Infrared Wall Mounted Occupancy Sensor

Cat. No. OSWWV-RIW

To be used with 24VAC/VDC OSPxx Series and CN100 Power Pack or other Class 2 power supplies

INSTALLATION INSTRUCTIONS

WARNINGS AND CAUTIONS:

- **TO AVOID FIRE, SHOCK, OR DEATH: TURN OFF POWER** AT CIRCUIT BREAKER OR FUSE AND TEST THAT POWER IS OFF BEFORE WIRING!
- Bonding between conduit connections is not automatic and must be provided as part of the installation.
- If you are unsure about any part of these instructions, consult an electrician.
- Sensors must be mounted on a vibration-free surface.

CATALOG ITEMS					
Catalog No.	**Description**	**Current Consumption**	**Coverage**	**Voltage Range**	**Isolated Relay**
OSWWV-RIW	Wide View	16mA DC, 34mA AC	2500 sq. ft.	15-28VAC/VDC	1A @30VAC/VDC

WARNINGS AND CAUTIONS:

- To be installed and/or used in accordance with electrical codes and regulations.
- All sensors must be mounted at least 6 feet away from air vents.
- Do not mount sensors closer than 10 feet from each other.
- Do not touch the surface of the lens. Clean outer surface with a damp cloth only.

PK-93749-10-00-2B

Tools needed to install your Sensor

Slotted/Phillips Screwdriver
Pliers
Cutters
Electrical Tape
Pencil

Parts included list

Sensor (1)
#8-32 x 1/2 in. Screw (2)
#8-32 x 1-1/2 in. Screw (2)
#8-32 Washer and Nut (2)
11/16 Hex Nut (1)
Flat Metal Washer (2)
Threaded Shaft (1)
Washer (1)

DESCRIPTION

The Occupancy Sensor is a low-voltage infrared sensor that works with the OSPxx Series and CN100 Power Pack, or other Class 2 power supplies, to automatically control lighting. The sensor turns the lights on and keeps them on whenever occupancy is detected, and will turn them off after the "delayed-off time" has expired.

The sensor continually analyzes and adjusts to changing conditions. The sensor uses the latest microprocessor-based technology, which permits it to continually adjust and optimize its performance.

Infrared motion detection gives higher false-triggering immunity that yields a sensor with excellent performance.

INSTALLING YOUR OCCUPANCY SENSOR

NOTE: Use check boxes ☑ when steps are completed.

Step 1 **WARNING: TO AVOID FIRE, SHOCK, OR DEATH, TURN OFF POWER** at circuit breaker or fuse and test that power is off before wiring!

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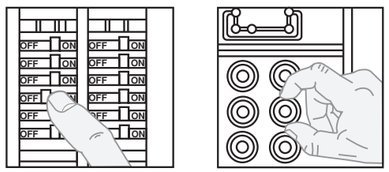

Step 2 **Preparing and Connecting Wires:**

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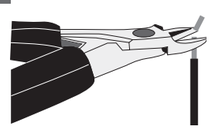

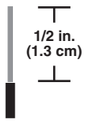

Strip Gage (measure bare wire here)

Step 3 **Typical Installations:**

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Listed are 3 typical installation options (A, B and C). Choose one that best suits your needs. Other methods of installation may be possible, but they have not been described here. Note that the wall sensor can be wall- mounted or ceiling-mounted, simply by rotating the neck. This gives greater flexibility in attaining the desired coverage.

A. Wall or Ceiling Installation Using Screws (Mounting Option A):

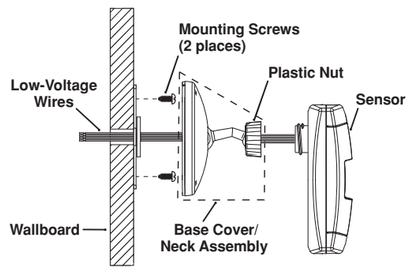
NOTE: You may use the mounting screws, nuts, and washers included, or screws in combination with commercially available wall anchors.

1. Select location for mounting of sensor for your application **(refer to Mounting Location Diagram)**.
2. Make a hole in the wallboard or ceiling, large enough to pass the wire connections and wire nuts through (approximately 1 in. diameter).
3. Drill holes for mounting screws using mounting base as template.

