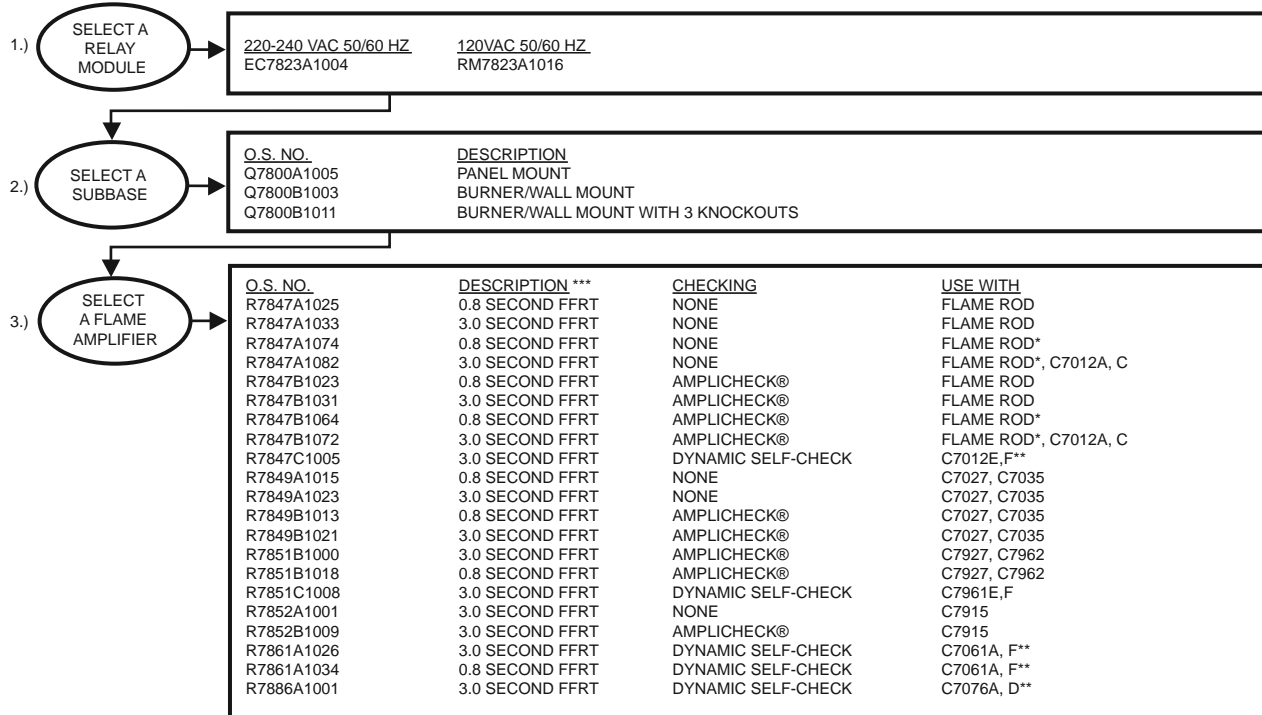
PRODUCT SELECTION MATRIX FOR EC/RM7850 PROGRAMMER RELAY MODULES:



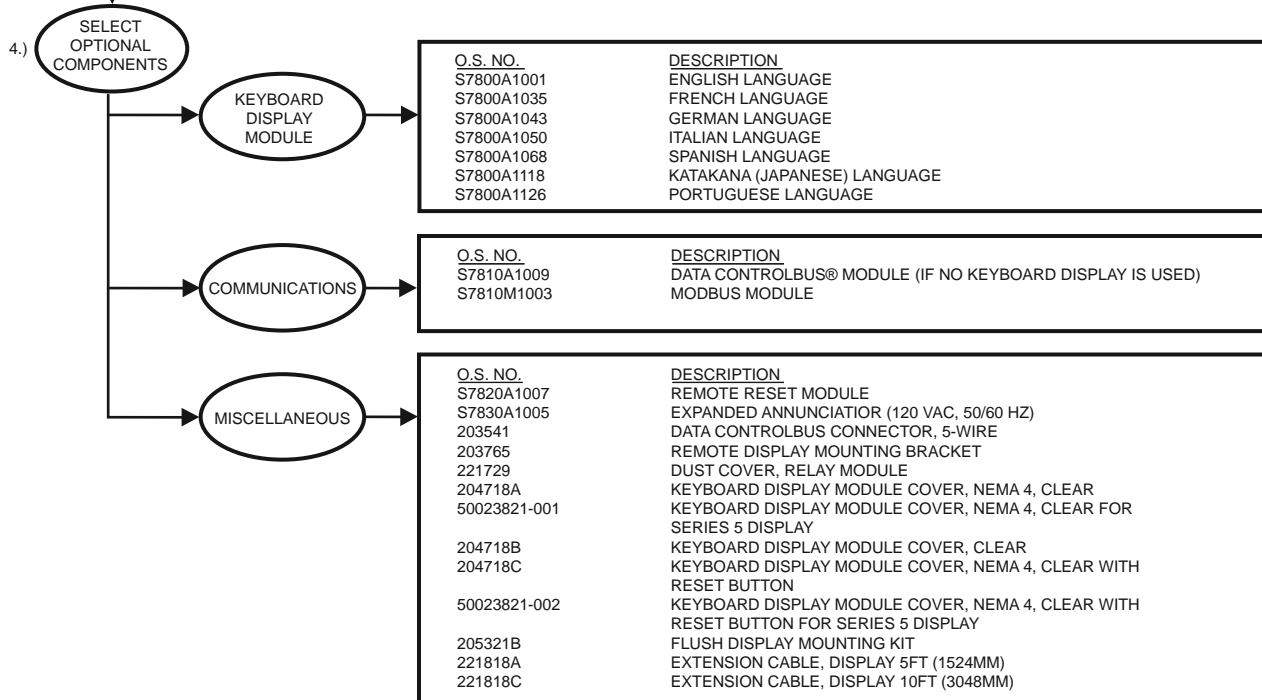
M15519F

Product Selection Matrix

PRODUCT SELECTION MATRIX FOR EC/RM7823 FLAME SWITCH RELAY MODULES:



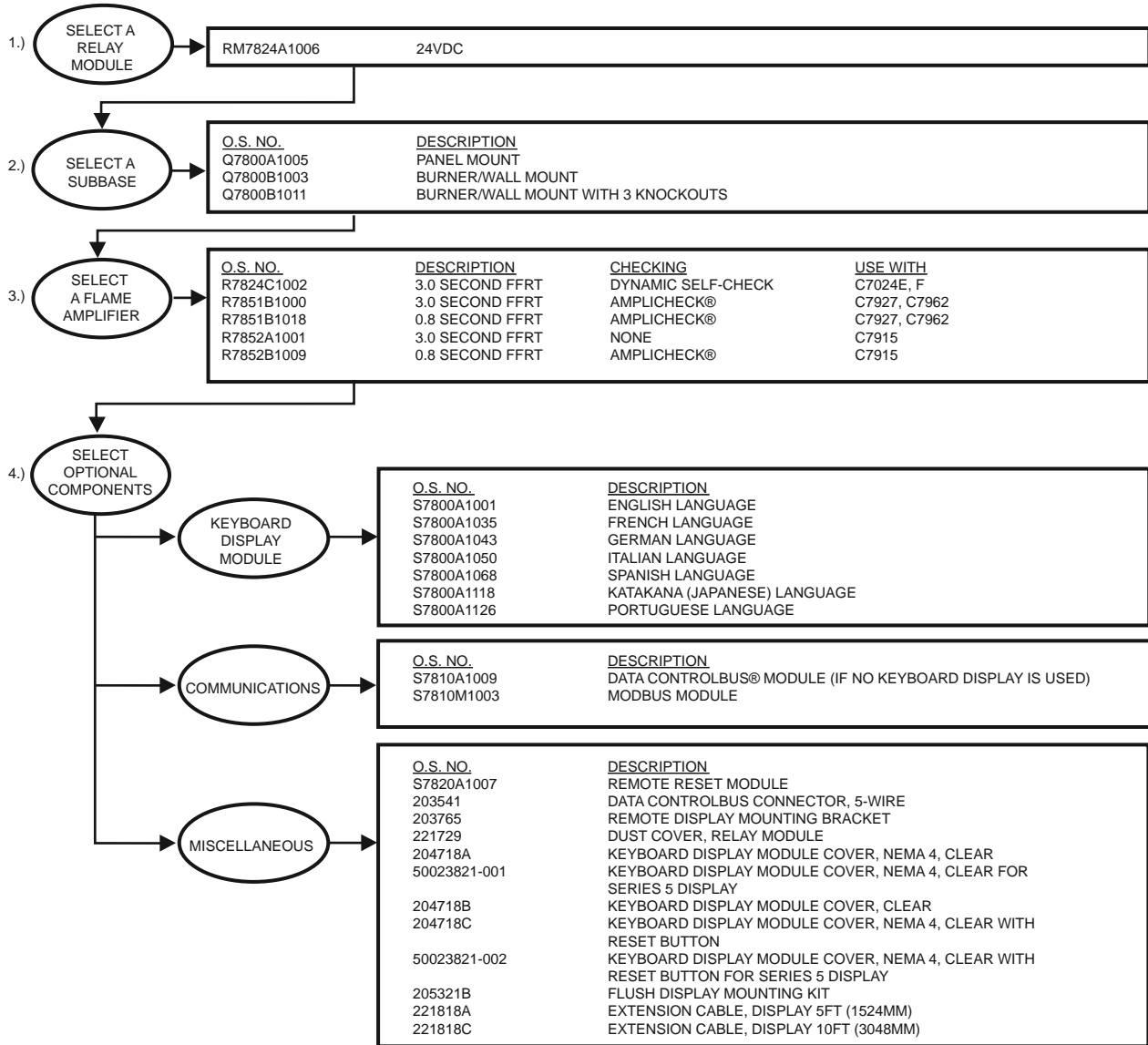
* FLAME ROD LEADWIRE RUNS GREATER THAN 50FT (1524 CM).
 ** EC APPLICATIONS REQUIRE A 220-240 VAC TO 120 VAC, STEP DOWN, 10VA TRANSFORMER.



M15520E

Product Selection Matrix

PRODUCT SELECTION MATRIX FOR RM7824A 24VDC PRIMARY CONTROL RELAY MODULES:



M15521C

Product Selection Matrix

PRODUCT SELECTION MATRIX FOR EC/RM7885 MANUAL START PRIMARY RELAY MODULES:

1.) SELECT A RELAY MODULE

220-240 VAC 50/60 HZ	120VAC 50/60 HZ	DESCRIPTION
EC7885A1011	RM7885A1015	SEMI AUTOMATIC PRIMARY

2.) SELECT A SUBBASE

Q.S. NO.	DESCRIPTION
Q7800A1005	PANEL MOUNT
Q7800B1003	BURNER/WALL MOUNT
Q7800B1011	BURNER/WALL MOUNT WITH 3 KNOCKOUTS

3.) SELECT A FLAME AMPLIFIER

Q.S. NO.	DESCRIPTION***	CHECKING	USE WITH
R7847A1025	0.8 SECOND FFRT	NONE	FLAME ROD
R7847A1033	3.0 SECOND FFRT	NONE	FLAME ROD
R7847A1074	0.8 SECOND FFRT	NONE	FLAME ROD*
R7847A1082	3.0 SECOND FFRT	NONE	FLAME ROD*, C7012A, C
R7847B1023	0.8 SECOND FFRT	AMPLICHECK®	FLAME ROD
R7847B1031	3.0 SECOND FFRT	AMPLICHECK®	FLAME ROD
R7847B1064	0.8 SECOND FFRT	AMPLICHECK®	FLAME ROD*
R7847B1072	3.0 SECOND FFRT	AMPLICHECK®	FLAME ROD*, C7012A, C
R7847C1005	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7012E, F**
R7849A1015	0.8 SECOND FFRT	NONE	C7027, C7035
R7849A1023	3.0 SECOND FFRT	NONE	C7027, C7035
R7849B1013	0.8 SECOND FFRT	AMPLICHECK®	C7027, C7035
R7849B1021	3.0 SECOND FFRT	AMPLICHECK®	C7027, C7035
R7851B1000	3.0 SECOND FFRT	AMPLICHECK®	C7927, C7962
R7851B1018	0.8 SECOND FFRT	AMPLICHECK®	C7927, C7962
R7851C1008	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7961E,F
R7852A1001	3.0 SECOND FFRT	NONE	C7915
R7852B1009	3.0 SECOND FFRT	AMPLICHECK®	C7915
R7861A1026	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F**
R7861A1034	0.8 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F**
R7886A1001	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7076A, D**

* FLAME ROD LEADWIRE RUNS GREATER THAN 50FT (1524 CM).
 ** EC APPLICATIONS REQUIRE A 220-240 VAC TO 120 VAC, STEP DOWN, 10VA TRANSFORMER.

4.) SELECT OPTIONAL COMPONENTS

Q.S. NO.	DESCRIPTION
S7800A1001	ENGLISH LANGUAGE
S7800A1035	FRENCH LANGUAGE
S7800A1043	GERMAN LANGUAGE
S7800A1050	ITALIAN LANGUAGE
S7800A1068	SPANISH LANGUAGE
S7800A1118	KATAKANA (JAPANESE) LANGUAGE
S7800A1126	PORTUGUESE LANGUAGE

KEYBOARD DISPLAY MODULE

Q.S. NO.	DESCRIPTION
S7810A1009	DATA CONTROLBUS® MODULE (IF NO KEYBOARD DISPLAY IS USED)
S7810M1003	MODBUS MODULE

COMMUNICATIONS

Q.S. NO.	DESCRIPTION
S7820A1007	REMOTE RESET MODULE
203541	DATA CONTROLBUS CONNECTOR, 5-WIRE
203765	REMOTE DISPLAY MOUNTING BRACKET
221729	DUST COVER, RELAY MODULE
204718A	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR
50023821-001	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR FOR SERIES 5 DISPLAY
204718B	KEYBOARD DISPLAY MODULE COVER, CLEAR
204718C	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON
50023821-002	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON FOR SERIES 5 DISPLAY
205321B	FLUSH DISPLAY MOUNTING KIT
221818A	EXTENSION CABLE, DISPLAY 5FT (1524MM)
221818C	EXTENSION CABLE, DISPLAY 10FT (3048MM)

MISCELLANEOUS

M15522E

Product Selection Matrix

PRODUCT SELECTION MATRIX FOR RM7888A SPECIAL FUNCTION PRIMARY CONTROL RELAY MODULES:

1.)	SELECT A RELAY MODULE	120VAC 50/60 HZ	<u>DESCRIPTION</u>
		RM7888A1019 RM7888A1027	INDUSTRIAL PRIMARY CONTROL (COMPONENT UL APPROVED) INDUSTRIAL PRIMARY CONTROL (COMPONENT UL APPROVED)

2.)	SELECT A SUBBASE	<u>O.S. NO.</u>	<u>DESCRIPTION</u>
		Q7800A1005	PANEL MOUNT
		Q7800B1003 Q7800B1011	BURNER/WALL MOUNT BURNER/WALL MOUNT WITH 3 KNOCKOUTS

3.)	SELECT A FLAME AMPLIFIER	<u>O.S. NO.</u>	<u>DESCRIPTION</u>	<u>CHECKING</u>	<u>USE WITH</u>
		R7847A1025	0.8 SECOND FFRT	NONE	FLAME ROD
		R7847A1033	3.0 SECOND FFRT	NONE	FLAME ROD
		R7847A1074	0.8 SECOND FFRT	NONE	FLAME ROD*
		R7847A1082	3.0 SECOND FFRT	NONE	FLAME ROD*, C7012A, C
		R7847B1023	0.8 SECOND FFRT	AMPLICHECK@	FLAME ROD
		R7847B1031	3.0 SECOND FFRT	AMPLICHECK@	FLAME ROD
		R7847B1064	0.8 SECOND FFRT	AMPLICHECK@	FLAME ROD*
		R7847B1072	3.0 SECOND FFRT	AMPLICHECK@	FLAME ROD*, C7012A, C
		R7847C1005	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7012E, F
		R7849A1015	0.8 SECOND FFRT	NONE	C7027, C7035
		R7849A1023	3.0 SECOND FFRT	NONE	C7027, C7035
		R7849B1013	0.8 SECOND FFRT	AMPLICHECK@	C7027, C7035
		R7849B1021	3.0 SECOND FFRT	AMPLICHECK@	C7027, C7035
		R7851B1000	3.0 SECOND FFRT	AMPLICHECK@	C7927, C7962
		R7851B1018	0.8 SECOND FFRT	AMPLICHECK@	C7927, C7962
		R7851C1008	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7961E, F
		R7852A1001	3.0 SECOND FFRT	NONE	C7915
		R7852B1009	3.0 SECOND FFRT	AMPLICHECK@	C7915
		R7861A1026	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F
		R7861A1034	0.8 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F
		R7886A1001	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7076A, D

* FLAME ROD LEADWIRE RUNS GREATER THAN 50FT (1524 CM).

4.)	SELECT OPTIONAL COMPONENTS	KEYBOARD DISPLAY MODULE	<u>O.S. NO.</u>	<u>DESCRIPTION</u>
			S7800A1001	ENGLISH LANGUAGE
			S7800A1035 S7800A1043 S7800A1050 S7800A1068 S7800A1118 S7800A1126	FRENCH LANGUAGE GERMAN LANGUAGE ITALIAN LANGUAGE SPANISH LANGUAGE KATAKANA (JAPANESE) LANGUAGE PORTUGUESE LANGUAGE
	COMMUNICATIONS	<u>O.S. NO.</u>	<u>DESCRIPTION</u>	
		S7810A1009 S7810M1003	DATA CONTROLBUS® MODULE (IF NO KEYBOARD DISPLAY IS USED) MODBUS MODULE	
	MISCELLANEOUS	<u>O.S. NO.</u>	<u>DESCRIPTION</u>	
		S7820A1007	REMOTE RESET MODULE	
		S7830A1005	EXPANDED ANNUNCIATOR (120 VAC, 50/60 HZ)	
		203541	DATA CONTROLBUS CONNECTOR, 5-WIRE	
		221729	REMOTE DISPLAY MOUNTING BRACKET	
		204718A	DUST COVER, RELAY MODULE	
		50023821-001	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR	
			KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR FOR SERIES 5 DISPLAY	
		204718B	KEYBOARD DISPLAY MODULE COVER, CLEAR	
		204718C	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON	
		50023821-002	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON FOR SERIES 5 DISPLAY	
		205321B	FLUSH DISPLAY MOUNTING KIT	
		221818A	EXTENSION CABLE, DISPLAY 5FT (1524MM)	
		221818C	EXTENSION CABLE, DISPLAY 10FT (3048MM)	

M15523E

Product Selection Matrix

PRODUCT SELECTION MATRIX FOR EC/RM7890 ON/OFF PRIMARY CONTROL RELAY MODULES:

	<u>220-240 VAC 50/60 HZ</u>	<u>120VAC 50/60 HZ</u>	<u>DESCRIPTION</u>
1.) SELECT A RELAY MODULE	EC7890A1011	RM7890A1015	
	EC7890A1029‡		
		RM7890A1031	30 SECOND PFEP
		RM7890A1056	FOR VALVE PROVING APPLICATIONS
		RM7890A1064‡	
		RM7890B1014	WITH SHUTTER DRIVE
		RM7890B1030	WITH SHUTTER DRIVE AND FULL PFEP
		RM7890B1048	WITH SHUTTER DRIVE - FOR VALVE PROVING APPLICATIONS
		RM7890B1055++	WITH SHUTTER DRIVE
		RM7890C1005	STANDING PILOT APPLICATIONS WITH FLAME RODS ONLY
	RM7890D1004	INFRARED HEATER ONLY 15 OR 30 PREF	

‡ CE APPROVED
++ NORTH AMERICAN AMD CE APPROVED

	<u>O.S. NO.</u>	<u>DESCRIPTION</u>
2.) SELECT A SUBBASE	Q7800A1005	PANEL MOUNT
	Q7800B1003	BURNER/WALL MOUNT
	Q7800B1011	BURNER/WALL MOUNT WITH 3 KNOCKOUTS

	<u>O.S. NO.</u>	<u>DESCRIPTION***</u>	<u>CHECKING</u>	<u>USE WITH</u>
3.) SELECT A FLAME AMPLIFIER	R7847A1025	0.8 SECOND FFRT	NONE	FLAME ROD
	R7847A1033	3.0 SECOND FFRT	NONE	FLAME ROD
	R7847A1074	0.8 SECOND FFRT	NONE	FLAME ROD*
	R7847A1082	3.0 SECOND FFRT	NONE	FLAME ROD*, C7012A, C
	R7847B1023	0.8 SECOND FFRT	AMPLICHECK®	FLAME ROD
	R7847B1031	3.0 SECOND FFRT	AMPLICHECK®	FLAME ROD
	R7847B1064	0.8 SECOND FFRT	AMPLICHECK®	FLAME ROD*
	R7847B1072	3.0 SECOND FFRT	AMPLICHECK®	FLAME ROD*, C7012A, C
	R7847C1005	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7012E, F**
	R7849A1015	0.8 SECOND FFRT	NONE	C7027, C7035
	R7849A1023	3.0 SECOND FFRT	NONE	C7027, C7035
	R7849B1013	0.8 SECOND FFRT	AMPLICHECK®	C7027, C7035
	R7849B1021	3.0 SECOND FFRT	AMPLICHECK®	C7027, C7035
	R7851B1000	3.0 SECOND FFRT	AMPLICHECK®	C7927, C7962
	R7851B1018	0.8 SECOND FFRT	AMPLICHECK®	C7927, C7962
	R7851C1008	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7961E, F
	R7852B1001	3.0 SECOND FFRT	NONE	C7915
	R7852B1009	3.0 SECOND FFRT	AMPLICHECK®	C7915
	R7861A1026	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F**
	R7861A1034	0.8 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F**
	R7886A1001	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7076A, D**

* FLAME ROD LEADWIRE RUNS GREATER THAN 50FT (1524 CM).
** EC APPLICATIONS REQUIRE A 220-240 VAC TO 120 VAC, STEP DOWN, 10VA TRANSFORMER.
*** FFRT FOR CE APPROVED CONTROLS 1 SEC. OR 2 SEC.

	<u>O.S. NO.</u>	<u>DESCRIPTION</u>	
4.) SELECT OPTIONAL COMPONENTS	KEYBOARD DISPLAY MODULE	S7800A1001	ENGLISH LANGUAGE
		S7800A1035	FRENCH LANGUAGE
		S7800A1043	GERMAN LANGUAGE
		S7800A1050	ITALIAN LANGUAGE
		S7800A1068	SPANISH LANGUAGE
		S7800A1118	KATAKANA (JAPANESE) LANGUAGE
		S7800A1126	PORTUGUESE LANGUAGE
		S7800A1142	ENGLISH (REQUIRED TO PROGRAM VP TIMINGS)
		S7800A1167	SPANISH (REQUIRED TO PROGRAM VP TIMINGS)

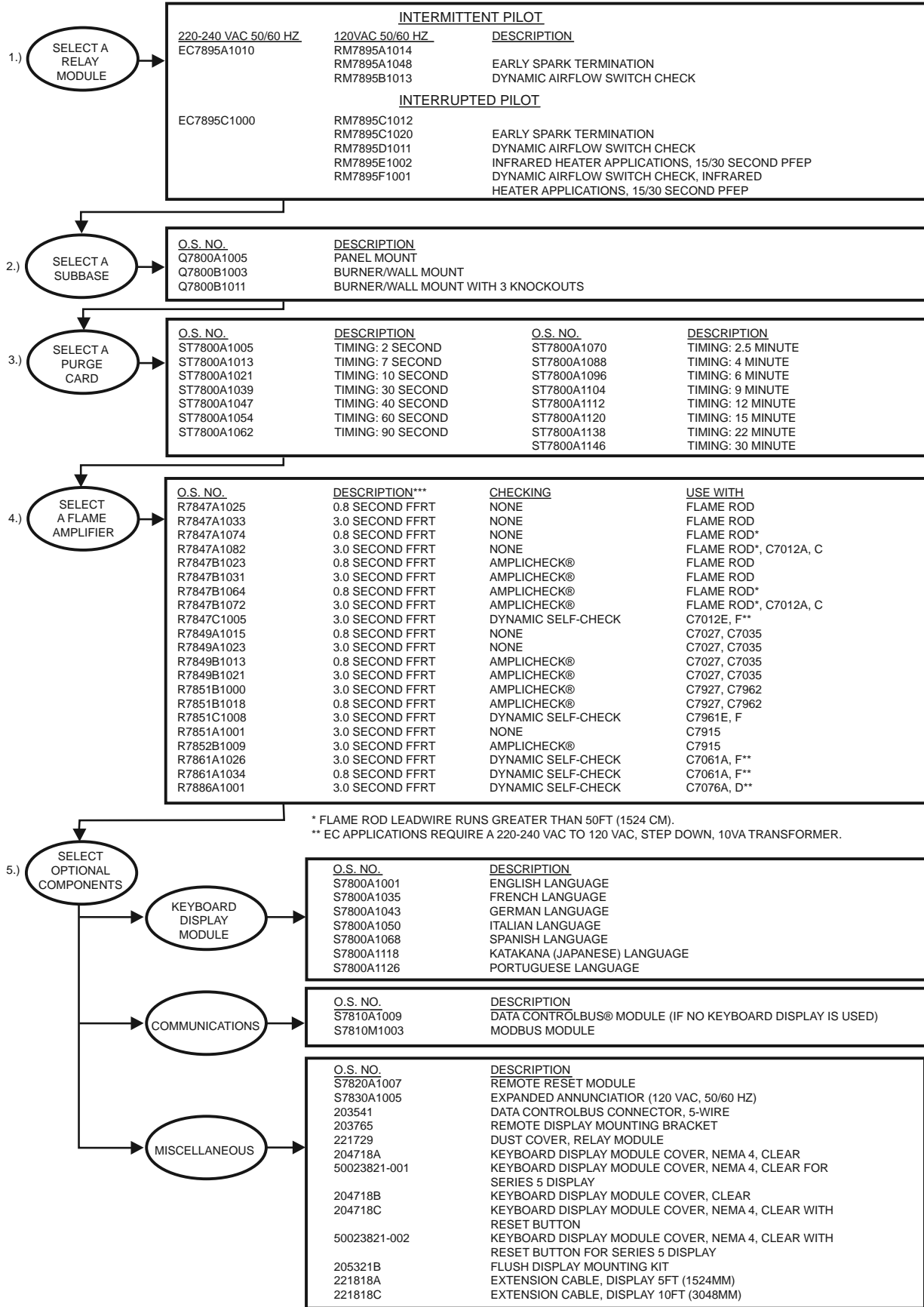
	<u>O.S. NO.</u>	<u>DESCRIPTION</u>
COMMUNICATIONS	S7810A1009	DATA CONTROLBUS® MODULE (IF NO KEYBOARD DISPLAY IS USED)
	S7810B1007	DATA CONTROLBUS® MODULE, MULTI DROP SWITCH MODULE
	S7810M1003	MODBUS MODULE
	S7810M1029	MODBUS MODULE - CE APPROVED

	<u>O.S. NO.</u>	<u>DESCRIPTION</u>
MISCELLANEOUS	S7820A1007	REMOTE RESET MODULE
	S7830A1005	EXPANDED ANNUNCIATOR (120 VAC, 50/60 HZ)
	203541	DATA CONTROLBUS CONNECTOR, 5-WIRE
	203765	REMOTE DISPLAY MOUNTING BRACKET
	221729	DUST COVER, RELAY MODULE
	204718A	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR
	50023821-001	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR FOR SERIES 5 DISPLAY
	204718B	KEYBOARD DISPLAY MODULE COVER, CLEAR
	204718C	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON
	50023821-002	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON FOR SERIES 5 DISPLAY
	205321B	FLUSH DISPLAY MOUNTING KIT
	221818A	EXTENSION CABLE, DISPLAY 5FT (1524MM)
	221818C	EXTENSION CABLE, DISPLAY 10FT (3048MM)

M15524E

Product Selection Matrix

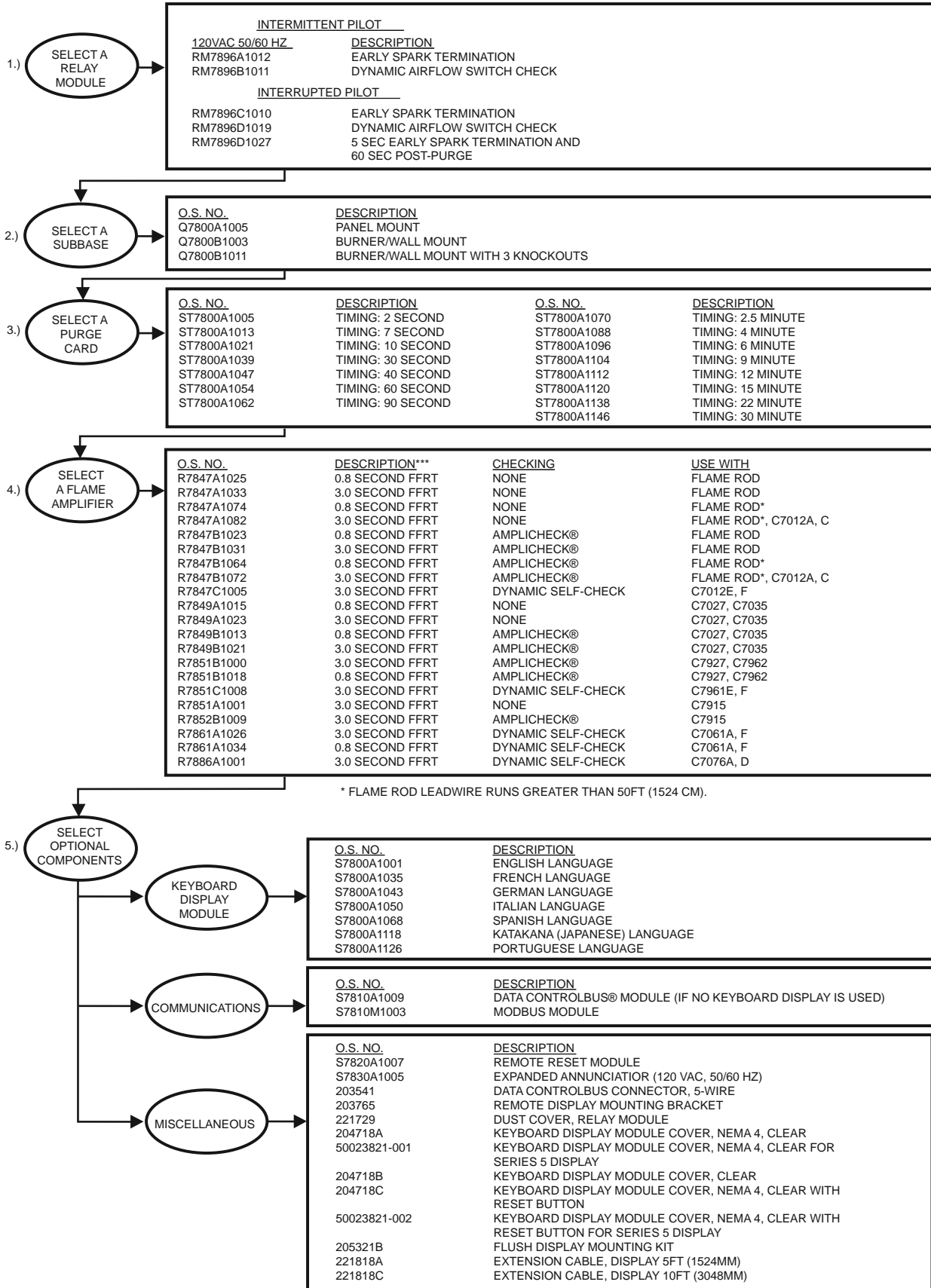
PRODUCT SELECTION MATRIX FOR EC/RM7895 ON/OFF WITH PURGE PRIMARY RELAY MODULES:



M15525E

Product Selection Matrix

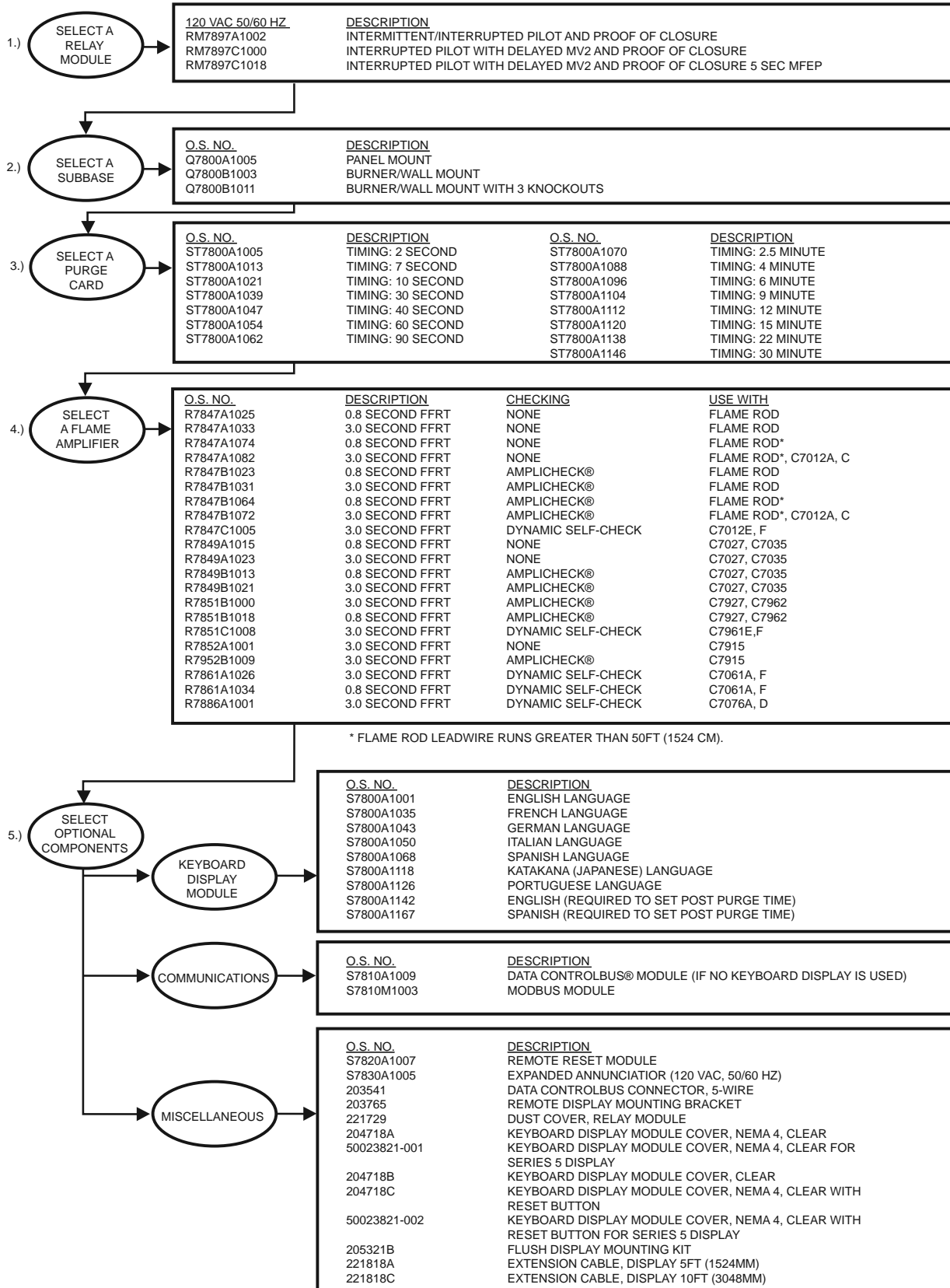
PRODUCT SELECTION MATRIX FOR RM7896 ON/OFF WITH PRE- AND POST-PURGE PRIMARY RELAY MODULES:



M13908A

Product Selection Matrix

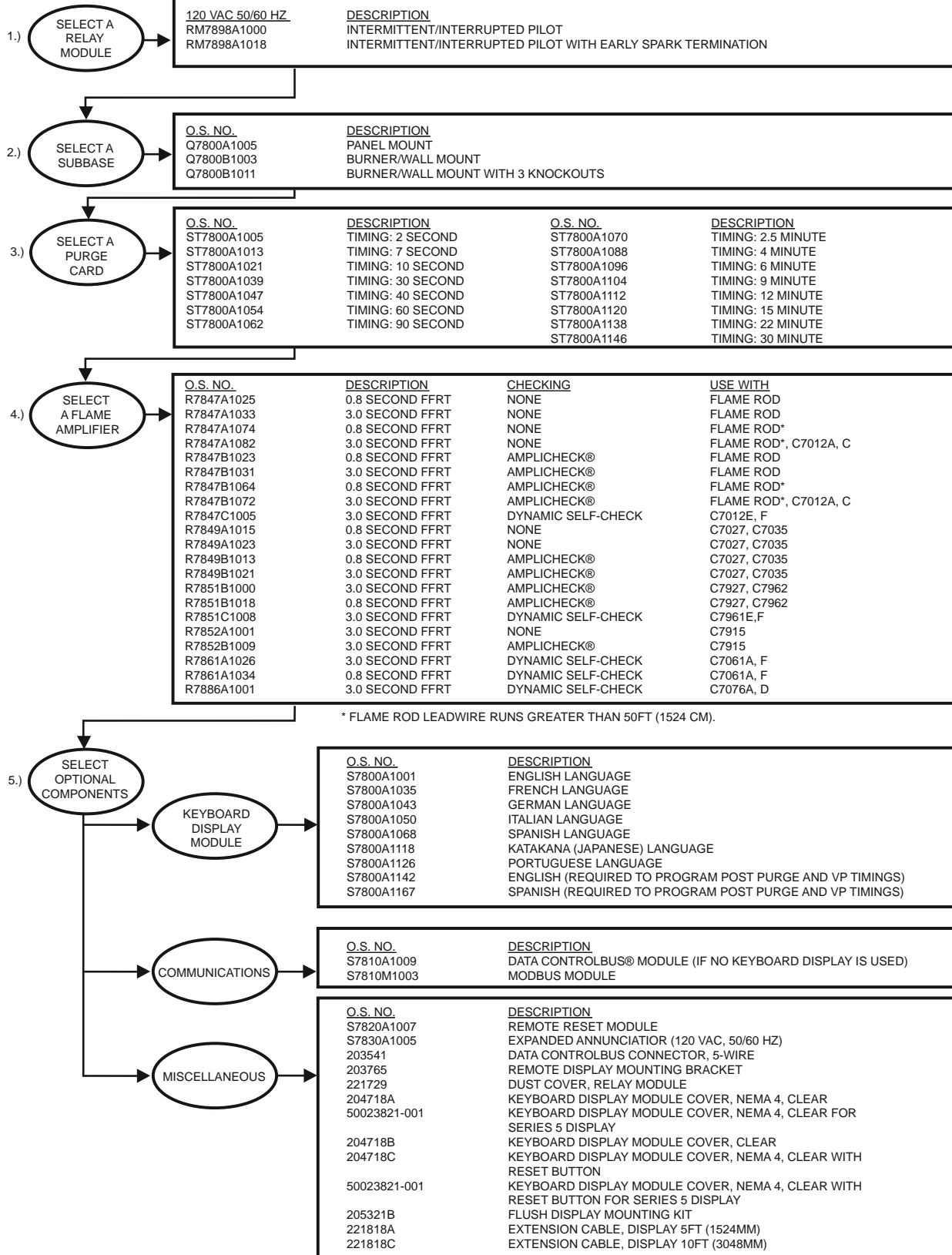
PRODUCT SELECTION MATRIX FOR RM7897 ON/OFF WITH PRE- AND PROGRAMMABLE POST-PURGE PRIMARY RELAY MODULES:



M15526F

Product Selection Matrix

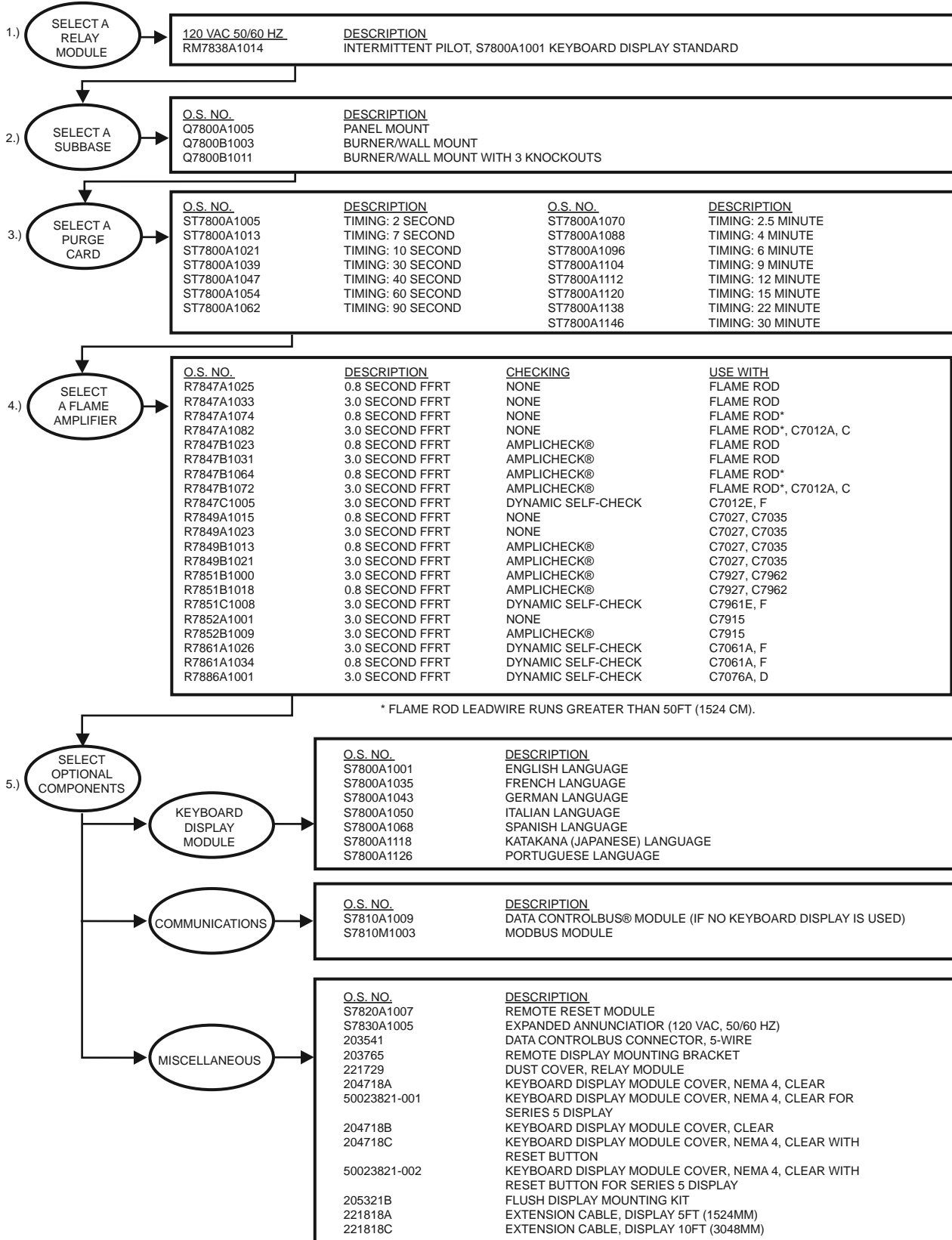
PRODUCT SELECTION MATRIX FOR RM7898 ON/OFF WITH PRE- AND PROGRAMMABLE POST-PURGE PRIMARY RELAY MODULES FOR VALVE PROVING APPLICATIONS:



M23254B

Product Selection Matrix

PRODUCT SELECTION MATRIX FOR RM7838A MANUAL START WITH PURGE INDUSTRIAL PRIMARY RELAY MODULE:



M15527E

Product Selection Matrix

PRODUCT SELECTION MATRIX FOR RM7838B MANUAL START INDUSTRIAL PROGRAMMER RELAY MODULE:

1.) SELECT A RELAY MODULE

120 VAC 50/60 HZ RM7838B1013*	DESCRIPTION SEMI-AUTOMATIC PROGRAMMER WITH S7800A1001 KEYBOARD DISPLAY STANDARD S7800A1142 KEYBOARD DISPLAY STANDARD - HAS VALVE PRVING FEATURE
RM7838B1021*	

* ALARM SOUNDS UNTIL FLAME SENSED

2.) SELECT A SUBBASE

O.S. NO. Q7800A1005 Q7800B1003 Q7800B1011	DESCRIPTION PANEL MOUNT BURNER/WALL MOUNT BURNER/WALL MOUNT WITH 3 KNOCKOUTS
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3.) SELECT A PURGE CARD

O.S. NO.	DESCRIPTION	O.S. NO.	DESCRIPTION
ST7800A1005	TIMING: 2 SECOND	ST7800A1070	TIMING: 2.5 MINUTE
ST7800A1013	TIMING: 7 SECOND	ST7800A1088	TIMING: 4 MINUTE
ST7800A1021	TIMING: 10 SECOND	ST7800A1096	TIMING: 6 MINUTE
ST7800A1039	TIMING: 30 SECOND	ST7800A1104	TIMING: 9 MINUTE
ST7800A1047	TIMING: 40 SECOND	ST7800A1112	TIMING: 12 MINUTE
ST7800A1054	TIMING: 60 SECOND	ST7800A1120	TIMING: 15 MINUTE
ST7800A1062	TIMING: 90 SECOND	ST7800A1138	TIMING: 22 MINUTE
		ST7800A1146	TIMING: 30 MINUTE

4.) SELECT A FLAME AMPLIFIER

O.S. NO.	DESCRIPTION	CHECKING	USE WITH
R7847A1025	0.8 SECOND FFRT	NONE	FLAME ROD
R7847A1033	3.0 SECOND FFRT	NONE	FLAME ROD
R7847A1074	0.8 SECOND FFRT	NONE	FLAME ROD*
R7847A1082	3.0 SECOND FFRT	NONE	FLAME ROD*, C7012A, C
R7847B1023	0.8 SECOND FFRT	AMPLICHECK®	FLAME ROD
R7847B1031	3.0 SECOND FFRT	AMPLICHECK®	FLAME ROD
R7847B1064	0.8 SECOND FFRT	AMPLICHECK®	FLAME ROD*
R7847B1072	3.0 SECOND FFRT	AMPLICHECK®	FLAME ROD*, C7012A, C
R7847C1005	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7012E, F
R7849A1015	0.8 SECOND FFRT	NONE	C7027, C7035
R7849A1023	3.0 SECOND FFRT	NONE	C7027, C7035
R7849B1013	0.8 SECOND FFRT	AMPLICHECK®	C7027, C7035
R7849B1021	3.0 SECOND FFRT	AMPLICHECK®	C7027, C7035
R7851B1000	3.0 SECOND FFRT	AMPLICHECK®	C7927, C7962
R7851B1018	0.8 SECOND FFRT	AMPLICHECK®	C7927, C7962
R7851C1008	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7961E, F
R7852A1001	3.0 SECOND FFRT	NONE	C7915
R7852B1009	3.0 SECOND FFRT	AMPLICHECK®	C7915
R7861A1026	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F
R7861A1034	0.8 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F
R7886A1001	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7076A, D

* FLAME ROD LEADWIRE RUNS GREATER THAN 50FT (1524 CM).

5.) SELECT OPTIONAL COMPONENTS

KEYBOARD DISPLAY MODULE

O.S. NO. S7800A1001 S7800A1035 S7800A1043 S7800A1050 S7800A1068 S7800A1118 S7800A1126	DESCRIPTION ENGLISH LANGUAGE FRENCH LANGUAGE GERMAN LANGUAGE ITALIAN LANGUAGE SPANISH LANGUAGE KATAKANA (JAPANESE) LANGUAGE PORTUGUESE LANGUAGE
--	--

COMMUNICATIONS

O.S. NO. S7810A1009 S7810M1003	DESCRIPTION DATA CONTROLBUS® MODULE (IF NO KEYBOARD DISPLAY IS USED) MODBUS MODULE
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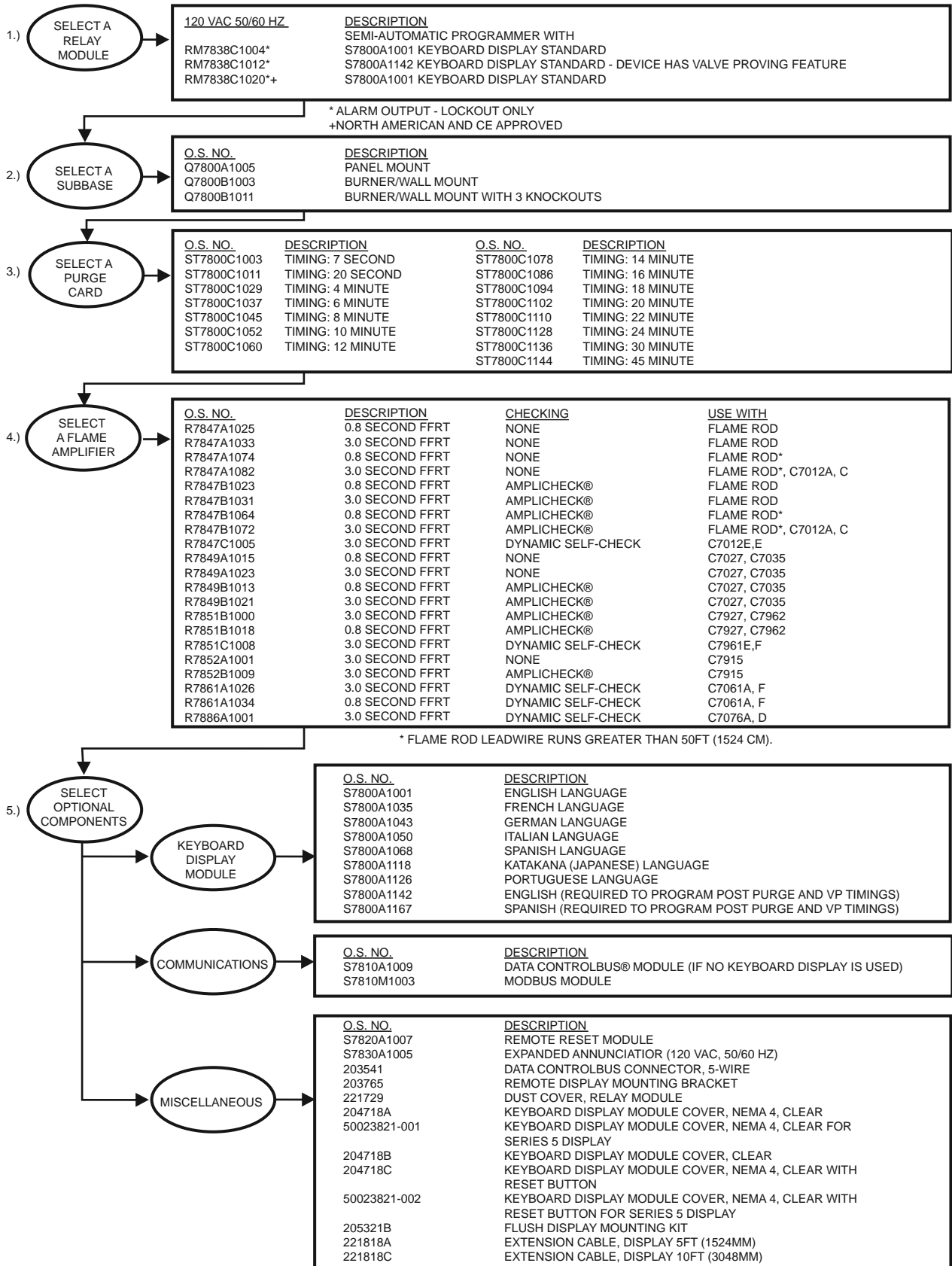
MISCELLANEOUS

O.S. NO. S7820A1007 S7830A1005 203541 203765 221729 204718A 50023821-001 204718B 204718C 50023821-002 205321B 221818A 221818C	DESCRIPTION REMOTE RESET MODULE EXPANDED ANNUNCIATOR (120 VAC, 50/60 HZ) DATA CONTROLBUS CONNECTOR, 5-WIRE REMOTE DISPLAY MOUNTING BRACKET DUST COVER, RELAY MODULE KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR FOR SERIES 5 DISPLAY KEYBOARD DISPLAY MODULE COVER, CLEAR KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON FOR SERIES 5 DISPLAY FLUSH DISPLAY MOUNTING KIT EXTENSION CABLE, DISPLAY 5FT (1524MM) EXTENSION CABLE, DISPLAY 10FT (3048MM)
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M15528E

Product Selection Matrix

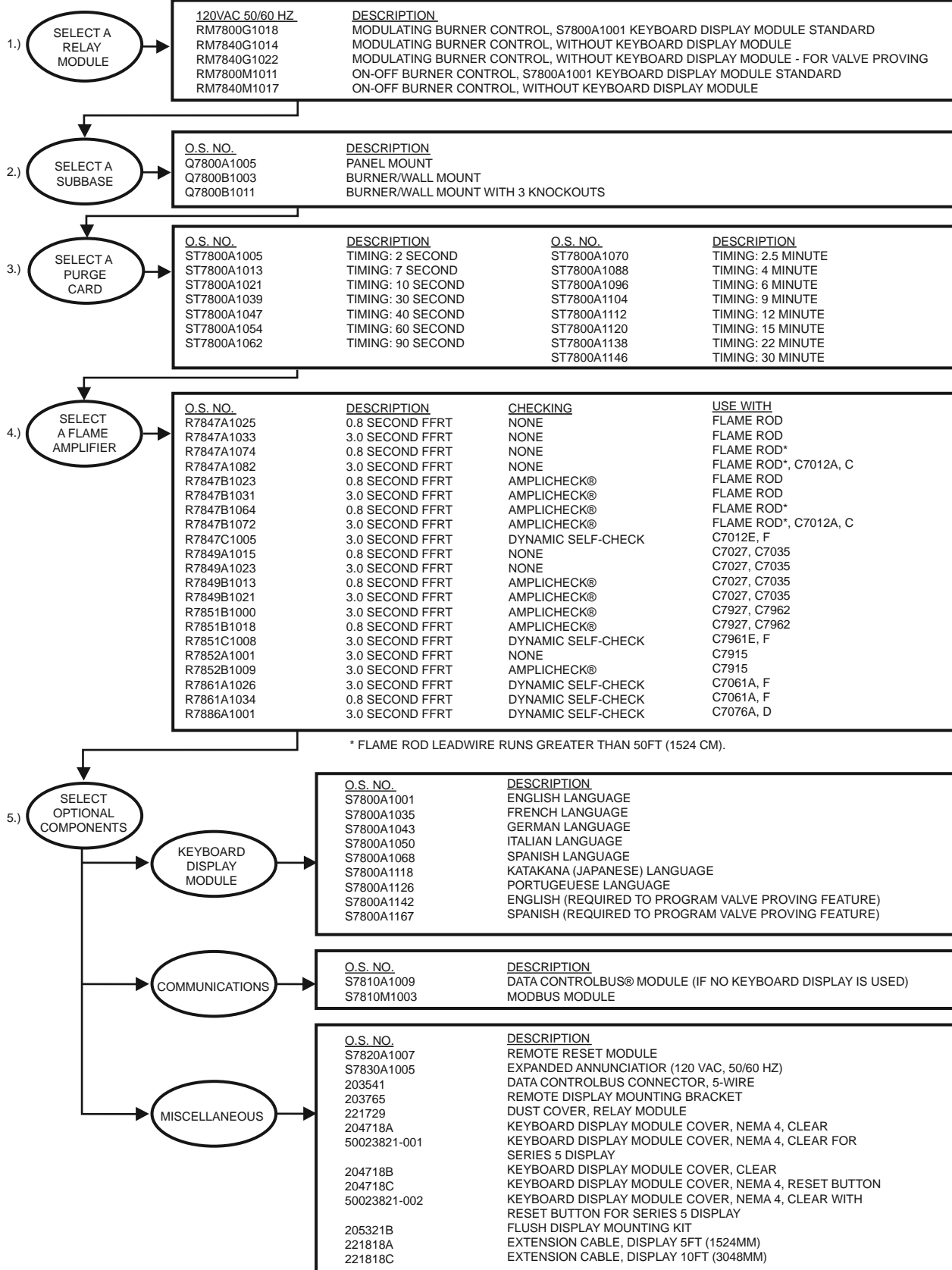
PRODUCT SELECTION MATRIX FOR RM7838C MANUAL START INDUSTRIAL PROGRAMMER RELAY MODULE:



M18830D

Product Selection Matrix

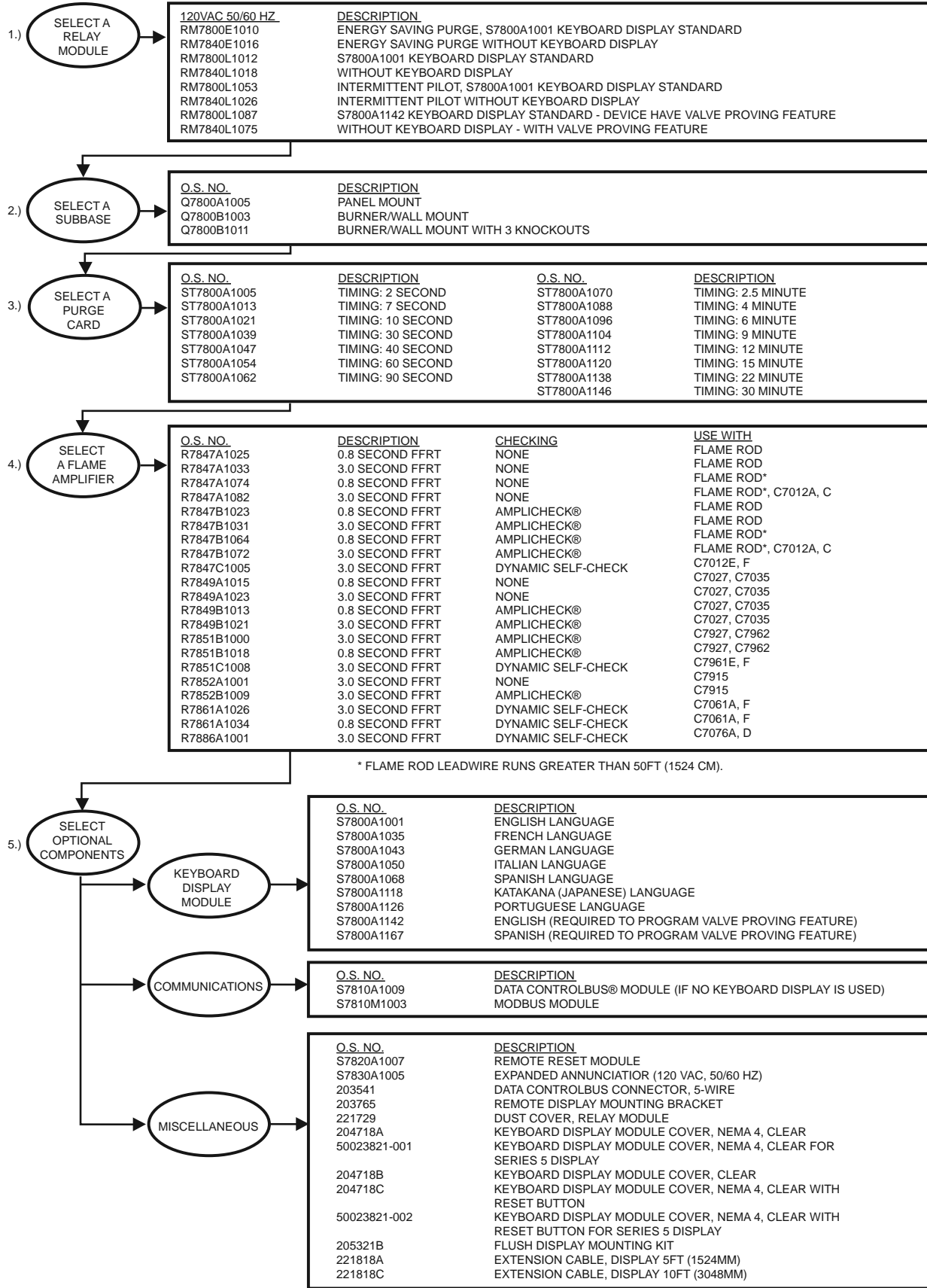
PRODUCT SELECTION MATRIX FOR UL/CSA RM78XXG,M PROGRAMMER RELAY MODULE:



M15529E

Product Selection Matrix

PRODUCT SELECTION MATRIX FOR FM/RI RM78XXE, L PROGRAMMER RELAY MODULE:



M15530E

Microprocessor Burner Controls

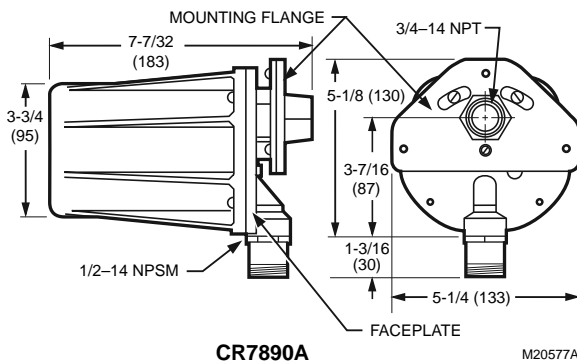
CR7890 Integrated Burner Control



The CR7890B Integrated Burner Control consists of a self contained relay module, amplifier and a shutter type solid state Ultraviolet Detector for sensing the ultraviolet radiation generated by the combustion of gas, oil, or other fuels.

