FS-205v2

Occupancy and Light Level Sensor
Low Voltage • Ceiling Fixture Mount

Installation Instructions

SPECIFICATIONS

Power
- Voltage 24VDC
- Current Consumption . . . . . .6.5 mA
- Power Supply . . . . . .Watt Stopper FS-PP Power Pack

Adjustments
- Time Delay . . . . . .30 seconds – 30 minutes
- Light Level . . . . .Hold Off, minimum <10fc, maximum >120fc

Coverage@ 8' height . . . . . .14' diameter (max)
Operating Temperature . . . . . .32° to 131°F (0° to 55°C)
Dimensions
- Throat . . . . . .0.75" diameter (19mm)
- Collar . . . . . .1.12" diameter (28.6mm)
- Lens Pipe Length . . . . . .0.38" (9.6mm)
- Body . . .1.12" x 1.38" x 0.5" (28.6mm x 35mm x 12.7mm)

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US Patents: 4,787,722
4,874,962 • 5,124,566

DESCRIPTION AND OPERATION

The FS-205 occupancy sensors turn lighting on and off based on occupancy and ambient light levels. The light level feature can be used to keep lights from turning on if the ambient light level is sufficient.

The sensors use passive infrared (PIR) sensing technology that reacts to changes in infrared energy (moving body heat) within the coverage area. Once the space is vacant and the time delay elapses (adjustable from 30 seconds to 30 minutes), lights will turn off. Sensors must directly "see" motion of an occupant to detect them, so careful consideration must be given to sensor placement. Avoid placing the sensor where shelving or other obstructions may block the sensor's line of sight.

The FS-205 operates at 24VDC. It is designed for installation in a light fixture within 6 feet of an associated power supply. The power supply for the FS-205 is a FS-PP power pack mounted inside a light fixture. Each Watt Stopper FS-PP power pack can supply power for up to ten FS-205 sensors.

The sensor is equipped with a 6' long cable fitted with a male RJ45 plug. The FS-PP has a corresponding female RJ45 receptacle. This cable carries power to the sensor and the 24VDC maintained output to the power pack to signal that lights should be on.

Important, there is an initial warm-up period:

It may take up to a minute for the sensor to warm-up during the initial power-up. The sensor has an "instant on" feature. This occurs during installation or after a lengthy power failure only. As soon as power is supplied to the FS-PP, the lights will come on and stay on for approximately 1 minute. If no movement is detected within that time the lights will turn off until detection occurs. If movement is detected during the initial 1 minute then the lights will stay on for whatever time has been set on the time delay.

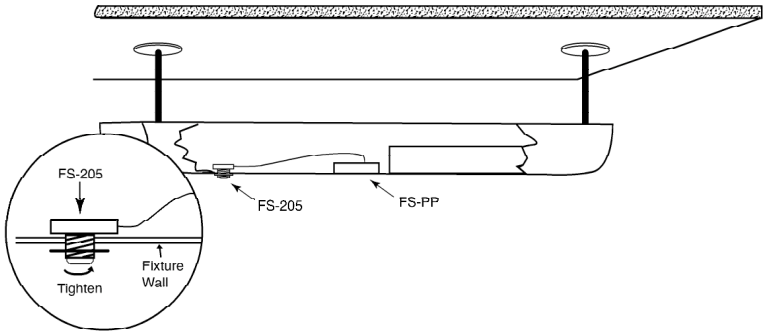

Fig 1: Fixture Mount

INSTALLATION

CAUTION
TURN THE POWER OFF AT THE CIRCUIT BREAKER

1. Install the FS-PP as directed in the installation instructions provided with the power pack.
2. Determine an appropriate mounting location inside the light fixture.
3. Cut a $^{3}/_{4}$" diameter hole through the sheet metal in the bottom of the fixture.
4. Remove the beauty ring and thumbscrew collar from the FS-205 lens pipe.
5. Insert the lens through the hole in the bottom of the fixture then put the thumbscrew collar onto the lens pipe. Tighten it securely to the outside of the fixture then put the beauty ring onto the lens pipe and tighten it securely to the thumbscrew collar.
6. Restore power from the circuit breaker.