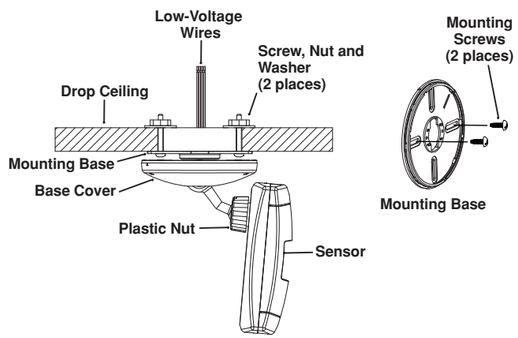
Step 3 cont'd

4. Install the mounting base of the wall sensor to the wallboard or ceiling, using the included screws, nuts, and washers.
5. Pass wires through the base cover/neck assembly **(refer to Mounting Option Diagram A)**.
6. **Class 2 Wiring:** Connect low-voltage wires from power pack to sensor per WIRING DIAGRAM, as follows: Twist strands of each lead tightly and, with circuit conductors, push firmly into appropriate wire connector. Screw connectors on clockwise, making sure that no bare conductor shows below the wire connectors. Secure each connector with electrical tape.
7. Push wire connections through the center hole of the back cover and into the wall or ceiling.
8. Snap neck and base cover onto mounting base in the desired orientation. Align arrows on mounting base and base cover, and then push on and turn, to lock base cover to mounting base.
9. Push wires through the hole and begin to fasten the plastic nut around the back of the sensor body. Move the sensor body to the desired orientation and then continue to tighten the nut around the sensor body. **NOTE:** The neck is a two- position assembly with catches to hold it in position for either ceiling or wall mounting.
10. Restore power at circuit breaker or fuse to power pack. **INSTALLATION IS COMPLETE**.

Mounting Option Diagram A
Occupancy Sensor Mounted to Wallboard Using Screws



Occupancy Sensor Mounted to Wallboard or Drop Ceiling Using Screws, Nuts and Washers



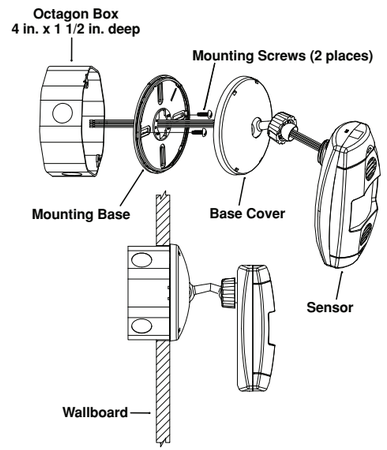
Step 3 cont'd

B. Wall or Ceiling Using Junction Box or Surface Mount Raceway Installation (refer to Mounting Diagrams):

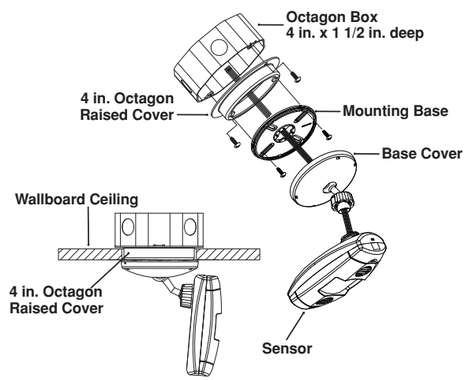
NOTE: You may use the mounting screws, nuts, and washers included, or screws in combination with commercially available wall anchors.

NOTE: Listed below are suggested JUNCTION BOX installation applications, which require mounting to conduit in one of the following ways.