- Oscillating shutter interrupts ultraviolet radiation reaching the UV sensor to provide the UV sensor checking function.
- Amplifier circuitry components are checked from the microprocessor in the CR7890B Control.
- Device can be mounted horizontally, vertically or at any other angle.
- The device has faceplate alignment and integral locating reference points to assure proper shutter mechanism operation.
- Quartz viewing window is field replaceable. CR7890B1019 uses Brad Harrison® 3R9006A20A120 connector.
- A swivel mount is available to facilitate flame sighting.
- -40 F (-40 C) rated ultraviolet sensing tube.
- High pressure 50 psi (345 kPa) quartz viewing window, magnifying lens and anti-vibration mount are available as accessories.
- Housing meets NEMA 4 enclosure standards. (NEMA 1 when access cover is used.)
- Protective heat block built into mounting flange.
- Power LED blinks a fault code when device is in ALARM state.
- Optional Keyboard Display Module (KDM).

Dimensions in inches (millimeters)



Application: On-Off Primary Control with 9 pin connector
Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)
Vibration: 0.5 G environment
Frequency: 50 Hz; 60 Hz (±10%)
Weight: 3.78 lb (1.71 kg)

Approvals:
Canadian Standards Association: Certified
Control Safety Devices: Acceptable: CSD-1
Federal Communications Commission: FCC Part 15, Class B, Emissions.
Swiss RE (formerly IRI): Acceptable
Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Product Number	Voltage	Pilot Type	Flame Establishing Period	
			Main	Pilot
CR7890B1019	120 Vac (+10, -15%)	intermittent	Intermittent	10 sec

Microprocessor Burner Controls

EC7810; EC7820

Primary Control Meeting European Community Timings



Application: Primary Control
Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)
Vibration: 0.5 G environment
Frequency: 50 Hz; 60 Hz (±10%)
Early Spark Termination: Yes, 5 sec
Preignition: Yes
PrePurge: Determined by ST7800A Purge Timer Card
PostPurge: 5 sec
Interlocks: Lockout
Flame Establishing Period
Main: 5 sec, or 8 sec, or Intermittent
Pilot: 5 sec or 10 sec

Microprocessor-based integrated burner control for automatically fired gas, oil, or combination fuel single burner atmospheric with fan applications. Provides automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics, and troubleshooting.

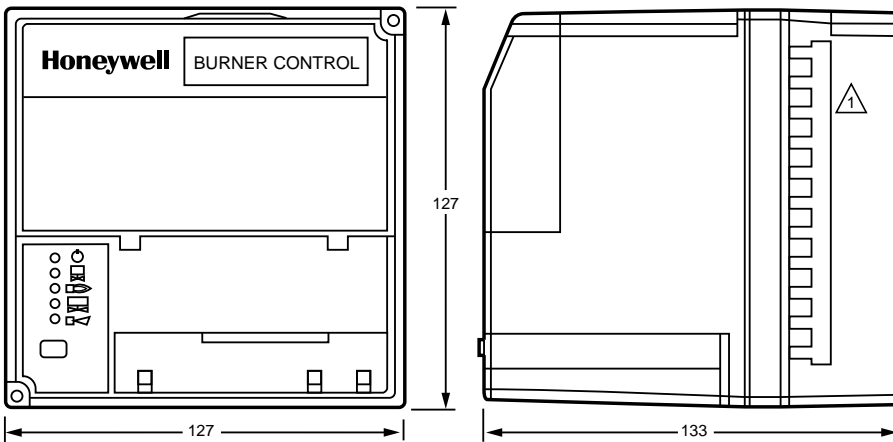
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information.
- Five function Run/Test Switch. Interchangeable plug-in amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Non-volatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.

Second Stage Pilot Valve: Intermittent
Weight: 1 lb 10 oz (0.7 kg)

Approvals:
Factory Mutual: Report No. 1V9AO.AF.
Gastec/European: GASTEC: CE-63AP3070/1, Approved to EN298.
Swiss RE (formerly IRI): Acceptable
Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7849, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	AirFlow Check	Comments
EC7810A1027	220 to 240 Vac (+10, -15%)	interrupted	—	1 ignition attempt, Includes Modulation w/o Fan Output
EC7810A1035	220 to 240 Vac (+10, -15%)	interrupted	—	5 ignition attempts, Includes Modulation w/o Fan Output
EC7820A1026	220 to 240 Vac (+10, -15%)	interrupted	User selectable	1 ignition attempt, Includes Modulation w/ Fan Output
EC7820A1034	220 to 240 Vac (+10, -15%)	interrupted	User selectable	5 ignition attempts, Includes Modulation w/ Fan Output

Dimensions in millimeters



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M12821

Microprocessor Burner Controls

EC7830; EC7850; RM7830; RM7850

Programming Control Meeting European Community Timings



Application: Programming Control
Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)
Vibration: 0.5 G environment
Frequency: 50 Hz; 60 Hz (±10%)
Early Spark Termination: Yes, 5 sec
Preignition: Yes
PrePurge: Determined by ST7800A Purge Timer Card
AirFlow Check: User selectable
Flame Establishing Period
Main: 3 sec, or 5 sec, or Intermittent
Pilot: 3 sec or 5 sec

Microprocessor-based integrated burner control for full modulation applications. Provides automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics, and troubleshooting.

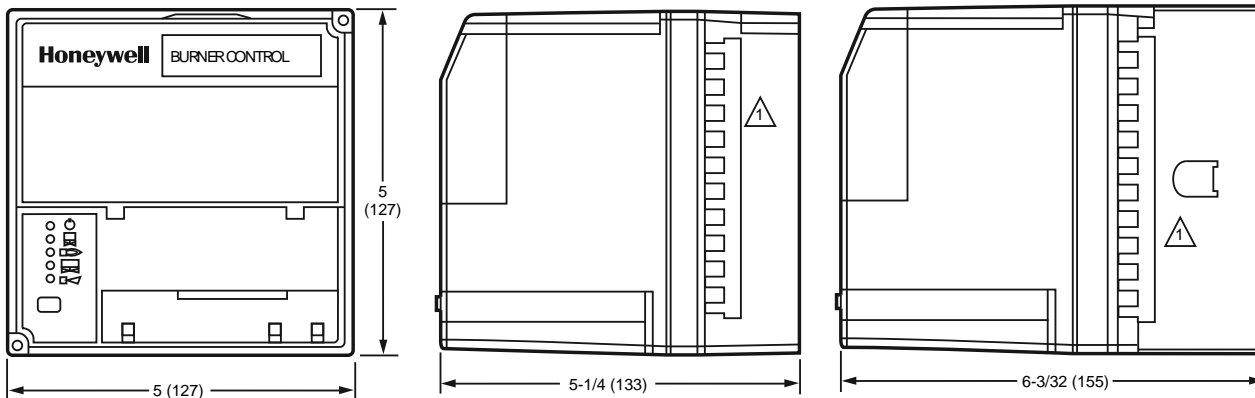
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information.
- Five function Run/Test Switch.
- Interchangeable plug-in amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.

Second Stage Pilot Valve: Intermittent
Weight: 1 lb 10 oz (0.7 kg)

Approvals:
Factory Mutual: Report No. 1V9AO.AF.
Gastec/European: GASTEC: CE-63AP3070/1, Approved to EN298.
Swiss RE (formerly IRI): Acceptable
Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7849, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	PostPurge	Interlocks	Comments
EC7830A1033	220 to 240 Vac (+10, -15%)	interrupted	2 sec	Lockout	On/Off Power Burner
EC7830A1041	220 to 240 Vac (+10, -15%)	interrupted	30 sec	Lockout	On/Off Power Burner
EC7830A1066	220 to 240 Vac (+10, -15%)	interrupted	15 sec	Lockout	On/Off Power Burner
EC7850A1064	220 to 240 Vac (+10, -15%)	interrupted	30 sec	Lockout	LHL-LF&HF Proven; Dynamic damper check
EC7850A1072	220 to 240 Vac (+10, -15%)	interrupted	2 sec	Lockout	LHL-LF&HF Proven
EC7850A1080	220 to 240 Vac (+10, -15%)	interrupted	30 sec	Lockout	LHL-LF&HF Proven
EC7850A1122	220 to 240 Vac (+10, -15%)	interrupted	15 sec	Lockout	LHL-LF&HF Proven
RM7830A1003	120 Vac (+10, -15%)	interrupted	2 sec	Lockout	On/Off Power Burner
RM7830A1011	120 Vac (+10, -15%)	interrupted	15 sec	Lockout	On/Off Power Burner
RM7830A1029	120 Vac (+10, -15%)	interrupted	30 sec	Lockout	On/Off Power Burner
RM7850A1001	120 Vac (+10, -15%)	interrupted	2 sec	Lockout	LHL-LF&HF Proven
RM7850A1019	120 Vac (+10, -15%)	interrupted	15 sec	Lockout	LHL-LF&HF Proven
RM7850A1027	120 Vac (+10, -15%)	interrupted	30 sec	Lockout	LHL-LF&HF Proven

Dimensions in inches (millimeters)



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M15532A

Microprocessor Burner Controls

RM7800 Programmings



Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls.

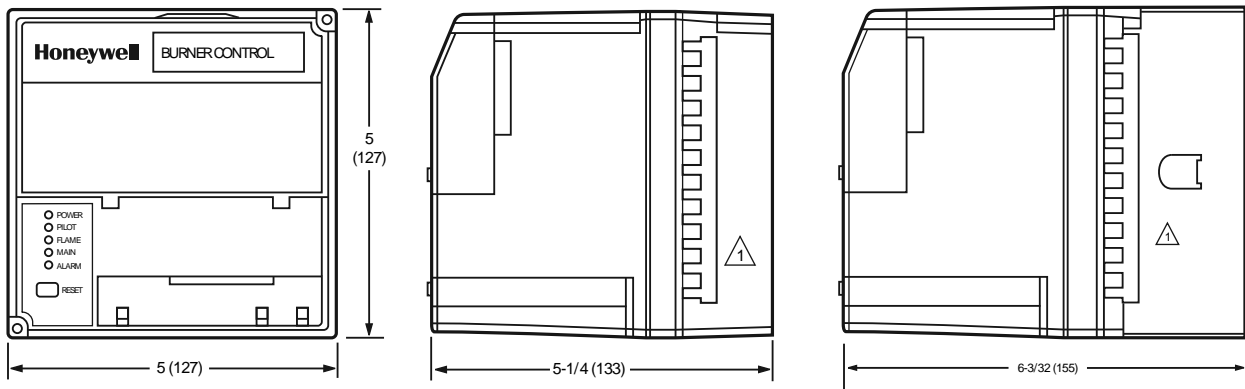
- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and trouble shooting.
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.
- Includes Keyboard Display Module.

Application: Programming Control
Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)
Vibration: 0.5 G environment
Frequency: 50 Hz; 60 Hz ($\pm 10\%$)
Early Spark Termination: Yes, 5 sec
Preignition: Yes
PrePurge: Determined by ST7800A Purge Timer Card
PostPurge: 15 sec
Interlocks: Lockout
AirFlow Check: User selectable
Weight: 1 lb 10 oz (0.7 kg)

Approvals:
Canadian Standards Association: Certified, File No. LR95329-3.
Federal Communications Commission: FCC Part 15, Class B, Emissions.
Factory Mutual: Report No. 1V9AO.AF.
Swiss RE (formerly IRI): Acceptable
Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.
Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Flame Establishing Period		Second Stage Pilot Valve	Interlocks	Comments
			Main	Pilot			
RM7800E1010	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	Includes S7800 Display, LHL-LF&HF Proven
RM7800G1018	120 Vac (+10, -15%)	interrupted	10 sec, or 15 sec, or 30 sec, or Intermittent	4 sec or 10 sec	selectable	Running	Includes S7800 Display, LHL-LF Proven
RM7800L1012	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	Includes S7800 Display, LHL-LF&HF Proven
RM7800L1053	120 Vac (+10, -15%)	interrupted	10 sec or Intermittent	4 sec or 10 sec	Intermittent	Lockout	Includes S7800 Display, LHL-LF&HF Proven
RM7800M1011	120 Vac (+10, -15%)	interrupted	10 sec or Intermittent	4 sec or 10 sec	Intermittent	Running	Includes S7800 Display, On/Off-LF proven

Dimensions in inches (millimeters)



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MODULE WITH SUBBASE

M15518A

Microprocessor Burner Controls

RM7800 Programmers with VPS



Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls. With Valve Proving Feature. RM7800L comes standard with S7800A1142 Keyboard Display.

Dimensions Diagram: See page 867

Application: Programming Control w/VPS

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Frequency: 50 Hz; 60 Hz (±10%)

Early Spark Termination: Yes, 5 sec

Preignition: Yes

PrePurge: Determined by ST7800A Purge Timer Card

PostPurge: programmed with S7800A1142 display

AirFlow Check: User selectable

Flame Establishing Period

Main: 10 sec or 15 sec

Pilot: 4 sec or 10 sec

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and trouble shooting.
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information. Power LED blinks fault code on Lockout.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.
- RM7800 comes with S7800A1142 Keyboard Display Module.
- Keyboard required to setup Valve Proving Feature and change post purge time.

Second Stage Pilot Valve: Interrupted

Weight: 1 lb 10 oz (0.7 kg)

Approvals:

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. 1V9AO.AF.

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Interlocks	Comments
RM7800L1087	120 Vac (+10, -15%)	interrupted	Lockout	Includes S7800A1142 Display, LHL-LF&HF Proven

Microprocessor Burner Controls

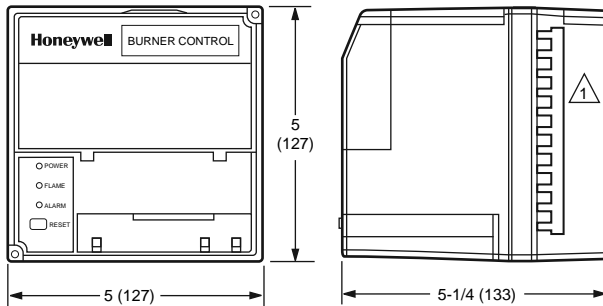
RM7823; EC7823 Flame Switch



Microprocessor-based integrated flame switch for detecting a flame using rectification, ultraviolet (UV) or infrared (IR) source. Provides level of safety, functional capability and features beyond conventional controls.

- Can be fitted with any 7800 Series Amplifier to provide relay action from two single pole, double throw (SPDT) relays when flame is present or not present. RM7823A and EC7823 are a flame detector relays only.
- Suitable primary control must be used to provide safe-start check, safety lockout, load switching and other functions required in flame safeguard systems.
- Three LEDs to indicate power, flame and alarm.
- Access for external electrical voltage checks.
- Nonvolatile memory.
- Shutter drive output.
- Compatible with existing Honeywell flame detectors.

Dimensions in inches (millimeters)



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M2649

Application: Flame Switch

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Frequency: 50 Hz; 60 Hz ($\pm 10\%$)

Weight: 1 lb 13 oz (0.8 kg)

Approvals:

Factory Mutual: Report No. OY0A9.AF.

Swiss RE (formerly IRI): Acceptable

Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

Product Number	Voltage	Comments	Approvals	
			Canadian Standards Association	Underwriters Laboratories, Inc.
EC7823A1004	220 to 240 Vac (+10, -15%)	two SPDT outputs	—	—
RM7823A1016	120 Vac (+10, -15%)	two SPDT outputs	Certified, File No. LR95329-3.	Component Recognized, File No. MP268; Guide No. MCCZ.

Microprocessor Burner Controls

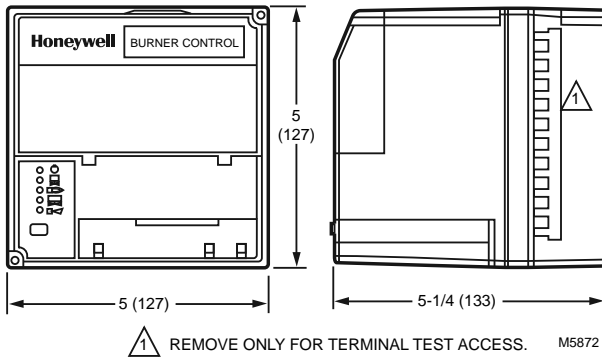
RM7824 On-Off Primary Control



24 Vdc microprocessor-based integrated burner control for automatically fired gas, oil or combination fuel single burner applications. Provides level of safety, functional capability and features beyond the capacity of conventional controls.

- For use with R7824C Amplifier with C7024E,F Flame Detectors; R7848A,B with C7015A Flame Detectors; R7851B with C7927, C7962 Flame Detectors; or R7852A,B with C7915 Flame Detectors.
- Functions include automatic burner sequencing, flame supervision, system status indication, system or self diagnostics and troubleshooting.
- Five LEDs provide sequence information.
- Selectable recycle or lockout on loss of flame.
- Shutter drive output for use with dynamic self-check flame detectors.
- Access for external electrical voltage checks.
- Plug-in flame amplifier.
- Nonvolatile memory retains history files and lockout status after loss of power.

Dimensions in inches (millimeters)



Application: Primary Control 24 Vdc

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Flame Establishing Period

Main: Intermittent

Pilot: 4 sec or 10 sec

Weight: 1 lb 13 oz; (0.8 kg)

Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. OX4A5.AF.

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Required Components: Q7800A,B Universal Wiring Subbases. R7824 or R7848 Flame Signal Amplifier.

Product Number	Voltage	Pilot Type
RM7824A1006	24 Vdc (+10, -15%)	intermittent

Microprocessor Burner Controls

RM7838A Manual Start Industrial Primary Control with Purge



Microprocessor-based integrated burner control for industrial semi-automatically fired gas, oil, coal or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

Dimensions Diagram: See page 867

Application: Semi Automatic Primary Control with Purge

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Frequency: 50 Hz; 60 Hz ($\pm 10\%$)

PrePurge: Determined by ST7800A Purge Timer Card

Interlocks: Running

Flame Establishing Period

Main: Intermittent

Pilot: 4 sec or 10 sec

Weight: 1 lb 10 oz (0.7 kg)

- Functions include purge, burner pilot startup, flame supervision, system status indication, system or self diagnosis and troubleshooting.
- Delays admission of fuel to combustion chamber until pilot flame has been proven and then monitors the flame through the run period while providing system status indication.
- Includes Keyboard Display Module.
- Five LEDs provide sequence information.
- Intermittent pilot valve.
- Interchangeable plug-in flame amplifier.
- Access for external electrical voltage checks.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Selectable pilot flame establishing period.
- Provides application flexibility and optional communication interface capability.
- Compatible with existing Honeywell flame detectors.

Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Control Safety Devices: Acceptable: CSD-1

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. OX4A5.AF.

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Required Components: Q7800A,B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Comments
RM7838A1014	120 Vac (+10, -15%)	intermittent	Includes S7800 Display

Microprocessor Burner Controls

RM7838B,C Manual Start Industrial Programmers



Microprocessor-based integrated burner control for industrial semi-automatically fired gas, oil, coal or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

Dimensions Diagram: See page 867

Application: Semi Automatic Programming Control

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Frequency: 50 Hz; 60 Hz (±10%)

Early Spark Termination: Yes, 5 sec

Preignition: Yes

PrePurge: Determined by ST7800A Purge Timer Card

Interlocks: Lockout

Flame Establishing Period

Main: 10 sec or Intermittent

Pilot: 4 sec or 10 sec

- Functions include purge, burner pilot startup, flame supervision, system status indication, system or self diagnosis and troubleshooting.
- Delays admission of fuel to combustion chamber until pilot flame has been proven and then monitors the flame through the run period while providing system status indication.
- Includes Keyboard Display Module.
- Five LEDs provide sequence information.
- Intermittent pilot valve.
- Interchangeable plug-in flame amplifier.
- Access for external electrical voltage checks.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Selectable pilot flame establishing period.
- Provides application flexibility and optional communication interface capability.
- Compatible with existing Honeywell flame detectors.

Weight: 1 lb 10 oz (0.7 kg)

Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Control Safety Devices: Acceptable: CSD-1

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. OX4A5.AF.

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Comments	Gastec/European
RM7838B1013	120 Vac (+10, -15%)	interrupted	Includes S7800 Display	—
RM7838C1004	120 Vac (+10, -15%)	interrupted	Includes S7800 Display	—
RM7838C1020	120 Vac (+10, -15%)	interrupted	Includes S7800 Display	Gastec EN268 Report 1156791

Microprocessor Burner Controls

RM7838B,C Manual Start Industrial Programmers with VPS



Microprocessor-based integrated burner control for industrial semi-automatically fired gas, oil, coal or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls. Includes Valve Proving Feature.

Dimensions Diagram: See page 867

Application: Semi Automatic Programming Control w/VPS
Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)
Vibration: 0.5 G environment
Frequency: 50 Hz; 60 Hz (±10%)
Early Spark Termination: Yes, 5 sec
Preignition: Yes
PrePurge: Determined by ST7800A Purge Timer Card
PostPurge: programmed with S7800A1142 display
Interlocks: Lockout
Flame Establishing Period
Main: 10 sec or Intermittent
Pilot: 4 sec or 10 sec

- Functions include purge, burner pilot startup, flame supervision, system status indication, system or self diagnosis and troubleshooting.
- Delays admission of fuel to combustion chamber until pilot flame has been proven and then monitors the flame through the run period while providing system status indication.
- Includes S7800A1142 Keyboard Display Module.
- Five LEDs provide sequence information.
- Intermittent pilot valve.
- Interchangeable plug-in flame amplifier.
- Access for external electrical voltage checks.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Selectable pilot flame establishing period.
- Provides application flexibility and optional communication interface capability.
- Compatible with existing Honeywell flame detectors.
- With Valve Proving Feature and Programmable Post Purge Time.
- Power LED blinks a fault code on system lockout.

Weight: 1 lb 10 oz (0.7 kg)

Approvals:

Control Safety Devices: Acceptable: CSD-1

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. OX4A5.AF.

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Interlocks	Comments
RM7838B1021	120 Vac (+10, -15%)	interrupted	Lockout	Includes programmable VPS (Valve Proving Switch) check feature and blinking LED fault annunciation
RM7838C1012	120 Vac (+10, -15%)	interrupted	Lockout	Includes programmable VPS (Valve Proving Switch) check feature and blinking LED fault annunciation

Microprocessor Burner Controls

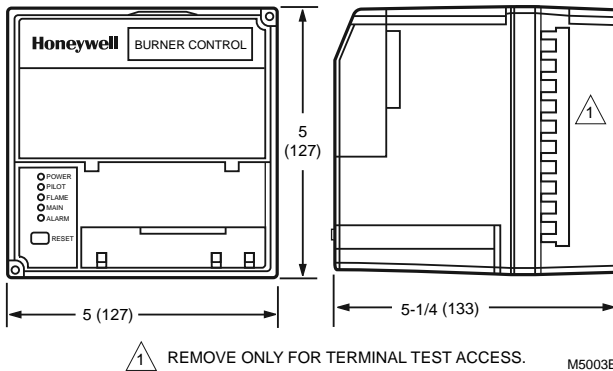
RM7840 Programmers



Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of RM7840 operation and fault information.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.

Dimensions in inches (millimeters)



Vibration: 0.5 G environment

Frequency: 50 Hz; 60 Hz ($\pm 10\%$)

Early Spark Termination: Yes, 5 sec

Preignition: Yes

PrePurge: Determined by ST7800A Purge Timer Card

PostPurge: 15 sec

AirFlow Check: User selectable

Weight: 1 lb 13 oz (0.8 kg)

Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Control Safety Devices: Acceptable: CSD-1

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. OX4A5.AF.

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Required Components: Q7800A,B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Application: Programming Control

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Product Number	Voltage	Pilot Type	Flame Establishing Period		Second Stage Pilot Valve	Interlocks	Comments
			Main	Pilot			
RM7840E1016	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	LHL-LF&HF Proven
RM7840G1014	120 Vac (+10, -15%)	interrupted	10 sec, or 15 sec, or 30 sec, or Intermittent	4 sec or 10 sec	selectable	Running	LHL-LF Proven
RM7840L1018	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	LHL-LF&HF Proven
RM7840L1026	120 Vac (+10, -15%)	interrupted	10 sec or Intermittent	4 sec or 10 sec	Intermittent	Lockout	LHL-LF&HF Proven
RM7840M1017	120 Vac (+10, -15%)	interrupted	10 sec or Intermittent	4 sec or 10 sec	Intermittent	Running	On/Off-LF Proven

Microprocessor Burner Controls

RM7840 Programmers with VPS



- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and trouble shooting.
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information. Power LED blinks fault code on Lockout.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.
- RM7800 comes with S7800A1142 Keyboard Display Module.
- Keyboard required to setup Valve Proving Feature and change post purge time.

Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls. With Valve Proving Feature. RM7800L comes standard with S7800A1142 Keyboard Display.

Dimensions Diagram: See page 874

Application: Programming Control w/VPS
Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)
Vibration: 0.5 G environment
Frequency: 50 Hz; 60 Hz ($\pm 10\%$)
Early Spark Termination: Yes, 5 sec
Preignition: Yes
PrePurge: Determined by ST7800A Purge Timer Card
PostPurge: programmed with S7800A1142 display
AirFlow Check: User selectable
Second Stage Pilot Valve: selectable

Weight: 1 lb 10 oz (0.7 kg)

Approvals:

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. 1V9AO.AF.

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Flame Establishing Period		Interlocks	Comments
			Main	Pilot		
RM7840G1022	120 Vac (+10, -15%)	interrupted	10 sec, or 15 sec, or 30 sec, or Intermittent	4 sec or 10 sec	Running	Requires S7800A1142 Display, LHL-LF Proven
RM7840L1075	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Lockout	Requires S7800A1142 Display, LHL-LF&HF Proven

Microprocessor Burner Controls

RM7845 Programmers



Dimensions Diagram: See page 874

Application: Programming Control
Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)
Vibration: 0.5 G environment
Frequency: 50 Hz; 60 Hz (±10%)
Preignition: Yes
PrePurge: Determined by ST7800A Purge Timer Card
AirFlow Check: User selectable

Flame Establishing Period
Main: 10 sec
Pilot: 4 sec or 10 sec
Weight: 1 lb 13 oz (0.8 kg)

Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of RM7840 operation and fault information.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.

Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Control Safety Devices: Acceptable: CSD-1

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. 1V9AO.AF.

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	PostPurge	Interlocks	Comments
RM7845A1001	120 Vac (+10, -15%)	interrupted	15 sec	Lockout	LHL-LF&HF Proven

RM7885; EC7885 Manual Start Industrial Primary Control



Microprocessor-based integrated burner control for industrial semi-automatically fired gas, oil, coal, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

Dimensions Diagram: See page 874

Application: Semi Automatic Primary Control
Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)
Vibration: 0.5 G environment
Frequency: 50 Hz; 60 Hz (±10%)

Flame Establishing Period
Main: Intermittent
Pilot: 15 min

- Functions include flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Adaptable to continuous firing, high-low or modulating firing rate for semi-automatic burner sequencing.
- Operates with the following: Torch-ignited main burner or torch-ignited pilot using S445A Start-Stop Station, or conventional knee or foot operated station.
- Direct-ignition oil burner or electrically ignited pilot, using S445A Start-Stop Station.
- Five LEDs provide sequence information.
- Nonvolatile memory.
- Flame signal check during standby.
- Shutter drive output.
- Compatible with existing Honeywell flame detectors.
- Terminal provided for external alarm to sound on flame failure.

Weight: 1 lb 13 oz (0.8 kg)

Approvals:

Factory Mutual: Report No. OX4A5.AF.

Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

Product Number	Voltage	Pilot Type	Approvals:		
			Canadian Standards Association	Swiss RE (formerly IRI)	Underwriters Laboratories, Inc.
EC7885A1011	220 to 240 Vac (+10, -15%)	intermittent	—	—	—
RM7885A1015	120 Vac (+10, -15%)	intermittent	Certified, File No. LR95329-3.	Acceptable	Component Recognized, File No. MP268; Guide No. MCCZ.

Microprocessor Burner Controls

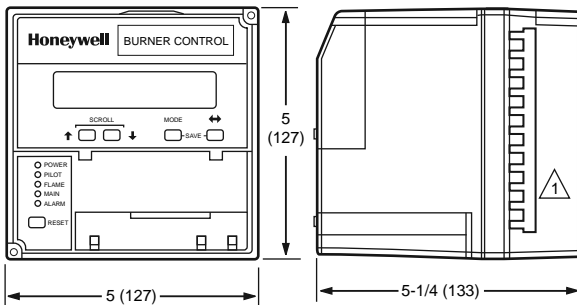
RM7888 PLC Adaptable Primary Control



Microprocessor-based integrated burner control for industrial process semi-automatically fired gas, oil, coal, or combination fuels for single and multiple burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Functions include automatic burner startup sequencing, five user selectable run sequences, four line-voltage sequence control inputs, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Requires a relay module, subbase, and amplifier for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display mounting, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Use with master system control which determines purge timing and confirms air supply and air flow.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information.

Dimensions in inches (millimeters)



⚠ REMOVE ONLY FOR TERMINAL TEST ACCESS.

M9494

Application: Primary Control - PLC Adaptable

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Frequency: 50 Hz; 60 Hz (±10%)

Flame Establishing Period

Main: 15 sec

Pilot: 4 sec

Weight: 1 lb 10 oz (0.7 kg)

Approvals:

Canadian Standards Association: Certified

Factory Mutual: Approved.

Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

Product Number	Voltage	Pilot Type	Comments
RM7888A1019	120 Vac (+10, -15%)	selectable	Selectable sequences
RM7888A1027	120 Vac (+10, -15%)	selectable	For 10 sec DSI applications, selectable sequences

Microprocessor Burner Controls

RM7890 On-Off Primary Control with VPS



Microprocessor-based integrated primary burner control for automatically fired gas, oil or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self diagnostics and troubleshooting.
- Subbase and amplifier are required for operation.
- Power LED blinks Fault Code on lockout.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Optional local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable relight or lockout on loss of flame.
- Contains Valve Proving Feature - require S7800A1142 Keyboard Display (not provided) to set up.

Dimensions Diagram: See page 874

Application: On-Off Primary Control w/VPS

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Frequency: 50 Hz; 60 Hz (±10%)

Preignition: Yes

Flame Establishing Period

Main: Intermittent

Pilot: 4 sec or 10 sec

Weight: 1 lb 13 oz (0.8 kg)

Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. OX4A5.AF.

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

Product Number	Voltage	Pilot Type	Comments
RM7890A1056	120 Vac (+10, -15%)	intermittent	Includes programmable VPS (Valve Proving Switch) check feature and blinking LED fault annunciation
RM7890B1048	120 Vac (+10, -15%)	intermittent	Includes Shutter Drive Capability, VPS (Valve Proving Switch) check and blinking LED fault annunciation

Microprocessor Burner Controls

RM7890; EC7890 On-Off Primary Controls



Microprocessor-based integrated primary burner control for automatically fired gas, oil or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

Dimensions Diagram: See page 874

Application: On-Off Primary Control

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Frequency: 50 Hz; 60 Hz (±10%)

Weight: 1 lb 13 oz (0.8 kg)

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self diagnostics and troubleshooting.
- Subbase and amplifier are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Optional local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable relight or lockout on loss of flame.

Approvals:

Factory Mutual: Report No. 1D0A1.AF

Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

Product Number	Voltage	Pilot Type	Flame Establishing Period		Comments	Approvals			
			Main	Pilot		Gastec/ European	Canadian Standards Association	Swiss RE (formerly IRI)	Underwriters Laboratories, Inc.
EC7890A1011	220 to 240 Vac (+10, -15%)	intermittent	Intermittent	4 sec or 10 sec	—	—	—	—	—
EC7890A1029	220 to 240 Vac (+10, -15%)	intermittent	Intermittent	4 sec or 10 sec	—	Gastec: CE- 63AP3070/1, Approved to EN298.	—	—	—
EC7890B1010	220 to 240 Vac (+10, -15%)	intermittent	Intermittent	4 sec or 10 sec	Includes Shutter Drive Capability	—	—	—	—
RM7890A1015	120 Vac (+10, -15%)	intermittent	Intermittent	4 sec or 10 sec	—	—	Certified, File No. LR95329-3.	Acceptable	Component Recognized, File No. MP268; Guide No. MCCZ.
RM7890A1031	120 Vac (+10, -15%)	intermittent	Intermittent	30 sec fixed	—	—	Certified, File No. LR95329-3.	Acceptable	Component Recognized, File No. MP268; Guide No. MCCZ.
RM7890A1064	120 Vac (+10, -15%)	intermittent	Intermittent	4 sec or 10 sec	—	Gastec: CE- 63AP3070/1, Approved to EN298.	—	—	—
RM7890B1014	120 Vac (+10, -15%)	intermittent	Intermittent	4 sec or 10 sec	Includes Shutter Drive Capability	—	Certified, File No. LR95329-3.	Acceptable	Component Recognized, File No. MP268; Guide No. MCCZ.
RM7890B1030	120 Vac (+10, -15%)	intermittent	Intermittent	Fixed 4 sec or 10 sec PFEP	Includes Shutter Drive Capability, Alarm sounds when Reset pushed.	—	Certified, File No. LR95329-3.	Acceptable	Component Recognized, File No. MP268; Guide No. MCCZ.
RM7890B1055	120 Vac (+10, -15%)	intermittent	Intermittent	4 sec or 10 sec	Includes Shutter Drive Capability	Gastec EN268 Report 1156791	Certified, File No. LR95329-3.	Acceptable	Component Recognized, File No. MP268; Guide No. MCCZ.
RM7890C1005	120 Vac (+10, -15%)	Standing Pilot	Intermittent	—	Standing Pilot Applications	—	Certified, File No. LR95329-3.	Acceptable	Component Recognized, File No. MP268; Guide No. MCCZ.
RM7890D1004	120 Vac (+10, -15%)	intermittent	Intermittent	15 sec or 30 sec	Higher Flame Sensor Voltage for Infra Red Heater Applications	—	Certified, File No. LR95329-3.	Acceptable	Component Recognized, File No. MP268; Guide No. MCCZ.

Microprocessor Burner Controls

RM7895; EC7895 On-Off Primary Control with Prepurge



Microprocessor-based integrated primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

Dimensions Diagram: See page 874

Application: On-Off Primary Control with Prepurge
Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)
Vibration: 0.5 G environment
Frequency: 50 Hz; 60 Hz (±10%)
PrePurge: Determined by ST7800A Purge Timer Card
Interlocks: Selectable
Weight: 1 lb 15 oz (0.9 kg)

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Subbase, amplifier, and prepurge timer are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Optional local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable relight or lockout on loss of flame.
- Airflow switch check.

Approvals:

Factory Mutual: Report No. 1D0A1.AF

Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	AirFlow Check	Flame Establishing Period		Delayed Main Valve	Comments	Used With	Approvals			
				Main	Pilot				Canadian Standards Association	Swiss RE (formerly IRI)	Control Safety Devices	Underwriters Laboratories, Inc.
EC7895A1010	220 to 240 Vac (+10, -15%)	intermittent	—	Intermittent	4 sec or 10 sec	No	—	7800 Series Amplifiers	—	—	—	—
EC7895C1000	220 to 240 Vac (+10, -15%)	interrupted	—	10 sec	4 sec or 10 sec	Yes	—		—	—	—	—
RM7895A1014	120 Vac (+10, -15%)	intermittent	—	Intermittent	4 sec or 10 sec	No	—	7800 Series Amplifiers	Certified, File No. LR95329-3.	Acceptable	Acceptable: CSD-1	Component Recognized, File No. MP268; Guide No. MCCZ.
RM7895A1048	120 Vac (+10, -15%)	intermittent	—	Intermittent	4 sec or 10 sec	No	Includes ignition cut-out during PFEP					
RM7895B1013	120 Vac (+10, -15%)	intermittent	Dynamic	Intermittent	4 sec to 10 sec	No	—					
RM7895C1012	120 Vac (+10, -15%)	interrupted	—	10 sec	4 sec or 10 sec	Yes	—					
RM7895C1020	120 Vac (+10, -15%)	interrupted	—	10 sec	10 sec	Yes	Includes ignition cut-out during PFEP					
RM7895D1011	120 Vac (+10, -15%)	interrupted	Dynamic	10 sec	4 sec or 10 sec	Yes	—					
RM7895E1002	120 Vac (+10, -15%)	intermittent	—	Intermittent	15 sec or 30 sec	No	Higher Flame Sensor Voltage for Infra Red Heater Applications	R7847 only				
RM7895F1001	120 Vac (+10, -15%)	interrupted	Dynamic	10 sec	15 sec or 30 sec	Yes						

Microprocessor Burner Controls

RM7896 On-Off Primary Control with Pre- and Post-Purge



Microprocessor-based integrated full-function primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Subbase, amplifier and purge card are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- 15 second postpurge.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable recycle or lockout on loss of airflow or flame.
- Shutter drive output.
- Airflow switch check.
- Delayed main valve.

Dimensions Diagram: See page 874

Application: On-Off Primary Control with Pre and Post purge
Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)
Vibration: 0.5 G environment
Frequency: 50 Hz; 60 Hz (±10%)
PrePurge: Determined by ST7800A Purge Timer Card
Interlocks: Selectable
Weight: 1 lb 15 oz (0.9 kg)

Approvals:
Canadian Standards Association: Certified, File No. LR95329-3.
Federal Communications Commission: FCC Part 15, Class B, Emissions.
Factory Mutual: Report No. OX4A5.AF.
Swiss RE (formerly IRI): Acceptable
Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.
Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	AirFlow Check	Flame Establishing Period		Delayed Main Valve	PostPurge	Comments
				Main	Pilot			
RM7896A1012	120 Vac (+10, -15%)	intermittent	—	Intermittent	4 sec or 10 sec	No	15 sec	Includes Pre- and Post -Purge.
RM7896B1011	120 Vac (+10, -15%)	intermittent	Dynamic	Intermittent	4 sec or 10 sec	No	15 sec	Includes Pre- and Post -Purge.
RM7896C1010	120 Vac (+10, -15%)	interrupted	—	10 sec	4 sec or 10 sec	Yes	15 sec	Includes Pre- and Post -Purge.
RM7896D1019	120 Vac (+10, -15%)	interrupted	Dynamic	10 sec	4 sec or 10 sec	Yes	15 sec	Includes Pre- and Post -Purge.
RM7896D1027	120 Vac (+10, -15%)	interrupted	Dynamic	10 sec	4 sec or 10 sec	Yes	60 sec	Blinking Fault code LED, early spark termination when flame sensed, pre and post purge

Microprocessor Burner Controls

RM7897 Automatic Primary Control with Programmable Post-Purge



Microprocessor-based integrated full-function primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls. Along with Programmable Post Purge.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Subbase, amplifier and purge card are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Five LEDs provide sequence information. Power LED blinks fault code on Safety Shutdown.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable recycle or lockout on loss of airflow or flame.
- Shutter drive output.
- Airflow switch check.
- Delayed main valve.
- Programmable post purge using S7800A1142 Keyboard Display (not provided).

Dimensions Diagram: See page 874

Application: On-Off Primary Control with Pre and Programmable Post purge

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Frequency: 50 Hz; 60 Hz (±10%)

Pilot Type: selectable

Preignition: Yes

PrePurge: Determined by ST7800A Purge Timer Card

PostPurge: programmed with S7800A1142 display

Interlocks: Selectable

Flame Establishing Period

Pilot: 4 sec or 10 sec

Weight: 1 lb 15 oz (0.9 kg)

Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Control Safety Devices: Acceptable: CSD-1

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. OX4A5.AF.

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Delayed Main Valve	Comments	Used With
RM7897A1002	120 Vac (+10, -15%)	selectable	—	Includes blinking LED fault annunciation feature	7800 Series Amplifiers
RM7897C1000	120 Vac (+10, -15%)	selectable	Yes	Includes blinking LED fault annunciation feature	7800 Series Amplifiers

Microprocessor Burner Controls

RM7898 On-Off Primary Control with VPS



Microprocessor-based integrated full-function primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls. Include Program able Post Purge and Valve Proving Feature.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Subbase, amplifier and purge card are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Programmable postpurge.
- Five LEDs provide sequence information. Power LED Blinks Fault code on safety shutdown.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable recycle or lockout on loss of airflow or flame.
- Shutter drive output.
- Airflow switch check.
- Program able post purge and Valve Proving feature with S7800A1142 Keyboard Display (not supplied).

Dimensions Diagram: See page 874

Application: On-Off Primary Control w/VPS

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Frequency: 50 Hz; 60 Hz (±10%)

Preignition: Yes

PrePurge: Determined by ST7800A Purge Timer Card

PostPurge: programmed with S7800A1142 display

Interlocks: Selectable

Flame Establishing Period

Pilot: 4 sec or 10 sec

Weight: 1 lb 15 oz (0.9 kg)

Approvals:

Canadian Standards Association: Pending

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. OX4A5.AF.

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Required Components: Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Comments	Used With
RM7898A1000	120 Vac (+10, -15%)	selectable	Includes blinking LED fault annunciation feature	7800 Series Amplifiers
RM7898A1018	120 Vac (+10, -15%)	selectable	Includes blinking LED fault annunciation feature, with early spark termination	7800 Series Amplifiers

Microprocessor Burner Controls

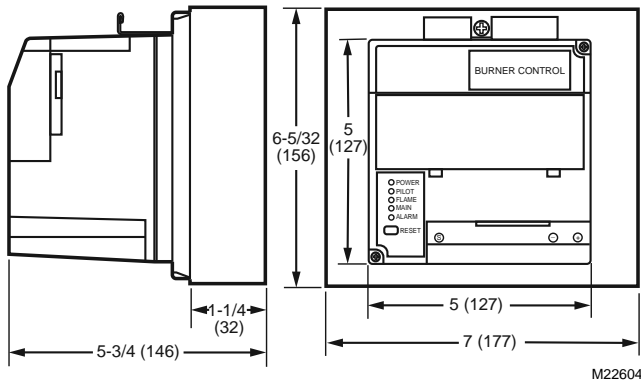
R7140 Programmers



The Honeywell R7140G, L, M Burner Control Modules are microprocessor-based integrated burner control for automatically fired gas, oil or combination fuel single burner applications.

- Functions provided by the R7140G,L,M include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Upgrade replacement for BC7000 or R4140 legacy Programmer controls.
- Require ST7800 Purge Timer and appropriate R78XX Amplifier to complete the replacement.

Dimensions in inches (millimeters)



Application: Upgrade Replacement Programming Control for R4140 or BC7000

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Voltage: 120 Vac (+10, -15%)

Frequency: 50 Hz; 60 Hz ($\pm 10\%$)

Early Spark Termination: Yes, 5 sec

Preignition: Yes

PrePurge: Determined by ST7800A Purge Timer Card

PostPurge: 15 sec

AirFlow Check: User selectable

Weight: 3 lb 1 oz (1.4 kg)

Approvals:

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Required Components: R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800 Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Flame Establishing Period		Second Stage Pilot Valve	Interlocks	Comments
			Main	Pilot			
R7140G1000	120 Vac (+10, -15%)	Interrupted or Intermittent	10 sec, or 15 sec, or 30 sec, or Intermittent	4 sec or 10 sec	selectable	Running	LHL-LF Proven
R7140G2008	120 Vac (+10, -15%)	Interrupted or Intermittent	10 sec, or 15 sec, or 30 sec, or Intermittent	4 sec or 10 sec	—	Running	LHL-LF Proven
R7140L1009	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	LHL-LF&HF Proven
R7140L2007	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	LHL-LF&HF Proven
R7140M1007	120 Vac (+10, -15%)	Interrupted or Intermittent	10 sec or Intermittent	4 sec or 10 sec	Intermittent	Running	On/Off-LF Proven

Microprocessor Burner Controls

Q7800 22 Terminal Universal Wiring Subbases



Q7800B



Q7800A



Q7800F

Burner, panel or wall mount subbases for 7800 SERIES relay modules and S7830A Expanded Annunciator.

- Makes electrical connections for 7800 SERIES relay modules or S7830A Expanded Annunciator through bifurcated contacts.
- Provides terminals for field wiring.
- Twenty-two terminals.

Application: Wiring Subbase

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Weight: 7 oz (0.20 kg)

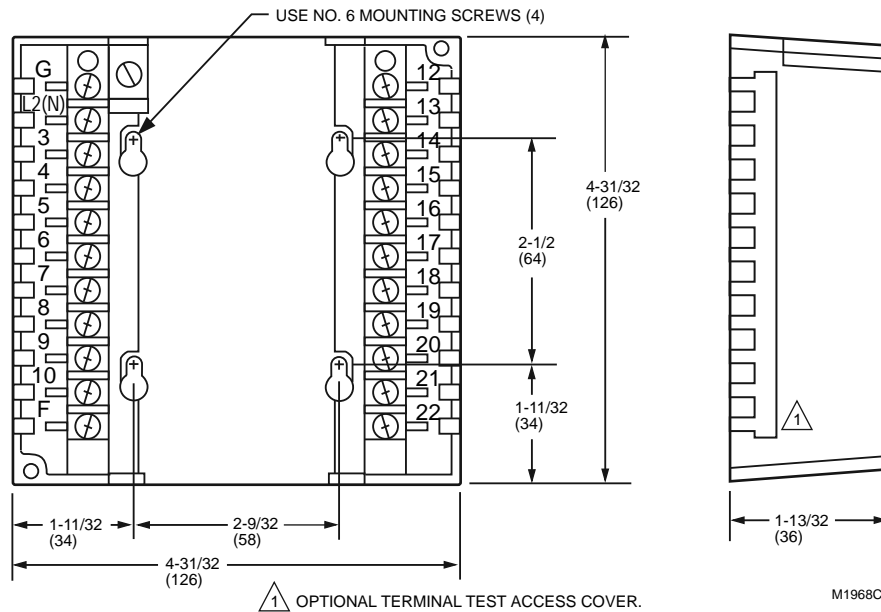
Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ2.

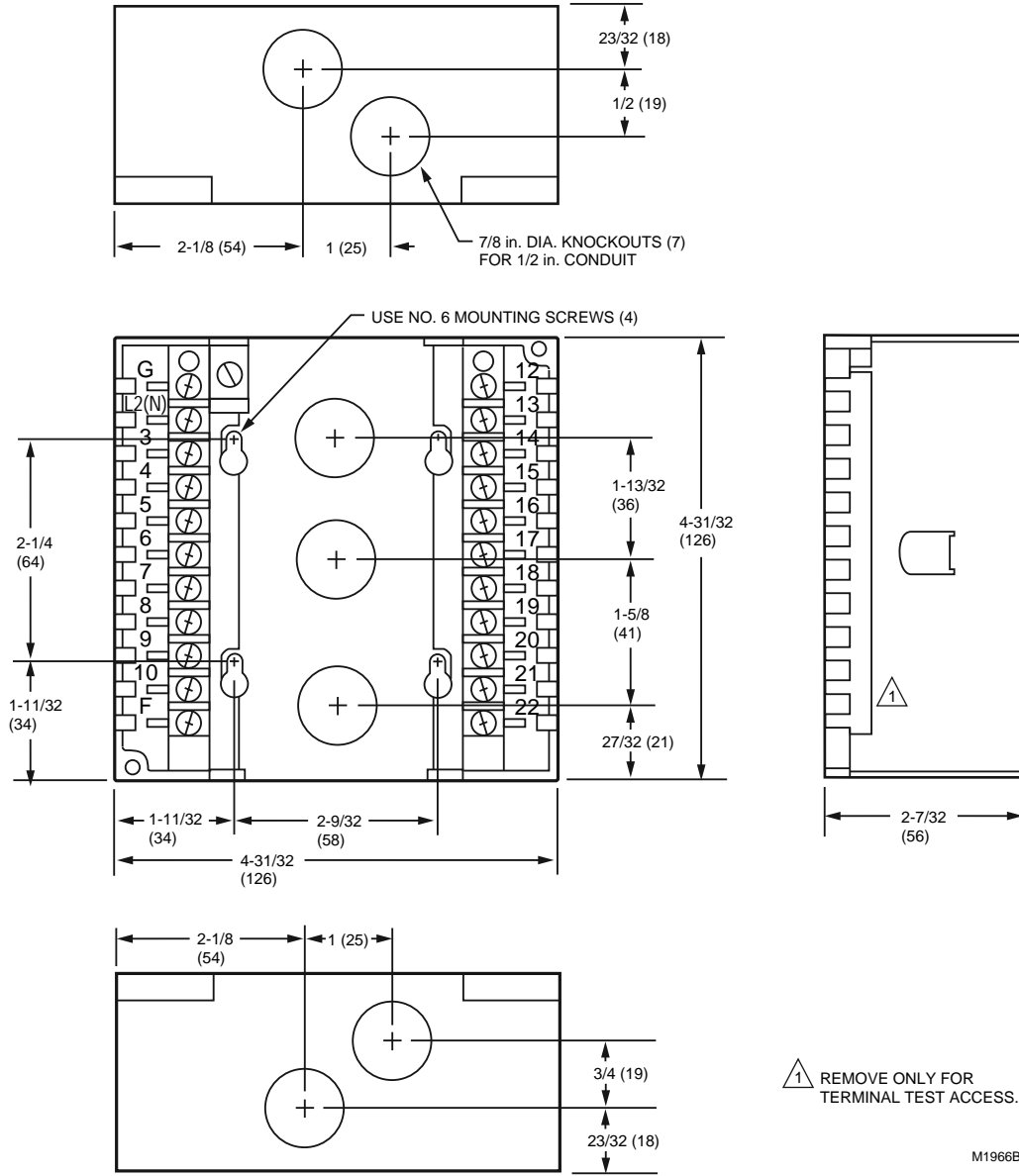
Product Number	Application	Comments	Used With
Q7800A1005	Wiring Subbase	Panel mount	—
Q7800B1003	Wiring Subbase	Burner/wall mount 2 knockouts each end	—
Q7800B1011	Wiring Subbase	Burner/wall mount 3 knockouts each end	—
Q7800F1004	Wiring Adapter Subbase	Burner/wall mount adapter subbase for RA890	RM7890
Q7800F1012	Wiring Adapter Subbase	Burner/wall mount adapter subbase for R4795	RM7895


Dimensions in inches (millimeters)



Microprocessor Burner Controls

Dimensions in inches (millimeters)



 REMOVE ONLY FOR TERMINAL TEST ACCESS.

M1966B

Microprocessor Burner Controls

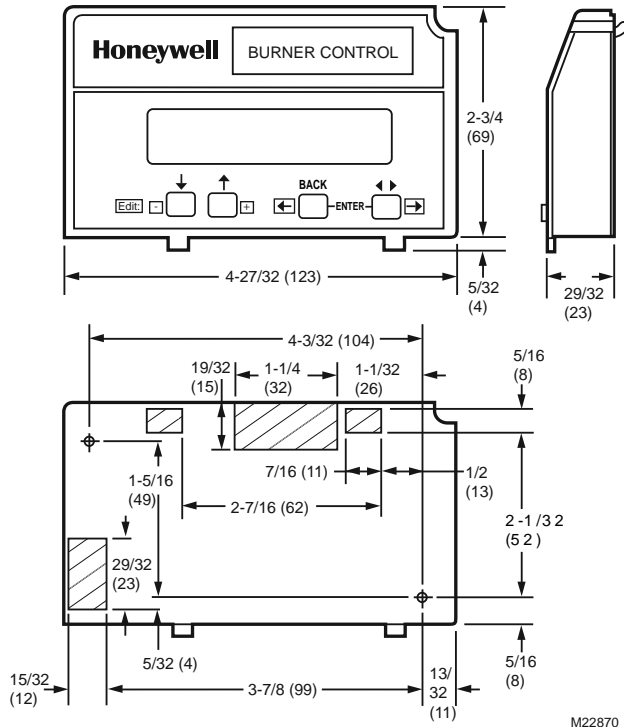
S7800 Keyboard Display Module



Provides current status of burner sequence, timing information, hold information and lockout information, as well as selectable or preemptive messages.

- Application flexibility.
- First-out annunciation and system diagnostics provided by 2 row by 20 column Vacuum Fluorescent Display (VFD).
- S7800A1001 offers "Call Service" (Business Card) programmable message displayed when system lockout occurs.
- S7800A1001 series 5 and greater has selectable ModBus Feature.
- Local or remote annunciation of operation and fault information.
- First out expanded annunciation with 24 limit and interlock LEDs enhances keyboard display module information.
- Remote reset.

Dimensions in inches (millimeters)



Application: Keyboard Display

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Weight: 4 oz (0.11 kg)

Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. 1V9AO.AF.

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Product Number	Voltage	Comments
S7800A1001	13 Vdc peak fullwave rectified (+20/-15%).	English Language
S7800A1035	13 Vdc peak fullwave rectified (+20/-15%).	French Language
S7800A1043	13 Vdc peak fullwave rectified (+20/-15%).	German Language
S7800A1050	13 Vdc peak fullwave rectified (+20/-15%).	Italian Language
S7800A1068	13 Vdc peak fullwave rectified (+20/-15%).	Spanish Language
S7800A1118	13 Vdc peak fullwave rectified (+20/-15%).	Japanese Language
S7800A1126	13 Vdc peak fullwave rectified (+20/-15%).	Portuguese Language

Microprocessor Burner Controls

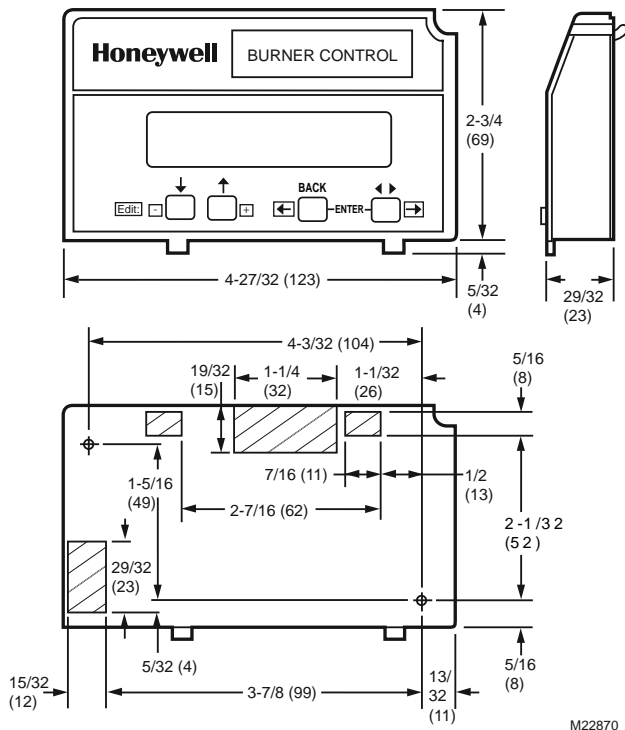
S7800 Keyboard Display Module for VP Programming



Provides current status of burner sequence, timing information, hold information and lockout information, as well as selectable or preemptive messages.

- Application flexibility.
- First-out annunciation and system diagnostics provided by 2 row by 20 column Vacuum Fluorescent Display (VFD).
- "Call Service" (Business Card) programmable message displayed when system lockout occurs.
- Local or remote annunciation of operation and fault information.
- First out expanded annunciation with 24 limit and interlock LEDs enhances keyboard display module information. Display can be Programmed to customize the expanded annunciator messages to the system.
- Required to program Valve Proving and Post Purge feature on selected 7800 Series devices.
- Can be setup for ModBus Communication.
- Provides burner controller data.
- Remote reset.

Dimensions in inches (millimeters)



Application: Keyboard Display for VP setup

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Weight: 4 oz (0.11 kg)

Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. 1V9AO.AF.

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ.

Product Number	Voltage	Comments
S7800A1142	13 Vdc peak fullwave rectified (+20/-15%).	English Language, Capable of displaying special "Call Service" messages, allows setup of S7830A1005 Expanded Annunciator messages, used for VPS programming, and programming Post Purge on select 7800 Devices
S7800A1167	13 Vdc peak fullwave rectified (+20/-15%).	Spanish Language with Valve Proving, Postpurge, "Call Service", and Expanded Annunciator programming ability

Microprocessor Burner Controls

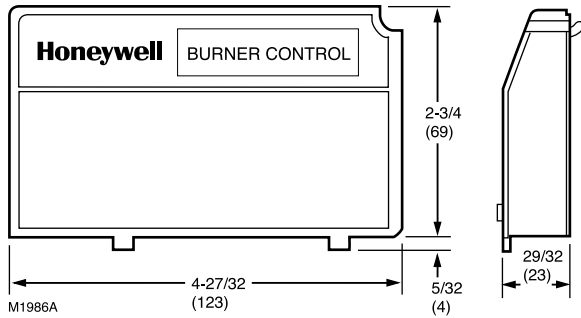
S7810A Data ControlBus Module



Supports remote mounting of S7800 Keyboard Display Module, personal computer communications interface and remote reset.

- Use with remotely mounted S7800 Keyboard Display Module.
- Installs directly on the front of 7800 SERIES Relay Modules.
- Provides communications bus interface and remote reset.

Dimensions in inches (millimeters)



Application: ControlBus™ Module

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Weight: 4 oz (0.11 kg)

Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Factory Mutual: Report No. 1V9AO.AF.

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ2.

Product Number	Voltage	Comments
S7810A1009	13 Vdc peak fullwave rectified (+20/-15%).	Includes 203541 5-wire Connector

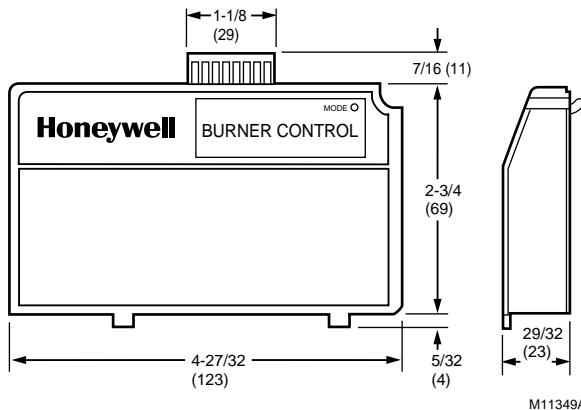
S7810B Multi-Drop Switch Module



S7810B Multi-Drop Switch Module primarily used for communications interface for multiple 7800 SERIES subnetworks.

