DECORA® COLLECTION BY LEVITON

Designer Wall Switch Occupancy Sensor

Single Pole (One Location) or Multi-Location

Rated: 120/277V, 60Hz

Cat. No. ODS1Ø-IDx

Incandescent
800W - 6.67A @ 120V

Fluorescent
1200VA - 10A @ 120V
2700VA - 10A @ 277V

Supplemental
1/4hp - 5.8A @ 120V

No Minimum Load Required

Compatible with electronic and magnetic ballasts, electronic and magnetic low-voltage ballasts, incandescent lamps, and fans.

Installation Instructions

LEVITON LIGHTING CONTROL DIVISION Building A Connected World

DI-000-ODS10-02A

LIMITED FIVE YEAR WARRANTY AND EXCLUSIONS

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Leviton is free of defects in materials and workmanship under normal and proper use for five years from the purchase date. Leviton's only obligation is to correct such defects by repair or replacement, at its option, if within such five year period the product is returned prepaid, with proof of purchase date, and a description of the problem to **Leviton Manufacturing Co., Inc., Att: Quality Assurance Department, 59-25 Little Neck Parkway, Little Neck, New York 11362-2591. (In Canada send to Leviton Mfg. of Canada Ltd., 165 Hymus Blvd., Point Claire, (Quebec), Canada, H9R 1E9).** This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose, but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to five years. Leviton is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment, lost sales or profits or delay or failure to perform this warranty obligation. The remedies provided herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.

For Technical Assistance Call:
1-800-824-3005 (U.S.A. Only)
1 800 405-5320 (Canada Only)
www.leviton.com

LEVITON LIGHTING CONTROL DIVISION Building A Connected World

DI-000-ODS10-02A

FEATURES

- Leviton's Decora® style design
- Low Profile, tamper-resistant lens
- Switches electronic ballasts
- Ambient Light Override

INTRODUCTION

Leviton Cat. No. ODS1Ø-IDx, Designer Wall Switch Occupancy Sensor, is designed to detect motion from a heat-emitting source (such as a person entering a room) within its field-of-view (monitored space) and automatically switch lights ON and OFF. The controlled lights will remain ON until no motion is detected and the scheduled time-delay has expired.

Cat. No. ODS1Ø-IDx is UL listed, CSA certified and conforms to California Title 24 requirements.

DESCRIPTION

The Occupancy Sensor senses motion within its coverage area of 2400 sq. ft. (223.3 m^2) maximum and controls the connected lighting. This is a self-contained device which provides sensing and light control. The Occupancy Sensor will turn the lights ON when motion is initially detected, and keep the lights ON for as long as motion is detected.

The Occupancy Sensor uses a small semiconductor heat detector that resides behind a multi-zone optical lens. This *Fresnel* lens establishes dozens of zones of detection. The sensor is sensitive to the heat emitted by the human body. In order to trigger the sensor, the source of heat must move from one zone of detection to another. The device is most effective in sensing motion across its field-of-view, and less effective sensing motion towards or away from its field-of-view **(refer to figures 1 and 1A)**. Keep this in mind when selecting the installation location **(refer to figures 1 and 1A)**.

Note that occupancy sensors respond to rapid changes in temperature, so care should be taken not to mount the device near a climate control source (i.e. radiators, air exchanges, and air conditioners). Hot or cold drafts will look like body motion to the device and will trigger it if the unit is mounted too close. **It is recommended to mount the Occupancy Sensor at least 6 ft. away from then climate control source**. The device can be mounted in a single gang wallbox.

In addition, it is also recommended NOT to mount the Occupancy Sensor directly under a large light source. Large wattage bulbs (greater than 100W incandescent) give off a lot of heat and switching the bulb causes a temperature change that can be detected by the device. Mount the Occupancy Sensor at least 6 ft. away from large bulbs. If it necessary to mount the device closer, lower the wattage of the bulb directly overhead.

FCC COMPLIANCE STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device must not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

INSTALLATION INSTRUCTIONS

WARNING: TO BE INSTALLED AND/OR USED IN ACCORDANCE WITH APPROPRIATE ELECTRICAL CODES AND REGULATIONS.

