

Section

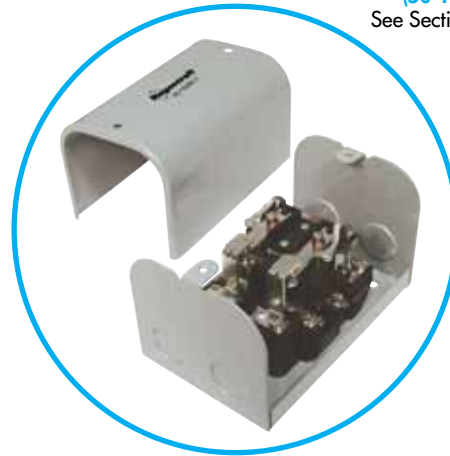
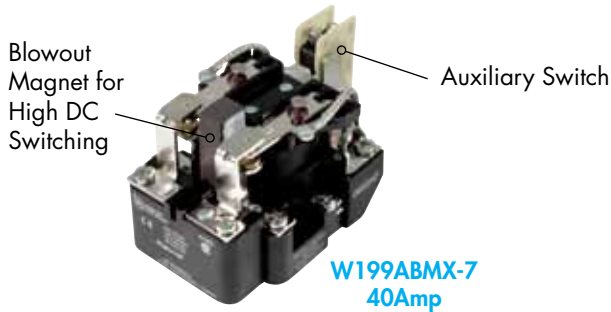
# 6 Relays - Power



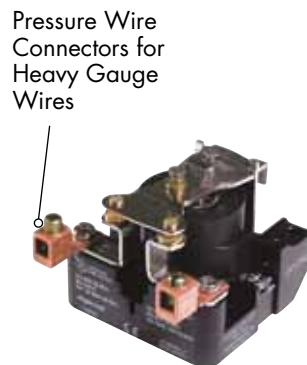
## Advantages of the W199 Power Relay

The Magnecraft 199 relay is the powerhouse open relay. Standard parts can handle up to 40A and there are options to handle up to 50A. The device is available in a variety of configurations and coil voltages. Available with up to two poles, double and single throws, insulated and non-insulated double make and/or break, and several switching forms. Options include auxiliary 10A switches with quick connects or screw terminals, quick connects on the coils and/or contacts, tungsten stationary contacts, fine silver contacts, pressure wire connectors on the output terminals and blowout magnets near the contacts for high voltage DC switching.

Optional Cover  
(50-1289-1)  
See Section 3 p.22



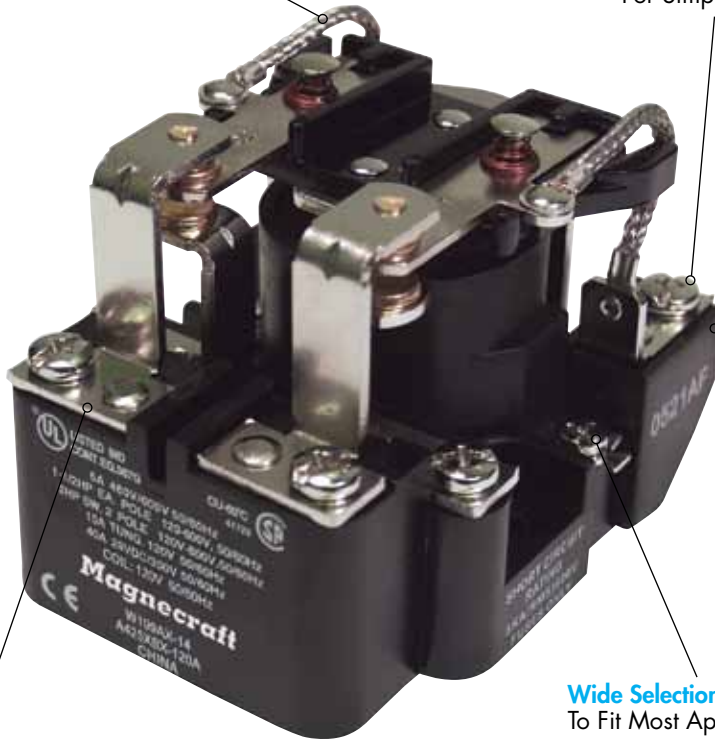
- Available Blowout Magnets for High DC Switching.
- Available Auxiliary Switches.
- Can be configured with 0.25 inch Q.C. Connections.
- Up to 50A Switching.
- Available Metal Enclosure.



14 AWG for 40A, 11 AWG for 50A Configurations  
For Superior Load Handling.

Combo-Head Screws  
For Simpler Hook-Up.

Wide Array of Options & Configurations  
For Specific Control Needs.



Riveted Construction  
To Sustain Years of Use.

Wide Selection of Coil Voltages  
To Fit Most Applications.

Auxiliary Switch



**W199AX-14**  
40Amp

**W199MX-27**  
40Amp

1/4 Inch Q.C. on  
Auxiliary Switch for  
Speedier Hook-Up

11 AWG Pigtails  
for 50A Load  
Switching

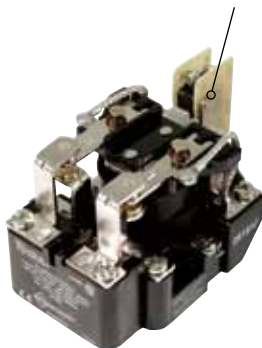


**W199X-11**  
40Amp

Auxiliary Switch

**199PQMKKX-1**  
50Amp

1/4 Q.C. on  
Coil for Simpler  
Installation

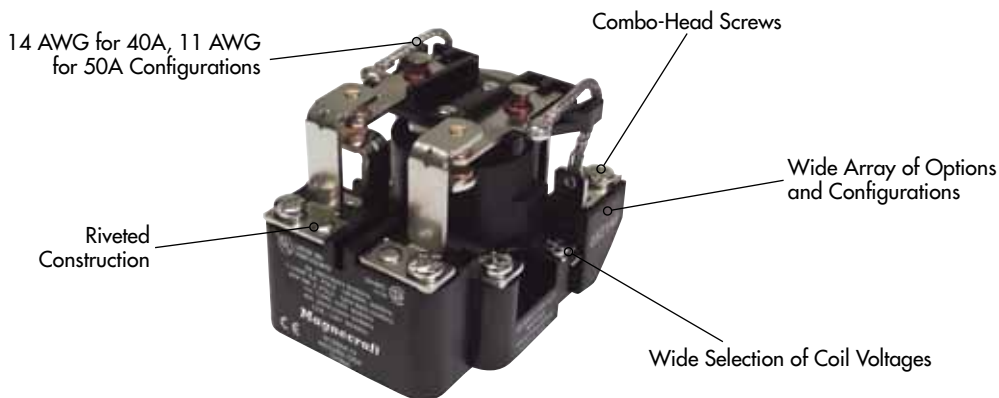
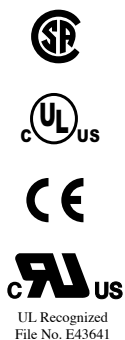


**W199MX-51**  
40Amp



**W199X-3**  
40Amp

# W199 Open Style Power Relay/Single and Two Pole 40 and 50 Amp Rating (DC and AC)



## General Specifications (UL 508)

Contact Characteristics		Units	199, 199A
Number and type of Contacts			SPST, SPDT, DPST, DPDT
Contact materials			Silver Alloy
Thermal (Carrying) Current rating		A	40
Maximum Switching Voltage		V	600V
Switching Current @ Voltage	~	Resistive	40A @ 277V 50/60Hz, 5A @ 600VAC 50/60Hz
	⋮	Resistive	40A @ 28VDC
Blowout magnet	⋮	Resistive	See table A below
		HP	1 1/2 @ 120-600 VAC
		Tungsten	15A @ 120VAC
		Pilot Duty	A600
Minimum Switching Requirement	Minimum	mA	100 @ 12 VAC/VDC
Coil Characteristics			
Voltage Range	~	V	6...600
	% of Nominal	⋮	6...600
Operating Range	~		85% to 110%
	⋮		80% to 110%
Average consumption	~	VA	10
	⋮	W	4
Drop-out voltage threshold	~		10%
	⋮		10%
Performance Characteristics			
Electrical Life (UL 508)	Operations @ Rated Current	(Resistive)	6,000
Operating time (response time)		ms	30
Dielectric	Between coil and contact	~	V
	Between poles	~	V
	Between contacts	~	V
			2200
			2200
			1500
Environment			
Product certifications	Standard version		UL, CSA, CE
Ambient air temperature around the device	Storage	°C	-40...+85
	Operation	°C	-40...+55
Connection		AWG (mm <sup>2</sup> )	8 (10)
Terminal Tightening Torque		in-lb (Nm)	7...9 (0.8...1.0)
Weight		grams	227 to 312

Table A:

Additional DC Rating with Magnetic Blowout	Single Make/Break	Double Make/Break
110 VDC	10 A	20 A
144 VDC	—	15 A
220 VDC	4 A	8 A
325 VDC	2 A	4 A
500 VDC	—	2 A



**Optional Cover  
(50-1289-1)**  
See Section 3 p.22

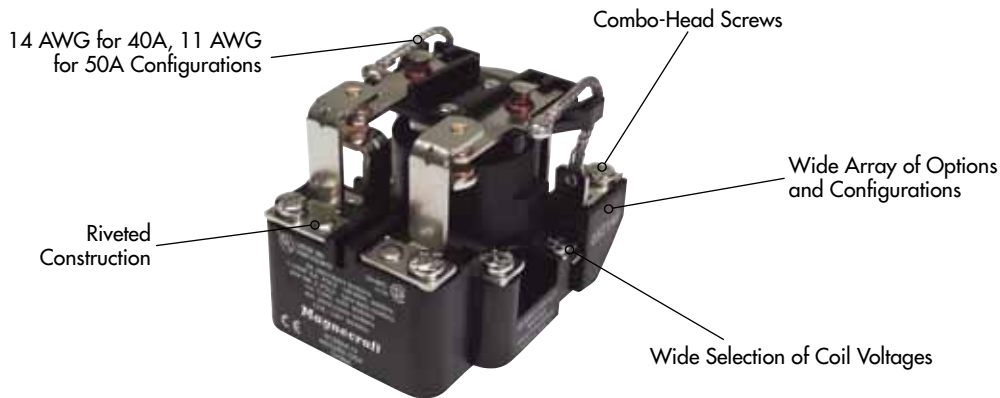
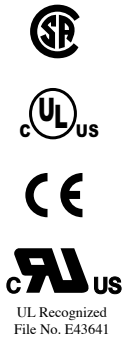


199D, 199DY, 199AD, 199ADY	199P, 199AP	199DE, 199DYE, 199ADE, 199ADYE
SPST-DM, SPST-DB	SPST, SPDT, DPST, DPDT	SPST-DM, SPST-DB
Silver Alloy	Silver Alloy	Silver Alloy
40	50	50
600V	600V	600V
40A @ 277V 50/60Hz, 10A @ 600VAC 50/60Hz	50A @ 277V 50/60Hz, 5A @ 600VAC 50/60Hz	50A @ 277V 50/60Hz, 10A @ 600VAC 50/60Hz
40A @ 28VDC	50A @ 28VDC	50A @ 28VDC
See table A below	See table A below	See table A below
2 @ 120-600 VAC	1 1/2 @ 120-600 VAC	2 @ 120-600 VAC
15A @ 120VAC	15A @ 120VAC	15A @ 120VAC
A600	A600	A600
100 @ 12 VAC/VDC	100 @ 12 VAC/VDC	100 @ 12 VAC/VDC
6...600	6...600	6...600
6...600	6...600	6...600
85% to 110%	85% to 110%	85% to 110%
80% to 110%	80% to 110%	80% to 110%
10	10	10
4	4	4
10%	10%	10%
10%	10%	10%
6,000	6,000	6,000
30	30	30
2200	2200	2200
2200	2200	2200
1500	1500	1500
UL, CSA, CE	UL, CSA, CE	UL, CSA, CE
-40...+85	-40...+85	-40...+85
-40...+55	-40...+55	-40...+55
8 (10)	8 (10)	8 (10)
7...9 (0.8...1.0)	7...9 (0.8...1.0)	7...9 (0.8...1.0)
227 to 312	227 to 312	227 to 312