- Provides ability to remotely mount S7800 Keyboard Display Module.
- Installs directly on the front of 7800 SERIES Relay Modules.
- Provides communications bus interface and remote reset.

Dimensions in inches (millimeters)



Application: ControlBus™ Module

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Weight: 4 oz (0.11 kg)

Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Factory Mutual: Report No. 1V9AO.AF.

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ2.

Product Number	Voltage	Comments
S7810B1007	13 Vdc peak fullwave rectified (+20/-15%).	Includes 208727 8 pin electrical connector

Microprocessor Burner Controls

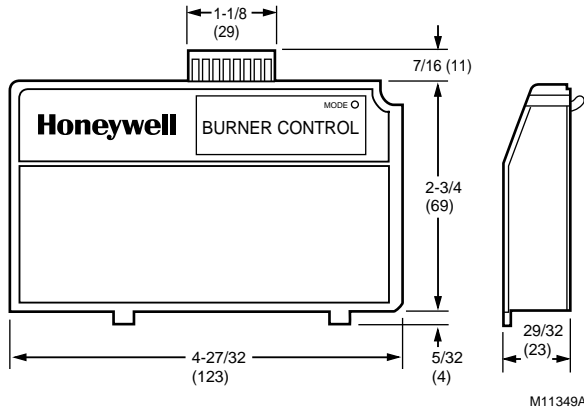
S7810M ModBus Module



S7810M ModBus Module operates as ModBus RTU slave device.

- Provides ability to remotely mount the S7800 Keyboard Display Module.
- Installs directly on the front of 7800 SERIES Relay Modules.
- Provides ModBus communications bus interface.
- Remote reset.

Dimensions in inches (millimeters)



Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Weight: 4 oz (0.11 kg)

Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Factory Mutual: Report No. 1V9AO.AF.

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ2.

Product Number	Application	Voltage	Comments	Gastec/European
S7810M1003	ControlBus™ Module-MODBUS	13 Vdc peak fullwave rectified (+20/-15%).	Includes 208727 8 pin electrical connector	—
S7810M1029	ControlBus™ Module-MODBUS - CE Certified (no reset allowed)	13 Vdc peak fullwave rectified (+20/-15%).	Includes 208727 8 pin electrical connector	Gastec EN268 Report 1156791

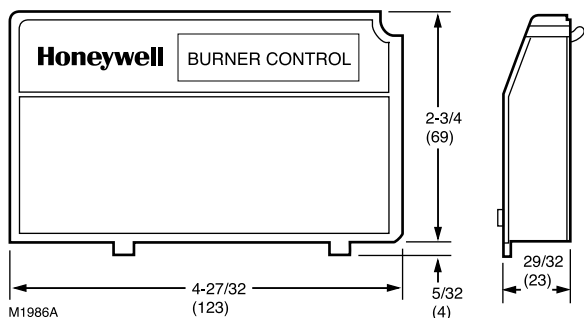
S7820 Remote Reset Module



Serves as link between remote reset pushbutton and relay module. Allows 7800 SERIES relay module to be reset from a remote location.

- Reset button can be installed up to 1000 feet away.
- Installs directly on the front of 7800 SERIES relay module.

Dimensions in inches (millimeters)



Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Weight: 3 oz (0.09 kg)

Approvals:

Canadian Standards Association: Certified, File No. LR95329-3.

Factory Mutual: Report No. 1V9AO.AF.

Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ2.

Product Number	Application	Comments
S7820A1007	Remote Reset Module	Includes 203541 5-wire Connector

Microprocessor Burner Controls

S7830 First Out Expanded Annunciator



Microprocessor-based expanded annunciator to support the 7800 SERIES relay modules for first-out annunciation, sequencing, system or self-diagnostics and troubleshooting.

- Twenty-six status LEDs.
- Front panel LED array-arranged to indicate flow of line-voltage through string of limits, controls and interlocks.
- Selectable current and first-out LED array display status.
- Twenty-one monitored contact points.
- Access for external electrical voltage checks.

Dimensions, Approximate: 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase
(127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Vibration: 0.5 G environment

Frequency: 50 Hz; 60 Hz (±10%)

Weight: 1 lb 6 oz (0.62 kg)

Approvals:

Canadian Standards Association: Certified, File No. LR95329.

Federal Communications Commission: FCC Part 15, Class B, Emissions.

Factory Mutual: Report No. 1V9AO.AF.

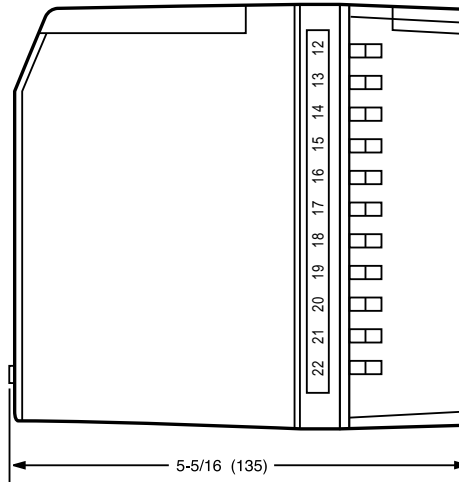
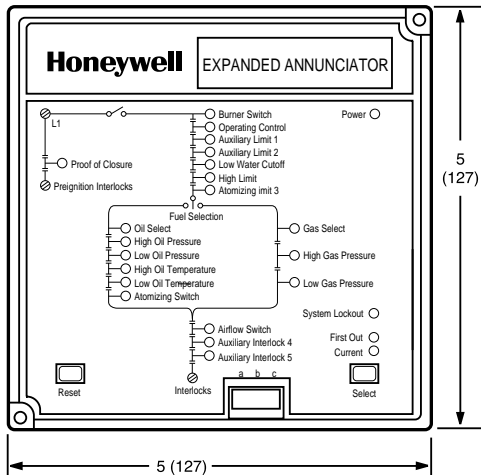
Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized, File No. MH17367; Guide No. MJAT.

Required Components: 7800 Series Relay Modules and Q7800A, B Subbases

Product Number	Application	Voltage
S7830A1005	Expanded Annunciator	120 Vac (+10, -15%)

Dimensions in inches (millimeters)



M5182

Microprocessor Burner Controls

ST7800 Plug In Purge Timer



Provides the prepurge timing for select 7800 SERIES relay modules. ST7800C used with the RM7838C only.

Application: Purge Timer
PrePurge: 2 seconds

Approvals:
Canadian Standards Association: Certified, File No. LR95329-3.
Factory Mutual: Approved: Report No. 2X0A1.AF.
Underwriters Laboratories, Inc. Component Recognized, File No. MP268; Guide No. MCCZ2.

Product Number	Application	PrePurge
ST7800A1005	Purge Timer	2 seconds
ST7800A1013	Purge Timer	7 seconds
ST7800A1021	Purge Timer	10 seconds
ST7800A1039	Purge Timer	30 seconds
ST7800A1047	Purge Timer	40 seconds
ST7800A1054	Purge Timer	60 seconds
ST7800A1062	Purge Timer	90 seconds
ST7800A1070	Purge Timer	2.5 minutes
ST7800A1088	Purge Timer	4.0 minutes
ST7800A1096	Purge Timer	6.0 minutes
ST7800A1104	Purge Timer	9.0 minutes
ST7800A1112	Purge Timer	12.0 minutes
ST7800A1120	Purge Timer	15.0 minutes
ST7800A1138	Purge Timer	22.0 minutes
ST7800A1146	Purge Timer	30.0 minutes
ST7800C1003	Purge Timer for RM7838C Only	7 seconds
ST7800C1011	Purge Timer for RM7838C Only	20 seconds
ST7800C1029	Purge Timer for RM7838C Only	4.0 minutes
ST7800C1037	Purge Timer for RM7838C Only	6.0 minutes
ST7800C1045	Purge Timer for RM7838C Only	8.0 minutes
ST7800C1052	Purge Timer for RM7838C Only	10.0 minutes
ST7800C1060	Purge Timer for RM7838C Only	12.0 minutes
ST7800C1078	Purge Timer for RM7838C Only	14.0 minutes
ST7800C1086	Purge Timer for RM7838C Only	16.0 minutes
ST7800C1094	Purge Timer for RM7838C Only	18.0 minutes
ST7800C1102	Purge Timer for RM7838C Only	20.0 minutes
ST7800C1110	Purge Timer for RM7838C Only	22.0 minutes
ST7800C1128	Purge Timer for RM7838C Only	24.0 minutes
ST7800C1136	Purge Timer for RM7838C Only	30.0 minutes
ST7800C1144	Purge Timer for RM7838C Only	45.0 minutes

Microprocessor Burner Controls

7800 Series Accessories or Parts

Product Number	Application	Description	Comments	Used With
203541	Accessory or Replacement Part	Five Wire Connector for S7800 Display	—	S7800 Display
203765	Accessory or Replacement Part	Remote Mounting Bracket for S7800 Display (wall mounting)	Includes 203541 5-wire Connector	S7800 Display
204718A	Accessory or Replacement Part	Nema 4 Cover Assembly for Panel Mounting S7800 Display (series 1-4 models)	Includes 203541 5-wire Connector	S7800 Display
204718B	Accessory or Replacement Part	Nema 1 Cover Assembly for Panel Mounting S7800 Display (series 1-4 models)	Includes 203541 5-wire Connector	S7800 Display
204718C	Accessory or Replacement Part	Nema 4 Cover Assembly with Reset Button for Panel Mounting S7800 Display (series 1-4 models)	Includes 203541 5-wire Connector	S7800 Display
205321B	Accessory or Replacement Part	Mounting Bracket - Flush Mounting the S7800 Display	Includes 203541 5-wire Connector	S7800 Display
206311	Accessory or Replacement Part	Carrying Case for S7800 Display	Carrying Case for S7800 Display	S7800 Display
208727	Accessory or Replacement Part	Connector, 8 pin for S7810B, M	—	S7810B, S7810M
221729A	Dust Cover for 7800 Relay Modules - Honeywell Logo	Dust Cover for 7800 Relay Modules - Honeywell Logo	—	7800 Relay Modules
221769	Accessory or Replacement Part	Barrier to Cover Wiring		Q7800A; Q7800B
221779	Accessory or Replacement Part	Terminal Slot Cover for Q7800	—	Q7800
221818A	Accessory or Replacement Part	Display Extension Cable - 60 inches for S7800 Display	—	S7800 Display
221818C	Accessory or Replacement Part	Display Extension Cable - 120 inches (10 foot) for S7800 Display	—	S7800 Display
32005580-001	Accessory or Replacement Part	Cable for connecting Keyboard Display Module (KDM) to CR7890	—	CR7890
32007181-001	Accessory or Replacement Part	Wiring Harness with 9-pin Brad Harrison® to CR7890	—	CR7890
50023821-001	Accessory or Replacement Part	Nema 4 Cover Assembly for Panel Mounting Series 5 S7800 Display	Includes 203541 5-wire Connector	S7800 Display
50023821-002	Accessory or Replacement Part	Nema 4 Cover Assembly with Reset Button for Panel Mounting Series 5 S7800 Display	Includes 203541 5-wire Connector	S7800 Display

SOLA Controllers

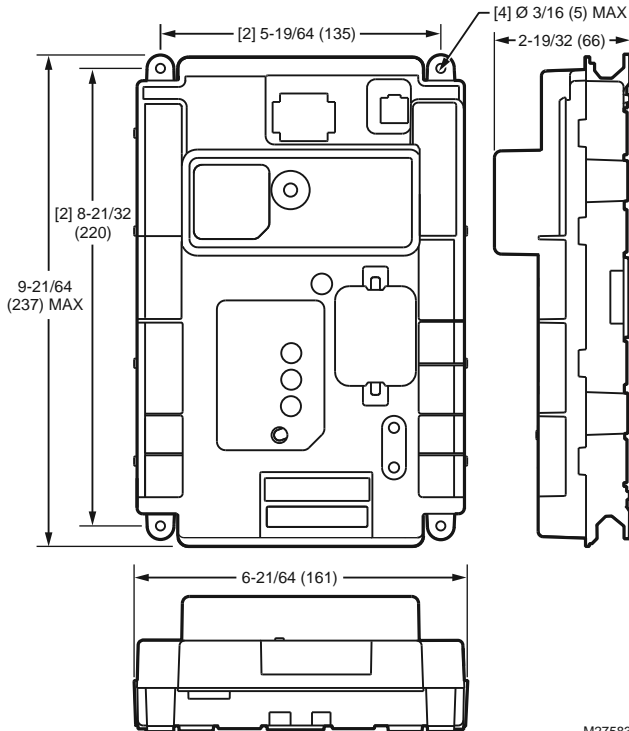
SOLA Hydronic Control



The R7910A SOLA HC is a hydronic boiler control system that provides heat control, flame supervision, circulation pump control, fan control, boiler control, and electric ignition function. It will also provide boiler status and error reporting.

- Frost Protection, Slow Start, Anti-condensate, Boiler Delta-T, Stack Limit, Boiler Limit, DHW Limit, Outlet T-Rise Limit
- Primary Flame Safeguard Control
- Internal or external spark generator.
- Analog NTC Sensor Inputs (10kohm or 12kohm).
- Other Analog Inputs
- PID Load Control
- Digital Inputs
- Digital Outputs
- Analog Outputs
- Algorithm Prioritization
- Two Temperature Loops of Control
- High Limit Control-CH, DHW, & Stack (Meets UL 353) using dual 10kohm NTC sensors.
- Fifteen Item Fault Code History including equipment status at time of lockout
- Fifteen Item Alert Code Status including equipment status at time of internal alerts
- 24Vac Device Power
- 24 or 120Vac Digital I/O models available.
- Flame Signal test jacks (Vdc)
- Three Status LEDs.
- UV or Flame rod Flame Sensing.

Dimensions in inches (millimeters)



Application: Hydronic
Enclosure Rating: NEMA I/IP 40
Frequency (Hz): 60 Hz ± 5%
Comments: Includes Programmable features

Approvals:
Control Safety Devices: Acceptable
Federal Communications Commission: Part 15, Class B Emissions
Underwriters Laboratories, Inc. UL, cUL Component File No. MH20613 (MCCZ)

M27583

Product Number	Firing Rate Switch	Flame Sensor Type	Modulation Output			Load Voltage	Operating Voltage
			(0-10 Vdc)	(4-20 mA)	(PWM)		
R7910A1001	—	FR/UV	Yes	Yes	Yes	24 Vac	24 Vac
R7910A1019	Low Fire Switch; High Fire Switch	FR/UV	Yes	Yes	Yes	120 Vac	24 Vac
R7910A1027	—	FR/UV	Yes	Yes	Yes	120 Vac	24 Vac
R7910A1084	—	FR; Stat	Yes	Yes	Yes	24 Vac	24 Vac

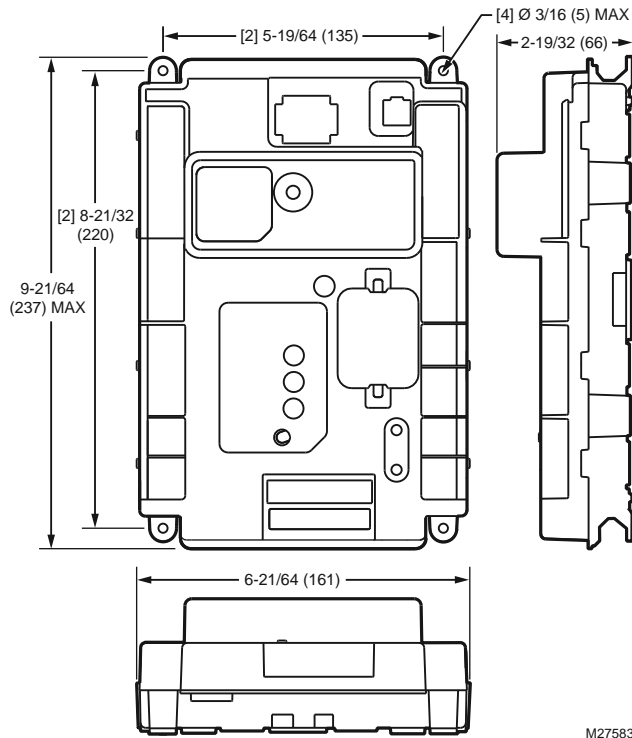
SOLA Steam Control



- Slow Start, Stack Limit, Boiler Limit,
- Primary Flame Safeguard Control
- Internal or external spark generator.
- Analog Stack Temp NTC Sensor Inputs (10kohm or 12kohm).
- Other Analog Inputs
- PID Load Control
- Digital Inputs
- Digital Outputs
- Analog Outputs
- Algorithm Prioritization
- High Limit Control- Stack (Meets UL 353) using dual 10kohm NTC sensors.
- Fifteen Item Fault Code History including equipment status at time of lockout
- Fifteen Item Alert Code Status including equipment status at time of internal alerts
- 24Vac Device Power
- 24 or 120Vac Digital I/O models available.
- Flame Signal test jacks (Vdc)
- Three Status LEDs.
- UV or Flame rod Flame Sensing.

The R7911A SOLA SC is a steam boiler control system that provides heat control, flame supervision, fan control, boiler control, and electric ignition function. It will also provide boiler status and error reporting.

Dimensions in inches (millimeters)



Application: Steam
Load Voltage: 120 Vac
Operating Voltage: 24 Vac
Enclosure Rating: NEMA I/IP 40
Frequency (Hz): 60 Hz ± 5%
Flame Sensor Type: FR/UV
Comments: Includes Programmable features

Approvals:
Control Safety Devices: Acceptable
Federal Communications Commission: Part 15, Class B Emissions
Underwriters Laboratories, Inc. UL, cUL Component File No. MH20613 (MCCZ)

Product Number	Firing Rate Switch	Flame Sensor Type	Modulation Output			Load Voltage	Operating Voltage
			(0-10 Vdc)	(4-20 mA)	(PWM)		
R7911A1000	—	FR/UV	Yes	Yes	Yes	120 Vac	24 Vac
R7911A1026	Low Fire Switch; High Fire Switch	FR/UV	Yes	Yes	No	120 Vac	24 Vac

SOLA Displays

S7910 SOLA Keyboard Display

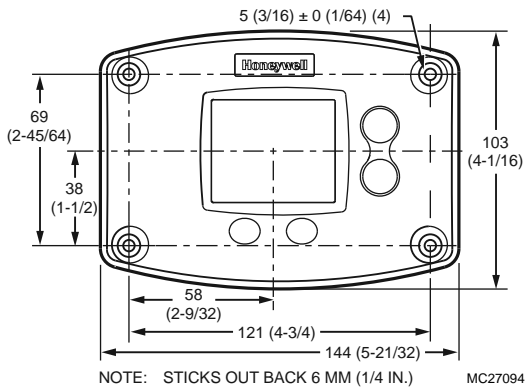


The S7910 Local Keyboard display interface provides setpoint and control adjustments to parameters of the R7910 SOLA Hydronic Control. All data is displayed on an LCD with backlight. The S7910

has four function buttons. The function of the bottom two buttons varies according to the operation mode and screen displayed. The right two buttons are used to adjust settings and navigate up and down the displayed data.

- Burner control state, sequence
- Rate control manual adjustment
- Lockout code
- Alert and Hold Reason
- CH, CH TOD, DHW, and DHW TOD set points
- Communication interface with R7910.
- First out and system status and diagnostics provided through the LCD.
- Local communication of operation and fault information.
- Control DHW, Inlet, Outlet, Delta T (Outlet-Inlet), and Stack Temperatures
- Set-up
- Diagnostics
- Blue, includes (future feature: TOD), only "talks" to Commercial R7910A, Flame Signal Vdc, pilot hold function, screw mounting

Dimensions in inches (millimeters)



Ambient Temperature Range: 32 F to 120 F (0 C to 49 C)

Temperature Range, Storage: -60 F to +150 F (-51 C to +66 C)

Operating Humidity Range (% RH): 85% relative humidity continuous, noncondensing

Weight: 4 oz (124 g)

Approvals:

Federal Communications Commission: Part 15, Class B emissions.

Underwriters Laboratories, Inc. Listed: File No. MH20613 (MCCZ)

Canadian Underwriters Laboratories, Inc. Listed: File No. MH20613 (MCCZ)

Product Number	Electrical Ratings	Vibration	Description	Used With
S7910A1008	24 VAC powered from R7910A/R7911A	0.5G environment	Keyboard Display Module	R7910/R7911

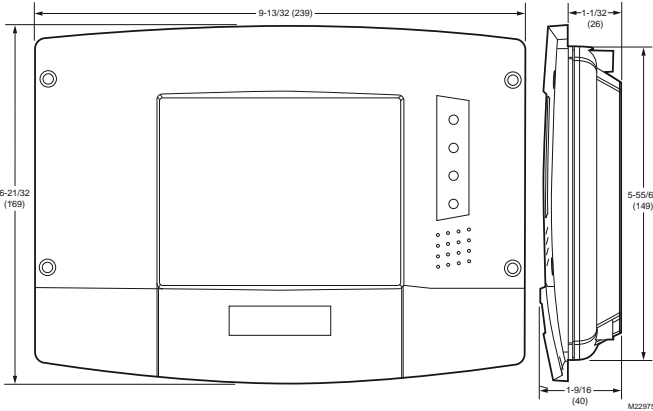
S7999B SOLA System Operator Interface



The S7999B is a four color touch-screen display module that provides operator interface for monitoring and configuring parameters in the R7910 SOLA Hydronic or the R7911 SOLA Steam system.

The S7999B is flush mounted into a panel cutout (8-1/8 in. wide x 5-7/8 in. high). Wiring connections to the S7999B are through a removable 9-pin wiring header.

Dimensions in inches (millimeters)



- Individual and multiple boiler status, configuration, history, diagnostics, and trend analysis.
- Allows configuration and monitoring of the R7910 SOLA Hydronic or the R7911 SOLA Steam system.
- Allows monitoring of the R7910/R7911 burner control sequence, flame signal, diagnostics, historical files, and faults.
- Allows switching view between multiple boilers.
- Allows for lead/lag commissioning (future enhancement).
- Locates up to 8 attached boilers.
- Allows boiler naming.
- System trend analysis.
- Color 3.5 in. x 4.625 in. (5.7 in. diagonal) user interface display.
- Touch screen.
- Two communication ports
- LED indicators
- Touch screen disable for screen cleaning.
- 12 Vdc power supply (included).
- Screen saver.
- Contrast control.
- Volume control.
- Real-time data trending analysis.
- Graphic user interface.

Ambient Temperature Range: 14 F to 122 F (-10 C to 50 C)
Temperature Range, Storage: -13 F to 155 F (-25 C to 60 C)
Operating Humidity Range (% RH): 85% RH continuous, non-condensing

Approvals:
Federal Communications Commission: FCC Part 15, Class A digital device
Underwriters Laboratories, Inc. Component Recognized: File Number MH20613 (MCCZ)
Canadian Underwriters Laboratories, Inc. Component Recognized: File Number MH20613 (MCCZ)

Accessories:
50036684 Enclosure for S7999B Display

Product Number	Electrical Ratings	Description	Includes	Used With
S7999B1026	+12 Vdc input, maximum of 500 mA current drain	System Operator Interface with Blue Plastic Border	25W power supply with Inputs: 85 to 264 Vac, 47-63 Hz; 120 to 370 Vdc and Output: 12 Vdc; 0 to 2.1 A	R7910/R7911
S7999B1067	+12 Vdc input, maximum of 500 mA current drain	System Operator Interface with Black Plastic Border	25W power supply with Inputs: 85 to 264 Vac, 47-63 Hz; 120 to 370 Vdc and Output: 12 Vdc; 0 to 2.1 A	R7910/R7911

SOLA Displays

S7999C SOLA Local Operator Interface



The S7999C is a four color touch-screen display module that provides an operator interface for monitoring and configuring

Dimensions, Approximate:

7-1/8 in. wide by 5 in. high by 1-1/4 in. deep
(181 mm wide x 127 mm high x 32 mm deep)

Ambient Temperature Range: 14 F to 122 F (-10 C to 50 C)

Temperature Range, Storage: -13 F to 155 F (-25 C to 60 C)

parameters in the R7910 SOLA Hydronic or R7911 SOLA Steam system. The S7999C is flush mounted onto a panel by means of a mounting plate. Wiring connections to the S7999C are through a 4-pin wiring header.

- Individual boiler status, configuration, history, and diagnostics.
- Allows configuration and monitoring of the R7910 SOLA Hydronic or R7911 SOLA Steam system burner control sequence, flame signal, diagnostics, historical files, and faults.
- Locates attached boiler.
- Allows boiler naming.
- Color 3.5 in. x 4.625 in. (5.7 in. diagonal) user interface display.
- Touch screen.
- LED indicators
- Touch screen disable for screen cleaning.
- 12 Vdc power supply (included).
- Screen saver.
- Contrast control.
- Volume control.
- Includes power supply.
- Graphic user interface.

Operating Humidity Range (% RH): 85% RH continuous, non-condensing

Approvals:

Federal Communications Commission: FCC Part 15, Class A digital device

Underwriters Laboratories, Inc. Component Listed

Product Number	Electrical Ratings	Description	Used With
S7999C1008	+12 Vdc input	Local Operator Interface with White Plastic border	R7910/R7911
S7999C1016	+12 Vdc input	Local Operator Interface with Blue Plastic Border	R7910/R7911
S7999C1040	+12 Vdc input	Local Operator Interface with Black Plastic Border	R7910/R7911

PM7910 Program Module



The PM7910 Program Module is an optional plug-in device for the R7910 SOLA HC (Hydronic Control) and R7911 SOLA SC (Steam Control). From the system level the S7999 System Operator Interface can direct the R7910/R7911 to transfer or retrieve parameter information with the Program Module.

- Can be removed or installed while the R7910 or R7911 is powered.
- Facilitate multiple controller setups.
- Backup and restore the R7910 programmable data including:
 - Non-safety parameter values
 - Parameter Control Blocks (information on how the parameter values may be modified)

Comments: Indicator LEDs - One (Status LED) Blinking LED indicated the Program Module is properly seated and powered from the R7910/R7911.

Product Number	Application	Description
PM7910A1013	Support backup and restore	Program Module

SOLA Accessories or Parts

Product Number	Application	Description
32003971-002	Single element sensor with 6 in. Leadwire with Socket	Sensor with 6 in. Leadwire with Socket
32003971-003	Single element sensor with 42 in. leadwires, includes wire nuts (2), #8 mounting screws (3), anchors (2), sensor clip (1), tie strap (2)	Sensor with 6 in. Leadwire with Socket
50001464-006	Dual Element Sensor with 6 in. leadwires with Female Socket	Sensor with 6 in. Leadwire with Socket
50001464-007	Dual Element Sensor with 42 in. leadwires without connector	Sensor with 6 in. Leadwire with Socket
50032893-001	Bag of connectors for R7910 and R7911 Controllers	Bag of connectors for R7910 and R7911 Controllers

ControLinks™ Fuel Air Control System

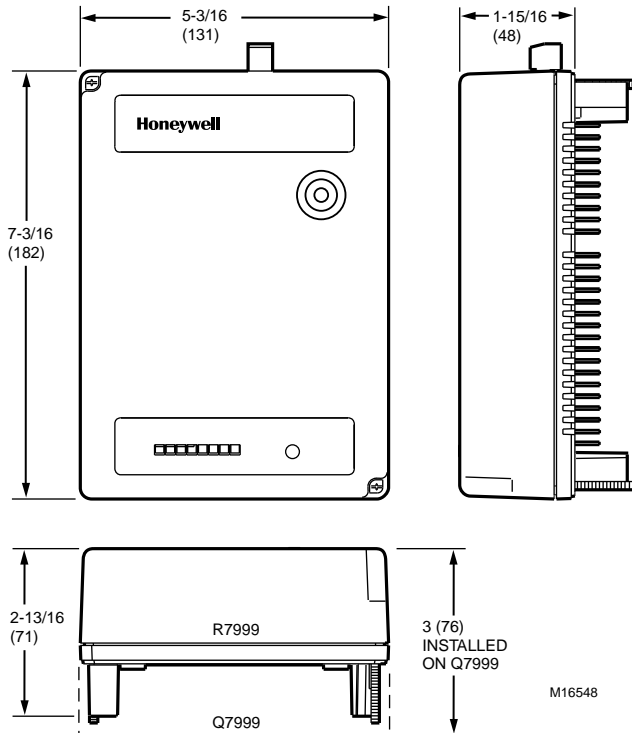
R7999A ControLinks Fuel Air Controller



Uses microprocessor-based technology to control the ML7999 Universal Parallel Positioning Actuators. This represents a value-added replacement of mechanical cam and linkage assembly controlling the relationship between fuel, airflow and flue gas recirculation (if used) on a power burner. The ControLinks™ Fuel Air Control System consists of the R7999 Fuel Air Controller, Q7999 Wiring Subbase, ML7999 Universal Parallel Positioning Actuator and ZM7999 Configuration Software. The R7999, with one communications port, provides communications capabilities similar to those found in the 7800 SERIES controls.

- Fast burner setup via PC or laptop.
- Fuel, air, FGR profile download capability.
- Two independent fuel profiles with or without FGR.
- 7 to 24 point profiles.
- Programmable behaviors of all actuators during Purge and Standby.
- Programmable behavior of non-selected fuel actuator.
- Independent light off and minimum modulation positions.
- Wide power voltage input range (100 to 120 Vac, 50/60 Hz). Auto/Manual input.
- Manual mode firing rate input.
- Pluggable controller to wiring subbase.
- Multipurpose communications port.
- Field-configurable device.
- Integrated boiler shock protection algorithms: Water temperature low fire hold.
- Stack temperature low fire hold. FGR and low fire hold.
- Selectable FGR hold based on stack temperature.
- Programmable behavior of FGR actuator during purge.
- Maximum modulation limit capability.
- Remote reset input.
- Automated actuator endpoint seeking process.
- CSD-1 and NFPA acceptable.

Dimensions in inches (millimeters)



Vibration: 0.0 to 0.5g continuous

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Operating Humidity Range (% RH): 90% RH maximum, non-condensing

Approvals:

Underwriters Laboratories, Inc. Listed: Report No. MH17367

Replacement Parts:

32002515-001 3 pin electrical connector, for R7999

Product Number	Electrical Ratings	Frequency	Description
R7999A1005	100 to 120 Vac	50 Hz/60 Hz	Fuel Air Ratio Controller, 100 to 120 Vac, 50/60 Hz.

ControlLinks™ Fuel Air Control System

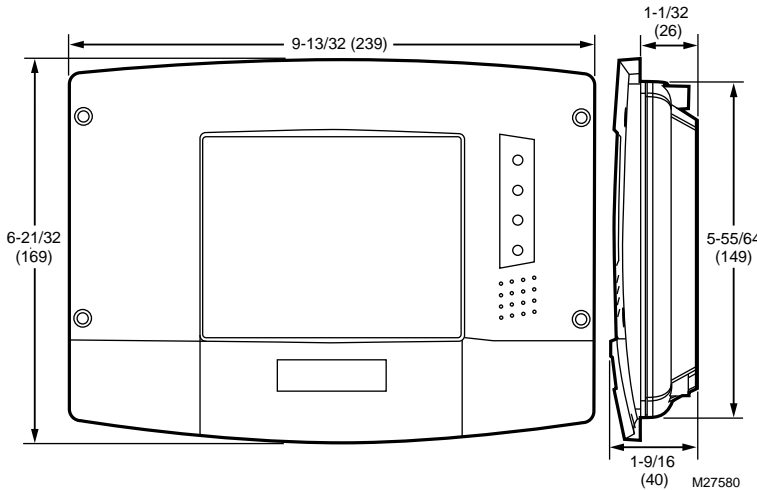
S7999B ControlLinks® System Display



Up to 99 burner systems connected via Modbus can be monitored with the S7999B. Each burner control, fuel/air ratio control, expanded annunciator other Modbus devices present on the burner system can be viewed individually to determine its status.

- Color 3.5 in. x4.6 in. Touch Screen User Interface.
- Flush Mounting.
- Allows setup and monitoring of R7999 ControlLinks.
- Two RS485 communication ports.
- Screen saver, contrast control and volume control.
- Modbus communication allows monitoring up to 99 different controls.
- Allows Programmable Expanded Annunciator terminal naming.
- Allows R7999 ControlLinks EEPROM backup and restore.

Dimensions in inches (millimeters)



Ambient Temperature Range: 14 F to 122 F (-10 C to 50 C)
Storage Temperature Range: -13 F to 155 F (-25 C to 60 C)
Operating Humidity Range (% RH): 85% RH continuous, non-condensing

Approvals:
Federal Communications Commission: FCC Part 15, Class A digital device
Underwriters Laboratories, Inc. Component Listed

Accessories:
S7810M1003 ControlBus™ Module-MODBUS

Product Number	Electrical Ratings	Description	Used With
S7999B1000	+12 Vdc input, maximum of 500 mA current drain	S7999B System Display for R7999 ControlLinks Configuration and System (7800 Series, EA and certain UDC Devices) Monitoring (English Language)	R7999
S7999B1075	+12 Vdc input, maximum of 500 mA current drain	S7999B System Display for R7999 ControlLinks Configuration and System (7800 Series, EA and certain UDC Devices) Monitoring (Spanish Language)	R7999

Q7999A ControlLinks Fuel Air Control Wiring Subbase



Provides terminals for field wiring for the R7999A ControlLinks™ Fuel Air Controller. Terminals on the R7999A,B Controller engage the Q7999 contacts to make electrical connections. The Q7999A Subbase is panel-mounted.

- Quick-mount wiring subbase for R7999A,B Fuel Air Ratio Controllers.
- Allows wiring of control system before installation of controller.
- Panel-mounted.
- NEMA 1 enclosure.

Vibration: 0.0 to 0.5g continuous
Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)
Storage Temperature Range: -40 F to +150 F (-40 C to +65 C)
Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Weight: 10 oz (0.28 kg)
Approvals:
Underwriters Laboratories, Inc. Listed: Report No. MH17367

Product Number	Electrical Ratings	Frequency	Description
Q7999A1006	100 to 120 Vac	50 Hz; 60 Hz	Fuel Air Ratio Controller Wiring Subbase

ControlLinks™ Fuel Air Control System

ML7999A Universal Parallel-Positioning Actuator



Provides 100 lb-in. torque, pulse-width-modulating (PWM) control of combustion air dampers, butterfly gas valves, oil modulation valves, and flue gas recirculation systems. The actuator includes a precision feedback potentiometer and integral power supply. The ML7999A Actuator is part of the ControlLinks™ Fuel Air Control System, and must be used with the R7999 Fuel Air Controller.

Vibration: 0.0 to 0.5g continuous

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Storage Temperature Range: -40 F to +150 F (-40 C to +65 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

- Password protected with an eight-digit hexadecimal identification signal.
- Separate wiring compartment between line voltage power wiring and low voltage control.
- Couples directly to a 1/2 in. (13 mm) shaft with no additional parts required.
- Couples directly to 5/16 in. (8 mm) and 3/8 in. (9 mm) shafts using available self-centering shaft reduction accessories.
- Shaft coupler assembly available for shafts larger than 1/2 in.
- Bracket Accessory Kit available for mounting to Honeywell V51 Butterfly Gas Valves.
- NEMA 2.
- IP54 with weatherproof kit (see Accessories).
- Visual indication of actuator position.

Approvals:

Canadian Standards Association: Certified

CE: Certified

Underwriters Laboratories, Inc. Meets UL873

Product Number	Electrical Ratings	Frequency	Description
ML7999A2001	15VA; 100 to 240 Vac	50 Hz/60 Hz	Universal Parallel-Positioning Actuator. Medium torque electronic actuator with a precision feedback potentiometer and integral power supply capable of direct line voltage connection. Must be used with a Series 2 R7999.

ML7999B Universal Direct Coupled Actuator



Vibration: 0.0 to 0.5g continuous

Ambient Temperature Range: -40 F to +140 F (-40 C to +60 C)

Storage Temperature Range: -40 F to +150 F (-40 C to +65 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

ML7999B Universal Direct Coupled Actuator provides 100 lb-in. torque, 4 to 20 mA control input to control combustion air dampers and modulation valves. The actuator includes precision drive shaft control and integral power supply capable of direct line voltage connection.

- Separate wiring compartment between line voltage power wiring and low voltage control.
- Programmable actuator stroke against 4 to 20 mA input.
- Couples directly to a 1/2 in. (13 mm) shaft with no additional parts required.
- Couples directly to 5/16 in. (8 mm) and 3/8 in. (9 mm) shafts using available self-centering shaft reduction accessories.
- Shaft coupler assembly available for shafts larger than 1/2 in.
- Bracket Accessory Kit available for mounting to Honeywell V51E Butterfly Gas Valves.
- NEMA 2.
- IP54 with weatherproof kit (see Accessories).
- Visual indication of actuator position.

CE: Certified

Underwriters Laboratories, Inc. Meets UL873

Accessories:

32002935-001 Weather Proofing kit for ML7999 ControlLinks Actuator (includes (1) Corner stop and (2) gaskets)

Product Number	Electrical Ratings	Frequency	Description
ML7999B1002	15VA; 100 to 240 Vac	50 Hz; 60 Hz	Universal Parallel-Positioning Actuator. Medium torque electronic actuator with a precision feedback potentiometer and integral power supply capable of direct line voltage connection.

ControLinks™ Fuel Air Control System

ML7999 Accessories

Product Number	Description
201391	Shaft Adapter for 3/8 in. round or square valve shaft
32002935-001	Weatherproofing kit for actuator, ML7999 ControLinks (NEMA 3).
32003167-001	Shaft Adapter for 5/16 in. round or square shaft
32003168-001	Shaft Adapter for 3/4 in. round shaft only
32003168-002	Shaft Adapter for 5/8 in. round shaft only
32003168-003	Shaft Adapter for 9/16 in. round shaft only
32003396-001	V51E Mounting Kit for ML7999 Actuator (1-1/2 & 2 in. valves). Includes angle bracket, mounting bracket, screws, nuts and washers, and instructions.
32003396-002	V51E Mounting Kit for ML7999 Actuator (2-1/2, 3 & 4 in. valves). Includes angle bracket, mounting bracket, screws, nuts and washers, and instructions.
50036542-001	Auxiliary Switch Mounting Plate for ML7999B for 201052A or 201052B Auxiliary switch assembly

ZM7999A ControLinks Fuel Air Control System Configuration Software

The ZM7999 Software Configuration Tool reduces burner setup time by letting you create a burner modulation curve (profile) for the burner that allows for safe and efficient operation at all points along the modulation curve. The software uses a wizard-like process to assist you through the commissioning process. It also lets you save curves in standard PC files so that you can commission similar systems rapidly and safely. Once the burner is commissioned, real-time monitoring of the system can be done via the monitoring tool.

- Minimum Hardware Requirements: PC or laptop with a Pentium® processor.
- Windows® 95 or Windows® 98.
- 16 MB of RAM.
- 1G hard drive with 100 MB of free memory.
- 4X (or higher) CD-ROM drive.
- Mouse.
- Super VGA color monitor (800 x 600 resolution suggested).

Accessories:

QM4520A1004 Isolated RS-232 to RS-485 Converter Module

Product Number	Description	Used With
ZM7999A1006	Configuration Software	R7999

A7999 ControLinks Portable Combustion Analyzer



The portable Combustion Analyzer (PCA) is a commercial grade, hand held, combustion efficiency analyzer that is designed for continuous (on demand) sampling of light industrial and residential furnaces, appliances, and boilers.

- The basic instrument is supplied with a probe, instruction manual, batteries, and carrying case.

Product Number	Description
A7999A1003	Portable combustion Analyzer for ControLinks Fuel Air Control System

ControLinks Accessories

Product Number	Description	Used With
32002515-001	3 pin electrical connector, for R7999	R7999
50020034-001	9 pin electrical connector, for S7999B	S7999B

YP900 Delphi Combustion Efficiency Panel



Delphi Combustion Efficiency Panel is a packaged, pre-wired panel with integrated color touchscreen display, flame safeguard control, linkageless fuel/air ratio control, oxygen trim and VFD capability. MF020-1-LC3 Oxygen sensor with mounting fitting and electrical connector and a Hall-effect sensor which monitors VFD driven blower and provides feedback to the control are included. System is set-up entirely via the touchscreen interface.

- Works with a variety of burners and boilers.
- Components housed in one panel.
- Integrated flame safeguard control and linkageless fuel/air ratio control with oxygen trim.
- Dual Fuels allowed with independent profiles.
- Oxygen trim compensates for variable combustion air.
- High accuracy O2 sensor with quick response and open air calibration (MF020-1-LC3).
- VFD control capability (Honeywell NXL or NXS Series).
- Large color touchscreen interface.
- Available actuators from 100 to 400 lb-in.(ML7999B or Herculine 2001)
- Embedded software for commissioning, control and monitoring.
- VPS (Valve Proving System) capability via flame safeguard control.
- Dedicated actuator and VFD channels with feedback.
- Up to 4 independently controlled actuators.
- Firing rate/load control via temperature, pressure or manual operation.
- 24 Vdc industrial panel PC control.

Operating Humidity Range (% RH): 90% RH maximum, non-condensing

Product Number	Electrical Ratings	Frequency	Description
YP900A1004	120 Vac	50 Hz; 60 Hz	Combustion Efficiency Panel
DSP3949	120 Vac	50 Hz; 60 Hz	Delphi Accessory Case

Herculine Actuator



Honeywell's Heculine® 2001 actuator are smart actuators used in applications requiring current proportional control or digital control. They offer digital electronics providing for precision positioning control, easy set-up and configuration, on board monitoring and network communications.

- 90 degree stroke.
- 4-20mA or 0-10vdc input.
- 4-20mA or 0-10vdc output.
- CCW rotation.
- Modbus RTU RS485

Vibration: 0.0 to 0.5g continuous

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Approvals:

Canadian Standards Association: Certified

Underwriters Laboratories, Inc. Recognized



Product Number	Electrical Ratings	Frequency	Description	Used With
2001-100-090-EC	100 to 130 Vac	50 Hz; 60 Hz	Herculine Actuator 100 lb-in torque, 12 second/90 degree	YP900
2001-200-090-EC	100 to 130 Vac	50 Hz; 60 Hz	Herculine Actuator 200 lb-in torque, 25 second/90 degree	YP900
2001-400-090-EC	100 to 130 Vac	50 Hz; 60 Hz	Herculine Actuator 400 lb-in torque, 50 second/90 degree	YP900

Delphi Combustion System

Delphi Accessories

Product Number	Description	Used With
51452352-501EC	Herculine Eurofast Cable Kit	Herculine 2001/YP900
51452354-501EC	Mounting plate adapter for Barber Colman Series MP495 actuator to Herculine 2001	Herculine 2001/YP900
51452354-502EC	Mounting plate adapter to replace Landis & Staefa SQM53/56 actuator to Herculine 2001.	Herculine 2001/YP900
51452354-503EC	Allows Herculine 2001 actuator to be directly coupled to a variety of gas and oil valves.	Herculine 2001/YP900
51452354-504EC	Linkage Assembly ball joint for 5/16 in.pushrod used with Herculine 2001 actuators	Herculine 2001/YP900
51452354-505EC	Push Rod, 5/16 in.diameter, 12 in.long, used with Herculine 2001 actuators	Herculine 2001/YP900
51452354-506EC	Push Rod, 5/16 in.diameter, 18 in.long, used with Herculine 2001 actuators	Herculine 2001/YP900
51452354-507EC	Push Rod, 5/16 in.diameter, 24 in.long, used with Herculine 2001 actuators	Herculine 2001/YP900
51452354-508EC	Push Rod, 5/16 in.diameter, 48 in.long, used with Herculine 2001 actuators	Herculine 2001/YP900
51452354-509EC	Herculink Software™ (Windows™ 98 or XP only)	Herculine 2001/YP900
51452354-511EC	North American valve retrofit kit, replaces Honeywell Actionator Actuator with Herculine 2001 actuator	Herculine 2001/YP900
51452354-513EC	V51 valve mounting kit for 2.5 to 3 in. valves. Adapter plate and linkage. Used with Herculine 2001 actuators	Herculine 2001/YP900
51452354-514EC	V51 valve mounting kit for 4 in. valves. Adapter plate and linkage. Used with Herculine 2001 actuators	Herculine 2001/YP900

Delphi Replacement Parts

Product Number	Description	Supply Voltage	Used With	
LCZ460-30-ECC	Hall-effect zero speed sensor, 5/8-18UNF-2A thread	—	YP900	
S900A1000	Panel PC with 12 in.color touchscreen with Delphi software loaded	24 Vdc	YP900	
SNDJ-CNT-G02-ECC	Tachometer with single channel, relay and 0/2-10Vdc output	—	YP900	

Advanced Burner Controls



The ABC900 Advanced Burner Control is a process and logic control that can be programmed for burner and boiler applications. This flexible platform can be programmed to provide all of the control functions required for fuel/air ratio control and O₂ trim. Programming of the ABC900 is completed using the HC900 Designer Software. Additional programming can provide:

- Optional drum level control
- Boiler feedwater control
- Draft damper control
- Fuel selection inputs
- Mass fuel flow monitoring
- Dedicated actuator channels
- Dedicated VFD channels
- Interface with 7800 SERIES primary safety controls
- Interface with third party displays
- Communication with building automation systems via Modbus

Power Supply: 120 to 240 VAC

Operating Temperature Range: 32 F to 140 F (0 C to 60 C)

Operating Humidity Range (% RH): 10 to 90%

Approvals:

CE: CE

Canadian Standards Association: Certified

Canadian Underwriters Laboratories, Inc. Listed

Factory Mutual: Approved

Underwriters Laboratories, Inc. Listed

Product Number	Description	Dimensions, Approximate	
		(inch)	(mm)
ABC900A1000	C30 CPU (4) I/O Modules (1 analog input module, 1 analog output module, 1 digital input module, 1 digital output module with shield kit, power supply and resistor kit).	10-1/2 in. wide x 5-3/8 in. high x 6 in. deep	267 mm wide x 137 mm high x 152 mm deep
ABC900B1009	C30 CPU (8) I/O Modules (2 analog input modules, 1 analog output module, 1 digital input module, 2 digital output modules with shield kit, power supply).	16-1/2 in. wide x 5-3/8 in. high x 6 in. deep	419 mm wide x 137 mm high x 152 mm deep

Advanced Burner Controls

Advanced Burner Controls - Oxygen Sensor



99-4218-14-07



MF020



SS-810-1-12BT

Product Number	Description	Dimensions, Approximate		NEMA Rating	Power Supply	Temperature Range, Operating		Used With
		(inch)	(mm)			(F)	(C)	
99-4218-14-07	Cable Connector for MF020	—	—	—	—	—	—	MF020
MF020-0-LC3	High Temperature Oxygen Sensor 1 to 250 mbar (0.4 to 200" w.c.) 220mm/ 8.7 in. Probe, 4-20ma output, 0.1 to 25 volume % O ₂	1 5/8 in. wide x 2 7/16 in. high x 12 13/16 in. deep	42 mm wide x 60 mm high x 325 mm deep	IP65	24 Vdc	-148 F to 752 F at probe tip	-100 C to 400 C at probe tip	99-4218-14-07; SS-810-1-12BT; ABC900A,B
MF020-0-LC4	High Temperature Oxygen Sensor 1 to 1000 mbar (0.4 to 401" w.c.) 220mm/ 8.7 in. Probe, 4-20ma output, 0.1 to 100 volume % O ₂	1 5/8 in. wide x 2 7/16 in. high x 12 13/16 in. deep	42 mm wide x 60 mm high x 325 mm deep	IP65	24 Vdc	-148 F to 752 F at probe tip	-100 C to 400 C at probe tip	99-4218-14-07; SS-810-1-12BT; ABC900A,B
MF020-1-LC3	High Temperature Oxygen Sensor 1 to 250 mbar (0.4 to 200" w.c.) 400mm/ 15.7 in. Probe, 4-20mA output, 0.1 to 25 volume % O ₂	1 5/8 in. wide x 2 -13/32 in. high x 19 13/16 in. deep	42 mm wide x 60 mm high x 503 mm deep	IP65	24 Vdc	-148 F to 752 F at probe tip	-100 C to 400 C at probe tip	99-4218-14-07; SS-810-1-12BT; ABC900A,B
MF020-1-LC4	High Temperature Oxygen Sensor 1 to 1000 mbar (0.4 to 401" w.c.) 400mm/ 15.7 in. Probe, 4-20ma output, 0.1 to 100 volume % O ₂	1 5/8 in. wide x 2 -13/32 in. high x 19 13/16 in. deep	42 mm wide x 60 mm high x 503 mm deep	IP65	24 Vdc	-148 F to 752 F at probe tip	-100 C to 400 C at probe tip	99-4218-14-07; SS-810-1-12BT; ABC900A,B
MF020-2-LC3	High Temperature Oxygen Sensor 1 to 250 mbar (0.4 to 200" w.c.) 600mm/ 23.6 in. Probe, 4-20mA output, 0.1 to 25 volume % O ₂	1 5/8 in. wide x 2 -13/32 in. high x 27-13/16 in. deep	42 mm wide x 60 mm high x 706 mm deep	IP65	24 Vdc	-148 F to 752 F at probe tip	-100 C to 400 C at probe tip	99-4218-14-07; SS-810-1-12BT; ABC900A,B
MF020-2-LC4	High Temperature Oxygen Sensor 1 to 1000 mbar (0.4 to 401" w.c.) 600mm/ 23.6 in. Probe, 4-20ma output, 0.1 to 100 volume % O ₂	1 5/8 in. wide x 2 -13/32 in. high x 27-13/16 in. deep	42 mm wide x 60 mm high x 706 mm deep	IP65	24 Vdc	-148 F to 752 F at probe tip	-100 C to 400 C at probe tip	99-4218-14-07; SS-810-1-12BT; ABC900A,B
SS-810-1-12BT	Compression tube fitting 1/2 in. Bore through, 3/4 in. NPT for MF020	—	—	—	—	—	—	MF020

Network Communications Interface

QM4520A Data Acquisition Module



The QM4520A RS-232 to RS485 Converter allows a PC to communicate with multiple devices on a single bus, over greater distances.

- Mount on DIN rail, panel or in a piggyback stack.
- Uses unregulated power between +10 Vdc and +30 Vdc.
- Transmit data on single twisted pair (RS-485).
- Plug-in screw terminal blocks assure simple installation, maintenance and modification.
- Clean and reliable communications assured by noise-suppressing special circuitry.
- RS-485 communications reduce the number of required cables, connectors and conditioners.
- Modules can be remotely mounted up to 4,000 ft (1.2 km) away.

Dimensions, Approximate: 2 11/32 in. x 4 13/16 in. x 1 3/16 in. (60 mm x 122 mm x 30 mm)

Electrical Connections: Plug-in screw terminal block.

Voltage:

Unregulated +10 Vdc to +30 Vdc; protected against power reversal
Unregulated +10 Vdc to +30 Vdc - Power supply not provided.

Ambient Temperature Range: 32 F to 158 F (0 C to 70 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Product Number	Input	Description	Used With
QM4520A1004	RS-232 (4-wire: TX, RX, RTS, GND) (Null modem may be required.)	RS-232 to RS-485 Converter	ZM7850 or ZM7999 software; BCS7700 and 7800 SERIES Points

QS460MMDS ModBus™ RTU to DeviceNet™ Gateway

The QS460 ModBus to DeviceNet Gateway provides connection from ModBus of RM78XX devices, S7830 Expanded Annunciator or Controlinks to DeviceNet.

- Mount on DIN rail
- Uses 12 Vdc unregulated power.
- Clean and reliable communications assured by noise-suppressing special circuitry.

Electrical Connections: 2 pin barrel

Voltage:

Unregulated +10 Vdc to +30 Vdc; protected against power reversal
Unregulated +10 Vdc to +30 Vdc - Power supply not provided.
12 Vdc from DeviceNet network

Ambient Temperature Range: 32 F to 158 F (0 C to 70 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Product Number	Input	Description	Includes	Used With
QS460MMDS1000	RJ45 Ethernet and two DB-9 Connectors	ModBus RTU to DeviceNet Gateway	7800 Series, Controlinks	ZM7850 or ZM7999 software; BCS7700 and 7800 SERIES Points

Network Interface Accessories

Product Number	Description	Used With
206610A	Accessory Disk for QS7850A1006-contains BCS7700 and 7800 Series points	QS7850A1006
221769	Barrier to Cover Wiring	Q7800B; Q7800A

Flame Amplifiers

7800 SERIES and R7140 Flame Signal Amplifiers



Dynamic Self Check



Standard

Solid state plug-in amplifiers that respond to flame detector inputs to indicate the presence of flame when used with 7800 SERIES relay modules.

- Flame failure response time of 0.8 or 3.0 seconds.
- Flame signal strength ranges from 0.0 to 5.0 Vdc.
- Plug into 7800 relay module through printed circuit board edge connector keyed for proper orientation.
- Flame signal test jacks to measure amplifier flame signal voltage.
- Color-coded labels identify flame detection type. Dynamic Self-Check Amplifier test the detectors and all electronic components in the flame detection system 7800 SERIES relay module locks out on safety shutdown with flame detection system failure.
- Compatible with existing Honeywell flame detectors (order separately).

Approvals:

Canadian Standards Association: Certified: File No. LR95329-3
 Factory Mutual: Approved: Report No. 1V9A0.AF

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ

Product Number	Flame Failure Response Time (sec)	Self Checking	Use With Flame Sensor	Use With Primary Safety Control	Comments
R7824C1002	3.0 sec	Dynamic Self-Check	C7024E, F Flame Detector	RM7824	Color: Green
R7847A1025	0.8 sec or 1.0 sec	None (standard)	Gas: Rectifying Flame Rods C7004, C7005, C7007, C7008, C7009, Q179	7800 SERIES Relay Modules	Color: Green
R7847A1033	2.0 sec or 3.0 sec	None (standard)	Gas: Rectifying Flame Rods C7004, C7005, C7007, C7008, C7009, Q179Gas, oil, coal: Ultraviolet Flame Sensor C7012A, C	7800 SERIES Relay Modules	Color: Green
R7847A1074	0.8 sec or 1.0 sec	None (standard)	Gas: Rectifying Flame Rods C7004,5,7,8, or 9, Q179 for impedance matching for leadwire runs > 50' or Ultraviolet Flame Sensor C7012A, C	7800 SERIES Relay Modules	Color: Green
R7847A1082	2.0 sec or 3.0 sec	None (standard)	Gas: Rectifying Flame Rods C7004,5,7,8, or 9, Q179 for impedance matching for leadwire runs > 50' or Ultraviolet Flame Sensor C7012A, C	7800 SERIES Relay Modules	Color: Green
R7847B1023	0.8 sec or 1.0 sec	Ampli-Check	Gas: Rectifying Flame Rods C7004, C7005, C7007, C7008, C7009, Q179	7800 SERIES Relay Modules	Color: Green
R7847B1031	2.0 sec or 3.0 sec	Ampli-Check	Gas: Rectifying Flame Rods C7004, C7005, C7007, C7008, C7009, Q179Gas, oil, coal: Ultraviolet Flame Sensor C7012A, C	7800 SERIES Relay Modules	Color: Green
R7847B1064	0.8 sec or 1.0 sec	Ampli-Check	Gas: Rectifying Flame Rods C7004,5,7,8, or 9, Q179 for impedance matching for leadwire runs > 50' or Ultraviolet Flame Sensor C7012A, C	7800 SERIES Relay Modules	Color: Green
R7847B1072	2.0 sec or 3.0 sec	Ampli-Check	Gas: Rectifying Flame Rods C7004,5,7,8, or 9, Q179 for impedance matching for leadwire runs > 50' or Ultraviolet Flame Sensor C7012A, C	7800 SERIES Relay Modules	Color: Green
R7847C1005	2.0 sec or 3.0 sec	Dynamic Self-Check	Gas, oil, coal: Ultraviolet Flame Sensor C7012E, F	7800 SERIES Relay Modules	Color: Green
R7848A1008	2.0 sec or 3.0 sec	None (standard)	Gas, oil, coal: Infrared (lead sulfide) C7015	7800 SERIES Relay Modules	Color: Red
R7848B1006	2.0 sec or 3.0 sec	Ampli-Check	Gas, oil, coal: Infrared (lead sulfide) C7015	7800 SERIES Relay Modules	Color: Red
R7849A1015	0.8 sec or 1.0 sec	None (standard)	Gas, Oil: Minipeeper C7027A, C7035A, C7044	7800 SERIES Relay Modules	Color: Purple
R7849A1023	2.0 sec or 3.0 sec	None (standard)	Gas, Oil: Minipeeper C7027A, C7035A, C7044	7800 SERIES Relay Modules	Color: Purple
R7849B1013	0.8 sec or 1.0 sec	Ampli-Check	Gas, Oil: Minipeeper C7027A, C7035A, C7044	7800 SERIES Relay Modules	Color: Purple
R7849B1021	2.0 sec or 3.0 sec	Ampli-Check	Gas, Oil: Minipeeper C7027A, C7035A, C7044	7800 SERIES Relay Modules	Color: Purple
R7851B1000	2.0 sec or 3.0 sec	Ampli-Check	Gas, Oil, Coal: Optical (UV, Visible Light) C7927, C7962	7800 SERIES Relay Modules	Color: White
R7851B1018	0.8 sec or 1.0 sec	Ampli-Check	Gas, Oil, Coal: Optical (UV, Visible Light) C7927, C7962	7800 SERIES Relay Modules	Color: White
R7851C1008	2.0 sec or 3.0 sec	Dynamic Self-Check	Gas, oil, coal: optical (UV only) C7961E,F	7800 SERIES Relay Modules	Color: White
R7852A1001	2.0 sec or 3.0 sec	None (standard)	Gas, oil, coal: Infrared (lead sulfide) C7915	7800 SERIES Relay Modules	Color: Red/ White

Flame Amplifiers

Product Number	Flame Failure Response Time (sec)	Self Checking	Use With Flame Sensor	Use With Primary Safety Control	Comments
R7852B1009	2.0 sec or 3.0 sec	Ampli-Check	Gas, oil, coal: Infrared (lead sulfide) C7915	7800 SERIES Relay Modules	Color: Red/White
R7861A1026	2.0 sec or 3.0 sec	Dynamic Self-Check	Gas, oil, coal: Ultraviolet Flame Sensor C7061	7800 SERIES Relay Modules	Color: Purple
R7861A1034	0.8 sec or 1.0 sec	Dynamic Self-Check	Gas, oil, coal: Ultraviolet Flame Sensor C7061	7800 SERIES Relay Modules	Color: Purple
R7886A1001	2.0 sec or 3.0 sec	Dynamic Self-Check	Gas, oil, coal: Adjustable Sensitivity Ultraviolet Flame Sensor C7076	7800 SERIES Relay Modules	Color: Blue

R7247; R7248; R7249; R7476 Flame Amplifiers

Solid state plug-in units respond to flame detector signal and indicate presence of flame.

- Use with BC7000; R4140; R4075C,D,E; R4138C,D Flame Safeguard controls and appropriate flame detector and FSP5075A1, FSP5075A3 Flame Amplifier Modules.

