



INTEGRATED LIGHTING CONTROLS

With many facilities looking at lighting upgrades as a great energy-saving strategy, embedding controls directly into the fixture makes good economic sense. Choose just the features you need and rely on easy installation and setup to make retrofit projects a snap.

We've engineered our fixture integrated (FS), our high bay (HB) sensors and HID controllers for optimal performance. So even in the most challenging applications, such as wet and outdoor environments, effective lighting control provides energy savings you can count on.

Superior sensitivity to walking motion and high performance circuit design make WattStopper sensors more technologically advanced than any other leading brand.

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ENERGY EFFICIENCY AT THE FIXTURE LEVEL

With nearly every facility now using some energy-saving strategies, retrofitting lighting fixtures by installing fixture-specific occupancy sensors and HID controllers makes good economic sense. With individual fixture control, facilities can substantially improve energy performance by implementing simple control strategies such as automatic off or high/low control. For retrofit projects, energy-efficiency rebates, or facilities seeking LEED certification, maximizing energy performance through fixture-integrated control is ideal.

Benefit your business in many ways:

- Provide energy savings by reducing lighting usage.
- Comply with energy codes such as ASHRAE 90.1, IECC and other state codes with more strict guidelines.
- Enhance 'green' building practices, such as LEED, for greater sustainability.

WattStopper offers a broad selection of fixture-integrated control products. From fixture-mounted sensors to those for high bay fixtures, bi-level HID or daylighting control for fixture mounts, WattStopper is a name you rely on for consistent performance, reliability and service.

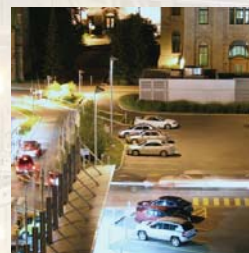
While lighting sources continue to increase in efficiency, lighting still accounts for approximately 30% of the total electrical load in nonresidential buildings. Every major energy code and sustainable building practice system recognizes that automatic lighting control is a vital part of a successful energy efficiency program.

Some of the best opportunities include exterior lighting loads, warehouses, stairwells and specialty applications. Bundling controls into your lighting solutions brings additional value to your customers – energy savings ranging from 30-40%.



Warehouses and Distribution Centers

Robust high bay occupancy sensors provide pinpoint control of aisleway, rack and common area lighting for substantial energy savings even in 24/7 operations.



Parking Garages and Lots

Enable energy savings without compromising safety and security by providing occupancy-based, high/low control of these lighting loads.



Office Spaces

From sleek, low-profile passive infrared controls to ultra high frequency sensors invisible to view, occupancy sensors offer convenient automatic shutoff of office lighting loads.



Stairwells

New energy code requirements mandate occupancy-responsive light level reduction in these spaces.



Freezer Cases

Pairing rugged occupancy sensors with LED lighting retrofits of freezer cases can offer up to 73% in lighting energy savings.



PRODUCT MATRIX

MODEL AND PAGE #	DESCRIPTION	VOLTAGE					OPERATING TEMPERATURE	LENS COVERAGE						RATINGS	MATERIALS						APPS					
		120V	277V	230V	208/240V	347/480V		24VDC	HBL1 / HBL4	HBL2	HBL3	HBL2W	HBL3W		HBL4W	A	P	U	IR	R	IN	OUT				
HIGH BAY SENSOR																										
	HB3x0B-Lx P. E9-12	Passive Infrared Occupancy Sensor Module	▲	▲					32°F to 158°F (0°C to 70°C)	■	■	■						UL/cUL Listed	●	●	●	●	●	●		
	HB3x0W-Lx P. E13-16	Wet location Passive Infrared Occupancy Sensor Module	▲	▲					-40°F to 158°F (-40°C to 70°C)				■	■	■			UL/cUL Listed; IP65 rated; UL rated raintight UL 244A and UL 508	●	●	●	●	●	●	●	●
	HBEM3 P. E17	High Bay Oc- cupancy Sensor mounting bracket extender module							-40°F to 158°F (-40°C to 70°C)									UL/cUL Listed	●	●	●	●	●	●	●	●
	HBEM3W P. E17	Occupancy Sensor mounting bracket extender module for wet locations							-40°F to 158°F (-40°C to 70°C)									UL/cUL Listed	●	●	●	●	●	●	●	●

MODEL AND PAGE #	DESCRIPTION	VOLTAGE						OPERATING TEMPERATURE	LENS COVERAGE								RATINGS	MATERIALS									
		120V	277V	230V	208/240V	347/480V	12 VDC		24VDC	FSP-L4	FPS-L7	FSP-L2	FS-L6	FSP-L3	FS-L2W	FS-L3W		FS-L4W	A	P	U	IR	R	ROHS			
FIXTURE SENSORS																											
	FSP-211 P. E21-22	Digital High/Low Passive Infrared Fixture Integrated Outdoor Sensor	▲	▲	▲				32°F to 158°F (0°C to 70°C)	■	■	■		■				UL/cUL Listed, CE; TUV Listed, IP66 rated	●	●	●	●	●	●	●	●	
	FSP-Lx Lenses P. E23-24	FSP-211 Lenses for PIR Fixture Integrated Occupancy Sensors								■	■	■		■													
	FS-355 P. E25-26	Low and Line Voltage Passive Infrared Fixture Integrated Motion Sensor	▲	▲					-40°F to +131°F (-40°C to +55°C)					■	■	■		UL/cUL Listed	●	●	●	●	●	●	●	●	
	FS-305 P. E25-26										■	■	■		■	■	■			●	●	●	●	●	●	●	●
	FS-305RC P. E25-26														■	■	■			●	●	●	●	●	●	●	●
	FS-Lx Lenses P. E27-28	FS-Lx Lenses for PIR Fixture Integrated Occupancy Sensors												■	■	■											

▲	120V 0-800W ballast/tungsten
▲	277V 0-1200W ballast, 1/6 Hp motor
▲	230V
▲	208/240V 0-1200W ballast
▲	347/480V 0-1200W ballast
▲	12VDC
▲	24VDC

■	{60' linear coverage from 40' height} HBL1, HBL4, FSP-L4, FSP-L7
■	{48' diameter coverage from 10' height} HBL2, FSP-L2, FS-L6
■	{40' diameter coverage from 20/30' height} HBL3, FSP-L3
■	{48' diameter coverage from 10' height} HBL2W, FS-L2W
■	{40' diameter coverage from 20' height} HBL3W, FS-L3W
■	{60' diameter coverage from 40' height} HBL4W, FS-L4W

●	A-ABS, flame retardant
●	P-Polycarbonate, flame retardant
●	U-UV resistant
●	IR-Impact resistant
●	R-Recyclable

●	IN-Indoor
●	OUT-Outdoor



MODEL AND PAGE #	DESCRIPTION	VOLTAGE						OPERATING TEMPERATURE	LENS COVERAGE	RATINGS	MATERIALS				
		120V	277V	230V	208/240V	347/480V	12 VDC				24VDC	A	P	U	ROHS
FIXTURE SENSORS (CONTINUED)															
 FS-155 P. E29-30	Line Voltage Passive Infrared Fixture Integrated Occupancy Sensor		▲	▲					32°F to 131°F [0°C to 55°C]	360° lens, 10' diameter	UL/cUL Listed, CE; TUV Listed, IP66 rated				
 FS-155-1 P. E29-30		360° lens, 20' diameter													
 FS-205 v2* P. E31-32	Low Voltage Passive Infrared Fixture Integrated Occupancy Sensor							▲	-40°F to +131°F [-40°C to +55°C]	360° lens, detects small motion from 6' 360° lens, 15' diameter from 10'	UL/cUL Listed	●			●
 FS-505* FS-505C* P. E33-34	Low Voltage Ultrasonic Fixture Integrated Occupancy Sensor							▲		Varies by mounting height	UL/cUL Listed	●			●
 FS-555 FS-555C P. E35-36	Line Voltage Ultrasonic Fixture Integrated Occupancy Sensor	▲	▲						32°F to 131°F [0°C to 55°C]	Varies by mounting height	UL/cUL Listed	●			●
 FM-105 P. E37-38	High Frequency Occupancy Sensor	▲	▲						-4°F to 131°F [-20°C to 55°C]	Varies by mounting height	UL/cUL Listed FCC approved		●		●
 FD-301* P. E39-40	Fixture Integrated Daylight Dimming Photosensor							▲	-40°F to 130°F [-40°C to 54°C]	70° field of view	UL listed 773A raintight	●			●
 FS-705 P. E41-42	Wide Angle Passive Infrared Occupancy Sensor							▲	32°F to 131°F [0°C to 55°C]	180° vertical coverage	UL/cUL Listed	●			●
 FS-755 P. E41-42		▲	▲												
 FS-PPv2 P. E43-44	Fixture Sensor Power Pack	▲	▲						32°F to 131°F [0°C to 55°C]		UL/cUL Listed	●			●
 BZ-50RC P. E45-46	Universal Voltage Power Pack	▲	▲						32°F to 104°F [0°C to 40°C]		UL/cUL Listed	●			●
 BZ-50 P. E47-48	Universal Voltage Power Pack	▲	▲						32°F to 104°F [0°C to 40°C]		UL/cUL Listed	●			●
 BZ-150 P. E49-50	Universal Voltage Power Pack	▲	▲						32°F to 104°F [0°C to 40°C]		UL/cUL Listed	●			●
 HN P. E51-52	Nightlight Controller														
HID															
 DM-100 P. E55-56	Bi-level HID Controller								-10°F to 113°F [-23°C to 45°C]						
 DM-105 P. E57-58	Bi-level HID Controller							▲	-10°F to 113°F [-23°C to 45°C]		UL/cUL Listed	●			●
 DM-115WP P. E59-60	Wet Location Outdoor Bi-level HID Controller							▲	-40°F to 131°F [-40°C to 55°C]		UL/cUL Listed	●			●

* requires WattStopper power pack



HIGH BAY SENSORS

Innovation is what WattStopper does best. We designed our high bay (HB) sensors with sensitivity and time delay controls located right on the front of the sensor for convenient adjustment. A range of lens choices offers application flexibility. Compatible with all electronic ballasts as well as LED light sources, the HBs feature an LED occupancy detection indicator for easy coverage verification. To simplify installation, the devices also include push-in chase nipples and flying leads. These sensors also feature flexible mounting options, such as direct surface fixture mounting or mounting via a convenient extender module that snaps together to protect wiring while simplifying installation.

WattStopper PIR High Bay Sensors work in a variety of high mount applications including indoor wet and outdoor wet locations, warehouses, gymnasiums and parking structures.

In warehouses, for an example, an HB mounted to a rafter or high bay will control the lighting between shelves, so that lighting in unoccupied areas will turn off or turn to a lower level.







HB3x0-Lx High Bay Passive Infrared Occupancy Sensor

Integrated occupancy sensor and lens device

Easy mounting with snap-in mounting hardware



Lens choices for mounting between 20-40 feet

Line or low voltage

PROJECT
LOCATION/TYPE

Product Overview

Description

The HB350B-L1, HB350B-L3, HB350B-L4, HB340B-L1, HB340B-L3, HB340B-L4, HB300B-L1, HB300B-L3, and HB300B-L4 High Bay Passive Infrared (PIR) Occupancy Sensors consist of two components. These components were developed to work as a convenient system and include both sensor and lens modules. HB3x0B-Lx PIR occupancy sensors are designed for automatic lighting control in warehouses and other indoor high bay spaces. The lenses are specifically engineered to provide reliable coverage from a wide range of mounting heights.

Operation

The HB3x0B-Lx series occupancy sensor is designed to mount directly to an industrial T5 or T8 light fixture and control the load in the fixture. It can be wired to control all ballasts in the fixture, or to control half of the ballasts to provide high/low lighting control. When motion is detected within the sensor's coverage area, the relay in the sensor closes, and lighting loads are automatically turned on. When motion is no longer detected for the duration of the time delay setting, the relay opens and the lighting load is turned off. The sensor's sensitivity and time delay settings are factory preset at "normal" and 15 minutes, respectively, which are suitable for most high bay applications.

Features

- LED indicator of occupancy detection for easy verification of coverage
- Easy front access to DIP switches for time and sensitivity adjustments
- Easy mounting using knockout at end of fluorescent high bay luminaire
- Hardware choices for adjustability or static mount
- Multi-cell, multi-tier Fresnel lenses
- Asymmetric and 360° coverage lens choices
- Durable materials for optimal performance in challenging indoor high bay settings
- Zero crossing circuitry reduces stress on relay and extends sensor life
- Detection signature analysis eliminates false triggers; provides immunity to RFI and EMI
- ASIC technology reduces components and enhances reliability
- Pulse Count Processing eliminates false offs without reducing sensitivity
- Recyclable
- Qualifies for ARRA-funded public works projects



Product Overview (cont.)

Different Coverage Patterns

The HB3x0B-Lx sensor is a one-piece, self-contained line voltage unit with a 1/2" threaded nipple for attaching to junction boxes and conduit hubs, and to the end of fixtures. Three lens choices are available, to provide coverage for different applications, facilitating sensor use at various mounting heights and locations. Sensitivity and time delay adjustments are set using DIP switches located behind the lens.

Applications

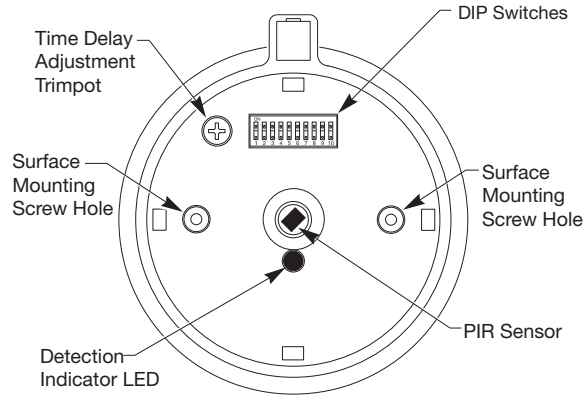
The high bay occupancy sensor is an innovative product engineered specifically for indoor locations. The product is ideal for a range of high bay applications, such as warehouses, distribution centers, gymnasiums, and other high bay indoor spaces. An optional HB Extender Module provides additional mounting flexibility.

Specifications

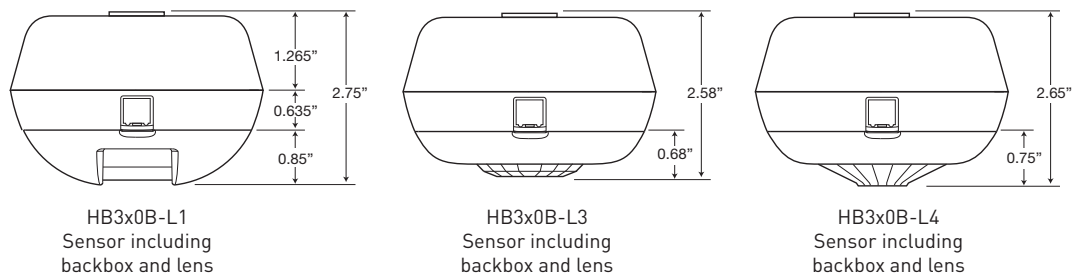
- HB350B-Lx:
 - 0-800W Ballast, tungsten @ 120 VAC
 - 0-1200W Ballast @ 277 VAC, 1/6 hp motor
- HB340B-Lx:
 - 0-1200W Ballast, tungsten @ 347 VAC
 - 0-1200W Ballast, tungsten @ 480 VAC
- HB300B-Lx:
 - 24 VDC, Requires Power Pack
 - See Power Pack details for Load Ratings
- Adjustable time delay (15 seconds - 30 minutes; factory preset at 15 minutes)
- Operating conditions: Temperature 32-158°F (0-70°C); Humidity 20-90%, non-condensing
- Indoor use only
- Materials: ABS, flame retardant, UV resistant, impact resistant
- Five year warranty
- UL and cUL listed

Sensor Components & Dimensions

Sensor Controls



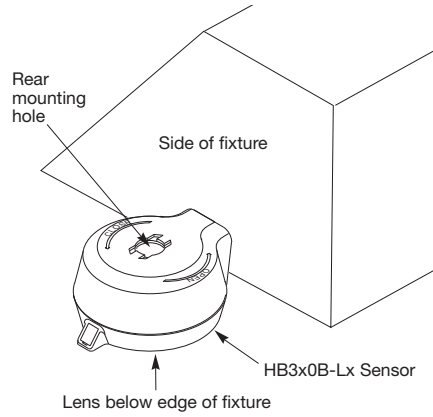
Dimensions





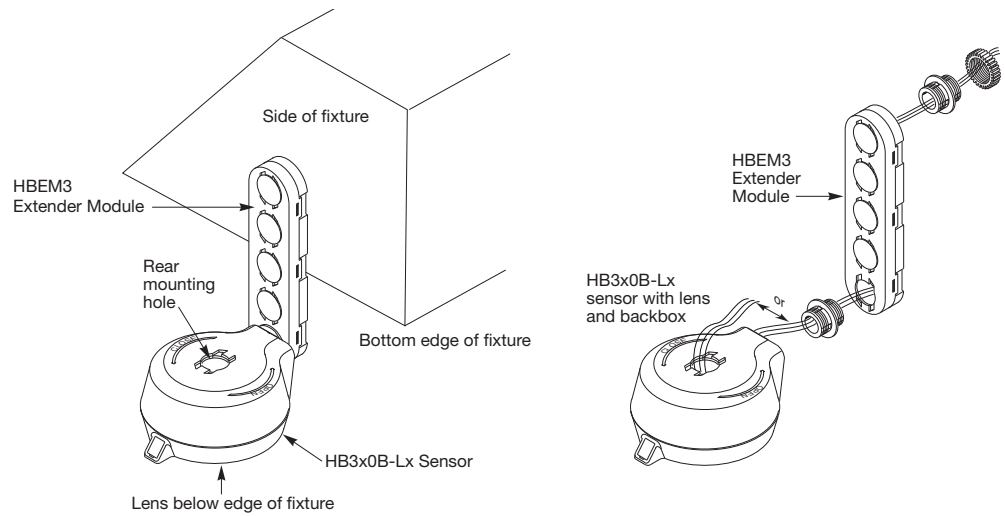
Mounting and Installation

Direct Mounting to Fixture



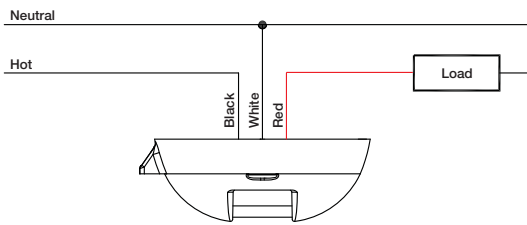
The sensor should be positioned below the fixture edge and away from fluorescent lamps so that lamp heat does not affect the sensor.

Mounting Using the Extender Module

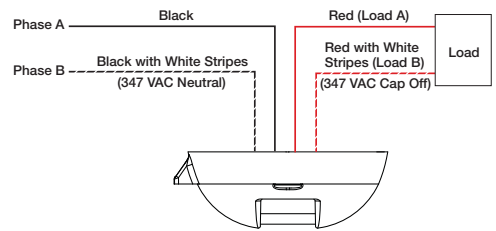


Wiring & Connections

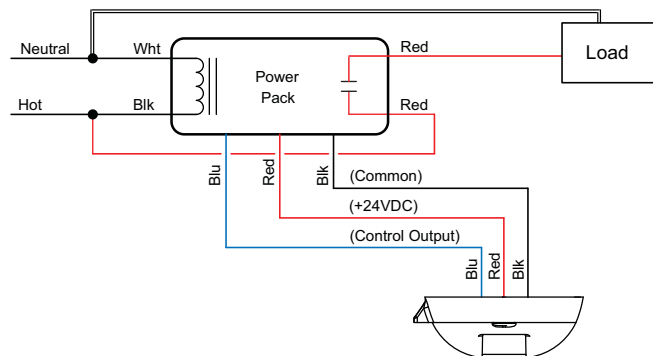
HB350B-Lx wiring



HB340B-Lx wiring



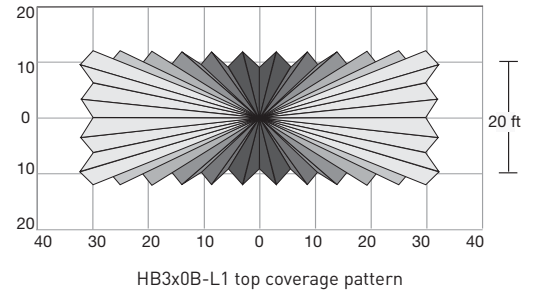
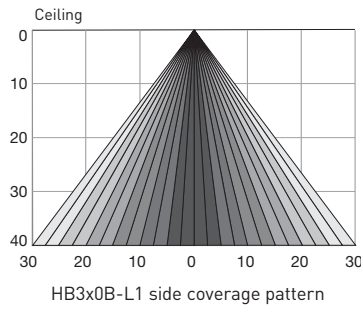
HB300B-Lx wiring



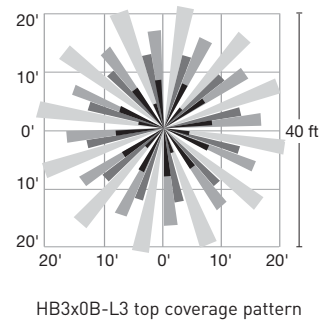
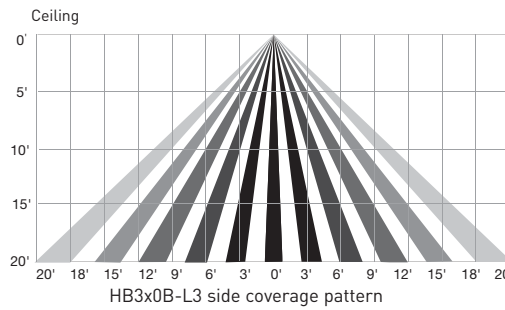


Coverage

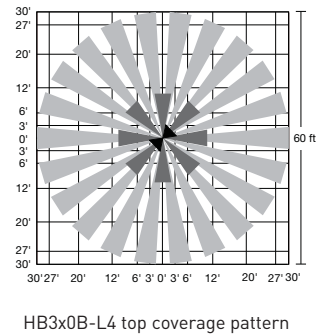
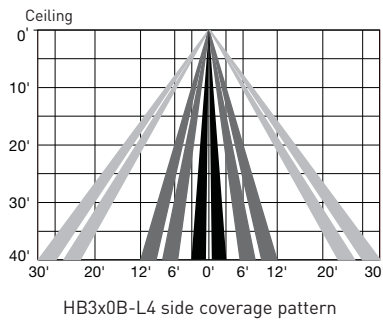
Lens Choices



The HB3x0B-L1 is designed to detect walking motion when mounted at 40' above the floor. When mounted at 40', in optimal conditions, the lens has a 60' linear detection range.