**Table B:**

Auxiliary Switch Ratings	SPDT	DPDT
Up to 240 VAC 50/60Hz	10 A (AC1)	10 A (AC1)
Motor Load, 120-240 VAC 50/60Hz	1/4 HP	1/4 HP
Pilot Duty, 120-240 VAC 50/60Hz	278 VA	278 VA
125 VDC	0.4 A (DC1)	0.4 A (DC1)
250 VDC	0.2 A (DC1)	0.2 A (DC1)
Tungsten, 120 VAC 50/60Hz	3 A	3 A

# W199 Open Style Power Relay/Single and Two Pole 40 and 50 Amp Rating (DC and AC) *continued*



## Standard Part Numbers

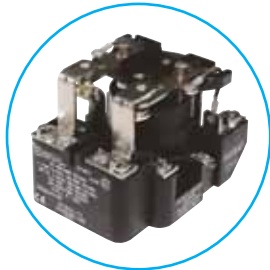
**BOLD-FACED PART NUMBERS ARE NORMALLY STOCKED**

Nominal Input Voltage 40A Rated Relays, AC Operated	Coil Resistance (OHMS)	Part Number	Contact Configuration	Equipped Optional Features
24 VAC 50/60 Hz	12 Ω	<b>W199AX-3</b>	SPDT	
120 VAC 50/60 Hz	290 Ω	<b>W199AX-4</b>	SPDT	
24 VAC 50/60 Hz	12 Ω	<b>W199AX-13</b>	DPDT	
120 VAC 50/60 Hz	290 Ω	<b>W199AX-14</b>	DPDT	
240 VAC 50/60 Hz	1200 Ω	<b>W199AX-15</b>	DPDT	
24 VAC 50/60 Hz	12 Ω	<b>W199AX-8</b>	DPST-NO	
120 VAC 50/60 Hz	290 Ω	<b>W199AX-9</b>	DPST-NO	
240 VAC 50/60 Hz	1200 Ω	<b>W199AX-10</b>	DPST-NO	
120 VAC 50/60 Hz	290 Ω	<b>W199ADX-4</b>	SPST-NO-DM	
240 VAC 50/60 Hz	1200 Ω	W199ADX-5	SPST-NO-DM	
120 VAC 50/60 Hz	290 Ω	<b>W199ADBX-4</b>	SPST-NO-DM	Magnetic Blowout
120 VAC 50/60 Hz	290 Ω	<b>W199ABX-14</b>	DPDT	Magnetic Blowout
120 VAC 50/60 Hz	290 Ω	W199ABMX-7	DPDT	Auxiliary Switch, Magnetic Blowout
120 VAC 50/60 Hz	290 Ω	<b>W199AMX-64</b>	DPDT	Auxiliary Switch
40A Rated Relays, DC Operated				
12 VDC	70 Ω	<b>W199X-2</b>	SPDT	
24 VDC	290 Ω	<b>W199X-3</b>	SPDT	
6 VDC	18 Ω	<b>W199X-11</b>	DPDT	
12 VDC	70 Ω	<b>W199X-12</b>	DPDT	
24 VDC	290 Ω	<b>W199X-13</b>	DPDT	
110 VDC	6000 Ω	<b>W199X-14</b>	DPDT	
12 VDC	70 Ω	<b>W199X-7</b>	DPST-NO	
24 VDC	290 Ω	<b>W199X-8</b>	DPST-NO	
12 VDC	70 Ω	W199DYX-2	SPST-NC-DB	
12 VDC	70 Ω	<b>W199DX-2</b>	SPST-NO-DM	
24 VDC	290 Ω	<b>W199DX-3</b>	SPST-NO-DM	
24 VDC	290 Ω	W199DBX-3	SPST-NO-DM	Magnetic Blowout
48 VDC	1200 Ω	W199DBX-6	SPST-NO-DM	Magnetic Blowout
24 VDC	290 Ω	<b>W199BX-13</b>	DPDT	Magnetic Blowout
110 VDC	6000 Ω	<b>W199BX-14</b>	DPDT	Magnetic Blowout
24 VDC	290 Ω	W199BMX-13	DPDT	Auxiliary Switch, Magnetic Blowout
24 VDC	290 Ω	W199MX-51	DPDT	Auxiliary Switch
50A Rated Relays				
24 VAC 50/60 Hz	8 Ω	W199APX-13	DPDT	
120 VAC 50/60 Hz	260 Ω	W199APX-14	DPDT	
240 VAC 50/60 Hz	1040 Ω	W199APX-15	DPDT	
120 VAC 50/60 Hz	290 Ω	W199ADEX-4	SPST-NO-DM	Pressure Wire Connectors
6 VDC	18 Ω	199PX-11	DPDT	
12 VDC	70 Ω	W199PX-12	DPDT	
24 VDC	260 Ω	W199PX-13	DPDT	
110 VDC	6000 Ω	199PX-14	DPDT	
24 VDC	290 Ω	W199DEX-3	SPST-NO-DM	Pressure Wire Connectors
110 VDC	6000 Ω	199QMKKX-1	DPDT	1/4" QC Term. On Coil, Auxiliary Switch

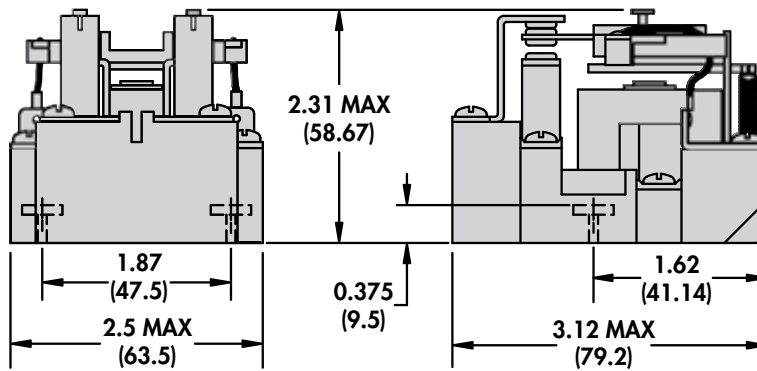
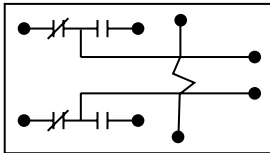
\*Contact Magnecraft for more configurations to fit your applications.



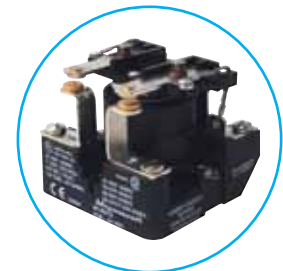
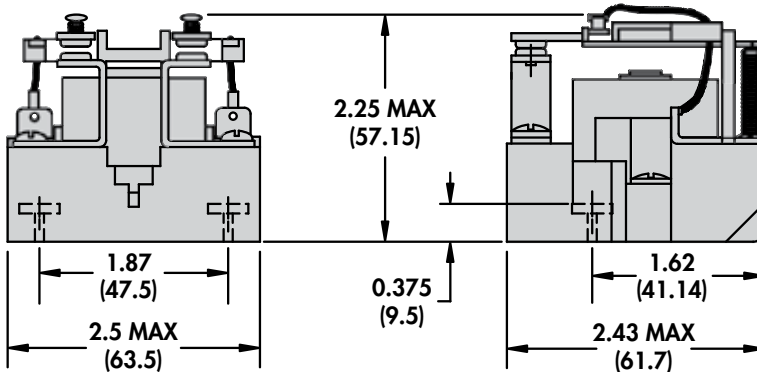
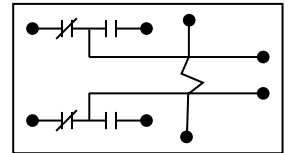
Optional Cover  
(50-1289-1)  
See Section 3 p.22



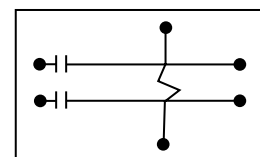
DPDT



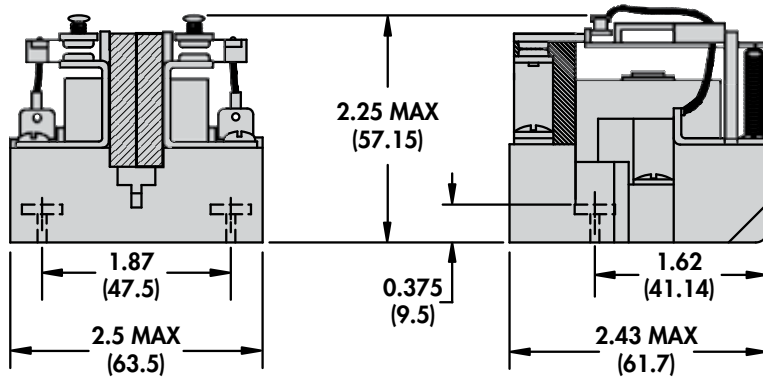
DPDT



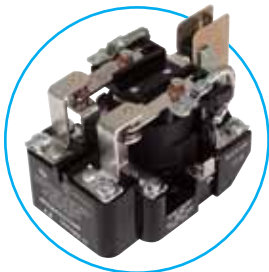
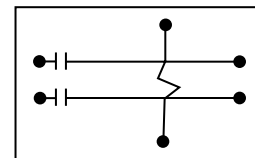
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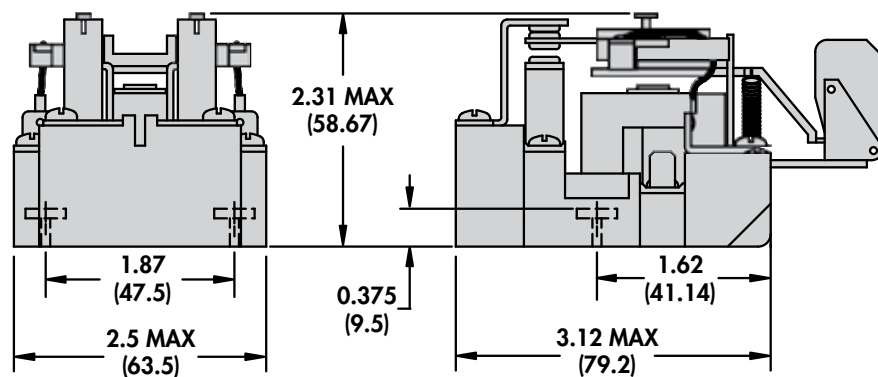
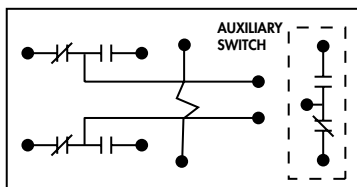
W199 Open Style Power Relay/Single and Two Pole 40 and 50 Amp Rating (DC and AC) *continued*



DPST-NO w/Blowout Magnet



DPDT w/Auxiliary Switch and QC Connectors on Coil

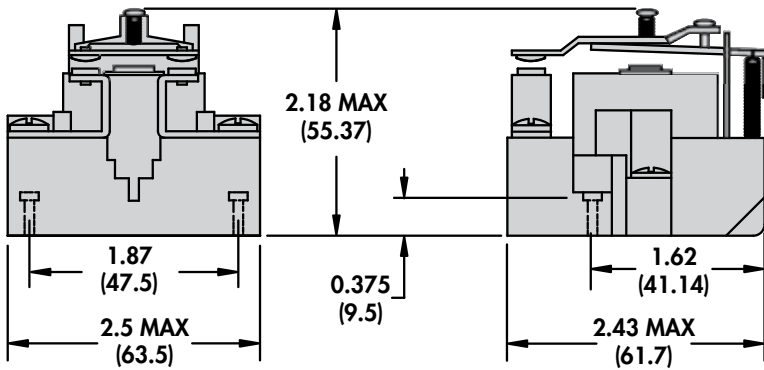
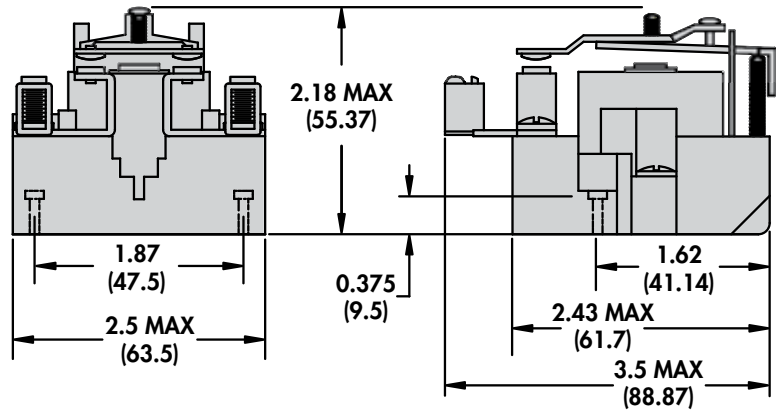
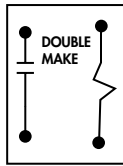


\*More configurations available.