Approvals:

Canadian Standards Association: Certified: File No. LR1620, Guide No. 140-A-2

Control Safety Devices: Acceptable (CSD-1)

Factory Mutual: Approved: Report No. 24181.01

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ2



R7249



R7247



R7248

Product Number	Flame Failure Response Time (sec)	Self Checking	Use With Flame Sensor	Use With Primary Safety Control	Comments
R7247A1005	2 to 4 sec	None (standard)	Gas, oil, coal: Ultraviolet Flame Sensor C7012A, C	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Green
R7247B1003	2 to 4 sec	Ampli-Check	Gas: Rectifying Flame Rods C7004, C7005, C7007, C7008, C7009, Q179 Gas, oil, coal: Ultraviolet Flame Sensor C7012A, C	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Green
R7247C1001	2 to 4 sec	Dynamic Self-Check	Gas, oil, coal: Ultraviolet Flame Sensor C7012E, F	R4140, BC7000, R4075C, D, E, R4138C, D, FSP5075	Color: Green
R7247C1019	2 sec max.	Dynamic Self-Check	Gas, oil, coal: Ultraviolet Flame Sensor C7012E, F	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Green
R7248A1004	2 to 4 sec	None (standard)	Gas, oil, coal: Infrared (lead sulfide) C7015	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Red
R7248B1028	2 to 4 sec	Ampli-Check	Gas, oil, coal: Infrared (lead sulfide) C7015	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Red
R7249A1003	2 to 4 sec	None (standard)	Gas, oil, coal: Ultraviolet (Minipeeper) C7027, C7035	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Purple
R7476A1007	2 to 4 sec	Dynamic Self-Check	Gas, oil, coal: Adjustable Sensitivity Ultraviolet Flame Sensor C7076	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Blue
R7476A1015	2 sec max.	Dynamic Self-Check	Gas, oil, coal: Adjustable Sensitivity Ultraviolet Flame Sensor C7076	R4140, BC7000, R4075C, D, E, R4138C, D, FSP5075	Color: Blue

Flame Amplifiers

R7258; R7259 Flame Safeguard Amplifiers

Solid state, plug-in units allow use of rectification, infrared and ultraviolet flame detections.

- Use with Q518, Q519 and W688A Flame Safeguard multi-burner modules and appropriate flame detector.

Approvals:

Canadian Standards Association: Certified: File No. LR95329-3
Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ2

Product Number	Flame Failure Response Time (sec)	Self Checking	Use With Flame Sensor	Use With Primary Safety Control	Comments
R7258A1001	2 to 4 sec	None (standard)	Gas, oil, coal: Infrared (lead sulfide) C7015	Q518, Q519, W688A	Color: Red
R7259A1000	2 to 4 sec	None (standard)	Gas, oil, coal: Ultraviolet (Minipeeper) C7027, C7035	Q518, Q519, W688A	Color: Purple

R7289; R7290 Flame Safeguard Amplifiers (for R4795)

Solid state, plug-in units allow use of rectification or ultraviolet flame detection.

- Use with R4795A,D Flame Safeguard primary controls and appropriate flame detector.

Approvals:

Canadian Standards Association: Certified: File No. 158158-1120040
Factory Mutual: Approved: Report No. 19608.1
Underwriters Laboratories, Inc. Listed: File No. MP268, Vol 7, Sec. 2

Product Number	Flame Failure Response Time (sec)	Self Checking	Use With Flame Sensor	Use With Primary Safety Control	Comments
R7289A1004	2 to 4 sec	None (standard)	Gas: Rectifying Flame Rods C7004, C7005, C7007, C7008, C7009, Q179; Gas, oil, coal: Ultraviolet Flame Sensor C7012A, C	R4795A, D	Color: Green
R7290A1001	2 to 4 sec	None (standard)	Gas, oil, coal: Ultraviolet (Minipeeper) C7027, C7035	R4795A, D	Color: Purple

Flame Amplifier Accessories

Product Number	Description	Used With
32005301-001	T Filter for Rectification Amplifiers	R7847, R7247

Flame Rods and Flame Rod Holders

C7007 Flame Rod Holder



Description: Flame Rod Holder

Application: Gas fired pilot or gas fired system.

Dimensions, Approximate: 1 15/16 in. high x 2 3/16 in. diameter x 3 3/16 in. long (49 mm high x 56 mm diameter x 81 mm long)

Mounting: 1/2 in.-14 NPT male

Electrical Connections: Terminal screw

Used to apply flame rod in gas-fired system controlled by rectification type flame safeguard control.

- Use with pressurized fire boxes.
- Hold flame rods firmly over the pilot or burner with a chuck and setscrew arrangement.
- Provide electrical connection through a terminal screw.
- Allow ventilation to cool the unit or to minimize soot deposit through a 1/2 in.
- NPT tapping.
- Mount easily with sleeve or thread type mounting adapters, and a straight or angle body.

Approvals:

Canadian Standards Association: Certified: File No. L95329-1

Factory Mutual: Approved: Report No. 24181.03

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ

Product Number	Type	Required Parts	Comments	Used With
C7007A1001	Flame Rod	102709E (48 in., 1219 mm); 102709D (36 in., 914 mm); 102709C (24 in., 610 mm); 102709B (18 in., 457 mm); 102709A (12 in., 305 mm)	Holder only, order Kanthal flame rod separately.	Flame Amplifiers: R7247A, B, R7847A, B, R7257, R7289

C7008 Flame Rod Holder



The small size of these devices enable their application to flame detection in installations where space is limited. The holder and flame rod assemblies facilitate flame proving on gas burners or gas-ignited oil burners which are controlled by electronic flame safeguard systems.

Description: Flame Rod Assembly

Application: Gas fired pilot or gas fired system.

Dimensions, Approximate: Holder: 7/8 in. diameter x 3 3/4 in. long (Holder: 22 mm diameter x 95 mm long)

Mounting: 1/4 in. NPT male

Electrical Connections: Rajah electrical connector

- Use with Honeywell Flame Safeguard controls requiring rectification-type flame detection.
- Use only with gas.
- Install with or without cover.
- Comes in several different lengths and can be cut to exact desired length.
- Uses Rajah electrical connector.

Approvals:

Canadian Standards Association: Certified: File No. L95329-1

Factory Mutual: Approved: Report No. 24181.03

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ

Product Number	Type	Includes	Used With
C7008A1174	Flame Rod	12 in. Flame rod and holder	Flame Amplifiers: R7247A, B, R7847A, B, R7257, R7289
C7008A1182	Flame Rod	24 in. Flame rod and holder	Flame Amplifiers: R7247A, B, R7847A, B, R7257, R7289

C7009 Flame Rod Holder



The small size of these devices enable their application to flame detection in installations where space is limited. The holder and flame rod assemblies facilitate flame proving on gas burners or gas ignited oil burners which are controlled by electronic flame safeguard systems.

Description: Flame Rod Assembly

Application: Gas fired pilot or gas fired system.

Dimensions, Approximate: Holder: 3/8 in. diameter x 2 3/8 in. long (Holder: 10 mm diameter x 60 mm long)

Mounting: 1/8 in. NPT male

Electrical Connections: Rajah electrical connector

- Use on industrial flame-retention gas burner nozzles.
- Works with Honeywell Flame Safeguard controls requiring rectification type flame detector.
- Mounts in areas with limited space because flame rod can be cut to desired length.
- Uses Rajah electrical connector.

Approvals:

Canadian Standards Association: Certified: File No. L95329-1

Factory Mutual: Approved: Report No. 24181.03

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ

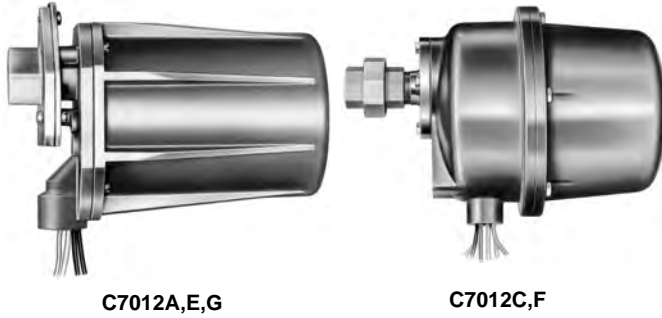
Product Number	Type	Includes	Comments	Used With
C7009A1009	Flame Rod	Flame rod and holder	4 in. (102 mm) flame rod	Flame Amplifiers: R7247A, B, R7847A, B, R7257, R7289
C7009A1025	Flame Rod	Flame rod and holder	12 in. (305 mm) flame rod	Flame Amplifiers: R7247A, B, R7847A, B, R7257, R7289

Flame Rods and Flame Rod Holders

Flame Rod Accessories or Parts

Product Number	Description
102709A	Kanthal Flame Rod - 12 in. (.182 in.Diameter) for C7004B, C7007A, C7011A
102709B	Kanthal Flame Rod - 18 in.(.182 in.diameter) for C7004B, C7007A, C7011A
102709C	Kanthal Flame Rod - 24 in. (.182 in.diameter) for C7004B, C7007A, C7011A
102709D	Kanthal Flame Rod - 36 in. (.182 in.diameter) for C7004B, C7007A, C7011A
102709E	Kanthal Flame Rod - 48 in. (.182 in.diameter) for C7004B, C7007A, C7011A
105478A	Kanthal Flame Rod - 6 in. (.182 in.diameter -threaded 6-32) for C7008
105478B	Kanthal Flame Rod - 12 in. (.182 in.diameter-threaded 6-32) for C7008
105478C	Kanthal Flame Rod - 18 in. (.182 in.diameter-threaded 6-32) for C7008
105478D	Kanthal Flame Rod - 24 in. (.182 in.diameter-threaded 6-32) for C7008

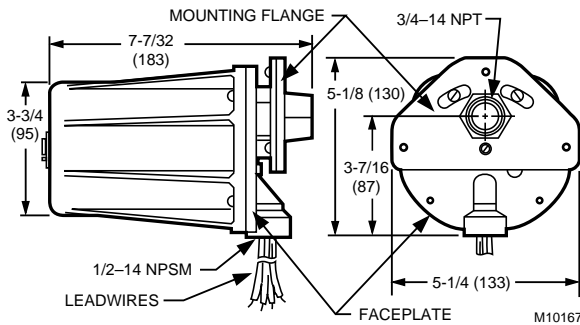
C7012 Solid State Purple Peeper® Ultraviolet Flame Detector



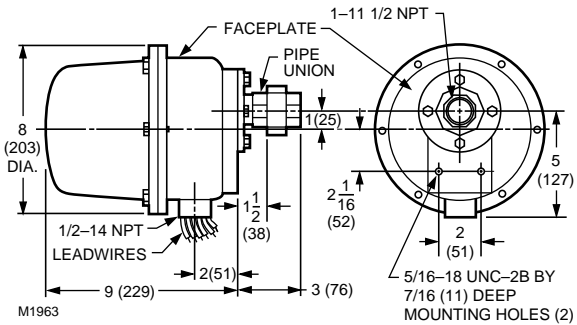
Solid state electronic flame detectors for use with Honeywell Flame Safeguard controls and amplifiers. Sense ultraviolet radiation produced by combustion of gas, oil, coal or other fuels.

- Mount horizontally, vertically or at any angle in between.
- Provide quick electrical hookup with threaded conduit fitting and color-coded leadwires.
- Reduced nuisance shutdowns by wiring two in parallel.
- C7012E1278 5 pin Brad Harrison type (formally 41307N) mating connector not supplied nor available through Honeywell.
- C7012A,E meets NEMA 4 standards with viewing window rated to 20 psi.
- C7012C,F has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.

C7012A,E,G Dimensions in inches (millimeters)



C7012C,F Dimensions in inches (millimeters)



Description: Ultraviolet Flame Detector (Purple Peeper)

Application: Gas, Oil or Coal fired burners

Power Consumption: 2.5 W

Weight: 4.25 lb (1.9 kg)

Approvals:

Canadian Standards Association: Certified: Master Report LR95329-1

Factory Mutual: Approved: Report No. 14740.01

Swiss RE (formerly IRI): Acceptable

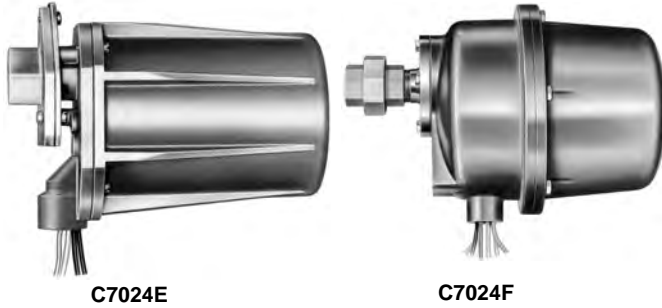
Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ

Product Number	Type	Electrical Connections	Lead Length		Mounting	NEMA Rating	Ambient Temperature Range		Electrical Ratings	Frequency	Includes	Comments	Used With
			(inch)	(mm)			(F)	(C)					
C7012A1145	Ultraviolet, Purple Peeper	4 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	3/4 in. NPT	NEMA 4	25 F to 175 F	-4 C to +79 C	120 Vac	50 Hz; 60 Hz	Cast case and cover	For use with rectification flame signal amplifiers	Flame Amplifiers: R7247A,B; R7847A,B; R7257;
C7012A1152	Ultraviolet, Purple Peeper	4 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	1 in. NPT	NEMA 4	25 F to 175 F	-4 C to +79 C	120 Vac	50 Hz; 60 Hz	Cast case and cover	For use with rectification flame signal amplifiers	Flame Amplifiers: R7247A,B; R7847A,B; R7257;
C7012A1160	Ultraviolet, Purple Peeper	4 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	1 in. NPT	NEMA 4	-40 F to +175 F	-40 C to +79 C	120 Vac	50 Hz; 60 Hz	Cast case and cover	For use with rectification flame signal amplifiers	Flame Amplifiers: R7247A,B; R7847A,B; R7257;
C7012A1186	Ultraviolet, Purple Peeper	4 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	3/4 in. NPT	NEMA 4	25 F to 175 F	-4 C to +79 C	208 Vac	50 Hz; 60 Hz	Cast case and cover	For use with rectification flame signal amplifiers	Flame Amplifiers: R7247A,B; R7847A,B; R7257;
C7012A1194	Ultraviolet, Purple Peeper	4 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	3/4 in. NPT	NEMA 4	25 F to 175 F	-4 C to +79 C	240 Vac	50 Hz; 60 Hz	Cast case and cover	For use with rectification flame signal amplifiers	Flame Amplifiers: R7247A,B; R7847A,B; R7257;
C7012C1042	Ultraviolet, Purple Peeper	4 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	1 in. NPT	Explosion Proof	25 F to 175 F	-4 C to +79 C	120 Vac	50 Hz; 60 Hz	—	Explosion-proof, two piece, violet, cast aluminum enclosure	Flame Amplifiers: R7247A,B; R7847A,B; R7257
C7012E1104	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	3/4 in. NPT	NEMA 4	-20 F to +175 F	-20 C to +79 C	120 Vac	50 Hz; 60 Hz	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C

Flame Detectors

Product Number	Type	Electrical Connections	Lead Length		Mounting	NEMA Rating	Ambient Temperature Range		Electrical Ratings	Frequency	Includes	Comments	Used With
			(inch)	(mm)			(F)	(C)					
C7012E1112	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	1 in. NPT	NEMA 4	-20 F to +175 F	-20 C to +79 C	120 Vac	50 Hz; 60 Hz	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012E1120	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	1 in. NPT	NEMA 4	-40 F to +175 F	-40 C to +79 C	120 Vac	50 Hz; 60 Hz	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012E1146	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	3/4 in. NPT	NEMA 4	-20 F to +175 F	-20 C to +79 C	208 Vac	50 Hz; 60 Hz	Cast case and cover, with Hot refractory tube	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012E1153	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	3/4 in. NPT	NEMA 4	-20 F to +175 F	-20 C to +79 C	240 Vac	50 Hz; 60 Hz	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012E1161	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	1 in. NPT	NEMA 4	-20 F to +175 F	-20 C to +79 C	120 Vac	50 Hz; 60 Hz	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012E1187	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	3/4 in. NPT	NEMA 4	-20 F to +175 F	-20 C to +79 C	220 Vac	50 Hz	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012E1195	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	3/4 in. NPT	NEMA 4	-20 F to +175 F	-20 C to +79 C	110 Vac	50 Hz	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012E1203	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	3/4 in. NPT	NEMA 4	-20 F to +175 F	-20 C to +79 C	240 Vac	50 Hz; 60 Hz	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012E1245	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	3/4 in. NPT	NEMA 4	-20 F to +175 F	-20 C to +79 C	120 Vac	50 Hz; 60 Hz	Cast case and cover, with Hot refractory tube	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012E1278	Ultraviolet, Purple Peeper, Self-Checking	Brad Harrison type number 41310 connector	—	—	1 in. NPT	NEMA 4	-20 F to +175 F	-20 C to +79 C	120 Vac	50 Hz; 60 Hz	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012F1052	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	1 in. NPT	Explosion Proof	-20 F to +175 F	-20 C to +79 C	120 Vac	50 Hz; 60 Hz	—	Dynamic self-checking flame detector, explosion-proof, two piece, violet, cast aluminum enclosure	Flame Amplifiers: R7247C, R7847C
C7012G1019	Ultraviolet, Purple Peeper	5 NEC Class 1 Color-coded leadwires.	96 in.	2438 mm	3/4 in. NPT	NEMA 4	25 F to 175 F	-4 C to +79 C	220 V	50 Hz	Cast case and cover	For use with rectification flame signal amplifiers	Flame Amplifiers: R7247C, R7847C

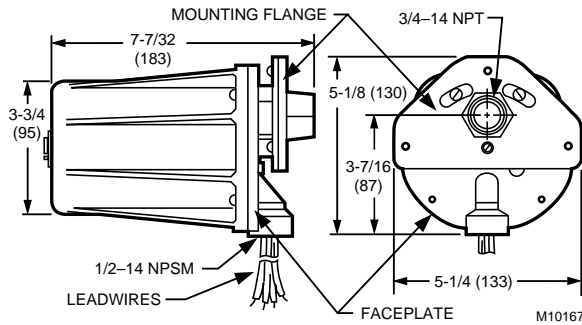
C7024 Solid State Purple Peeper® Ultraviolet Flame Detector



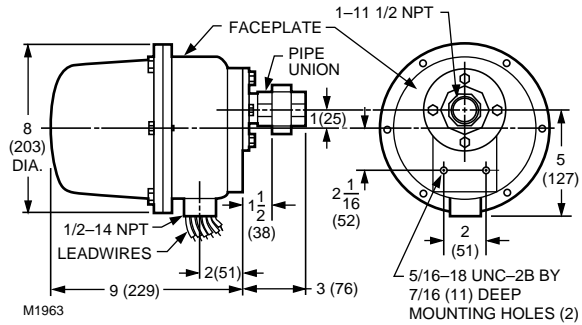
24 Vdc solid state electronic flame detectors for sensing the ultraviolet radiation emitted by the combustion of most carbon containing fuels, such as natural gas, LP gases, and oil.

- Use with R7824C Dynamic Self-Check Flame Signal Amplifier.
- Circuitry provides low power consumption and high reliability.
- Mount horizontally, vertically or at any angle in between.
- Field-replaceable UV radiation sensing tube and quartz viewing window.
- Quick electrical installation with threaded conduit fitting and color-coded leadwires.
- Reduce nuisance shutdowns by wiring two in parallel.
- Oscillating shutter interrupts UV radiation using the R7824C amplifier.
- C7024E meets NEMA 4 standards with viewing window rated to 20 psi.
- C7024F has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.

C7024E Dimensions in inches (millimeters)



C7024F Dimensions in inches (millimeters)



Description: Self-Checking Ultraviolet Flame Detector
Application: Coal fired burners; Gas fired burners; Oil fired burners
Electrical Connections: Six NEC CLASS 1 color-coded leaders
Power Consumption: 7.8 W maximum.
Electrical Ratings: 24 Vdc
Ambient Temperature Range: -20 F to +175 F (-20 C to +79 C)
Weight: 4.25 lb (1.9 kg)

Approvals:
Canadian Standards Association: Certified: Master Report LR95329-3
Underwriters Laboratories, Inc. Component Recognized: File No. MP268

Accessories:
190971G 24 Vdc Coil and Shutter Assembly for C7024E, F;C7961

Product Number	Type	Lead Length		Mounting	NEMA Rating	Includes	Comments	Used With
		(inch)	(mm)					
C7024E1001	Ultraviolet, Purple Peeper, Self-Checking	96 in.	2438 mm	3/4 in. NPT	NEMA 4	Cast case and cover	Works with 24 Vdc only	Flame Amplifiers: R7824C
C7024F1009	Ultraviolet, Purple Peeper, Self-Checking	96 in.	2438 mm	1 in. NPT	Explosion Proof	—	Works with 24 Vdc only, explosion-proof, two piece, violet, cast aluminum.	Flame Amplifiers: R7824C

Flame Detectors

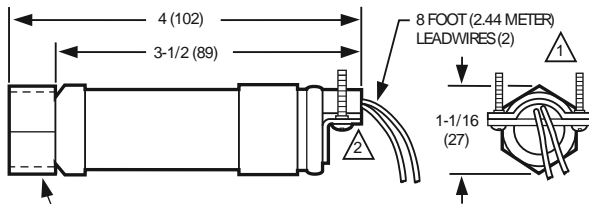
C7027; C7044 Minipeeper Ultraviolet Flame Detector



Compact flame detector for use with flame safeguard controls with ultraviolet amplifiers.

- Use with Honeywell Flame Safeguard primary safety controls and burners requiring ultraviolet flame detection.
- C7027 mounts on a 1/2 in. sighting pipe by using an integral collar.
- Detectors can be wired in parallel for difficult sighting applications.
- C7027 seals against pressures up to 5 psi (34.5kPa) when correctly installed.
- Allows for blast tube mounting due to compact size.
- C7044 mounts with a two screw bracket.
- The C7044 UV sensor tube is enclosed in a stainless steel housing.
- C7044 has the capability of side or end viewing in flame monitoring applications.

Dimensions in inches (millimeters)



▲ C7027A1064 HAS 24 FOOT (7.32 METER) LEADWIRES
C7027A1114 HAS 44 IN. (1.118 M) LEADWIRES WITH
22 IN. (558 MM) FLEXIBLE CONDUIT.

▲ MODELS AVAILABLE WITH SPUD CONNECTOR (1/2-14 NPSM INTERNAL
THREADS) INSTEAD OF CLAMP TYPE CONNECTOR.

C7027

M1943F

Type: Ultraviolet, Minipeeper

Application: Coal fired burners; Gas fired burners; Oil fired burners

Vibration: 0.5 G max

Electrical Connections: 2 NEC Class 1 leadwires

Used With: Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290

Approvals:

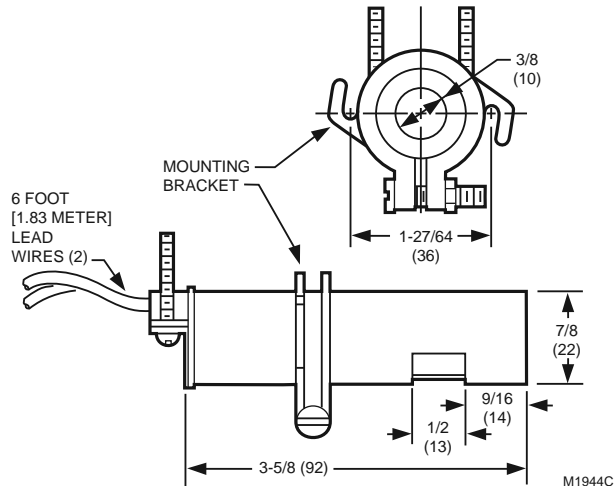
Canadian Standards Association: Certified: Master Report LR95329-1

Factory Mutual: Approved: Report No. 24181.03

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ

Dimensions in inches (millimeters)



C7044

M1944C

Product Number	Description	Lead Length		Mounting	Ambient Temperature Range		Includes	Comments
		(inch)	(mm)		(F)	(C)		
C7027A1023	Minipeeper	96 in.	2438 mm	Integral nut for 1/2 in. sighting pipe.	0 F to 215 F	-18 C to 102 C	—	Detects ultraviolet radiation in flames
C7027A1031	Minipeeper	96 in.	2438 mm	Integral nut for 1/2 in. sighting pipe.	-40 F to 215 F	-40 C to 102 C	—	Detects ultraviolet radiation in flames
C7027A1049	Minipeeper	96 in.	2438 mm	Integral nut for 1/2 in. sighting pipe.	0 F to 215 F	-18 C to 102 C	1/2 in. NPT threaded spud connector.	Detects ultraviolet radiation in flames
C7027A1056	Minipeeper	96 in.	2438 mm	Integral nut for 1/2 in. sighting pipe.	0 F to 215 F	-18 C to 102 C	—	Detects ultraviolet radiation in flames
C7027A1064	Minipeeper	288 in.	7315 mm	Integral nut for 1/2 in. sighting pipe.	-40 F to 215 F	-40 C to 102 C	1/2 in. NPT threaded spud connector.	Detects ultraviolet radiation in flames
C7027A1072	Minipeeper	96 in.	2438 mm	Integral nut for 1/2 in. sighting pipe.	-40 F to 215 F	-40 C to 102 C	1/2 in. NPT threaded spud connector.	Detects ultraviolet radiation in flames
C7027A1080	Minipeeper	96 in.	2438 mm	Integral nut for 1/2 in. sighting pipe.	0 F to 215 F	-18 C to 102 C	136733 Heat Block and 390427B bushing	Detects ultraviolet radiation in flames

Product Number	Description	Lead Length		Mounting	Ambient Temperature Range		Includes	Comments
		(inch)	(mm)		(F)	(C)		
C7027A1114	Minipeeper	44 in.	1118 mm	Integral nut for 1/2 in. sighting pipe.	0 F to 215 F	-18 C to 102 C	installed 22 in. flexible conduit	Detects ultraviolet radiation in flames
C7044A1006	Ultraviolet Flame Sensor	72 in.	1829 mm	Mounting Bracket provided	0 F to 215 F	-18 C to 102 C	Mounting bracket	Detects ultraviolet radiation in flames - Side Viewing

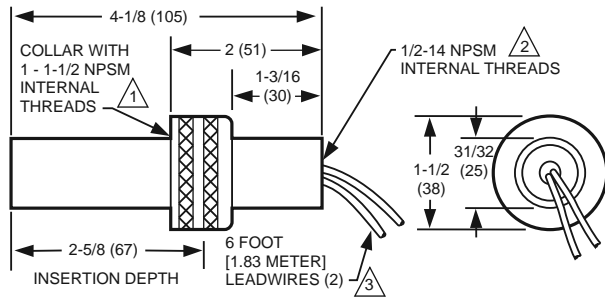
C7035 Minipeeper Ultraviolet Flame Detector



Compact flame detector for use with flame safeguard controls with ultraviolet amplifiers.

- Use with Honeywell Flame Safeguard primary safety controls and burners requiring ultraviolet flame detection.
- Mounts on a 1 in. sighting pipe by using an integral collar.
- Protects the sensing tube with a shield.
- Meets outdoor rain tight requirements of Underwriters Laboratories Inc., NEMA 4 and NEMA 4X.
- Wires in parallel for difficult sighting applications.
- Seals against pressures as high as 5 psi (34.5 kPa) when correctly installed.
- Field-replaceable ultraviolet sensing tube.

Dimensions in inches (millimeters)



- 1 DIN APPROVED C7035A1064 HAS 1-11 BSP.P1 INTERNAL MOUNTING THREADS.
 2 DIN APPROVED C7035A1064 HAS 1/2-14 BSP-F INTERNAL MOUNTING THREADS.
 3 C7035A1056 HAS 12 FOOT (3.66 METER) LEADWIRES.

C7035

M1945D

Description: Minipeeper

Application: Coal fired burners; Gas fired burners; Oil fired burners

Mounting: Integral nut for 1 in. sighting pipe.

Vibration: 0.5 G max

NEMA Rating: NEMA 3 and NEMA 4

Electrical Connections: 2 NEC Class 1 leadwires

Comments: Detects ultraviolet radiation in flames

Weight: 6 oz (0.17 kg)

Approvals:

Canadian Standards Association: Certified: Master Report LR95329-1

Factory Mutual: Approved: Report No. 24181.03

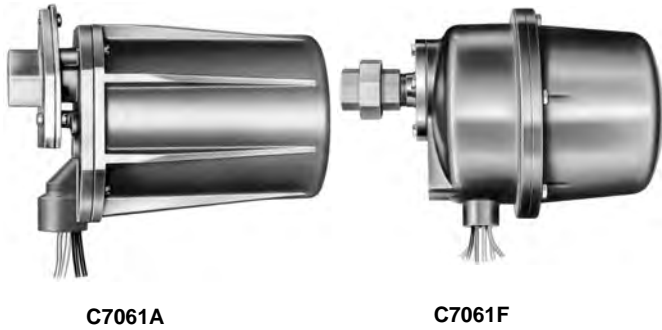
Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ

Product Number	Type	Lead Length		Ambient Temperature Range		Includes	Used With
		(inch)	(mm)	(F)	(C)		
C7035A1023	Ultraviolet, Minipeeper	72 in.	1829 mm	0 F to 250 F	-18 C to +121 C	—	Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290
C7035A1031	Ultraviolet, Minipeeper	72 in.	1829 mm	-40 F to +250 F	-40 C to +121 C	—	Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290
C7035A1049	Ultraviolet, Minipeeper	72 in.	1829 mm	0 F to 250 F	-18 C to +121 C	—	Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290
C7035A1056	Ultraviolet, Minipeeper	144 in.	3658 mm	-40 F to +250 F	-40 C to +121 C	—	Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290
C7035A1064	Ultraviolet, Minipeeper	72 in.	1829 mm	-40 F to +250 F	-40 C to +121 C	—	Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290
C7035A1080	Ultraviolet, Minipeeper	72 in.	1829 mm	0 F to 250 F	-18 C to +121 C	600F leads	Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290

Flame Detectors

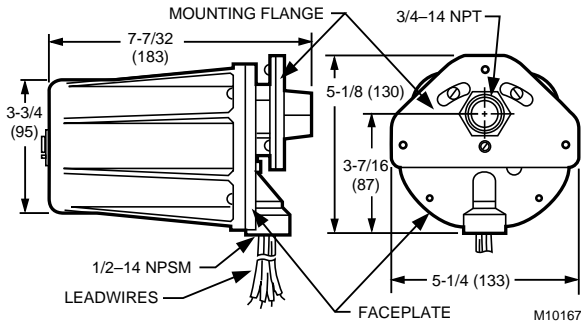
C7061 Dynamic Self-Check Ultraviolet Flame Detector



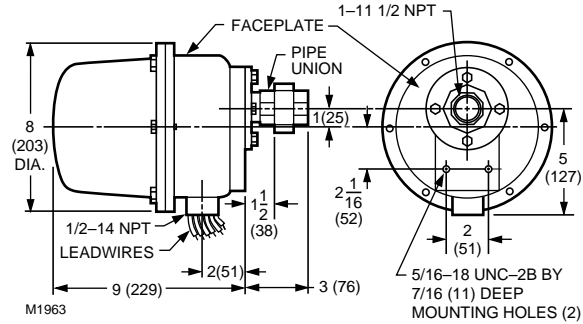
- Oscillating shutter interrupts ultraviolet radiation reaching the UV sensor to provide the UV sensor tube checking function.
- Can be mounted horizontally, vertically or at any angle in between.
- The detector requires faceplate alignment and has integral locating reference points to assure proper operation of the shutter mechanism.
- Field replaceable ultraviolet sensing tube and quartz viewing window.
- Models with threaded conduit fitting and color-coded leadwires allow rapid electrical installation.
- C7061A1038 or A1046 5 pin Brad Harrison type (formally 41307N) mating connector not supplied nor available through Honeywell.
- Two detectors can be wired in parallel to reduce nuisance shutdowns in difficult flame sighting applications.
- Protective heat block built into mounting flange.
- -40 F (-40 C) rated ultraviolet sensing tube is supplied.
- C7061E meets NEMA 4 standards with viewing window rated to 20 psi.
- C7061F has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.

Dynamic self-checking flame detector used with R7861 Dynamic Self-check Amplifiers for sensing the ultraviolet radiation generated by the combustion of gas, oil, or other fuels.

C7061A Dimensions in inches (millimeters)



C7061F Dimensions in inches (millimeters)



Description: Ultraviolet Flame Detector with shutter
Application: Gas fired burners; Oil fired burners
Frequency: 50 Hz; 60 Hz
Ambient Temperature Range: -40 F to +175 F (-40 C to +79 C)
Comments: Dynamic self-checking flame detector

Used With: Flame Amplifiers: R7861
Approvals:
Swiss RE (formerly IRI): Acceptable

Product Number	Type	Electrical Connections	Lead Length		Mounting	NEMA Rating	Ambient Temperature Range		Electrical Ratings
			(inch)	(mm)			(F)	(C)	
C7061A1004	Ultraviolet, Purple Peeper, Self-Checking	PVC jacketed cable	77 in.	1981 mm	3/4 in. NPT	NEMA 4	-40 F to +175 F	-40 C to +79 C	120 Vac
C7061A1012	Ultraviolet, Purple Peeper, Self-Checking	Color-coded lead wires	96 in.	2438 mm	3/4 in. NPT	NEMA 4	-40 F to +175 F	-40 C to +79 C	120 Vac
C7061A1020	Ultraviolet, Purple Peeper, Self-Checking	Terminal block	—	—	3/4 in. NPT	NEMA 4	-40 F to +175 F	-40 C to +79 C	120 or 230 Vac
C7061A1038	Ultraviolet, Purple Peeper, Self-Checking	Brad Harrison type number 41310 connector	—	—	3/4 in. NPT	NEMA 4	-40 F to +175 F	-40 C to +79 C	120 Vac
C7061A1046	Ultraviolet, Purple Peeper, Self-Checking	Brad Harrison type number 41310 connector	—	—	1 in. NPT	NEMA 4	-40 F to +175 F	-40 C to +79 C	120 Vac
C7061A1053	Ultraviolet, Purple Peeper, Self-Checking	Color-coded lead wires	96 in.	2438 mm	1 in. NPT	NEMA 4	-40 F to +175 F	-40 C to +79 C	120 Vac
C7061F2001	Ultraviolet, Purple Peeper, Self-Checking	Color-coded lead wires	96 in.	2438 mm	1 in. NPT	Explosion Proof	-40 F to +175 F	-40 C to +79 C	120 Vac

C7076 Adjustable Sensitivity Ultraviolet Flame Detector



C7076A



C7076D

Solid state dynamic self check flame detectors for use with BC7000, R4140 or FSP5075 with R7476 Amplifier and 7800 SERIES with R7886 Amplifier.

- Use Honeywell Flame Safeguard primary safety controls requiring adjustable sensitivity ultraviolet flame detection.
- Detect ultraviolet radiation from flames.
- Include dual sensitivity adjustment.
- C7076A meets NEMA 4 standards with viewing window rated to 20 psi.
- C7076D has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.

Description: Adjustable Sensitivity Ultraviolet Flame Detector

Application: Gas fired burners; Oil fired burners

Mounting: 1 in. NPT

Vibration: 0.5 G max

Electrical Connections: Terminal block

Power Consumption: 7.0 W

Ambient Temperature Range: -40 F to +160 F (-40 C to +71 C)

Used With: Flame Amplifiers: R7476, R7886

Weight: 6.6 lb (3 kg)

Approvals:

Canadian Standards Association: Certified: Master Report LR1620

Factory Mutual: Approved: Report No. FM26980

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ

Replacement Parts:

190998A Aspiration assembly for C7076A

190971E 120 Vac Coil and Shutter Assembly for C7076A, D

190971F 100 Vac Coil and Shutter Assembly for C7076A, D

191050 Quartz Viewing Window for C7076

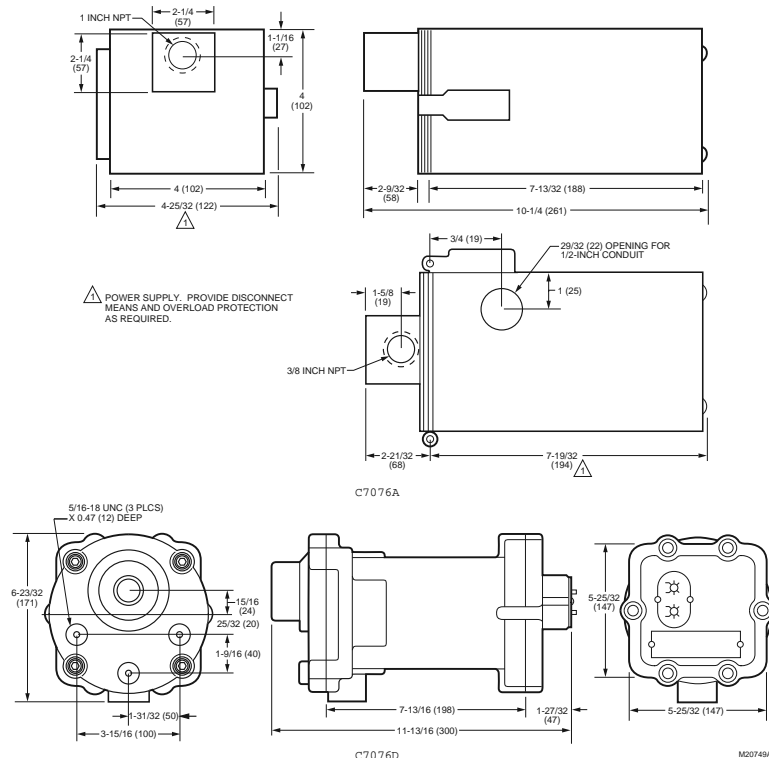
191053 UV Sensing Tube for C7076

191002B 120Vac Plug in Electronics less UV Sensing Tube for C7076A

191002R 120Vac Plug in Electronics less UV Sensing Tube for C7076D

Product Number	Type	NEMA Rating	Electrical Ratings	Frequency	Comments
C7076A1007	Ultraviolet, Adjustable Sensitivity	NEMA 4	120 Vac	60 Hz	Dynamic self-checking flame detector with adjustable sensitivity
C7076A1015	Ultraviolet, Adjustable Sensitivity	NEMA 4	100 Vac	50 Hz; 60 Hz	Dynamic self-checking flame detector with adjustable sensitivity
C7076A1031	Ultraviolet, Adjustable Sensitivity	NEMA 4	220 Vac; 240 Vac	50 Hz; 60 Hz	Dynamic self-checking flame detector with adjustable sensitivity
C7076D1027	Ultraviolet, Adjustable Sensitivity	NEMA 7	120 Vac	60 Hz	Dynamic self-checking flame detector with adjustable sensitivity

Dimensions in inches (millimeters)



Flame Detectors

C7915 Infrared (Lead Sulfide) Flame Detector



The C7915 Flame Detectors include a lead sulfide photocell that is sensitive to the infrared radiation emitted by the combustion of fuels such as natural gas, oil, and coal.

- Used for combination or dual-fuel applications.
- Detects pilot and main flame.
- Mounts quickly and easily on a standard 3/4 in. sighting pipe.
- Works where flame rod or rectifying photocell mounts are difficult to apply.
- The C7915 includes 50019469-001 Bushing with magnifying lens.
- The C7915 uses photoconductive lead sulfide cells 32007255-001.

Description: Infrared (Lead Sulfide) Flame Detector
Application: Used for combination or dual-fuel applications
Dimensions, Approximate: 1 1/4 in. diameter x 2 1/4 in. long (32 mm diameter x 58 mm long)
Mounting: 3/4 in. NPT
Electrical Connections: Two no.18 AWG wires
Ambient Temperature Range: -20F to 125F operating range (-18C to 52 operating range)
Comments: Infrared (Lead Sulfide) Flame Detector

Used With: Flame Amplifiers: R7852

Approvals:

Canadian Standards Association: Certified: Master Report LR95329-1

Factory Mutual: Approved: Report No. 24181.03

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ

Product Number	Type	Lead Length		Includes
		(inch)	(mm)	
C7915A1010	Infrared (Lead Sulfide)	30 in.	762 mm	With magnifying lens, 32007255-001 Cell
C7915A1028	Infrared (Lead Sulfide)	48 in.	1219 mm	With magnifying lens, 32007255-001 Cell, Orifice, heat block, and reducer bushing
C7915A1036	Infrared (Lead Sulfide)	96 in.	2438 mm	With magnifying lens, 32007255-001 Cell

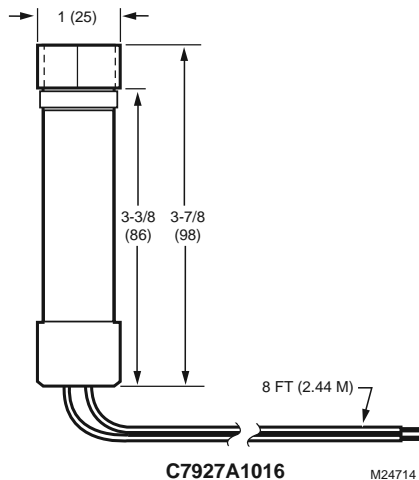
C7927 Solid State Ultraviolet Flame Detector



The Solid State Ultraviolet Flame Detectors detect the ultraviolet radiation emitted by combustion flames. The flame detectors are used with Honeywell flame safeguard controls to provide flame supervision for gas, oil, or combination gas-oil burners.

- Properly installed the flame detectors are pressure rated for 5 psi.
- Flame detector is used with only the R7851B Flame Amplifier and the 7800 SERIES controls.
- Has an integral collar threaded (internal 1/2-14 NPSM) for mounting on a one-half inch sight pipe.

Dimensions in inches (millimeters)



Description: Ultraviolet Flame Detector

Application: Gas, Oil, or combination burners-intermittent operation only (burner cycled at least once each 24 hours).

Mounting: 1/2 in NPT pipe mounting

NEMA Rating: NEMA 1

Electrical Connections: 2 NEC Class 1 leadwires

Ambient Temperature Range: -40F to +200F (-40 C to +93 C)

Approvals:

Canadian Standards Association: Report 158158

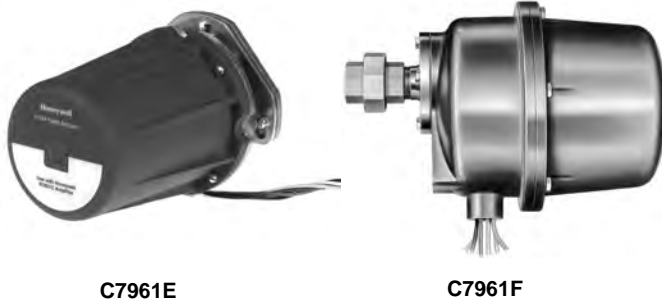
Factory Mutual: Approved: Report No. 3011020

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized: File No. MP268

Product Number	Type	Lead Length		Comments	Used With
		(inch)	(mm)		
C7927A1016	Ultraviolet, Minipeeper	96 in.	2438 mm	Detects ultraviolet radiation in flames	Flame Amplifiers: R7851B

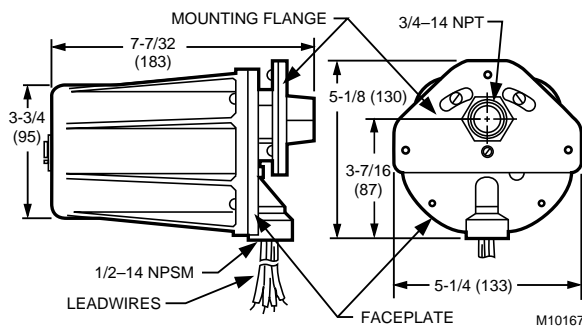
C7961 Dynamic Self-checking Solid State Ultraviolet Flame Detector



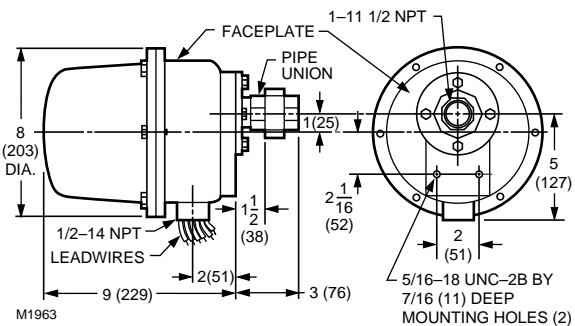
A self-checking flame detector using a solid state UV sensor to detect ultraviolet radiation in flames for supervision of gas, oil or combination gas-oil burners.

- Designed for use with 7800 series controls with the R7851C flame amp.
- Oscillating shutter interrupts ultraviolet radiation reaching the UV sensor to provide the solid state UV sensor checking function.
- Can be mounted horizontally, vertically or at any angle in between.
- The detector requires faceplate alignment and has integral locating reference points to assure proper operation of the shutter mechanism.
- Models available with threaded conduit fitting and color-coded leadwires allow rapid electrical installation.
- C7961E1022 or E1030 5 pin Brad Harrison type (formally 41307N) mating connector not supplied nor available through Honeywell.
- Incorporates UV sensor tube checking feature; used with R7851C1008 Dynamic Self-check Amplifiers.
- Protective heat block built into mounting flange.
- -40 F (-40 C) rated ultraviolet sensing cell is supplied.
- C7961E meets NEMA 4 standards with viewing window rated to 20 psi.
- C7961F has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.

Dimensions in inches (millimeters)



Dimensions in inches (millimeters)



Description: Dynamic Self-checking Ultraviolet Flame Detector
Application: Gas, Oil or other fuels
Electrical Ratings: 120 Vac (-15% +10%)
Frequency: 50 Hz; 60 Hz
Ambient Temperature Range: -40 F to +175 F (-40 C to +80 C)
Comments: Detects ultraviolet radiation generated by combustion of gas, oil, or other fuels
Used With: R7851C Dynamic Self-Check Amplifier

Weight: 2.6 lb (1.2 kg)
Approvals:
Canadian Standards Association: Certified: Pending
Factory Mutual: Pending
Swiss RE (formerly IRI): Acceptable
Underwriters Laboratories, Inc. Component Recognized: File No. MP268

Product Number	Type	Electrical Connections	Lead Length		Mounting	NEMA Rating	Includes
			(inch)	(mm)			
C7961E1006	Ultraviolet, Self-Checking	NEC Class 1 color-coded	96 in.	2438 mm	3/4 in. NPT	NEMA 4	Quartz Viewing Window rated for 20 psi (138 kPa)
C7961E1022	Ultraviolet, Self-Checking	5 pin Brad Harrison Type Connector	—	—	1 in. NPT	NEMA 4	Quartz Viewing Window rated for 20 psi (138 kPa)
C7961F1004	Ultraviolet, Self-Checking	NEC Class 1 color-coded	96 in.	2438 mm	1 in. NPT	Explosion Proof	Quartz Viewing Window rated for 100 psi

Flame Detectors

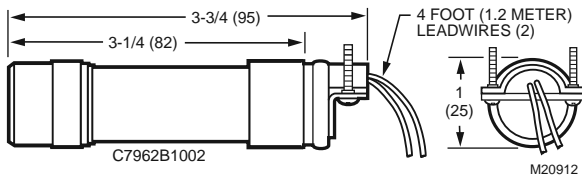
C7962 Visible Light Flame Detector



The C7962B Visible Light Flame Detector detects the visible light emitted by fuel oil combustion flames. The C7962B Detector is used with Honeywell Flame Safeguard controls to provide fuel oil flame supervision in commercial and industrial burners.

- Used with 7800 SERIES Flame Safeguard controls.
- Used with R7851B Flame Amplifier.
- Has an integral collar threaded (internal 1/2-14 NPSM) for mounting on 1/2 inch sight pipe.

Dimensions in inches (millimeters)



Vibration: 0.5 G max

NEMA Rating: NEMA 1

Electrical Connections: 2 NEC Class 1 leadwires

Ambient Temperature Range: -40 F to +160 F (-40 C to +71 C)

Approvals:

Canadian Standards Association: Report 158158

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized: File No. MP268

Description: Solid State Flame Detector to Site Visible Light of an Oil flame

Application: Commercial, industrial oil burners

Mounting: 1/2 in NPT pipe mounting

Accessories:

32007439-001 Mounting Bracket and screws for C7962B (1/2 in. NPT to 3/4 in. NPT)

Product Number	Type	Lead Length		Includes	Used With
		(inch)	(mm)		
C7962B1002	Visible Light Flame Detector	96 in.	2438 mm	—	Flame Amplifiers: R7851B
C7962B1010	Visible Light Flame Detector	96 in.	2438 mm	32007439-001 Mounting Bracket and screws	Flame Amplifiers: R7851B

Optical Flame Detector Accessories or Parts

Product Number	Description	Used With
105061	3/4 in. Heat Block for C7015, C7915	C7015, C7915
105172A	Pressure Seal-off Adapter (3/4 NPT) for C7015, C7915	C7015, C7915
105172C	Pressure Seal-off Adapter (3/4 NPT) w/UV Quartz window for C7012, C7024, C7027, C7061	C7012, C7024, C7027, C7061
113228	UV Sensing Tube (-20 F to 175 F) for C7012; C7024	C7012; C7024
114372	20 PSI window for C7012E, F; C7024; C7061	C7024; C7012; C7061
114465	Window Gasket for C7012A, E;C7024A;C7061A	C7024; C7012; C7061
114638	Rubber Washer (Red) for C7012A, E;C7024A;C7061A;C7961A	C7012; C7061; C7024
117181	Cork Gasket for C7012A, E;C7024A;C7061A	C7024; C7012; C7061
118367A	Swivel Mount for C7012, C7015, C7024, C7027, C7035, C7061, C7076	C7024; C7012; C7061
120739	Flange Gasket for C7012, C7024, C7061	C7024; C7012; C7061
120934/520	Mounting Flange (3/4") for C7012A,E;C7024A;C7061A;C7961E	C7012A,G, C7024E, C7061A, C7961E
122037	100 PSI Quartz Window for C7012C, F; C7061F	C7012C, F; C7061F
122748	50 PSI Quartz Window for C7012, C7061	C7012; C7061; C7024
123539	Anti-Vibration Mount for C7012, C7024 or C7061	C7012; C7061; C7024
124198	Mounting Flange (1") for C7012A,E;C7024A;C7061A;C7961E	C7012A,G, C7024E, C7061A, C7961E
124204	Quartz Magnifying Lens for C7012, C7024 or C7061	C7024; C7012; C7061
129464M	UV Power Tube (0 to 250F) for C7035	C7035
129464N	UV Power Tube (-40 to 250F) for C7035, C7061	C7061; C7035
129811B	Socket Assembly w/NPT threads	C7035
136733	Heat Block for C7027, C7015, C7915 (laminated plastic)	C7027, C7015, C7915
190971B	120 Vac 50/60 Hz Coil and Shutter Assembly for C7012E, F, C7061A, F	C7012E, F; C7061A, F
190971D	110 Vac 50 Hz Coil and Shutter Assembly for C7012E1187, 1195	C7012E
190971E	120 Vac Coil and Shutter Assembly for C7076A, D	C7076; C7076A, D
190971F	100 Vac Coil and Shutter Assembly for C7076A, D	C7076A, D
190971G	24 Vdc Coil and Shutter Assembly for C7024E, F;C7961	C7024;C7961
190998A	Aspiration assembly for C7076A	C7076A
190999	Grommet for C7076 Sensors	C7076
191002A	100Vac Plug in Electronics less UV Sensing Tube for C7076A	C7076A
191002B	120Vac Plug in Electronics less UV Sensing Tube for C7076A	C7076A
191002D	220/240Vac Plug in Electronics less UV Sensing Tube for C7076A	C7076A
191002R	120Vac Plug in Electronics less UV Sensing Tube for C7076D	C7076D
191050	Quartz Viewing Window for C7076	C7076
191053	UV Sensing Tube for C7076	C7076
191054	Housing Gasket for C7076	C7076
191284	Aluminum Shield for C7035	C7035
191286	UV Sensing Tube (-40F to 175F) for C7012, C7024	C7024; C7012
191702	Electronics less UV sensing tube for C7012F (120Vac)	C7012F
204341A	UV Mirror Assembly for C7012, C7024, C7027, C7035, C7061, C7076	C7012; C7061; C7024
24400152-001	Quartz lens replacement kit for C7076D consists of quartz lens, gasket, gasket seal	C7076
32004080-001	120Vac Electronics less UV Sensing Tube and Shutter for C7012C	C7012C
32007255-001	Lead Sulfide Cell for C7915	C7915
32007439-001	Mounting Bracket and screws for C7962B (3/8 in. NPT to 1/2 in. NPT)	C7962B
390427B	Reducer Bushing (3/8 in. NPT to 1/2 in. NPT)	C7027; C7015

Pilot Burners

Q179A,B Flame Rectifier Gas Pilots



Q179A

Q179A,B Gas Pilot Burner Assemblies use the flame rectification principle to prove the flame. Q179A,B are used in conjunction with a suitable electronic flame safeguard control on industrial or commercial gas and gas pilot ignited oil burners.

- Q179A is a gas pilot assembly (with a flame electrode rod) and ignition electrode, making it suitable for applications requiring an interrupted or intermittent electrically ignited gas pilot burner.
- Q179B has only the flame electrode and is suitable for use in continuous pilot applications.
- Primary aerated type burner is equipped with stainless steel fins that provide the proper flame rod area to ground area ratio for maximum flame signal and flame stabilization.
- Stainless steel electrode(s) are mounted in ceramic insulators, which permit electrode adjustment.
- Rajah connectors facilitate disconnecting (A1126 has terminal screws).
- Bracket permits side or end mounting.

Type of Gas: Natural

Dimensions, Approximate: 4 5/8 in. high x 1 11/16 in. wide x 3 in. deep (118 mm high x 43 mm wide x 76 mm deep)

Aeration: Primary

Gas Consumption: 2.0 cfh (0.06 m3/hr)

Gas Fitting: 1/4 in. compression coupling (6.4 mm compression coupling)

Approvals:

Canadian Standards Association: Certified: File No. LR1620, Guide No. 140-A-2

Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ

Product Number	Application	Mounting Bracket	Port and Burner Tip Style	Orifice	Includes	Used With
Q179A1001	For Intermittent or Interrupted Ignition	side/end	I	0.025 in. dia. (0.635 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1035	For Intermittent or Interrupted Ignition	side/end	45 degree right hand	0.025 in. dia. (0.635 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1050	For Intermittent or Interrupted Ignition	side/end	T	0.028 in. dia. (0.711 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1076	For Intermittent or Interrupted Ignition	side/end	45 degree Y	0.028 in. dia. (0.711 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1092	For Intermittent or Interrupted Ignition	side/end	45 degree T	0.028 in. dia. (0.711 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1118	For Intermittent or Interrupted Ignition	side/end	45 degree left hand	0.025 in. dia. (0.635 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1126	For Intermittent or Interrupted Ignition	side/end	I	0.025 in. dia. (0.635 mm dia.)	Flame electrode and ignition electrode with screw terminal connections	Q624 or other suitable ignition transformer.
Q179A1183	For Intermittent or Interrupted Ignition	side/end	I	0.025 in. dia. (0.635 mm dia.)	Ignition Electrode Only	Q624 or other suitable ignition transformer.
Q179B1042	For Continuous (Standing) pilot	side/end	T	0.025 in. dia. (0.635 mm dia.)	Flame electrode	—
Q179B1109	For Continuous (Standing) pilot	side/end	45 degree left hand	0.025 in. dia. (0.635 mm dia.)	Flame electrode	—
Q179B1117	For Continuous (Standing) pilot	side/end	45 degree I	0.025 in. dia. (0.635 mm dia.)	Flame electrode	—

Q179C,D Miniature Rectifier Pilots



Q179C



Q179D

Q179C,D Gas Pilot Burner Assemblies use the flame rectification principle to prove the flame. Q179C,D are used in conjunction with a suitable electronic flame safeguard control on industrial or commercial gas and gas pilot ignited oil burners.

- Q179C is a gas pilot assembly (with a flame electrode rod) and ignition electrode, making it suitable for applications requiring an interrupted or intermittent electrically ignited gas pilot burner.
- Q179D has only the flame electrode and is suitable for use in continuous pilot applications.
- Primary aerated type burner is equipped with stainless steel fins that provide the proper flame rod area to ground area ratio for maximum flame signal and flame stabilization.
- Stainless steel electrode(s) are mounted in ceramic insulators, which permit electrode adjustment.
- Rajah connectors facilitate disconnecting.

Dimensions, Approximate: 3 1/8 in. high x 2 7/16 in. wide x 1 in. deep
(79 mm high x 62 mm wide x 25 mm deep)

Aeration: Primary

Gas Fitting: 1/4 in. compression coupling (6.4 mm compression coupling)

Approvals:

Canadian Standards Association: Certified: Master Report LR95329-1

Underwriters Laboratories, Inc. Component Recognized: File No. MH9928, Guide No. MCUR2

Product Number	Application	Type of Gas	Mounting Bracket	Port and Burner Tip Style	Target Mount	Orifice	Includes	Used With
Q179C1009	For Intermittent or Interrupted Ignition	Natural	rear	D	Dual Wing-Rear	0.026 in. dia. (0.66 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1025	For Intermittent or Interrupted Ignition	Natural	rear	L	Single Wing-Rear	0.024 in. dia. (0.60 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1033	For Intermittent or Interrupted Ignition	Natural	left side	D	Dual Wing-Left Side	0.026 in. dia. (0.66 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1041	For Intermittent or Interrupted Ignition	Natural	right side	D	Dual Wing-Right Side	0.026 in. dia. (0.66 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1058	For Intermittent or Interrupted Ignition	Natural	left side	L	Single Wing-Left Side	0.024 in. dia. (0.60 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1066	For Intermittent or Interrupted Ignition	Natural	right side	K	Single Wing-Right Side	0.024 in. dia. (0.60 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1090	For Intermittent or Interrupted Ignition	LP	rear	D	Dual Wing-Rear	0.016 in. dia. (0.40 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1108	For Intermittent or Interrupted Ignition	Natural	rear	D	Dual Wing-Rear	0.026 in. dia. (0.66 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179D1008	For Continuous (Standing) pilot	Natural	rear	D	Dual Wing-Rear	0.026 in. dia. (0.66 mm dia.)	Flame electrode and thermocouple adapter	Q340 Thermocouple or Q313A Thermopile Generator.
Q179D1016	For Continuous (Standing) pilot	Natural	left side	D	Dual Wing-Left Side	0.026 in. dia. (0.66 mm dia.)	Flame electrode and thermocouple adapter	Q340 Thermocouple or Q313A Thermopile Generator.
Q179D1024	For Continuous (Standing) pilot	Natural	right side	D	Dual Wing-Right Side	0.026 in. dia. (0.66 mm dia.)	Flame electrode and thermocouple adapter	Q340 Thermocouple or Q313A Thermopile Generator.
Q179D1057	For Continuous (Standing) pilot	Natural	left side	L	Single Wing-Left Side	0.024 in. dia. (0.60 mm dia.)	Flame electrode and thermocouple adapter	Q340 Thermocouple or Q313A Thermopile Generator.
Q179D1925	For Continuous (Standing) pilot	LP	rear	D	Dual Wing-Rear	0.016 in. dia. (0.40 mm dia.)	Flame electrode and thermocouple adapter	Q340 Thermocouple or Q313A Thermopile Generator.

Pilot Burners

C7005 Flame Rectifier Pilots



Dimensions, Approximate: 3 in. diameter x 3 1/2 in. deep
(76 mm diameter x 343 mm deep x)

Gas Fitting: 1/2 in. NPT male thread

Gas Pilot Burner Assemblies include a flame rod to prove the pilot flame. The assemblies are used with a suitable flame safeguard control on industrial or commercial gas burners or oil burners with gas pilots.

- Used with Honeywell controls using the flame rectification principle.
- C7005A is for continuous pilot applications.
- It includes an insulated flame rod, properly positioned relative to the flame retention type nozzle. C7005B is similar to C7005A, but includes an ignition electrode suitable for automatic, electric-spark ignition, gas pilot applications.
- Individually mounted flame rod and ignition electrode in ceramic insulators allow the head assembly to fit inside a 3-inch pipe.
- Stainless steel fins on the flame retention type pilot head provide the correct ratio of flame rod area to ground area for maximum flame signal, and are beneficial in stabilizing the pilot flame.
- Pilot flame retention nozzle and mixing tube are threaded internally, 1/2-14 NPT and 3/8-18 NPT, respectively, and can be assembled with standard pipe fittings.
- Pilot can be installed in vertical, horizontal, or inclined position.
- Rajah connectors facilitate electrical connections.