Mounting Option Diagram B
Occupancy Sensor Mounted to Octagon Box Installed Flush to Wallboard

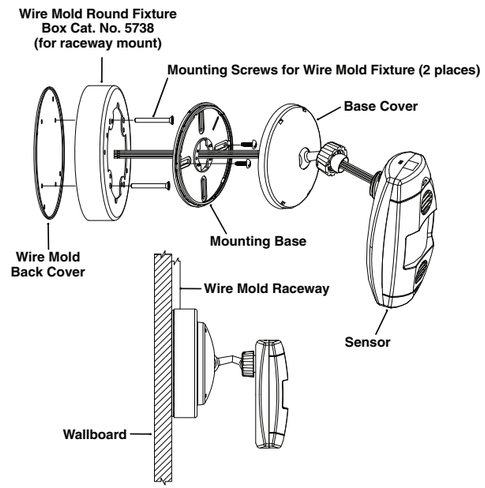


Occupancy Sensor Mounted to Octagon Box Installed Flush to Wallboard Ceiling or Drop Ceiling



Step 3 cont'd

Occupancy Sensor Mounted to Wallboard Using Round Fixture with Raceway



OPERATION

Motion detection by the infrared sensor will turn on the lights, as well as keep them on. When motion is not detected, the lights will turn off after the "delayed-off time".

- **Delayed-Off time –** The sensor is designed to turn the lights off if no motion is detected after a specified time. This length of time is called the "delayed-off time" and is set using the timer (Black) knob on the sensor. The adapting patterns will modify the delayed-off time to fit the parameters of each installation, based on environmental conditions and occupancy patterns.
- **Walk-Through Mode –** The "walk-through" feature is useful when a room is momentarily occupied. With this feature, the sensor will turn the lights off shortly after the person leaves the room.

  The "walk-through" feature works as follows: When a person enters the room, the lights will turn on. If the person leaves the room before the default walk-through time-out of 2.5 minutes, the sensor will turn the lights off. If the person stays in the room for longer than 2.5 minutes, the sensor will proceed to the standard operation.
- **LED Operation –** There are two LED indicators that will flash when motion is detected. The LED flash can be disabled using the LED disable switch setting **(refer to Table 2)**. Red flash indicates motion detection by infrared technology.

Isolated Relay Operation:

The Isolated Relay supports HVAC and other Class 2 low-voltage signal lines up to 1A at 30VAC/VDC. It is a single-pole, double throw relay with Normally Open (N/O), Normally Closed (N/C), and Common wires. It follows occupancy such that the N/O wire is connected to Common during occupancy.

WEB VERSION

ADAPTIVE FUNCTIONS

The sensor continually analyzes the parameters of the motion detection signal and adjusts its internal operation to maximize detection of motion, while minimizing the effects of noise (electrical noise, air currents, temperature changes, etc.).

Operation:

When the lights turn on, the sensor initially enters the "walk-through" mode. Once the room is occupied for longer than 2.5 minutes, the sensor exits the "walk-through" mode and enters the "occupied" mode. When the sensor is first installed, the delayed-off time for the "occupied" mode is based on the time-adjustment settings. While the sensor is in use, the delayed-off time will change, based on how the sensor adapts to the room conditions. Whenever the sensor subsequently turns on, the value of the delayed-off time will be the adapted value **(refer to Occupancy Pattern Learning for Delayed Off Time)**.

The adapted settings can be reset using the DIP switch.

Occupancy Pattern Learning for Delayed-Off Time:

The sensor will automatically change the delayed-off time in response to the occupancy and environmental conditions of the space it is installed in. The sensor analyzes the motion signal properties and will minimize the delayed-off time duration when there is frequent motion detection, and lengthen the delayed-off time duration when there is weak and infrequent motion detection.

In the case of a false-off condition (lights turn off when the room is occupied), the delayed-off time duration will immediately be lengthened to prevent further false turn-offs.

Occupancy Pattern Learning for Infrared Technology:

The sensor learns the occupancy patterns of a space during the course of a day, for a seven-day period. At any given time, the sensor will look at the collected data and adjust its infrared sensitivity. The sensor will adjust the sensitivity to make it less likely to turn on during a period of non-occupancy, and more likely to turn on during a period of occupancy.

Default Settings:

Adjustment knob settings as per "Factory Default Setting" **(refer to Table 1 and Figure 1)**.

All switches in the OFF position, except A4, which is in the ON position **(refer to Table 2)**.