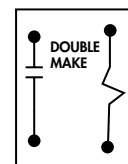




SPST-NO-DM w/Pressure Wire Connectors



SPST-NO-DM

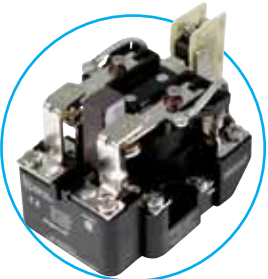
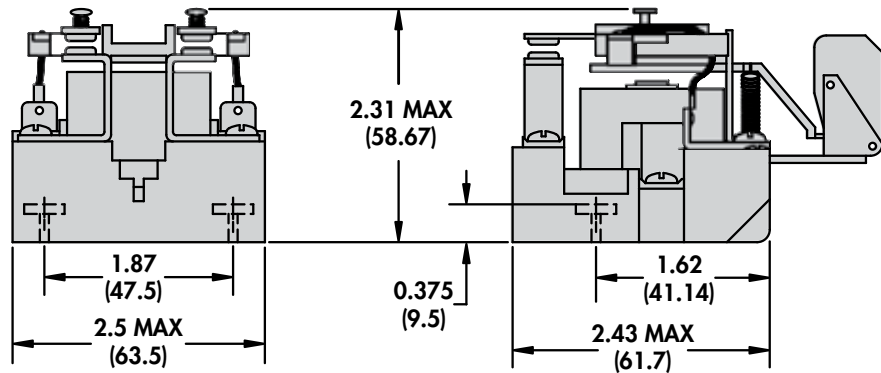
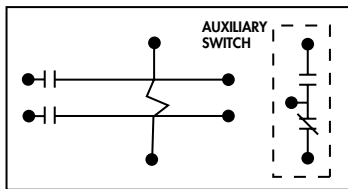


\*More configurations available.

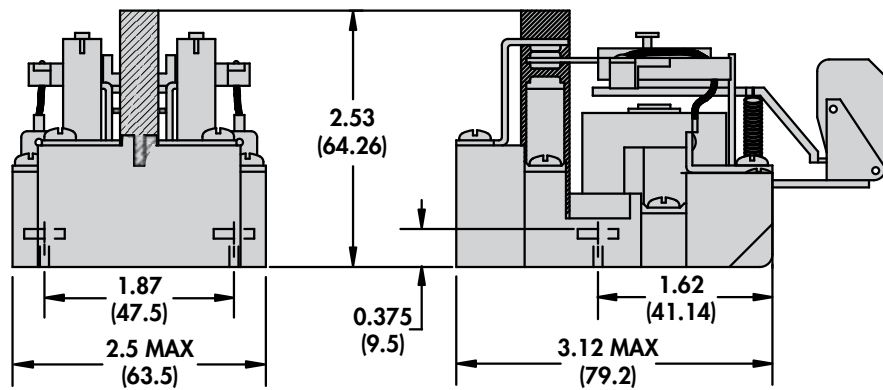
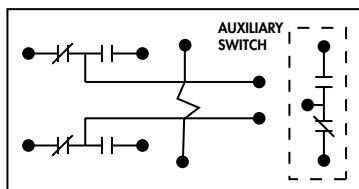
W199 Open Style Power Relay/Single and Two Pole 40 and 50 Amp Rating (DC and AC) *continued*



DPST-NO w/Auxiliary Switch



DPDT w/Blowout Magnet and Auxiliary Switch

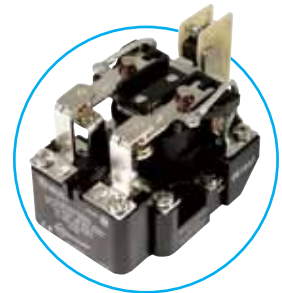
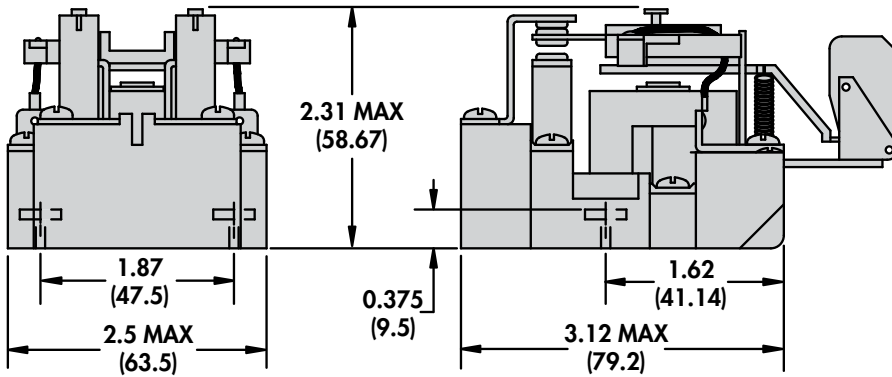
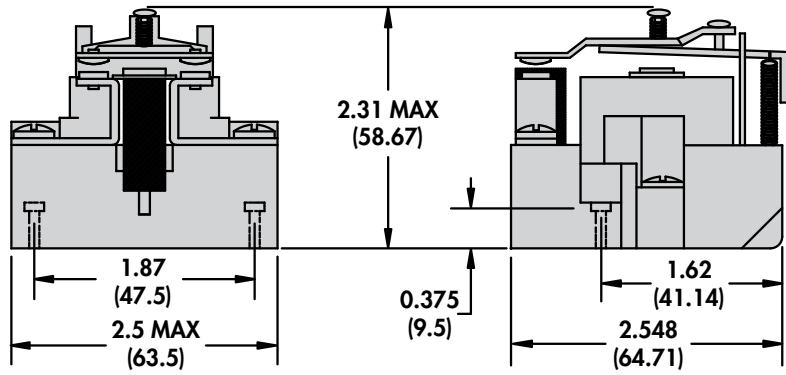
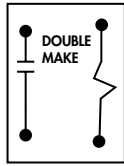


SECTION 6

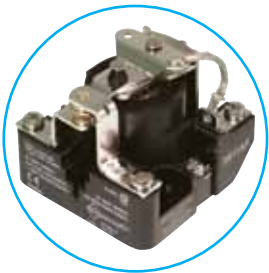
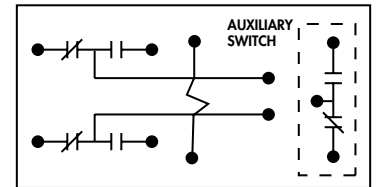
\*More configurations available.



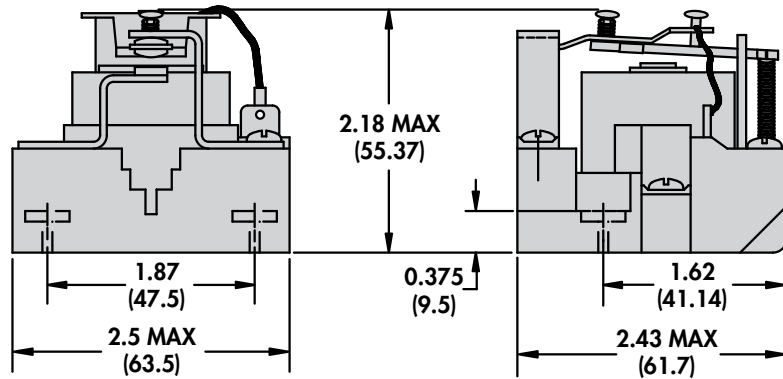
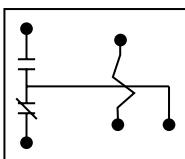
SPST-NO-DM w/Blowout Magnet



DPDT w/Auxiliary Switch

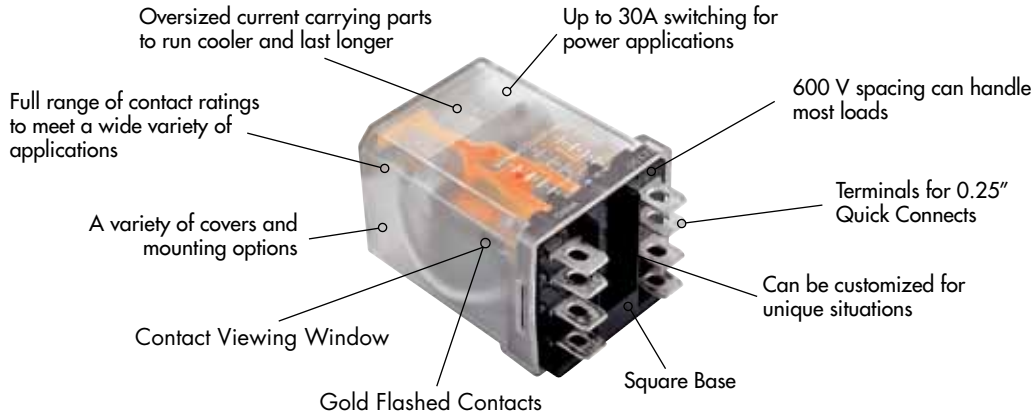


SPDT



\*More configurations available.