Approvals:

Canadian Standards Association: Certified: File No. LR1620, Guide No. 140-A-2

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ

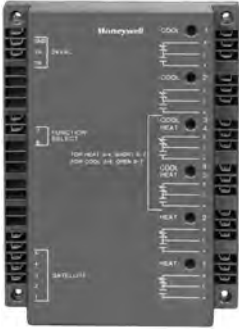
Product Number	Application	Type of Gas	Orifice	Includes	Used With
C7005A1037	For Continuous (Standing) pilot	Natural	0.052 in. dia.	—	—
C7005B1035	For automatic electrically ignited pilot	Natural	0.052 in. dia.	Ignition electrode	Q624 or other suitable ignition transformer.
C7005B1050	For automatic electrically ignited pilot	LP	0.028 in. dia. (0.711 mm dia.)	Ignition electrode	Q624 or other suitable ignition transformer.

Commercial Pilot Burners Parts or Accessories

Product Number	Description	Used With
100204B	Natural Gas Venturi Mixing Tube for C7005A, B	C7005A, C7005B
101738	Insulator for Flame rod or Ignitor	C7005A, C7005B
101738A	Ignition Assembly	C7005A, C7005B
101738B	Flame Rod Assembly	C7005A, C7005B
101739	Ignition Electrode, 4", Kanthal	C7005A, C7005B
101741/0020	7/8 in. long Rajah Connector with plug end for C7005A or C7005B	C7005A, C7005B
101742/0021	Electrode Mounting Clip for C7005A or C7005B	C7005A, C7005B
101743	Mounting Bracket	C7005A, C7005B
103534	Kanthal flame electrode 8 in. used with C7005A, C7005B	C7005A, C7005B
104312	Rajah Connector for Flame Electrode used with Q179A, B	Q179A, Q179B
131065	Adapts Q340 Thermal Couple to Q179B w/102462	Q179A, Q179B
133451A	T Port or LH 90 degree Flame Rod & Insulator for Q179A, B	Q179A, Q179B
133453	Insulator for Q179A, B	Q179A, Q179B
37356/520	Rajah connector for ignition electrode for Q179A, Q179B, Q179C, or Q179D.	Q179A, Q179B, Q179C, Q179D
388146AF	Natural Gas spud orifice, .024 in. dia. for Q179C, D	Q179C, Q179D
388146KD	LP Gas spud orifice, .016 in. dia. for Q179C, D	Q179C, Q179D
395390-13	LP Gas Orifice .013 in. dia. for Q179A, B	Q179A, Q179B
395390-28	Natural Gas Orifice .028 in. dia. for Q179A, B	Q179A, Q179B
R1061012	Ignition cable or Flame Rod Cable. Rated at 350 F, 20,000 volts R.M.S.	C7005B, Q179A, Q179C
R1298020	Cable Flame Rod Lead. Rated at 400 F, 600 volts R.M.S. For use with Q179	Q179

Commercial Hydronic Controllers

Satellite Sequencer



Provides up to 6 additional stages of heating/cooling control for W7100 Discharge air controller applications.

- Extends capacity of W7100 Discharge Air system.
- Advanced microprocessor control algorithm minimizes droop.
- For system with or without economizer.
- Jumper selectable between 4 cool/2 heat or 2 cool/4 heat stages. LED's indicate operation of each output stage relay.

Dimensions, Approximate: 8 5/8 in. high, 6 1/2 in. wide, 3 in. deep
(219 mm high, 165 mm wide, 76 mm deep)

Frequency: 60 Hz

Operating Temperature Range: -40 F to +150F

Product Number	Application	Supply Voltage	Used With
W7101A1003	Satellite Sequencer	20 to 30 Vac	W7100

Commercial Hydronic Controller Accessories

Product Number	Description	Used With
4074EDJ	Bag Assembly including Test Plug and Resistors for W7100	W7100
4074EFV	Bag Assembly including Resistors for Number of Stages for W7100J	W7100J

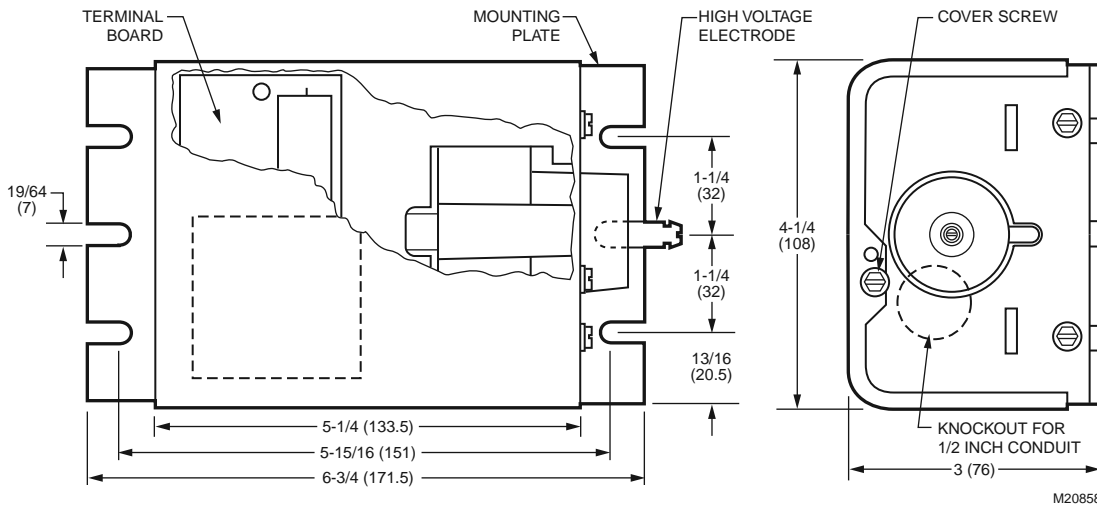
Ignition Transformers

Q624 Solid State Ignition Transformer



- Used to ignite pilots on commercial or industrial gas burners.
- Ignite gas pilots with spark gaps up to 1/4 in. (6.5 mm).
- Reliable light off with 15,000 peak voltage.
- Prevent detection of the ignition spark when properly applied in a flame detection system with the C7027, C7035 or C7044 Minipeeper Ultraviolet Flame Detector.
- For use only in interrupted ignition applications.
- Mount in same space used by conventional ignition transformer.
- Light weight, 3 lbs. (1.4 kg) versus 8-1/2 lbs. (3.9 kg) for standard transformers.

Dimensions in inches (millimeters)



Ambient Temperature Range: -40 F to +125 F (-40 C to +52 C)
Operating Humidity Range (% RH): 95% RH
Weight: 3 lb

Approvals:
Canadian Standards Association: Certified: File No. LR95329
Underwriters Laboratories, Inc. Component Recognized

- Accessories:**
- 32004766-001** 24 inch Ignition Cable for Q624 and Q652
 - 32004766-002** 120 inch Ignition Cable used with Q624 and Q652
 - 32004766-003** Ignition Cable for Q624 and Q652 (order per foot)
 - 32004766-004** 60 inch Ignition Cable used with Q624 and Q652
 - 32004766-005** 8 inch Ignition Cable used with Q624 and Q652
 - 32004766-006** 36 inch Ignition Cable used with Q624 and Q652

Product Number	Application	Electrical Ratings	Frequency	Description
Q624A1014	Gas Ignition Transformer	120 Vac	50 Hz; 60 Hz	120 Vac, 50/60 Hz Gas Ignition Transformer

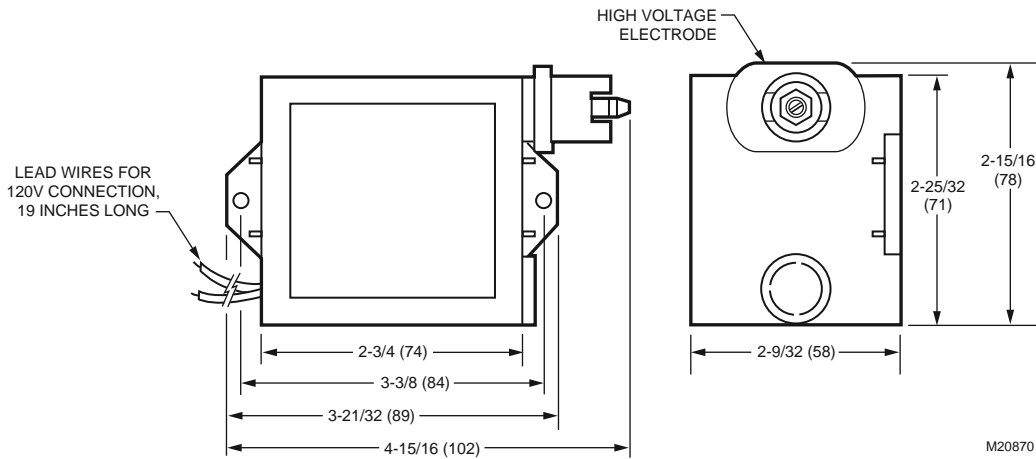
Q652 Solid State Spark Generator



Used to ignite gas burners in commercial and industrial applications.

- Lightweight, 1 lb. (0.4 kg).
- Include single high voltage electrode for gas applications.
- For use with gas pilots with electrode spacings between 0.029 and 0.125 in.
- Secondary Peak Voltage: 14Kv rms at 21Khz.
- Mount in same space used by conventional ignition transformer.
- For use only in interrupted ignition applications.
- Prevent detection of the ignition spark when properly applied in a flame detection system with the C7027, C7035 or C7044 Minipeeper Ultraviolet Flame Detector.

Dimensions in inches (millimeters)



Ambient Temperature Range: 14 F to 113 F (-10 C to +45 C)
Operating Humidity Range (% RH): 90% RH
Weight: 1 lb

Approvals:
Canadian Standards Association: LA66894
Underwriters Laboratories, Inc. Component Recognized File MH14381

Accessories:

- 32004766-001** 24 inch Ignition Cable for Q624 and Q652
- 32004766-002** 120 inch Ignition Cable used with Q624 and Q652
- 32004766-003** Ignition Cable for Q624 and Q652 (order per foot)
- 32004766-004** 60 inch Ignition Cable used with Q624 and Q652
- 32004766-005** 8 inch Ignition Cable used with Q624 and Q652
- 32004766-006** 36 inch Ignition Cable used with Q624 and Q652

Product Number	Application	Electrical Ratings	Frequency
Q652B1006	Gas Ignition Transformer	120 Vac	60 Hz
Q652B1014	Solid State Ignitor Spark Generator-Gas Applications; 220V 60 Hz	220 Vac	60 Hz

Ignition Transformer Accessories or Parts

Product Number	Description	Used With
134666/510	High voltage terminal insulator for Q652 and Q624	Q652; Q624
32004766-001	24 inch Ignition Cable w/straight boots	Q652; Q624
32004766-002	120 inch Ignition Cable w/straight boots	Q652; Q624
32004766-003	Ignition/flame rod cable for Q624 and Q652 (order per foot)	Q652; Q624
32004766-004	60 inch Ignition Cable w/straight boots	Q652; Q624
32004766-005	8 inch Ignition Cable w/90 degree and straight boot	Q652; Q624
32004766-006	36 inch Ignition Cable w/90 degree and straight boot	Q652; Q624
4074BTN	Bag assembly consisting of washer (103218), cap terminal (135793) and ferrule (37356) for Q624	Q624A

Firing Rate Motors and Linkages

M9484D,E,F; M9494D,F Modutrol® IV Motors



Reversing, proportional motors used to drive burner firing rate valves, dampers or auxiliary equipment. Replace M941A,C,D motors.

- Designed for flame safeguard applications in commercial/industrial oil or gas burner system.
- Vibration resistant electronic drive circuit.
- Regulated by three-wire proportional controller.
- Stroke is field-adjustable to 90 or 160 degrees.

Description: Proportional control motor for 135 ohm firing rate applications

Dimensions, Approximate: 6.45 in high x 5.5 in wide x 7.3 in deep (164 mm high x 140 mm wide x 185 mm deep)

Ambient Temperature Range: -40 F to +150 F (-40 C to +66 C)

Crankshaft: double-ended, 3/8 in. (9.5 mm) square

Deadweight Load on Shaft (Either End):

- 200 lb (300 lb combined power and auxiliary shafts)
- (90.8 kg (136 kg combined power and auxiliary shafts))

Input Signal: 135 ohm

Power Consumption: 15 W

Voltage: 24 Vac

Frequency: 50 Hz; 60 Hz

Switch Ratings - 120 Vac: 7.2 AFL, 43.2 ALR, 40 VA pilot duty opposite contact

Switch Ratings - 240 Vac: 3.6 AFL, 21.6 ALR, 40 VA pilot duty opposite contact

Approvals:

Underwriters Laboratories, Inc. Listed: File No. E4436, Guide No. XAPX for USA and Canada

Accessories:

Q100B1006 Linkage- Connects Modutrol motor to V51E Butterfly Valve.

Product Number	Torque Rating		Torque Rating, Breakaway		Timing		Auxiliary Switch	Auxiliary Switch Settings
	(lb-in.)	(Nm)	(lb-in.)	(Nm)	(90 Degree Stroke)	(160 Degree Stroke)		
M9484D1010	150 lb-in.	17 Nm	300 lb-in.	34.0 Nm	30 seconds	60 seconds	—	—
M9484E1009	75 lb-in.	8.5 Nm	150 lb-in.	17.0 Nm	15 seconds	30 seconds	1	11 degrees
M9484E1017	150 lb-in.	17 Nm	300 lb-in.	34.0 Nm	30 seconds	60 seconds	1	1 degree
M9484E1033	150 lb-in.	17 Nm	300 lb-in.	34.0 Nm	30 seconds	60 seconds	1	7 degrees
M9484F1007	150 lb-in.	17 Nm	300 lb-in.	34.0 Nm	30 seconds	60 seconds	2	7 and 80 degrees
M9484F1023	75 lb-in.	8.5 Nm	150 lb-in.	17.0 Nm	15 seconds	30 seconds	2	—
M9484F1031	150 lb-in.	17 Nm	300 lb-in.	34.0 Nm	30 seconds	60 seconds	2	7 and 80 degrees
M9484F1049	150 lb-in.	17 Nm	300 lb-in.	34.0 Nm	30 seconds	60 seconds	2	35 and 120 degrees
M9484F1057	150 lb-in.	17 Nm	300 lb-in.	34.0 Nm	30 seconds	53 seconds	2	—
M9494D1000	300 lb-in.	34 Nm	600 lb-in.	68.0 Nm	60 seconds	120 seconds	—	—
M9494F1003	300 lb-in.	34 Nm	600 lb-in.	68.0 Nm	60 seconds	107 seconds	2	—

Q100 Butterfly Valve Linkages



Connects V51E valve to M9484 and M9494 Modutrol IV Motors with adapter plate.

- Fits all sizes of V51E Valves. Mounts easily.

Description: Linkage- Connects Modutrol motor to V51E Butterfly Valve.

Product Number	Linkage Type	Linkage Rod	Valve Compatibility	Used with Actuator	Used With
Q100B1006	Butterfly Gas Valve	10 3/4 in.	all sizes	Modutrol Motor	V51E Gas Valve

Diaphragm Gas Valves

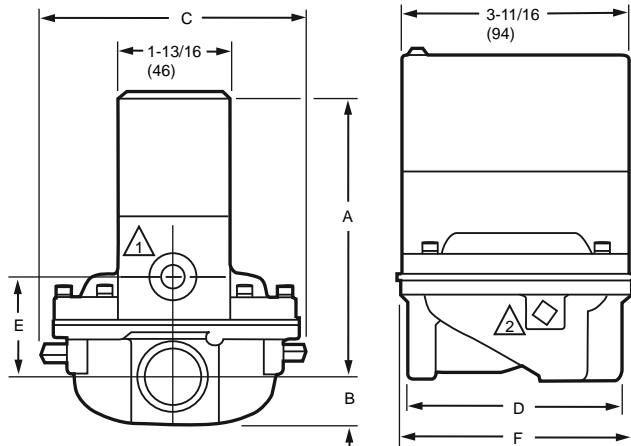
V48A; V88A Diaphragm Gas Valves



Solenoid-operated diaphragm valves provide slow opening and fast closing suitable for controlling natural, LP or manufactured gases. They are normally used on atmospheric boilers, commercial water heaters, and rooftop heaters.

- V48 for line voltage service; V88 for 24Vac service.
- Close firmly with diaphragm that is both weight and spring loaded.
- Two second maximum closing time.
- Valve closes on power failure; recommended for final shutoff service.
- Set opening time with various sized bleed orifices or adjustable bleed valve.
- Use with LP, natural or manufactured gases.
- Made with cast aluminum in straight-through valve pattern.
- Valve position indicator available for 1-1/4 in. V48A2227.

Dimensions in inches (millimeters)



Body Pattern: Straight-through
Electrical Connections: 6 in. Leadwires
Ground Terminal: Yes
Pilot Tapping: 1/8-27 NPT
Pressure Ratings: 1/2 psi (3.4 kPa)
Frequency: 60 Hz
Power Consumption: 9 W; 15 VA max
Mounting: Upright (horizontal)
Bleed Tapping: 1/8-27 NPT
Valve Opening Time: 5 sec max
Valve Closing Time: 2 sec max
Operating Temperature Range: 32 F to 125 F (0 C to 52 C)

Materials
(Body): Aluminum
Type of Gas: Natural, LP, Manufactured

Approvals:
Canadian Standards Association: Certificate No. 158158-2500005576 (Z21.21-CSA 6.5)
Underwriters Laboratories, Inc. File No. MH1639, Guide No. YIOZ

VALVE SIZE (IN.)	APPROXIMATE DIMENSIONS											
	A		B		C		D		E		F	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM
3/4	4-11/16	119.1	3/4	19.1	4-5/8	117.5	3-1/2	88.9	1-5/8	41.3	3-13/16	96.8
1	5-1/16	128.6	1	25.4	5	127.0	3-11/16	93.7	2-1/16	52.4	4-5/16	109.5
1-1/4	5-9/16	141.3	1-1/4	31.8	5-7/8	149.2	5-5/16	134.9	2-3/8	60.3	5-5/16	134.9
1-1/2	5-9/16	141.3	1-1/4	31.8	5-7/8	149.2	5-5/16	134.9	2-3/8	60.3	5-5/16	134.9
2	6-15/16	176.2	2-1/4	57.2	9-1/2	241.3	8-3/8	212.7	3-9/16	90.5	5-5/16	236.5
2-1/2	6-15/16	176.2	2-1/4	57.2	9-1/2	241.3	8-3/8	212.7	3-9/16	90.5	9-5/16	236.5
3	6-15/16	176.2	2-1/4	57.2	9-1/2	241.3	8-3/8	212.7	3-9/16	90.5	9-5/16	236.5

- ① BLEED TAPPING: 1/8-27 NPT, OR 1/8-28 BSP. PL.
- ② PILOT TAPING (2): 1/8-27 NPT FOR 3/4 THROUGH 1-1/2 IN. SIZES, 1/4-18 NPT FOR 2 THROUGH 3 IN. SIZES; OR 1/8-28 BSP. PL FOR 1 THROUGH 1-1/2 IN. SIZES, 1/4-19 BSP.PL FOR 2 THROUGH 3 IN SIZES.

M8487

Product Number	Pipe Size (inch)	Capacity		Current (max amps at rated Vac/Hz)	Voltage	Comments
		(cfh)	(m ³ /hr)			
V48A2151	3/4 in.	668 cfh	18.9 m ³ /hr	0.13 amps	120 Vac	—
V48A2169	1 in.	1021 cfh	28.9 m ³ /hr	0.13 amps	120 Vac	—
V48A2177	1 1/4 in.	2100 cfh	59.5 m ³ /hr	0.13 amps	120 Vac	—
V48A2185	1 1/2 in.	2400 cfh	67.9 m ³ /hr	0.13 amps	120 Vac	—
V48A2227	1 1/4 in.	2100 cfh	59.5 m ³ /hr	0.13 amps	120 Vac	Includes position indicator
V48A2243	2 in.	4178 cfh	118.3 m ³ /hr	0.13 amps	120 Vac	—
V48A2250	2 1/2 in.	5100 cfh	144.4 m ³ /hr	0.13 amps	120 Vac	—
V48A2268	3 in.	5562 cfh	157.5 m ³ /hr	0.13 amps	120 Vac	—
V48A2276	1 1/2 in.	2400 cfh	67.9 m ³ /hr	0.13 amps	120 Vac	—

Diaphragm Gas Valves

Product Number	Pipe Size	Capacity		Current (max amps at rated Vac/Hz)	Voltage	Comments
	(inch)	(cfh)	(m ³ /hr)			
V48A2334	1 in.	1021 cfh	28.9 m ³ /hr	0.13 amps	120 Vac	—
V48A2342	1 1/4 in.	2100 cfh	59.5 m ³ /hr	0.13 amps	120 Vac	—
V88A1618	1 in.	1021 cfh	28.9 m ³ /hr	0.62 amps	24 Vac	—
V88A1626	1 1/4 in.	2100 cfh	59.5 m ³ /hr	0.62 amps	24 Vac	—
V88A1634	1 1/2 in.	2400 cfh	67.9 m ³ /hr	0.62 amps	24 Vac	—
V88A1659	3/4 in.	668 cfh	18.9 m ³ /hr	0.62 amps	24 Vac	—
V88A1667	3/4 in.	668 cfh	18.9 m ³ /hr	0.62 amps	24 Vac	—
V88A1675	1 in.	1021 cfh	28.9 m ³ /hr	0.62 amps	24 Vac	—
V88A1683	1 1/4 in.	2100 cfh	59.5 m ³ /hr	0.62 amps	24 Vac	—
V88A1691	1 1/2 in.	2400 cfh	67.9 m ³ /hr	0.62 amps	24 Vac	—
V88A1709	2 in.	4178 cfh	118.3 m ³ /hr	0.62 amps	24 Vac	—
V88A1717	2 1/2 in.	5100 cfh	144.4 m ³ /hr	0.62 amps	24 Vac	—
V88A1725	3 in.	5562 cfh	157.5 m ³ /hr	0.62 amps	24 Vac	—

V88J High Temperature Diaphragm Gas Valves



Solenoid-operated diaphragm valves provide slow opening and fast closing suitable for controlling natural, LP or manufactured gases. They are normally used on atmospheric boilers, commercial water heaters, and rooftop heaters.

- Rated for 150F (66C) maximum temperature applications.
- For 24 Vac service.
- Close firmly with diaphragm that is both weight and spring loaded.
- Two second maximum closing time.
- Valve closes on power failure; recommended for final shutoff service.
- Set opening time with various sized bleed orifices or adjustable bleed valve.
- Use with LP, natural or manufactured gases.
- Made with cast aluminum in straight-through valve pattern.

Dimensions Diagram: See page 931

Body Pattern: Straight-through

Electrical Connections: 6 in. Leadwires

Ground Terminal: Yes

Pilot Tapping: 1/8-27 NPT

Pressure Ratings: 1/2 psi (3.4 kPa)

Frequency: 50 Hz; 60 Hz

Power Consumption: 9 W; 15 VA max

Mounting: Upright (horizontal)

Bleed Tapping: 1/8-27 NPT

Valve Opening Time: 5 sec max

Valve Closing Time: 2 sec max

Operating Temperature Range: 32 F to 150 F (0 C to 66 C)

Materials

(Body): Aluminum

Type of Gas: Natural, LP, Manufactured

Approvals:

Canadian Standards Association: Certificate No. 158158-2500005576 (Z21.21-CSA 6.5)

Underwriters Laboratories, Inc. File No. MH1639, Guide No. YIOZ

Product Number	Pipe Size	Capacity		Current (max amps at rated Vac/Hz)	Voltage
	(inch)	(cfh)	(m ³ /hr)		
V88J1006	1 in.	1021 cfh	28.9 m ³ /hr	0.62 amps	24 Vac
V88J1022	1 1/4 in.	2100 cfh	59.5 m ³ /hr	0.62 amps	24 Vac

Diaphragm Gas Valves

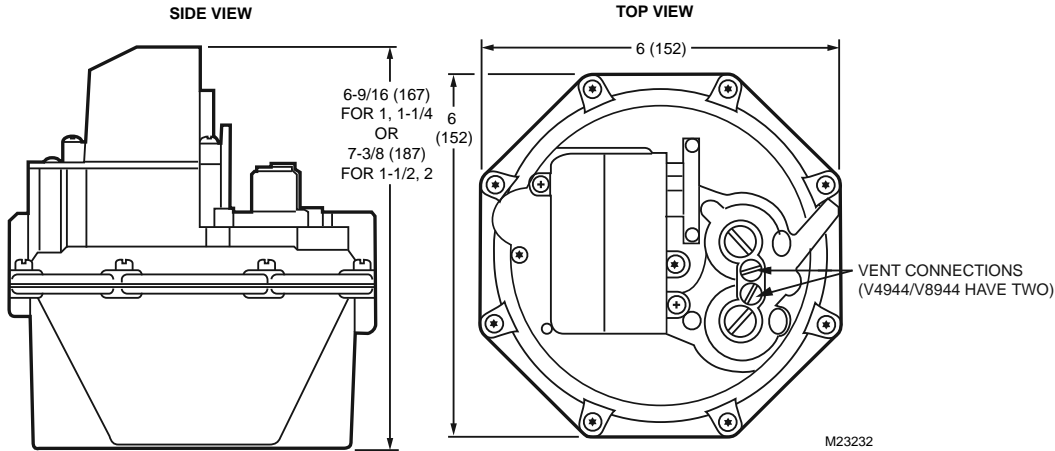
V4943/V8943A On/Off Diaphragm Gas Valves



V4943A/V8943A are on/off diaphragm gas valve used on boilers, unit heaters, duct furnaces, makeup air and rooftop heaters.

- Designed for replacement for V4843A/V8843A Gas Valves.
- Suitable for use on atmospheric boilers, commercial water heaters, and rooftop heaters.
- V8943A/V4943A models are solenoid-operated diaphragm valves for on/off flow control of natural or LP gas.
- Valve body of die-cast aluminum with a straight-through pattern.
- V4943 are used with line voltage, on/off controllers; V8943A are used with 24 Vac thermostats or controllers.
- Valve closes on power failure; recommended for final shutoff service.

Dimensions in inches (millimeters)



Body Pattern: Straight-through, non-offset

Electrical Connections: 1/4 in. (6 mm) spade terminals (quick connects). 30 in. (762 mm) leadwires and cover for electrical conduit connection provided.

Pilot Tapping: 1/8-27 NPT

Pressure Ratings: 1/2 psi (3.4 kPa)

Frequency: 60 Hz

Mounting: Upright (horizontal)

Valve Type: On-Off, Rapid Opening

Bleed Tapping: Internal Bleed

Valve Opening Time: 6 sec max

Valve Closing Time: 3 sec max

Operating Temperature Range: -40 F to +150 F (-40 C to +66 C)

Materials

(Body): Aluminum

Type of Gas: Natural; LP

Approvals:

Canadian Standards Association: Certificate No. 158158-1042930, Guide No. 3371-03, 83 (Z21.21, Z21.78)

Underwriters Laboratories, Inc. File No. MH1639, Guide No. YIOZ (60 Hz only)

Product Number	Pipe Size (inch)	Capacity (cfh)	Current (max amps at rated Vac/Hz)	Voltage	Power Consumption	Comments
V4943A1011	1 in.	1000 cfh	0.055 amps	120 Vac	6 VA max	(2) 30 in.leadwires
V4943A1029	1 1/4 in.	1600 cfh	0.055 amps	120 Vac	6 VA max	(2) 30 in.leadwires
V4943A1037	1 1/2 in.	2300 cfh	0.055 amps	120 Vac	6 VA max	(2) 30 in.leadwires
V4943A1045	2 in.	3000 cfh	0.055 amps	120 Vac	6 VA max	(2) 30 in.leadwires
V8943A1012	1 in.	1000 cfh	0.363 amps	24 Vac	8 VA max	(2) 30 in.leadwires
V8943A1020	1 1/4 in.	1600 cfh	0.363 amps	24 Vac	8 VA max	(2) 30 in.leadwires
V8943A1038	1 1/2 in.	2300 cfh	0.363 amps	24 Vac	8 VA max	(2) 30 in.leadwires
V8943A1046	2 in.	3000 cfh	0.363 amps	24 Vac	8 VA max	(2) 30 in.leadwires

Diaphragm Gas Valves

V4943/V8943B,C,N Single Stage Pressure Regulating Valves



V4943/8943B, C, N are Single-stage Pressure Regulating Valve; These valves are used on boilers, unit heaters, duct furnaces, makeup air and rooftop heaters.

- Designed for replacement for V4843/V8843; Gas Valves.
- Suitable for use on atmospheric boilers, commercial water heaters, and rooftop heaters.
- V4943/V8943B,C,N models are solenoid-operated diaphragm valves that combine the functions of safety shutoff and pressure regulation in a single unit.
- V4943/V8943B,N are for use with natural gas.
- V4943/V8943C are for use with LP gas.
- Valve body of die-cast aluminum with a straight-through pattern.
- V4943 are used with line voltage, on/off controllers; V8943 are used with 24 Vac thermostats or controllers;
- Valve closes on power failure; recommended for final shutoff service.

Dimensions Diagram: See page 933

Body Pattern: Straight-through, non-offset

Electrical Connections: 1/4 in. (6 mm) spade terminals (quick connects). 30 in. (762 mm) leadwires and cover for electrical conduit connection provided.

Pilot Tapping: 1/8-27 NPT

Pressure Ratings: 1/2 psi (3.4 kPa)

Frequency: 60 Hz

Mounting: Upright (horizontal)

Valve Type: Single-Stage, Slow Opening

Bleed Tapping: 5/16-24 UNF

Valve Closing Time: 2 sec max

Operating Temperature Range: -40 F to +150 F (-40 C to +66 C)

Materials

(Body): Aluminum

Comments: (2) 30" leadwires

Approvals:

Canadian Standards Association: Certificate No. 158158-1042930, Guide No. 3302-01, 81 (Z21.21, Z21.78)

Underwriters Laboratories, Inc. File No. MH1639, Guide No. YIOZ (60 Hz only)

Product Number	Type of Gas	Pipe Size (inch)	Capacity (cfh)	Valve Opening Time	Current (max amps at rated Vac/Hz)	Voltage	Power Consumption	Regulator Setpoints; High Fire	
								Adj. Range	Factory Setting
V4943B1019	Natural	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.055 amps	120 Vac	6.6 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V4943B1027	Natural	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	0.055 amps	120 Vac	6.6 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V4943B1035	Natural	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.055 amps	120 Vac	6.6 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V4943B1043	Natural	2 in.	870 cfh to 3000 cfh	3 sec to 25 sec	0.055 amps	120 Vac	6.6 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V4943N1012	Natural	1 in.	300 cfh to 1000 cfh	6 sec max	0.055 amps	120 Vac	6.6 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V4943N1020	Natural	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.055 amps	120 Vac	6.6 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V4943N1038	Natural	1 1/2 in.	780 cfh to 2300 cfh	6 sec max	0.055 amps	120 Vac	6.6 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V4943N1046	Natural	2 in.	870 cfh to 3000 cfh	6 sec max	0.055 amps	120 Vac	6.6 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V8943B1010	Natural	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.363 amps	24 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V8943B1028	Natural	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	0.363 amps	24 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V8943B1036	Natural	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.363 amps	24 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V8943B1044	Natural	2 in.	870 cfh to 3000 cfh	3 sec to 25 sec	0.363 amps	24 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V8943C1018	LP	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.363 amps	24 Vac	9 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc
V8943C1026	LP	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	0.363 amps	24 Vac	9 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc
V8943N1013	Natural	1 in.	300 cfh to 1000 cfh	6 sec max	0.363 amps	24 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V8943N1021	Natural	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.363 amps	24 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V8943N1039	Natural	1 1/2 in.	780 cfh to 2300 cfh	6 sec max	0.363 amps	24 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc
V8943N1047	Natural	2 in.	870 cfh to 3000 cfh	6 sec max	0.363 amps	24 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc

Diaphragm Gas Valves

V4944/V8944B,C,L,N Two Stage Pressure Regulating Gas Valves



V4944B,L,N/8944B,C,L,N are Two-stage Pressure Regulating Gas Valve. These valves are used on boilers, unit heaters, duct furnaces, makeup air and rooftop heaters.

- Designed for replacement for V4844/V8844 Gas Valves.
- Suitable for use on atmospheric boilers, commercial water heaters, and rooftop heaters.
- V4944/V8944B,C,L,N models are solenoid-operated diaphragm valves that combine the functions of safety shutoff and pressure regulation in a single unit.
- V4944/V8944B,N are for use with natural gas.
- V4944/V8944C,L are for use with LP gas.
- Valve body of die-cast aluminum with a straight-through pattern.
- V4944 are used with line voltage, dual-stage controllers; V8944 are used with 24 Vac dual-stage thermostats or controllers.
- Valve closes on power failure; recommended for final shutoff service.

Dimensions Diagram: See page 933

Body Pattern: Straight-through, non-offset

Electrical Connections: 1/4 in. (6 mm) spade terminals (quick connects). 30 in. (762 mm) leadwires and cover for electrical conduit connection provided.

Pilot Tapping: 1/8-27 NPT

Pressure Ratings: 1/2 psi (3.4 kPa)

Frequency: 60 Hz

Mounting: Upright (horizontal)

Valve Type: Two-Stage, Slow Opening

Bleed Tapping: Two 5/16-24 UNF

Valve Closing Time: 2 sec max

Operating Temperature Range: -40 F to +150 F (-40 C to +66 C)

Materials

(Body): Aluminum

Approvals:

Canadian Standards Association: Certificate No. 158158-1042930, Guide No. 3302-01, 81 (Z21.21, Z21.78)

Underwriters Laboratories, Inc. File No. MH1639, Guide No. YIOZ (60 Hz only)

Product Number	Type of Gas	Pipe Size	Capacity (cfh)	Valve Opening Time	Current (max amps at rated Vac/Hz)	Voltage	Power Consumption	Regulator Setpoints; High Fire		Regulator Setpoints; Low Fire		Comments
		(inch)						Adj. Range	Factory Setting	Adj. Range	Factory Setting	
V4944B1018	Natural	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V4944B1026	Natural	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V4944B1034	Natural	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V4944B1042	Natural	2 in.	870 cfh to 3000 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V4944B1059	Natural	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.0 in. wc	0.8 in. wc to 2 in. wc	0.7 in. wc	(3) 30 in. leadwires
V4944B1091	Natural	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	1.6 in. wc to 4 in. wc	1.6 in. wc	—
V4944L1016	LP	1 in.	300 cfh to 1000 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 85 in. leadwires
V4944L1024	LP	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 30 in. leadwires
V4944N1011	Natural	1 in.	300 cfh to 1000 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V4944N1029	Natural	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V4944N1037	Natural	1 1/2 in.	780 cfh to 2300 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V4944N1045	Natural	2 in.	870 cfh to 3000 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V4944N1052	Natural	1 in.	300 cfh to 1000 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	1.65 in. wc	(3) 85 in. leadwires
V4944N1060	Natural	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.0 in. wc	0.8 in. wc to 2 in. wc	1.0 in. wc	(3) 85 in. leadwires
V8944B1019	Natural	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V8944B1027	Natural	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V8944B1035	Natural	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V8944B1043	Natural	2 in.	870 cfh to 3000 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires

Diaphragm Gas Valves

Product Number	Type of Gas	Pipe Size	Capacity	Valve Opening Time	Current (max amps at rated Vac/Hz)	Voltage	Power Consumption	Regulator Setpoints; High Fire		Regulator Setpoints; Low Fire		Comments
		(inch)	(cfh)					Adj. Range	Factory Setting	Adj. Range	Factory Setting	
V8944B1076	Natural	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	72 in. leadwires with single plug
V8944C1017	LP	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 30 in. leadwires
V8944C1025	LP	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 30 in. leadwires
V8944C1033	LP	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 30 in. leadwires
V8944L1017	LP	1 in.	300 cfh to 1000 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 30 in. leadwires
V8944L1025	LP	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 30 in. leadwires
V8944N1012	Natural	1 in.	300 cfh to 1000 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V8944N1020	Natural	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V8944N1038	Natural	1 1/2 in.	780 cfh to 2300 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V8944N1046	Natural	2 in.	870 cfh to 3000 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30 in. leadwires
V8944N1053	Natural	1 in.	300 cfh to 1000 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	1.2 in. wc	(3) 30 in. leadwires
V8944N1061	Natural	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	1.2 in. wc	(3) 30 in. leadwires

Diaphragm Gas Valve Replacement Parts Accessories

Product Number	Description	Used With
116930	Replacement Coil for V88A	V88A;
116931	Replacement Coil for V48A, 120Vac,60Hz	V48; V48A;
116932	Replacement Coil for V48A, 220-240Vac,50/60Hz	V48A;
118888	24V 60 Hz Replacement Coil for V88J	V88J;
122160	Orifice-.018 in. for V48, V88	V48, V88;
124674	Orifice-.011 in. for V48, V88	V48, V88;
126590	Adjustable Bleed Valve Assembly for V48, V88, V4004. V8004. 1/8 in. NPT to 1/4 in. compression fitting	V48, V88;
126590	Adjustable Bleed Valve Assembly for V48, V88, V4004. V8004. 1/8 in. NPT to 1/4 in. compression fitting	V48, V88;
204480	Regulator vent pipe fitting to be used with V4843/V8843B,C,L,N and V4844/V8844B,C,L,N and V4943/V8943, V4944/V8944	V4843B; V4843C; V4843L; V4843N; V8843B; V8843C; V8843L; V8843N; V4844B; V4844C; V4844L; V4844N; V8844B; V8844C; V8844L; V8844N; V4943; V8943; V4944; V8944;

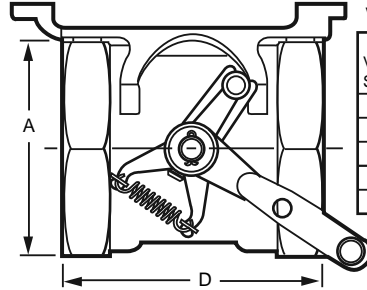
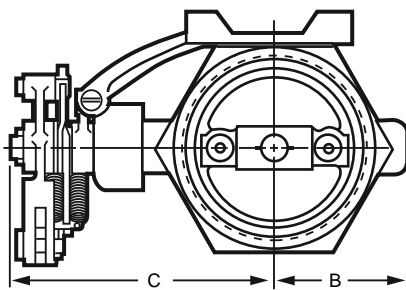
V51 Butterfly Gas/Air Valve



Provides modulating control of natural, manufactured, LP gases or air.

- Use in commercial and industrial installations where large amounts of gas must be closely controlled.
- NOT for use as safety shutoff valve.
- Adaptable to most modulating jobs.
- Modutrol motor, such as the M9484 or M9494, may be mounted directly on valve or close to it.
- Valve mechanism has strain release.
- Adjustable stroke over low fire-high fire range.
- Straight-through valve pattern.
- Rugged cast aluminum body provides durability and maintenance-free operation.

Dimensions in inches (millimeters)



V51E DIMENSIONS

VALVE SIZE (in.)	A ¹		B ¹		C ²		D ¹	
	in.	mm	in.	mm	in.	mm	in.	mm
1 1/2	2 21/32	67.5	1 9/16	39.7	4 1/4	108.0	3 1/32	77.0
2	3 5/32	80.2	1 13/16	46.0	4 1/4	108.0	3 17/32	89.7
2 1/2	3 27/32	97.6	2 5/16	58.7	4 13/16	122.2	4 23/32	119.9
3	4 1/32	102.4	2 25/64	60.7	5	127.0	4 23/32	119.9
4	5 21/64	135.3	3 5/32	80.2	5 3/8	136.5	5 17/64	133.8

¹ MAXIMUM DIMENSIONS.

² NOMINAL DIMENSIONS.

M9532

Type of Gas: Air, natural, manufactured, and LP

Dimensions, Approximate: 2 11/16 in. high x 3 1/16 in. wide x 5 13/16 in. deep (68 mm high x 77 mm wide x 148 mm deep)

Body Pattern: Straight-through

Pressure Ratings: 5 psi (34.5 kPa)

Mounting: Motor shaft horizontal

Operating Temperature Range: 32 F to 140 F (0 C to 60 C)

Materials

(Body): Aluminum

Approvals:

Underwriters Laboratories, Inc. File No. MH5968 Vol. 1 Sec. 1, Guide no. MHKZ

Accessories:

Q100B1006 Linkage- Connects Modutrol motor to V51E Butterfly Valve.
32003396-001 V51E Mounting Kit for ML7999 Actuator (1-1/2 & 2 in. valves)

32003396-002 V51E Mounting Kit for ML7999 Actuator (2-1/2 in., 3 in. & 4 in. valves)

Product Number	Pipe Size		Capacity		Inlet/Outlet Pressure Tapping	Used With
	(inch)	DN	(cfh)	(m ³ /hr)		
V51E1000	1 1/2 in.	DN40	4200 cfh	118.9 m ³ /hr	Two downstream 1/4 in. NPT taps	Mod Motor with Q100 Linkage
V51E1018	2 in.	DN50	9210 cfh	260.7 m ³ /hr	—	Mod Motor with Q100 Linkage
V51E1034	2 1/2 in.	DN65	8390 cfh	199.8 m ³ /hr	—	Mod Motor with Q100 Linkage
V51E1059	3 in.	DN80	14640 cfh	414.5 m ³ /hr	—	Mod Motor with Q100 Linkage
V51E1075	4 in.	DN100	33000 cfh	934.2 m ³ /hr	—	Mod Motor with Q100 Linkage

Firing Rate Gas Valve Parts

Product Number	Description	Used With
127413	Bracket for 2 in. V51E butterfly valve for use with Modutrol Motor	V51E
127415	Bracket, For 2-1/2 in. or 3 in. V51E for use with Modutrol Motor	V51E
4074EJU	Bag Assembly including mounting bracket for V51E1216	V51E
49084/0021	Adjusting arm for V51E.	V51E
49085B	Strain Release Assembly for V51E	V51E
80897BC/0021	stop screws for stop bracket for V51E. Two required.	V51E

Butterfly Gas Valves

V5197 Integrated Valve Train Butterfly Gas Valve

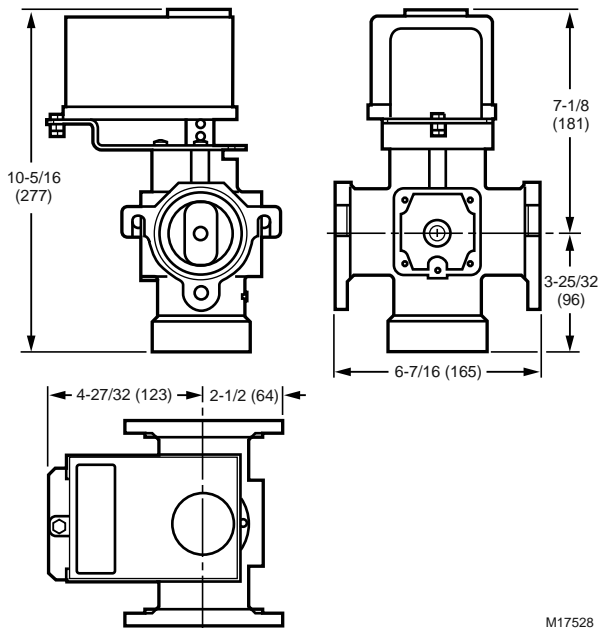


The V5197A is a firing rate valve used to provide variable flow control of air, natural gas, liquefied petroleum (LP), and manufactured gases. The V5197A is actuated by a ML7999A or B firing rate motor that can be mounted directly on the valve. The V5197A is not applicable as a safety shutoff valve. The V5197A is specially designed to provide fine control of gas flow in

applications where a high turn down ratio is required. The maximum flow adjustment screw on the bottom of the valve allows adjusting the maximum flow of gas through the V5197 while maintaining the linear modulating characteristics and stroke. The V5197A is part of the Honeywell Integrated Valve Train System that allows gas train components to be directly bolted together.

- Used with air, natural, manufactured or liquefied petroleum (LP) gases.
- For modulating applications that do not require final shutoff service of firing rate valve.
- Two valve body types (small and large) applicable to seven pipe sizes: Small body type for 3/4 in. (19 mm), 1 in. (25 mm), 1-1/4 in. (32 mm), 1-1/2 in. (38 mm) and 2 in. (51 mm) pipes, NPT or ISO 7 threads. Large body type for 2 in. (51 mm), 2-1/2 in. (64 mm) and 3 in. (76 mm) pipes, NPT or ISO 7 threads.
- Two downstream 1/4 in. NPT threaded pressure taps available.
- Accepts C6097 Pressure Switch mounted directly to flange (downstream pressure tap only).
- Unpainted cast aluminum body.
- Suitable for electric or pneumatic operators with the appropriate linkage.
- May be used with manufacturers own linkage and drive motor.
- Flow adjustment screw on bottom of valve controls maximum flow.
- Visual position indicator.

Dimensions in inches (millimeters)



Type of Gas: Air, natural, manufactured, and LP

Dimensions, Approximate: 10 5/16 in high x 6 7/16 in wide x 7 11/32 in deep (277 mm high x 165 mm wide x 187 mm deep)

Pressure Ratings: 15 psi max (1 Bar)

Mounting: Directly bolted to Integrated Valve Train (IVT) components or IVT adapters

Operating Temperature Range: -40 F to +150 F (-40 C to +66 C)

Materials

(Body): Die-cast aluminum

Approvals:

Canadian Standards Association: Design Certified

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Listed

Product Number	Pipe Size		Capacity		Inlet/Outlet Pressure Tapping
	(inch)	DN	(cfh)	(m ³ /hr)	
V5197A1003	2 in.	DN50	5480 cfh for 2 in.	51 mm =155	Two downstream 1/4 in. NPT taps
	1 1/2 in.	DN40	5010 cfh for 1 1/2 in.	38 mm =142	
	1 1/4 in.	DN32	4430 cfh for 1 1/4 in.	32 mm = 125	
	1 in.	DN25	3080 cfh for 1 in.	25 mm =87	
	3/4 in.	DN20	2450 cfh for 3/4 in.	19 mm =69	
V5197A1011	3 in.	DN80	16,900 cfh for 3 in.	76 mm=478	Two downstream 1/4 in. NPT taps
	2 1/2 in.	DN65	14,800 cfh for 2 1/2 in.	64 mm=419	
	2 in.	DN50	12,600 cfh for 2 in.	51 mm=356	

Selection Chart: V5055 and V5097 Industrial Gas Valves with V4055, V4062 or V9055 Fluid Power Actuators

The chart below describes every model of V5055 or V5097 Valve in the left column, and every model of Fluid Power Actuator across the top. While it's possible to combine any valve with any actuator, we've marked the recommended valve/actuator combinations which cover most applications with a •.

Each valve described in the left column is available:

- In these sizes: 3/4 to 3 in. (NPT or parallel BSP). V5055A,B,C are also available in 4 in. size (flange connection only).
- With upstream and/or downstream tap.

Options available on some Fluid Power Actuators include:

- Damper arm shaft, with or without spring return.
- NEMA 4 enclosure.
- Fast or slow open time (13 or 26 seconds).
- Auxiliary switch.
- Valve seal overtravel interlock switch.

For complete specifications and ordering information on V5055 and V5097 Valves and V4055, V4062 and V9055 Fluid Power Actuators, refer to Index for specific page numbers.

Fluid Power Actuators/ Industrial Gas Valves			Standard pressure ^a			High Pressure ^a	
			V5055A, F ^b , V5097A	V5055B, V5097B	V5055C, V5097C	V5055D, V5097D	V5055E, V5097E
Type	Model	Pressure Rating ^a	On-Off	Characterized Guide ^c	VSOI ^d	On-Off	VSOI ^d
V4055 On-Off	A, G ^e	Standard	•	•		•	
	B	High	• ^f	• ^f		•	
	D ^d F ^d e	Standard			•		•
	E ^d	High			• ^f		•
V4062 Hi-Lo-Off	A	Standard		•	•		
	B	High		• ^f	• ^f		•
	D ^d	Standard			•		
V9055 Modulating	A	Standard		•			
	D ^d	Standard			•		

^a Refer to the table below for actual pressure ratings of the various combinations of valves and actuators.

^b V5055F models meet EN161 leakage requirements.

^c Characterized guide provides a more linear relationship between stem travel and gas flow. Check Honeywell form 70-8311 to verify that flow curve characteristics match application requirements.

^d Valve Seal Overtravel Interlock. Valve has two shutoff seals, actuator has a proof-of-closure switch.

^e V4055F, G models include switch for manual control.

^f These combinations have higher pressure ratings; see the table below.

Valve Actuator Approvals:

The following combinations of V5055 and V5097 Valves, and V4055, V4062 and V9055 Fluid Power Actuators are approved by these agencies.

Underwriters Laboratories, Inc. Listed: MH1639

- V4055A/V5055A-E (3/4-4 in.) or V5097A-E (3/4-3 in.).
- V4055B/V5055A-E (3/4-4 in.) or V5097A-E (3/4-3 in.).
- V4055D/V5055A-E (3/4-4 in.) or V5097A-E (3/4-3 in.).
- V4055E/V5055A-E (3/4-4 in.) or V5097A-E (3/4-3 in.).
- V4055F/V5055A-E (3/4-4 in.^a) or V5097A-E (3/4-3 in.).
- V4055G/V5055A-E (3/4-4 in.^a) or V5097A-E (3/4-3 in.).
- V4062A,D/V5055A-E (3/4-4 in.) or V5097A-E (3/4-3 in.).
- V9055A,D/V5055A,B,C,E (3/4-4 in.) or V5097A-E (3/4-3 in.).

Factory Mutual Approved: Report No. 20698, 20835, 21172 and 24061:

- V4055A/V5055A and V5097A.
- V4055D/V5055C and V5097C.
- V4055A/V5055B and V5097B.
- V4055B/V5055D and V5097D.
- V4055E/V5055E and V5097E.
- V4055F/V5055C^a and V5097C.
- V4055G/V5055A,B^a and V5097A,B.
- V9055A/V5055B,C and V5097B,C.

^a Manual reset safety shut-off valves.

Pressure Ratings of Valve-Actuator Combinations

Model	Pipe Size	Standard Pressure Actuators V4055A, D, F, G, V4062A, D, V9055A, D				High Pressure Actuators V4055B, E, V4062B			
		M.O.P.D. ^a		Max. Rated Pressure ^b		M.O.P.D. ^a		Max. Rated Pressure ^b	
Standard Pressure Valves V5055A, B, C, F, V5097A, B, C	3/4" to 1-1/2" ^c	5 PSI	340 mbar	15 PSI	1.0 Bar	15 PSI	1030 mbar	15 PSI	1.0 Bar
	2" to 3" ^d	5 PSI	340 mbar	15 PSI	1.0 Bar	15 PSI	1030 mbar	15 PSI	1.0 Bar
	4" flanged ^e	3 PSI	207 mbar	15 PSI	1.0 Bar	5 PSI	340 mbar	15 PSI	1.0 Bar
High Pressure Valves V5055D, E, V5097D, E	3/4" to 1-1/2" ^c	5 PSI	340 mbar	75 PSI	5.0 Bar	25 PSI	1720 mbar	75 PSI	5.0 Bar
	2" to 3" ^d	5 PSI	340 mbar	45 PSI	3.0 Bar	15 PSI	1030 mbar	45 PSI	3.0 Bar

^a Max Operating Pressure Differential (UL) or Max Operating Pressure (CSA); maximum allowable pressure drop from inlet to outlet for proper operation.

^b Max Rated Pressure (UL) or Max Close-off Pressure (CSA); maximum pressure that the valve can be exposed to without leakage or damage to the valve.

^c Applies for small-body V5097 valves 3/4" up to 2" pipe size.

^d Applies for large-body V5097 valves 2" up to 3" pipe size.

^e V5055A, B, C only.

Gas Valve Actuators

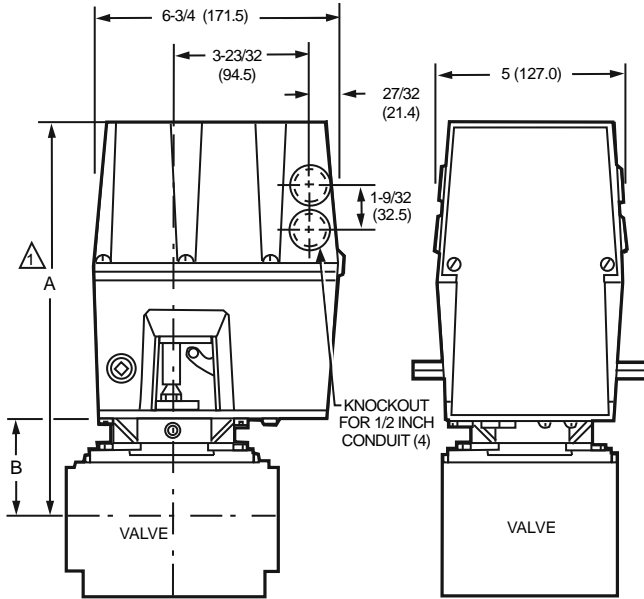
V4055A,B,D,E On-Off Fluid Power Gas Valve Actuator



Use in combination with V5055 or V5097 Gas Valves to control gas supply to commercial and industrial burners.

- Use where smooth light off is important.
- One-second maximum closing time.
- Continuously displays the valve position with a red indicator when open and a yellow indicator when closed.
- Mount in any position directly to valve bonnet with three setscrews.
- Provide final safety shutoff service when used with V5055 or V5097 Gas Valves.

Dimensions in inches (millimeters)



Temperature Range: -40 F to +150 F (-40 C to +66 C)

Frequency: 60 Hz

Auxiliary Switch Contact Ratings (120 Vac):

9.8 AFL, 58.8 ALR, 1/2 hp

Auxiliary Switch Contact Ratings (240 Vac):

4.9 AFL, 29.4 ALR, 1/2 hp

Closing Time: < 1 sec

Used with: V5055, V5097 gas valves

△ ALLOW 4 IN. (101.6 MM) CLEARANCE FOR ACTUATOR REMOVAL.

VALVE SIZE INCH	V5055				V5097			
	DIM A		DIM B		DIM A		DIM B	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM
3/4	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
1	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
1-1/4	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
1-1/2	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
2	11-1/4	285.8	2-7/8	73.0	11-3/4	298	3-3/8	86
2-1/2	11-3/4	298.5	3-3/8	85.7	11-3/4	298	3-3/8	86
3	11-3/4	298.5	3-3/8	85.7	11-3/4	298	3-3/8	86
4	14-1/8	358.8	5-13/16	147.6	—	—	—	—

M10981A

Gas Valve Actuators

Product Number	Electrical Ratings	Internal Auxiliary Switch	Proof of Closure Auxiliary Switch	Timing	Maximum Operating Pressure (psi)	Damper Shaft	Description	Comments
				(Opening)				
V4055A1007	120 Vac	No	No	26 sec	5 psi	No	ON-OFF actuator normally used with V5055/V5097A,B valve bodies	—
V4055A1031	120 Vac	No	No	13 sec	5 psi	No	ON-OFF actuator normally used with V5055/V5097A,B valve bodies	—
V4055A1064	120 Vac	No	No	26 sec	5 psi	Yes	ON-OFF actuator normally used with V5055/V5097A,B valve bodies	—
V4055A1080	240 Vac	No	No	26 sec	5 psi	Yes	ON-OFF actuator normally used with V5055/V5097A,B valve bodies	—
V4055A1098	120 Vac	No	No	13 sec	5 psi	Yes	ON-OFF actuator normally used with V5055/V5097A,B valve bodies	—
V4055A1114	240 Vac	No	No	13 sec	5 psi	Yes	ON-OFF actuator normally used with V5055/V5097A,B valve bodies	—
V4055A1189	100 Vac	No	No	26 sec	5 psi	No	ON-OFF actuator normally used with V5055/V5097A,B valve bodies	—
V4055A1296	120 Vac	Yes - adjusted to 90 degree stroke	No	13 sec	5 psi	No	ON-OFF actuator normally used with V5055/V5097A,B valve bodies	—
V4055A1304	120 Vac	No	No	26 sec	5 psi	Yes with return spring installed.	ON-OFF actuator normally used with V5055/V5097A,B valve bodies	—
V4055A1312	120 Vac	No	No	26 sec	5 psi	No	ON-OFF actuator normally used with V5055/V5097A,B valve bodies	Nema 4 Enclosure
V4055B1021	120 Vac	No	No	26 sec	15 or 25 psi	Yes	High pressure ON-OFF actuator normally used with 4 in. V5055/V5097A,B and all V5055D valve bodies	—
V4055B1039	120 Vac	No	No	13 sec	15 or 25 psi	Yes	High pressure ON-OFF actuator normally used with 4 in. V5055/V5097A,B and all V5055D valve bodies	—
V4055B1088	220 Vac	No	No	13 sec	15 or 25 psi	No	High pressure ON-OFF actuator normally used with 4 in. V5055/V5097A,B and all V5055D valve bodies	—
V4055D1001	120 Vac	No	Yes	26 sec	5 psi	Yes	ON-OFF actuator with Proof of Closure normally used on V5055C/V5907C valve bodies (Low pressure)	—
V4055D1019	120 Vac	No	Yes	13 sec	5 psi	Yes	ON-OFF actuator. Normally used with Proof of Closure V5055/V5907C valve bodies. Low pressure.	—
V4055D1027	120 Vac	Yes	Yes	13 sec	5 psi	No	ON-OFF actuator with Proof of Closure normally used on V5055C/V5907C valve bodies (Low pressure)	Nema 4 Enclosure
V4055D1035	120 Vac	Yes	Yes	13 sec	5 psi	No	ON-OFF actuator. Normally used with Proof of Closure V5055/V5907C valve bodies. Low pressure.	—
V4055D1043	120 Vac	No	Yes	13 sec	5 psi	No	ON-OFF actuator. Normally used with Proof of Closure V5055/V5907C valve bodies. Low pressure.	—
V4055E1016	120 Vac	No	Yes	13 sec	15 or 25 psi	Yes	ON-OFF actuator with Proof of Closure normally used on V5055C/V5907C valve bodies (High Pressure)	—
V4055E1024	120 Vac	Yes	Yes	26 sec	15 or 25 psi	Yes	ON-OFF actuator with Proof of Closure normally used on V5055C/V5907C valve bodies (High pressure)	Nema 4 Enclosure
V4055E1040	120 Vac	No	Yes	13 sec	15 or 25 psi	Yes	ON-OFF actuator with Proof of Closure normally used on V5055C/V5907C valve bodies (High Pressure)	Nema 4 Enclosure

Gas Valve Actuators

V4055F,G Manual Reset Safety Shut-off Gas Valve Actuators



Provide manual reset, safety shut-off functions as required on FM, IHEA-IRI and NFPA 86A,B,C industrial furnaces, ovens and kilns. Use with V5055 or V5097 Gas Valves to control gas supply.

- Close in one second maximum.
- Continuously displays the valve position with a red indicator when closed.
- Mount directly to valve bonnet with three setscrews.
- Provide final safety shutoff service when used with V5055 or V5097 Gas Valves.