The HB3x0B-L3 has a high density lens that covers a 40' diameter area from a 20' height.



The HB3x0B-L4 is designed for mounting at a height of 40'. Its coverage area can be up to 60' in diameter when mounted at 40'.

Ordering Information

Catalog No.	Color	Description	Voltage	Coverage Area
<input type="checkbox"/> HB350B-L1	White	High Bay Occupancy Sensor with Lens & Backbox	120/277 VAC	60' linear coverage from 40' height
<input type="checkbox"/> HB350B-L3	White	High Bay Occupancy Sensor with Lens & Backbox	120/277 VAC	40' diameter coverage from 20' height
<input type="checkbox"/> HB350B-L4	White	High Bay Occupancy Sensor with Lens & Backbox	120/277 VAC	60' diameter coverage from 40' height
<input type="checkbox"/> HB340B-L1	White	High Bay Occupancy Sensor with Lens & Backbox	347/480 VAC	60' linear coverage from 40' height
<input type="checkbox"/> HB340B-L3	White	High Bay Occupancy Sensor with Lens & Backbox	347/480 VAC	40' diameter coverage from 20' height
<input type="checkbox"/> HB340B-L4	White	High Bay Occupancy Sensor with Lens & Backbox	347/480 VAC	60' diameter coverage from 40' height
<input type="checkbox"/> HB300B-L1	White	High Bay Occupancy Sensor with Lens & Backbox	24 VDC	60' linear coverage from 40' height
<input type="checkbox"/> HB300B-L3	White	High Bay Occupancy Sensor with Lens & Backbox	24 VDC	40' diameter coverage from 20' height
<input type="checkbox"/> HB300B-L4	White	High Bay Occupancy Sensor with Lens & Backbox	24 VDC	60' diameter coverage from 40' height
<input type="checkbox"/> HBEM3	White	High Bay Extender Module		



HB3x0W-Lx High Bay Passive Infrared Occupancy Sensors for Wet Locations

IP65 rated for wet locations

Lens choices for mounting between 20-40 feet



Line or low voltage

Multiple mounting options for easy installation

PROJECT
LOCATION/TYPE

Product Overview

Description

The HB350W-L3, HB350W-L4, HB340W-L3, HB340W-L4, HB300W-L3, and HB300W-L4 High Bay Passive Infrared (PIR) Occupancy Sensors for Wet Locations consist of a sensor and a lens module. These components are designed to work as a convenient system. HB3x0W-Lx occupancy sensors are designed for automatic lighting control in warehouses and other medium and high bay wet location applications. Different models offer a choice of coverage patterns for a range of applications.

Operation

The HB3x0W-Lx occupancy sensors are designed to mount to a light fixture and control one load in that fixture. They can be wired to control all ballasts in the fixture, or to control half of the ballasts, providing high/low lighting control. When motion is detected within the sensor's coverage area, the relay in the sensor closes, and lighting loads are automatically turned on.

Operation (continued)

When motion is no longer detected for the duration of the time delay setting, the relay opens and the lighting load is turned off. The sensor's sensitivity and time delay settings are factory preset at "normal" and 15 minutes, respectively, which are suitable for most high bay applications. However, if the values need to be adjusted for specific applications, they can be easily changed using the DIP switches on the unit.

Wet Location Rating

Featuring a unique gasketed construction, the sensors carry the IP65 rating for wet locations. The IP65 rating means the sensors are protected against dust and low-pressure jets from all directions. In wet indoor or outdoor environments, the sensors will operate reliably with this level of protection.

Features

- IP65 rated and UL244A and UL508 for use in wet indoor and outdoor locations
- Easy mounting using extender module mounting accessory
- Line voltage for direct connection to load
- Low voltage units require power packs
- Compatible with all program start ballasts
- Multi-cell, multi-tier, 360° Fresnel lenses
- Lenses sealed and gasketed
- Lens choices for mounting between 20 and 40 ft.
- Polycarbonate, flame retardant, UV resistant, impact resistant
- Recyclable
- Qualifies for ARRA-funded public works projects



Product Overview (cont.)

Modular Design

The HB3x0W-Lx system includes a self-contained, line or low voltage sensor module with a 1/2" threaded nipple for attaching to wet location junction boxes and conduit hubs, and to the end of a fixture. It also contains a lens module that provides 360° coverage. Different coverage patterns are available by selecting the different lens options. Sensitivity and time delay adjustments are set using DIP switches located behind the lens.

Applications

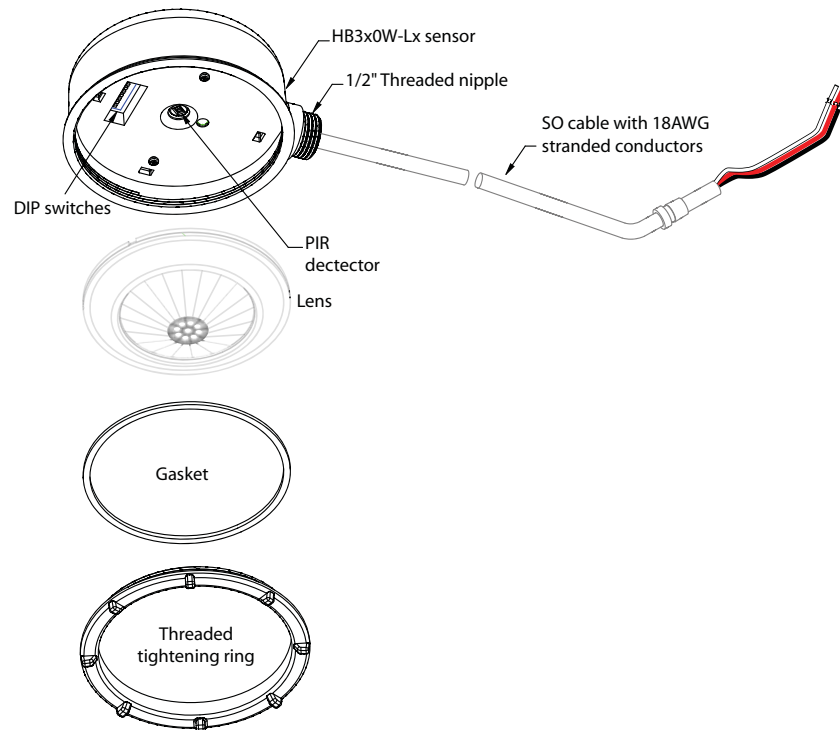
Engineered specifically for wet locations, the HB3x0W-Lx is ideal for a range of indoor and outdoor spaces such as nurseries and greenhouses, food processing facilities, parking garages, and industrial facilities. An optional HB Extender Module provides additional mounting flexibility.

Specifications

- HB350W-L3 and HB350W-L4: 120/277 VAC, 60 Hz load @ 120 VAC 0-800W ballast/tungsten load @ 277 VAC 0-1200W ballast, 1/6 Hp
- HB340W-L3 and HB340W-L4: 347/480 VAC, 60 Hz load @ 347 VAC 0-1200W ballast load @480 VAC 0-1200W ballast
- HB300W-L3 and HB300W-L4: 24 VDC, requires power pack, see power pack for load ratings
- Factory preset 15-minute time delay
- Operating temperature: -40-158°F (-40-70°C)
- Operating humidity: 20-90%, non-condensing
- Maximum Dew Point: 85°F (29°C)
- UL and cUL listed
- UL rated raintight (UL244A and UL508)
- IP65 rated
- Lens choices for mounting between 20 and 40 feet
- Five year warranty

Sensor Components

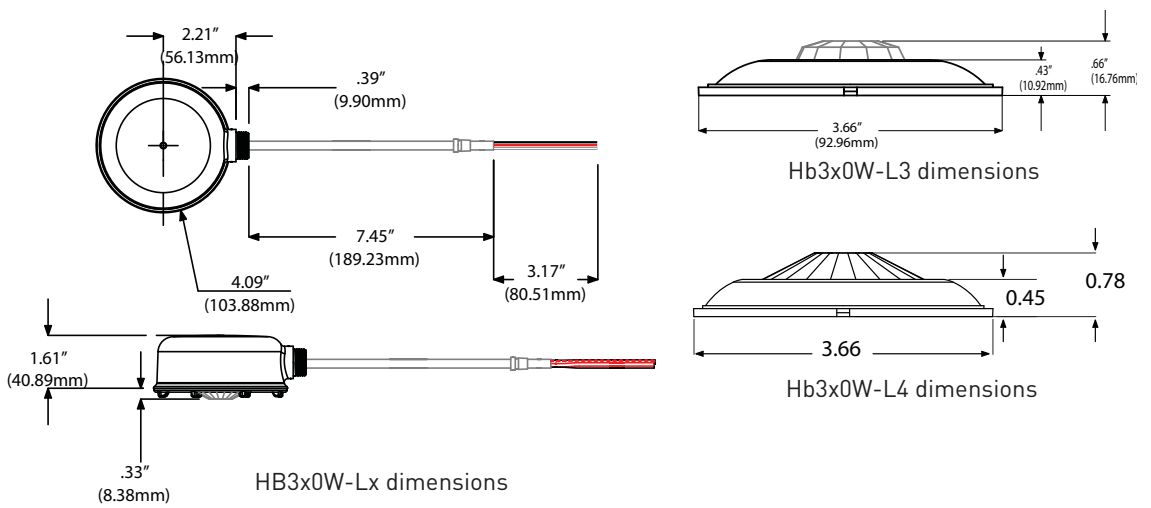
Sensor and Lens Components and Assembly



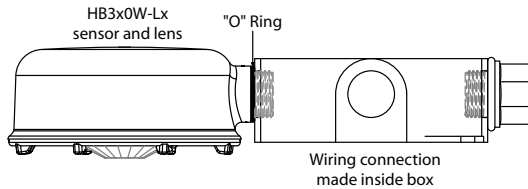


Assembly & Mounting

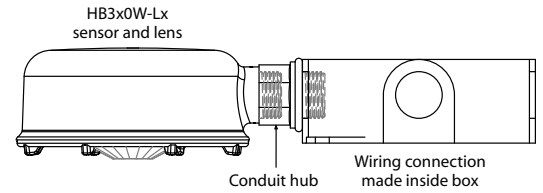
Dimensions



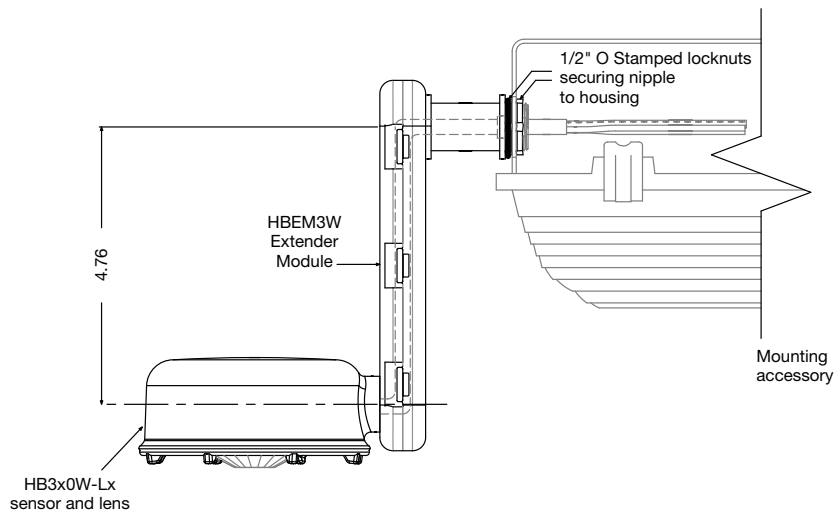
Mounting Direct to J-box



Mounting to J-box using Conduit Hub



Mounting Using an HBEM3W Extender Module Accessory

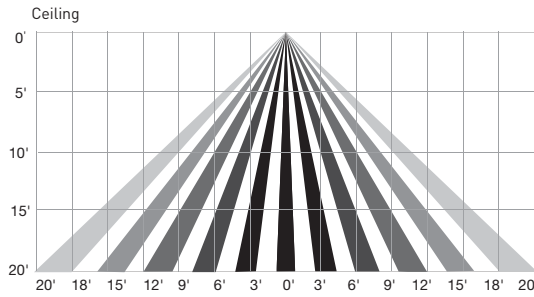


The 1/2" chase nipple facilitates mounting through fixture knockouts, or attaching to threaded J-boxes or conduit hubs. An accessory bag with an O-ring and two locknuts is available to accommodate various mounting needs. Mount the sensor so that the fixture does not obstruct the field of view.

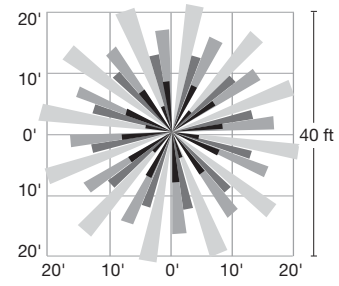


Coverage

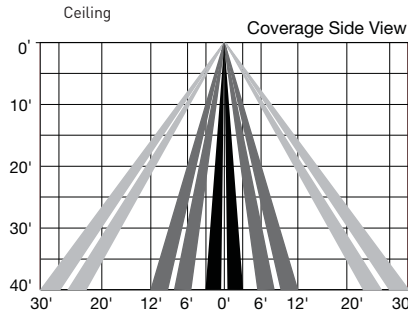
Lens Choices



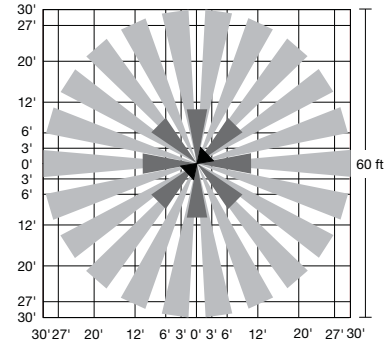
The HB3x0W-L3 side coverage pattern.



The HB3x0W-L3 top coverage pattern.



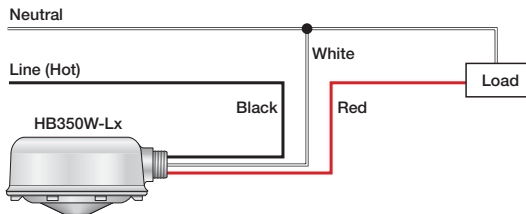
The HB3x0W-L4 side coverage pattern.



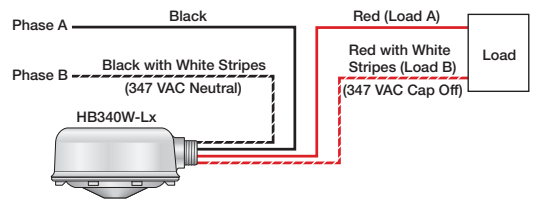
The HB3x0W-L4 top coverage pattern.

Wiring & Connections

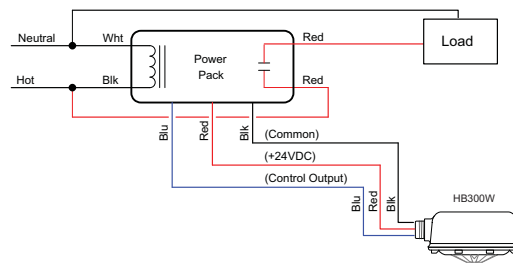
Wiring for HB350W-Lx



Wiring for HB340W-Lx



Wiring for HB300W-Lx



Ordering Information

Catalog No.	Color	Description	Lens
<input type="checkbox"/> HB350W-L3	White	120/277 VAC Sensor System	Wet location 360° lens, 40' diameter coverage from 20' height
<input type="checkbox"/> HB350W-L4	White	120/277 VAC Sensor System	Wet location 360° lens, 60' diameter coverage from 40' height
<input type="checkbox"/> HB340W-L3	White	347/480 VAC Sensor System	Wet location 360° lens, 40' diameter coverage from 20' height
<input type="checkbox"/> HB340W-L4	White	347/480 VAC Sensor System	Wet location 360° lens, 60' diameter coverage from 40' height
<input type="checkbox"/> HB300W-L3	White	24 VDC Sensor System	Wet location 360° lens, 40' diameter coverage from 20' height
<input type="checkbox"/> HB300W-L4	White	24 VDC Sensor System	Wet location 360° lens, 60' diameter coverage from 40' height
<input type="checkbox"/> HBEM3W	White	Extender Module Wet Location	



High Bay Extender Module

Adjustable snap-on extender module



Snap-on chase nipples facilitate easy side or back-mount installations

PROJECT
LOCATION/TYPE

Product Overview

Description

The HBEM3 Extender Module attaches a High Bay (HB) Occupancy Sensor Module to the side of a fixture. With the extender module attached, the HB sensor can be adjusted up or down to ensure its view is not blocked by the fixture.

Mounting

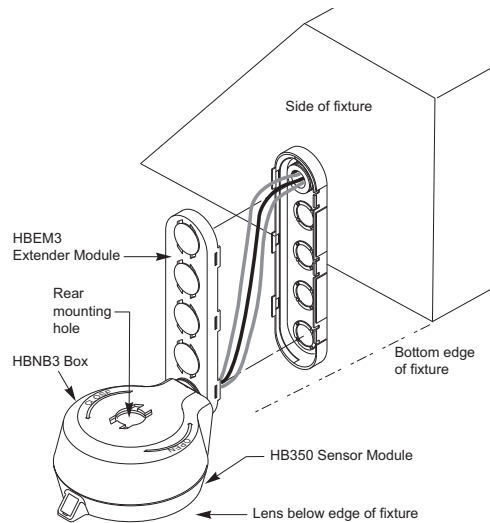


Illustration shows standard only, not wet location model.

Connections

The HBEM3 includes two chase nipples. The short end of the chase nipples snap into the HBEM3 or other plastic connection box. The long end of the longer chase nipple fits into a metal fixture with a standard knockout. If the fixture wall does not exceed 1mm (0.04") in thickness, the nipple snaps into the knockout securely and the internal nut (included) is not necessary. The included nut should always be used if the fixture wall is thicker than 0.04" (1mm).

Specifications

- Connects to metal or plastic fixtures via included snap-in chase nipples
- Snaps together to protect sensor and fixture wires
- Maximum Extension: 4.75" (120mm)
- Inner Diameter: 0.63" (16mm)
- Threaded Outside Diameter: 0.82" (20mm)
- Overall Length:
0.88" for connection to plastic fixture
1.24" for connection to metal fixture

Ordering Information

Catalog No.	Color	Description
<input type="checkbox"/> HBEM3	White	Extender module with 2 chase nipples and nuts: one short (0.88") for connection to plastic, one long (1.24") for connection to metal and one plastic knockout cap
<input type="checkbox"/> HBEM3W	White	Extender module Wet Location with 2 chase nipples and nuts: one short (0.88") for connection to plastic, one long (1.24") for connection to metal and one plastic knockout cap

PLEASE NOTE: 1. When preparing P.O., order parts as separate line items (e.g., HB350-Lx, HBEM3)
2. Parts ship separately.

Qualifies for ARRA-funded public works projects.





FIXTURE SENSORS

Our FS fixture sensors utilize either passive infrared (PIR) or ultrasonic technology and are available in both line and low voltage models. Other daylighting models control lighting in response to daylight contributions in the space. These choices enable you to make the right choice for your needs. The FS sensors' modular plug system utilizes an RJ45 connector for flexibility and ease of use.

Common building spaces such as copy rooms, hallways, storage areas, task lighting, open offices, even outdoor spaces, are ideal for occupancy-based control. With an FS sensor placed in the fixture, users can save hours of wasted energy each day.





FIXTURE SENSORS & CONTROLS





FSP-211 Digital High/Low Passive Infrared Fixture Integrated Outdoor Sensor

Fully adjustable high and low dimmed light levels

Designed for LED fixtures; rated for extreme temperatures and up to 200,000 on/off cycles

Hold off setpoint with automatic calibration option for convenience and added energy savings



Adjustable via handheld wireless configuration tool

IP66 rated with choice of lenses for wet and outdoor locations, and mounting heights from 8' to 40'

Adjustable time delay and cut off delay



PROJECT
LOCATION/TYPE

Product Overview

Description

The FSP-211 mounts in an outdoor lighting fixture and provides multi-level control based on motion. The sensor also includes a photocell to measure the ambient light level. It controls 0-10 VDC LED drivers or dimming ballasts, as well as non-dimming ballasts and, with an FSP-Lx Lens, is rated for wet and cold locations. All control parameters are adjustable via a wireless configuration tool capable of storing and transmitting sensor profiles.

Operation

The sensor ramps lighting On to the selected High mode level when motion is first detected and the ambient light level is below the hold off setpoint. After the sensor stops detecting movement and the time delay elapses, lights fade to the Low mode level. If there is no motion during the subsequent cut off time delay, the lights will turn Off. If the sensor detects motion before the lights turn Off, it ramps the light level back to High, unless the daylight contribution is sufficient to hold lighting at Low.