## 389F Power Relays/One, Two or Three Pole 20-30 Amp Rating (DC and AC)



### General Specifications - (UL 508)

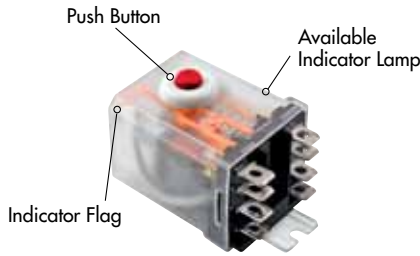
Contact Characteristics		389FHXX, XHX	389FXAX, BXX, XBX	389FCXX, XCX
Number and type of contacts		SPST-NO-DM, SPDT-DM-DB	SPST, SPDT, DPST, DPDT	3PST, 3PDT
Contact materials		Silver Alloy	Silver Alloy	Silver Alloy
Thermal (carrying) current		30 A	25 A	20 A
Maximum switching voltage		600 V	600 V	300 V
Switching current @ voltage	Resistive	30 A @ 300 VAC 50/60Hz 30 A @ 28 VDC	25 A @ 300 VAC 50/60Hz 13 A @ 28 VDC	20 A @ 150 VAC 50/60Hz 13 A @ 28 VDC
	Ballast	25 A @ 277 VAC 50/60Hz	20 A @ 277 VAC 50/60Hz	20 A @ 150 VAC 50/60Hz 6.67 A @ 277 VAC 50/60Hz
	HP	1.5 @ 200-300 V 50/60Hz 1 @ 120-199 V 50/60Hz	1.5 @ 208-240 V 50/60Hz 1 @ 480-600 V 50/60Hz	0.5 @ 208-240 V 50/60Hz 0.5 @ 120 V 50/60Hz
	Pilot Duty	A600	B600	B300
Minimum switching requirement		100 mA @ 5 VDC or 0.5 W	100 mA @ 5 VDC or 0.5 W	100 mA @ 5 VDC or 0.5 W
Coil Characteristics				
Voltage range		12 to 240 VAC 12 to 110 VDC	12 to 240 VAC 12 to 110 VDC	12 to 240 VAC 12 to 110 VDC
Operating range (% of nominal)		85% to 110% AC 80% to 110% DC	85% to 110% AC 80% to 110% DC	85% to 110% AC 80% to 110% DC
Average consumption		3.5 VA 1.44 W	3.5 VA 1.44 W	3.5 VA 1.44 W
Drop-out voltage threshold		10% AC/DC	10% AC/DC	10% AC/DC
Performance Characteristics				
Electrical life (operations @ rated current)		100,000 operations	100,000 operations	100,000 operations
Mechanical life (unpowered)		5,000,000 operations	5,000,000 operations	5,000,000 operations
Operating time (response time)		20 ms	20 ms	20 ms
Dielectric strength	Between coil and contact	2000 VAC	2000 VAC	2000 VAC
	Between poles	2000 VAC	2000 VAC	2000 VAC
	Between contacts	500 VAC	500 VAC	500 VAC
Environment				
Product certifications	Standard version	UL, CE, CSA	UL, CE, CSA	UL, CE, CSA
Ambient air temperature around the device	Storage	-40 to 85 °C	-40 to 85 °C	-40 to 85 °C
	Operation	-40 to 55 °C	-40 to 55 °C	-40 to 55 °C
Weight		88 g	88 g	88 g

### Part Number Builder

389F	XBX	C1M	-120	A
Series	Configuration	Options**	Voltage	Current Type
389F = Standard model equipped with flag indicator	<b>XAX</b> = SPDT <b>BXX</b> = DPST-NO <b>XBX</b> = DPDT <b>CXX</b> = 3PST-NO <b>XCX</b> = 3PDT <b>HXX</b> = SPST-NO-DM <b>XHX</b> = SPDT-DM-DB	<b>B</b> = Mounting base <b>C</b> = Plastic dust cover - socket mountable <b>C1</b> = Side flange mount cover <b>C3</b> = Top flange cover <b>L</b> = Indicator lamp across coil <b>M</b> = Manual operator button on case <b>T</b> = Printed circuit board terminals	Coil Voltage	<b>A</b> = AC <b>D</b> = DC

Note - Not all iterations of option codes are available and some standard parts may use different nomenclature than outlined in part number builder.

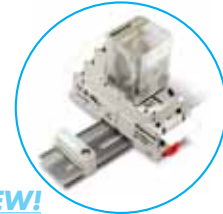
\*\*Multiple codes may be used.



Side Flange Cover  
Option C1



Plain Cover  
Option C



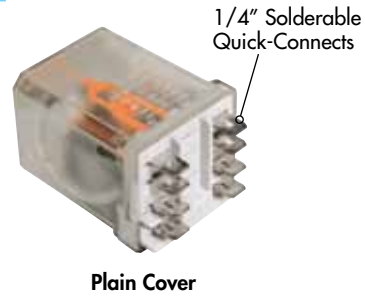
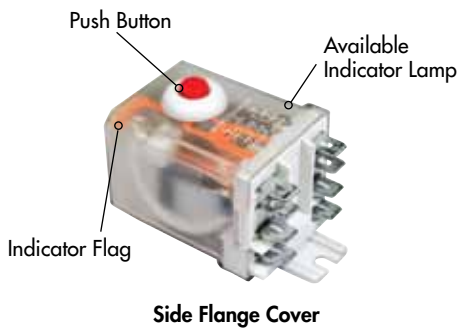
389 Relay with the  
70-788EL11-1 Socket

**Standard Part Numbers**

**BOLD-FACED PART NUMBERS ARE NORMALLY STOCKED**

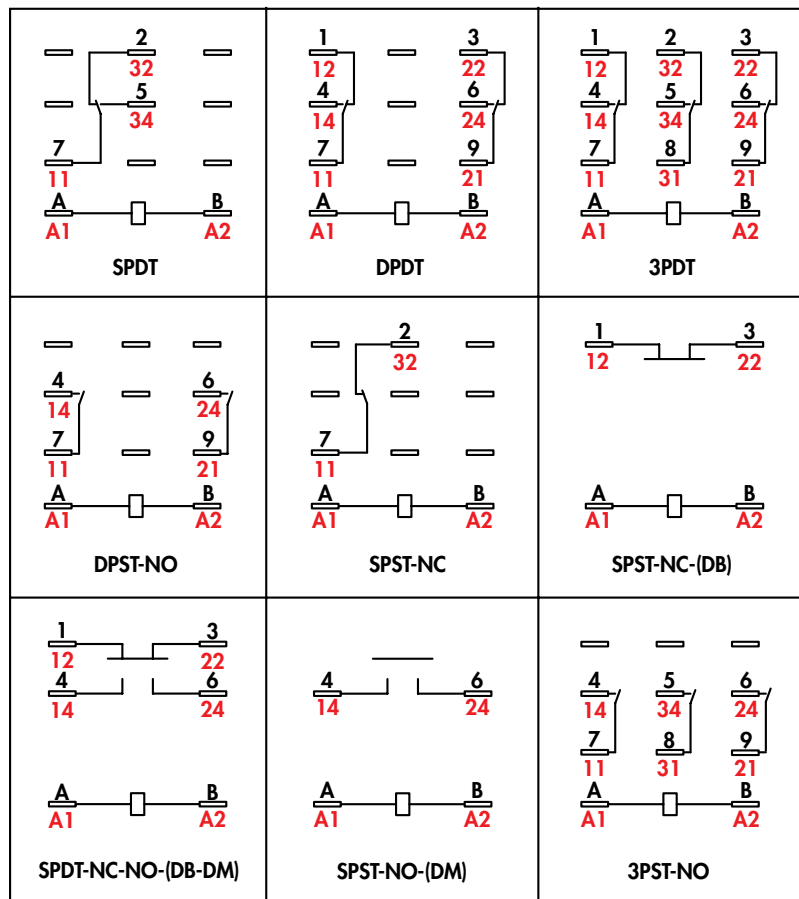
Nominal Input Voltage	Coil Resistance	Part Number	Contact Configuration
<b>25 Amp, AC Operated Flange Mount with Push Button</b>			
220/240 VAC, 50/60 Hz	7200 Ω	389FBXC1M-240A	DPDT
110/120 VAC, 50/60 Hz	1700 Ω	389FBXC1M-120A	DPDT
<b>20 Amp, AC Operated Flange Mount with Push Button</b>			
220/240 VAC, 50/60 Hz	4600 Ω	389FCXC1M-240A	3PDT
110/120 VAC, 50/60 Hz	1200 Ω	389FCXC1M-120A	3PDT
<b>25 Amp, DC Operated Flange Mount with Push Button</b>			
12 VDC	100 Ω	389FBXC1M-12D	DPDT
24 VDC	400 Ω	389FBXC1M-24D	DPDT
<b>20 Amp, DC Operated Flange Mount with Push Button</b>			
12 VDC	100 Ω	389FCXC1M-12D	3PDT
24 VDC	400 Ω	389FCXC1M-24D	3PDT
<b>30 Amp, AC Operated Flange Mount</b>			
110/120 VAC 50/60 Hz	1100 Ω	389FHXC1-120A	SPST-NO-DM
220/240 VAC 50/60 Hz	4300 Ω	389FHXC1-240A	SPST-NO-DM
24 VAC 50/60 Hz	44 Ω	389FHXC1-24A	SPDT-DM-DB
110/120 VAC 50/60 Hz	1100 Ω	389FHXC1-120A	SPDT-DM-DB
<b>30 Amp, DC Operated Flange Mount</b>			
12 VDC	100 Ω	389FHXC1-12D	SPST-NO-DM
24 VDC	400 Ω	389FHXC1-24D	SPST-NO-DM
12 VDC	100 Ω	389FHXC1-12D	SPDT-DM-DB
24 VDC	400 Ω	389FHXC1-24D	SPDT-DM-DB
<b>25 Amp, AC Operated Flange Mount</b>			
110/120 VAC 50/60 Hz	1700 Ω	389FXAXC1-120A	SPDT
24 VAC 50/60 Hz	72 Ω	389FBXC1-24A	DPDT
110/120 VAC 50/60 Hz	1700 Ω	389FBXC1-120A	DPDT
220/240 VAC 50/60 Hz	7200 Ω	389FBXC1-240A	DPDT
<b>20 Amp, AC Operated Flange Mount</b>			
110/120 VAC 50/60 Hz	1200 Ω	389FCXC1-120A	3PDT
220/240 VAC 50/60 Hz	4600 Ω	389FCXC1-240A	3PDT
<b>25 Amp, DC Operated Flange Mount</b>			
12 VDC	100 Ω	389FXAXC1-12D	SPDT
24 VDC	400 Ω	389FXAXC1-24D	SPDT
12 VDC	100 Ω	389FBXC1-12D	DPDT
24 VDC	400 Ω	389FBXC1-24D	DPDT
<b>20 Amp, DC Operated Flange Mount</b>			
12 VDC	100 Ω	389FCXC1-12D	DPDT
24 VDC	400 Ω	389FCXC1-24D	DPDT
<b>25 Amp, AC Operated Socket Compatible</b>			
220 / 240 VAC 50/60 Hz	7200 Ω	<b>389FBXC-240A</b>	DPDT
110 / 120 VAC 50/60 Hz	1700 Ω	<b>389FBXC-120A</b>	DPDT
24 VAC 50/60 Hz	72 Ω	<b>389FBXC-24A</b>	DPDT
<b>25 Amp, DC Operated Socket Compatible</b>			
110/125 VDC	8000 Ω	389FBXC-110/125D	DPDT
24 VDC	400 Ω	<b>389FBXC-24D</b>	DPDT
<b>20 Amp, AC Operated Socket Compatible</b>			
220/240 VAC 50/60 Hz	4600 Ω	389FCXC-240A	DPDT
110/120 VAC 50/60 Hz	1200 Ω	<b>389FCXC-120A</b>	DPDT
24 VAC 50/60 Hz	46 Ω	<b>389FCXC-24A</b>	DPDT
<b>20 Amp, DC Operated Socket Compatible</b>			
110/125 VDC	8000 Ω	389FCXC-110/125D	DPDT
24 VDC	400 Ω	<b>389FCXC-24D</b>	DPDT