WARNING: IF YOU ARE NOT SURE ABOUT ANY PART OF THESE INSTRUCTIONS, CONSULT A QUALIFIED ELECTRICIAN.

WARNING: CONTROLLING A LOAD IN EXCESS OF THE SPECIFIED RATINGS WILL DAMAGE THE UNIT AND POSE RISK OF FIRE, ELECTRIC SHOCK, PERSONAL INJURY OR DEATH. CHECK YOUR LOAD RATINGS TO DETERMINE SUITABILITY FOR YOUR APPLICATION.

WARNING: DO NOT INSTALL THIS UNIT TO CONTROL A RECEPTACLE.

OTHER CAUTIONS AND NOTES:

1. **DISCONNECT POWER** WHEN SERVICING FIXTURE OR CHANGING BULBS.
2. USE THIS DEVICE WITH COPPER OR COPPER CLAD WIRE ONLY. WITH ALUMINUM WIRE, USE DEVICES MARKED CO/ALR OR CU/AL ONLY.
3. DO NOT TOUCH THE SURFACE OF THE LENS. CLEAN OUTER SURFACE WITH A DAMP CLOTH ONLY.
4. THE CAT. NO. ODS1Ø-IDx OCCUPANCY SENSOR IS INTENDED TO REPLACE A STANDARD LIGHT SWITCH.

TO INSTALL:

NOTE: Cat. No. ODS1Ø-IDx requires a ground connection in order to operate. Use the ground wire in the electrical box for ground connection. If there is no ground wire, make sure the electrical box is grounded and attach the ground wire to the box with a screw.

1. **WARNING:** TO AVOID FIRE, SHOCK, OR DEATH: **TURN OFF POWER** AT CIRCUIT BREAKER OR FUSE AND TEST THAT THE POWER IS OFF BEFORE WIRING.
2. Connect wires per appropriate WIRING DIAGRAM as follows **(refer to wiring diagrams 1 & 2)**: BLACK lead to LINE. BLUE lead to LOAD. GREEN lead to GROUND. Twist strands of each lead tightly and, with circuit conductors, push firmly into the appropriate wire connector. Screw connector on clockwise making sure that no bare wire shows below the connector. Secure each wire connector with electrical tape.
3. Carefully position the wires into the wallbox, then mount the Sensor Unit into the wallbox.
4. Secure device using long mounting screws provided.
5. Restore power at circuit breaker or fuse.

   NOTE: Allow approximately thirty (30) seconds after power is supplied for warm-up. After this, the device will turn the lights ON and the LED will blink.

Figure 1: Field-of-View (Horizontal)

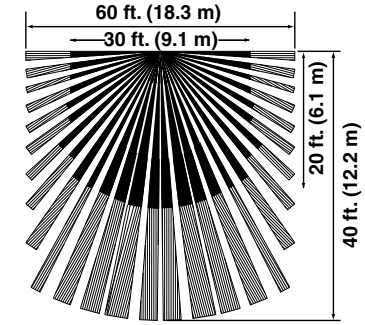


Figure 1A: Side (Vertical) Field-of-View

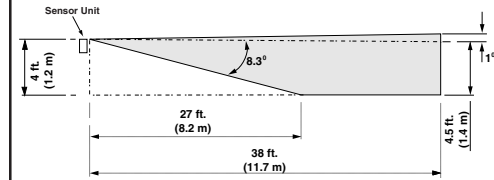


Figure 2: Sensor Features

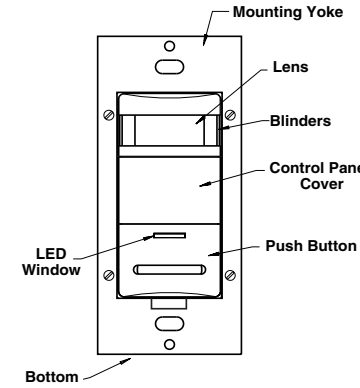
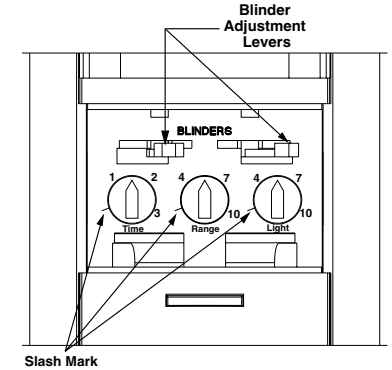


Figure 2A: Control Features



6. Perform the adjustments for the time-out and the light setting **(refer to Time Delay and Ambient Light sections)**. If necessary, adjust the range control and the blinders to stop any unwanted activation of the lights.