Features

- Provides line voltage On/Off switching and 0-10 VDC dimming control
- Works with ballasts or LED drivers
- High and low modes fully adjustable from 0 to 10V
- Time delay from 5 to 30 minutes
- Optional cut off delay
- Adjustable ramp up and fade down times

Wireless Handheld Configuration Tool

Initial setup and subsequent sensor adjustments are made using a handheld configuration tool (FSIR-100). This tool enables adjustment of parameters including high and low modes, sensitivity, time delay, cut off and more. The FSIR-100 is also used to initiate automatic calibration of the FSP-211 ambient light level setpoint. The setpoint is used to hold the controlled lighting off or at low level when there is sufficient daylight. The wireless tool stores up to five sensor parameter profiles to speed configuration of multiple sensors.

Applications

The slim, low-profile FSP-211 is designed for installation inside the bottom of a light fixture body. When fully assembled and installed in an IP66-rated fixture, the sensor and FSP-Lx lenses are IP66 outdoor rated. The sensor is ideal for areas such as parking facilities, gas stations, pedestrian pathways and warehouses. A choice of four lenses ensures complete coverage for mounting heights up to 40'.

- Optional daylighting setpoint features automatic calibration, or permits manual adjustment
- Configuration tool stores five sensor profiles for quick setup and adjustment of multiple sensors
- Polycarbonate construction; flame retardant, UV resistant, impact resistant, recyclable
- UL244A and UL508; IP66 rated (when fully assembled and installed) for use in wet locations

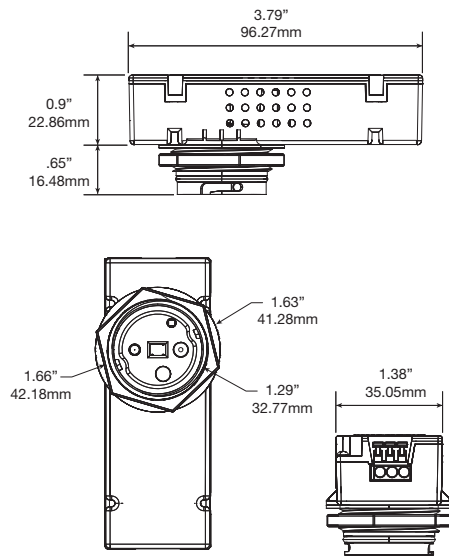


Specifications

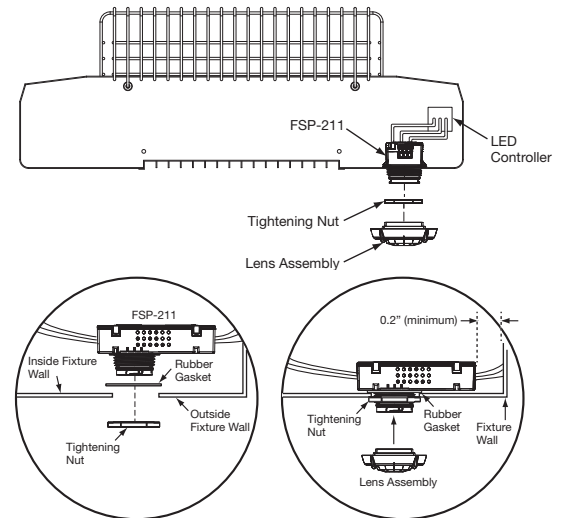
- 120/277 VAC, 50/60Hz
 - Load @120 VAC 0-800W ballast or incandescent
 - Load @277 VAC 0-1200W ballast
- 230 VAC, 50Hz; Load 0-300W ballast
- Relay life rating: 200,000 cycles (120/277 VAC); 50,000 cycles (230 VAC)
- High mode: 0-10 V; default 10 V
- Low mode: Off, 0-9.8 V; default 1 V
- Time delay: 30 sec., 5-30 min.; default 5 min.
- Cut off delay: none, 1-60 min. 1-5 hrs.; default 1 hr.
- Sensitivity: none, low, med, max; default max
- Setpoint: none, 1-250 fc, auto; default 4 fc
- Ramp up time: none, 1-60 sec.; default none
- Fade down time: none, 1-60 sec.; default none
- Operating temperature: -40-167°F (-40-75°C)
- Operating Humidity: 20-90%
- Weight: 2.8 oz (80 grams)
- IP66, CE compliant
- TUV, UL and cUL listed
- Five year warranty

Dimensions & Mounting

Sensor Dimensions



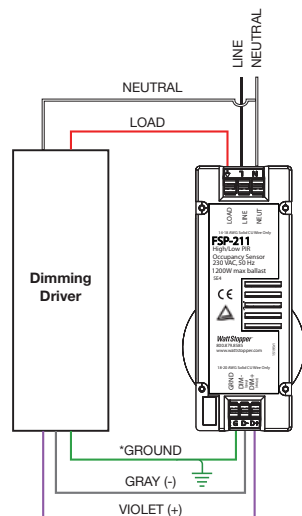
Sensor Mounting



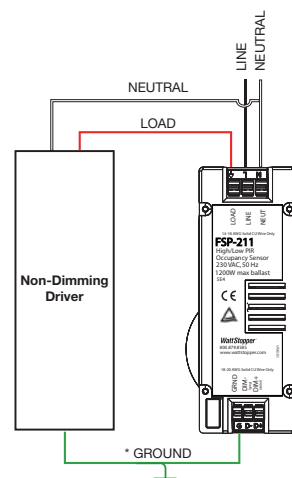
The FSP-211 accommodates fixture wall thickness up to 0.125" (3.18mm).

Wiring

Dimming Wiring Diagram



Non-Dimming Wiring Diagram



*The FSP-211 must be properly grounded.

Ordering Information

Catalog No.	Color	Description	Input Voltage
<input type="checkbox"/> FSP-211	White	Fixture mount, passive infrared motion sensor	120/277V, 50/60Hz or 230V, 50Hz
<input type="checkbox"/> FSIR-100	Black	Remote handheld configuration tool	{3} 1.5V AAA alkaline batteries



FSP-Lx Lenses for Passive Infrared Fixture Integrated Occupancy Sensors

Four interchangeable lenses for FSP-211 fixture sensors

IP66 rated when installed in outdoor-rated fixture



Coverage choices for mounting heights between 8-40 feet

Mounts easily onto sensor component from fixture exterior

PROJECT
LOCATION/TYPE

Product Overview

Description

FSP-Lx lenses work with FSP-211 motion sensors to provide multi-level lighting control based on motion and the ambient light level. Four lens choices provide flexibility for varying mounting heights.

Operation

The lenses mount onto the sensor body from the exterior of the fixture, threading onto the sensor module's threaded collar. Four 360° lens choices provide coverage from 8, 20, and 40 foot mounting heights. The FSP-L2 provides maximum coverage of 48' diameter mounted at eight feet. The FSP-L3 provides maximum coverage of 40' diameter mounted at 20 feet. The FSP-L4 provides coverage of 60' diameter mounted at 40 feet, while the wide angle FSP-L7 provides maximum coverage of 100' diameter mounted at 40 feet.

Wet Location Rating

When fully assembled and installed in an outdoor-rated fixture, the FSP-211 sensor and FSP-Lx lenses are IP66 rated. To obtain this rating, the device underwent extremely rigorous testing. The IP66 rating means the device is totally protected against dust and against water jets from all directions.

Applications

FSP-211 sensors with FSP-Lx lenses are ideal for damp or wet indoor or outdoor locations. They are suitable for use in luminaires installed in parking facilities, gas stations, pedestrian pathways and warehouses.

Features

- IP66 rated (when fully assembled with FSP-211 sensor and installed in IP66 rated fixture) for use in wet location environments (indoor and outdoor)
- Polycarbonate, flame retardant, UV resistant, impact resistant
- Recyclable



Specifications

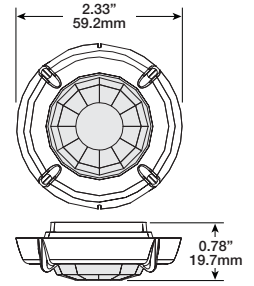
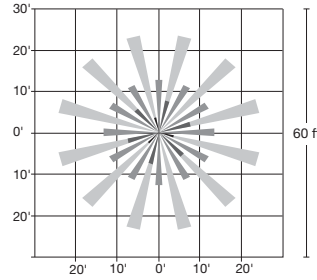
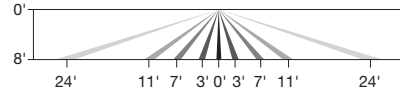
- Operating temperature: -40-167°F (-40-75°C)
- Operating Humidity: 20-90%
- Storage temperature: -40-176°F (-40-80°C)
- Five year warranty

Coverage & Dimensions

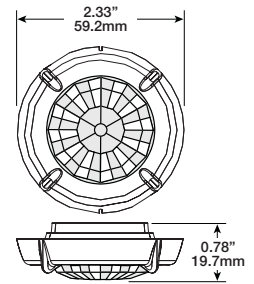
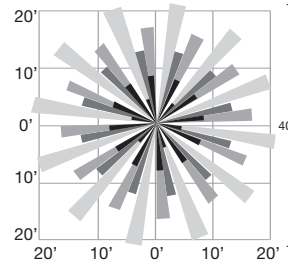
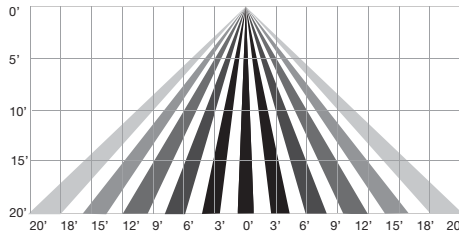
Side and Top Coverage Patterns

Lens Dimensions

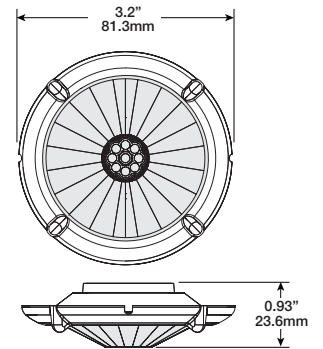
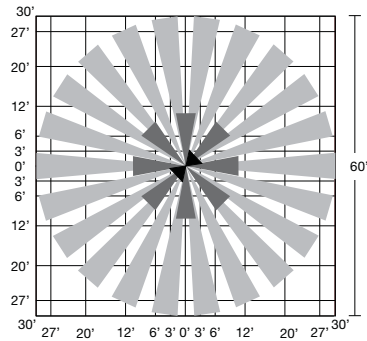
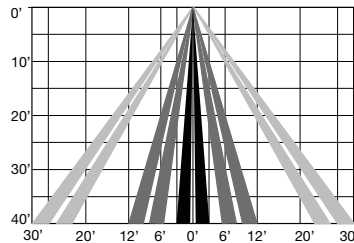
FSP-L2



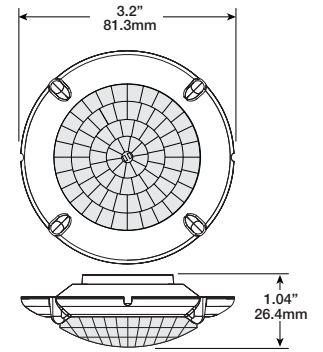
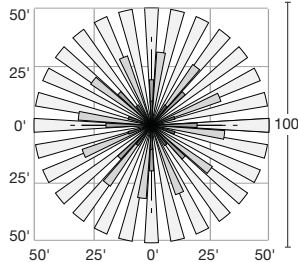
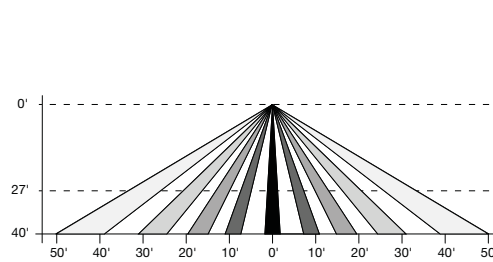
FSP-L3



FSP-L4



FSP-L7



Ordering Information

Catalog No.	Color	Description
<input type="checkbox"/> FSP-L2	White	360° lens, maximum coverage 48' diameter from 8' height
<input type="checkbox"/> FSP-L3	White	360° lens, maximum coverage 40' diameter from 20' height
<input type="checkbox"/> FSP-L4	White	360° lens, maximum coverage 60' diameter from 40' height
<input type="checkbox"/> FSP-L7	White	360° lens, maximum coverage 100' diameter from 40' height

Contact factory for availability of FSP-L7.



FS-305/FS-355 Low and Line Voltage Indoor/Outdoor Fixture Integrated Occupancy Sensors

Low-profile fixture-integrated sensor

Multiple lens choices

Adjustable time delay



IP65 rated for indoor and outdoor wet locations

Line and low voltage models

Daylighting light level feature

PROJECT
LOCATION/TYPE

Product Overview

Description

The FS-305 and FS-355 are PIR occupancy sensors that turn lighting on and off automatically based on occupancy. The models are slim, low-profile devices designed for installation inside the bottom of either an indoor or outdoor lighting fixture body. The FS-305 is a low voltage model, while the FS-355 is a line voltage model.

Operation

The FS-305/FS-355 consist of two components, a sensor and a lens. Four lens choices provide flexibility for varying mounting heights. When occupancy is detected within the sensor's coverage area, the sensor signals lighting to turn on automatically. When occupancy is no longer detected and the time delay has elapsed, lighting automatically turns off. Either model can be wired to control all loads in a fixture, or to provide hi/low control of some LED. Both models provide a light level daylighting feature. In the FS-305, the light level feature holds lights off, while in the FS-355, the feature turns lights off if the load is already turned on and adequate daylight exists.

Wet Location Rating

The FS-305/FS-355 sensors feature the IP65, UL244A and UL508 ratings for indoor or outdoor wet locations when fully assembled and installed with FS-LxW lenses. To obtain this rating, the sensor underwent extremely rigorous testing. The IP65 rating means the sensors are totally protected against dust and low-pressure jets from all directions when installed in an IP65 lighting fixture.

Applications

FS-305/FS-355 sensors are ideal for damp or wet indoor or outdoor locations. They are suitable for use in parking garages, parking lot luminaires, as well as any outdoor application when installed in a UL-rated outdoor fixture.

Features

- Adjustable time delay from 30 seconds to 30 minutes
- Fixed sensitivity optimized for FS-LxW lens coverages
- RoHS compliant
- Light level daylighting feature from 10-120 fc
- IP65 and UL 244A and 508 rated (when fully assembled and installed with FS-L2W, FS-L3W, or FS-L4W lenses)
- Four interchangeable lenses (FS-L2W, FS-L3W, FS-L4W, FS-L6) for mounting between 8' and 40' (ordered separately)

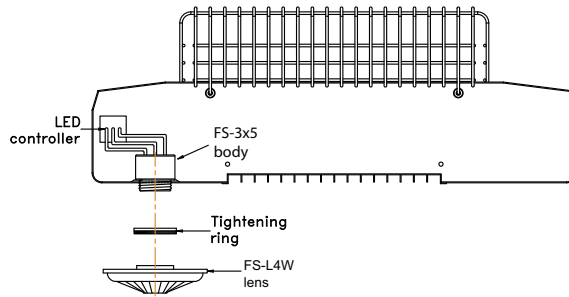


Specifications

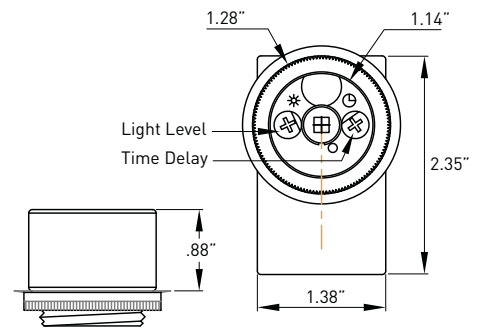
- FS-355 - 120-277 VAC; 60Hz Load @120 VAC 0-800W ballast or incandescent - Load @277 VAC 0-1200W ballast
- FS-305 - 12-24 VDC (requires FS-PP power pack for operation)
- Light level daylighting feature (10fc-120 fc)
- Operating temperature: -40-131°F (-40-55°C)
- Storage temperature: -40-176°F (-40-80°C)
- Operating Humidity: 20-90%
- Weight: 1.5 oz (42.52 grams)
- Five year warranty
- IP65, UL244A and UL508 rated
- UL and cUL listed

Settings, Dimensions & Mounting

Mounting

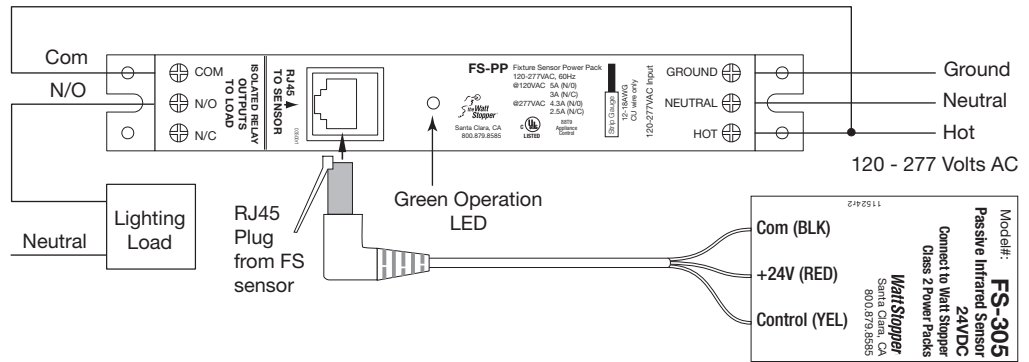


Dimensions and Settings

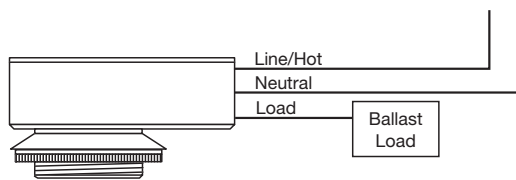


Wiring & Connections

FS-305 Wiring



FS-355 Line Voltage Wiring



Ordering Information

Catalog No.	Color	Description	Input Voltage
<input type="checkbox"/> FS-305	White	Fixture mount, passive infrared occupancy sensor	12-24 VDC
<input type="checkbox"/> FS-305-RC	White	Fixture mount, passive infrared occupancy sensor with RJ45 connection	12-24 VDC
<input type="checkbox"/> FS-355	White	Fixture mount, passive infrared occupancy sensor	120/277 VAC, 60Hz
<input type="checkbox"/> FS-355E	White	Fixture mount, passive infrared occupancy sensor	230 VAC, 50Hz
<input type="checkbox"/> FS-PPv2	White	Power Pack, 120/277/347 VAC; 60 Hz	
<input type="checkbox"/> FS-C2	White	Connector cable, 6" cable with 3 flying leads at one end and a shielded RJ45 male connector on other end	



FS-Lx Lenses for Passive Infrared Fixture Integrated Occupancy Sensors

Four interchangeable lenses for FS-3x5 fixture sensors

Mounts easily onto sensor component from fixture exterior



Coverage choices for mounting heights between 8-40 feet

PROJECT
LOCATION/TYPE

Product Overview

Description

FS-Lx lenses work with the FS-305/FS-355 occupancy sensors to turn lights on and off automatically based on occupancy. Four lens choices provide flexibility for varying mounting heights.

Operation

The lenses mount onto the sensor body from the exterior of the fixture, threading onto the FS-305/FS-355 threaded collar. Four 360° lens choices provide coverage at 8, 20, and 40 foot mounting heights. The FS-L2W provides maximum coverage of 48' diameter mounted at eight feet, the FS-L3W provides maximum coverage of 40' diameter mounted at 20 feet, and the FS-L4W provides coverage of 60' diameter mounted at 40 feet. The FS-L6 provides maximum coverage of 20' diameter mounted at eight feet.

Wet Location Rating

When fully assembled and installed, the FS-305/FS-355 sensors and FS-LxW lenses are IP65 and UL 244A and 508 rated. To obtain this rating, the device underwent extremely rigorous testing. The IP65 rating means the device is totally protected against dust and low-pressure jets from all directions.

Applications

FS-305/FS-355 sensors with FS-LxW lenses are ideal for damp or wet indoor or outdoor locations. They are suitable for use in parking garages and in parking lot luminaires. When equipped with the FS-L6 lens, the sensor provides superior coverage in any dry indoor application.