# 389F Power Relays/One, Two or Three Pole 20-30 Amp Rating (DC and AC) *continued*



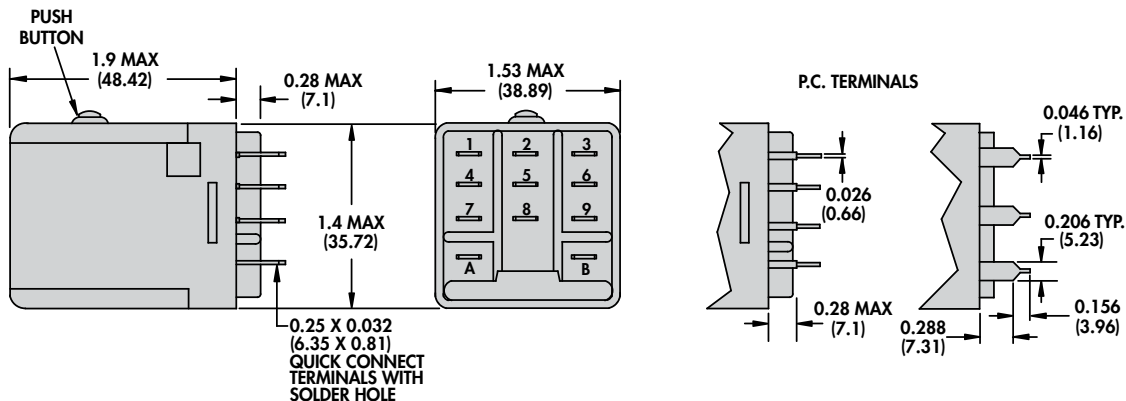
## WIRING DIAGRAMS BOTTOM VIEW

## NEMA IEC



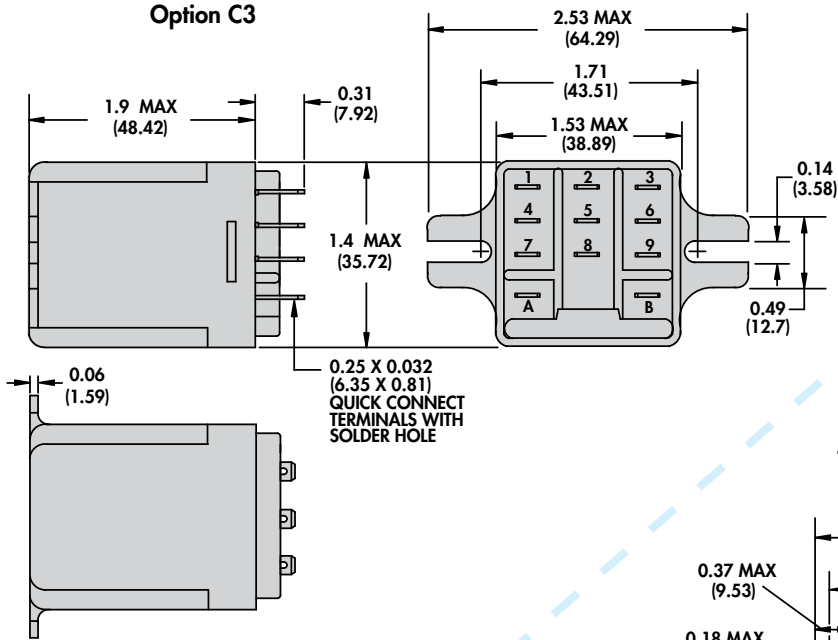
**PLAIN/PUSH BUTTON COVER STYLE**

**Option C**



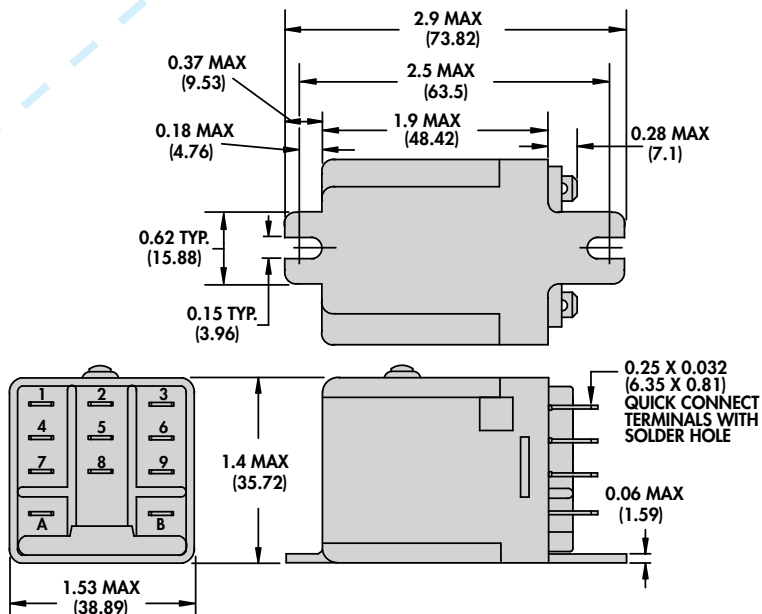
**TOP FLANGE COVER STYLE**

**Option C3**

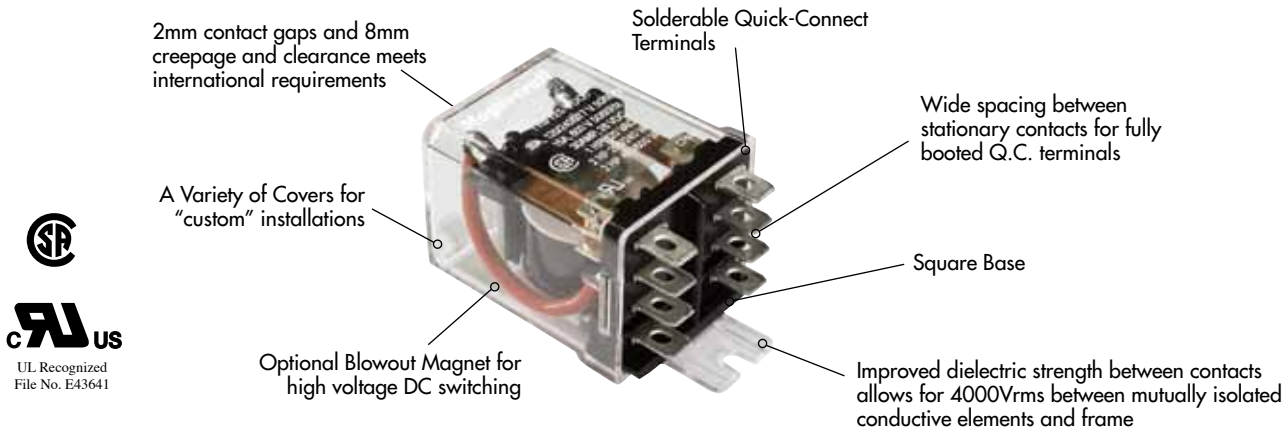


**SIDE FLANGE COVER STYLE**

**Option C1**



## 300 Series Power Relays/Two Pole 30 Amp Rating (DC and AC)



### General Specifications

(UL 508)

Contact Characteristics		Units	Standard	SPST-NO-DM
Number and type of Contacts			SPST, SPDT, DPST, DPDT	SPST-NO-DM
Contact materials			Silver Alloy	Silver Alloy
Thermal (Carrying) Current		A	30	30
Maximum Switching Voltage		V	600V	600V
Switching current @ voltage	~	Resistive	30A @ 300V 50/60Hz	30A @ 300V 50/60Hz
	≡	Resistive	30A @ 28V	30A @ 28V
		HP	2 @ 208-600 VAC	2 @ 208-600 VAC
		HP	1 @ 120 VAC	1 @ 120 VAC
		Pilot Duty	5.5 A @ 120 VAC	5.5 A @ 120 VAC
Current rating with magnetic blowout	≡	A	3 @ 150V ('69' Suffix)	10 @ 150V ('69' Suffix)
Minimum Switching Requirement		mA	500 @ 12 VAC/VDC	500 @ 12 VAC/VDC
	Minimum			
Coil Characteristics				
Voltage Range		~	6...240	6...240
		≡	6...125	6...125
Operating Range		~	85% to 110%	85% to 110%
	% of Nominal	≡	80% to 110%	80% to 110%
Average consumption		~	3.4	3.4
		≡	1.5	1.5
Drop-out voltage threshold		~	30%	30%
		≡	10%	10%
Performance Characteristics				
Electrical Life (UL 508)		(Resistive)	30,000	30,000
Mechanical Life	Operations @ Rated Current		5,000,000	5,000,000
Operating time (response time)	Unpowered	ms	20	20
Dielectric		~	2500	2500
	Between coil and contact	~	4000	4000
	Between poles	~	2500	2500
	Between contacts	~	2500	2500
Environment				
Product certifications			UL, CSA	UL, CSA
Ambient air temperature around the device	Standard version	°C	-40...+85	-40...+85
	Storage	°C	-40...+55	-40...+55
Weight	Operation	grams	85	85

### Part Number Builder

Series	Configuration	DC Switching Option
300	XBX	
300 = Standard	XAX = SPDT	69 = Magnetic Blowouts near contacts
F300 = Class F Coil	BXX = DPST-NO	
	XBX = DPDT	
	XXB = DPST-NC	
	HXX = SPST-NO-DM	





300BXC1



300BXC4

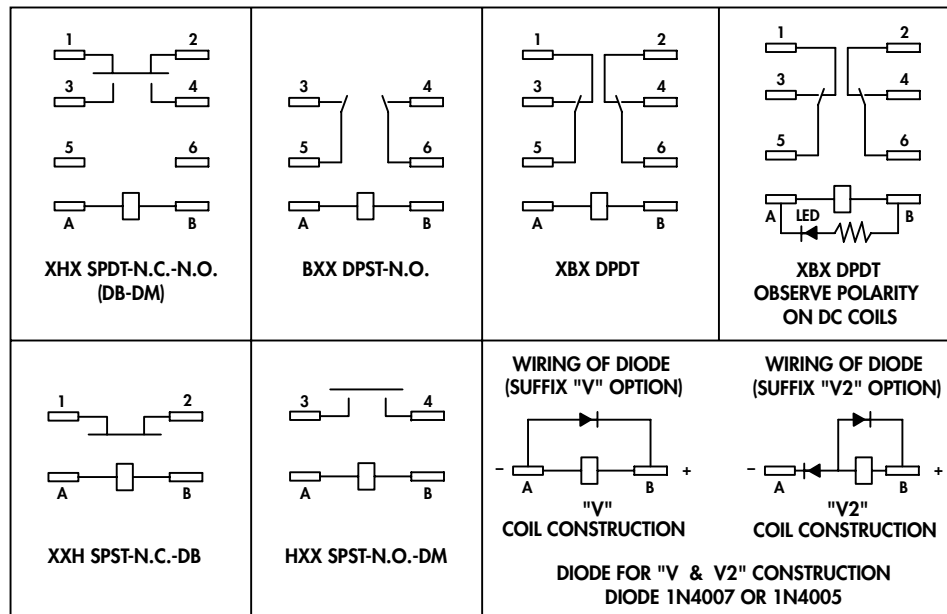
Available DIN rail mountable cover

**Standard Part Numbers**

**BOLD-FACED PART NUMBERS ARE NORMALLY STOCKED**

Nominal Input Voltage	Coil Resistance (OHMS)	Part Number	Contact Configuration
220/240 VAC, 50/60 Hz	5400 Ω	<b>300BXC1-240A</b>	DPDT
110/120 VAC, 50/60 Hz	1270 Ω	<b>300BXC1-120A</b>	DPDT
24 VAC, 50/60 Hz	54 Ω	<b>300BXC1-24A</b>	DPDT
12 VAC, 50/60 Hz	13.5 Ω	300BXC1-12A	DPDT
110/125 VDC	6300 Ω	300BXC1-110D	DPDT
24 VDC	300 Ω	<b>300BXC1-24D</b>	DPDT
12 VDC	75 Ω	<b>300BXC1-12D</b>	DPDT
110/125 VDC	6300 Ω	300BX69C1-110D	DPDT
24 VDC	300 Ω	<b>300BX69C4-24D</b>	DPDT
12 VDC	75 Ω	300BX69C1-12D	DPDT