Temperature Range: -40 F to +150 F (-40 C to +66 C)

Proof of Closure (Factory Mutual) Switch Contact Ratings: 4.9 AFL, 29.4 ALR, 1/2 hp; 9.8 AFL, 58.8 ALR, 1/2 hp

Closing Time: < 1 sec

Frequency: 60 Hz

Product Number	Electrical Ratings	Internal Auxiliary Switch	Proof of Closure Auxiliary Switch	Timing	Maximum Operating Pressure (psi)	Damper Shaft	Description	Used With
				(Opening)				
V4055F1006	120 Vac	No	Yes	13 sec	5 psi	No	Manual reset safety shutoff valve with proof of closure switch.	V5034; V5055; V5097; VE5000
V4055G1004	120 Vac	No	No	13 sec	5 psi	No	Manual reset safety shutoff valve.	V5034; V5055; V5097; VE5000

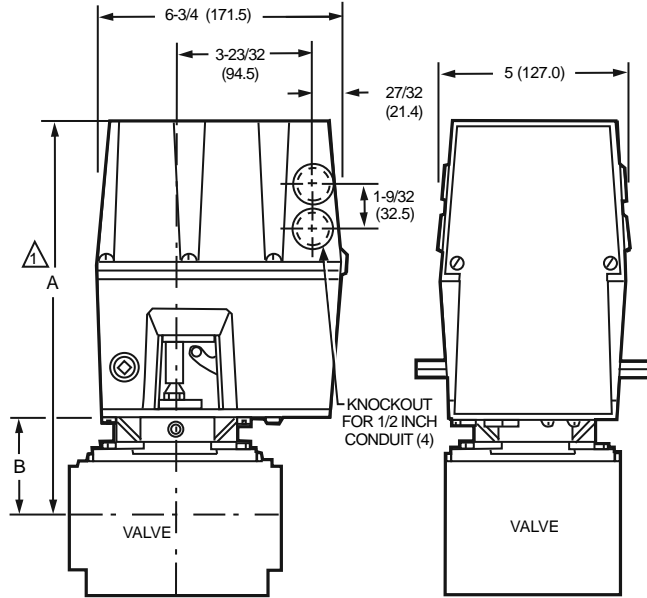
V4062 Off-Lo-Hi Fluid Power Gas Valve Actuators



Use with V5055 or V5097 Gas Valves to control gas supply for commercial and industrial burners. Valve opens to low fire position when power is applied; valve opens all the way on demand.

- Provide final safety shutoff service when used with V5055 or V5097 gas valve.
- One-second maximum closing time.
- Continuously displays the valve position with a red indicator when open and a yellow indicator when closed.
- Mount in any position directly to valve bonnet with three setscrews.
- Provide final safety shutoff service when used with V5055 or V5097 Gas Valves.

Dimensions in inches (millimeters)



Temperature Range: -40 F to +150 F (-40 C to +66 C)

Auxiliary Switch Contact Ratings (120 Vac):

9.8 AFL, 58.8 ALR, 1/2 hp

Auxiliary Switch Contact Ratings (240 Vac):

4.9 AFL, 29.4 ALR, 1/2 hp

Closing Time: < 1 sec

Frequency: 60 Hz

Δ ALLOW 4 IN. (101.6 MM) CLEARANCE FOR ACTUATOR REMOVAL.

VALVE SIZE INCH	V5055				V5097			
	DIM A		DIM B		DIM A		DIM B	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM
3/4	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
1	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
1-1/4	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
1-1/2	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
2	11-1/4	285.8	2-7/8	73.0	11-3/4	298	3-3/8	86
2-1/2	11-3/4	298.5	3-3/8	85.7	11-3/4	298	3-3/8	86
3	11-3/4	298.5	3-3/8	85.7	11-3/4	298	3-3/8	86
4	14-1/8	358.8	5-13/16	147.6	—	—	—	—

M10981A

Product Number	Electrical Ratings	Internal Auxiliary Switch	Proof of Closure Auxiliary Switch	Timing (Opening)	Maximum Operating Pressure (psi)	Damper Shaft	Description	Used With
V4062A1008	120 Vac	No	No	26 sec	5 psi	Yes	HI-LO-OFF actuator for use with V5055B and V5097B valve bodies. Low pressure.	V5034; V5055; V5097; VE5000
V4062A1123	120 Vac	Yes	No	26 sec	5 psi	Yes with return spring installed.	HI-LO-OFF actuator for use with V5055B and V5097B valve bodies. Low pressure.	V5034; V5055; V5097; VE5000
V4062A1131	120 Vac	No	No	13 sec	5 psi	Yes	HI-LO-OFF actuator for use with V5055B and V5097B valve bodies. Low pressure.	V5034; V5055; V5097; VE5000

Gas Valve Actuators

Product Number	Electrical Ratings	Internal Auxiliary Switch	Proof of Closure Auxiliary Switch	Timing	Maximum Operating Pressure (psi)	Damper Shaft	Description	Used With
				(Opening)				
V4062A1156	120 Vac	Yes	No	26 sec	5 psi	No	HI-LO-OFF actuator for use with V5055B and V5097B valve bodies. Low pressure.	V5034; V5055; V5097; VE5000
V4062A1198	120 Vac	Yes - adjusted to 90 degree stroke	No	13 sec	5 psi	Yes with return spring installed.	HI-LO-OFF actuator for use with V5055B and V5097B valve bodies. Low pressure.	V5034; V5055; V5097; VE5000
V4062D1002	120 Vac	No	Yes	26 sec	5 psi	Yes	HI-LO-OFF actuator with Proof of Closure normally used on V5055C,E/ V5907C,E valve bodies (Low Pressure)	V5055;V5097 Gas Valves
V4062D1010	120 Vac	No	Yes	13 sec	5 psi	Yes	HI-LO-OFF actuator with Proof of Closure normally used on V5055C,E/ V5907C,E valve bodies (Low Pressure)	V5055;V5097 Gas Valves

V9055 Modulating Fluid Power Gas Valve Actuators



Use with V5055 or V5097 Gas Valves to control gas supply for commercial and industrial burners. Valve opens to low fire position when power is applied; valve opens all the way on demand.

- Include integral shaft to drive combustion air damper in unison with valve.
- One-second maximum closing time.
- Continuously displays the valve position with a red indicator when open and a yellow indicator when closed.
- Mount in any position directly to valve bonnet with three setscrews.
- Provide final safety shutoff service when used with V5055 or V5097 Gas Valves.

Temperature Range: -40 F to +125 F (-40 C to +52 C)
Auxiliary Switch Contact Ratings (120 Vac):
 9.8 AFL, 58.8 ALR, 1/2 hp
Auxiliary Switch Contact Ratings (240 Vac):
 4.9 AFL, 29.4 ALR, 1/2 hp
Opening Time: 26 sec

Closing Time: < 1 sec
Frequency: 60 Hz

Accessories:
 203422C 4-20 ma Adapter for V9055

Product Number	Electrical Ratings	Internal Auxiliary Switch	Proof of Closure Auxiliary Switch	Maximum Operating Pressure (psi)	Damper Shaft	Description	Comments	Used With
V9055A1055	120 Vac	No	No	5 psi	Yes	Modulating-OFF actuator for use with V5055B valve bodies. Low pressure.	—	V5034; V5055; V5097; VE5000
V9055A1063	120 Vac	No	No	5 psi	Yes	Modulating-OFF actuator for use with V5055B valve bodies. Low pressure.	Nema 4 Enclosure	V5034; V5055; V5097; VE5000
V9055A1113	120 Vac	No	No	5 psi	Yes with return spring installed.	Modulating-OFF actuator for use with V5055B valve bodies. Low pressure.	—	V5034; V5055; V5097; VE5000
V9055D1000	120 Vac	No	Yes	5 psi	Yes	Modulating-OFF actuator with Proof of Closure normally used on V5055C,E/V5907C,E valve bodies (Low Pressure)	—	V5055;V5097 Gas Valves

Industrial Gas Valves

V5055 Industrial Gas Valves



Safety shutoff valves used with V4055, V4062 and V9055 fluid power actuators to control gas flow to commercial and industrial burners.

- Use with natural or LP gases.
- Mount directly in gas supply line.
- Include 1/4 in. NPT upstream and downstream taps and plug.
- 4 in. models have only flanged connections.
- V5055 normally closed valves are rated for final shutoff service safety shutoff.
- V5055A,C,D,E Valves are for On-Off service.
- V5055B Valve has a characterized guide and in combination with the V4055, V4062, and V9055 Fluid Power Actuators, provides slow-opening, hi-lo-off, and modulating functions respectively.
- V5055C,E,F Valves have a double seal and are used with V4055D,E Actuators to provide proof-of-closure switch and valve seal over-travel interlock.
- V5055D,E,F Valves are for high pressure applications.

Operating Temperature Range: -40 F to +150 F (-40 C to +66 C)

Temperature Ratings when used with V9055: -40 F to +125 F (-40 C to +52 C)

Includes: 1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug

Used With: V9055, V4055, V4062

Includes: 1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug

Approvals:

Canadian Standards Association: When used with V4055, V4062, and V5097: Certified General listed File No. 158158, Class 3371 for USA and Canada

Factory Mutual: When used with the V4055A,G: Approved, Report Nos. 20698, 20835, 21172, and 24061

Swiss RE (formerly IRI): When used with V4055A,B,D,E, V4062, V9055: Acceptable

Underwriters Laboratories, Inc. When used with V4055A,B,D,E, V4062, V9055: Listed, File No. MH1639 Guide No. YIOZ

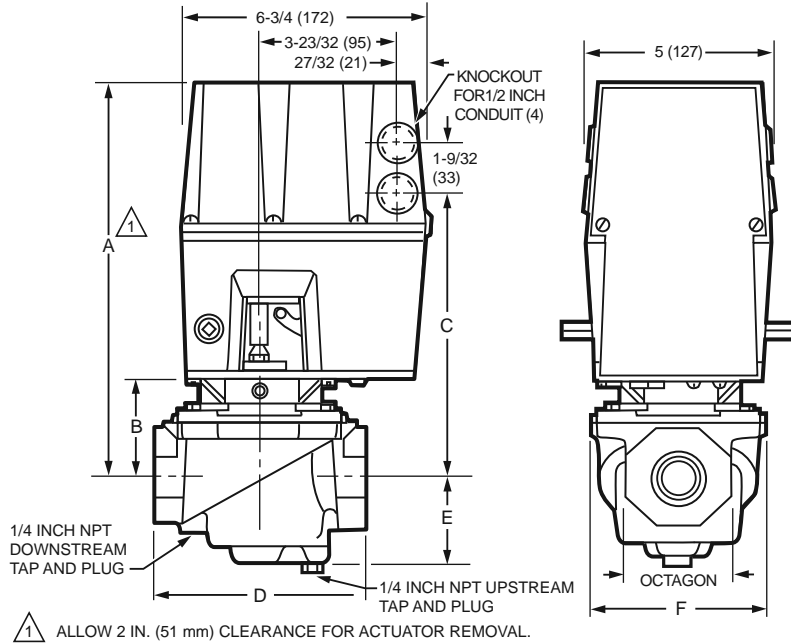
Product Number	Pipe Size	Pipe Thread	Capacity (cfh)	Maximum Operating Differential Pressure		Description	Comments
	(inch)			(V4055A,D; V4062)	(V4055B or E)		
V5055A1004	1 in.	NPT	960 cf/hr; 27.2 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	1 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055A1012	1 1/4 in.	NPT	1406 cf/hr; 39.8 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	1 1/4 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055A1020	1 1/2 in.	NPT	1717 cf/hr; 48.6 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	1 1/2 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055A1038	2 in.	NPT	3620 cf/hr; 102.5 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	2 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055A1046	2 1/2 in.	NPT	4250 cf/hr; 120 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	2 1/2 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055A1053	3 in.	NPT	5230 cf/hr; 148 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	3 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055A1228	4 in.	Flanged	10200 cf/hr; 288.8 m ³ /hr	3 psi (20.7 kPa)	5 psi (.34 bar)	4 in. Flanged Industrial Gas Valve with On-off safety shut-off	—
V5055A1343	3/4 in.	NPT	665 cf/hr	5 psi (.34 bar)	15 psi (1 bar)	3/4 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055B1002	1 in.	NPT	960 cf/hr; 27.2 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	1 in. NPT Industrial Gas Valve with characterized guide	—
V5055B1010	1 1/4 in.	NPT	1406 cf/hr; 39.8 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	1 1/4 in. NPT Industrial Gas Valve with characterized guide	—
V5055B1028	1 1/2 in.	NPT	1717 cf/hr; 48.6 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	1 1/2 in. NPT Industrial Gas Valve with characterized guide	—
V5055B1069	2 in.	NPT	3620 cf/hr; 102.5 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	2 in. NPT Industrial Gas Valve with characterized guide	—
V5055B1077	2 1/2 in.	NPT	4250 cf/hr; 120 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	2 1/2 in. NPT Industrial Gas Valve with characterized guide	—
V5055B1085	3 in.	NPT	5230 cf/hr; 148 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	3 in. NPT Industrial Gas Valve with characterized guide	—
V5055B1150	4 in.	Flanged	9180 cf/hr; 259.9 m ³ /hr	3 psi (20.7 kPa)	5 psi (.34 bar)	4 in. Flanged Industrial Gas Valve with characterized guide	—
V5055B1234	3/4 in.	NPT	665 cf/hr	5 psi (.34 bar)	15 psi (1 bar)	3/4 in. NPT Industrial Gas Valve with characterized guide	—

Industrial Gas Valves

Product Number	Pipe Size	Pipe Thread	Capacity (cfh)	Maximum Operating Differential Pressure		Description	Comments
	(inch)			(V4055A,D; V4062)	(V4055B or E)		
V5055C1000	2 in.	NPT	3620 cf/hr; 102.5 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	2 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1018	2 1/2 in.	NPT	4250 cf/hr; 120 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	2 1/2 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1026	3 in.	NPT	5230 cf/hr; 148 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	3 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1034	1 in.	NPT	960 cf/hr; 27.2 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	1 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1042	1 1/4 in.	NPT	1406 cf/hr; 39.8 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	1 1/4 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1059	1 1/2 in.	NPT	1717 cf/hr; 48.6 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	1 1/2 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1109	4 in.	Flanged	9180 cf/hr; 259.9 m ³ /hr	3 psi (20.7 kPa)	5 psi (.34 bar)	4 in. Flanged Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1182	3/4 in.	NPT	665 cf/hr	5 psi (.34 bar)	15 psi (1 bar)	3/4 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055D1008	1 in.	NPT	960 cf/hr; 27.2 m ³ /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055D1016	1 1/4 in.	NPT	1406 cf/hr; 39.8 m ³ /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 1/4 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055D1024	1 1/2 in.	NPT	1717 cf/hr; 48.6 m ³ /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 1/2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055D1032	2 in.	NPT	3620 cf/hr; 102.5 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055D1040	2 1/2 in.	NPT	4250 cf/hr; 120 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	2 1/2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055D1057	3 in.	NPT	5230 cf/hr	5 psi (.34 bar)	15 psi (1 bar)	3 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055D1065	3/4 in.	NPT	665 cf/hr	5 psi (.34 bar)	25 psi (1.6 bar)	3/4 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055E1005	2 in.	NPT	3620 cf/hr; 102.5 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055E1013	2 1/2 in.	NPT	4250 cf/hr; 120 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	2 1/2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055E1021	3 in.	NPT	5230 cf/hr; 148 m ³ /hr	5 psi (.34 bar)	15 psi (1 bar)	3 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055E1039	1 in.	NPT	960 cf/hr; 27.2 m ³ /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055E1047	1 1/4 in.	NPT	1406 cf/hr; 39.8 m ³ /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 1/4 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055E1054	1 1/2 in.	NPT	1717 cf/hr; 48.6 m ³ /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 1/2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055E1062	3/4 in.	NPT	665 cf/hr	5 psi (.34 bar)	25 psi (1.6 bar)	3/4 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055F1003	1 in.	NPT	960 cf/hr; 27.2 m ³ /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	Meets Intent of DIN Seat Leakage Requirements
V5055F1011	1 1/2 in.	NPT	1717 cf/hr; 48.6 m ³ /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 1/2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	Meets Intent of DIN Seat Leakage Requirements
V5055F1037	1 1/4 in.	NPT	1406 cf/hr; 39.8 m ³ /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 1/4 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	Meets Intent of DIN Seat Leakage Requirements

Industrial Gas Valves

Dimensions in inches (millimeters)



VALVE SIZE INCH	DIM A		DIM B		DIM C		DIM D		DIM E		DIM F		OCTAGON	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM
3/4	11-1/8	283	2-3/4	70	8-3/16	208	5-3/4	146	2-1/4	57	4-7/8	124	2-13/16	71
1	11-1/8	283	2-3/4	70	8-3/16	208	5-3/4	146	2-1/4	57	4-7/8	124	2-13/16	71
1-1/4	11-1/8	283	2-3/4	70	8-3/16	208	5-3/4	146	2-1/4	57	4-7/8	124	2-13/16	71
1-1/2	11-1/8	283	2-3/4	70	8-3/16	208	5-3/4	146	2-1/4	57	4-7/8	124	2-13/16	71
2	11-1/4	286	2-7/8	73	8-5/16	211	8-3/8	213	2-3/4	70	7-19/32	193	3-1/2	89
2-1/2	11-3/4	299	3-3/8	86	8-13/16	224	9-1/4	235	2-3/4	70	7-19/32	193	4-1/2	114
3	11-3/4	299	3-3/8	86	8-13/16	224	9-1/4	235	2-3/4	70	7-19/32	193	4-1/2	114

M27268

V5097 Integrated Valve Train



Safety shutoff valves used with V4055, V4062 and V9055 fluid power actuators to control gas flow to commercial and industrial burners.

- Use with natural or LP gases.
- Mount directly in gas supply line.
- Two Valve body types. Small body type for 3/4 in., 1 in., 1-1/4 in., 1-1/2 in., 2 in. pipes. Large body types for 2 in., 2-1/2 in. and 3 in. pipes.

Operating Temperature Range: -40 F to +150 F (-40 C to +66 C)

Temperature Ratings when used with V9055: -40 F to +125 F (-40 C to +52 C)

Includes: Three 1/4 in. -18 NPT upstream and two 1/4 in. -18 NPT downstream taps

Comments: Select Proper Pipe Adapter

Used With: V9055, V4055, V4062

Includes: Three 1/4 in. -18 NPT upstream and two 1/4 in. -18 NPT downstream taps

- Seven pipe adapter sizes from 3/4 in. to 3 in. have NPT or BSP threaded connections.
- Provides three 1/4 in. upstream and two 1/4 in. downstream tap and plug.
- CE version provides an additional downstream tap and plug.
- Yellow SHUT indicator attached to the valve stem provides an indication of the valve closed position.
- V5097A,C,D,E Valves are for on-off service.
- V5097B Valve has a characterized guide and in combination with the V4055, V4062 and V9055 Fluid Power Actuators, provides slow-opening, HI-LO-OFF, and modulating functions, respectively.
- V5097C,E Valves have a double seal and are used with V4055D,E Actuators to provide proof-of-closure switch and valve seal over-travel interlock.
- Actuators to provide proof-of-closure switch and valve seal over-travel interlock.
- V5097D,E Valves are for high pressure applications.
- Two valve body types (small and large) applicable to server pipe size.

Approvals:

Canadian Standards Association: When used with V4055, V4062, and V5097: Certified General listed File No. 158158, Class 3371 for USA and Canada

CE: CE #E3070 (Gastec)

Factory Mutual: When used with the V4055A,G: Approved, Report Nos. 20698, 20835, 21172, and 24061

Swiss RE (formerly IRI): When used with V4055A,B,D,E, V4062, V9055: Acceptable

Underwriters Laboratories, Inc. When used with V4055A,B,D,E, V4062, V9055: Listed, File No. MH1639 Guide No. YIOZ

Product Number	Pipe Size	Capacity (cfh)	Maximum Operating Differential Pressure		Integrated Valve Train Body Size	Description
	(inch)		(V4055A,D; V4062)	(V4055B or E)		
V5097A1004	3/4 in. 1 in. 1 1/4 in. 2 in.	665 cf/hr to 3620 cf/hr; 18.8 to 102.5 m ³ /hr	5 psi (340 mbar)	15 psi (1 bar)	Small body	Small Body Low Pressure Integrated Valve with On-off safety shut-off
V5097A1012	2 in. 2 1/2 in. 3 in.	3620 cf/hr to 5230 cf/hr; 102.5 to 148.0 m ³ /hr	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body Low Pressure Integrated Valve with On-off safety shut-off
V5097A1020	3/4 in. 1 1/4 in. 1 1/2 in. 2 in.	—	5 psi (340 mbar)	15 psi (1 bar)	Small body	Small Body Low Pressure Integrated Valve with On-off safety shut-off and BSP Port Threads
V5097A1038	2 in. 2 1/2 in. 3 in.	—	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body Low Pressure Integrated Valve with On-off safety shut-off and BSP Port Threads
V5097B1002	3/4 in. 1 in. 1 1/4 in. 2 in.	665 cf/hr to 3620 cf/hr	5 psi (340 mbar)	15 psi (1 bar)	Small body	Small Body Low Pressure Integrated Valve with characterized guide safety shut-off
V5097B1010	2 in. 2 1/2 in. 3 in.	3620 cf/hr to 5230 cf/hr; 102.5 to 148.0 m ³ /hr	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body Low Pressure Integrated Valve with characterized guide safety shut-off
V5097B1028	3/4 in. 1 1/4 in. 1 1/2 in. 2 in.	—	5 psi (340 mbar)	15 psi (1 bar)	Small body	Small Body Low Pressure Integrated Valve with characterized guide safety shut-off and BSP Port Threads
V5097B1036	2 in. 2 1/2 in. 3 in.	—	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body Low Pressure Integrated Valve with characterized guide safety shut-off and BSP Port Threads
V5097C1000	3/4 in. 1 in. 1 1/4 in. 2 in.	665 cf/hr to 3620 cf/hr; 18.8 to 102.5 m ³ /hr	5 psi (340 mbar)	15 psi (1 bar)	Small body	Small Body Low Pressure Integrated Valve with On-off safety shut-off with double seal
V5097C1018	2 in. 2 1/2 in. 3 in.	3620 cf/hr to 5230 cf/hr; 102.5 to 148.0 m ³ /hr	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body Low Pressure Integrated Valve with On-off safety shut-off with double seal

Industrial Gas Valves

Product Number	Pipe Size	Capacity (cfh)	Maximum Operating Differential Pressure		Integrated Valve Train Body Size	Description
	(inch)		(V4055A,D; V4062)	(V4055B or E)		
V5097D1008	3/4 in. 1 in. 1 1/4 in. 2 in.	665 cf/hr to 3620 cf/hr; 18.8 to 102.5 m ³ /hr	5 psi (340 mbar)	25 psi (1.6 bar)	Small body	Small Body High Pressure Integrated Valve with On-off safety shut-off
V5097D1016	2 in. 2 1/2 in. 3 in.	3620 cf/hr to 5230 cf/hr; 102.5 to 148.0 m ³ /hr	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body High Pressure Integrated Valve with On-off safety shut-off
V5097E1005	3/4 in. 1 in. 1 1/4 in. 2 in.	665 cf/hr to 3620 cf/hr; 18.8 to 102.5 m ³ /hr	5 psi (340 mbar)	25 psi (1.6 bar)	Small body	Small Body High Pressure Integrated Valve with On-off safety shut-off with double seal
V5097E1013	2 in. 2 1/2 in. 3 in.	3620 cf/hr to 5230 cf/hr; 102.5 to 148.0 m ³ /hr	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body High Pressure Integrated Valve with On-off safety shut-off with double seal

Integrated Valve Train Pipe Adapters

Product Number	Pipe Size	Pipe Thread	Integrated Valve Train Body Size	Description	Used With
	(inch)				
32000109-001	3/4 in.	NPT	Small body	3/4 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-002	1 in.	NPT	Small body	1 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-003	1 1/4 in.	NPT	Small body	1 1/4 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-004	1 1/2 in.	NPT	Small body	1 1/2 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-005	2 in.	NPT	Small body	2 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-006	3/4 in.	BSP	Small body	3/4 in. BSP Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-007	1 in.	BSP	Small body	1 in. BSP Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-008	1 1/4 in.	BSP	Small body	1 1/4 in. BSP Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-009	1 1/2 in.	BSP	Small body	1 1/2 in. BSP Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-010	2 in.	BSP	Small body	2 in. BSP Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32001605-001	2 in.	NPT	Large body	2 in. NPT Pipe Adapter Large Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32001605-002	2 1/2 in.	NPT	Large body	2 1/2 in. NPT Pipe Adapter Large Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32001605-003	3 in.	NPT	Large body	3 in. NPT Pipe Adapter Large Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32001605-004	2 in.	BSP	Large body	2 in. BSP Pipe Adapter Large Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32001605-005	2 1/2 in.	BSP	Large body	2 1/2 in. BSP Pipe Adapter Large Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32001605-006	3 in.	BSP	Large body	3 in. BSP Pipe Adapter Large Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197

V5055/5097 Replacement Parts or Accessories

Product Number	Description	Used With
133392A	O-Ring Assembly for 2 in., 2 1/2 in., and 3 in. V5055 valves	V5055/V5097 valves
133393A	O-Ring Assembly for 1 in., 1 1/4 in., and 1 1/2 in. V5055 valves	V5055/V5097 valves
133398AA	Replacement Bonnet Assembly with 133393A Seal Assembly for 3/4, 1, 1-1/4, 1-1/2 in. V5055A valves	V5055/V5097 valves
133398BA	Replacement Bonnet Assembly with 133393A Seal Assembly for 3/4, 1, 1-1/4, 1-1/2 in. V5055B valves	V5055/V5097 valves
133398CA	Replacement Bonnet Assembly, with 137253A replacement Seal Assembly for small body (3/4,1, 1/1/2 in.) V5055/V5097C.	V5055/V5097 valves
133417AA	Replacement Bonnet Assembly with 133392A Seal Assembly for 2, 2 1/2, and 3 in. V5055A valves	V5055/V5097 valves
133417BA	Replacement Bonnet Assembly with 133392A Seal Assembly for 2, 2 1/2, and 3 in. V5055B valves	V5055/V5097 valves
133417CA	Bonnet Assembly for 2, 2 1/2, or 3 in. V5055C or V5097C valves	V5055C/V5097C valves
136307AA	Replacement bonnet assembly. For large body (2, 2-1/2, 3 inch) V5055D or V5097D	V5055/V5097 valves
136307BA	Replacement Bonnet Assembly with 132542 Seal Assembly for 2, 2-1/2, and 3 in. V5055E or V5097E valves	V5055/V5097 valves
136308AA	Replacement Bonnet Assembly with 133393A Seal Assembly for 3/4, 1, 1-1/4, and 1-1/2 in. V5055D valves	V5055/V5097 valves
136911AA	Replacement bonnet assembly. With 137253A replacement seal assembly. For 4 in. V5055A.	V5055A
136911BA	Replacement bonnet assembly. With 137253A replacement seal assembly. For 4 in. V5055B.	V5055B
136911CA	Replacement bonnet assembly. With 137253A replacement seal assembly. For 4 in. V5055C.	V5055C
137253A	Replacement seal assembly. For 4 inch V5055.	V5055
32002512-001	Large bodies 2 in.-3 in. normally open vent valve adapter. Use with V5097	V5097
32002513-001	Small bodies 3/4 in.-2 in. normally open vent valve adapter. Use with V5097 Small bodies 3/4 in.-2 in. normally open vent valve adapter. Use with V5097	V5097
32004771-001	Small Body Multi-tap Adapter Assembly, Integrated Valve Train	V5097
32004772-001	Large Body Multi-tap Adapter Assembly, Integrated Valve Train	V5097
32005096-001	Screen Assembly for Small Body Multi-tap Adapter	32004771 Multi Tap Adapter
32005096-002	Screen Assembly for Large Body Multi-tap Adapter	32004772 Multi Tap Adapter
4074EYE	Bag assembly for V5097 (large body) includes 6 ea bolts, nuts and washers.	Large Body V5097
4074EYF	Bag assembly for V5097 (small body) includes 6 ea bolts, nuts and washers.	Small Body V5097
4074EYK	Bag assembly for V5097 (small body) includes (2) O-rings, (1) grease capsule.	Small Body V5097
4074EYL	Bag assembly for V5097 (large body) includes (2) O-rings, (1) grease capsule.	Large Body V5097

Pilot Gas Valves

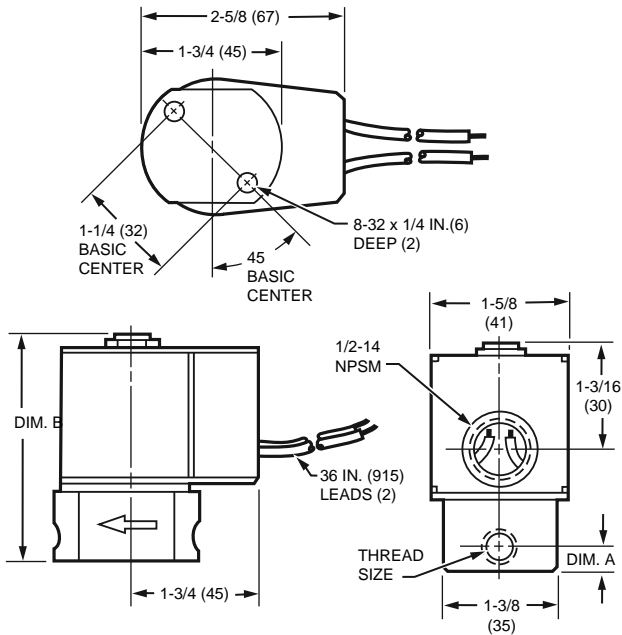
V4046C; V8046C Pilot Gas Valves



Provide on-off control of natural, LP and manufactured gases to pilot burners in industrial and commercial applications.

- Magnetically operated, normally closed.
- Provide instantaneous action when energized.
- On power failure, valve closes in one second maximum.
- Use in any position, directly in pipe line or on support bracket.
- Replace the solenoid coil without removing the valve body from the piping connections.
- Straight-through valve pattern.
- Available in line voltage or low voltage models.

Dimensions in inches (millimeters)



MODEL	BODY SIZE	THREAD SIZE	DIM. A		DIM. B	
			IN	MM	IN	MM
V4046C, V8046C	SMALL	1/8-27 NPT	5/16	8	2-3/4	70
	SMALL	1/4-18 NPT	3/8	10	3	76
	LARGE	1/4-18 NPT	1/2	13	3-1/4	83
	LARGE	3/8-18 NPT	1/2	13	3-1/4	83

M116595A

Type of Gas: Air, natural, manufactured, and LP

Dimensions, Approximate: 2 3/4 in. high x 2 5/8 in. wide x 1 5/8 in. deep (70 mm high x 67 mm wide x 41 mm deep)

Body Pattern: Straight-through

Electrical Connections: Two 36-in. leadwires and 1/2 in. conduit bushing

Pressure Ratings: 10 psi (68.9 kPa)

Frequency: 50 Hz; 60 Hz

Power Consumption: 8 W

Mounting: Directly in pipe or on support bracket

Valve Opening Time: 1 sec max

Valve Closing Time: 1 sec max

Operating Temperature Range: -40 F to +125 F (-40 C to +52 C)

Materials

(Body): Aluminum

Approvals:

Canadian Standards Association: Certificate No. 158158-2500006058, Guide No. C3371-03, 83

Factory Mutual: Approved: Report No. 17450

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MH1639, V3, S3 - Guide No. YIOZ

Product Number	Pipe Size (inch)	Capacity		Voltage	Description
		(cfh)	(m ³ /hr)		
V4046C1005	1/8 in.	20 cfh	0.57 m ³ /hr	110 Vac, 120 Vac	1/8 in. NPT pipe size Solenoid Pilot Gas Valve
V4046C1021	1/4 in.	20 cfh	0.57 m ³ /hr	110 Vac, 120 Vac	1/4 in. NPT pipe size Solenoid Pilot Gas Valve
V4046C1047	1/4 in.	55 cfh	1.56 m ³ /hr	110 Vac, 120 Vac	1/4 in. NPT pipe size Solenoid Pilot Gas Valve
V4046C1054	3/8 in.	67 cfh	1.90 m ³ /hr	110 Vac, 120 Vac	3/8 in. NPT pipe size Solenoid Pilot Gas Valve
V4046C1088	3/8 in.	67 cfh	1.90 m ³ /hr	208 Vac	3/8 in. NPT pipe size Solenoid Pilot Gas Valve
V4046C1120	3/8 in.	67 cfh	1.90 m ³ /hr	120 Vac	3/8 in. NPT pipe size Solenoid Pilot Gas Valve
V8046C1006	1/8 in.	20 cfh	0.57 m ³ /hr	24 Vac	1/8 in. NPT pipe size Solenoid Pilot Gas Valve
V8046C1014	1/4 in.	20 cfh	0.57 m ³ /hr	24 Vac	1/4 in. NPT pipe size Solenoid Pilot Gas Valve
V8046C1022	1/4 in.	55 cfh	1.56 m ³ /hr	24 Vac	1/4 in. NPT pipe size Solenoid Pilot Gas Valve
V8046C1030	3/8 in.	67 cfh	1.90 m ³ /hr	24 Vac	3/8 in. NPT pipe size Solenoid Pilot Gas Valve

V4295; V8295 Solenoid Gas Valves



V4295A/V8295A are normally closed and V4295S/V8295S are normally open (vent) solenoid gas valve. Suitable for use on furnaces, ovens, atmospheric burners, commercial water heaters, roof-top make-up air units, power burners, and commercial/ industrial boilers.

- V8295A,S are used with 24 Vac controllers.
- V4295A,S are used with 120 Vac controllers.
- Positive close off of gas flow when de-energized.
- High valve spring force allows up to 0.7 psi back pressure at valve seat.
- No inlet pressure influence at valve seat.
- Inlet pressure changes do not affect ability to close valve.
- Low operating noise.
- Low rush-in current.
- Upstream and downstream taps allows tapping and testing pressure points.

Type of Gas: Air, natural, manufactured, mixed, and LP

Dimensions, Approximate: 4 7/16 in. high x 2 7/8 in. wide x 2 3/16 deep (113 mm high x 73 mm wide x 56 mm deep)

Body Pattern: Straight-through, non-offset

Electrical Connections: Screw terminals

Inlet/Outlet Pressure Tapping: 1/4 in. NPT

Frequency: 50 Hz; 60 Hz

Mounting: Vertical to 90 degrees from vertical

Valve Opening Time: less than 1 sec

Valve Closing Time: less than 1 sec

Operating Temperature Range: -40 F to +140 F (-40 C to +60 C)

Materials

(Body): Die-cast aluminum

Approvals:

Canadian Standards Association: Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83

Control Safety Devices: Acceptable

Factory Mutual: Approved: Report No. J.I.OD6A2.AF

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MH18476, V1, S1 - Guide No. YIOZ

Product Number	Pipe Size (inch)	Capacity		Pressure Ratings		Current (max amps at rated Vac/Hz)	Voltage
		(cfh)	(m ³ /hr)	(psi)	(kPa)		
V4295A1015	1/2 in.	250 cfh	7.1 m ³ /hr	2 psi	13.8 kPa	0.160 amps	120 Vac
V4295A1023	3/4 in.	645 cfh	18.3 m ³ /hr	2 psi	13.8 kPa	0.160 amps	120 Vac
V4295A1031	1 in.	790 cfh	22.4 m ³ /hr	2 psi	13.8 kPa	0.160 amps	120 Vac
V4295A1049	1 1/4 in.	1450 cfh	41.0 m ³ /hr	2 psi	13.8 kPa	0.340 amps	120 Vac
V4295A1056	1 1/2 in.	2190 cfh	62.0 m ³ /hr	2 psi	13.8 kPa	0.300 amps	120 Vac
V4295A1064	2 in.	3465 cfh	98.1 m ³ /hr	2 psi	13.8 kPa	0.525 amps	120 Vac
V4295A1072	2 1/2 in.	5070 cfh	143.5 m ³ /hr	2 psi	13.8 kPa	0.575 amps	120 Vac
V4295A1080	3 in.	6100 cfh	172.7 m ³ /hr	2 psi	13.8 kPa	0.675 amps	120 Vac
V4295A1098	3/8 in.	210 cfh	5.9 m ³ /hr	5 psi	34.5 kPa	0.160 amps	120 Vac
V4295A1106	1/2 in.	290 cfh	8.2 m ³ /hr	5 psi	34.5 kPa	0.160 amps	120 Vac
V4295A1114	3/4 in.	610 cfh	17.3 m ³ /hr	5 psi	34.5 kPa	0.2 amps	120 Vac
V4295A1122	1 in.	825 cfh	23.4 m ³ /hr	5 psi	34.5 kPa	0.2 amps	120 Vac
V4295A1130	1 1/4 in.	1950 cfh	55.2 m ³ /hr	5 psi	34.5 kPa	0.550 amps	120 Vac
V4295A1148	1 1/2 in.	2270 cfh	64.3 m ³ /hr	5 psi	34.5 kPa	0.550 amps	120 Vac
V4295A1155	2 in.	3740 cfh	105.9 m ³ /hr	5 psi	34.5 kPa	0.540 amps	120 Vac
V4295S1005	3/4 in.	350 cfh	9.9 m ³ /hr	2 psi	13.8 kPa	0.160 amps	120 Vac
V4295S1013	1 in.	420 cfh	11.9 m ³ /hr	2 psi	13.8 kPa	0.160 amps	120 Vac
V4295S1021	1 1/4 in.	1100 cfh	31.1 m ³ /hr	2 psi	13.8 kPa	0.340 amps	120 Vac
V8295A1016	1/2 in.	250 cfh	7.1 m ³ /hr	2 psi	13.8 kPa	0.8 amps	24 Vac
V8295A1024	3/4 in.	645 cfh	18.3 m ³ /hr	2 psi	13.8 kPa	0.8 amps	24 Vac
V8295A1032	1 in.	790 cfh	22.4 m ³ /hr	2 psi	13.8 kPa	0.8 amps	24 Vac
V8295A1040	1 1/4 in.	1450 cfh	41.0 m ³ /hr	2 psi	13.8 kPa	1.6 amps	24 Vac
V8295A1057	1 1/2 in.	2190 cfh	62.0 m ³ /hr	2 psi	13.8 kPa	1.70 amps	24 Vac
V8295A1065	2 in.	3465 cfh	98.1 m ³ /hr	2 psi	13.8 kPa	2.80 amps	24 Vac
V8295S1006	3/4 in.	350 cfh	9.9 m ³ /hr	2 psi	13.8 kPa	0.8 amps	24 Vac
V8295S1014	1 in.	420 cfh	11.9 m ³ /hr	2 psi	13.8 kPa	0.8 amps	24 Vac
V8295S1022	1 1/4 in.	1100 cfh	31.1 m ³ /hr	2 psi	13.8 kPa	2.40 amps	24 Vac

Solenoid Gas Valves

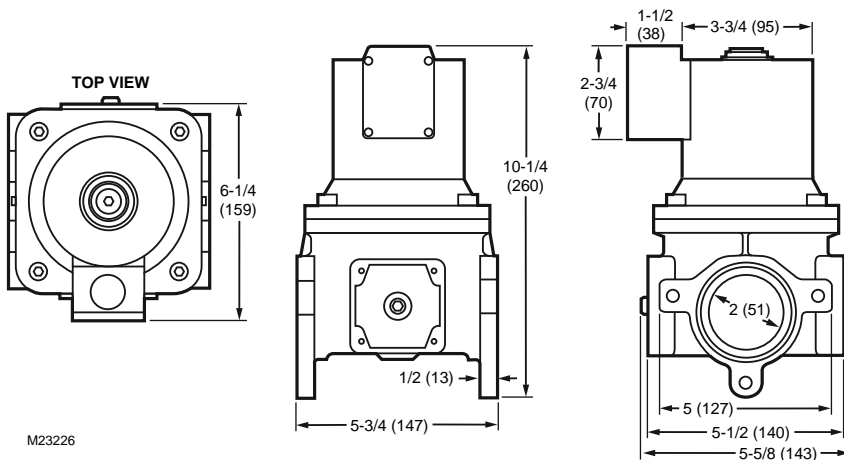
V4297A Solenoid Safety Shut-off Valve for IVT



V4297A are normally closed solenoid gas valve. Suitable for use on furnaces, ovens, atmospheric burners, commercial water heaters, roof-top make-up air units, power burners, and commercial/industrial boilers.

- V4297A are used with 120 Vac controllers.
- Positive close off of gas flow when de-energized.
- High valve spring force allows up to 0.7 psi back pressure at valve seat.
- No inlet pressure influence at valve seat.
- Inlet pressure changes do not affect ability to close valve.
- Low operating noise.
- Low rush-in current.
- Upstream and downstream taps allows tapping and testing pressure points.
- For use with the Integrated Valve Train.
- Accepts C6097 Pressure Switch mounted directly to flange (upstream pressure tap only).

Dimensions in inches (millimeters)



M23226

Type of Gas: Air, natural, manufactured, mixed, and LP
Body Pattern: Straight-through, non-offset
Electrical Connections: Screw terminals
Inlet/Outlet Pressure Tapping: 1/4 in. NPT
Pressure Ratings: 5 psi (34.5 kPa)
Frequency: 50 Hz; 60 Hz
Mounting: Directly bolted to Integrated Valve Train Components
Valve Opening Time: less than 1 sec
Valve Closing Time: less than 1 sec
Flanges: Required, Order Separately
Operating Temperature Range: -40 F to +130 F (-40 C to +54 C)

Materials
(Body): Die-cast aluminum

Approvals:
Canadian Standards Association: Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
Swiss RE (formerly IRI): Acceptable
Underwriters Laboratories, Inc. Listed: File No. MH18476, V1, S1 - Guide No. YIOZ

Replacement Parts:
4074EYF Bag assembly for V5097 (small body) includes 6 ea bolts, nuts and washers.
4074EYK Bag assembly for V5097 (small body) includes (2) O-rings, (1) grease capsule.

Product Number	Pipe Size	Capacity		Integrated Valve Train Body Size	Current (max amps at rated Vac/Hz)	Voltage	Description
	(inch)	(cfh)	(m ³ /hr)				
V4297A1005	3/4 in. to 1 1/4 in.	780 cfh, 700 cfh, 650 cfh	19.8 m ³ /hr	Small body, small flow	0.2 amps	110/120 Vac; 110 Vac; 120 Vac	Integrated Valve Train, Normally Closed, Small Body Solenoid Gas Valve.
V4297A1013	3/4 in. to 2 in.	3060 cfh, 2735 cfh, 2260 cfh, 1460 cfh, 1190 cfh	—	Small body, large flow	0.5 amps	110/120 Vac	Integrated Valve Train, Normally Closed, Large Flow Solenoid Gas Valve.

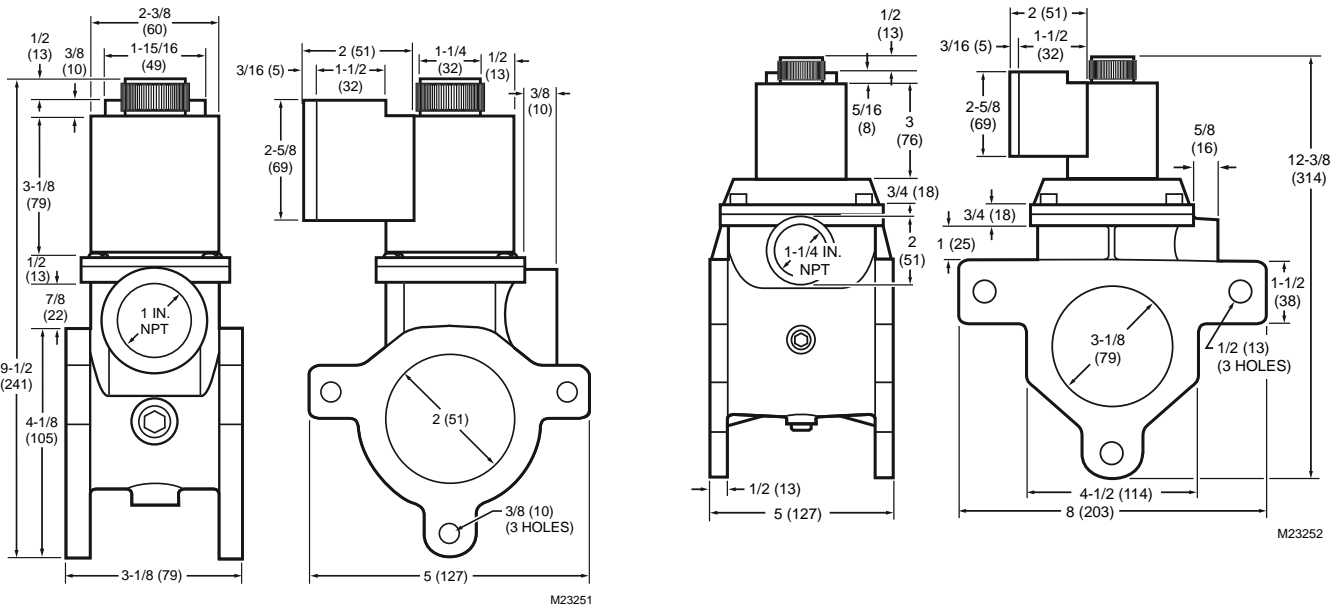
V4297S Normally Open Vent Valve for IVT



V4297S are normally open (vent) solenoid gas valves. Suitable for use on furnaces, ovens, atmospheric burners, commercial water heaters, roof-top make-up air units, power burners, and commercial/industrial boilers.

- V4297S is used with 120 Vac controllers.
- Low operating noise.
- Low rush-in current.
- Upstream and downstream taps allows tapping and testing pressure points.
- For use with the Integrated Valve Train

Dimensions in inches (millimeters)



Type of Gas: Air, natural, manufactured, mixed, and LP
Body Pattern: Straight-through, non-offset
Electrical Connections: Screw terminals
Inlet/Outlet Pressure Tapping: 1/4 in. NPT
Pressure Ratings: 5 psi (34.5 kPa)
Frequency: 50 Hz; 60 Hz
Mounting: Directly bolted to Integrated Valve Train Components
Valve Opening Time: less than 1 sec
Valve Closing Time: less than 1 sec
Flanges: Required for Stand Alone
Operating Temperature Range: -40 F to +145 F (-40 C to +63 C)
Materials
(Body): Die-cast aluminum

Approvals:
Canadian Standards Association: Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
Swiss RE (formerly IRI): Acceptable
Underwriters Laboratories, Inc. Listed: File No. MH18476, V1, S1 - Guide No. YIOZ

Replacement Parts:
4074EYF Bag assembly for V5097 (small body) includes 6 ea bolts, nuts and washers.
4074EYK Bag assembly for V5097 (small body) includes (2) O-rings, (1) grease capsule.
4074EYL Bag assembly for V5097 (large body) includes (2) O-rings, (1) grease capsule.

Product Number	Capacity		Integrated Valve Train Body Size	Current (max amps at rated Vac/Hz)	Voltage	Description
	(cfh)	(m ³ /hr)				
V4297S1003	714 cfh	20.2 m ³ /hr	Small body	0.2 amps	110/120 Vac	Integrated Valve Train, Normally Open (1 in. Vent connection), Small Body Solenoid Gas Valve.
V4297S1011	1115 cfh	31.6 m ³ /hr	Large body	0.34 amps	110/120 Vac	Integrated Valve Train, Normally Open (1 1/4 in. Vent connection), Large Body Solenoid Gas Valve.

Solenoid Gas Valve Replacement Parts or Accessories

Product Number	Description	Used With
116668A	Replacement Coil Assembly for 24V, 60 Hz V8046	V8046
32004925-001	Closed Position Indicator (CPI) switch. Used with V4297A	V4295/V4297
KTCPI001	Visual indication for V4297A	V4295/V4297

Pressure Switches

C437 2000 Series Gas/Air Pressure Switches

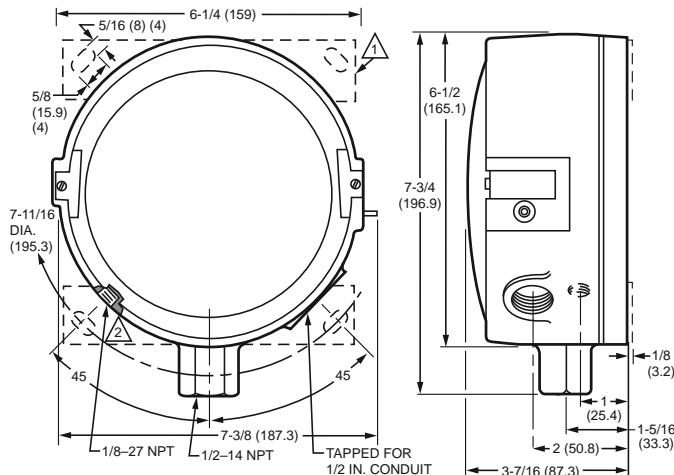


The C437D,E Series 2000 Gas Pressure Switches are pressure-actuated switching devices used in industrial gas system applications for safety shutoff, pressure control, and differential-pressure control.

All Series 2000 models have MicroSwitch™ snap switches to open or close a circuit on pressure rise or drop.

- Use C437 for SPST (non-mercury) switching.
- Models intended for lockout applications must be manually reset before resuming operation.
- Models with pressure range of 1 to 26 in. wc (0.25 to 6.5 kPa) compensate for momentary surges in gas pressure with a restrictive orifice in inlet pressure channel.
- Impede tampering and provide dust-resistant operation with enclosed setting.
- Increase strength of control diaphragm with Buna-N fiber-reinforced material.
- Two Buna-N fiber-reinforced seal-off diaphragms for added reliability.
- Clear glass cover allows observation of interior mechanism to aid in setting and checkout.

Dimensions in inches (millimeters)



▲ 137755 MOUNTING BRACKET (2), IN 4074BWK BAG ASSEMBLY – OPTIONAL.

▲ VENT TAPPING. REMOVE DUST-SEAL LABEL BEFORE MOUNTING.

M27582

Application: Industrial gas system applications for safety shutoff, pressure control, or differential-pressure control.

Pipe Connections, Main or High Pressure: 1/2 in. NPT internal thread

Pipe Connections, Vent or Low pressure: 1/8 in. NPT internal thread

Electrical Connections: Screw terminals

Sensor Element: BUNA N Diaphragm

Differential Type: Subtractive

Switch Operation: Manual Reset

Switch Contact Ratings

120 Vac: 8.0 AFL, 48.0 ALR, 10.0 A resistive

240 Vac: 5.1 AFL, 30.6 ALR, 5.0 A resistive

Temperature Range: 32 F to 125 F (0 C to 52 C)

Maximum Ambient Temperature: 125 F (52 C)

Materials (Case): Die-cast aluminum

Approvals:

Canadian Standards Association: Certified: File No. LR1620, Guide No. 380-W-1.16

Factory Mutual: Approved: Report No. 22018, 24127, J.I.IF4A3.AF

Swiss RE (formerly IRI): Acceptable

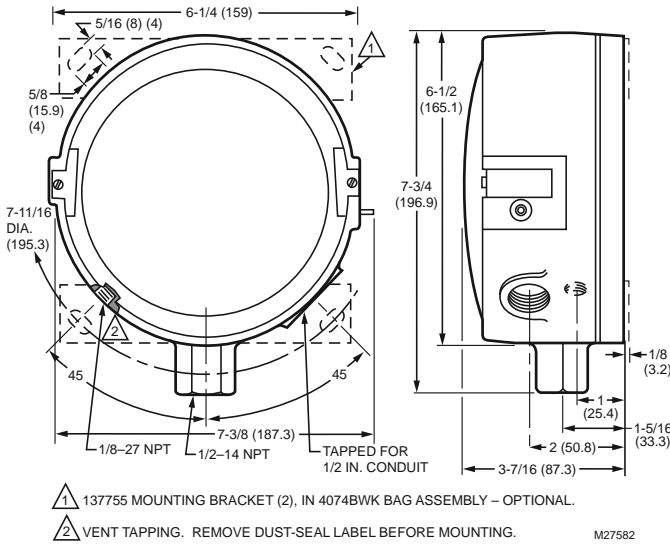
Underwriters Laboratories, Inc. Listed: File No. MP2168, Guide No. MFHX

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Pressure Differential		Switching Action
C437D2003	1 to 26 in. wc	0.5 to 7.0 kPa	5.0 psi	34.5 kPa	1 3/4 in. wc	0.44 kPa	SPST, break on rise, non-mercury
C437D2011	1/2 to 5 psi	3.0 to 35 kPa	15.0 psi	103.4 kPa	1/2 psi	3.45 kPa	SPST, break on rise, non-mercury
C437D2029	1 to 10 psi	5.0 to 70.0 kPa	30.0 psi	206.8 kPa	1 psi	6.89 kPa	SPST, break on rise, non-mercury
C437E2002	1 to 26 in. wc	0.5 to 7.0 kPa	5.0 psi	34.5 kPa	1 3/4 in. wc	0.44 kPa	SPST, Break on Fall, non mercury
C437E2010	1/2 to 5 psi	3.0 to 35 kPa	15.0 psi	103.4 kPa	1/2 psi	3.45 kPa	SPST, Break on Fall, non mercury
C437E2028	1 to 10 psi	5.0 to 70.0 kPa	30.0 psi	206.8 kPa	1 psi	6.89 kPa	SPST, Break on Fall, non mercury
C437E2036	0.5 to 5.5 in. wc	0.1 to 1.4 kPa	3.0 psi	20.7 kPa	0.25 in. wc	0.06 kPa	SPST, Break on Fall, non mercury

C437 Gas/Air Pressure Switches



Dimensions in inches (millimeters)



Pressure or differential pressure limit controls for industrial gas systems.

- Uses C437 for SPDT Mercury switching.
- Models with pressure range of 1 to 26 in. wc (0.25 to 6.5 kPa) compensate for momentary surges in gas pressure with a restrictive orifice in inlet pressure channel.
- Impede tampering and provide dust-resistant operation with enclosed setting.
- Increase strength of control diaphragm with Buna-N fiber-reinforced material.
- Clear glass cover allows observation of interior mechanism to aid in setting and checkout.
- Mercury switch provides visual indication of switch position.

Application: Industrial gas system applications for safety shutoff, pressure control, or differential-pressure control.

Pipe Connections, Main or High Pressure: 1/2 in. NPT internal thread

Pipe Connections, Vent or Low pressure: 1/8 in. NPT internal thread

Electrical Connections: Screw terminals

Sensor Element: BUNA N Diaphragm

Differential Type: Additive

Switch Operation: Auto recycle

Switch Contact Ratings

120 Vac: 8.0 AFL, 48.0 ALR, 10.0 A resistive

120 Vdc: 2.0 AFL, 20.0 ALR, 8.0 A resistive

240 Vac: 5.1 AFL, 30.6 ALR, 5.0 A resistive

240 Vdc: 1.0 AFL, 10.0 ALR, 4.0 A resistive

Temperature Range: 32 F to 125 F (0 C to 52 C)

Maximum Ambient Temperature: 125 F (52 C)

Materials (Case): Die-cast aluminum

Approvals:

Canadian Standards Association: Certified: File No. LR1620, Guide No. 380-W-1.16

Factory Mutual: Approved: Report No. 22018, 24127, J.1.IF4A3.AF

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP2168, Guide No. MFHX

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Pressure Differential		Switching Action	Includes
	in. wc	kPa	psi	kPa	in. wc	kPa		
C437F1003	1 to 26	0.5 to 7.0	5.0	34.5	1 1/4	0.31	SPST (two), break one and make one on pressure fall	—
C437F1011	1/2 to 5	3.0 to 35	15.0	103.4	0.25	1.72	SPST (two), break one and make one on pressure fall	—
C437F1029	1 to 10	5.0 to 70.0	30.0	206.8	1/2	3.45	SPST (two), break one and make one on pressure fall	—
C437F1037	0.5 to 5.5	0.1 to 1.4	3.0	20.7	0.25	0.06	SPST (two), break one and make one on pressure fall	—
C437F1045	1 to 26	0.5 to 7.0	5.0	34.5	1 1/4	0.31	SPST (two), break one and make one on pressure fall	Weatherproof enclosure (NEMA 3R)
C437F1052	1/2 to 5	3.0 to 35	15.0	103.4	0.25	1.72	SPST (two), break one and make one on pressure fall	Weatherproof enclosure (NEMA 3R)
C437F1060	1 to 10	5.0 to 70.0	30.0	206.8	1/2	3.45	SPST (two), break one and make one on pressure fall	Weatherproof enclosure (NEMA 3R)
C437F1078	0.5 to 5.5	0.1 to 1.4	3.0	20.7	0.25	0.06	SPST (two), break one and make one on pressure fall	Weatherproof enclosure (NEMA 3R)

Pressure Switches

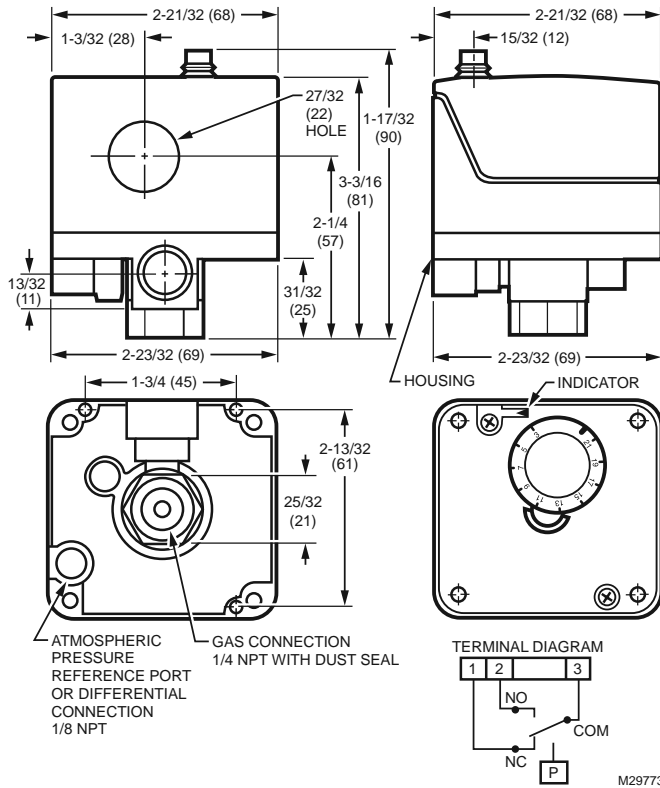
C6097 Pressure Switch



Pressure Switches are safety devices used in positive-pressure or differential-pressure systems to sense gas or air pressure systems.

- For use with natural gas, liquid propane (LP) gas, or air.
- Diaphragm-actuated safety-limit switch.
- Switch can be wired to turn on alarm.
- C6097A models break control circuit at setpoint on pressure fall.
- C6097B models break control circuit at setpoint on pressure rise.
- Lockout with manual reset and recycle options.
- Lockout models have external manual reset button.
- Removable transparent cover protects scaleplate and adjusting knob.
- Pipe tappings allow selection of positive pressure (air only) or venting connections (NPT mount only).
- 1/4 in. NPT or flange mount models for direct mounting to Honeywell Integrated Valve Train.
- Optional switch position indicator lamp available.
- IP54 enclosure standard.
- Ranges: 0.4 to 5 in.wc, 3 to 21 in.wc, 12 to 60 in.wc or 1.5 to 7 psi.
- Surge orifice.
- Integral vent limiter on all models.

Dimensions in inches (millimeters)



Application: Safety devices used in positive-pressure or differential-pressure systems to sense gas or air pressure changes

Mounting: 1/4 in. NPT internal thread

Pipe Connections, Vent or Low pressure: 1/8 in. NPT internal thread

Alternate Ratings: Ignition Transformer: 540 VA, Pilot Valve: 50 VA.