Features

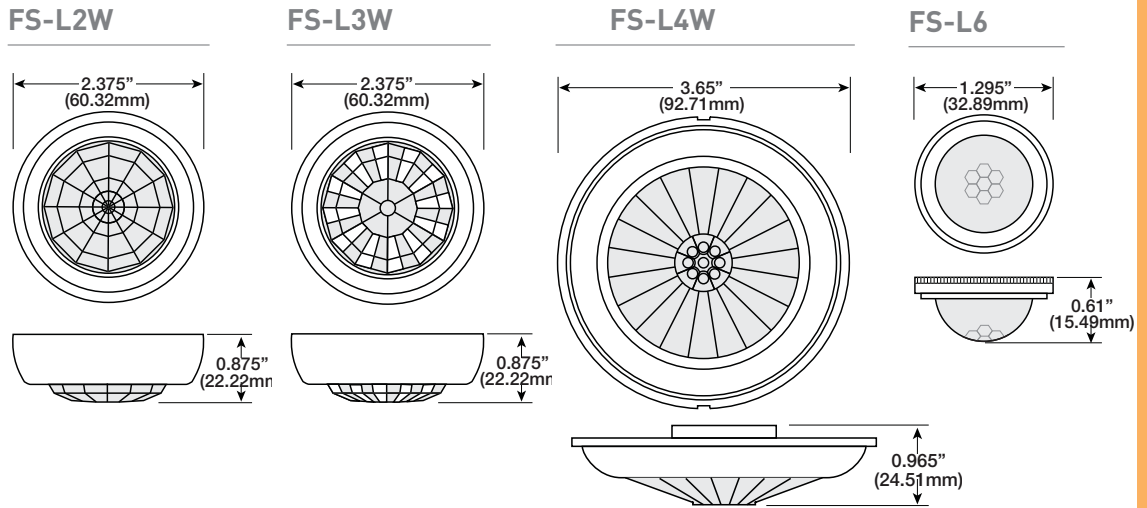
- IP65 and UL 244A and 508 rated (when fully assembled and installed) for use in wet location environments (indoor and outdoor)
- Fixed sensitivity optimized for FS-LxW and FS-L6 lens coverages
- Polycarbonate, flame retardant, UV resistant, impact resistant (FS-LxW lenses)
- Recyclable



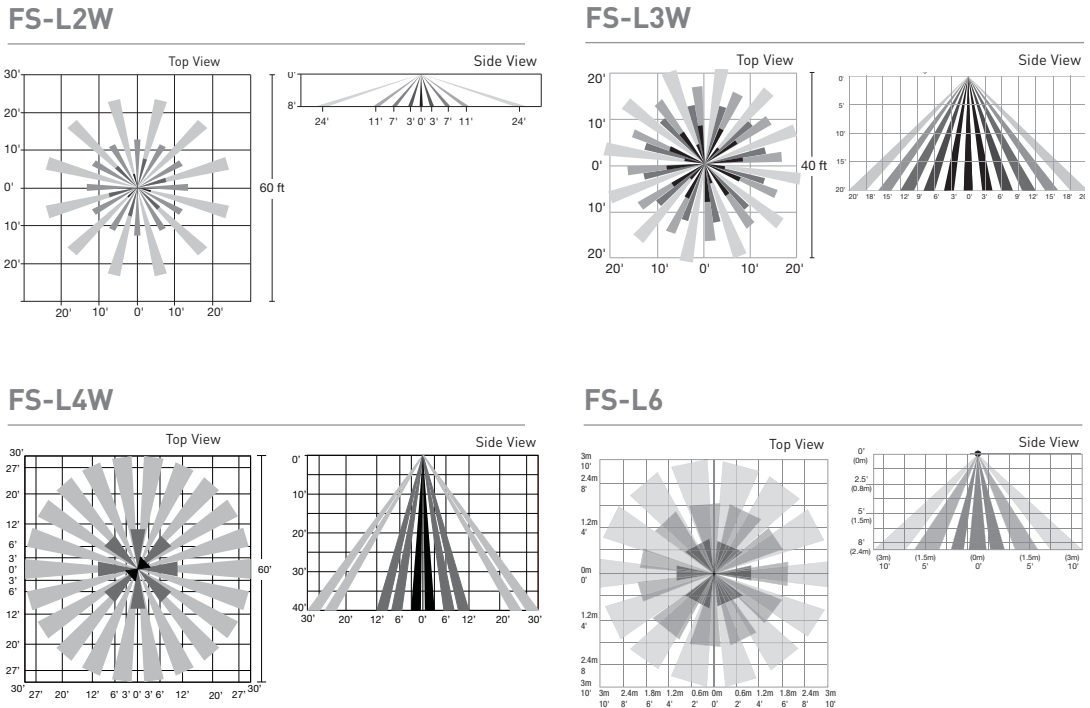
Specifications

- Operating temperature: -40-131°F (-40-55°C)
- Storage temperature: -40-176°F (-40-80°C)
- Operating Humidity: 20-90%
- Five year warranty
- UL and cUL listed

Lens Dimensions



Coverage Patterns

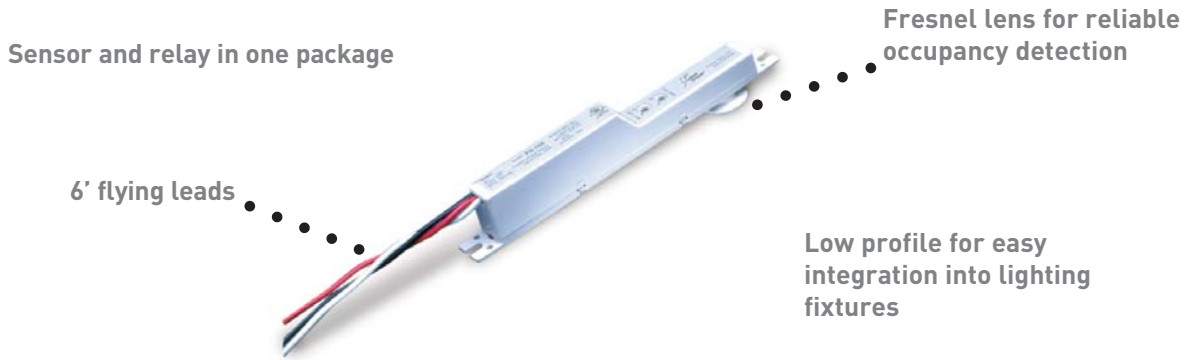


Ordering Information

Catalog No.	Color	Description
<input type="checkbox"/> FS-L2W	White	360° lens, maximum coverage 48' diameter from 8' height
<input type="checkbox"/> FS-L3W	White	360° lens, maximum coverage 40' diameter from 20' height
<input type="checkbox"/> FS-L4W	White	360° lens, maximum coverage 60' diameter from 40' height
<input type="checkbox"/> FS-L6	White	360° lens, maximum coverage 20' diameter from 8' height



FS-155/FS-155-1 Line Voltage PIR Fixture Integrated Occupancy Sensors



Hold-off daylighting light level feature

PROJECT
LOCATION/TYPE

Product Overview

Description

The FS-155/FS-155-1 Line Voltage Passive Infrared (PIR) Sensors control lighting based on occupancy. They are designed with a low-profile, architecturally pleasing appearance to easily integrate into a wide range of lighting fixtures or a customized housing. Both provide a sensor and relay in one package, and their integrated photosensor holds off connected loads when enough daylight is available to provide additional energy savings. Both the FS-155 and FS-155-1 are equipped with 6' flying leads.

Operation

The FS-155 and FS-155-1 operate at 120/277 VAC to control lighting based on occupancy. Utilizing the latest PIR technology, which detects the difference between infrared energy in motion and the background space, they automatically turn the lights off after the defined area is vacated and the adjustable time delay (30 seconds to 30 minutes) has elapsed. An integrated photosensor will hold off the lights for additional energy savings if there is 10-120 fc of ambient light where the sensor is installed.

Applications

The FS-155 provides coverage up to 100 square feet and the FS-155-1 up to 400 square feet, both in a 360° coverage pattern when mounted at 8'. Both work well where relay and sensor are required in one package, and they both can provide additional energy savings by utilizing their incorporated photosensor to hold off the lights when there is 10-120 fc of ambient light at the sensor's point of installation. The distinctive mounting option of these models make them suitable for controlling desktop task lighting. They are also well-suited to control in cubicles and small offices.

Features

- Sensor and relay in one package
- Hold-off daylighting when placed in areas with 10-120 fc of ambient light
- Includes 6' flying leads for simplified installation
- Adjustable time delay
- RoHS compliant

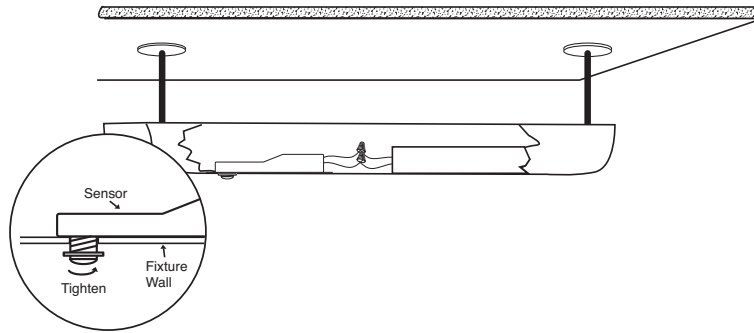


Specifications

- 120/277VAC, 60Hz
- Load Req. @120: 0-800W ballast or tungsten
- Load Req. @277: 0-1200W ballast
- Adjustable time delay (30 seconds to 30 minutes)
- Hold-off daylighting level, adjustable from 10-120 fc
- Operating temperature 32-131°F (0-55°C)
- Dimensions:
 - lens housing: 0.5" (12.7mm) diameter
 - lens collar 1" (25.4mm) diameter
 - sensor body 7.1" x .87" x .67" (181mm x 22mm x 17mm)
- UL and cUL listed
- Five year warranty

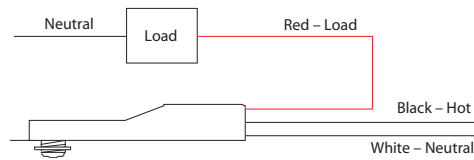
Mounting and Installation

Installing the FS-155/FS-155-1

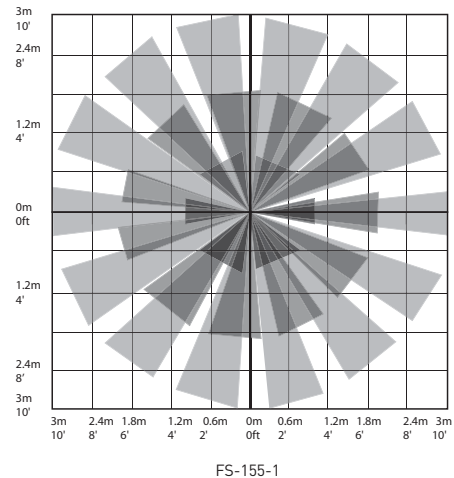
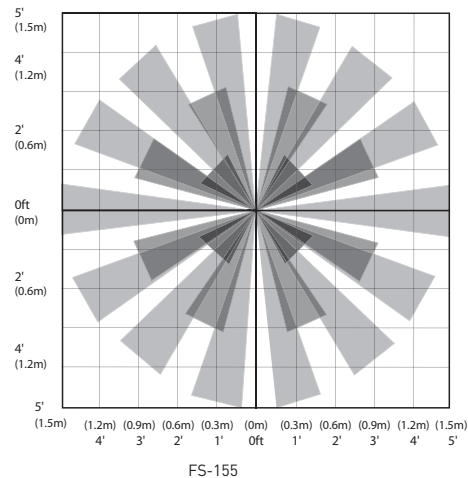


Wiring & Coverage

Line Voltage Wiring



Coverage Patterns @ 8' Mounting Height



Ordering Information

Catalog No.	Description
<input type="checkbox"/> FS-155	Line Voltage PIR Fixture Sensor; 120/277 VAC, 12 foot diameter coverage
<input type="checkbox"/> FS-155-1	Line Voltage PIR Fixture Sensor; 120/277 VAC, 18 foot diameter coverage



FS-205 Low Voltage PIR Fixture Integrated Occupancy Sensor

Modular plug system streamlines installation

Turn lights on and off based on occupancy

Hold off daylighting light level feature



Occupancy sensor that integrates into lighting fixtures

Compact lens gives unobtrusive appearance in even the smallest fixtures

PROJECT
LOCATION/TYPE

Product Overview

Description

The FS-205 Low Voltage Passive Infrared (PIR) Fixture Sensor controls lighting based on occupancy. It is designed with a low-profile, architecturally pleasing appearance to easily integrate into lighting fixtures or a customized housing. The modular plug-in system utilizes an RJ45 connector on a low-voltage 6-ft. cord for installation flexibility, and to quickly link to a remote-mounted power pack.

Operation

When connected to an FS-PP Power Pack, the FS-205 sensor operates at 24 VDC to detect occupancy. Utilizing the latest PIR technology to detect the difference between heat emitted from the human body in motion and the background space, the FS sensor signals the FS-PP to close its relay and turn on the connected load. After the defined area is vacated and the adjustable time delay (30 seconds to 30 minutes) has elapsed, the sensor signals the FS-PP to open its relay and turn off the connected load.

Hold-off Daylighting

The hold-off daylighting light level feature provides additional energy savings. Once the lights turn off after the time delay has elapsed, this feature holds lighting off upon new occupancy if there is sufficient ambient light available (adjustable from 10-120 fc).

Applications

The FS-205 provides a 360° coverage pattern for up to 200 square feet when mounted at 8 feet. The sensor works well in a small office, cubicle or utility room. The FS-205 is little enough to be easily integrated into even the smallest housings when zonal control of direct/indirect fixtures is required.

Features

- Low-voltage 6-ft. whip with an RJ45 connector for easy installation
- Small footprint fits easily in fixtures
- Adjustable time delay (30 seconds to 30 minutes)
- Fresnel lens for accurate detection patterns
- LED indicator of occupancy detection for easy verification of coverage
- Hold-off daylighting control
- RoHS compliant

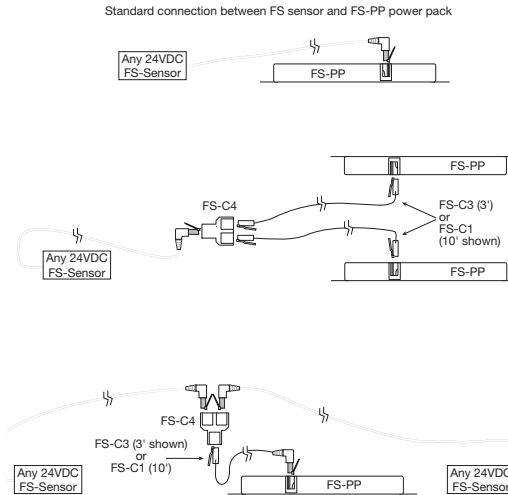


Specifications

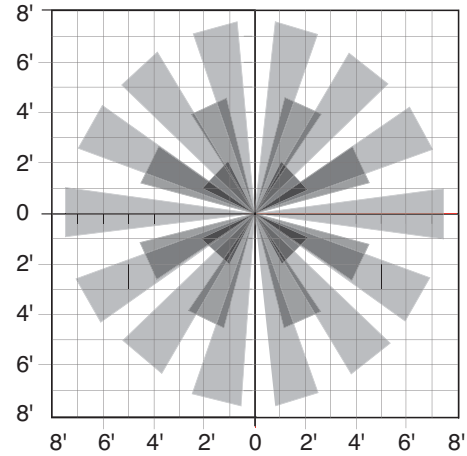
- 24 VDC
- Coverage pattern at 8 ft.: 16' (487.7cm) diameter
- Adjustable time delay (30 seconds to 30 minutes)
- Hold-off daylighting light level, adjustable from 10-120 fc
- Operating temperature 32-131°F (0-55°C)
- Dimensions:
 - throat: 0.75" (19mm) diameter
 - lens collar: 1.12" (28.5mm) diameter
 - lens pipe: .38" (9.7mm)
 - sensor body: 1.12" x 1.38" x .5" (28.5mm x 35mm x 12.7mm)
- UL and cUL listed
- Five year warranty

Wiring & Coverage

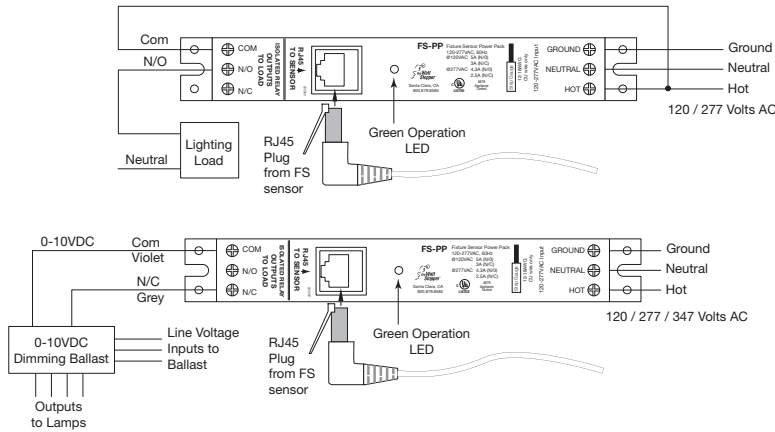
FS Low Voltage Wiring



Coverage Pattern @ 8 ft Mounting Height



FS-205 and FS-PP Wiring Diagram



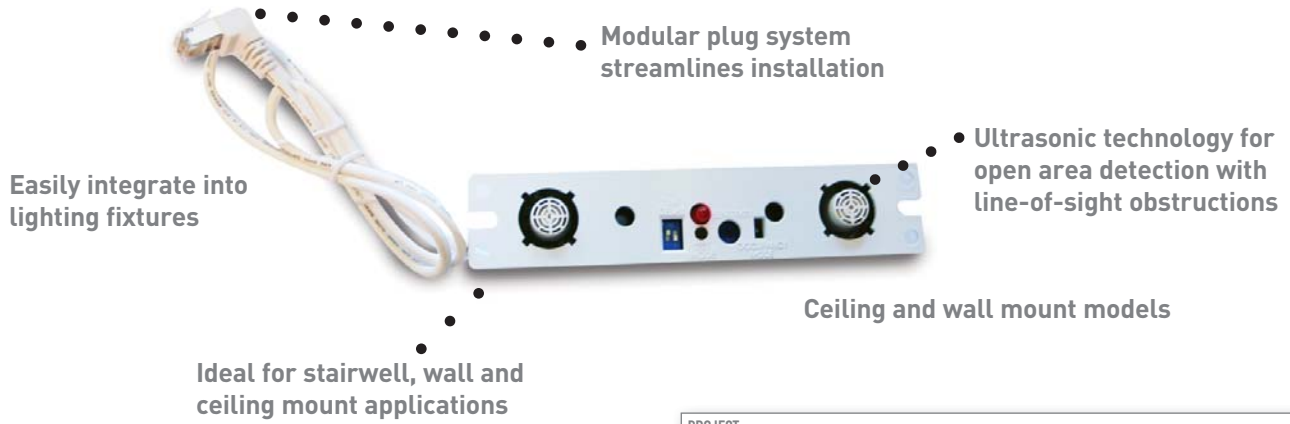
Ordering Information

Catalog No.	Description	Load Capacity
<input type="checkbox"/> FS-205v2	Low Voltage PIR Low Profile Fixture Occupancy Sensor, 24 VDC	Current Consumption 6.5mA
<input type="checkbox"/> FS-PPv2	Fixture Power Pack 120/277/347 VAC; 60Hz	70mA @ 24 VDC
<input type="checkbox"/> FS-C1	10' (3.048m) cable with shielded RJ45 male connectors at each end	
<input type="checkbox"/> FS-C1-20	20' extension cable with shielded RJ45 male connectors at each end	
<input type="checkbox"/> FS-C2	6" (15.24cm) cable with 3 flying leads at one end and shielded RJ45 male connector on other end	
<input type="checkbox"/> FS-C2-J	RJ45 override jumper	
<input type="checkbox"/> FS-C3	3' (0.914m) cable with shielded 90° male RJ45 on one end and shielded straight male RJ45 on other end	
<input type="checkbox"/> FS-C4	Shielded RJ45 splitter with female to dual female receptacles	
<input type="checkbox"/> FS-C5	Shielded RJ45 male to male coupler	
<input type="checkbox"/> FS-C6	24" cable with 90° RJ45 connector and 3 flying leads	

NOTE: The FS-205 Low Voltage Sensor requires an FS-PP or other WattStopper Power Pack (ordered separately) to operate.



FS-505/FS-505C Low Voltage Ultrasonic Fixture Integrated Occupancy Sensors



PROJECT
LOCATION/TYPE

Product Overview

Description

The FS-505 and FS-505C Low Voltage Ultrasonic Fixture Sensors control lighting based on occupancy. They are designed with a low-profile, architecturally pleasing appearance to easily integrate into a wide range of lighting fixtures or a customized housing. The sensors' modular plug-in system utilizes an RJ45 connector and 3' cord for flexibility and ease of use.

Operation

When connected to an FS-PP Power Pack, the FS-505 Series sensors use high frequency (40 kHz) ultrasonic technology to sense motion within a space and automatically turn lights on even when the sensor has no direct line of sight to occupants. After the area is vacated and the time delay has elapsed, the sensors automatically turn the lights off. Ultrasonic detection operates by transmitting sound waves throughout an area and measuring the speed at which they return. Movement increases the return frequency, which triggers occupancy.

The FS-505 Series sensors provide functions for testing, overriding the fixture 'ON' and a 72-hour lamp burn-in mode.

Applications

Typical applications for the FS-505 Series sensors include open office cubicles, offices, conference rooms, restrooms and hallways. This technology also provides superior detection in hard surfaced areas, such as stairwells and hallways.

For a large rectangular detection area with ceiling-mounted fixtures, the FS-505C provides excellent coverage. For specialized applications such as stairwells, the elongated coverage pattern of the FS-505 is ideal.

The FS-505 can provide bi-level lighting control in fixtures that have bi-level or dimming ballasts, resulting in up to 66% energy savings for fixtures that are on 24-hours a day, seven days a week, while still providing enough light for safety and egress.