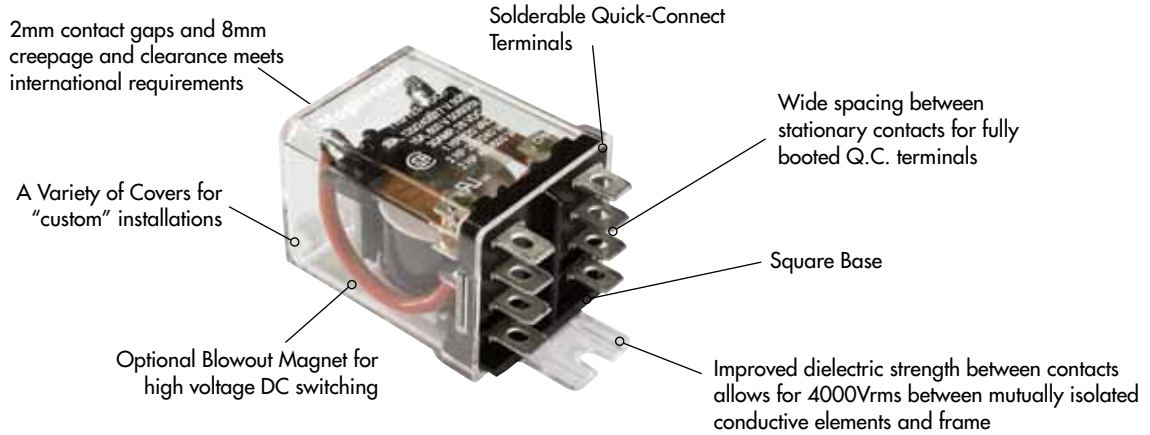
**WIRING DIAGRAMS**



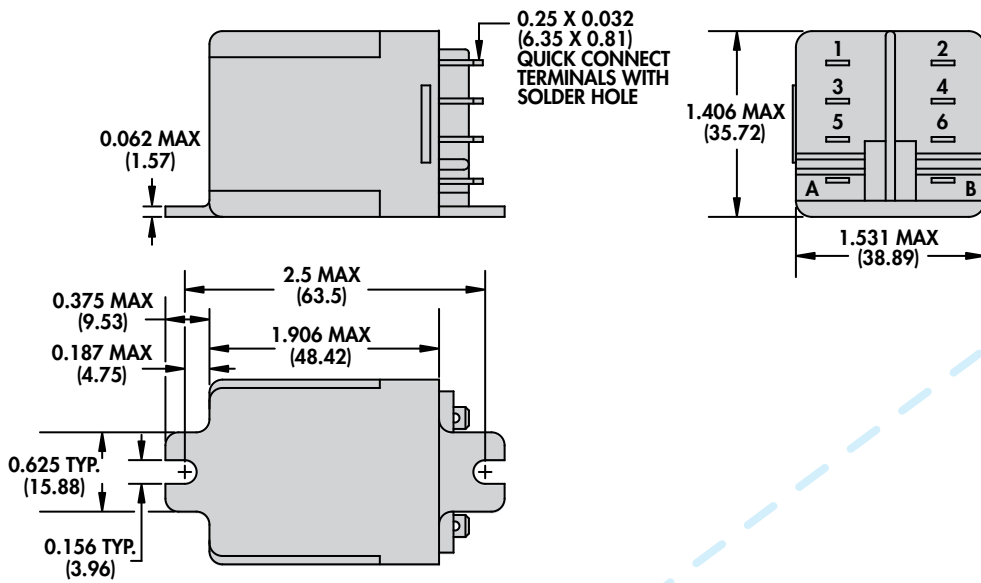
C1 Cover	Options*	-12 Coil Voltage	D Current Type
C = Clear polycarbonate cover (To be used with PC Terminals)	M = Manual Operator	Coil Voltage	A = AC
C1 = Side flange mount cover	L = Lamp across contacts		D = DC
C2 = Cover with anti-rotation tabs and thread mounting hole in frame	T = Printed wiring terminals		
C3 = Top flanged cover			
C4 = Top DIN mount cover			

\*Multiple Codes May be Used

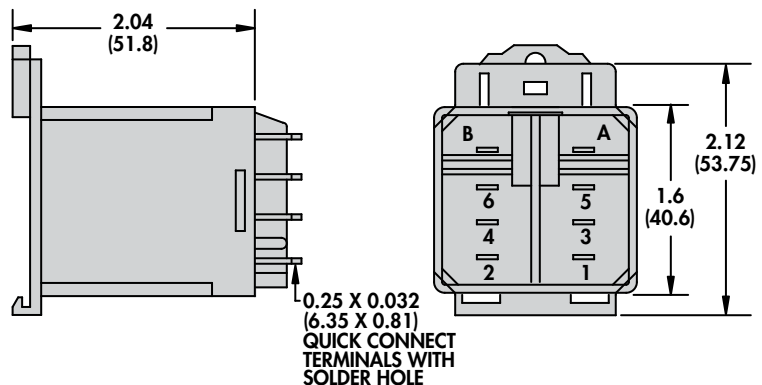
# 300 Series Power Relays/Two Pole 30 Amp Rating (DC and AC) *continued*



## SIDE MOUNTING COVER STYLE



## DIN RAIL MOUNTED STYLE





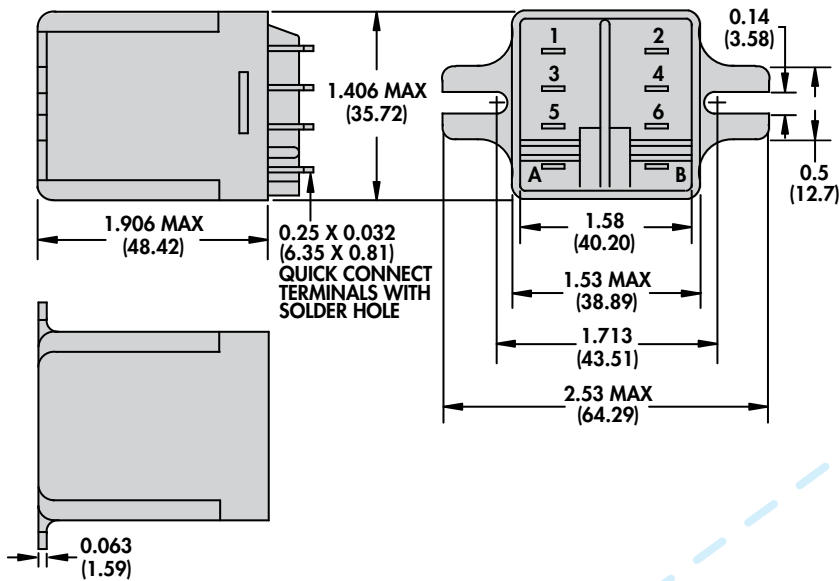
300BXC1



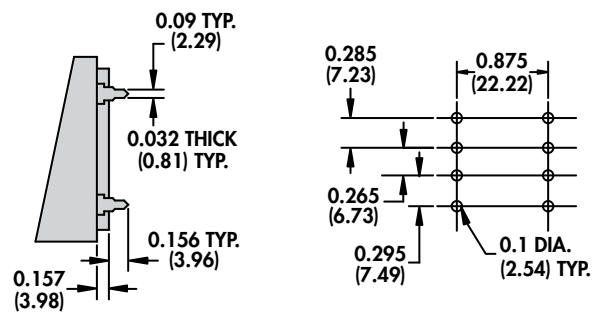
300BXC4

Available DIN rail mountable cover

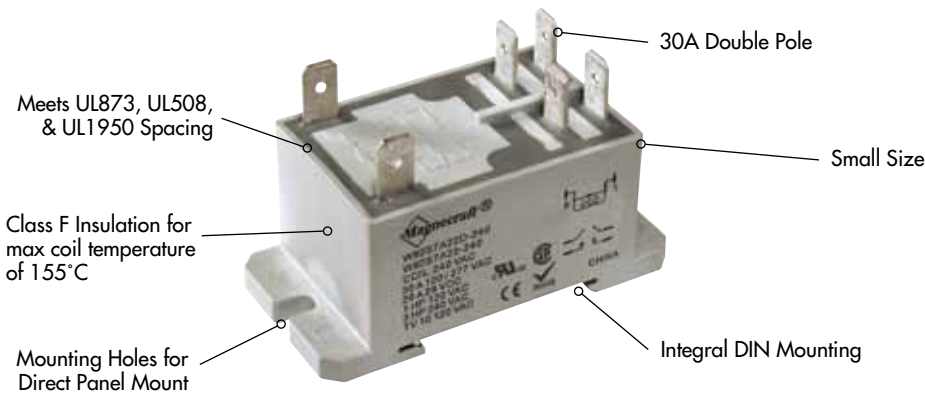
**TOP FLANGE COVER STYLE**



**PRINTED CIRCUIT TERMINAL**



## 92 Combination DIN and Flange Mount Power Relay/DPST-NO and DPDT 30 Amp Rating (DC and AC)



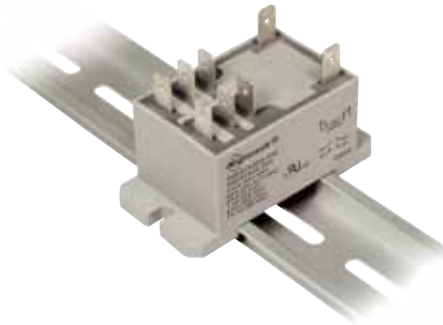
### General Specifications

(UL 508)

		Units		Single Throw	Double Throw				
				92S7	92S11				
<b>Contact Characteristics</b>									
Number and type of Contacts				DPST-NO	DPDT-NO				
Contact materials				Silver Alloy	Silver Alloy				
Thermal (Carrying) Current		A		30	30				
Maximum Switching Voltage		V		300V	300V				
Switching Current @ Voltage	~	Resistive	30A @ 277V 50/60Hz	30A @ 277V 50/60Hz	3A @ 277V 50/60Hz				
						Resistive	20A @ 28V	20A @ 28V	3A @ 28V
						HP	1 @ 120V 50/60Hz	1 @ 120V 50/60Hz	-
Pilot Duty	~	Pilot Duty	720 VA	720 VA	-				
Minimum Switching Requirement	Minimum			500 @ 12 VAC/VDC	500mA @ 12 VAC/VDC				
<b>Coil Characteristics</b>									
Voltage Range	~	V	12...240	12...240	12...240				
						~	6...110	6...110	
Operating Range	~	% of Nominal	80% to 120%	80% to 120%	80% to 120%				
						~	75% to 120%	75% to 120%	
Average consumption	~	VA	4	4	4				
						~	1.7	1.7	
Drop-out voltage threshold	~	W	10%	10%	10%				
						~	10%	10%	
<b>Performance Characteristics</b>									
Electrical Life (UL 508)	Operations @ Rated Current	(Resistive)	100,000	100,000	100,000				
Mechanical Life	Unpowered		5,000,000	5,000,000	5,000,000				
Operating time (response time)		ms	15	15	15				
Dielectric	Between coil and contact	~	4000	4000	4000				
	Between poles	~	2000	2000	2000				
	Between contacts	~	1500	1500	1500				
<b>Environment</b>									
Product certifications	Standard version		UL, CE, CSA	UL, CE, CSA	UL, CE, CSA				
Ambient air temperature around the device	Storage	°C	-40...+85	-40...+85	-40...+85				
	Operation	°C	-40...+55	-40...+55	-40...+55				
Vibration resistance	Operational	g-n	3, 10-55Hz	3, 10-55Hz	3, 10-55Hz				
Shock resistance		g-n	10	10	10				
Weight		grams	86	86	86				

### Part Number Builder

92	S	7	D	22D	-12
Series	Cover	Configuration	Current Type	Mounting	Voltage
92	S = Sealed dust cover	7 = DPST-NO 11 = DPDT	A = AC D = DC	22D = DIN rail mount cover	Coil Voltage