TABLE 1 : AJUSTMENT KNOB SETTINGS

Knob Color	Symbol	Function	Knob Setting	Factory Default Setting
Red		Sets the infrared range	Range Setting Full CCW = min. (OFF) Full CW = max.	75%
Black		Delayed-Off Time	Full CCW = min. (30 sec.) Full CW = max. (30 min.)	50% (10 min)

TABLE 2: SWITCH SETTINGS

Switch	Switch Functions	Switch Settings	
	Bank A	**OFF**	**ON**
A1	N/A	N/A	N/A
A2	N/A	N/A	N/A
A3	Manual Mode	Auto-Adapting Enabled	Auto-Adapting Disabled
A4	Walk-Through Disable	Walk-Through Enabled	Walk-Through Disabled
	Bank B	**OFF**	**ON**
B1	Override to ON	Auto Mode	Lights Forced ON
B2	Override to OFF	Auto Mode	Lights Forced OFF
B3	Test Mode	OFF → ON → OFF = Enter/Exit Test Mode	
B4	LEDs Disable	LEDs Enabled	LEDs Disabled

Test Mode: To set the delayed-off time to 4-seconds for performing a "walk test". While the sensor is in test mode, the LEDs will flash amber once every 6-7 seconds.

1. **ENSURE POWER IS ON.**
2. Remove front cover.
3. Locate DIP Switch 3 in Bank B (B3) **(refer to Figure 1)**. B3 will be in the OFF position from the factory.
4. To enter "test" mode, move switch to ON and back to OFF. The "test" mode has now been entered with a 4-second time-out. **NOTE:** If B3 is already in the ON position, then "test" mode can be entered by just moving it to the OFF position.

NOTES:

1. The timer will remain in the 4-second "test" mode for 15 minutes and then automatically exit "test" mode and reset to the delayed-off time setting, as defined by the black timer knob.
2. To manually take the timer out of the 4-second "test" mode, simply toggle the switch B3 from OFF to ON and back to OFF.

Figure 1
Minimum and Default Settings

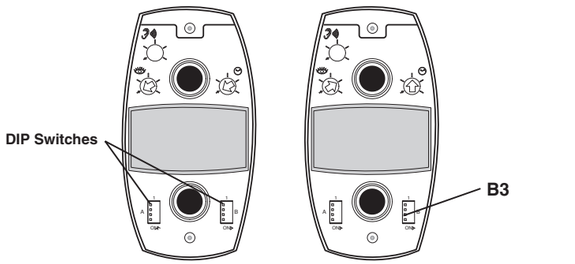


Figure 2 (Cat. No. OSWHB)
Field-of-View Ranges

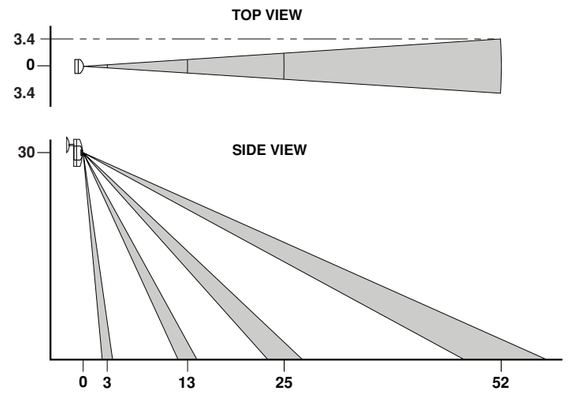
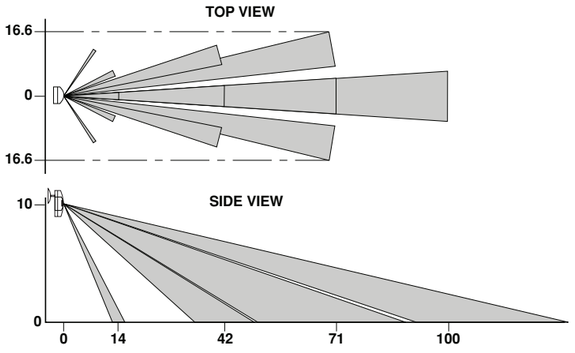