Main Valve: 400 VA with 2-1/2 times inrush

Electrical Connections: Screw terminals

Switch Contact Ratings

120 Vac: 3.0 AFL, 18.0 ALR, 5.0 A resistive

240 Vac: 3.0 AFL, 18.0 ALR, 5.0 A resistive

Temperature Range: -40 F to +140 F (-40 C to +60 C)

Approvals:

Canadian Standards Association: File # 95329 Certificate 2632-01

Factory Mutual: JI 2D4A1.AF

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Listed, MP 2168-8-1

Others: CSD-1 AFB: Acceptable

Product Number	Operating Pressure Range	Pressure Differential	Nominal Pressure Differential	Maximum Pressure Differential	Differential Type	Switch Operation	Switching Action	Mounting
C6097A1004	0.4 to 5 in. wc 0.10 to 1.25 kPa	—	0.04 kPa 0.16 in. wc	0.24 in. wc 0.06 kPa	Additive	Auto recycle	Break on pressure fall	1/4 in. NPT internal thread
C6097A1012	3 to 21 in. wc	0.7 to 5.2 kPa max. 2.4 in. wc @ min. setpoint; max. 4.2 in. wc @ max. setpoint	max. 0.60 kPa @ min. setpoint; max. 1.05 kPa @ max. setpoint	—	Additive	Manual Reset	Break on pressure fall	1/4 in. NPT internal thread
C6097A1020	3 to 21 in. wc	0.7 to 5.2 kPa max. 2.4 in. wc @ min. setpoint; max. 4.2 in. wc @ max. setpoint	max. 0.60 kPa @ min. setpoint; max. 1.05 kPa @ max. setpoint	—	Additive	Manual Reset	Break on pressure fall	Flange Mount
C6097A1038	12 to 60 in. wc	3.0 to 15 kPa max. 10 in. wc @ min. setpoint; max. 12 in. wc @ max. setpoint	max. 2.5 kPa @ min. setpoint; max. 3.0 kPa @ max. setpoint	—	Additive	Manual Reset	Break on pressure fall	1/4 in. NPT internal thread

Pressure Switches

Product Number	Operating Pressure Range		Pressure Differential		Nominal Pressure Differential		Maximum Pressure Differential		Differential Type	Switch Operation	Switching Action	Mounting
C6097A1046	12 to 60 in. wc	3.0 to 15 kPa	max. 10 in. wc @ min. setpoint; max. 12 in. wc @ max. setpoint	max. 2.5 kPa @ min. setpoint; max. 3.0 kPa @ max. setpoint	—	—	—	—	Additive	Manual Reset	Break on pressure fall	Flange Mount
C6097A1053	3 to 21 in. wc	0.7 to 5.2 kPa	—	—	0.06 kPa	0.24 in. wc	0.48 in. wc	0.12 kPa	Additive	Auto recycle	Break on pressure fall	1/4 in. NPT internal thread
C6097A1061	3 to 21 in. wc	0.7 to 5.2 kPa	—	—	0.06 kPa	0.24 in. wc	0.48 in. wc	0.12 kPa	Additive	Auto recycle	Break on pressure fall	Flange Mount
C6097A1079	12 to 60 in. wc	3.0 to 15 kPa	—	—	0.27 kPa	1.1 in. wc	2.4 in. wc	0.60 kPa	Additive	Auto recycle	Break on pressure fall	1/4 in. NPT internal thread
C6097A1087	12 to 60 in. wc	3.0 to 15 kPa	—	—	0.27 kPa	1.1 in. wc	2.4 in. wc	0.60 kPa	Additive	Auto recycle	Break on pressure fall	Flange Mount
C6097A1095	0.4 to 5 in. wc	0.10 to 1.25 kPa	max. 0.6 in. wc @ min. setpoint; max. 0.25 in. wc @ max. setpoint	max. 0.15 kPa @ min. setpoint; max. 0.25 kPa @ max. setpoint	—	—	—	—	Additive	Manual Reset	Break on pressure fall	1/4 in. NPT internal thread
C6097A1103	1.5 to 7 psi	10.3 to 48 kPa	max. 1.1 in. wc @ min. setpoint; max. 1.4 in. wc @ max. setpoint	max. 7.6 kPa @ min. setpoint; max. 9.6 kPa @ max. setpoint	—	—	—	—	Additive	Manual Reset	Break on pressure fall	Flange Mount
C6097A1111	1.5 to 7 psi	10.3 to 48 kPa	max. 1.1 in. wc @ min. setpoint; max. 1.4 in. wc @ max. setpoint	max. 7.6 kPa @ min. setpoint; max. 9.6 kPa @ max. setpoint	—	—	—	—	Additive	Manual Reset	Break on pressure fall	1/4 in. NPT internal thread
C6097A1129	1.5 to 7 psi	10.3 to 48 kPa	—	—	0.69 kPa	0.1 psi	0.3 psi	2.07 kPa	Additive	Auto recycle	Break on pressure fall	Flange Mount
C6097A1137	1.5 to 7 psi	10.3 to 48 kPa	—	—	0.69 kPa	0.1 psi	0.3 psi	2.07 kPa	Additive	Auto recycle	Break on pressure fall	1/4 in. NPT internal thread
C6097A1210	0.4 to 5 in. wc	0.10 to 1.25 kPa	—	—	0.04 kPa	0.16 in. wc	0.24 in. wc	0.06 kPa	Additive	Auto recycle	Break on pressure fall	Flange Mount
C6097A1228	0.4 to 5 in. wc	0.10 to 1.25 kPa	max. 0.6 in. wc @ min. setpoint; max. 0.25 in. wc @ max. setpoint	max. 0.15 kPa @ min. setpoint; max. 0.25 kPa @ max. setpoint	—	—	—	—	Additive	Manual Reset	Break on pressure fall	Flange Mount
C6097B1002	12 to 60 in. wc	3.0 to 15 kPa	max. 10 in. wc @ min. setpoint; max. 12 in. wc @ max. setpoint	max. 2.5 kPa @ min. setpoint; max. 3.0 kPa @ max. setpoint	—	—	—	—	Subtractive	Manual Reset	Break on pressure rise	1/4 in. NPT internal thread
C6097B1010	12 to 60 in. wc	3.0 to 15 kPa	max. 10 in. wc @ min. setpoint; max. 12 in. wc @ max. setpoint	max. 2.5 kPa @ min. setpoint; max. 3.0 kPa @ max. setpoint	—	—	—	—	Subtractive	Manual Reset	Break on pressure rise	Flange Mount
C6097B1028	3 to 21 in. wc	0.7 to 5.2 kPa	max. 2.4 in. wc @ min. setpoint; max. 4.2 in. wc @ max. setpoint	max. 0.60 kPa @ min. setpoint; max. 1.05 kPa @ max. setpoint	—	—	—	—	Subtractive	Manual Reset	Break on pressure rise	1/4 in. NPT internal thread
C6097B1036	3 to 21 in. wc	0.7 to 5.2 kPa	max. 2.4 in. wc @ min. setpoint; max. 4.2 in. wc @ max. setpoint	max. 0.60 kPa @ min. setpoint; max. 1.05 kPa @ max. setpoint	—	—	—	—	Subtractive	Manual Reset	Break on pressure rise	Flange Mount
C6097B1044	1.5 to 7 psi	10.3 to 48 kPa	max. 1.1 in. wc @ min. setpoint; max. 1.4 in. wc @ max. setpoint	max. 7.6 kPa @ min. setpoint; max. 9.6 kPa @ max. setpoint	—	—	—	—	Subtractive	Manual Reset	Break on pressure rise	Flange Mount
C6097B1051	1.5 to 7 psi	10.3 to 48 kPa	max. 1.1 in. wc @ min. setpoint; max. 1.4 in. wc @ max. setpoint	max. 7.6 kPa @ min. setpoint; max. 9.6 kPa @ max. setpoint	—	—	—	—	Subtractive	Manual Reset	Break on pressure rise	1/4 in. NPT internal thread
C6097B1069	3 to 21 in. wc	0.7 to 5.2 kPa	—	—	0.06 kPa	0.24 in. wc	0.48 in. wc	0.12 kPa	Subtractive	Auto recycle	Break on pressure rise	Flange Mount
C6097B1077	12 to 60 in. wc	3.0 to 15 kPa	—	—	0.27 kPa	1.1 in. wc	2.4 in. wc	0.60 kPa	Subtractive	Auto recycle	Break on pressure rise	Flange Mount
C6097B1085	12 to 60 in. wc	3.0 to 15 kPa	—	—	0.27 kPa	1.1 in. wc	2.4 in. wc	0.60 kPa	Subtractive	Auto recycle	Break on pressure rise	1/4 in. NPT internal thread
C6097B1093	1.5 to 7 psi	10.3 to 48 kPa	—	—	0.69 kPa	0.1 psi	0.3 psi	2.07 kPa	Subtractive	Auto recycle	Break on pressure rise	Flange Mount
C6097B1101	1.5 to 7 psi	10.3 to 48 kPa	—	—	0.69 kPa	0.1 psi	0.3 psi	2.07 kPa	Subtractive	Auto recycle	Break on pressure rise	1/4 in. NPT internal thread
C6097B1119	3 to 21 in. wc	0.7 to 5.2 kPa	—	—	0.06 kPa	0.24 in. wc	0.48 in. wc	0.12 kPa	Subtractive	Auto recycle	Break on pressure rise	1/4 in. NPT internal thread

Pressure and Limit Controllers

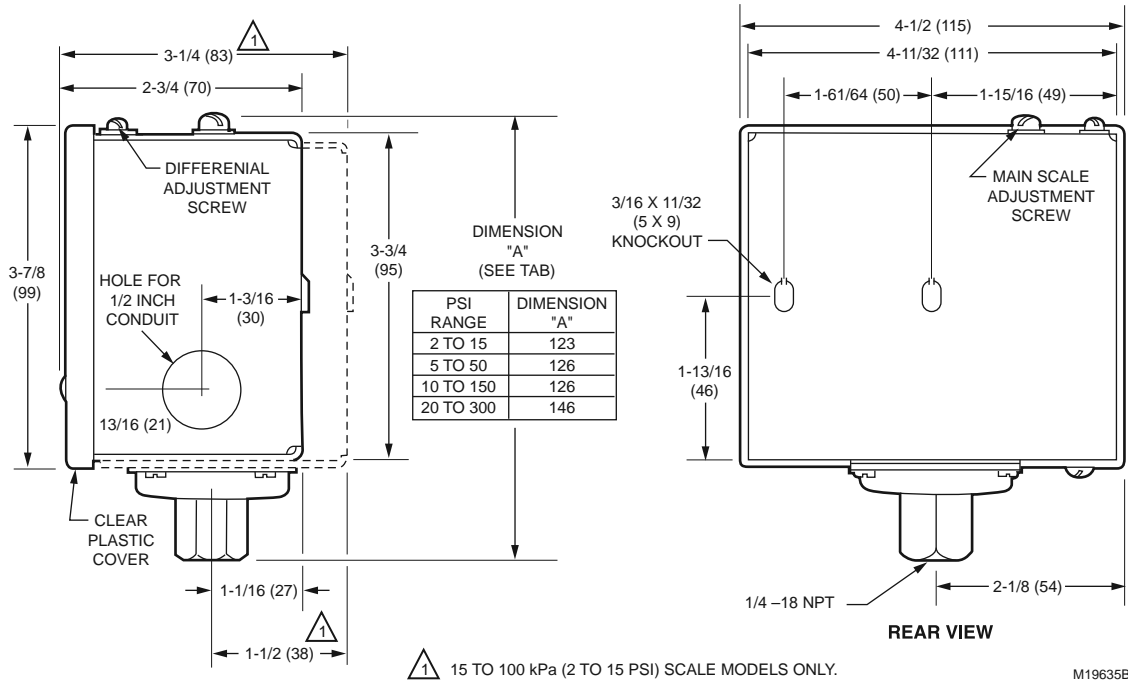
L404F Pressuretrol® Controllers



Provide operating control with automatic limit protection for pressure systems up to 300 psi (2068 kPa).

- Use with steam, air, noncombustible gases, or fluids non-corrosive to pressure sensing element.
- Models have snap-acting switching to open or close a circuit on pressure rise.
- Have adjustable differentials.
- Adjustments are made by screws on top of case.
- Mount using 1/4 inch -18 NPT internal pipe threads or surface mount through base of case.
- Ground screw terminal.

Dimensions in inches (millimeters)



Application: Provide control of steam, air, non-combustible gases or non-corrosive fluids
Mounting: 1/4 in. NPT internal thread or surface mount through back of case
Pipe Connections, Main or High Pressure: 1/4 in. NPT internal thread
Electrical Connections: Screw terminals
Sensor Element: Stainless Steel diaphragm
Differential Type: Subtractive
Switch Operation: Auto recycle

Switch Contact Ratings
120 Vac: 8.0 AFL, 48.0 ALR, 10.0 A resistive
240 Vac: 5.1 AFL, 30.6 ALR, 5.0 A resistive
Temperature Range: -35 F to +150 F (-37 C to +66 C)

Approvals:
Canadian Standards Association: Certified: File No. LR1620, Guide No. 400-E-O
Swiss RE (formerly IRI): Acceptable
Underwriters Laboratories, Inc. Listed: File No. MP466, Guide No. MBPR

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Pressure Differential		Switching Action	Mounting	Includes	Comments
	(psi)	(kPa)	(psi)	(kPa)	(psi)	(kPa)				
L404F1060	2 to 15 psi	14 to 103 kPa	25 psi	345 kPa	2 to 6 psi	14 to 41 kPa	SPDT snap action, make R-W, break R-B on pressure rise	1/4 in. NPT internal thread or surface mount through back of case	—	
L404F1078	5 to 50 psi	35 to 345 kPa	85 psi	586 kPa	6 to 14 psi	41 to 97 kPa	SPDT snap action, make R-W, break R-B on pressure rise	1/4 in. NPT internal thread or surface mount through back of case	—	

Pressure and Limit Controllers

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Pressure Differential		Switching Action	Mounting	Includes	Comments
	(psi)	(kPa)	(psi)	(kPa)	(psi)	(kPa)				
L404F1094	20 to 300 psi	138 to 2068 kPa	350 psi	2413 kPa	20 to 50 psi	138 to 345 kPa	SPDT snap action, make R-W, break R-B on pressure rise	1/4 in. NPT internal thread or surface mount through back of case	—	
L404F1102	10 to 150 psi	69 to 1034 kPa	225 psi	1551 kPa	10 to 22 psi	60 to 152 kPa	SPDT snap action, make R-W, break R-B on pressure rise	1/4 in. NPT internal thread or surface mount through back of case	—	
L404F1219	2 to 15 psi	14 to 103 kPa	25 psi	345 kPa	2 to 6 psi	14 to 41 kPa	SPDT snap action, make R-W, break R-B on pressure rise	1/4 in. NPT internal thread or surface mount through back of case	BSPT ground screw and European Enclosure	
L404F1227	10 to 150 psi	69 to 1034 kPa	225 psi	1551 kPa	10 to 22 psi	60 to 152 kPa	SPDT snap action, make R-W, break R-B on pressure rise	1/4 in. NPT internal thread or surface mount through back of case	BSPT ground screw and European Enclosure	
L404F1235	20 to 300 psi	138 to 2068 kPa	350 psi	2413 kPa	20 to 50 psi	138 to 345 kPa	SPDT snap action, make R-W, break R-B on pressure rise	1/4 in. NPT internal thread or surface mount through back of case	BSPT ground screw and European Enclosure	
L404F1243	5 to 50 psi	35 to 345 kPa	85 psi	586 kPa	6 to 14 psi	41 to 97 kPa	SPDT snap action, make R-W, break R-B on pressure rise	1/4 in. NPT internal thread or surface mount through back of case	BSPT ground screw and European Enclosure	
L404F1367	1 to 8 psi	7 to 55 kPa	25 psi	170 kPa	0.75 to 2 psi	5 to 14 kPa	Snap switch breaks R-B (closes R-W) on pressure rise. Make-on devices omit terminal B.	1/4 inch- 18NPT connection on diaphragm assembly; or surface mounts using holes in back of case.	—	Range Stop installed at 8 PSI
L404F1375	5 to 50 psi	35 to 350 kPa	85 psi	590 kPa	6 to 14 psi	40 to 100 kPa	Snap switch makes R-W on pressure rise	1/4 in. NPT internal thread or surface mount through back of case	Miswiring Compliant (less B terminal)	
L404F1383	10 to 150 psi	70 to 1035 kPa	225	1550 kPa	10 to 22 psi	70 to 150 kPa	Snap switch makes R-W on pressure rise	1/4 in. NPT internal thread or surface mount through back of case	Miswiring Compliant (less B terminal)	
L404F1391	20 to 300 psi	140 to 2070 kPa	350 psi	2410 kPa	20 to 50 psi	140 to 345 kPa	Snap switch makes R-W on pressure rise	1/4 in. NPT internal thread or surface mount through back of case	Miswiring Compliant (less B terminal)	
L404F1409	2 to 15 psi	14 to 103 kPa	25 psi	172 kPa	2 to 6 psi	15 to 40 kPa	Snap switch makes R-W on pressure rise	1/4 in. NPT internal thread or surface mount through back of case	Miswiring Compliant (less B terminal)	

Pressure and Limit Controllers

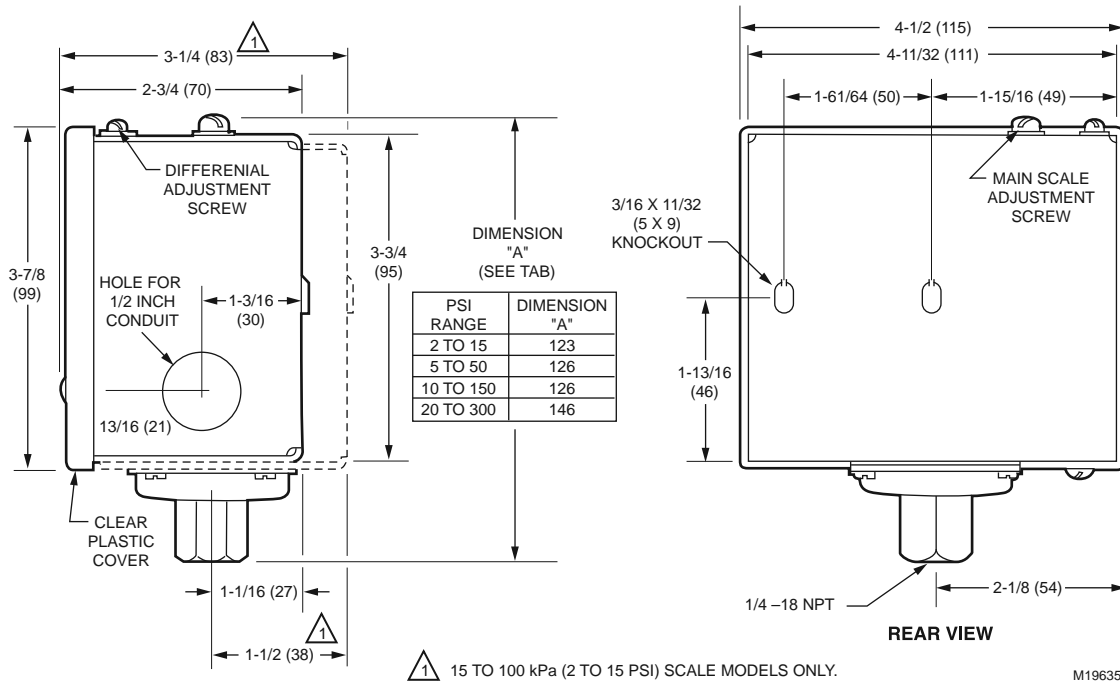
L404T,V Oil Pressuretrol® Limit Controllers



Oil pressure sensing devices for use on oil burner systems using any type of fuel oil, including heavy pretreated oils.

- Clear plastic cover allows observation of the pressure settings.
- Models have snap-acting switching to open or close a circuit on pressure rise.
- L404T High pressure limit, break a circuit on oil pressure rise above setpoint.
- L404V Low Pressure limit, makes a circuit on oil pressure rise above setpoint.
- Adjustments are made by screws on top of case.
- Mount using 1/4 inch -18 NPT internal pipe threads or surface mount through base of case.
- Ground screw terminal.

Dimensions in inches (millimeters)



Application: High oil pressure limit switch for heavy oil applications.
Mounting: 1/4 in. NPT internal thread or surface mount through back of case
Pipe Connections, Main or High Pressure: 1/4 in. NPT internal thread
Electrical Connections: Screw terminals
Sensor Element: Stainless Steel diaphragm
Differential Type: Subtractive
Switch Operation: Auto recycle

Switch Contact Ratings
120 Vac: 8.0 AFL, 48.0 ALR, 10.0 A resistive
240 Vac: 5.1 AFL, 30.6 ALR, 5.0 A resistive
Temperature Range: -35 F to +150 F (-37 C to +66 C)
Approvals:
Canadian Standards Association: Certified: File No. LR95329
Underwriters Laboratories, Inc. Listed: File No. MP2168, Guide No. MFHX

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Pressure Differential		Switching Action	Includes
	(psi)	(kPa)	(psi)	(kPa)	(psi)	(kPa)		
L404T1055	5 to 50 psi	35 to 350 kPa	85 psi	586 kPa	6 to 14 psi	40 to 100 kPa	SPST snap acting break on pressure rise	—
L404T1063	10 to 150 psi	70 to 1035 kPa	225 psi	1550 kPa	10 to 22 psi	70 to 150 kPa	SPST snap acting break on pressure rise	—
L404V1087	10 to 150 psi	70 to 1035 kPa	225 psi	1550 kPa	10 to 22 psi	70 to 150 kPa	Snap switch makes R-W on pressure rise	Miswiring Compliant (less B terminal)
L404V1095	5 to 50 psi	35 to 350 kPa	85 psi	590 kPa	6 to 14 psi	40 to 100 kPa	Snap switch makes R-W on pressure rise	Miswiring Compliant (less B terminal)

Pressure and Limit Controllers

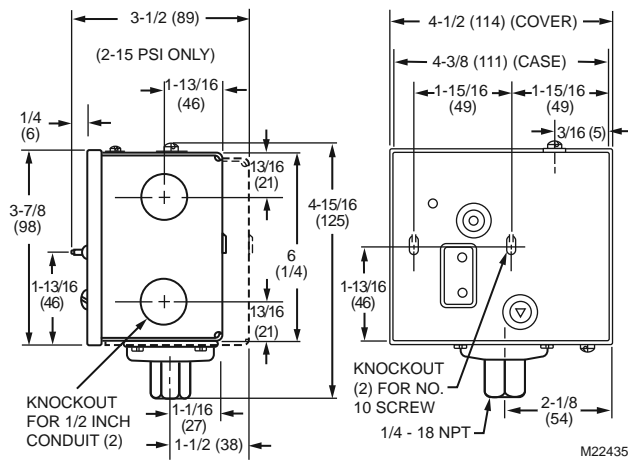
L4079 Pressuretrol® Limit Controllers



High pressure limit switches.

- Stainless steel diaphragm for use with steam, air, noncombustible gases and fluids non-corrosive to stainless steel.
- L4079W is for Oil Applications.
- Micro Switch™ snap-acting switches open automatically on pressure rise; must be manually reset.
- Mount using 1/4 in. NPT female fitting on diaphragm assembly or surface mount through back of case.

Dimensions in inches (millimeters)



Application: Provide limit control of steam, air, non-combustible gases or non-corrosive fluids

Mounting: 1/4 in. NPT internal thread or surface mount through back of case

Pipe Connections, Main or High Pressure: 1/4 in. NPT internal thread

Electrical Connections: Screw terminals

Sensor Element: Stainless Steel diaphragm

Switch Operation: Manual Reset

Switch Contact Ratings

120 Vac: 9.8 AFL, 58.8 ALR

240 Vac: 4.9 AFL, 29.4 ALR

Maximum Ambient Temperature: 150 F (66 C)

Approvals:

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP466, Guide No. MBPR

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Switching Action
	(psi)	(kPa)	(psi)	(kPa)	
L4079A1035	2 to 15 psi	14 to 103 kPa	25 psi	172 kPa	SPST (two) break simultaneously on pressure rise
L4079A1050	10 to 150 psi	69 to 1034 kPa	225 psi	1551 kPa	SPST (two) break simultaneously on pressure rise
L4079B1033	2 to 15 psi	14 to 103 kPa	25 psi	172 kPa	SPST break on pressure rise
L4079B1041	10 to 150 psi	70 to 1035 kPa	225 psi	1550 kPa	SPST break on pressure rise
L4079B1058	5 to 50 psi	35 to 350 kPa	85 psi	590 kPa	SPST break on pressure rise
L4079B1066	20 to 300 psi	140 to 2070 kPa	350 psi	2410 kPa	SPST break on pressure rise
L4079W1000	10 to 150 psi	35 to 350 kPa	225 psi	590 kPa	SPST break on pressure rise - Oil Applications

Pressure and Limit Controllers

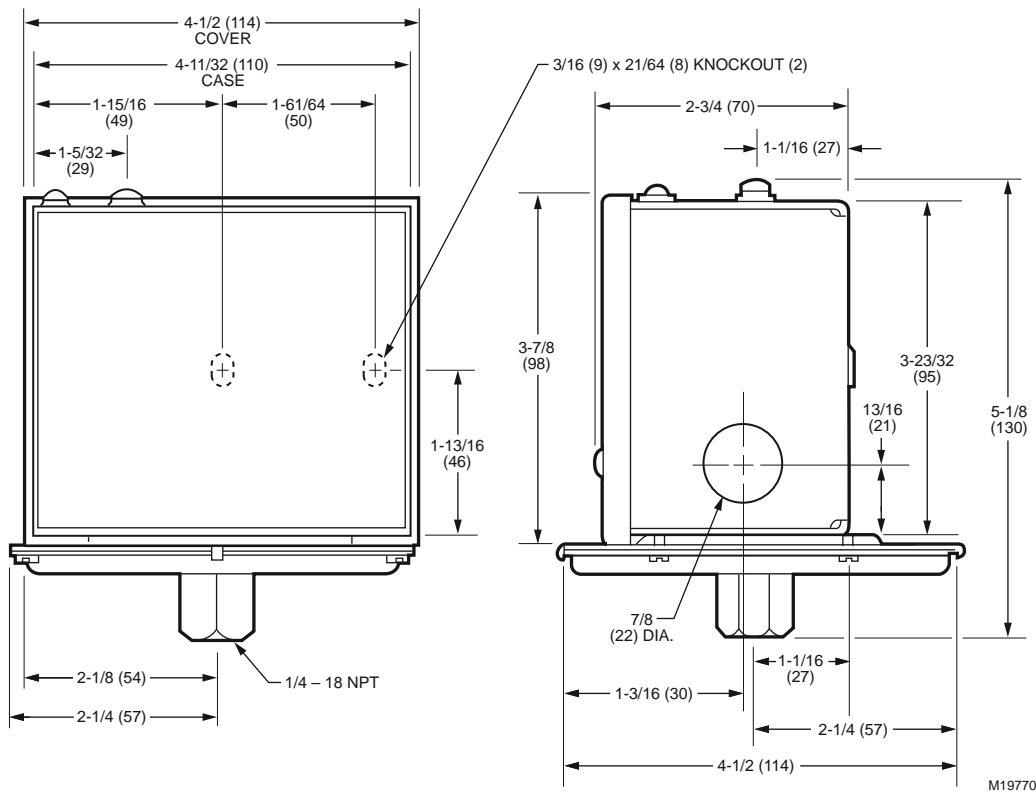
L408J Vaporstat® Controllers



Provide operating control and automatic high limit protection for vapor heating systems with pressures up to 4 psi (8 kPa). All models have Microswitch snap switches to open or close a circuit on a pressure rise.

- Stainless steel diaphragm for use with liquids, air, noncombustible gases, ammonia, oxygen, distilled water and similar media.
- Provide SPDT switching.
- Clear plastic cover allows observation of the pressure settings.
- Mount using hexagonal fitting with 1/4 in. NPT internal threads for direct mounting to the 14026 (steel) or 50024585-001 (brass) Steam Trap (siphon loop).
- Ground Screw terminal.

Dimensions in inches (millimeters)



Application: Provide operating control and automatic limit protection for pressure systems with pressures up to 4 psi (8 kPa)

Mounting: 1/4 in. NPT internal thread or surface mount through back of case

Pipe Connections, Main or High Pressure: 1/4 in. NPT internal thread

Electrical Connections: Screw terminals

Sensor Element: Stainless Steel diaphragm

Differential Type: Subtractive

Switch Operation: Auto recycle

Switch Contact Ratings

120 Vac: 8.0 AFL, 48.0 ALR, 10.0 A resistive

240 Vac: 5.1 AFL, 30.6 ALR, 5.0 A resistive

Temperature Range: -35 F to +150 F (-37 C to +66 C)

Approvals:

Canadian Standards Association: Certified: File No. LR1620, Guide No. 400-E-O

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP466, Guide No. MBPR

Product Number	Operating Pressure Range		Pressure Differential		Switching Action	Comments
L408J1009	0 to 16 oz/in ²	0 to 6.9 kPa	2 to 16 oz/in ²	0.9 to 6.9 kPa	SPDT make R-W, break R-B on pressure rise	
L408J1017	0 to 4 psi	0 to 28 kPa	2 to 16 oz/in ²	0.9 to 6.9 kPa	SPDT make R-W, break R-B on pressure rise	
L408J1025	0 to 16 oz/in ²	0 to 6.9 kPa	2 to 16 oz/in ²	0.9 to 6.9 kPa	SPST make on pressure rise Only	Miswire Compliant
L408J1033	0 to 4 psi	0 to 28 kPa	2 to 16 oz/in ²	0.9 to 6.9 kPa	SPST make on pressure rise Only	Miswire Compliant

Pressure and Limit Controllers

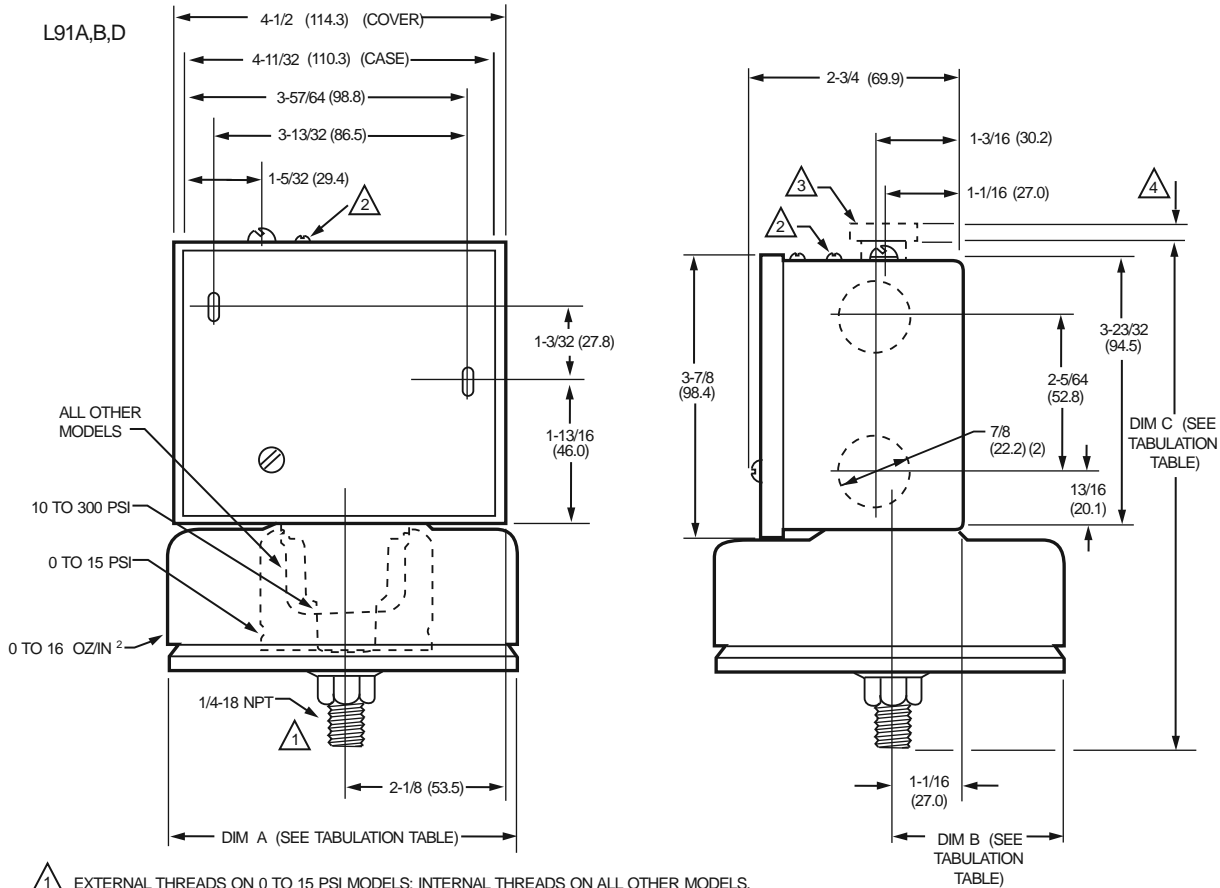
L91 Proportional Pressuretrol® Controllers



Modulating pressure operating control for regulation of liquid or air and other non-corrosive gases.

- Use with steam, air, noncombustible gases, or other fluids non-corrosive to the brass or phos-bronze (300 psi models) bellows.
- Do NOT use with combustible mediums or any medium chemically harmful to phos-bronze bellows (10-300 psi models) or brass bellows (all other pressure range models).

Dimensions in inches (millimeters)



1 EXTERNAL THREADS ON 0 TO 15 PSI MODELS; INTERNAL THREADS ON ALL OTHER MODELS. SOME MODELS ARE ALSO AVAILABLE WITH 1/4-19 BSP-TR INTERNAL THREADS; SEE TABLE 1.

2 PROPORTIONING RANGE ADJUSTING SCREW ON L91B,D MODELS ONLY.

3 33312B KNURLED ADJUSTMENT SCREW KNOB, 7/8 IN. [22.2 MM] DIAMETER. KNOB IS INCLUDED WITH 10 TO 300 PSI [0.07 TO .07 MPa] MODELS; OPTIONAL ACCESSORY FOR OTHER MODELS.

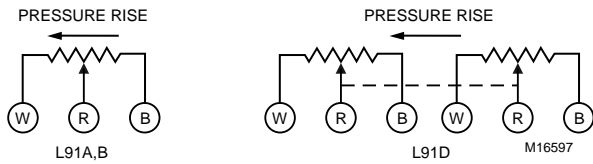
4 FOR 10 TO 300 PSI [0.07 TO 2.07 MPa] MODELS. DIM C INCLUDES THE KNURLED ADJUSTMENT KNOB.

TABULATION OF DIMENSIONS A, B, AND C

OPERATING RANGE		DIM A		DIM B		DIM C	
CUSTOMARY UNITS	METRIC UNITS	IN.	MM	IN.	MM	IN.	MM
0 TO 15 PSI	0 TO 103 kPa	2-7/16	61.9	1-7/32	31.0	6-7/8	174.6
5 TO 150 PSI	0.03 TO 1.03 MPa	1-5/8	41.3	13/16	20.6	5-3/4	146.1
10 TO 300 PSI	0.07 TO 2.07 MPa	1-1/4	31.8	5/8	15.9	6-1/16 ⁴	154.0 ⁴

M29781

Pressure and Limit Controllers



Application: Modulating pressure control for regulation of liquid, air, or other non-corrosive gases.
Pipe Connections, Main or High Pressure: 1/4 in. NPT external thread
Electrical Connections: Screw terminals
Sensor Element: Brass bellows
Switch Operation: Modulating
Temperature Range: 32 F to 150 F (0 C to 66 C)

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Pressure Differential		Modulating Output	Mounting
	(psi)	(kPa)	(psi)	(kPa)	(psi)	(kPa)		
L91A1037	0 to 15 psi	0 to 103 kPa	25 psi	172 kPa	0.5 psi	3.4 kPa	Single potentiometer, 140 ohms	optional surface mount through back of case
L91A1052	5 to 150 psi	34 to 1034 kPa	225 psi	1551 kPa	5 psi	34 kPa	Single potentiometer, 140 ohms	optional surface mount through back of case
L91A1078	10 to 300 psi	69 to 2068 kPa	325 psi	2241 kPa	12 psi	83 kPa	Single potentiometer, 140 ohms	optional surface mount through back of case
L91A1136	10 to 300 psi	69 to 2068 kPa	325 psi	2241 kPa	12 psi	83 kPa	Single potentiometer, 140 ohms	optional surface mount through back of case
L91B1035	0 to 15 psi	0 to 103 kPa	25 psi	172 kPa	1.5 to 12 psi	10 to 83 kPa	Single potentiometer, 140 ohms	optional surface mount through back of case
L91B1050	5 to 150 psi	34 to 1034 kPa	225 psi	1551 kPa	5 to 23 psi	35 to 160 kPa	Single potentiometer, 140 ohms	optional surface mount through back of case
L91B1068	10 to 300 psi	69 to 2068 kPa	325 psi	2241 kPa	28 to 110 psi	193 to 758 kPa	Single potentiometer, 140 ohms	optional surface mount through back of case
L91B1100	5 to 150 psi	0 - 1 MPa	225 psi	1551 kPa	5 to 23 psi	35 to 160 kPa	Single potentiometer, 135 ohms	1/4 in BSP-TR thread Mounting
L91B1118	10 to 300 psi	0 - 2 MPa	325 psi	2241 kPa	28 to 110 psi	193 to 758 kPa	Single potentiometer, 140 ohms	1/4 in BSP-TR thread Mounting
L91B1241	10 to 300 psi	69 to 2068 kPa	325 psi	2241 kPa	12 to 48 psi	85 to 330 kPa	Single potentiometer, 140 ohms	optional surface mount through back of case
L91D1015	0 to 15 psi	0 to 103 kPa	25 psi	172 kPa	1.5 to 12 psi	10 to 83 kPa	Dual potentiometer, 140 ohms	optional surface mount through back of case
L91D1031	5 to 150 psi	34 to 1034 kPa	225 psi	1551 kPa	11 to 52 psi	76 to 359 kPa	Dual potentiometer, 140 ohms	optional surface mount through back of case
L91D1049	10 to 300 psi	69 to 2068 kPa	325 psi	2241 kPa	28 to 110 psi	193 to 758 kPa	Dual potentiometer, 140 ohms	optional surface mount through back of case
L91D1056	5 to 150 psi	0 - 1 MPa	225 psi	1551 kPa	5 to 23 psi	35 to 160 kPa	Dual potentiometer, 140 ohms	1/4 in BSP-TR thread Mounting
L91D1072	10 to 300 psi	0 - 2 MPa	325 psi	2241 kPa	28 to 110 psi	193 to 758 kPa	Dual potentiometer, 140 ohms	1/4 in BSP-TR thread Mounting

Pressure and Limit Controllers

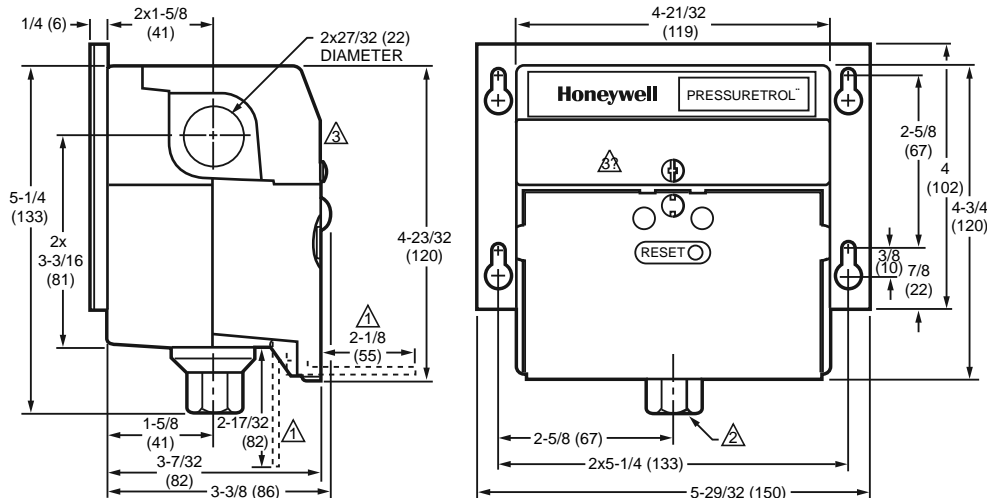
P7810 Pressure Control



Line voltage pressure controller that provides automatic operating control, automatic limit protection, manual reset limit protection, and 4-20ma modulating firing rate control for pressure systems up to 300 psi.

- May be used with steam, air, non-combustible gases or fluids that will not corrode the pressure sensing element.
- Models available in 15, 150, 300 psi maximum set points.
- LED indicators show limit function/lockout.
- Reset function easily accessible under cover.
- Clear cover allows set point and differentials to be read (but not adjusted) without opening the cover.

Dimensions in inches (millimeters)



▲ DIMENSIONS WITH DOOR IN OPEN POSITION.

▲ PIPE THREAD IS 1/4 INCH NATIONAL PIPE THREAD FOR P7810A,B; 1/2 INCH NATIONAL PIPE THREAD FOR P7810C,D.

▲ WIRING COMPARTMENT ACCESS COVER.

M23225

Application: On-off, Modulate and Limit Control

Pipe Connections, Main or High Pressure: 1/2 in. NPT internal thread

Power Consumption: 3.6 W, 4.7 VA @ 50Hz; 3.3 W, 4.0 VA @ 60 Hz

Voltage: 120 Vac

Frequency: 50 Hz; 60 Hz

Electrical Connections: Screw terminals

Switch Contact Ratings (120 Vac):

9.8 AFL, 58.8 ALR, 10.0 A resistive

Sensor Element: Stainless Steel, solid state sensor

Temperature Range: 32 F to 140 F (0 C to 60 C)

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Materials (Case): Plastic

Approvals:

Canadian Standards Association: Certified: File No. LR95329-6

Factory Mutual: Approved: Report No. J.I.2D3A6AF

Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Pressure Differential		Modulating Output	Switching Action
	(psi)	(kPa)	(psi)	(kPa)	(psi)	(kPa)		
P7810C1000	0 to 15 psi	0 to 103 kPa	22.5 psi	155 kPa	2 to 10 psi	14 to 69 kPa	4 mA to 20 mA	Break on pressure rise
P7810C1018	0 to 150 psi	0 to 1034 kPa	225 psi	1551 kPa	5 to 20 psi	35 to 135 kPa	4 mA to 20 mA	Break on pressure rise
P7810C1026	0 to 300 psi	0 to 2068 kPa	450 psi	3103 kPa	15 to 50 psi	103 to 340 kPa	4 mA to 20 mA	Break on pressure rise

Pressure and Limit Controllers

Pressure Controls and Limits Accessories

Product Number	Description	Used With
106729	C437, C637 Glass Lens, 6 in. diameter	C437, C637
107194/0047	Screw for L404 Range Stop	L404
118733/0021	Retaining clip for C437 and C637	C437, C637
127120A	P455 Potentiometer	P455
129178E	L404, L604, Thermoplastic Cover, Honeywell Logo and mounting screw	L404; L604
137632	C437, C637 Paper Lens Gasket	C437, C637
139870	C437, C637 Lens Gasket for Rainproof Models	C437; C637
139870A	C437, C637 Lens and Gasket for Rainproof Devices	C437, C637
14026	Steam Trap "Black Iron Siphon Loop" for L404, L408, L91 or P7810A,B	L404, L91, L604
15865AC	Mounting Bracket Assembly - C645A, B, D.	C645
209731A	Siphon Loop for P7810C, D	P7810C, P7810D
23176CB	L91 Potentiometer - 135 ohm	L91
23176CF	L91 Potentiometer - 135 ohm	L91
32003039-001	C6097 Lamp Kit, Position Indication	C6097
32003040-001	C6097 Cover, Recycle Model	C6097
32003041-001	C6097 Cover, Manual Reset Model	C6097
4074BWJ	Pressure Control/Limits, Limit Stop Assembly - to limit set point. Includes 129564 Range Stop, 107194 Range Stop Screw and 23466 Wrench.	L404, L604, L91, L4079
50024585-001	Steam Trap "Brass Siphon Loop" for L404, L408, L91 or P7810A,B	L404, L91, L604

Modernization and Replacement

**For All Modernization and Replacement Applications,
Follow the Instructions Below.**

CAUTION

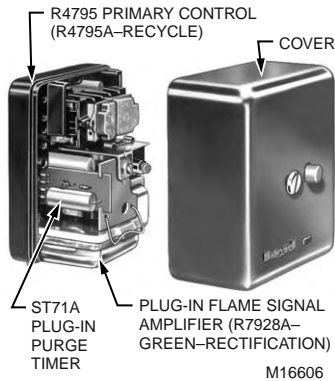
Installer must be a trained, experienced, flame safeguard control service technician. Disconnect power supply before beginning installation to prevent electrical shock and equipment damage. More than one disconnect may be involved.

All wiring must comply with applicable local electrical codes, ordinances, and regulations. Voltage and frequency of the power supply and flame detector(s) connected to this control must agree with those marked on the device. Loads connected to the control terminals must not exceed those listed in specification sheet for this product.

All external timers must be listed or component recognized by authorities having jurisdiction, for the specific purpose for which they are used.

Perform all required checkout tests after installation is complete.

RA890 and Fireye “M” Series Modernization



- Use R4795 Primary Controls to provide proven prepurge period and recycle on flame failure.
- 9.8A burner motor contact rating for longer life; solid state circuitry for greater dependability.
- Mount on same Q270A Subbase as RA890, use same flame detector.
- Increase flexibility and reduce maintenance costs with field-replaceable, plug-in purge timers and flame signal amplifiers.
- Flame signal strength (μA) labeled on amplifier to reduce service time.
- All controls are listed by Underwriters Laboratories Inc.
- Three-second flame failure response time for increased safety.
- Plug-in components add versatility and reduce inventory and future replacement costs.

For complete Honeywell and competitive modernization information, refer to the Flame Safeguard System Modernization Survey and Proposal Form, in THE FIRING LINE, Honeywell form 70-8900. For information about THE FIRING LINE, see Training Materials section.

Modernize Honeywell RA890E,F,G and Fireye “M” Series relays.

Programmer/Relay to be Replaced/Modernized	Replacement Programmer	Plug-in Amplifier	Detector	Plug-in ^a Timer (recommended)
RA890E,F	Use R4795A1016 for UL approved installations.	R7289A1004	Use existing rectification detector.	ST71A1000 (7-sec delay for oil)
RA890G		R7290A1001	Use existing U.V. detector.	ST71A1018 (30-sec purge)
Fireye TFM Series ^b		R7289A1004	Use existing rectification detector.	ST71A1026 (60-sec purge)
Fireye UVM Series ^b		R7290A1001	Replace Fireye detector with C7027A1080 U.V. detector.	ST71A1034 (90-sec purge) ST71A1042 (10-sec purge)

^a Many codes require 4 air changes during purge. Choose the timing needed to accomplish this (typically 30 seconds at high fire—open damper—or 90 seconds at low fire).

^b When replacing Fireye M-series programmers, a Q270A1024 subbase must be installed in place of the Fireye subbase.

INSTALLING AN R4795

1
Disconnect power supply and remove RA890.



2
Make simple wiring change in subbase.



3
Install R4795.



Modernization and Replacement

4
Plug in
ST71A
purge timer.



5
Plug in
R7289/R7290
amplifier



R7795 Primary Control



Provide flameout protection plus automatic control of commercial and industrial gas and oil burners.

- Meet requirements for gas burners with 400,000 to 2-1/2 million Btuh (117.2 to 732.8 kW) input. R7795C,D meet requirements to over 12-1/2 million Btuh.
- R7795A,B provide ignition cutoff and intermittent pilot.
- R7795C,D have interrupted pilot with delayed main valve.
- Includes terminals for connection of a line voltage airflow switch to prove airflow from the start of prepurge through the run period.
- Mount on Q795A Subbase with two captive screws.
- Provides all electrical connections between the device and subbase.
- Access to wiring terminals for testing.
- Integral solid state color-coded flame amplifiers.
- Field-selectable ten or four second trial for pilot flame ignition.
- Field-selectable recycle or lockout on flame failure.

Conversion Wiring Chart for R7795A-D

You can easily convert the following model primaries and programmers to the R7795A,B,C or D by following the step-by-step instructions listed below.

Honeywell	RA890, R4795	All 120 V models.
Fireye	M-Series	

IMPORTANT: For on-off, gas-fired systems, some authorities having jurisdiction prohibit the wiring of any limit or operating contacts in series with the main fuel valve(s).

DIRECTIONS:

1. Disconnect all power to programmer.
2. Remove old programmer from subbase (trade-in to Honeywell Authorized Flame Safeguard Distributor).
3. Mark all wires on subbase; i.e., wires connected to terminal "1" should be marked "1." Disconnect wires as they are marked.
4. Remove old subbase.
5. Mount Q795A Subbase.
6. Connect wires to subbase per attached cross reference. Pay close attention to footnotes. For example: to convert a Fireye UVM-2 to a R7795, the wire marked "A" would connect to terminal #9 on the Q795. The wire marked "8" would connect to Q795 terminal #8.
7. A superscript letter, such as "a" designates a footnote. Study these footnotes carefully.
8. Plug in the R7795. Make sure you select the proper ST795A Purge Timer and Detector for the application.
9. There are 2 wires on the amplifier section of the R7795, which are used to select the desired trial for ignition timing and mode (lock-out or recycle). Refer to the R7795 instruction sheet (form 66-2001) for assistance with proper selection.
10. If a low voltage controller is used on the RA890 or UVM-1, remove it and replace it with a line voltage controller. The line voltage controller should be connected in series with the limits.
11. If a low voltage airflow switch is used on the R7795, it must be replaced with a line voltage airflow switch, such as the Honeywell C645.
12. The following models are recommended for replacements:

Honeywell Device to be Replaced	Replace With	Fireye Device to be Replaced	Replace With
RA890E,F	R7795B	TFM1,2,3H	R7795B
RA890G	R7795A	UVM1,2,3,3H	R7795A
R4795A,D/W-R7290 AMP		UVM5	R7795C
R4795A,D/W-R7289 AMP	R7795B		
R4140P	R7795C,D		
R4140Y	R7795A,B		

CONVERSION CHART FOR R7795 120 VOLT ONLY

Q795 TERMINAL	L1	L2	3	5	6	7	8	9	16	18	F	G
Programmer to be Converted												
RA890 (All)	1 ^a	2	b	3 ^d	5	—	d,b	c	6	4	F	G
R4795 (All)	a	2	6 ^b	3	5	—	8, 7	c	1	4	F	G
R4140P	L1	L2	P	5	7	6	M	A	3	—	S1	S2
R4140Y	L1	L2	3	6	7	—	8	9	4	5	F ^e	G
Fireye: UVM/TFM (All models)/MII	1	1	6	3	5	—	8	A	7	4	S2 ^f	S1
UVM-1 (Prior to 1968)	a	2	b	3	5	—	d,b	A	1	4	S ^f	S
UVM-2 (Prior to 1968), All others	a	2	6	3	5	—	8	A	1	4	S ^f	S

^a Connect power to terminal L1.

^b If no airflow switch is used, jumper Q795 terminal 3 to 8.

^c Replace low voltage alarm (if used) with line voltage alarm. Connect alarm directly to Q795 terminal 9.

^d On power burners, identify burner motor wire on terminal 3 and connect it to Q795 terminal 8.

^e R7795 uses only rectification or U.V. detectors. All other detectors must be converted to these types.

^f On UVM models, the detector must be changed to a Honeywell C7027 or C7035.

Modernization and Replacement

RM7895 On-Off Primary Control with Prepurge



Microprocessor-based integrated primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Subbase, amplifier, and prepurge timer are required for operation.
- Options include PC interface, keyboard display module, Data ControlBus™ Module, remote display module, first-out expanded annunciator, and Combustion System Manager™ software.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Optional local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable relight or lockout on loss of flame.
- Airflow switch check.

Honeywell	RA890, R4795, R7795	All 120 V models.
Fireye	M-Series	

IMPORTANT: For on-off, gas-fired systems, some authorities having jurisdiction prohibit the wiring of any limit or operating contacts in series with the main fuel valve(s).

DIRECTIONS:

1. Disconnect all power to programmer.
2. Remove old programmer from subbase (trade-in to Honeywell Authorized Flame Safeguard Distributor).
3. Mark all wires on subbase; i.e., wires connected to terminal "1" should be marked "1." Disconnect wires as they are marked.
4. Remove old subbase.
5. Mount Q7800A Subbase.
6. Connect wires to subbase per attached cross reference. Pay close attention to footnotes. For example: to convert a Fireye UVM-2 to a RM7895, the wire marked "A" would connect to terminal #9 on the Q7800. The wire marked "8" would connect to Q7800 terminal #8.
7. A superscript letter, such as "a" designates a footnote. Study these footnotes carefully.
8. Plug in the RM7895. Make sure you select the proper ST7800A Purge Timer and Detector for the application.
9. There are 2 wires on the amplifier section of the RM7895, which are used to select the desired trial for ignition timing and mode (lock-out or recycle). Refer to the RM7895 instruction sheet (form 66-1090) for assistance with proper selection.
10. If a low voltage controller is used on the RA890 or UVM-1, remove it and replace it with a line voltage controller. The line voltage controller should be connected in series with the limits.
11. If a low voltage airflow switch is used on the RM7895, it must be replaced with a line voltage airflow switch, such as the Honeywell C645.
12. The following models are recommended for replacements:

Honeywell Device to be Replaced	Replace With	Amplifier
RA890E,F	RM7895A	R7847A
RA890G	RM7895A	R7849A
R4795A,D/W-R7290 AMP	RM7895A	
R4795A,D/W-R7289 AMP	RM7895B	R7847A
R7795A	RM7895A	R7849
R7795B	RM7895A	R7847
R7795C	RM7895C	R7849
R7796D	RM7895C	R7847
R4140P	RM7895C	R7847A or R7849A
R4140Y	RM7895A	
Fireye Device to be Replaced	Replace With	Amplifier
TFM1,2,3H	RM7895A	R7847A
UVM1,2,3,3H		R7849A
UVM5	RM7895C	R7849A

CONVERSION CHART FOR RM7895 120 VOLT ONLY

Q7800 TERMINAL	L1	L2	3	4	6	7	8	9	10	21	F	G
Programmer to be Converted												
RA890 (All)	1 ^a	2	c	b,d	6	b	3 ^d	5	4	—	F	G
R4795 (All)	a	2	c	8, 7	1	6 ^b	3	5	4	—	F	G
R7795A,B	L1	L2	9	8	16	3	5	6	18	—	F	G
R7795C,D	L1	L2	9	8	16	3	5	6	18	7	F	G
R4140P	L1	L2	A	M	3	P	5	7	—	6	S1	S2
R4140Y	L1	L2	9	8	4	3	6	7	5	—	F ^e	G
Fireye: UVM/TFM (All models)/MII	1	1	A	8	7	6	3	5	4	—	S2 ^f	S1
UVM-1 (Prior to 1968)	a	2	A	b,d	1	b	3	5	4	—	S ^f	S
UVM-2 (Prior to 1968), All others	a	2	A	8	1	6	3	5	4	—	S ^f	S

^a Connect power to terminal L1.

^b If no airflow switch is used, jumper Q7800 terminal 6 to 7.

^c Replace low voltage alarm (if used) with line voltage alarm. Connect alarm directly to Q7800 terminal 3.

^d On power burners, identify burner motor wire on terminal 3 and connect it to Q7800 terminal 4.

^e Select amplifier to match detector being used.

^f On UVM models, the detector must be changed to a Honeywell C7027 or C7035.

Electromechanical Burner Controls

R4795 Primary Control with Purge



Application: Primary Control

Dimensions, Approximate: 5 in. high x 5 in. wide x 4 3/4 in. deep (including subbase) (127 mm high x 127 mm wide x 121 mm deep)

Electrical Connections: Alarm contacts: male quick connect terminals.

Frequency: 50 Hz; 60 Hz

Temperature Range: -20 F to +105 F @ 50 Hz; -20 F to +115 F @ 60 Hz (-29 C to +40 C @ 50 Hz; -29 C to +46 C @ 60 Hz)

Approvals:

Canadian Standards Association: CSA Certified: 120V models only, includes -40 F models-File No. LR1620

Factory Mutual: Approved: Report No. 18774

Provide solid state, electronic flame safeguard protection for commercial and industrial single or dual fuel burners.

- Use with rectification or ultraviolet type flame detectors depending on the interchangeable, plug-in amplifier being used.
- Recycle after flame failure in attempt to re-establish pilot before lockout.
- Include manual push-to-reset safety switch in a dust-resistant enclosure.
- Includes SPDT alarm contacts.

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. UL Listed: 120V with 30, 60, 90 sec prepurge timers, includes -40 F models-File No. MP268, Guide No. MCCZ; UL Comp. Recg.: 120V with 7, 10 sec prepurge timers, includes -40 F models-File No. MP268, Guide No. MCCZ

Required Components:

Mounting Base: Q270A1024;

Plug-in Amplifier: R7289A1004, R7289A1012, R7290A1001, R7290A1019;

Plug-in Purge Timer: ST71A1000 (7 sec), ST71A1042 (10 sec), ST71A1018 (30 sec), ST71A1026 (60 sec), ST71A1034 (90 sec).

Product Number	Voltage	Alarm Relay Switching	Purging Time	Safety Switch Timing	Includes
R4795A1016	120 Vac	SPDT	Determined by Plug-in Purge Timer	15 sec nominal	Female quick-connects
R4795A1040	220 Vac	SPDT	Determined by Plug-in Purge Timer	15 sec nominal	Female quick-connects

R7795 Primary Controls



Application: Provides Flameout Protection plus Automatic control of Commercial and Industrial Gas and Oil Burners

Dimensions, Approximate: 5 in. high x 5 in wide x 5 1/4 in. deep. (127 mm high x 127 mm wide x 133.5 mm deep)

Electrical Connections: Terminals in Q795 Wiring Subbase

Frequency: 50 Hz; 60 Hz

Temperature Range: -40 F to +135 F (-40 C to +57 C)

Provide solid state, electronic flame safeguard protection for commercial and industrial single or dual fuel burners.

- Include flame signal amplifiers that are color-coded: purple for ultraviolet and green for rectification.
- Require a plug-in prepurge timer of 1.5, 7, 10, 30, 60, or 90 seconds.
- Mount on a Q795A Wiring subbase with two captive screws.
- Include line voltage airflow switch to prove airflow from the start of prepurge through the run period.
- Prevent start-up with lockout if flame or a flame simulating failure exists.

Approvals:

Canadian Standards Association: Certified: File No. LR1620-681

Factory Mutual: Approved: Report No. J.I.OK389.AF

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized: File No. MP268, Guide No. MCCZ

Required Components: ST795 Prepurge Timer and Q795 Wiring Subbase

Product Number	Voltage	Flame Failure Response Time (sec)	Alarm Relay Switching	Purging Time	Safety Switch Timing	Description
R7795A1001	120 Vac	3 sec nominal	120Vac Output for Alarm	Determined by Plug-in Purge Timer	Electronic - 10 seconds, Mechanical - 15 seconds	Full Function Primary Safety Control, Intermittent Pilot, Ultraviolet
R7795B1009	120 Vac	3 sec nominal	120Vac Output for Alarm	Determined by Plug-in Purge Timer	Electronic - 10 seconds, Mechanical - 15 seconds	Full Function Primary Safety Control, Intermittent Pilot, Rectification
R7795C1007	120 Vac	3 sec nominal	120Vac Output for Alarm	Determined by Plug-in Purge Timer	Electronic - 10 seconds, Mechanical - 15 seconds	Full Function Primary Safety Control, Interrupted Pilot, Ultraviolet
R7795D1005	120 Vac	3 sec nominal	120Vac Output for Alarm	Determined by Plug-in Purge Timer	Electronic - 10 seconds, Mechanical - 15 seconds	Full Function Primary Safety Control, Interrupted Pilot, Rectification

Electromechanical Burner Controls

RA890F Protectorelay™ Primary Control



Primary control provides solid state, electronic flame safeguard protection for industrial and commercial single or dual fuel burners for rectification type flame detection.