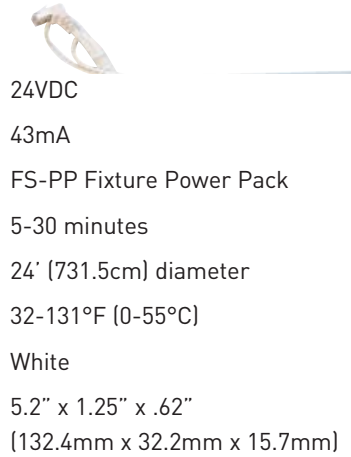
Features

- Ultrasonic technology (40Khz)
- Compact design for installation in low-profile fixtures
- 24 VDC
- Three modes: override, burn-in and test modes



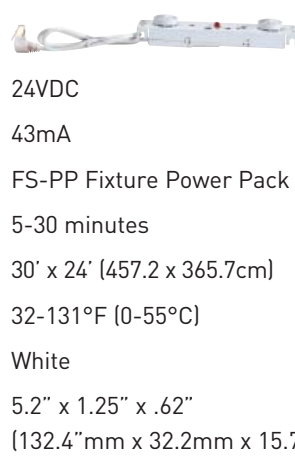
Specifications

FS-505 Low Voltage Ultrasonic Fixture Sensor



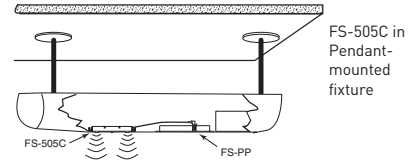
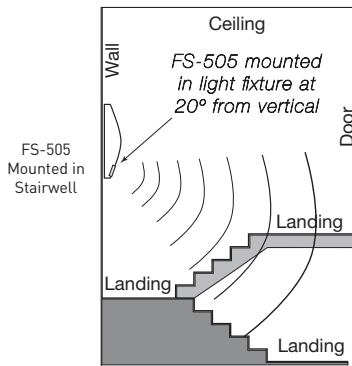
- Voltage** 24VDC
- Current Consumption** 43mA
- Power Supply** FS-PP Fixture Power Pack
- Time Delay** 5-30 minutes
- Coverage at 8' ht.** 24' (731.5cm) diameter
- Operating Temp** 32-131°F (0-55°C)
- Color** White
- Dimensions*** 5.2" x 1.25" x .62"
(132.4mm x 32.2mm x 15.7mm)

FS-505C Low Voltage Ultrasonic Fixture Sensor



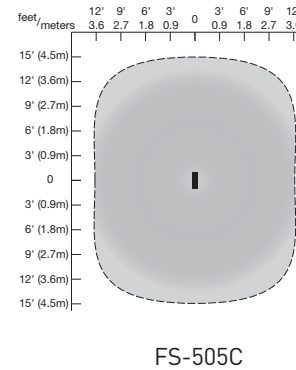
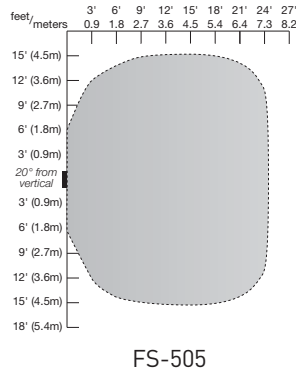
- Voltage** 24VDC
- Current Consumption** 43mA
- Power Supply** FS-PP Fixture Power Pack
- Time Delay** 5-30 minutes
- Coverage at 8' ht.** 30' x 24' (457.2 x 365.7cm)
- Operating Temp** 32-131°F (0-55°C)
- Color** White
- Dimensions*** 5.2" x 1.25" x .62"
(132.4"mm x 32.2mm x 15.7mm)

Applications

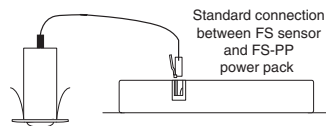


Wiring & Coverage

Coverage Patterns @ 8 ft Mounting Height



FS Low Voltage Wiring Example



Ordering Information

Catalog No.	Description
<input type="checkbox"/> FS-505	Low Voltage Ultrasonic Fixture Occupancy Sensor for Stairway Applications; 24 VDC fixture mount
<input type="checkbox"/> FS-505C	Low Voltage Ultrasonic Fixture Occupancy Sensor for Open Areas; 24 VDC fixture mount
<input type="checkbox"/> FS-PPv2	Fixture Power Pack 120/277 VAC; 60Hz

NOTE: All FS Low Voltage Sensors require an FS-PP or other WattStopper Power Pack (ordered separately) to operate.



FS-555/FS-555C Line Voltage Ultrasonic Fixture Integrated Occupancy Sensors

Line voltage for direct connection to load

Easily integrate into lighting fixtures

Ideal for stairwell, wall and ceiling mount applications



Ultrasonic technology for open area detection with line-of-sight obstructions

Ceiling and wall mount models

PROJECT
LOCATION/TYPE

Product Overview

Description

The FS-555 and FS-555C Line Voltage Ultrasonic Fixture Sensors control lighting based on occupancy. They are designed with a low-profile, architecturally pleasing appearance to easily integrate into a wide range of lighting fixtures or a customized housing.

Operation

When powered on, the FS-555 Series sensors use high frequency (40 kHz) ultrasonic technology to sense motion within a space and automatically turn lights on even when the sensor has no direct line of sight to occupants. After the area is vacated and the time delay has elapsed, the sensors automatically turn the lights off. Ultrasonic detection operates by transmitting sound waves throughout an area and measuring the speed at which they return. Movement increases the return frequency, which triggers occupancy.

The FS-555 Series sensors provide functions for testing, overriding the fixture 'ON' and a 100-hour lamp burn-in mode.

Applications

Typical applications for the FS-555 Series sensors include open office cubicles, offices, conference rooms, restrooms and hallways. This technology also provides superior detection in hard surfaced areas, such as stairwells and hallways.

For a large rectangular detection area with ceiling-mounted fixtures, the FS-555C provides excellent coverage. For specialized applications such as stairwells, the elongated coverage pattern of the FS-555 is ideal.

The FS-555 can provide bi-level lighting control in fixtures that have bi-level or dimming ballasts, resulting in up to 66% energy savings for fixtures that are on 24-hours a day, seven days a week, while still providing enough light for safety and egress.

Features

- Ultrasonic technology (40Khz)
- Compact design for installation in low-profile fixtures
- Three modes: override, burn-in and test modes
- 120/277 VAC; 50/60Hz, 1/10 hp
- Load @ 120 VAC 4.9A ballast, tungsten, compact fluorescent (CFL) and LED driver
- Load @ 277 VAC 4.9A ballast, compact fluorescent (CFL) and LED driver
- Current consumption: 43mA

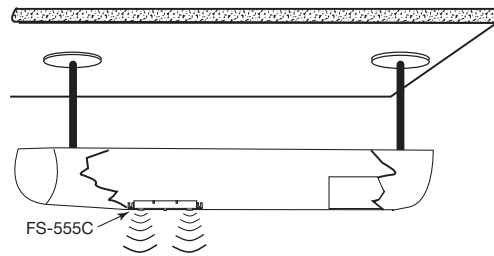
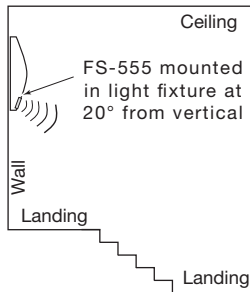


Specifications

	FS-555 Line Voltage Ultrasonic Fixture Sensor
Voltage	120/277 VAC
Current Consumption	43mA
Time Delay	5-30 minutes
Coverage at 8' ht.	24' (731.5cm) diameter
Operating Temp	32-131°F (0-55°C)
Color	White
Dimensions*	Sensor body: 5.2"L x 1.26"W x 1.7"D (132.4mm x 32.0mm x 43.0mm) Mounting base: 6.12" x 1.26" (155.4mm x 32.0mm) Mounting hole centers: 5.72" x 0.8" (145.3mm x 20.0mm)

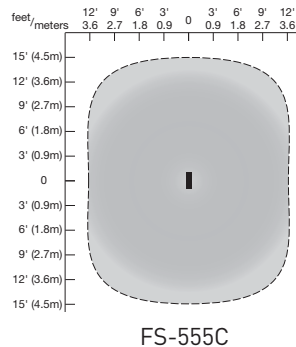
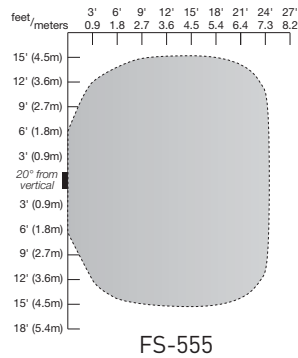
	FS-555C Line Voltage Ultrasonic Fixture Sensor
Voltage	120/277 VAC
Current Consumption	43mA
Time Delay	5-30 minutes
Coverage at 8' ht.	30' x 24' (457.2 x 365.7cm)
Operating Temp	32-131°F (0-55°C)
Color	White
Dimensions*	Sensor body: 5.2"L x 1.26"W x 1.7"D (132.4mm x 32.0mm x 43.0mm) Mounting base: 6.12" x 1.26" (155.4mm x 32.0mm) Mounting hole centers: 5.72" x 0.8" (145.3mm x 20.0mm)

Applications

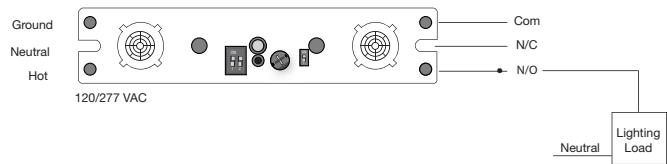


Wiring & Coverage

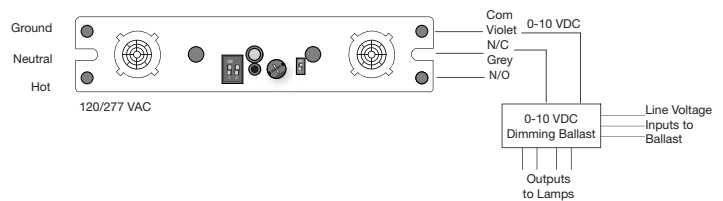
Coverage Patterns @ 8 ft Mounting Height



FS-555/555C Wiring Diagrams



FS-555 wired for On/Off control.



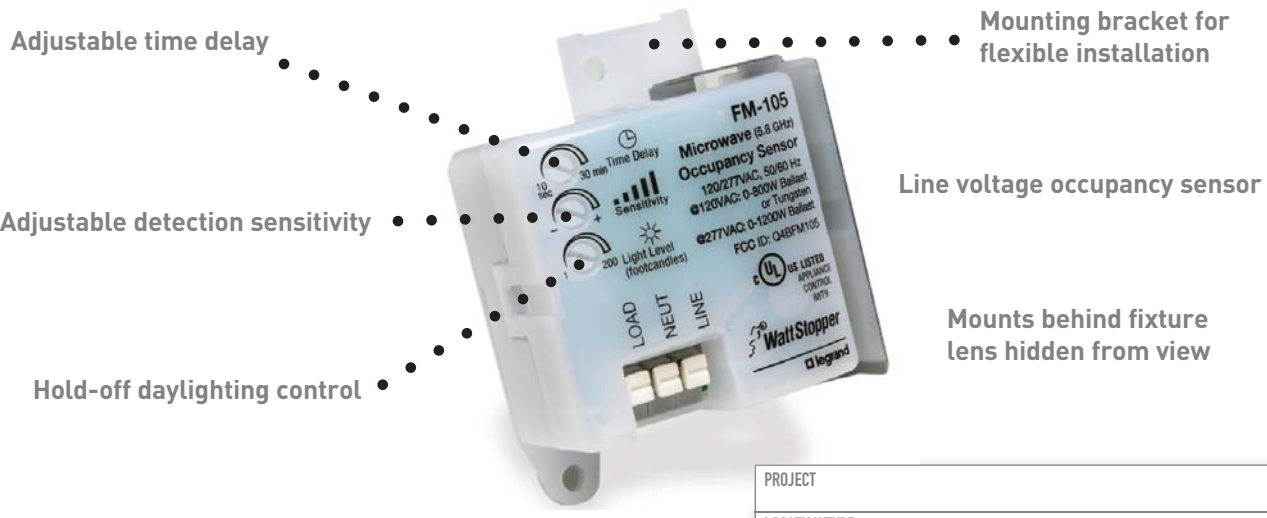
FS-555 wired for High/Low control.

Ordering Information

Catalog No.	Description
<input type="checkbox"/> FS-555	Line Voltage Ultrasonic Fixture Occupancy Sensor for Stairway Applications; 120/277 VAC fixture mount
<input type="checkbox"/> FS-555C	Line Voltage Ultrasonic Fixture Occupancy Sensor for Open Areas; 120/277 VAC fixture mount



FM-105 Super High Frequency Occupancy Sensor



PROJECT
LOCATION/TYPE

Product Overview

Description

The FM-105 Super High Frequency Occupancy Sensor is a line voltage sensor that turns lighting on and off based on occupancy, and can hold lights off when sufficient daylight is available. It detects motion via super high frequency (SHF) electromagnetic waves and the Doppler principle. Because it can detect motion through many dense materials other than metal, the FM-105 can be installed behind fixture lenses and hidden from view.

Operation

The FM-105 operates at 120 or 277 VAC and utilizes SHF technology to control lighting based on occupancy. It sends out electromagnetic waves that bounce off nearby surfaces, and uses the Doppler principle to analyze changes in the return waves to detect motion in the area (similar to the way that ultrasonic sensor technology performs). When motion is detected, the FM-105 turns on the load, unless the ambient light level is greater than the daylighting setpoint (if enabled), or turns off the load when no motion is detected for the preset time delay.

Features

- Detects movement when installed behind low-density fixture materials, such as polycarbonate, acrylic and glass diffusers
- Provides hold-off daylighting control when ambient light is greater than daylighting setpoint
- Can be mounted hidden from view
- Easy adjustment via trim pots

Flexible Functionality

The FM-105 Sensor coverage pattern is omnidirectional. Depending on its installation, it can be adjusted to detect occupancy up to 20 feet away. The FM-105 can be placed inside a lighting fixture or behind an object made of wood or plastic so that it is completely hidden from direct view. Its integrated daylight sensitivity adjusts from 2 to 200 footcandles, and its time delay may be set from 10 seconds to 30 minutes.

Applications

The FM-105 operates best when installed behind low-density fixture materials, such as polycarbonate, acrylic and glass diffusers. FM-105 technology also provides superior detection in hard surfaced areas such as stairwells and hallways. This sensor is also suited for installation behind lenses in outdoor wall sconces, wall packs and pedestrian-scale luminaires.

- Mounting bracket facilitates installation in various mounting positions
- Simple line voltage wiring does not require a power pack
- Time delay adjustable from 10 seconds to 30 minutes
- Adjustable sensitivity range up to 20 feet
- RoHS compliant

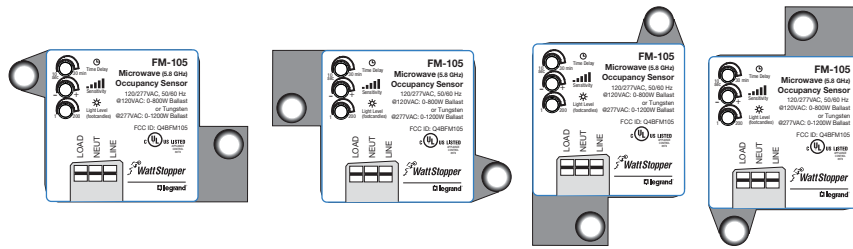


Specifications

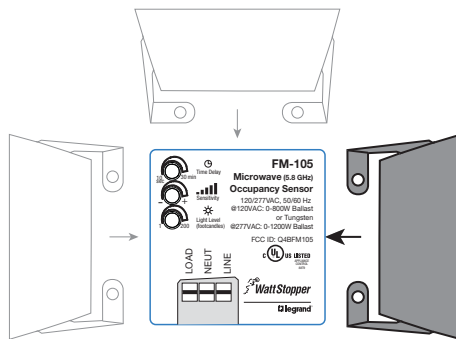
- 120/277 VAC, 50/60 Hz
- Load requirements
 - Ⓐ 120 VAC, 60 Hz: 0-800 W ballast or tungsten
 - Ⓐ 277 VAC, 60 Hz: 0-1200 W ballast
- Light Level: 2-200 fc
- Range/Sensitivity: Up to 20' (6.1m)
- Time delay: 10 seconds to 30 minutes
- Operating frequency: 5.8 GHz
- Power output: 1 mW
- Dimensions: 2.0" x 3.09" x 1.63" (51.0mm x 78.5mm x 41.4mm) L x W x D
- Weight: 2.3 oz (65.2 g)
- Operating temperature range: -4-131°F (-20-55°C)
- FCC approved
- UL and CUL listed
- Five year warranty

Mounting & Wiring

Mounting

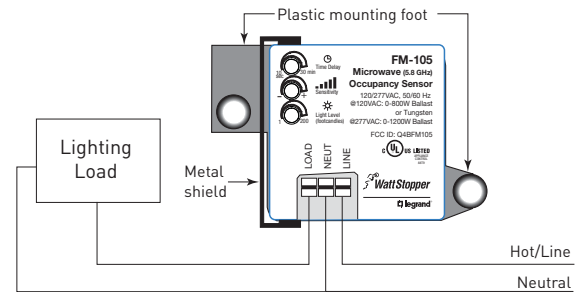


Mounting foot provides four different mounting positions.



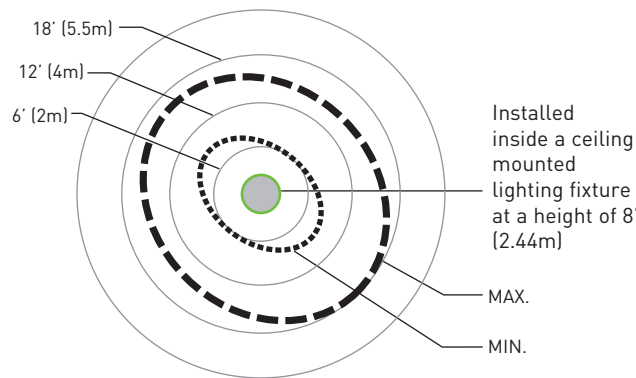
Position metal shield between FM-105 and lamp/ballast.

Wiring Diagram

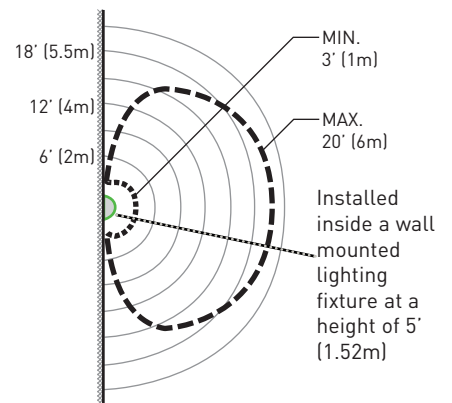


Coverage

Ceiling Mount



Wall Mount



Coverage pattern will vary based on installation of sensor and surrounding materials.

Ordering Information

Catalog No.	Description	Voltage	Load Capacity
□ FM-105	Super High Frequency Occupancy Sensor	120 VAC 277 VAC	0-800 W ballast or tungsten 0-1200 W ballast



FD-301 Fixture Integrated Daylight Dimming Photosensor



PROJECT
LOCATION/TYPE

Product Overview

Description

The FD-301 Fixture Integrated Daylight Dimming Photosensor is a low voltage controller that works with standard 0-10 VDC electronic dimming ballasts to control electric lighting in response to daylight.

Operation

A closed loop daylighting system, the FD-301 measures the total light level from daylight and electric light in the controlled area. The integral photocell measures only the narrow bandwidth of visible light to accurately report ambient light levels. Once commissioned, the FD-301 calculates the required light level for any given amount of daylight contribution based on two setpoints. One represents the target level when no daylight is present (night setpoint) and the other when significant daylight is present (day setpoint). Electric light output is automatically varied as the daylight level changes throughout the day to maintain the target light level. If specified, occupant controls may be used to temporarily adjust lighting levels without changing the setpoints. The FD-301 works with an FS-PP power pack.

Adjustment Using Remote Controls

The FDR-301-S setup remote facilitates quick easy setup from ground level without tools. Raise and lower buttons are used to adjust target lighting levels for the day and night setpoints in the presence and absence of daylight. LEDs confirm setup operations.

An optional occupant remote control, LSR-301-P, includes raise and lower buttons to temporarily increase the target light level by up to 25% or reduce it to the lamp/ballast minimum level. An "Auto" button returns control to the programmed levels.

Applications

The FD-301 is designed for mounting in fluorescent lighting fixtures using 0-10 VDC electronic dimming ballasts. It is an ideal control choice for daylit locations that experience long periods of occupancy including private or open offices, classrooms and cafeterias. The FD-301 may be used with FS occupancy sensors for maximum energy savings.

Features

- Photocell uses photopic curve to accurately measure light as it is perceived by the human eye
- Provides precise control of lighting to maintain desired light level
- Separate handheld remote control for setup prevents tampering
- Boosts energy savings by reducing maximum lamp output, often resulting in a 20% reduction or more compared with lights at full output
- Optional occupant remote increases user satisfaction and often produces increased energy savings
- Achieves lumen maintenance by holding target light level as lamp output decreases over time

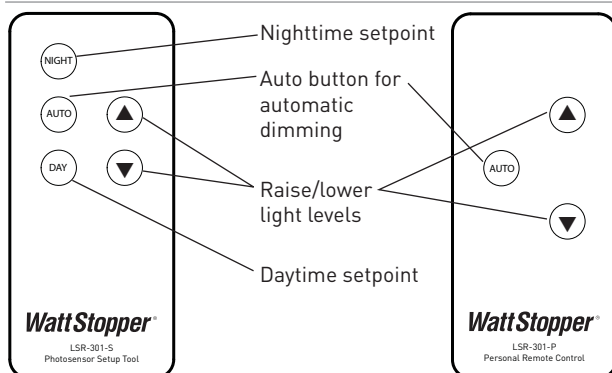


Specifications

- Operating voltage: 24 VDC
- Current consumption: 9mA typical, 30mA peak
- Max sink current: 50mA
- Dimensions: 1.57" x .98" x .84" (40mm x 25mm x 21.4 mm) LxWxD
- Weight: 64.4 grams (2.27 ounces)
- Enclosure material: ABS
- Color: White
- Operating temperature: 0-40°C (32-104°F)
- Operating humidity: 5-95%, non-condensing
- Full range dimming: .2 VDC (minimum) to 10 VDC (100% lighting) output voltage
- Includes 6' (1.83m) lead with RJ45 connector and 1' (.3m) bare leads for 0-10 VDC signal
- Sliding setpoint control algorithm
- Five year warranty

Product Controls

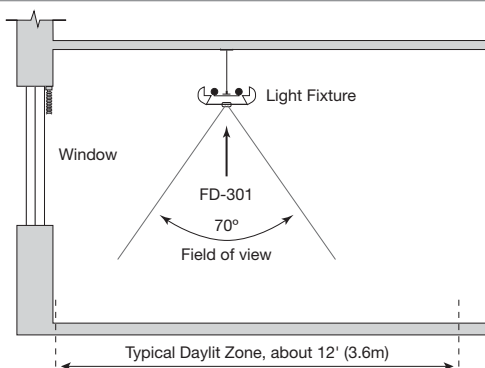
Handheld Remote Controls



Setup remote (left) enables easy setup while optional occupant remote (right) enables temporary adjustments for individual lighting preferences

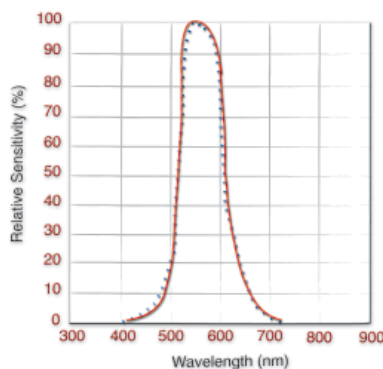
Sensitivity

Photosensor Spatial Response



The peak sensitivity of the FD-301 is a 70° field of view.