Figure 3 (Cat. No. OSWLR)
Field-of-View Ranges



Wiring Diagram
Multiple Sensor, Single Power Pack

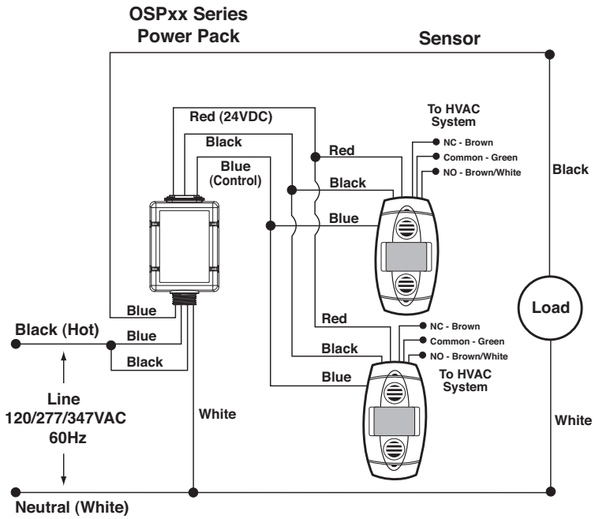
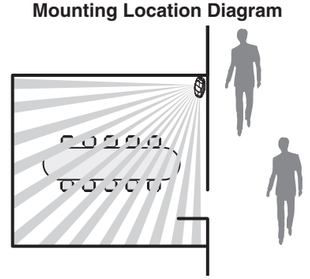


TABLE 3: WIRE DESIGNATIONS

Name	Color	Gage	Temp / Voltage
Power (24 VAC/VDC)	Red	24	105° C / 600V
Common	Black	24	105° C / 600V
Occupancy	Blue	24	105° C / 600V
Relay	Brown (N/C)	24	105° C / 600V
	Brown/White (N/O)	24	105° C / 600V
	Green (Common)	24	105° C / 600V

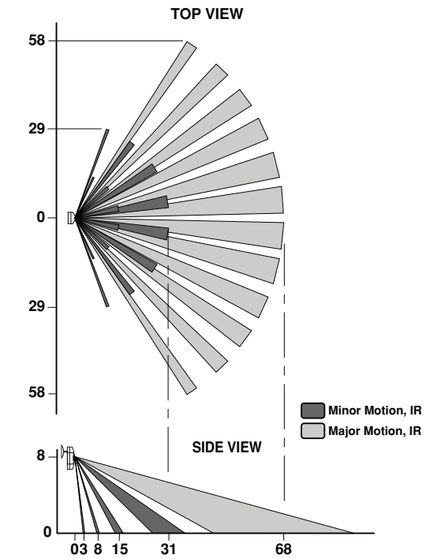
Mounting Location Diagram



PRODUCT INFORMATION

- For technical assistance, contact us at **1-800-824-3005.**
- Visit our website at **www.leviton.com**

Figure 4 - (Cat. No. OSWWV) Field-of-View Ranges



TROUBLESHOOTING

- **Lights do not turn ON.**
  - Circuit breaker or fuse has tripped.
  - Low-voltage miswired. **To Test:** Connect RED to BLUE wire at power pack to force lights ON.
  - Line voltage miswired. **To Test:** Connect BLUE to BLUE relay wires (of power pack) to force the lights ON.
- **Lights stay ON.**
  - Constant motion. **To Test:** Reduce RED knob by 15%; remove motion source. If unsatisfactory, move sensor.
  - Infrared sensor can "see" into hallway. **To Test:** Put sensor in timer "test" mode and walk down hallway. If lights continue to come ON, move sensor.
- **Light stays ON for too long.**
  - Timer setting is too high. **To Test:** Check switch settings. Typical setting is 10 minutes.

FCC COMPLIANCE STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device. This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving Antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/tv technician for help.

FCC CAUTION

Any changes or modifications not expressly approved by Leviton Manufacturing Co., Inc., could void the user's authority to operate the equipment.

IC Statement:

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

FCC Suppliers Declaration of Conformity: This device is manufactured by Leviton Manufacturing, Inc., 201 N Service Road, Melville, NY, http://www.Leviton.com. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

WEB VERSION