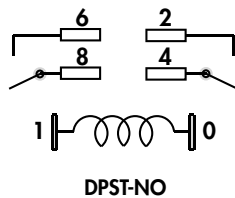
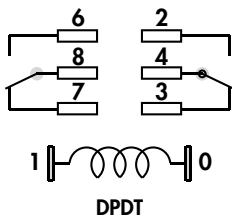


**Standard Part Numbers**

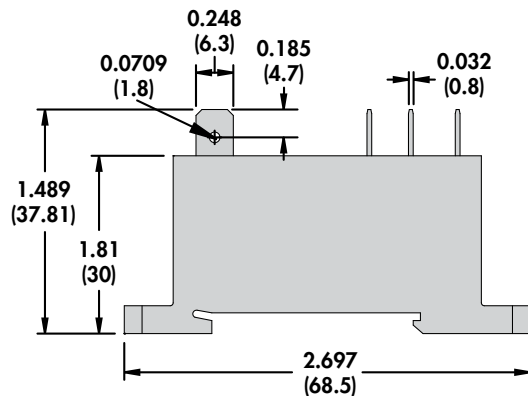
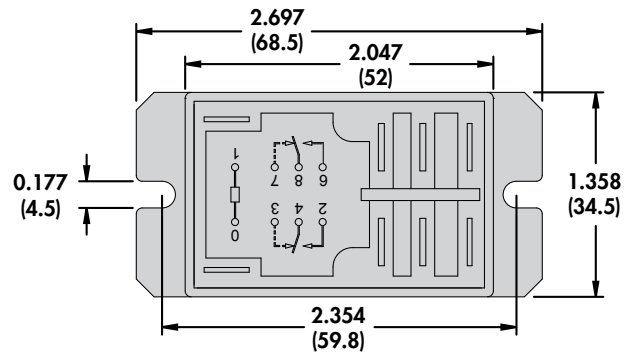
**BOLD-FACED PART NUMBERS ARE NORMALLY STOCKED**

Nominal Input Voltage	Coil Resistance (OHMS)	DIN Part Number	Supersedes Part Number	Contact Configuration
24 VAC, 50/60 Hz	250 Ω	<b>92S7A22D-24</b>	W92S7A22-24	DPST-NO
120 VAC, 50/60 Hz	1600 Ω	<b>92S7A22D-120</b>	W92S7A22-120	DPST-NO
240 VAC, 50/60 Hz	6500 Ω	<b>92S7A22D-240</b>	W92S7A22-240	DPST-NO
24 VAC, 50/60 Hz	250 Ω	<b>92S11A22D-24</b>	W92S11A22-24	DPDT
120 VAC, 50/60 Hz	1600 Ω	<b>92S11A22D-120</b>	W92S11A22-120	DPDT
240 VAC, 50/60 Hz	6500 Ω	<b>92S11A22D-240</b>	W92S11A22-240	DPDT
12 VDC	86 Ω	<b>92S7D22D-12</b>	W92S7D22-12	DPST-NO
24 VDC	350 Ω	<b>92S7D22D-24</b>	W92S7D22-24	DPST-NO
110/125 VDC	7255 Ω	<b>92S7D22D-110</b>	W92S7D22-110	DPST-NO
12 VDC	86 Ω	<b>92S11D22D-12</b>	W92S11D22-12	DPDT
24 VDC	1600 Ω	<b>92S11D22D-24</b>	W92S11D22-24	DPDT
110/125 VDC	6500 Ω	<b>92S11D22D-110</b>	W92S11D22-110	DPDT

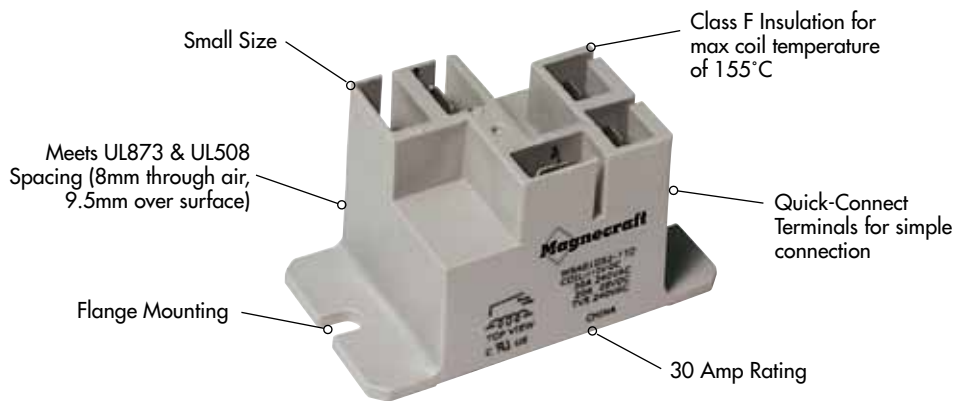
**WIRING DIAGRAMS**



ONLY NECESSARY TERMINALS ARE PRESENT ON SINGLE THROW STYLES



## 9A Miniature Power Relays/SPST and SPDT 30 Amp Rating (DC and AC)

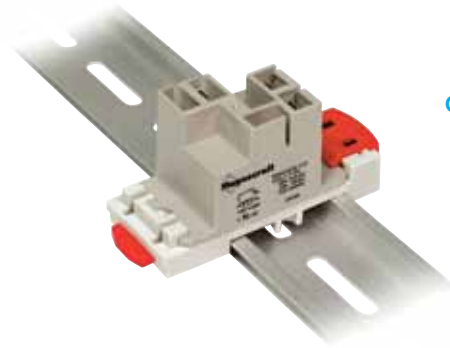


### General Specifications

(UL 508)

SPST

Contact Characteristics		Units	9AS1
Number and type of Contacts			SPST-NO
Contact materials			Silver Alloy
Thermal (Carrying) Current		A	30
Maximum Switching Voltage		V	300V
Switching Current @ Voltage	~	Resistive	30A @ 240V 50/60Hz
	≡	Resistive	30A @ 28V
		HP	2 @ 240V 50/60Hz
		HP	1 @ 125V 50/60Hz
		Pilot Duty	470 VA
Minimum Switching Requirement	Minimum	mA	100 @ 5 VDC, 12 VAC
Coil Characteristics			
Voltage Range		~	V
	% of Nominal	≡	V
Operating Range		~	12...277
		≡	5...110
		~	85% to 120%
		≡	75% to 120%
Average consumption		~	VA
		≡	W
Drop-out voltage threshold		~	1
		≡	10%
		≡	10%
Performance Characteristics			
Electrical Life (UL 508)	Operations @ Rated Current	(Resistive)	100,000
Mechanical Life	Unpowered		10,000,000
Operating time (response time)		ms	15
Dielectric	Between coil and contact	~	V
	Between contacts	~	V
			2500
			1500
Environment			
Product certifications	Standard version		UL
Ambient air temperature around the device	Storage	°C	-40...+85
	Operation	°C	-40...+55
Vibration resistance	Operational	g-n	3, 10-55Hz
Shock resistance		g-n	10
Weight		grams	33

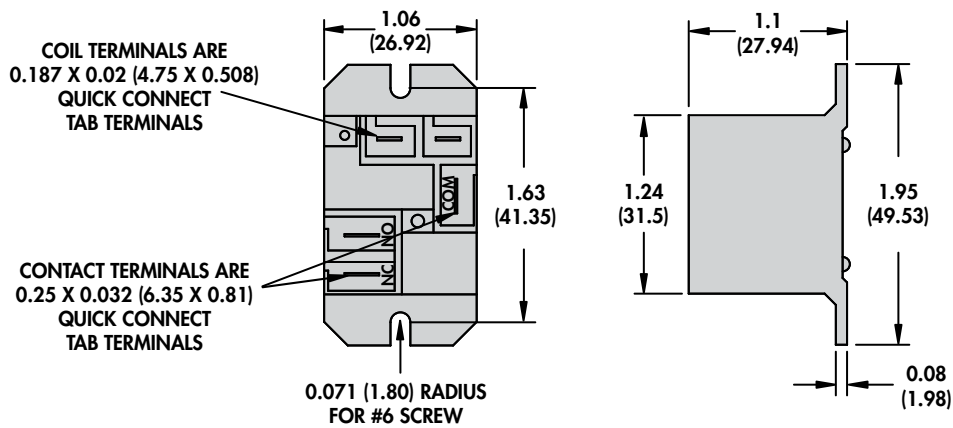
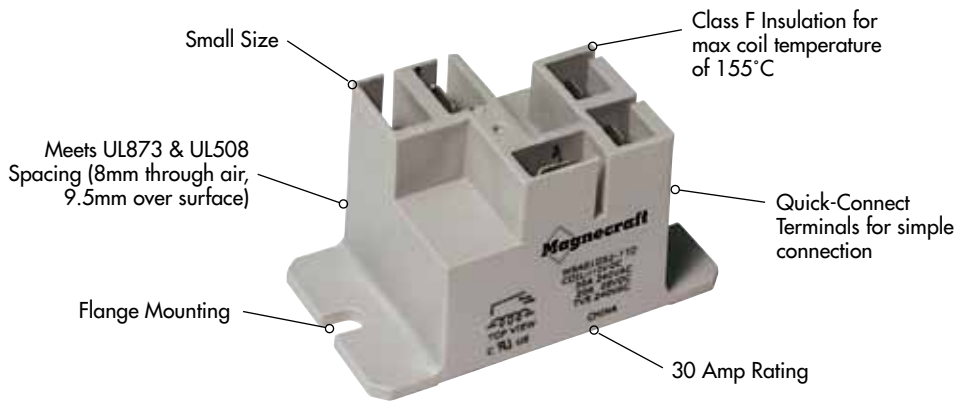


Optional DIN Rail Adapter  
(16-9ADIN-1)  
See Section 3 p.17

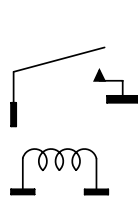
**SPDT**

Normally Open Contact	Normally Closed Contact
Silver Alloy	Silver Alloy
30	15
300V	300V
30A @ 240V 50/60Hz	15A @ 240 50/60Hz Max
30A @ 28V	10A @ 28V
2 @ 240V 50/60Hz	1/2 @ 240 V 50/60Hz
1 @ 125V 50/60Hz	1/4 @ 125 V 50/60Hz
470 VA	275 VA
100 @ 5 VDC, 12 VAC	100 @ 5 VDC, 12 VAC
12...277	
5...110	
85% to 120%	
75% to 120%	
2.8	
1	
10%	
10%	
100,000	
10,000,000	
15	
2500	
1500	
UL	
-40...+85	
-40...+55	
3, 10-55Hz	
10	
33	

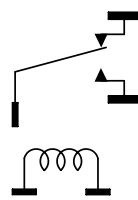
## 9A Miniature Power Relays/SPST and SPDT 30 Amp Rating (DC and AC) *continued*



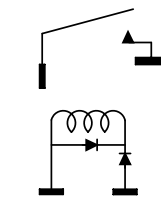
### WIRING DIAGRAMS



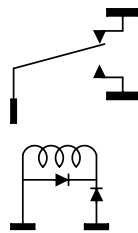
1 FORM A  
DC OPERATED  
(TOP VIEW)  
Fig. A



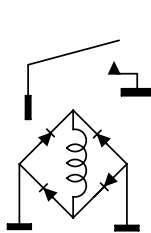
1 FORM C  
DC OPERATED  
(TOP VIEW)  
Fig. B



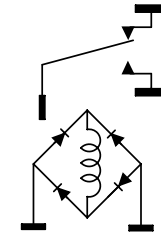
1 FORM A  
AC OPERATED  
1/2 WAVE RECTIFIED  
(TOP VIEW)  
Fig. C