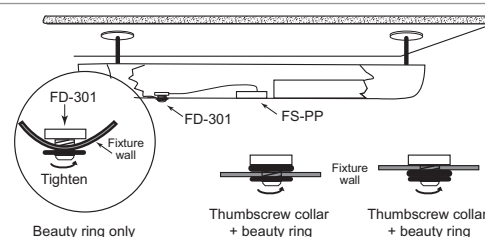
Photodiode Spectral Response



The spectral response of the photodiode closely matches the sensitivity of the human eye.

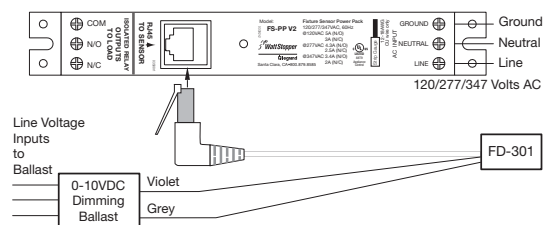
Installation & Wiring

Mounting and Installation



FD-301 photocell mounts in 3/4" diameter hole though the sheet metal in the bottom of the fixture.

Wiring



FD-301 lead connects to power pack, also mounted in fixture. For wiring diagram showing FD-301 and FS Occupancy Sensor, visit CAD Resources Center at www.wattstopper.com.

Ordering Information

Catalog No.	Description	Input Voltage
<input type="checkbox"/> FD-301	Fixture Integrated Daylight Dimming Photosensor	24 VDC
<input type="checkbox"/> LSR-301-S	Setup Remote Control	
<input type="checkbox"/> LSR-301-P	Occupant Remote Control	
<input type="checkbox"/> FS-PPv2	Power Pack	120/277 VAC; 60Hz



FS-705/FS-755 Wide Angle PIR Occupancy Sensor



PROJECT
LOCATION/TYPE

Product Overview

Description

The FS-705/FS-755 Wide Angle PIR Occupancy Sensors control lighting based on occupancy utilizing passive infrared (PIR) technology. The sensors provide 180 degree coverage and are designed for locations that require wide angle occupancy detection, such as refrigerator and freezer cases, vending machines and aisleway displays.

Operation

The FS-705/FS-755 are self-contained devices. The FS-705 is a 24 VDC device that operates via a 120, 230 or 277 VAC WattStopper power pack, while the FS-755 is a line voltage unit operating at 120/277 VAC. By detecting the difference between infrared energy from a human body in motion and the background space within the controlled area, the sensor turns lighting systems on. When occupants leave the controlled area, it switches lighting off after the user-selectable time delay elapses.

Wide Angle and Sensitivity Range

Equipped with a Fresnel lens and a unique dual pyro, the FS-705/FS-755 can cover more than 40 detection zones in all directions. Coverage is adjustable to 12 or 15 feet. When mounted at seven feet six inches above the floor, the sensor provides true 180 degree horizontal coverage and 70 degree vertical coverage to efficiently monitor the controlled area. The sensor's time delay adjusts to one of four settings: thirty seconds, one minute, two minutes or eight minutes.

Applications

The FS-705/FS-755 offers excellent control of lighting for locations where wide angle coverage is needed, such as refrigerator and freezer cases, vending machines and aisleways. Its wide coverage pattern detects motion before a person reaches the display area to turn lighting on, and turns off lighting when the area is vacant for the user-adjustable time delay. In cold food aisles, one sensor is typically used per case. It is ideally suited to controlling LED lighting. Sensor performance will provide fast payback and many years of energy savings.

Features

- Dual pyro covers more than 40 detection zones
- Coverage pattern adjustable to 12 or 15 feet when mounted 7'6" above the floor
- Time delay selectable to one of four settings (30 seconds, 1 minute, 2 minutes or 8 minutes)
- 180 degree horizontal coverage pattern
- 70 degree vertical coverage pattern
- Line and low voltage options
- LED indicator for occupancy detection
- DIP switch simplifies sensor adjustments
- RoHS compliant

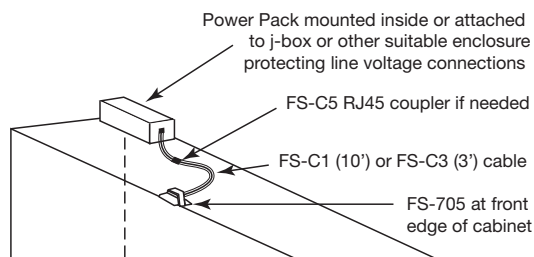


Specifications

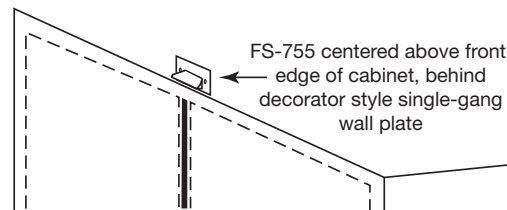
- FS-705: Power Supply: 24 VDC from WattStopper Power Pack
- FS-755: 120/277 VAC, 60 Hz
- Current consumption: 7mA @ 24VDC
- Weight: 2.11oz (60 grams)
- Detection indication: green LED
- Operating temperature range: 32-131°F (0-55°C)
- Storage temperature range: -22-176°F (-30-80°C)
- UL and CUL listed
- Five year warranty

Mounting Diagrams

FS-705 Mounting

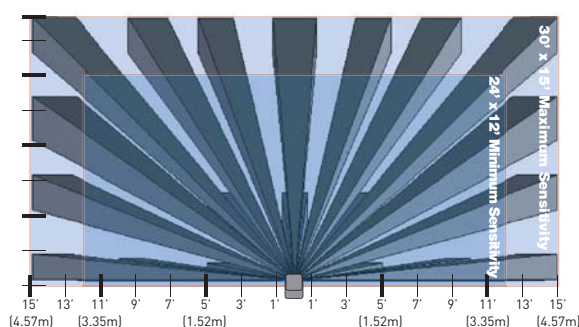


FS-755 Mounting

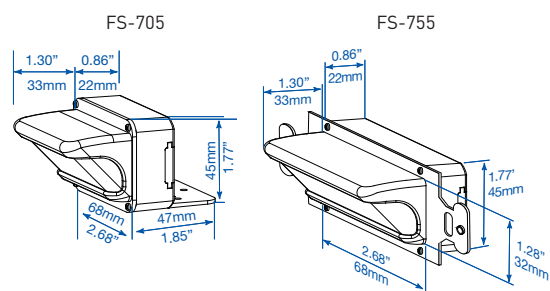


Coverage and Dimensions

Top View

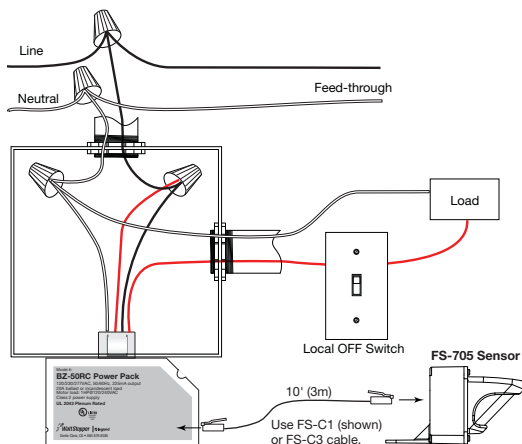


Dimensions

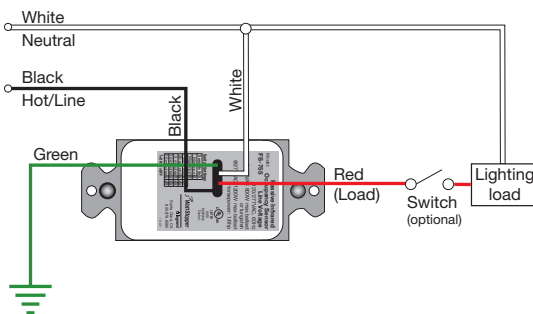


Wiring

FS-705 wiring with a BZ-50RC Power Pack



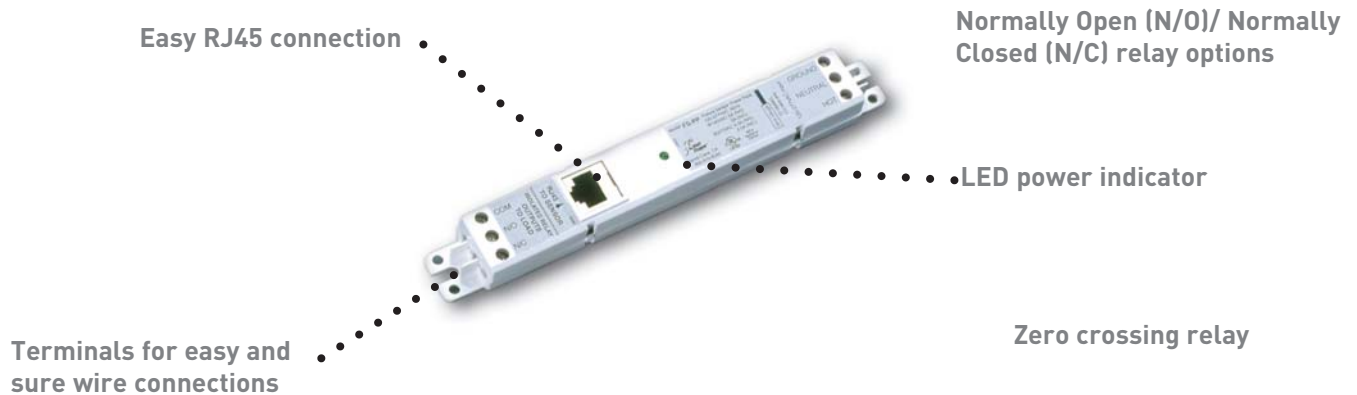
FS-755 wiring



Ordering Information

Catalog No.	Description
<input type="checkbox"/> FS-705	Wide Angle PIR Occupancy Sensor, 24 VDC
<input type="checkbox"/> FS-755	Wide Angle PIR Occupancy Sensor, 120/277 VAC
<input type="checkbox"/> FS-C1	10' (3.048m) cable with shielded RJ45 male connectors at each end
<input type="checkbox"/> FS-C1-20	20' extension cable with shielded RJ45 male connectors at each end
<input type="checkbox"/> FS-C2	6" (1.828m) cable with 3 flying leads at one end and a shielded RJ45 male connector on the other
<input type="checkbox"/> FS-C2-J	RJ45 override jumper
<input type="checkbox"/> FS-C3	3' (0.914m) cable with shielded 90° male RJ45 on one end and a shielded straight male RJ45 at the other
<input type="checkbox"/> FS-C4	Shielded RJ45 splitter with female to dual female receptacles
<input type="checkbox"/> FS-C5	Shielded RJ45 male to male coupler
<input type="checkbox"/> FS-C6	24" cable with 90° RJ45 connector and three flying leads

FS-PP Fixture Integrated Sensor Power Pack



PROJECT
LOCATION/TYPE

Product Overview

Description

The FS-PP Fixture Power Pack provides 24 VDC operating voltage to the FS Low Voltage Sensor series via the RJ45 connector built onto each sensor. The incorporated Form-C Relay, Normally Open (N/O)/Normally Closed (N/C), can control line or low voltage loads.

Operation

The FS-PP houses a step-down transformer that powers the FS sensors, and a relay for switching the load. Connection to the FS-PP is made by simply plugging in the RJ45 connector that is provided at the end of the FS whip. The FS-PP is rated for 120, 277 or 347 input voltages. The output power to the sensors is 24VDC, 70mA, which is capable of powering several sensors (up to seven FS PIR sensors or one FS Ultrasonic sensor).

The FS-PP uses zero crossing technology on the N/O side of the relay to increase relay life.

Instant On Feature

The FS-PP and the FS low voltage sensor incorporate special electrical circuitry which ensures that the load connected to it will come back on after a power failure, and will stay on for two minutes, unless motion is detected.

Applications

The FS-PP is intended for use inside lighting fixtures in conjunction with an FS Low Voltage Sensor. Its compact size provides easy installation into most fixture channels or ballast cavities. The FS-PP form C relay N/C or N/O provides the switching options that are needed to control simple ballast loads, or switching bi-level or dimming ballast levels.

The RJ45 connector allows easy installation of the FS Low Voltage Sensors, permitting pre-wiring of the FS-PP and installation of the sensor later.

Features

- For use with all Low Voltage Fixture Sensors
- ON/OFF and stepped dimming control options (with 0-10VDC dimming ballasts)
- Controls: one Ultrasonic or up to seven PIR Fixture Sensors
- Instant on in the unlikely event of a power failure
- RJ45 receptacle for easy plug and play with all low voltage FS Sensors
- Zero Crossing Circuitry for increased sensor life
- Terminal connections for easy installation
- Small, thin footprint fits in most lighting fixtures
- RoHS compliant

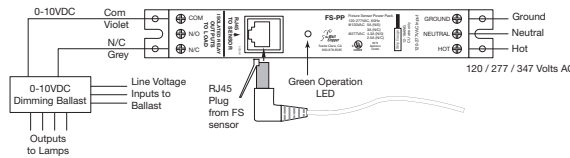


Specifications

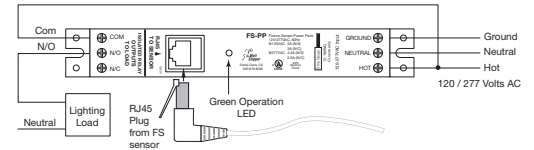
- 120/277/347 VAC, 60Hz
- Form C with Zero Crossing on N/O Relay
- Output: 70mA @ 24VDC
- Load Reg @120: 600W N/O, 360W N/C ballast, 1/6 hp
- Load Reg @277: 1200W N/O, 700W N/C ballast
- Connections:
Low Voltage: RJ45 to FS Sensors
- Line & Load: 12-18 AWG Screw Terminal
- 32°-131°F (0°-55°C)
- Dimensions: 7.5" x .87" x 1" (190.5mm x 22.1mm x 25.4mm)
- UL and cUL listed
- Five year warranty

Wiring & Cable Connectors

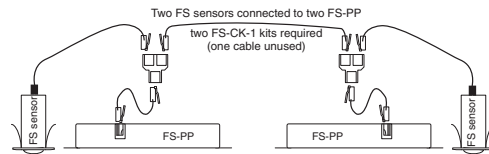
FS Power Pack - Dimming



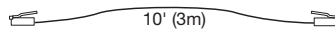
FS Power Pack - Standard On/Off



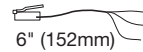
FS Low Voltage w/ FS-CK-1 Cable Kit



Cable Connectors



FS-C1: One 10' cable with a shielded RJ45 male connector at each end.



FS-C2: One 6" cable with 3 flying leads at one end and a shielded RJ45 male connector at the other.



FS-C3: One 3' cable with a shielded 90° RJ45 male connector at one end and a shielded straight male RJ45 connector at the other end, for space-limited applications.



FS-C4: Shielded RJ45 splitter with female to dual female receptacles.



FS-C5: Shielded RJ45 male to male coupler.

Ordering Information

Catalog No.	Description
<input type="checkbox"/> FS-PPv2	Fixture Power Pack 120/277/347 VAC; 60Hz
<input type="checkbox"/> FS-CK2	6" cable with 3 flying leads at one end and a shielded RJ45 male connector at the other, plus a shielded male to male coupler
<input type="checkbox"/> FS-C1	10' cable with shielded RJ45 male connectors at each end
<input type="checkbox"/> FS-C2	6" cable with 3 flying leads at one end and a shielded RJ45 male connector on the other
<input type="checkbox"/> FS-C3	3' cable with shielded 90° male RJ45 on one end and a shielded straight male RJ45 at the other
<input type="checkbox"/> FS-C4	Shielded RJ45 splitter with female to dual female receptacles
<input type="checkbox"/> FS-C5	Shielded RJ45 male to male coupler



BZ-50RC Universal Voltage Power Pack

High-efficiency switching power supply

Overcurrent protection (low-voltage)

RJ45 connection



Plenum rated

Zero crossing for reliability and increased product life

PROJECT
LOCATION/TYPE

Product Overview

Description

The BZ-50RC Universal Voltage Power Pack provides 24 VDC operating voltage to WattStopper's low-voltage occupancy sensors equipped with RJ45 jacks. This device is constructed with environmentally friendly materials and is RoHS-compliant.

Operation

The BZ-50RC consists of a high-efficiency switching power supply and a high-current relay. It has an input of 120/277 VAC, 50/60Hz, and an output of 24VDC, 225mA. It switches line voltage in response to the signal coming from the occupancy sensor. The BZ-50RC can be attached to existing junction boxes or mounted into fixture wiring trays.

Plenum Rated

The BZ-50RC Power Pack is comprised of Teflon-coated low-voltage leads and an ABS, UL 2043 and 94V-0 plastic resin enclosure that is plenum-rated. As a result, the BZ-50RC does not require installation into the junction box, but can be cost-effectively installed directly into a lighting fixture.

Applications

The BZ-50RC Power Pack is designed to be flexible enough to control almost any lighting or HVAC load, such as lighting circuits, self-contained air conditioners, pumps, fans, motors, VAV systems, motorized damper controls and setback thermostats. The BZ-50RC is well-suited for any application which requires high-voltage switching through low-voltage controls. By linking power packs and sensors, an almost unlimited number of configurations can be obtained.

Features

- Self-contained power supply relay system
- Efficient switching power supply providing optimized current output based on number of sensors
- LED indicates status of relay or if there is a low-voltage overcurrent
- Zero crossing circuitry for reliability and increased product life
- UL 2043 plenum rated for cost-effective installation
- 1/2" snap-in nipple attaches to standard electrical enclosures through 1/2" knockouts
- 14 AWG wires on the relay for 20A operation
- Easy RJ45 connection
- RoHS-compliant

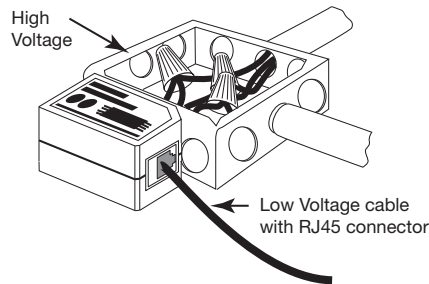


Specifications

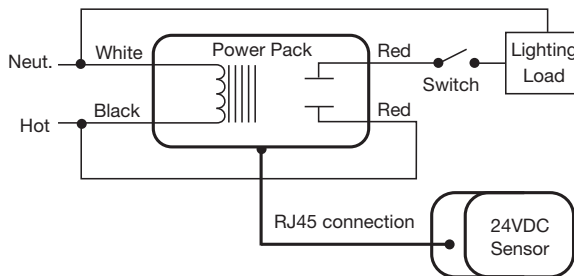
- 120/277VAC, 50/60Hz voltage input
- Load requirements:
Ballast: 20 amp @ 120/277 VAC
Incan: 20 amp @ 120 VAC
Motor: 1 hp @ 120/250 VAC
- Secondary voltage of 24 VDC
- Secondary output of 225 mA (with relay connected)
- Connection:
BZ-50RC with RJ45 connections
- Operating temperature 32°-104°F (0-40°C)
- UL-rated 94 V-0 grey plastic enclosure
- Dimensions: 1.6" x 2.75" x 1.6"
(40.6mm x 69.9mm x 40.6mm) H x W x D with a 1/2" (12.7mm) snap-in nipple
- UL and cUL listed
- Five year warranty

System Layout & Wiring

Installation Diagram



Wiring with Occupancy Sensor



Ordering Information

Catalog No.	Description	Load Ratings			Output
		Ballast(A)	Incan(A)	Motor(HP)	
<input type="checkbox"/> BZ-50RC	Universal Power Pack with RJ45 connection	20	20	1*	24 VDC**; RJ45 connection
<input type="checkbox"/> FS-C1	10' cable with shielded RJ45 male connectors at each end				
<input type="checkbox"/> FS-C1-20	20' extension cable with shielded RJ45 male connectors at each end				
<input type="checkbox"/> FS-C2	6" cable with 3 flying leads at one end and a shielded RJ45 male connector on the other				
<input type="checkbox"/> FS-C2-J	RJ45 override jumper				
<input type="checkbox"/> FS-C3	3' cable with shielded 90° male RJ45 on one end and a shielded straight male RJ45 at the other				
<input type="checkbox"/> FS-C4	Shielded RJ45 splitter with female to dual female receptacles				
<input type="checkbox"/> FS-C5	Shielded RJ45 male to male coupler				
<input type="checkbox"/> FS-C6	24" cable with 90° RJ45 connector and three flying leads				

*1 Hp rated at 120/250 VAC. **Output is 225 mA with relay connected.

Installation Notes

- 1) All WattStopper power packs should be installed in accordance with state, local, and national electrical codes and requirements.
- 2) Power packs are designed to attach to existing or new electrical enclosures with .5" 125.40mmJ knockout (check electrical codes in your area).
- 3) Most applications require UL-listed, 18-22 AWG, 3-conductor, Class 2 cables for low-voltage wiring. For plenum return ceilings use UL-listed plenum-approved cables.