- Uses rectification principle of electronic flame detection.
- Replaces RA890E in most applications and mounts on same Q270A1024 Subbase.
- Recycles if flame signal lost while in Run. Failure to establish pilot results in a lockout.
- Safe-start check prevents start-up if flame-simulating failure occurs in flame detector circuit.
- Includes built-in protection against ignition crossover in flame rod systems.
- Includes SPDT alarm contacts.
- Solid state circuitry.
- Mounts and removes easily through use of captive mounting screws.
- Mounting base is made of strong thermoplastic.

Application: Primary control for rectification application (Flame Rod for example)

Dimensions, Approximate:

5 in. high x 5 in. wide x 4 3/4 in. deep (including subbase)
(127 mm high x 127 mm wide x 121 mm deep (including subbase))

Frequency: 50 Hz; 60 Hz

Temperature Range:

50 Hz models -20 F to +105 F; 60 Hz models -20 F to +115 F
(50 Hz Models -29 C to +41 C; 60 Hz Models -29 C to +46 C)

Alarm Relay Switching: SPDT

Approvals:

Canadian Standards Association: CSA Certified: 120V models only; File No. LR1620

Factory Mutual: Approved: Report No. 17678,19417,19784

Underwriters Laboratories, Inc. UL Listed: 120V models only; File No. MP268, Guide No. MCCZ

Product Number	Voltage	Flame Failure Response Time (sec)	Safety Switch Timing	Description
RA890F1270	120 Vac	0.8 sec	15 seconds	Rectification, with alarm contacts
RA890F1288	120 Vac	3.0 sec	15 seconds	Rectification, with alarm contacts
RA890F1296	208 Vac	3.0 sec	15 seconds	Rectification, with alarm contacts
RA890F1304	220 Vac	0.8 sec	15 seconds	Rectification, with alarm contacts
RA890F1338	120 Vac	0.8 sec	30 seconds	Rectification, with alarm contacts
RA890F1346	120 Vac	3.0 sec	30 seconds	Rectification, with alarm contacts
RA890F1387	240 Vac	3.0 sec	15 seconds	Rectification, with alarm contacts
RA890F1478	120 Vac	0.8 sec	15 seconds	Rectification, with alarm contacts, fast safe start check.

Electromechanical Burner Controls

RA890G Protectorelay™ Primary Control



Primary control provides solid state, electronic flame safeguard protection for industrial and commercial single or dual fuel burners applications using Ultraviolet flame detectors.

- Design for interrupted ignition with intermittent pilot on gas burners, and interrupted or intermittent ignition on oil burners.
- Use with a C7027, C7035 or C7044 Minipeeper Ultraviolet Flame Detector for flame sensing.
- Recycles if flame signal lost while in Run. Failure to establish pilot results in a lockout.
- Safe-start check prevents start-up if flame-simulating failure occurs in flame detector circuit.
- Includes SPDT alarm contacts.
- Solid state circuitry, eliminates warm-up and increases resistance to vibration.
- Mounts and removes easily through use of captive mounting screws.
- Mounting base is made of strong thermoplastic.

Application: Either a line or low voltage controller can be used

Dimensions, Approximate:

5 in. high x 5 in. wide x 4 3/4 in. deep (including subbase)
 (127 mm high x 127 mm wide x 121 mm deep (including subbase))

Frequency: 50 Hz; 60 Hz

Temperature Range:

50 Hz models -20 F to +105 F; 60 Hz models -20 F to +115 F
 (50 Hz Models -29 C to +41 C; 60 Hz Models -29 C to +46 C)

Alarm Relay Switching: SPDT

Approvals:

Canadian Standards Association: CSA Certified: 120V models only; File No. LR9S329
Factory Mutual: Approved: Report No. 22013
Underwriters Laboratories, Inc. UL Listed: 120V models only; File No. MP268, Guide No. MCCZ

Product Number	Voltage	Flame Failure Response Time (sec)	Safety Switch Timing	Description
RA890G1229	120 Vac	0.8 sec	15 seconds	Ultraviolet, with alarm contacts
RA890G1245	220 Vac	0.8 sec	15 seconds	Ultraviolet, with alarm contacts
RA890G1260	120 Vac	3.0 sec	15 seconds	Ultraviolet, with alarm contacts
RA890G1286	240 Vac	3.0 sec	15 seconds	Ultraviolet, with alarm contacts
RA890G1302	220 Vac	3.0 sec	15 seconds	Ultraviolet, with alarm contacts

ST71 Prepurge Timer (for R4795)

Application: Prepurge Timer for R4795 Control Systems

Product Number	Purging Time	Description
ST71A1000	7 sec	Prepurge Timer for R4795 Control Systems
ST71A1018	30 sec	Prepurge Timer for R4795 Control Systems
ST71A1026	60 sec	Prepurge Timer for R4795 Control Systems
ST71A1034	90 sec	Prepurge Timer for R4795 Control Systems
ST71A1042	10 sec	Prepurge Timer for R4795 Control Systems

ST795 Purge Timer (for R7795)

Application: Plug in Purge Timer for use with R7795 Full Function Primary Safety Control

Product Number	Purging Time	Description
ST795A1007	1.5 sec	Prepurge Timer for R7795 Control Systems
ST795A1015	7 sec	Prepurge Timer for R7795 Control Systems
ST795A1023	10 sec	Prepurge Timer for R7795 Control Systems
ST795A1031	30 sec	Prepurge Timer for R7795 Control Systems
ST795A1049	60 sec	Prepurge Timer for R7795 Control Systems
ST795A1056	90 sec	Prepurge Timer for R7795 Control Systems

Primary Control Accessories

Product Number	Description	Used With
118702E	Remote Reset Cover for RA890F, G and R4795, 120V, 50-60 Hz	—
202980	Flame Relay for FSP5075A1	FSP5075A1
202981	Load Relay for FSP5075A1	FSP5075A1

Electromechanical Burner Controls

Q270 Wiring Mount Base

Mounting and wiring base for use with RA890 and R4795.

Product Number	Description	Used With
Q270A1024	Wiring Mounting Base for RA890, R4795	RA890, R4795

Q520 Subbase



The Q520A Wiring Subbase is for BC7000, R4140 and R7140 Flame Safeguard Programmers.

- Provides terminals for field wiring, and knife-blade contacts, which are engaged by the spring-connectors on the back of the BC7000, R4140 or R7140 chassis.
- The Q520A is available in a 4-sided model.
- Knockouts are provided on the back, top, and bottom (where applicable) for conduit connections.

Application: Wiring Subbase

Dimensions, Approximate: 6 5/32 in. high x 7 1/16 in. wide x 1 3/4 in. deep (156 mm high x 179 mm wide x 45 mm deep)

Product Number	Description	Comments
Q520A1121	Subbase (4 sided)	20 terminal Subbase

Q795 Wiring Subbases

The Q795A Wiring Subbase provides Wiring termination and serves as a device mount for the R7795 Full Function Primary Control.

- For wiring and checkout information consult the R7795 Primary Control specification sheet, form 66-2007.
- The Q795A is available in a 4-sided model (Q795A1004) for wall mounting and a plastic subbase model for cabinet mounting (Q795A1012).

Product Number	Application	Description	Used With
Q795A1004	Wiring Subbase	4-side conduit box subbase with terminals intended to accept field wiring. For use with R7795 full function primary safety control.	R7795
Q795A1012	Wiring Subbase	Subbase for wiring and mounting the R7795 in a Cabinet	R7795

FSP5075A1; FSP5075A3 Flame Amplifier Modules



The FSP5075A Flame Amplifier Module is designed to accept a variety of Honeywell plug-in flame signal amplifiers. Depending on the plug-in amplifier model installed, the flame amplifier module can be used with ultraviolet flame detectors, infrared flame detectors, rectifying flame rods or rectifying photocells to provide continuous flame supervision from lightoff to shutdown. Certain

Application: Flame Amplifier

Dimensions, Approximate: 4 7/8 in. high x 8 1/2 in. wide x 4 in. deep.
(124 mm high x 216 mm wide x 102 mm deep)

Frequency: 60 Hz

Temperature Range: -40 F to +140 F (-40 C to +60 C)

flame amplifier models feature Dynamic Self-Check or Dynamic Ampli-Check™ capability. The flame amplifier module also features plug-in load and flame relays as well as an integral terminal strip mounted on its chassis.

- The flame amplifier module amplifier and relay circuitry combine to provide such safety features as safe-start check, safety shutdown and rapid flame failure response time.
- Approval body certifications include Underwriters Laboratories Inc. component recognized, Factory Mutual approved and Swiss RE (formerly IRI) approvable.
- The zinc dichromate finish resists corrosive effects of most industrial atmospheres.
- A hermetically sealed relay model is also available.
- The FSP5075A Flame Amplifier Module is a standard building block in a burner management system.
- It allows the system to meet flame safeguard requirements while adding versatility to the flame detection system.

Approvals:

Factory Mutual: Approved: Report No. 26098

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Component Recognized: File No. MP268, Guide No. MCCZ

Product Number	Voltage	Power Consumption	Flame Failure Response Time (sec)	Comments	Used With
FSP5075A1	120 Vac	5.0 W running (max); 2.4 W standby.	Reference flame signal amplifier	Relays Plastic Encapsulated	R7247, R7248, R7249, or R7476 Flame Amplifier
FSP5075A3	120 Vac	5.0 W running (max); 2.4 W standby.	Reference flame signal amplifier	Relays Hermetically Sealed	R7247, R7248, R7249, or R7476 Flame Amplifier

Reset Temperature Controls

T475 Outdoor Reset Controller



Type: Remote bulb

Application: Automatically raises heating control setpoint as outdoor temperature falls

Dimensions, Approximate: 5 5/8 in. high x 2 in. wide x 2 1/8 in. deep (143 mm high x 51 mm wide x 57 mm deep)

Sensor Element: Indoor and outdoor copper bulb

Color: Gray

Contact Ratings (120 Vac): 8.0 AFL, 48.0 ALR

Contact Ratings (240 Vac): 5.1 AFL, 30.6 ALR

Voltage: 120 Vac or 240 Vac

Frequency: 50 Hz; 60 Hz

Operating controller for a hot water or warm air heating system.

- Used for line voltage, low voltage or millivolt (Powerpile) switching.
- Maintains proper balance between heating medium temperature and outdoor temperature.
- Raises heating medium control point automatically as outdoor temperature falls.
- Does not replace safety high limit control and is not for use in system requiring resetting above 71 F (21 C) outdoor temperature.

Reset Ratio: 1:1 reset ratio

Setpoint Temperature Range: 70 F to 140 F (21 C to 60 C)

Differential Temperature: 6 F to 20 F (3 C to 11 C)

Output: 1 SPST

Output Type: relay

Number of Sensor Inputs: 2

Includes: 34886A Outdoor Bulb Guard, 121371P Immersion Well Assembly

Approvals:

Underwriters Laboratories, Inc. Listed: E4436, vol. 4, Guide XAPX

	Product Number	Bulb Size		Capillary Length		Comments
		(inch)	(mm)	(ft)	(m)	
*	T475A1032	indoor: 3/8 in. diameter x 3 9/16 long; outdoor: 3/8 in. diameter x 3 9/16 long	indoor: 9.5 mm diameter x 90 mm long; outdoor: 9.5 mm diameter x 90 mm long	Indoor: 10 ft., Outdoor: 30 ft.	Indoor: 3 m, Outdoor: 9.1 m	1:1 reset ratio
*	T475A1057	indoor: 3/8 in. diameter x 3 9/16 long; outdoor: 3/8 in. diameter x 5 5/16 in. long	indoor: 9.5 mm diameter x 90 mm long; outdoor: 9.5 mm diameter x 135 mm long	Indoor: 10 ft., Outdoor: 30 ft.	Indoor: 3 m, Outdoor: 9.1 m	1:1.5 reset ratio

* TRADELINE models • SUPER TRADELINE models

Reset Temperature Controls

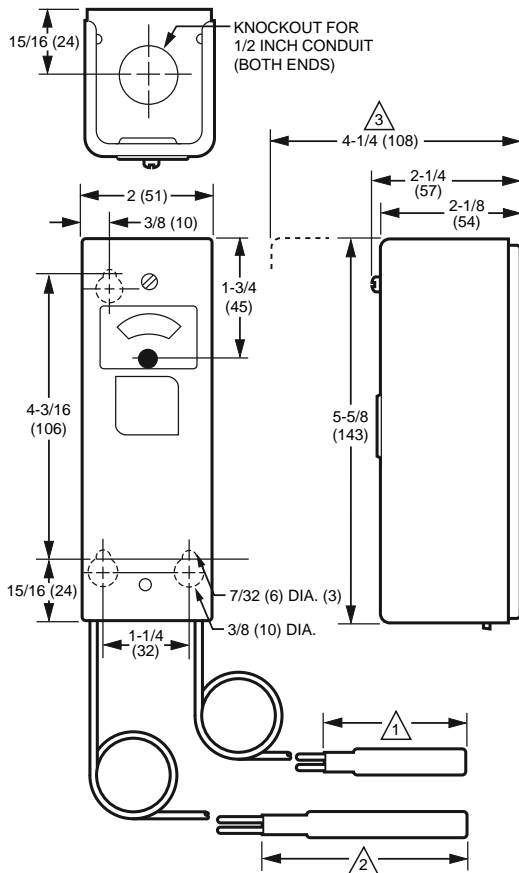
T678B; T991B Outdoor Reset Dual Bulb Temperature Controller



Automatic outdoor reset controllers for air or liquid.

- Raises heating medium control point automatically as outdoor temperature falls.
- One remote element senses heating medium, the other senses outdoor air temperature.
- T991 has 135 ohm potentiometer for proportional heating control.

Dimensions in inches (millimeters)



Type: Remote bulb

Application: Automatic reset based on outdoor temperature

Bulb Size: 1/2 in. x 4 in. (13 mm diameter x 102 mm long)

Capillary Length: Indoor: 10 ft., Outdoor: 30 ft.

(Indoor: 3 m, Outdoor: 9.1 m)

Sensor Element: Copper bulb

Number of Sensor Inputs: 2

Frequency: 50 Hz; 60 Hz

Reset Ratio: 1.0 to 1.0

Maximum Operating Temperature: 125 F (52 C)

Setpoint Temperature Range: 70 F to 140 F (21 C to 60 C)

Comments: Indoor bulb temperature plus outdoor bulb temperature must not exceed 265 F (129 C).

Approvals:

Canadian Standards Association: Listed

Underwriters Laboratories, Inc. UL Listed: E4436, Vol. 4, Sec. 11, Guide XAPX

△1 OUTDOOR BULB SIZE VARIES INVERSELY WITH THE RESET RATIO.

△2 INDOOR BULB LENGTH AND DIAMETER IS 4-1/2 INCH (114) BY 1/2 (13) INCH EXCEPT FOR THE AVERAGING ELEMENT WHICH IS 1/8 (3) INCH DIAMETER BY 12 FEET (3 M) LONG.

△3 CLEARANCE NECESSARY TO REMOVE COVER.

M23882

Product Number	Voltage	Output Type	Output	Analog Output	Contact Ratings		Differential Temperature		Interstage Differential Temperature		Throttling Range	
					120 Vac	240 Vac	(F)	(C)	(F)	(C)	(F)	(C)
T678B1006	120 Vac or 240 Vac	relay	2 SPDT switch contacts	—	8.0 AFL, 48.0 ALR	5.1 AFL, 30.6 ALR	6 F fixed	3.3 C fixed	3 F to 10 F adj.	1.7 C to 5.5 C adj.	—	—
T991B1003	24 Vac to 30 Vac	analog	—	One 135 Ohm Potentiometer	—	—	—	—	—	—	3 F to 10 F	1.7 C to 16.7 C

Reset Temperature Controls

T991E,F Proportional Temperature Controller

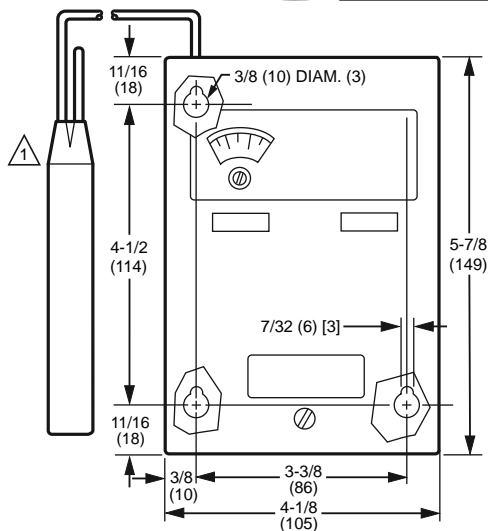
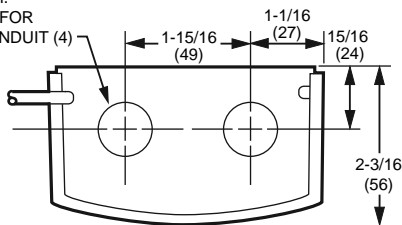


Provide both on-off and modulating control of water or air temperatures in ducts, tanks and similar applications.

- Micro Switch® end switch cycles burner on and off at low fire; T991 then modulates burner as required.
- Designed for use with V9055; can be used with any series 90 motor.
- Ambient compensated.
- Setpoint adjustment on front of case.
- Switch makes 1 F (0.6 C) above end of throttling range.
- Mount using three holes in the back of the case.

Dimensions in inches (millimeters)

7/8 (22) DIAM.
KNOCKOUT FOR
1/2 INCH CONDUIT (4)



1 T991F (WITH AUTOMATIC RESET) HAS 2 REMOTE SENSING BULBS.

M23887

Type: Remote bulb

Application: Provides on/off and modulating control of water or air temperature in ducts or tanks

Bulb Size: 1/2 in. diameter x 4 3/16 in. long (13 mm diameter x 107 mm long)

Sensor Element: Copper bulb

Color: Gray

Voltage: 24 Vac to 30 Vac

Frequency: 50 Hz; 60 Hz

Output Type: analog and relay

Analog Output: One 135 Ohm Potentiometer

Output: 1 SPST

Throttling Range: 11 F (6 C)

Differential Temperature: 4 F additive (2.2 C additive)

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Capillary Length		Number of Sensor Inputs	Comments
	(F)	(C)	(F)	(C)	(ft)	(m)		
T991E1018	160 F to 260 F	71 C to 127 C	280 F	138 C	5 ft	1.5 m	1	—
T991E1034	55 F to 175 F	13 C to 79 C	200 F	93 C	5 ft	1.5 m	1	—
T991F1009	70 F to 140 F	21 C to 60 C	265 F	129 C	Indoor: 10 ft., Outdoor: 30 ft.	Indoor: 3 m, Outdoor: 9.1 m	2	Indoor bulb temperature plus outdoor bulb temperature must not exceed 265 F (129 C).

A7800 Tester



Provides quick operational check of the 7800 SERIES System components.

- Allows testing different 7800 SERIES devices using configuration plugs and functional switches to simulate interlocks and control functions.
- Indicator lamps represent outputs as activated.

Application: Tester

Voltage: 120 Vac

Frequency: 50 Hz; 60 Hz

Product Number	Description	Required Components	Used With
A7800A1002	Tester, 7800 SERIES Relay Modules	Configuration Plugs, Included	7800 SERIES Relay modules
A7800A1010	Tester, 7800 SERIES Relay Modules with Valve Proving System or New Optical Detector Amplifiers	Configuration Plugs, Included	7800 SERIES Relay Modules with Valve Proving System or New Optical Detector Amplifiers

A7800 and DSP2672 Replacement Parts

Product Number	Application	Description	Comments
203579A	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7800; RM7840	Configures A7800 and DSP2672
203579B	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7838A	Configures A7800 and DSP2672
203579C	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7838B, C	Configures A7800 and DSP2672
203579D	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7885	Configures A7800 and DSP2672
203579E	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7890	Configures A7800 and DSP2672
203579F	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7895/RM7896/RM7897/RM7898	Configures A7800 and DSP2672
203579G	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7823	Configures A7800 and DSP2672
203579H	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7865	Configures A7800 and DSP2672
203579J	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7838B, C w/VP	Configures A7800 and DSP2672
203579K	A7800A1010 Tester	Tester Configuration Plug used with RM7890A, B w/VP	—
203579L	A7800A1010 Tester	Tester Configuration Plug used with RM7800L/40G, L w/VP	—
203579M	A7800A1010 Tester	Tester Configuration Plug used with RM7898 w/VP	—

Testers and Demonstrators

Demonstrators or Trainers



DSP3452

The DSP3822 is used as a R7999 Controlinks commissioning or monitoring tool when a System or Local Operator Interface is not required for operation. It lets you create or change a fuel/air modulation curve (profile) for ControlLinks that allows for safe and efficient operation at all

points along the modulation curve. The display uses a wizardlike process to assist you through the commissioning process.

Voltage: 120 Vac
Frequency: 50 Hz; 60 Hz



DSP3548



DSP3564

Product Number	Description	Application	Required Components	Includes	Comments	Used With
DSP3452	Flame Safeguard Trainer - 120 Vac	Primaries, Programmers or 7800 Series Trainer	Devices for wiring and training	jumper wires, propane gas hose with regulator, detector mounting adapters	Complete Flame Safeguard Training Package	Primaries, Programmers and 7800 SERIES Relay Modules
DSP3548	ControLink FAR Configuration Toolkit	ControLink FAR Configuration Toolkit	—	ZM software, computer cables, 485-232 converter	—	Controlinks Fuel Air Ratio controls
DSP3564	ControLink FAR Trainer/Demonstrator	ControLink FAR Trainer/Demonstrator	—	Relay Module, R7999 Control and 4 ML Motors	—	Controlinks Fuel Air Ratio controls
DSP3822	ControLink FAR (S7999B) Display Demo and Configuration Tool	For Controlinks Configuration and Monitoring	—	—	Touchscreen for FAR Monitoring or Programming	Controlinks Fuel Air Ratio controls
DSP3956	ControLink FAR Configuration Toolkit	ControLink FAR Configuration Toolkit	—	ZM Software; USB-485 Converter with cable and Connector for Controlinks	—	Controlinks Fuel Air Ratio controls

Flame Simulator



123514A



203569

Flame simulators simplify the troubleshooting of flame safeguard controls by providing a quick method to check the flame detection function.

Product Number	Description	Color	Comments	Used With
123514A	Flame Simulator, Rectification Type Flame Amplifiers	Brown	Applications with test jack in G circuit; Test jack in G circuit	R4075B; R4181A; R4138A,B; R7253A; R8169B; R7257A; R7247A; R7847A
203569	Flame Simulator, Simulates C7027, C7035, C7044 Flame Simulators for 7800 SERIES	Purple	Simulates Minipeeper Flame Detectors	7800 SERIES Relay modules

Testers and Demonstrators

FSP1535 Tester



Provides quick operational check of Honeywell RA890 or R4795 nonprogramming primary controls.

- Includes indicator lights that visually represent functions of ignition, pilot and main valve as unit simulates system operation.
- Eliminates need to operate entire system.
- Tests units with rated voltage from 100 to 240, 50/60 Hz by connecting line cord to the rated voltage.

Voltage: 120 Vac; 240 Vac

Frequency: 50 Hz; 60 Hz

Product Number	Description	Application	Used With
FSP1535	RA890;R4795 Tester	Tester	RA890; R4795

FSP5004 Tester



- Includes indicator lights that visually represent control functions of programmer as unit simulates system operation.
- Works with 120 Vac, 60 Hz controls.
- Use to test some Gordon-Piatt programmers.
- Cannot be used to test some R4140 and R4150 models due to design or wiring differences. Reference the list at right to see if you have one of the controls that CANNOT be tested. If you do, check these out using the instructions provided in their respective instruction manuals.
- R4150/R4140/BC7000/R7795/R7140 Tester (120V only). Provides a quick operational check.

Voltage: 120 Vac

Frequency: 50 Hz; 60 Hz

Accessories:

198355A Adapter for R7795, used with FSP5004

A Tester that provides quick operational check of most Honeywell BC7000, R4140, R7140 and R4150 programmers and R7795 primary controls (order 198355A adapter separately).

Product Number	Description	Application	Comments	Used With
FSP5004	R4150/R4140/BC7000/R7795/R7140 Tester (120V only). Provides a quick operational check.	Tester	DO NOT USE WITH: BC7000L1018, BC7000L1034, BC7000L1063; R4140D1004, R4140E1001, R4140M1079, or non-120 Vac R4140 models	BC7000; R4140; R7795; R7140; BC7000; R4140; R7795

SOLA Demonstrators



DSP3943



DSP3944

The DSP3944 is used as a SOLA commissioning or monitoring tool when a System or Local Operator Interface is not required for operation. The DSP contains the S7999B1026 touchscreen display which uses a wizardlike process to assist you through the commissioning process.

Voltage: 120 Vac

Frequency: 60 Hz

Color: Black

Product Number	Description	Application	Includes	Comments	Used With
DSP3943	Demonstrator, SOLA	Demonstrator, SOLA	S7910 Keyboard display, system switches and pots; S7999 Touchscreen Display; S7910A1001 SOLA HC	—	—
DSP3944	SOLA (S7999B) Display Demo	Demonstrator	S7999B1026 Display	Touchscreen for R7910/R7911 SOLA Monitoring or Programming	SOLA Controls

Testers and Demonstrators

W136 Meter



Combination ac/dc voltmeter and dc micrometer used to test all flame safeguard controls and associated burner equipment. The W136A can be used to verify flame detector output is sufficient to operate the flame relay.

- Measure ac voltage of 0 to 300 Vac and dc voltages of 0 to 150 Vdc.
- Has 0 to 25 dc microamp scale for accurate checking of flame signal strength.
- Protective circuit prevents meter burnout on 25 uA or SPL settings.
- W136A1045 is in a black carrying case that holds meter and has compartment for storing test leads and accessories.
- The W136A1045 includes two push-on alligator clips that fit over probes and 196146 Cable Connector to plug into flame current jack and connect meter in series with flame current lead.

Dimensions, Approximate: 8 1/2 in. high x 6 in. wide x 2 1/3 in. deep (216 mm high x 152 mm wide x 59 mm deep)

Product Number	Description	Application	Includes	Comments	Used With
W136A1045	Test Meter	Analog Test Meter	Two color coded, 30 in. (762 mm) long pin jack probe terminals	Scale ranges: 0 to 300 Vac; 0 to 150 Vdc; 0 to 25 microamps	Flame Safeguard Controls

W136 Replacement Part

Product Number	Description	Application	Used With
196146	Cable Connector for W136 Meter	Cable Connector for W136 Meter Flame Simulator, Rectification Flame Amplifiers	W136

Flame Safeguard Legacy Parts

S445A Start-Stop Switch



Pushbutton switch for manually operated oil or gas burner sequencing relays such as RM7885 and RM7838.

- Use with Primary Safety Controls.
- Provides remote start-stop manual control.
- Fully enclosed for minimum maintenance.

Product Number	Description	Application	Dimensions, Approximate		Voltage	Frequency	Used With
			(inch)	(mm)			
S445A1010	Start-Stop Switch	Start-Stop Switch	2-1/2 in. wide x 4-3/8 in. high x 2-15/16 in. deep.	64 mm wide x 111 mm high x 75 mm deep.	120 Vac	50 Hz; 60 Hz	EC7885A1011, EC7885A1029, RM7838A1014, RM7838B1013, RM7885A1015

Legacy Replacement Parts

Product Number	Description	Application	Used With
117053	Connector Plug - 138166 Panel Meter	Accessory or Replacement Part	Q478, R4138C, D, 138166 Panel Meter
118543A	Incandescent Bulb for R4138C, D	Accessory or Replacement Part	R4138C, D
138166	Panel Meter, 0 - 25 microamp	Accessory or Replacement Part	—
4074EMC	Bag Assembly-Battery Assembly for PM7700A	Accessory or Replacement Part	PM7700

Video is a very effective medium to use for both technical training and product familiarization. Many of the programs described here are relatively short and make a nice addition to a service meeting or formal class on HVAC controls. These tapes have been widely used in a number of applications such as:

- *At the distributor's counter* – to help answer questions and show technicians how to use new products
- *At service meetings* – to review new service procedures at the beginning of a season
- *In the classroom* – to provide students with authoritative information direct from the manufacturer

Commercial HVAC Controls

In Control With Solid State

This three-part DVD covers solid state economizer control systems, and features the H705A Enthalpy Controller, the M7415A Actuator, W7459 Economizer Logic Module, C7400 Air Sensor and C7150 Discharge Air Sensor. Separate parts cover Operation (12:00), Installation (15:00), and Checkout and Troubleshooting (8:00). 35:00

VT34

\$15.00

Zoning

Honeywell's Networked Zoning Contractor Introduction

A short explanation of the benefits of residential forced air zoning, which leads into an overview of Honeywell's Networked Zoning System. This video briefly demonstrates the basic installation of Networked Zoning, and how the system simplifies wiring. 5:30, 2001

VH090

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Special
Price

Heating Controls

Training on Demand Heating Controls DVD

Contains the following modules: Basic Hydronic Control 14:33, Hydronic Heating Distribution 12:39, Outdoor Temperature Compensation 16:22, Oil Burner Controls 14:37, Flame Detection 13:14, Standing Pilot 12:33, Intermittent Pilot 14:16, SmartValve System 10:57, Direct Burner Ignition 12:05, SmartValve Direct Burner Ignition 9:44, Advanced SmartValve 11:27, SmartValve Water Heater Control 11:26 (2004), and Universal Integrated Furnace Control 11:07 (2007)

63-9357

\$9.00

Training Booklets



Electronic Air Cleaner Theory and Fundamentals

An introduction to air pollution, its classification and sources, plus methods of air cleaning, Electronic Air Cleaner design, components and efficiency. *33 pages*

70-9719

\$1.11



Electronic Air Cleaner Application and Installation

Includes selection, application and installation information for residential and light commercial type electronic air cleaners. *31 pages*

70-9723

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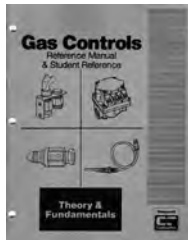


Electronic Air Cleaner Service Data

Includes replacement parts, model number identification, service tools and equipment, plus description, checkout and troubleshooting guide and parts list for Honeywell electronic air cleaners. *107 pages*

70-9724

\$4.35

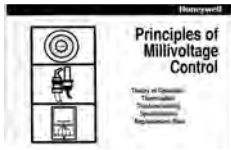


Gas Control Reference Manual & Student Reference – Theory and Fundamentals

Basic information and technical data on gas heating controls: gas properties, combustion, pilot burner systems, warm air heating systems, hydronic heating appliances, power sources, safety shutoff circuit and combination gas valves. Extensive glossary and technical charts. *48 pages, 1988*

71-97473

\$10.00



Principles of Millivoltage Control

Theory, controls and control circuits for millivoltage for heating systems with performance specifications on thermopiles. *22 pages, 1989*

71-97280

\$2.75

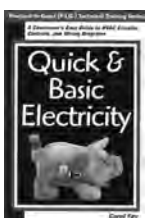


Burners and Boilers

Descriptions of various types of commercial and industrial gas, oil, and coal burners and their operation. Also boilers classified by construction and size. A comprehensive and understandable introduction to the subject. *65 pages (Order in multiples of 20)*

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\$1.57



Quick and Basic Electricity

A contractor's beginning guide to HVAC circuits, controls and wiring diagrams. *80 pages*

71-97431

\$20.00



Really Basic Electricity

Written for the person with no background in electricity. Introduces basic concepts of a.c. and d.c. electricity. Includes pictures and diagrams. *96 pages*

71-97004

\$7.00

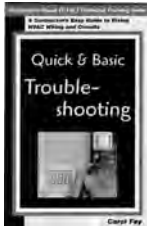


Quick and Basic Hydronic Controls

Another in the "Practical is Good" (P.I.G.) Technical Training Series. A contractor's easy guide to hydronic controls, wiring, and wiring diagrams. How figuring circuits is like watching a bug on a rope; why thinking in circles is good; how every hydronic control is a power supply, a switch, or a load; how limit controls are like a safety committee; how to see the friendly side of control panels. *87 pages, 2000*

71-97160

\$20.00



Quick and Basic Troubleshooting Book

This book tells you how to troubleshoot controls and control circuits using a meter, a "hopsotch," "Leapfrog," "daisy chain," and "homerun" methods, a trouble shooting chart, a wiring diagram and your common sense. *80 pages*

71-97931

\$20.00



Quick and Basic House Wiring

This book is an HVAC contractor's guide to what the electrician does. Ever wonder what's going on inside the walls? This book explains it, both modern and "the old stuff." It also explains such electricity puzzles as how to wire 3-way and 4-way switches, why 2-wire cable has 3 wires and why 3-wire cable has four.

71-97966

\$20.00



ControlPro Pneumatic Control Training Manual

This manual is for a two-day in-house course on Honeywell pneumatic controls. It is available separately for use in your own training. *150 pages*

71-97070

\$20.00



The Control Pro On Managing Truck Inventory

Looking for help with your truck inventory? Honeywell's Control Pro is a veteran of over 25 years in the HVAC industry, so when he talks, people listen! In this publication, The Control Pro takes a practical, down-to-earth look at managing truck inventory for the residential heating/air-conditioning contractor. Starting with developing a truck stock list and standardization of the truck stock list, he explains how proper truck inventory reduces the tech's lost time (i.e. chasing parts for that "best buy" is lost gross revenue.) He points out the advantages of stocking universal parts, turning your truck stock often and replacing truck stock. He discusses why taking truck inventory, pricing and cost control are important (their effect on "the bottom line"). This booklet includes valuable suggestions for a truck stock list. (Order in multiples of 20)

67-6005

\$2.00

Programmed Instruction Books

A programmed instruction course presents information in small, carefully developed steps. At each step, learners are required to apply the new information by answering a question or solving a problem.

We've used these programmed texts successfully in several ways:

- **Independent instruction** -- for the individual who does not have access to an instructor.
- **Homework assignment** – provides the required background information in preparation for more advanced classroom presentation
- **Remedial study** – for use when a student needs additional study in basics to benefit from the classroom presentation

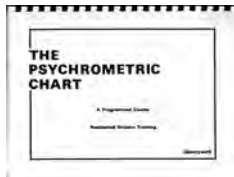


Fundamentals of Residential Control

A step-by-step, self-instruction workbook in a question and answer format. Students learn the necessary foundation for advanced study in controls while working at their own speed. Ideal for individual student use in preparation for other courses. Topics include: nature of electricity, rules governing electricity, inductive and capacitive circuits, principles of motor operation, power, transformer principles, relay principles, analyzing control circuits. *250 pages*

71-97083

\$10.00



The Psychrometric Chart

A valuable tool for everyone in the HVAC industry. Knowledge of the complex relationship between the various characteristics of the air (temperature, humidity, moisture content, etc.) can be the key to solving a number of air conditioning problems. Text illustrates with examples of how to use psychrometric charts. Use it as a self-instruction text or a class exercise. *100 pages*

71-97444

\$10.00

Service Handbooks



Honeywell Service Data Manual

Formerly known as the **Service Handbook Library**, these manuals have been completely updated and published in a new 8-1/2 x 11 in. format to make even more service information available to technicians working on residential and light commercial heating and air conditioning equipment and controls.

71-97932

\$35.00

- **Gas Controls Service Manual**

All of the technical data and service information needed to safely and efficiently check and repair gas burner controls systems. Includes combination gas controls manufactured in the last 30 years for furnace, boiler and other heating appliance manufacturers, as well as service replacement controls.

- **Gas Electronic Ignition Controls Service Manual**

Principles of controlling gas heating equipment including intermittent pilot, direct spark ignition and hot surface ignition. Model numbers and specifications for obsolete as well as currently manufactured controls, with information on making replacements of special models made for equipment manufacturers with universal replacement models available for service work. Includes troubleshooting flowcharts for old and new controls.

- **Oil Controls Service Manual**

Control of oil burners is undergoing a major change as manufacturers are transitioning from electromechanical and electronic controls to microelectronic oil primary controls. This manual includes information on these controls as well as older devices that have been used for years.

- **Commercial Controls Service Manual**

Introduction and fundamentals of electric and electronic controls used on commercial packaged and other light commercial equipment. Includes: motors and actuators, linkages, dampers and valves, electromechanical controllers, electronic sensors, electromechanical economizers, electronic solid state economizers, reset systems and fan coil systems.



RA890, R4795 and R7795 Service Handbook

Wiring and checkout, normal operation summary, flame current check, flame simulator, final checkout, service notes and test equipment. *59 pages*

70-8610

\$1.42



Troubleshooting Flame Safeguard Systems

Generalized troubleshooting information for the controls used on large burners and boilers. Information on recurring shut-downs, random shutdowns, measuring flame signal. Ten commandments for the burner service person, checking system operation and periodic maintenance. *11 pages* (Order in multiples of 20)

70-8626

\$0.28

Classroom Training

These manuals and notebooks provide instructional support on the fundamentals of controls for residential and some light commercial heating and cooling applications.

- A **Reference Manual**, or mini-text, is a clearly written text with easy-to-follow diagrams that detail the fundamentals of controls and control systems. Designed for use by the student as well as the instructor and organized so that the instructor can vary the outline to fit specific teaching goals. Includes reproductions of the program's overhead slides.
- A **Student Notebook** reinforces instruction and offers a check on student understanding through the use of exercises and review questions.

Oil Heating Controls

Oil burner ignition and safety control systems for residential heating. Includes: fuel oil characteristics, oil burner primary controls, stack relay and cad cell flame detection systems, servicing oil burner control systems and general troubleshooting.

Reference Manual	71-97088	\$5.00
Student Notebook	71-97090	\$3.00

Electric Heat Controls

The basics of residential electric heating control starting with a brief review of electrical principles and going through to service procedures. Information on influence of humidity, air circulation and radiant temperature on comfort; heating system performance in terms of response time, cycling rate, heat anticipation and timed sequencing; central and decentralized electric heating systems; servicing electric heat systems and troubleshooting.

Reference Manual	71-97306	\$5.00
Student Notebook	71-97308	\$3.00

Cooling Controls

Electric powered refrigeration equipment, theory of operation and control systems for residential central air conditioning. Information of mechanical refrigeration systems and equipment, typical residential systems, cooling system functions, thermostats, fan relays and fan centers, switching relays, contactors, pressure controllers and transformers.

Reference Manual (Order in multiples of 5)	71-97094	\$5.00
Student Notebook (Order in multiples of 5)	71-97096	\$3.00

ControlPro Reference Material

These publications are part of the ControlPro one-day class for heating and air conditioning technicians, and are good references for anyone needing information on Oil or Hydronic Heating Controls.



Oil Heating Controls Technical Reference

A compilation of all the specification data, installation and service publications on Honeywell's oil heating controls, such as cad cell oil primaries, stack relays and ignition transformers. *204 pages, 2005*

71-97479

\$18.00



Controls for Oil-Fired Heating

The "textbook" for the ControlPro Oil class. Includes: fuel oil and oil burning equipment, ignition requirements, oil burner control requirements, stack relays, cad cell primary controls, oil primary controls, oil control service and troubleshooting, glossary. *61 pages, 2005*

71-97406

\$5.50

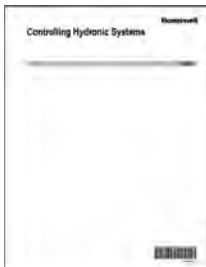


Hydronic Heating Controls Technical Reference

A compilation of all the specification data, installation and service publications on Honeywell's hydronic heating controls, including Aquastat® controllers, Aquastat® relays, zone controls, outdoor temperature compensation controls, thermostats and hydronic heating controls accessories. *415 pages, 2005*

71-97480

\$24.00



Controlling Hydronic Systems

The "textbook" for the ControlPro Hydronic Heating Controls class. Includes: hydronic heating systems, hydronic system reset, why to use hydronic zoning, zone valve systems, zone circulator systems, case and cover relays, multizone hydronic panels, radiant heating, service and troubleshooting and glossary. *54 pages, 2005*

71-97402

\$5.50

FSG Textbook

FSG Textbook, "Flame Safeguard Controls: A Honeywell Textbook" 2nd edition

The most comprehensive and popular Flame Safeguard textbook available in our industry. It's where the beginners begin and where the "Old Pros" return year after year and problem after problem.



FSG Textbook, "Flame Safeguard Controls: A Honeywell Textbook", 362 pages

71-97558

\$22.50

Contents:

- *Introduction to Flame Safeguard* – Flame Safeguard functions and controls.
- *Combustion* – explanation of fuel types and flame characteristics.
- *Burners and Boilers* – description of representative burners and boilers.
- *Flame Rod Application* – design and installation of flame rods and rectification systems.
- *Optical Detector Applications* – description, operation, application and checkout of detectors; covering rectifying photocells, infrared, and ultraviolet detectors.
- *Primary Controls* – capabilities and operation of primary controls (RA890, R4795 and R7795) used on smaller burners
- *Programming Controls* – capabilities and operation of programming controls (R4140 and BC7000 Microcomputer Programmable Controls).
- *Troubleshooting FSG Systems* – outlines systematic procedures for isolating common Flame Safeguard problems.
- *Service Equipment* – description and operation of testers, simulators and meters.
- *Auxiliary Equipment* – description, operation, application and checkout of pressure and temperature controllers.
- *Valves and Valve Trains* – description and application of typical Flame Safeguard valves and valve trains.
- *Sizing and Application of Large Gas Valves* – principles and procedures for selecting gas valves (includes selection nomographs).
- *Firing Rate Controls* – covers methods for controlling firing rate, firing rate sequences, programmer switching, motors and valves.
- *Glossary* – Flame Safeguard terminology.

Reference Manuals

These reference manuals are collations of Honeywell publications used to apply, install and service various categories of control products. Combined they represent virtually all of the technical information Honeywell publishes on its residential and light commercial electric and electronic controls.



THE SOURCE Reference Material for Gas Ignition

These are the publications used with *The Source* gas ignition technical training program.

- **THE SOURCE Technical Reference** 71-97414 **\$4.50**
 A compilation of all the specification data, installation and service publications on Honeywell's residential gas ignition controls such as gas valves, ignition modules and electronic fan timers. *634 pages, 2004*
- **THE SOURCE Class Notes and Lab Exercises** 71-97162 **\$4.50**
 Reproductions of the visuals used in *The Source* classroom training program along with the lab exercises that make up Honeywell's popular training program on gas ignition controls. *114 pages, 2003*



The Firing Line

A comprehensive manual designed to facilitate the upgrading and replacement of burner and boiler controls in commercial and industrial applications. Extensive information on approval bodies to explain what type of controls are required to meet various codes. Subjects include how to sell control modernization, how to sell replacement, conversion wiring, handy survey guides and worksheets.

70-8900 \$125.00



The Firing Line CD-ROM Version

The CD-ROM version of *The Firing Line* is a comprehensive reference media designed to facilitate the upgrade/replacement of burner and boiler controls in commercial and industrial applications. *1996*

66-1081 \$25.00



Flame Safeguard Reference Manual

Specification sheet collation on: primary controls, programming controls, gas valves, flame sensors, FSG motors, ignition transformers, pressure controls/limits, reset controls, multiple boiler controls, low water cutoff, and feed water valve.

66-1004 \$135.00



2006 Commercial/Industrial Combustion Controls Catalog

This catalog covers the complete line of Honeywell Burner and Boiler controls. In addition to our premier 7800 SERIES Burner Control Systems, BCS 7700 Boiler Control Systems and Communication Interface, the catalog covers flame amplifiers, firing rate motors, pressure/temperature sensors, amplifiers, auxiliary equipment, Flame Safeguard Modutrol IV motors, flame sensors, gas valves ignition transformers, modernization and replacement equipment, pressure controls/limits, primary and relay controls, programmers, test equipment, and commercial hydronic controls. Contains information on Flame Safeguard training materials, reference manuals and demonstrators and lab trainers.

70-8911 \$2.00



7800 Series Burner Control Manual

This manual contains promotional literature, features/functions/benefits, product selection submittal information, programmers, semi-automatic programmers, primaries, semiautomatic primaries, subbases, amplifiers, purge cards, optional components, expanded annunciator, communications, tester, accessories, conversion wiring diagrams, diagnostics, and troubleshooting, and cross references. In 3-ring poly binder.

66-1065 \$55.00

Reference Manuals



Engineering Manual of Automatic Control for Commercial Buildings - Soft cover

The 21st edition of this widely used and extremely valuable manual. Now includes direct digital control and operator workstations, as well as other current control technology and strategies. The 500+ pages guide the reader through the fundamentals of control system theory, direct digital control, building management systems and a dozen other disciplines essential to proper environmental control in buildings. In this edition, microprocessor controls are shown in most of the control applications, rather than pneumatic, electric or electronic controls, to reflect the trends in today's industry. Also included is new information on indoor air quality and district heating. Often referred to as the "Gray Manual," this technical resource has been a standard among engineering design professionals since it was first published in 1934. *Revised 1997*

77-1100 **\$24.00**



Zoning Systems Reference Manual

A comprehensive reference on the Honeywell residential zoning capability. Includes Consumer Literature, System Design, Zone and Bypass Dampers, Networked Zoning, TotalZone, EMM Series, MM-2 and MM-3, Thermostats, Control Accessories and Fresh Air.

63-7067 **\$10.00**



Water Control Product Catalog

Honeywell Catalogue - Full Line of Quality Products for Water Management Solutions: Water Controls Products, Hydronic Heating, Plumbing and Energy Products.
 - Honeywell Water Products: Mixing Valves, Air Vents, Boiler feed Valves/Back Flow Preventer, Expansion Tanks/Combo Kits, Honeywell Thermometers and Tridicators, DS05, DS06 DialSet Pressure Regulation Valves, T104/V110 High Capacity Thermostatic Radiator Valves, MT100/MT110 Service Tools, F74 Water Sediment Filters, D05/D06 Universal Pressure Regulating Valves, T100/V100 Standard capacity TRV, V135/T100 Loop Controls fro radiant floor applications

63-8702 **\$1.70**



Honeywell TRADELINE Catalog

Recently updated, this product catalog is an education in itself—over 1,000 pages of specifications and application information on Honeywell's residential, light commercial and burner and boiler controls. Included are Home Control products, Water Control products, Building Control products, Indoor Air Quality Products, Pneumatic Controls and Flame Safeguard Products.

70-6910 **\$7.00**



Honeywell TRADELINE Catalog - CD-ROM

The entire Honeywell TRADELINE catalog, available on a CD-ROM. This PDF format allows for rapid click and searching of products, as well as hyperlinks to web sites for additional product information whenever you are connected to the internet.

70-E6910 **\$5.00**

A lab trainer requires the student to actually perform point-to-point wiring to achieve a properly functioned control system.



DSP3168 Gas Ignition Trainer

The DSP3168 is a suitcase-style hands-on laboratory workstation designed to support instruction in gas ignition controls as used on residential gas heating equipment and some commercial cooking equipment. Using point-to-point wiring, students wire up actual controls to simulate the operation of a number of types of gas ignition systems, using a small propane-fired burner.

The DSP3168 can be set up to simulate the following types of gas ignition systems:

- Intermittent Pilot Ignition utilizing electronic flame detection to provide pilot safety.
- Direct Spark Ignition uses a spark electrode and a separate electronic flame detector electrode to directly light the main burner in a furnace, boiler or some other heating or cooking appliance.
- Hot Surface Ignition uses a hot surface igniter to directly light the main burner.
- SmartValve uses electronic flame sensing (flame rectification). This combines gas flow control and electronic intermittent pilot sequencing functions into a single unit. The low voltage igniter, and flame sensor on the pilot burner plug directly into the system control.

The DSP3168 lab trainer includes the following control and accessories: Honeywell VR8204, VR8205, and SV9501 gas valves; S8610U, S87D, and S8910U electronic ignition surface modules, and LP regulator and hose, ignition cable, wires with banana plugs, timing tab for S8910U, a propane tank holder, and an accessory box containing a spark adapter, direct spark igniter, intermittent pilot igniter-flame sensor allen wrench and screws. Propane not included.

Using the banana plug wires, the student connects the controls and devices into the proper 120V and 24V circuits, both of which are fused.

Also included: a controls/devices list, lab exercises, a troubleshooting sheet, and reference material from THE SOURCE gas ignition training program.

DSP3168 \$1,750.00



DSP3525 Zoning Demonstrator**

- Includes TZ-4 Control Panel, W8665E1000 RF Receiver Module (3-zone), ARD (5 in.) and ZD (8x) Dampers, AT140D1046 Transformer and C7735A100 DATS, and T84 Thermostat. A T8665A1002 RF Thermostat is included but not attached.
- Available as Suitcase (S) model that includes tabletop model and case or Countertop (C) model (be sure to order correct model).
- Countertop model fits into existing DSP3524 suitcase.

DSP3525-S \$1100.00

DSP3525-C \$750.00



DSP3548 ControlLinks™ Configuration Kit

The Configuration Tool Kit was developed to assist with the commissioning of the ControlLinks™ Product line. It contains the Configuration Software, Software Manual, Converter modules and the required cables all in a handy carrying case with handle. ControlLinks™ products are restricted to Authorized ControlLinks™ Distributors.

DSP3548 \$448.37



DSP3564 ControlLinks™ Demonstrator

The DSP3564 is designed for use in training on the Honeywell ControlLinks™ Fuel Air Control System.

The demonstrator contains the following items:

- One RM7800L1012
- One ST7800A1021
- One R7999A1005
- Four ML7999A1003
- One 1-5K Pot
- Six SPST Toggle Switches
- One R7847A1033
- One Q7800A1005
- One Q7999A1006
- Six Indicator Lights
- One 2-1K Pot
- One Carrying Case with handle (22" x 16" x 6")

DSP3564 \$1,575.00



DSP3822 ControlLinks™ Display Demo

The DSP3822 is a field service tool for the ControlLinks™ system. The DSP3822 allows monitoring and configuration of a ControlLinks system without a laptop PC and the ZM7999 ControlLinks Configuration Software. The DSP3822 also functions as a training and demonstration tool for the Honeywell S7999B ControlLinks Configuration Display. The DSP3822 demonstrates the S7999B functions including configuration of the R7999 ControlLinks Controller and setup of burner/boiler modulation curve (profile). The display uses a wizard-like interface to assist in the configuration process. The DSP3822 includes an integrated carrying case and internal power supply.

DSP3822 \$615.00

Lab Trainers



Burner and Boiler Controls Demonstrator Student Workbook

This Manual contains the Operating Training Board Exercises for the student for the DSP3472

71-97116

\$3.25



Burner and Boiler Controls Demonstrator Instructors Manual

This Manual is the Instructor's version of the Operating Training Board Exercises for the DSP3472

71-97117

\$3.25

Ordering Information

Order online

You can order online at <http://customer.honeywell.com>

If you are already a Honeywell customer, please login with your name and password. You can then go to the quick order form and fill it out to place your order. If you do not know the part number you can click on the Products menu and find the Training Materials under either the Homes or Buildings products.

For a new customer follow these steps.

1. Go to <http://customer.honeywell.com>

2. On the lower left side, click on "Create an Account Now."

The window will change to a page where you will be asked to submit some information about yourselves. If you are unsure of what to select for "Relationship to Honeywell", you can select "Training Materials Customer."

After you have finished the registration process, you should receive an e-mail confirmation. In this confirmation, there will be a link for you to click on to activate your account. Once your account is active, you can place an order for training materials.

Note: You can use either your username or e-mail address to log in. Also, the password is case sensitive.

Once you are logged in and ready to order you can go to the quick order form and fill it out to place your order. If you do not know the part number you can click on the Products menu and find the Training Materials under either the Homes or Buildings products.

Payment must be made by VISA, MasterCard or American Express card.

Shipping

All U.S. orders for training materials are shipped freight collect, UPS ground. Please pay with a credit card and the charges will be added to your total.

Expedited Orders

When requested, we will expedite an order and ship by air, but you must pay by credit card and you will be billed for the shipping costs.

International Orders

International orders *MUST* be placed through your local Honeywell subsidiary. They can advise you on ordering and shipping procedures. We cannot accept or ship international orders.

Returns

Returned items are accepted within four months of purchase. There are no cash refunds, and a \$30 restocking fee *per item* will be deducted from your credit. You are responsible for return shipping costs. The address for returns is printed on the bill of lading. Please call or fax in advance of your return and provide a list of the items that you are returning and a reason as to why you are returning them.

Form of Payment

Check or Money Order (Mailed orders only)

Enclose a check or money order with your order. Make check payable to Honeywell International Inc.

Credit Card

For on line orders, payment must be made by VISA, MasterCard, or American Express card. For mailed orders, charge your Training Materials Order to your VISA, MasterCard, or American Express card. Include card number, cardholder's name and expiration date on the Training Materials Order Form. The form can then be mailed or faxed.

Inquiries

If it is necessary to contact us regarding your order, please provide the following information:

- for mailed orders, please specify the date the order was sent.
- for on line orders, please include the data the order was placed, your account number, the web order number (found on the order confirmation) and the reference number.

Contact us at:

Honeywell International Inc.
MN10-131A
1985 Douglas Drive North
Golden Valley, MN 55422
FAX: 800-356-0149
PHONE: 763-954-5720

Note: Please allow 1 to 2 weeks to process and fill your order.

Honeywell

AUTOMATION AND CONTROL SOLUTIONS PRODUCTS WARRANTY POLICY

Honeywell warrants the products in this catalog (except those parts designated on Honeywell's price lists as not covered by this warranty) to be free from defects due to workmanship or materials, under normal use and service, for the following warranty periods. Honeywell VisionPRO®, Commercial VisionPRO™, FocusPRO®, PRO 4000, PRO 3000, LineVolt™ PRO, Digital Round™, and Modern Round™ (T87K, N) Series Thermostats with a date code of 0501 or later: sixty (60) months from date of installation. CommercialPRO, PRO 2000 and PRO 1000 thermostats: twenty-four (24) months from date of installation. AUBE branded thermostats, timers, and switches: thirty-six (36) months from date of installation. All other Honeywell thermostats and thermostats with a date code of 0452 or earlier: twelve (12) months from date of installation, unless specified otherwise. Honeywell Air Cleaners, Humidifiers, Ventilators, Ultraviolet Treatment and Zoning Products with a date code of 0501 or later, excluding replacement maintenance parts: sixty (60) months from date of installation. Indoor air quality parts F50, F52, F300, F200, F150, UV100E, HE225, HE265, HE365, with date codes of 0452 or earlier, excluding replacement maintenance parts: sixty (60) months from date of installation. All other Honeywell indoor air quality and zoning products with a date code of 0452 or earlier: twenty-four (24) months from date of installation, unless specified otherwise. Variable frequency drive devices (VFD) and accessories: new products for thirty-six (36) months and factory refurbished drives for twelve (12) months from date of installation when start-up and commissioning is performed by Honeywell VFD Authorized and trained personnel. All VFD warranty return products must have prior authorization (Form No. 87-0284) and be returned only to the VFD Service Center in Chattanooga, TN. MS, MN and Fact Acting 2-position Direct Coupled Actuators: sixty (60) months from date of installation. The warranty period for all other products is twelve (12) months from date of installation.

If a product is defective due to workmanship or materials, is removed within the applicable warranty period, and is returned to Honeywell in accordance with the procedure described below, Honeywell will, at its option, either repair, replace or credit the customer for the purchase price of the product, in accordance with the procedure described below. This warranty extends only to persons or organizations who purchase products in this catalog for resale.

The expressed warranty above constitutes the entire warranty of Honeywell with respect to the products in this catalog and IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL HONEYWELL BE RESPONSIBLE FOR ANY CONSEQUENTIAL DAMAGES OF ANY NATURE WHATSOEVER.

INSTRUCTIONS—INSTALLING OR SERVICING CONTRACTOR OR DEALER

When replacing a Honeywell product under warranty, including those products furnished on original heating and/or cooling equipment, you should rely on your local Honeywell Wholesaler or Distributor for prompt and efficient product replacement service.

A Honeywell Returned Goods Identification Tag (form 87-0030) or an electronic data notification system must be completed and approved by the servicing dealer/contractor prior to submitting the product to the Honeywell Wholesaler or Distributor. (Tags may be obtained from the Wholesaler or Distributor in advance.) No warranty claim for product replacement or credit will be honored by the Wholesaler/Distributor without a completed warranty tag attached or electronic notification.

INSTRUCTIONS—WHOLESALE OR DISTRIBUTOR

The following will apply to the return of any product to Honeywell under this warranty:

Any products which are not variable frequency drives and are:

- (i) identified with Honeywell's Returned Goods Identification Tag (form 87-0030), or electronic notification system;
- (ii) are listed individually with Returned Goods ID Tag numbers and date codes

- (iii) packed separately from other returns and protected from shipping damage;
- (iv) have certification by the installer or servicing dealer that the product was removed, due to failure, within the applicable warranty period;
- (v) are received transportation pre-paid at:
Honeywell Return Goods
Dock 4 MN10-3860
1885 Douglas Drive
Golden Valley, MN 55422
- (vi) and are found by Honeywell's inspection to be defective in workmanship or materials under normal use and service will be handled in accordance with one of the two following procedures, as specified by the customer making the return:

All VFD warranty return products must have prior authorization (Form No. 87-0284) and be returned only to the VFD Service Center in Chattanooga, TN.

1. **CREDIT PROCEDURE.** Honeywell will issue credit, at Honeywell's lowest wholesaler net price in effect at the time of the return (as set forth on Honeywell's then current price sheet) or at the actual invoice amount if a copy of that invoice is attached to the packing list. (TRADELINE Replacement Exchange Products will be at Honeywell's lowest replacement exchange net price in effect at the time

- of such return, as shown on Honeywell's then current price sheet.) Honeywell reserves the right to disallow this credit option in cases of warranty abuse.
2. **REPAIR OR REPLACEMENT PROCEDURE.** Honeywell will, at its option, either repair or replace the product free of charge and return it or its replacement lowest cost transportation prepaid. The replacement will be a functionally equivalent new TRADELINE product. Premium transportation will be used at customer's request and expense.

The warranty will not be honored if:

- (i) product is damaged or missing parts or accessory items including batteries.
- (ii) product exhibits evidence of field misapplications.

Final disposition of any warranty claim will be determined solely by Honeywell. If inspection by Honeywell does not disclose any defect covered by the warranty, the product will be returned or scrapped as instructed by the customer and Honeywell's regular service charges will apply. Products returned to the customer may be sent shipping charges collect.

If you have any questions relative to product returns to Honeywell, contact your Customer Care Representative:

Honeywell International Inc.
Customer Care MN10-131A
1985 Douglas Drive
Golden Valley, MN 55422
(763) 954-5720

SPECIAL MESSAGE TO INDUSTRIAL USERS AND BUILDING OWNERS

Thank you for using Honeywell products.

As a user, when you purchase a Honeywell product from this catalog you should expect performance from the product and, if it fails, replacement of the product by the installing dealer.

Typically, you will have purchased a Honeywell product under the following circumstances:

1. To modernize or refurbish your existing commercial and/or process control system.
2. You have purchased new commercial and/or process heating, cooling, air cleaning or humidification equipment that

is furnished with Honeywell controls or components (refer to your owner's manual furnished with the equipment).

3. A control has failed on your existing commercial and/or process heating and/or cooling equipment and is replaced by a Honeywell TRADELINE product.

With few exceptions, you utilize the services of a competent plumbing, heating and/or cooling dealer/contractor for new or replacement work performed.

Although our warranty does not extend to you, Honeywell does extend a warranty to your supplier.

Your supplier can rely on its local Honeywell Wholesaler/Distributor or Honeywell for prompt replacement.

If you have any questions, need additional information or would like to comment on Honeywell's products or services, please write or phone:

Honeywell International Inc.
Customer Care MN10-131A
1985 Douglas Drive North
Golden Valley, MN 55422-4386
(763) 954-5720

or check your telephone directory (white pages) for one of many Honeywell field sales offices.

Automation and Control Solutions

Honeywell International Inc.
1985 Douglas Drive North
Golden Valley, MN 55422

Honeywell Limited-Honeywell Limitée
35 Dynamic Drive
Toronto, Ontario M1V 4Z9
customer.honeywell.com

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