1 FORM C  
AC OPERATED  
1/2 WAVE RECTIFIED  
(TOP VIEW)  
Fig. D

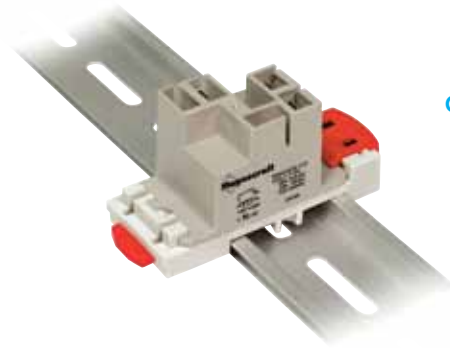


1 FORM A  
AC OPERATED  
FULL WAVE RECTIFIED  
(TOP VIEW)  
Fig. E



1 FORM C  
AC OPERATED  
FULL WAVE RECTIFIED  
(TOP VIEW)  
Fig. F





Optional DIN Rail Adapter  
(16-9ADIN-1)  
See Section 3 p.17

**Standard Part Numbers**

**BOLD-FACED PART NUMBERS ARE NORMALLY STOCKED**

Nominal Input Voltage	Coil Resistance (OHMS)	Part Number	Figure	Contact Configuration
<b>SPST DC Relays</b>				
5 VDC	25 Ω	<b>9AS1D52-5</b>	A	SPST-NO
12 VDC	144 Ω	<b>9AS1D52-12</b>	A	SPST-NO
24 VDC	576 Ω	<b>9AS1D52-24</b>	A	SPST-NO
110/125 VDC	12100 Ω	9AS1D52-110	A	SPST-NO
<b>SPDT DC Relays</b>				
5 VDC	25 Ω	<b>9AS5D52-5</b>	B	SPDT
12 VDC	144 Ω	<b>9AS5D52-12</b>	B	SPDT
24 VDC	576 Ω	<b>9AS5D52-24</b>	B	SPDT
110/125 VDC	12100 Ω	9AS5D52-110	B	SPDT
<b>SPST AC Relays</b>				
24 VAC 50/60 Hz	500 Ω	<b>9AS1A52-24</b>	E	SPST-NO
120 VAC 50/60 Hz	3000 Ω	<b>9AS1A52-120</b>	C	SPST-NO
240 VAC 50/60 Hz	12100 Ω	9AS1A52-240	C	SPST-NO
<b>SPDT AC Relays</b>				
24 VAC 50/60 Hz	500 Ω	<b>9AS5A52-24</b>	F	SPDT
120 VAC 50/60 Hz	3000 Ω	<b>9AS5A52-120</b>	D	SPDT
240 VAC 50/60 Hz	12100 Ω	<b>9AS5A52-240</b>	D	SPDT

**Part Number Builder**

Series	Cover	Configuration	Current Type	Mount	Contact Material	Voltage
9A	P = Enclosed dust cover S = Sealed dust cover	5 1 = SPST-NO 5 = SPDT	A A = AC D = DC	5 5 = Panel Mount Flanged Cover	2 2 = Silver Alloy	-24 Coil Voltage

# Section 6 Cross Reference Guide

Magnecraft	Tyco/Potter & Brumfield	American Zettler		
W9AS1D52-5	T9AS1D52-5	AZ2280-1A-5DEF		
W9AS1D52-12	T9AS1D52-12	AZ2280-1A-12DEF		
W9AS1D52-24	T9AS1D52-24	AZ2280-1A-24DEF		
W9AS1D52-48	T9AS1D52-48	AZ2280-1A-48DEF		
W9AS1D52-110	T9AS1D52-110	AZ2280-1A-110DEF		
W9AS5D52-5	T9AS5D52-5	AZ2280-1C-5DEF		
W9AS5D52-12	T9AS5D52-12	AZ2280-1C-12DEF		
W9AS5D52-24	T9AS5D52-24	AZ2280-1C-24DEF		
W9AS5D52-48	T9AS5D52-48	AZ2280-1C-48DEF		
W9AS5D52-110	T9AS5D52-110	AZ2280-1C-110DEF		
W9AS1A52-24		AZ2280-1A-24AEF		
W9AS1A52-120		AZ2280-1A-120AEF		
W9AS1A52-240		AZ2280-1A-240AEF		
W9AS5A52-24		AZ2280-1C-24AEF		
W9AS5A52-120		AZ2280-1C-120AEF		
W9AS5A52-240		AZ2280-1C-240AEF		
W92S7D22-12	T92P7D22-12	AZ2800-2A-12D		
W92S7D22-24	T92P7D22-24	AZ2800-2A-24D		
W92S7D22-110	T92P7D22-110	AZ2800-2A-110D		
W92S11D22-12	T92P11D22-12	AZ2800-2C-12D		
W92S11D22-24	T92P11D22-24	AZ2800-2C-24D		
W92S11D22-110	T92P11D22-110	AZ2800-2C-110D		
W92S7A22-24	T92P7A22-24	AZ2800-2A-24AE		
W92S7A22-120	T92P7A22-120	AZ2800-2A-120AE		
W92S7A22-240	T92P7A22-240	AZ2800-2A-240AE		
W92S11A22-24	T92P11A22-24	AZ2800-2C-24AE		
W92S11A22-120	T92P11A22-120	AZ2800-2C-120AE		
W92S11A22-240	T92P11A22-240	AZ2800-2C-240AE		
Magnecraft	Tyco	Omron	Deltrol	Potter & Brumfield
W199AX-4	9-1393127-9/1393128-5	MGN1C-AC120	20239-83	PRD5AG0-120/PRD5AY0-120
W199X-2	1-1393128-2/1-1393128-6	MGN1C-DC12	20243-81	PRD5DG0-12/PRD5DY0-12
W199X-3	1-1393128-3/1-1393128-7	MGN1C-DC24	20243-82	PRD5DG0-24/PRD5DY0-24
W199AX-13	1-1393127-1/2-1393127-9	MGN2C-AC24	20241-82	PRD11AG0-24/PRD11AY0-24
W199AX-14	1-1393127-9/2-1393127-6	MGN2C-AC120	20241-83	PRD11AG0-120/PRD11AY0-120
W199AX-15	1-1393127-2/3-1393127-0	MGN2C-AC240	20241-84	PRD11AG0-240/PRD11AY0-240
W199AMX-64			20246-83	PRDA11AGA-120/PRDA11AYA-120
W199X-11		MGN2C-DC6		PRD11DG0-6/PRD11DY0-6
W199X-12	3-1393127-5/6-1393127-1	MGN2C-DC12	20245-81	PRD11DG0-12/PRD11DY0-12
W199X-13	3-1393127-8/6-1393127-2	MGN2C-DC24	20245-82	PRD11DG0-24/PRD11DY0-24
W199X-14	3-1393127-4/6-1393127-0	MGN2C-DC120	20245-84	PRD11DG0-110/PRD11DY0-110
W199MX-51			20247-82	PRDA11DGA-24/PRDA11DYA-24
W199AX-8	9-1393129-6/1393130-9	MGN2A-AC24	20240-82	PRD7AG0-24/PRD7AY0-24
W199AX-9	9-1393129-5/1393130-7	MGN2A-AC120	20240-83	PRD7AG0-120/PRD7AY0-120
W199AX-10	9-1393129-7/1-1393130-0	MGN2A-AC240	20240-84	PRD7AG0-240/PRD7AY0-240
W199AMX-34			20248-83	PRDA7AGA-120/PRDA7AYA-120
W199X-7	1-1393130-5/2-1393130-8	MGN2A-DC12	20244-81	PRD7DG0-12/PRD7DY0-12
W199X-8	1-1393130-6/2-1393130-9	MGN2A-DC24	20244-82	PRD7DG0-24/PRD7DY0-24
W199MX-27			20249-82	PRDA7DGA-24/PRDA7DYA-24
W199ADX-4	6-1393127-9/7-1393127-9	MGN1X-AC120	20238-83	PRD3AG0-120/PRD3AY0-120
W199ADX-5	7-1393127-1/8-1393127-1	MGN1X-AC240	20238-84	PRD3AG0-240/PRD3AY0-240
W199DYX-2			20336-81	PRD4DG0-12/PRD4DY0-12
W199DX-2	8-1393127-3/9-1393127-5	MGN1X-DC12	20242-81	PRD3DG0-12/PRD3DY0-12
W199DX-3	8-1393127-4/9-1393127-6	MGN1X-DC24	20242-82	PRD3DG0-24/PRD3DY0-24
W199ADBX-4	7-1393127-4/7-1393127-3			PRD3AJ0-120/PRD3AH0-120

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<b>Magnecraft</b>	<b>Tyco</b>	<b>Omron</b>	<b>Deltrol</b>	<b>Potter &amp; Brumfield</b>
W199DBX-3				PRD3DJ0-24/PRD3DH0-24
W199DBX-6				PRD3DJ0-48/PRD3DH0-48
W199ABX-14	2-1393127-0/1-1393127-6	MGN2CM-AC120	20919-83	PRD11AJ0-120/PRD11AH0-120
W199ABMX-7				PRD11AJA-120/PRD11AHA-120
W199BX-13				PRD11DJ0-24/PRD11DH0-24
W199BX-14	4-1393127-6	MGN2CM-DC110	20918-84	PRD11DJ0-110/PRD11DH0-110
W199BMX-13				PRDA11DJA-24/PRDA11DHA-24
W199ADEX-4	7-1393127-6			PRD3AP4-120
W199DEX-3	9-1393127-1			PRD3DP4-24
<b>Magnecraft</b>	<b>Tyco/Shrack</b>	<b>Finder</b>		
389FXCXC1M-240A	RM735740	6283 8240 0040		
389FXCXC1M-120A	RM735615	6283 8120 0040		
389FXBXC1M-240A	RM835740	6282 8240 0040		
389FXBXC1M-120A	RM835615	6282 8120 0040		
389FXCXC1M-12D	RM735012	6283 9012 0040		
389FXCXC1M-24D	RM735024	6283 9024 0040		
389FXBXC1M-12D	RM835012	6282 9012 0040		
389FXBXC1M-24D	RM835024	6282 9024 0040		
<b>Magnecraft</b>	<b>Supercedes Magnecraft</b>	<b>Tyco/Shrack</b>	<b>Deltrol</b>	<b>Tyco/Potter &amp; Brumfield</b>
389FHXXC1-120A	W389ADCX-4	RMD 05 615	20840-84	KUMP-3A5G-120
389FHXXC1-240A	W389ADCX-5	RMD 05 740	20840-85	KUMP-3A5G-240
389FXHXC1-24A	W389ADZCX-3	RMC 05 524		KUMP-6A5G-24
389FXHXC1-120A	W389ADZCX-4	RMC 05 615		KUMP-6A5G-120
389FHXXC1-12D	W389DCX-2	RMD 05 012	20848-81	KUMP-3D5G-12
389FHXXC1-24D	W389DCX-3	RMD 05 024	20848-82	KUMP-3D5G-24
389FXHXC1-12D	W389DZCX-2	RMC 05 012		KUMP-6D5G-12
389FXHXC1-24D	W389DZCX-3	RMC 05 024		KUMP-6D5G-24
389FXAXC1-120A	W389ACX-4			KUHP-5A51-120
389FXBXC1-24A	W389ACX-8			KUHP-11A51-24
389FXBXC1-120A	W389ACX-9			KUHP-11A51-120
389FXBXC1-240A	W389ACX-10			KUHP-11A51-240
389FXAXC1-12D	W389CX-2			KUHP-5D51-12
389FXAXC1-24D	W389CX-3			KUHP-5D51-24
389FXBXC1-12D	W389CX-7			
389FXBXC1-24D	W389CX-8			
389XCXC1-12D	W389CX-12			
389XCXC1-24D	W389CX-13			