BZ-50 Universal Voltage Power Pack

High-efficiency switching power supply

Overcurrent protection (low-voltage)

Plenum rated

120/277VAC, 50/60Hz

Zero crossing for reliability and increased product life



PROJECT
LOCATION/TYPE

Product Overview

Description

The BZ-50 Universal Voltage Power Pack provides 24 VDC operating voltage to WattStopper's low-voltage occupancy sensors. This device is constructed with environmentally friendly materials and is RoHS-compliant.

Operation

The BZ-50 consists of a high-efficiency switching power supply and a high-current relay. It has an input of 120/277 VAC, 50/60Hz, and an output of 24VDC, 225mA. It turns the connected load on and off automatically based on occupancy sensor input.

Plenum Rated

The BZ-50 Power Pack is comprised of Teflon-coated low-voltage leads and an ABS, UL 2043 and 94V-0 plastic resin enclosure that is plenum-rated. As a result, the BZ-50 does not require installation into the junction box, but can be cost-effectively installed directly into the plenum.

Applications

The BZ-50 Power Pack is designed to be flexible enough to control almost any lighting or HVAC load, such as lighting circuits, self-contained air conditioners, pumps, fans, motors, VAV systems, motorized damper controls and setback thermostats. The BZ-50 is well-suited for any application which requires high-voltage switching through low-voltage controls. By linking power packs and sensors, an almost unlimited number of configurations can be obtained.

Features

- Self-contained power supply relay system
- Efficient switching power supply providing optimized current output based on number of sensors
- LED indicates status of relay or if there is a low-voltage overcurrent
- RoHS-compliant
- Zero crossing circuitry for reliability and increased product life
- UL 2043 plenum rated for cost-effective installation
- 1/2" snap-in nipple attaches to standard electrical enclosures through 1/2" knockouts
- 14 AWG wires on the relay for 20A operation
- Qualifies for ARRA-funded public works projects

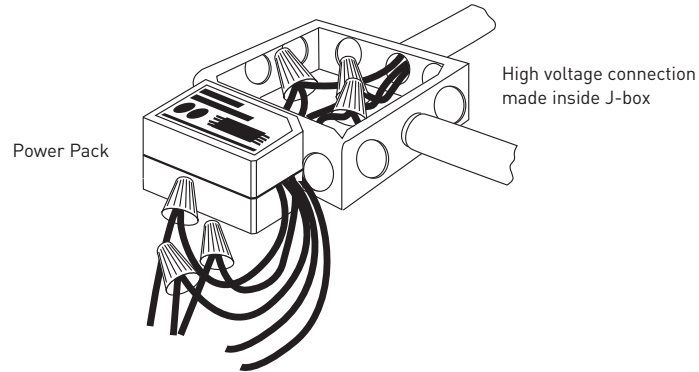


Specifications

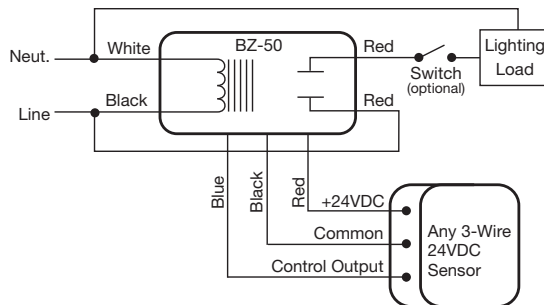
- 120/277VAC, 50/60Hz voltage input
- Secondary voltage of 24 VDC
- Secondary output of 225 mA (with relay connected)
- Low-voltage leads are rated for 300 volts
- UL-rated 94 V-0 grey plastic enclosure
- Dimensions: 1.6" x 2.75" x 1.6" (40.6mm x 69.9mm x 40.6mm) H x W x D with a 1/2" (12.7mm) snap-in nipple
- UL and cUL listed
- Five year warranty

System Layout & Wiring

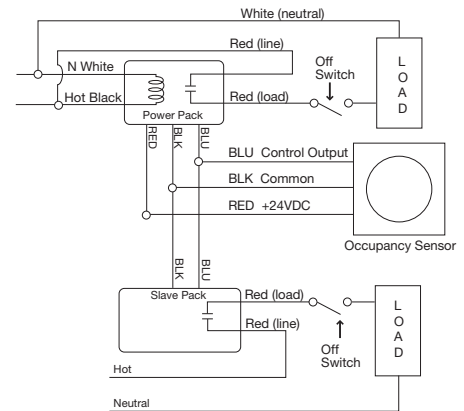
Installation Diagram



Wiring with Occupancy Sensor



Auxiliary Relay Pack with Sensor



Ordering Information

Catalog No.	Input Voltage	Load Ratings			Output
		Ballast(A)	Incan(A)	Motor(HP)	
<input type="checkbox"/> BZ-50	120/277VAC; 50/60Hz	20	20	1*	24 VDC; 225 mA**
<input type="checkbox"/> BZ-50-U					

*1 Hp rated at 120/250 VAC. **Output is 225 mA with relay connected.
 -U = ARRA compliant. Product produced in the U.S.

Installation Notes

- 1) All WattStopper power packs should be installed in accordance with state, local, and national electrical codes and requirements.
- 2) Power packs are designed to attach to existing or new electrical enclosures with .5" 125.40mmJ knockout (check electrical codes in your area).
- 3) Most applications require UL-listed, 18-22 AWG, 3-conductor, Class 2 cables for low-voltage wiring. For plenum return ceilings use UL-listed plenum-approved cables.

BZ-150 Universal Voltage Power Pack

High-efficiency switching power supply

Plenum rated

Zero crossing for reliability and increased product life

Auto-ON or Manual-ON operating mode

Hold-on and hold-off inputs

Overcurrent protection (low-voltage)

120/277VAC, 50/60Hz



PROJECT
LOCATION/TYPE

Product Overview

Description

The BZ-150 Universal Voltage Power Pack is full featured and can provide 24 VDC operating voltage to WattStopper's low-voltage occupancy sensors. In addition, the BZ-150 enables manual-on, hold-on, hold-off and load shed applications when used with lighting control panels or building management systems. This device is constructed with environmentally friendly materials and is RoHS-compliant.

Operation

The BZ-150 consists of a high-efficiency switching power supply and a high-current relay. It has an input of 120/277 VAC, 50/60Hz, and an output of 24VDC, 225mA. It turns the connected load on and off automatically based on occupancy sensor input, or manually with a low-voltage momentary switch. The dip switch setting allows the user to select Auto ON or Manual ON as the operating mode. Additional low-voltage inputs provide hold-on and hold-off features for broader applications.

Manual On and Bi-level Switching

Energy codes require automatic off. Some codes and EPAct require bi-level switching. The BZ-150 meets both of these requirements, while seamlessly integrating manual on for maximum energy savings. When used with a low-voltage wall switch, Auto ON and Manual ON can be selected while in the field by using the conveniently located dip switch on the front. Combining switches, power packs and sensors provides easy and cost-effective code-compliant solutions.

Applications

The BZ-150 can control lighting circuits, self-contained air conditioners, pumps, fans, motors, VAV systems, motorized damper controls and setback thermostats. By using two low-voltage switches, a ceiling sensor and two BZ-150s (one set to Auto ON and one set to Manual ON) bi-level switching with manual-on operation can be achieved. The hold-on input is ideal for retail and commercial facilities that want to override an occupancy sensor and force lighting on during normal business hours. After hours, a time clock signals the BZ-150 to cancel the hold-on lighting mode, allowing the sensor to resume control. The hold-off input can be used for load shedding or security systems.

Features

- Self-contained power supply relay system
- Efficient switching power supply providing optimized current output based on number of sensors
- LED indicates status of relay or if there is a low-voltage overcurrent
- Hold-on and hold-off inputs integrate with BMS, lighting control panels & other building systems
- Integrates with low-voltage momentary switch to control any 24VDC occupancy sensor
- RoHS-compliant
- Provides auto-on or manual-on field-selectable operating mode
- Zero crossing circuitry for reliability and increased product life
- UL 2043 plenum rated for cost-effective installation
- 1/2" snap-in nipple attaches to standard electrical enclosures through 1/2" knockouts
- 14 AWG wires on the relay for 20A operation
- Qualifies for ARRA-funded public works projects

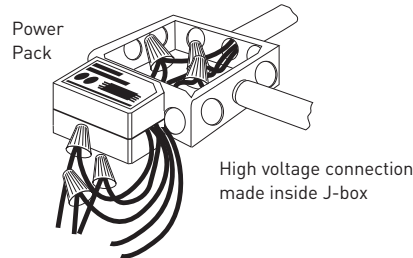


Specifications

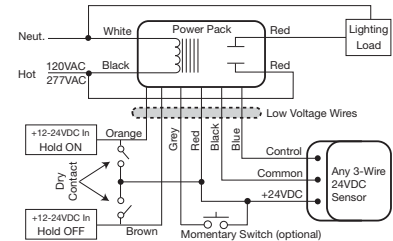
- 120/277VAC, 50/60Hz voltage input
- Secondary voltage of 24 VDC
- Secondary output of 225 mA (with relay connected)
- Low-voltage leads are rated for 300 volts
- UL-rated 94 V-0 grey plastic enclosure
- Dimensions: 1.6" x 2.75" x 1.6" (40.6mm x 69.9mm x 40.6mm) H x W x D with a 1/2" (12.7mm) snap-in nipple
- UL and cUL listed
- Five year warranty

System Layout & Wiring

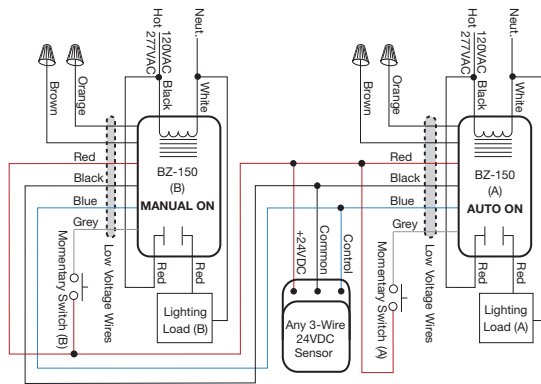
Installation Diagram



Wiring with Occupancy Sensor

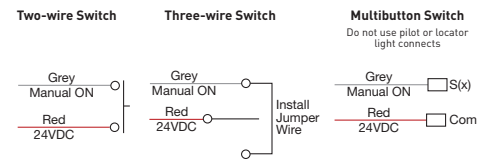


Manual-on & Bi-level Switching



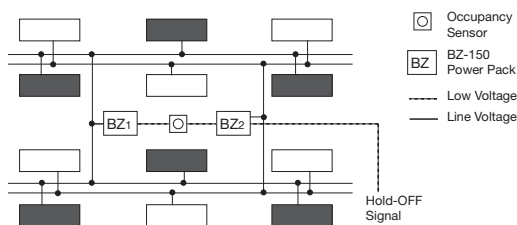
By using two low-voltage switches, a ceiling sensor and two BZ-150s (one set to Auto ON and one set to Manual ON) bi-level switching with manual-on operation can be achieved.

Low-voltage Momentary Switch Options



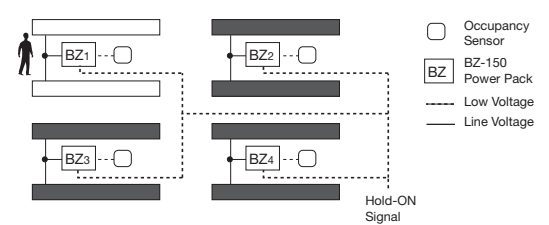
Hold-off & Hold-on Applications

Load Shed (Hold-off) Application for Open Office Spaces



The occupancy sensor connected to each BZ-150 keeps all lights on when the space is occupied. When the load shed command is given (by utility meter, BMS, etc.), lights connected to BZ₂ are held off. Remaining lights (connected to BZ₁) are still controlled by occupancy sensor.

Retail (Hold-on) Application



During store hours, a signal from a time clock to the BZ-150 holds lights on, regardless of occupancy. After hours, the clock schedule cancels the hold-on and occupancy sensor control takes over.

Ordering Information

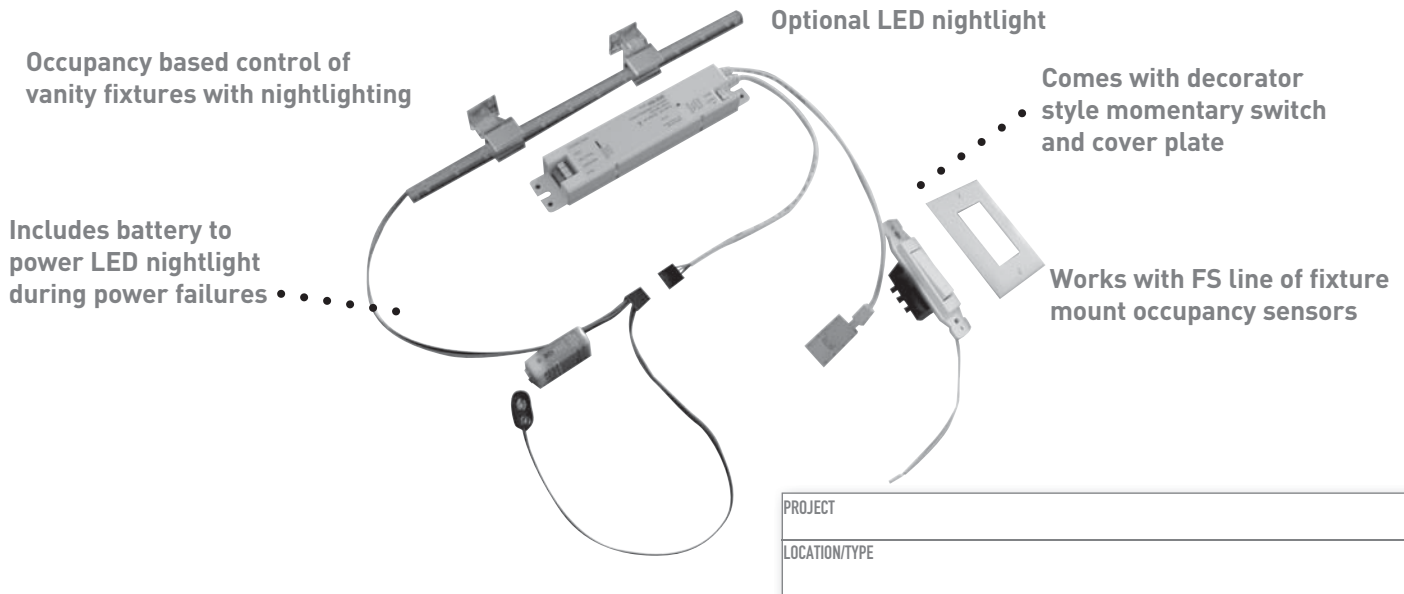
Catalog No.	Input Voltage	Load Ratings			Output
		Ballast(A)	Incan(A)	Motor	
<input type="checkbox"/> BZ-150	120/277VAC; 50/60Hz	20	20	1 HP 120/250 VAC-rated	24 VDC 225 mA w/relay connected
<input type="checkbox"/> BZ-150-U					

For a complete listing of Multibutton Low-voltage and Momentary Toggle Switches that will provide manual-on switching with the BZ-150, please refer to the product cut sheets in the section on Lighting Control Systems.
-U = ARRA compliant. Product produced in the U.S.

Installation Notes

- 1) All WattStopper power packs should be installed in accordance with state, local, and national electrical codes and requirements.
- 2) Power packs are designed to attach to existing or new electrical enclosures with .5" 125.40mmJ knockout (check electrical codes in your area).
- 3) Most applications require UL-listed, 18-22 AWG, 3-conductor, Class 2 cables for low-voltage wiring. For plenum return ceilings use UL-listed plenum-approved cables.

HN Series Fixture Mount Nightlight Controller



Product Overview

Description

The HN system provides a convenient, energy saving control solution for lighting fixtures which will incorporate LEDs for nightlight applications, such as hotel vanity lighting. The HN allows the lighting to be controlled by an FS fixture mount occupancy sensor (within the fixture).

Operation

The HN-200 system consists of a controller, momentary wall switch and plate, plus a 9 volt battery for backup power. The HN-300 system includes the same, plus an LED nightlight assembly.

The controller installs inside a lighting fixture. The switch toggles the light fixture between full overhead lighting operation and LED nightlighting, or turns off both. When the overhead lighting is ON, the sensor detects occupancy and turns lights off after the space is no longer occupied for the length of the time delay. When this happens, the nightlight turns on automatically. Pressing the switch two times rapidly turns both OFF. FS sensors provide time delays to 30 minutes or, for applications that require longer delays (such as in bathrooms where the sensor can't see the occupant in the shower), one hour.

Features

- Occupancy based control of fixture with nightlight; nightlight is ON when overhead lights are OFF, unless user turns nightlight OFF as well
- For safety, a 9 volt battery is included to provide back up power to the LED nightlight should a power failure occur
- Push-in wire connectors for rapid installation
- Convenient pre-packaged system contains all the components needed to control vanity/nightlight system
- Optional LED nightlight system has adjustable feet for achieving the desired light pattern

Nightlight

The LED nightlight assembly integrates with the HN-200 system to provide the convenience of nightlighting. The nightlight's LED glow is comforting to occupants and provides ample lighting where guests do not need to turn overhead lighting on to use the bathroom. And with the battery back-up, the nightlight will remain lit in the event of a power failure, providing safety to occupants.

Applications

The HN-200 integrates into bathroom vanity fixtures in hotels and other buildings such as assisted living establishments and nursing homes, where bathroom nightlighting is desired. Studies show that hotel guests often leave the bathroom lights on during the night as a nightlight. The system provides energy savings in two ways. The LED nightlight is more efficient than standard lighting, plus, the sensor makes sure there is no waste of lights being left on in vacant spaces.

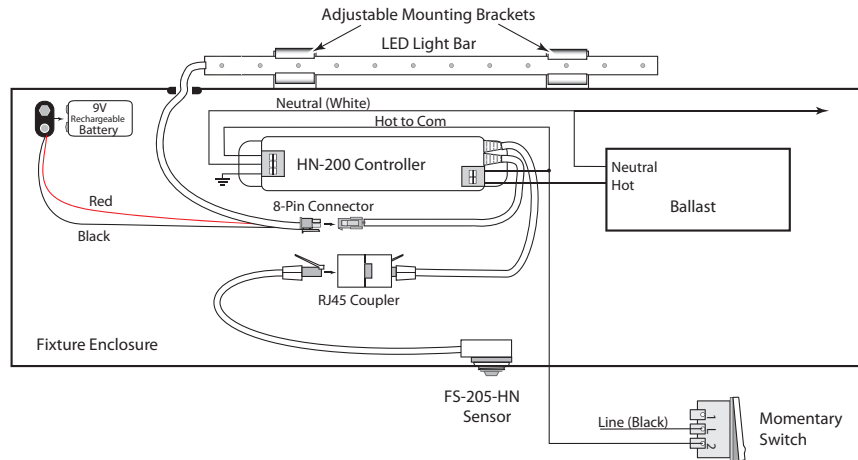
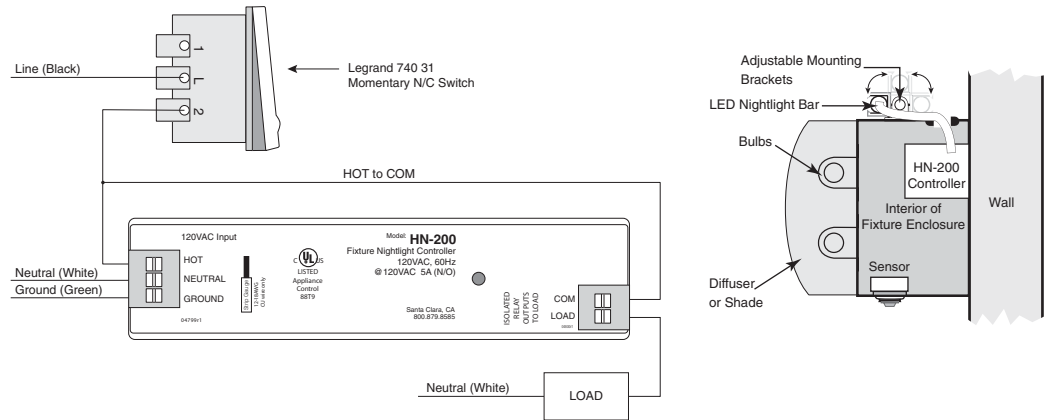


Controller Specifications

- 120 VAC, 60 Hz
- Form A normally open relay
- 8-pin connector to LED strip/battery:
 - 2-wire output to LEDs 400mA @10VDC max
 - 2-wire output to 9V Ni-MH battery 5-8mA @ 10VDC max
- Low voltage connections: RJ45 connection to FS sensor
- Load ratings: 500W @120 VAC
Isolated relay rated: 5A 250 VAC
- Line and load connections: 12-18 AWG terminals
- Operating temperature: 32-131°F (0-35°C)
- Dimensions: 7.5" x 0.75" x 1.5" (190mm x 19mm x 38mm) L x W x D
- UL and CUL listed
- Five year warranty