   NOTE: To avoid PERMANENT DAMAGE to the unit, be careful NOT TO OVERTURN the control knobs or levers when setting Cat. No. ODS1Ø-IDx. The controls can be accessed by removing the wallplate and control panel cover. Use a small straight blade screwdriver to adjust knobs and a finger to adjust the blinder levers.

   NOTE: DO NOT press in on blinder levers or use excessive force **(refer to figures 2 & 2A)**.

7. Attach the Control Panel cover, and a Decora® Wallplate (not included). **INSTALLATION IS COMPLETE**. Leave the room and the lights will turn OFF after the selected time-out expires.

FEATURES

BLINDERS: The blinders can narrow the field-of-view of the device to prevent unwanted activation from traffic in adjacent space. There are two blinders, and each operate independently. To operate the blinders, use a finger or small screwdriver to move the blinder adjustment levers toward or away from the center of the device.

The blinder levers are found above the control knobs and below the text 'BLINDERS' on the control panel. With both levers moved fully towards the center, the field-of-view is narrowed to 32°. With both levers moved fully away from the center, the field-of-view is at a maximum 180° **(refer to figure 2A)**.

TIME-DELAY: Cat. No. ODS1Ø-IDx will turn lights ON when motion is detected. When motion is no longer detected, the Sensor Unit will wait a certain amount of time and then turn the lights OFF. This wait time is called 'time-out'.

The "time-out" is selected from four (4) preset values. Pointing the arrow at one of the markings on the face chooses the value of time. The following selections are available:

Face Marking	Value of Time
(/) Slash Mark	30 second fixed time-out used for performing a walk-test.
1	10 minute time-out
2	20 minute time-out
3	30 minute time-out

The "time-out" is factory preset to ten (10) minutes. Refer to figure 2A.

NOTE: All time durations mentioned in the instructions are approximate within 10 seconds.

AMBIENT LIGHT: The Ambient Light Level is the amount of light present in a room without any artificial light added. If there is already enough light in a room, the occupant may not need further artificial light. Cat. No. ODS1Ø-IDx has an adjustment to keep the lights from turning ON if there is enough light already present. ***The adjustment should be made when the ambient light is at the level where artificial light is needed***. Follow these steps to make a more accurate adjustment of the Light Control.

AMBIENT LIGHT SETTING:

1. With the lights ON, rotate the Time Control fully counter-clockwise (CCW) to set the time-out to the thirty (30) second test mode **(refer to figure 2A)**.
2. Rotate the Light Control fully CCW.
3. Cover the Sensor Unit with an opaque material, or leave the room and let the Sensor Unit time-out and turn the lights OFF.
4. Rotate the Light Control clockwise (CW) **SLOWLY,** until the light turns ON. This is the setting for the current level of light in the room.
5. Adjustments are finished.

Manual ON Mode: When the light control is in the fully CCW position the lights will never automatically turn ON. In this mode the lights need to be manually turned ON by the push-button, and will turn OFF with the absence of motion.

If the light control is in the fully CW position, the lights will turn ON whenever motion is detected, even in full daylight. Intermediate settings will cause the lights to turn ON only when the ambient light is below the level selected by the light control.

NOTE: The ambient light in a room will change with the time of day and the season of the year.

RANGE: To decrease detection range and sensitivity, rotate the knob CCW **(refer to figure 2A)**. The detection range can be adjusted from 100% down to 36%.

TO OPERATE

PUSH-BUTTON: Cat. No. ODS10-IDx has a push-button switch that will toggle the lights **(refer to figure 2)**. If the lights are OFF, the lights will turn ON when the button is pressed, and remain ON in the presence of motion. In the absence of motion, the Sensor Unit will time-out and turn the lights OFF.