WIRING A SINGLE SENSOR

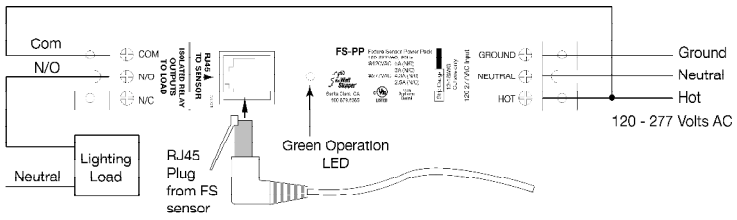

Fig 2: FS-PP direct wiring to lighting load

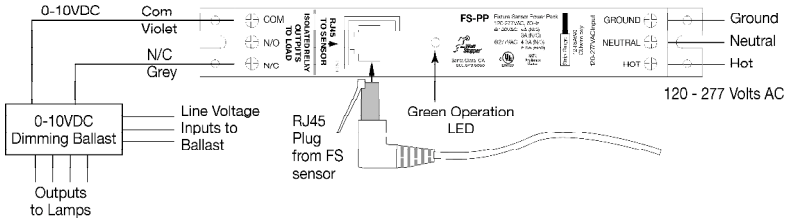

Fig 3: FS-PP wiring to control ballast

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CONTROL CONFIGURATIONS

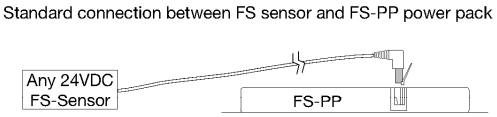

Fig 4: One sensor controlling one Power Pack

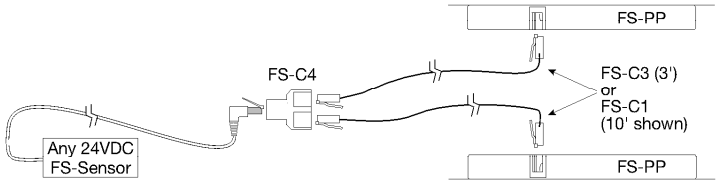

Fig 5: One sensor controlling two Power Packs

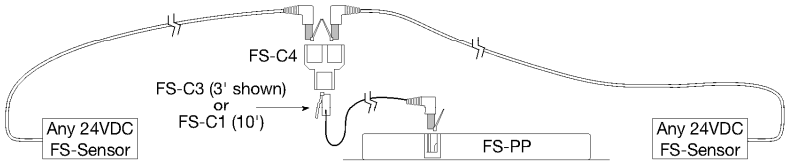

Fig 6: Two sensors controlling one Power Pack

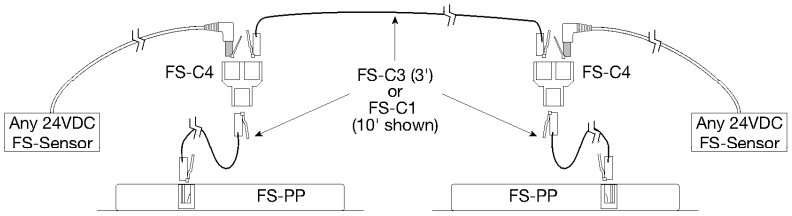

Fig 7: Two sensors controlling two Power Packs

Coverage Pattern

Density and range of the coverage pattern is determined by mounting height. The FS-205 has a multi-cell, multi-tier Fresnel lens with a view of 360°. This lens is designed to detect small motion when mounted within 6' of occupants.

Coverages shown in the diagrams below are maximum. They represent full-step walking motion, with no barriers or obstacles. When mounted at a height of 8', the coverage area is approximately 14' diameter.

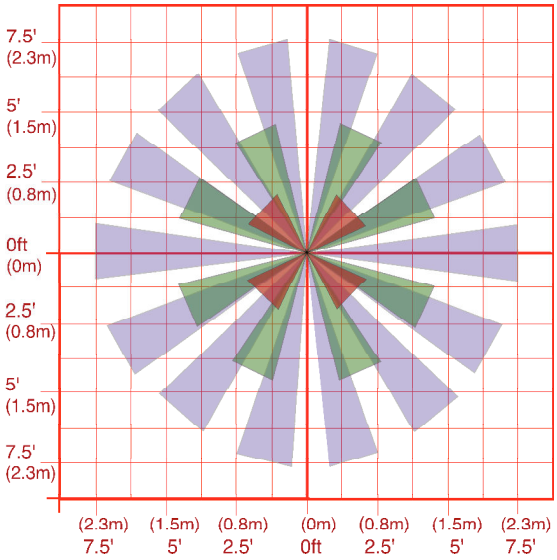

Fig 8: FS-205 coverage pattern, top view

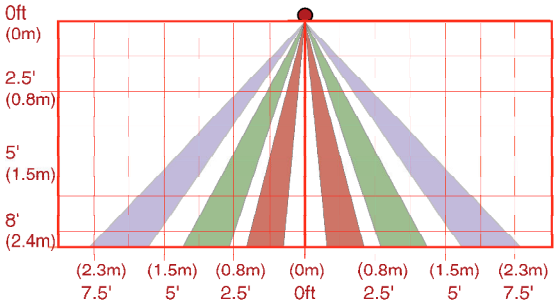

Fig 9: FS-205 coverage pattern, side view

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LIGHT LEVEL FEATURE

The Light Level feature holds lights off upon initial occupancy if adequate ambient light exists. It will not turn the lights off if they are on. The default setting is for maximum, meaning that even the brightest ambient light will not hold the lights off.