Wiring & Connections

Wiring Diagrams



Ordering Information

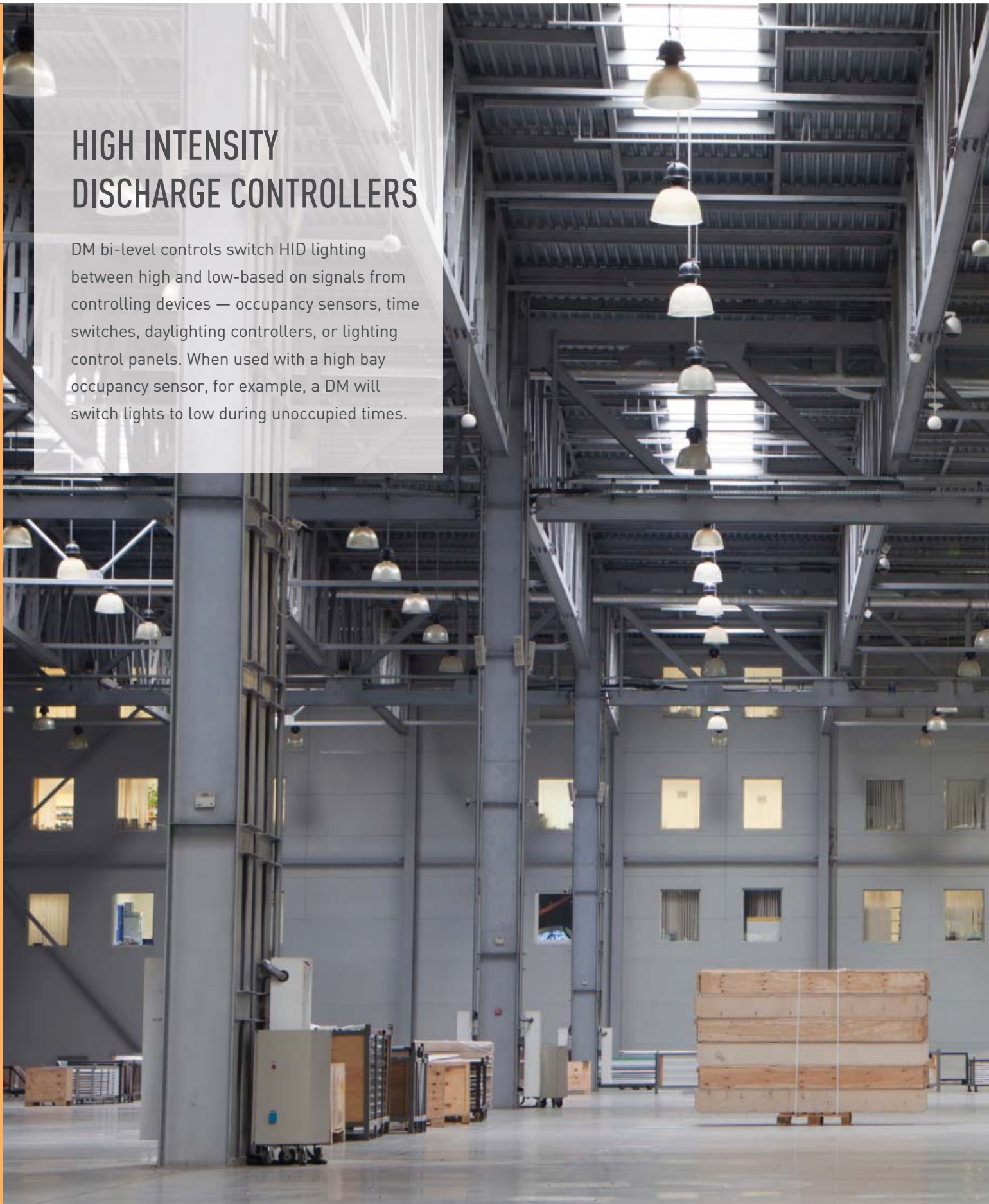
Catalog No.	Description
<input type="checkbox"/> HN-200	Fixture mount nightlight controller, momentary wall switch, plate, 9 volt battery
<input type="checkbox"/> HN-300	Fixture mount nightlight controller, momentary wall switch, plate, 9 volt battery, LED nightlight
<input type="checkbox"/> FS-205	Fixture sensor; 24VDC; passive infrared; 30 minute max. time delay; small footprint
<input type="checkbox"/> FS-205-HN	Fixture sensor; 24VDC; passive infrared; one hour max. time delay; small footprint
<input type="checkbox"/> FS-305-RC	Fixture sensor; 24VDC; passive infrared; 30 minute max. time delay; expanded coverage area
<input type="checkbox"/> FS-505C	Fixture sensor; 24VDC; ultrasonic; 30 minute max. time delay

Controller, switch, plate and sensors are all white.



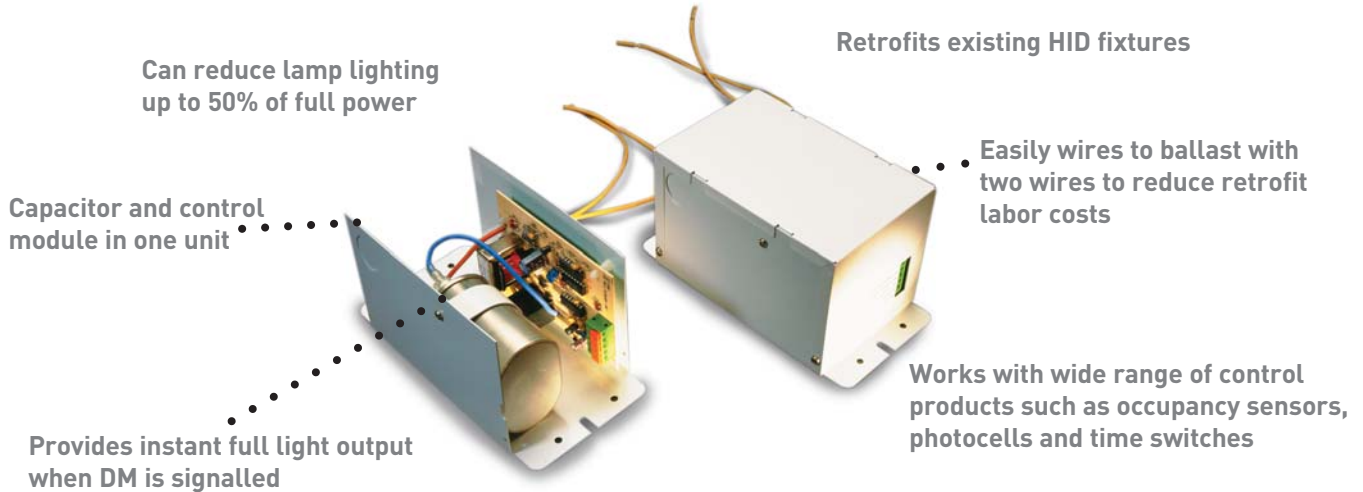
HIGH INTENSITY DISCHARGE CONTROLLERS

DM bi-level controls switch HID lighting between high and low-based on signals from controlling devices — occupancy sensors, time switches, daylighting controllers, or lighting control panels. When used with a high bay occupancy sensor, for example, a DM will switch lights to low during unoccupied times.





DM-100 Bi-level HID Controllers



PROJECT
LOCATION/TYPE

Product Overview

Description

WattStopper's DM-100 control module switches High Intensity Discharge (HID) lighting based on occupancy or other control signals. By providing bi-level (high/low) control, it eliminates the restrike time problem associated with on/off control of HID lighting. This enables a significant source of energy savings, potentially up to 50%.

Operation

The DM-100 utilizes a dual capacitor and capacitor switching to achieve the bi-level control. It features an easy installation, requiring just two wires to connect to the ballast. The DM-100 works with a 24 VDC controlling device, such as an occupancy sensor, photocell, or time switch, and switches HID lighting between high and low. For example, with an occupancy sensor, the DM-100 will switch lights to a lower, energy-saving level when the space is unoccupied. When occupants return, lights immediately return from low to high.

Zone Control Option

Multiple DM-100s can be linked together and then controlled from one device. In addition, multiple DM-100s can connect to multiple controlling devices in a variety of configurations. This gives users the means of combining control methods to customize HID control for each space.

Applications

The DM controller can be used in many facilities that currently employ HID lighting, such as warehouses, gymnasiums, parking garages, and retail applications. Since the DM-100 integrates with all low/high bay WattStopper occupancy sensors, daylighting and timing products, a broad range of configurations is available to address different lighting control needs.

Features

- Capacitor and control module in one unit
- Easy installation requires just two wires to connect to the ballast
- Provides instant full light output when DM unit is signalled
- Utilizes zero crossing to protect relay and increase product life
- Mounts directly on to the HID fixture, or can mount remotely
- Maintains full light level for 15 minutes during power up to prevent lamp damage
- Since dual capacitor is housed with the control module rather than in the ballast cavity, the capacitor life span is extended
- Multi-zone control is possible through connecting DM-100s to multiple controlling devices in a variety of configurations; lets users customize control for each space

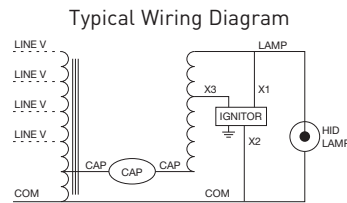


Specifications

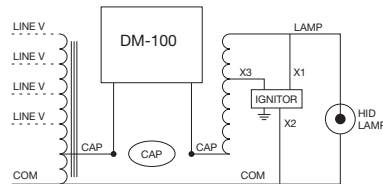
- For use with Metal Halide (MH), Metal Halide Pulse Start (MHPS), and High Pressure Sodium (HPS) lamps
- Operates only with Constant Wattage Autotransformer (CWA) type ballasts
- Compatible with Advance, Magnetek, and Venture ballasts, custom capacitor values for use with other manufacturers' ballasts available
- Designed for 175-1000W, CWA-type ballast HID lamps
- Maximum load rating of 1000 watts for MH or HPS lamps, 750 watts for MHPS lamps
- Relay rating: 10A at 250 VAC
- Operating temperature range: -10-104°F (-23-40°C)
- Maximum current output of 15mA at 24 VDC
- Dimensions: 3.75" x 5.75" x 4.75" (95.25mm x 146mm x 121mm) H x W x D, < 2 lbs.
- UL and cUL listed
- Five year warranty

Wiring & Mounting

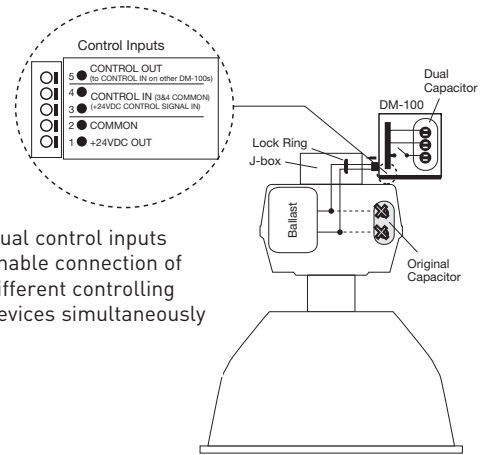
Wiring Diagrams



Typical Wiring Diagram with DM-100

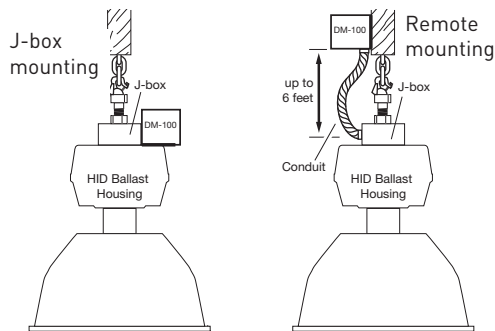


Control Inputs

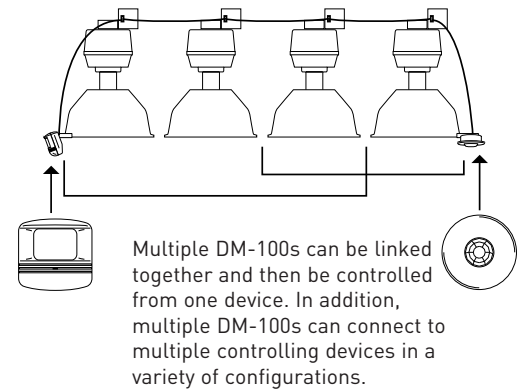


Dual control inputs enable connection of different controlling devices simultaneously

Mounting Options



Multi-Zone Control



Ordering Information

Catalog No.	Fixture/Ballast/Lamp Type
<input type="checkbox"/> DM-100-xxxH	250 - 1000 W High Pressure Sodium
<input type="checkbox"/> DM-100-yyyM	175 - 1000 W Metal Halide
<input type="checkbox"/> DM-100-zzzMP	150 - 750 W Metal Halide Pulse Start

xxx = 250, 400 or 1000
 yyy = 175, 250, 400 or 1000
 zzz = 150, 175, 200, 250, 320, 350, 400 or 750

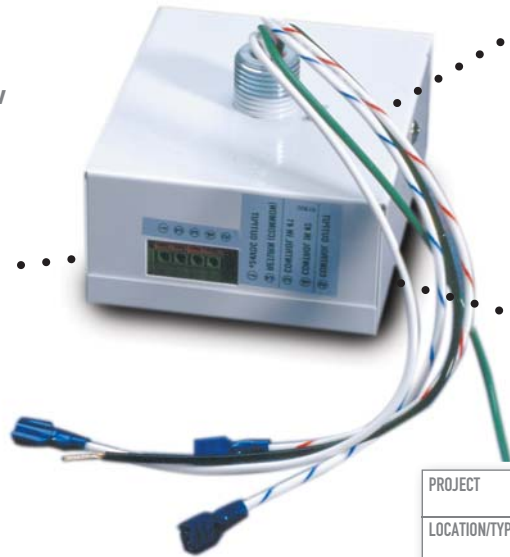
*To order the correct DM-100, information about specific lamp and ballast characteristics is needed. Please refer to the DM-100 qualification questionnaire in the installation instructions, available at www.wattstopper.com, or contact technical support at 800-879-8585



DM-105 Bi-level HID Controller

Switches HID lighting between high and low

Multiple zone control



Designed for 175-1000W, CWA-type ballasts

Ideal for factory or field installation

Installs on new or existing fixture; requires bi-level capacitor

PROJECT
LOCATION/TYPE

Product Overview

Description

WattStopper's DM-105 is a control module that switches High Intensity Discharge (HID) lighting based on occupancy or other control signals. By providing bi-level (high/low) control, it eliminates the restrike time problem associated with on/off control of HID lighting. The module installs on new or existing fixtures and requires a bi-level capacitor, which is installed inside the fixture.

Operation

The DM-105 works with a 24 VDC controlling device, such as an occupancy sensor, daylighting controller, or time switch, and switches HID lighting between high and low. For example, with an occupancy sensor, the DM-105 will switch lights to a lower, energy saving level when the space is unoccupied. When occupants return, lights immediately return from low to high. The DM-105 provides 24 VDC to the controlling device. It utilizes a dual capacitor and capacitor switching to achieve the bi-level control.

Zone Control Option

Multiple DM-105s can be linked together and then be controlled from one device. In addition, multiple DM-105s can connect to multiple controlling devices in a variety of configurations. This gives users the means of combining control methods to customize HID control for each space.

Applications

The DM controller can be used in many facilities such as warehouses, gymnasiums, parking garages, and retail applications. Since the DM-105 integrates with all standard WattStopper occupancy sensors, daylighting and timing products, a broad range of configurations is available to address different lighting control needs.

Features

- Installs on new or existing fixtures and requires a bi-level capacitor installed inside the fixture
- Utilizes zero crossing to protect relay and increase product life
- Maintains full light level for 15 minutes during power up to prevent lamp damage
- Provides instant full light output when DM unit is signalled
- Multiple modules can be linked together and switched from one controlling device
- Multi-zone control is possible through connecting DM-105s to multiple controlling devices in a variety of configurations; lets users customize control for each space
- The DM-105 features an easy installation, mounting directly on to the HID fixture using four wires to the capacitor and ballast

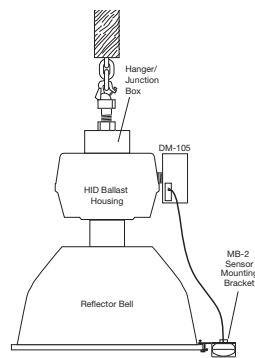


Specifications

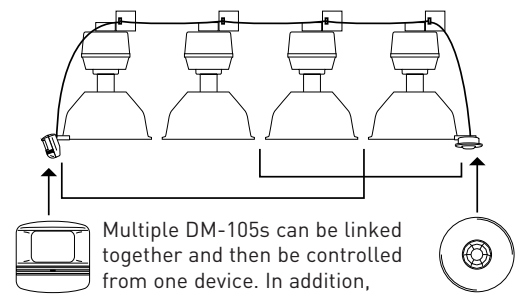
- For use with Metal Halide (MH), Metal Halide Pulse Start (MHPS), and High Pressure Sodium (HPS) lamps
- Operates only with Constant Wattage Autotransformer (CWA) type ballasts (compatible with all CWAs); contact WattStopper or ballast manufacturer for capacitor values appropriate for ballast
- Dual (bi-level) capacitor can be supplied by WattStopper or fixture manufacturer
- Maximum load rating of 1000 watts for MH, HPS or MHPS lamps
- More than 100 individual DM-105 units can be connected in series
- Lamp lighting levels can be reduced to 50% of full power
- Relay rating: 15A at 250 VAC
- Operating temperature range: -10-113°F (-23-45°C)
- Maximum current output of 15mA at 24 VDC
- Dimensions: 1.8" x 3.8" x 4.6" [47mm x 97mm x 116mm] H x W x D, < 2 lbs.
- UL and cUL listed
- Five year warranty

Wiring & Installation

Mounting Options

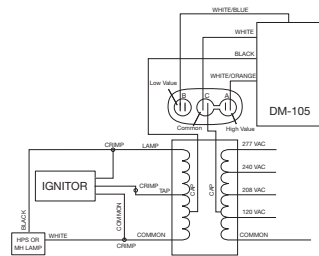


Multi-Zone Control

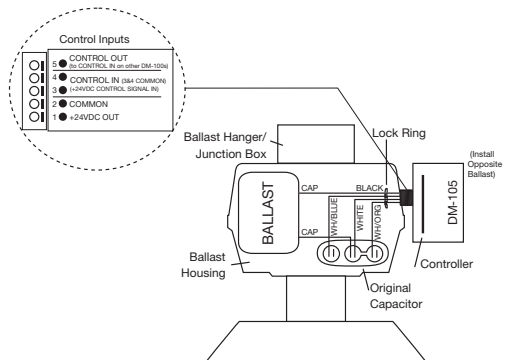


Multiple DM-105s can be linked together and then be controlled from one device. In addition, multiple DM-105s can connect to multiple controlling devices in a variety of configurations.

Typical Wiring w/HPS or MAPS Ballasts

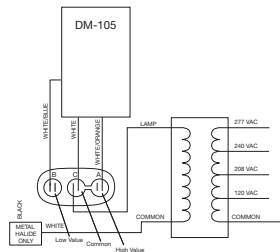


Wiring



Dual control inputs enable connection of different controlling devices simultaneously

Typical Wiring w/Metal Halide



Ordering Information

Catalog No.	Description
<input type="checkbox"/> DM-105	Bi-level HID Control Module (does not include capacitor)
<input type="checkbox"/> MB-1	Occupancy Sensor Bracket for high-bay or industrial setting mounting
<input type="checkbox"/> MB-2	Occupancy Sensor Bracket for HID metal reflector bell (without cover) mounting

Note: For DM control modules with a bi-level capacitor included, see DM-100 cut sheet

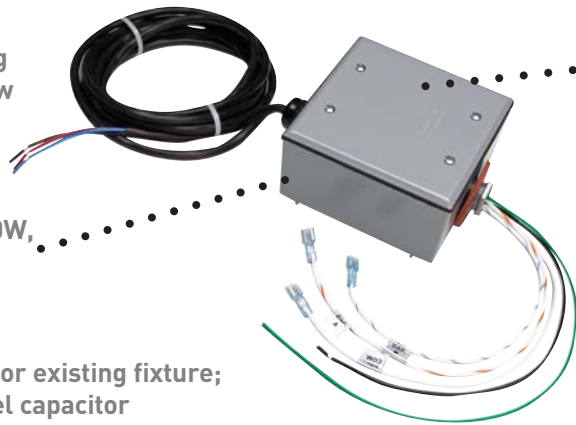


DM-115-WP Outdoor Bi-level HID Controller

Switches HID lighting between high and low

Designed for 175-1000W, CWA-type ballasts

Installs on new or existing fixture; requires bi-level capacitor



Weatherproof box

Ideal for wet or damp locations, such as parking lots

PROJECT
LOCATION/TYPE

Product Overview

Description

WattStopper's DM-115-WP Outdoor Bi-level HID Controller is a control module designed for outdoor use that switches High Intensity Discharge (HID) lighting based on occupancy or other control signals. By providing bi-level (high/low) control, it eliminates the restrike time problem associated with on/off control of HID lighting. The module installs on new or existing fixtures and requires a bi-level capacitor, which is installed inside the fixture.

Operation

The DM-115-WP works with a 24 VDC controlling device. For example, when used with an EW Outdoor Motion Sensor, the DM-115-WP will switch lights to a lower, energy-saving level when the space is unoccupied. When occupants return, lights immediately return from low to high. The DM-115-WP provides 24 VDC to the controlling device. It utilizes a dual capacitor and capacitor switching to achieve the bi-level control.

Weatherproof Box

The DM-115-WP is housed in a rugged weatherproof box for outdoor mounting applications. The box is able to handle wet and damp locations, and fluctuating weather conditions and temperatures.

Applications

The DM controller can be used in many wet or damp applications such as parking lots, parking garages, tennis courts, swimming pools and sport parks. Since the DM-115-WP integrates with all standard 24 VDC WattStopper occupancy sensors, a broad range of configurations are available to address different lighting control needs.

Features

- Installs on new or existing fixtures; requires bi-level capacitor installed inside fixture
- Enclosed in weatherproof box for use in wet and damp applications
- Utilizes zero crossing to protect relay and increase product life
- Maintains full light level for 15 minutes during power up to prevent lamp damage
- Provides instant full light output when DM unit is signalled
- Multiple modules can be linked together and switched from one controlling device
- Easy installation, mounting directly on HID fixture and connecting to capacitor and ballast via four wires