SENSOR ADJUSTMENT

WARNING
DO NOT OVERTURN TRIMPOT
WHEN ADJUSTING THE SENSOR!

The Time Delay and Light Level adjustment potentiometers are on the top of the FS-205 body. It may be necessary to adjust the sensor before the fixture is fully assembled. Adjust the light level setting during daylight hours when ambient light is at the desired level.

Test Occupancy Sensor

1. Turn the time delay to minimum and light level to maximum.
2. Move out of the sensor's view. Lights should turn off after 30 seconds.
3. Move into the detection area. The red LED in the sensor lens should illuminate and the lights should turn on.

Test and Adjust Light Level Sensor and Time Delay

1. Adjust the light level and the time delay to minimum. Leave the area and let the sensor time out so lights are off.
2 Enter the space and lights should remain off.
3. Make sure your body does not cast a shadow on the sensor. Turn the light level trimpot clockwise in small increments. After each adjustment, move about the coverage area and wait 5-10 seconds to see if the lights turn on.
4. Continue this procedure until the lights turn on. At this setting the lights will not turn on if light levels are above the current natural illumination.
5. Set the time delay to the desired setting. The time delay can be set from 30 seconds to 30 minutes.

TROUBLESHOOTING

Lights will not turn on:

- Sensor LED does not flash when motion is within 6 feet of detector:
  - Is green power pack LED on?
    If yes, check all RJ45 connections between sensors and power pack.
    If no, check circuit breaker and wiring to power pack.
  - Check all wire connections.
- Sensor LED does flash when motion is within 6 feet of detector:
  - Check light level setting.
    Cover the sensor lens to simulate darkness in the room. If the lights come on, the light level needs to be adjusted. If set for minimum, more than 10fc of ambient light will cause the lights to be held off. See Sensor Adjustment section for instructions.
  - Check all wire connections and verify the load wires are tightly secured at the power pack.
- If lights still do not turn on, call 800.879.8585 for technical support.

Lights will not turn off:

The time delay can be set from 30 seconds to 30 minutes. Ensure that the time delay is set to the desired delay and that there is no movement within the sensor's view for that time period.

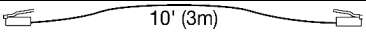
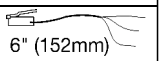
- To quickly test the unit for proper operation, turn the time delay to minimum and move out of the sensor's view. Lights should turn off after 30 seconds.
- If lights still do not turn off, call 800.879.8585 for technical support.

Operation during Power-Up

During the sensor warm-up period, which can last up to a minute after initial power-up (or after a lengthy power outage), the load will be on for 1 minute. After warm-up, the sensor will open or close the relay to correspond to the occupancy status of the room.

Call 800.879.8585 for Technical Support

ORDERING INFORMATION

Catalog #	Description
FS-PP	Fixture Mount Power Pack: 120-277VAC, 60Hz with NO/NC Relay output
FS-105	Ceiling tile mount, low voltage PIR occupancy sensor with adjustable time delay and light level
FS-205	Fixture mount, low voltage PIR occupancy sensor with adjustable time delay and light level
FS-305	Fixture or Ceiling tile mount, low voltage PIR occupancy sensor, adjustable time delay
FS-405	Fixture mount, low voltage PIR occupancy sensor w/20' diameter coverage, adjustable time delay and light level
FS-505	Fixture mount, low voltage ultrasonic occupancy sensor
FS-505C	Same as FS-505, with directional cones
FS-C1	One 10' cable with a shielded RJ45 male connector at each end 
FS-C2	One 6" (152mm) 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 areas 
FS-C4	Shielded RJ45 splitter with female to dual female receptacles 
FS-C5	Shielded RJ45 male-to-male coupler 

Sensors and power packs are White.

WARRANTY INFORMATION

Watt Stopper/Legrand warranties its products to be free of defects in materials and workmanship for a period of five (5) years. There are no obligations or liabilities on the part of Watt Stopper/Legrand for consequential damages arising out of, or in connection with, the use or performance of this product or other indirect damages with respect to loss of property, revenue or profit, or cost of removal, installation or reinstallation.

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