If the lights are ON, the lights will turn OFF when the button is pressed. The lights will stay OFF regardless of motion detected, until the time-out expires. After the time-out expires, the lights will turn ON with the next detected motion. This is useful for slide or film presentations.

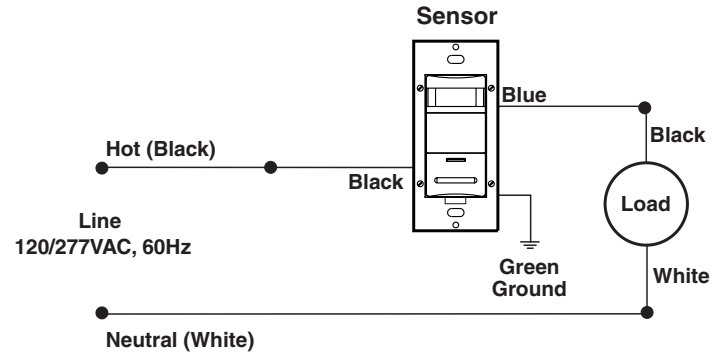
NOTES:

- The Motion Indicator LED will blink every 2 seconds while motion is detected.
- In Manual-On mode, the button must be pressed to turn the lights ON. In the absence of motion, the unit will time-out and turn the lights OFF.
- If Manual-On mode is desired, keep the Light knob in the fully counter-clockwise (CCW) position.

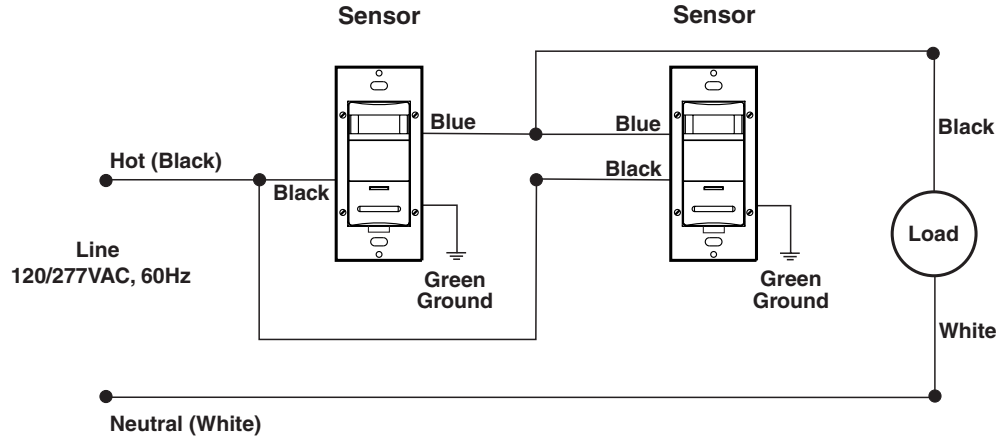
TROUBLESHOOTING GUIDE

1. If there is no response from the unit (the light never turns ON and the LED never blinks) 1 1/2 minutes after power is applied, then uninstall device and verify there is a ground connection at the wallbox. If there is a ground connection, verify wiring.
2. If the lights never turn ON, but the LED blinks, check if the Ambient Light Control Knob is pointed fully counter-clockwise (CCW). Rotate it clockwise (CW) until the lights turn ON.
3. If the lights constantly stay ON, even when the room is unoccupied:
   - **A.** Check the Time setting. See how this time compares to how long the lights stay ON.
   - **B.** Try lowering the Range Control. Rotate the knob CCW about 30˚.
   - **C.** If the problem persists, try reducing again. Note: Do Not reduce so much that Cat. No. ODS1Ø-IDx cannot see normal occupancy.
   - **D.** *Be sure to use the Blinders to block any unwanted hallway traffic.*
   - **E.** Check for reflected heat/motion as Sensor Unit may be seeing motion through a window.
   - **F.** Check for adjacent HVAC and/or heater ducts.
4. For additional information call Leviton's Technical Support Line.

Wiring Diagram 1: Single Control Application

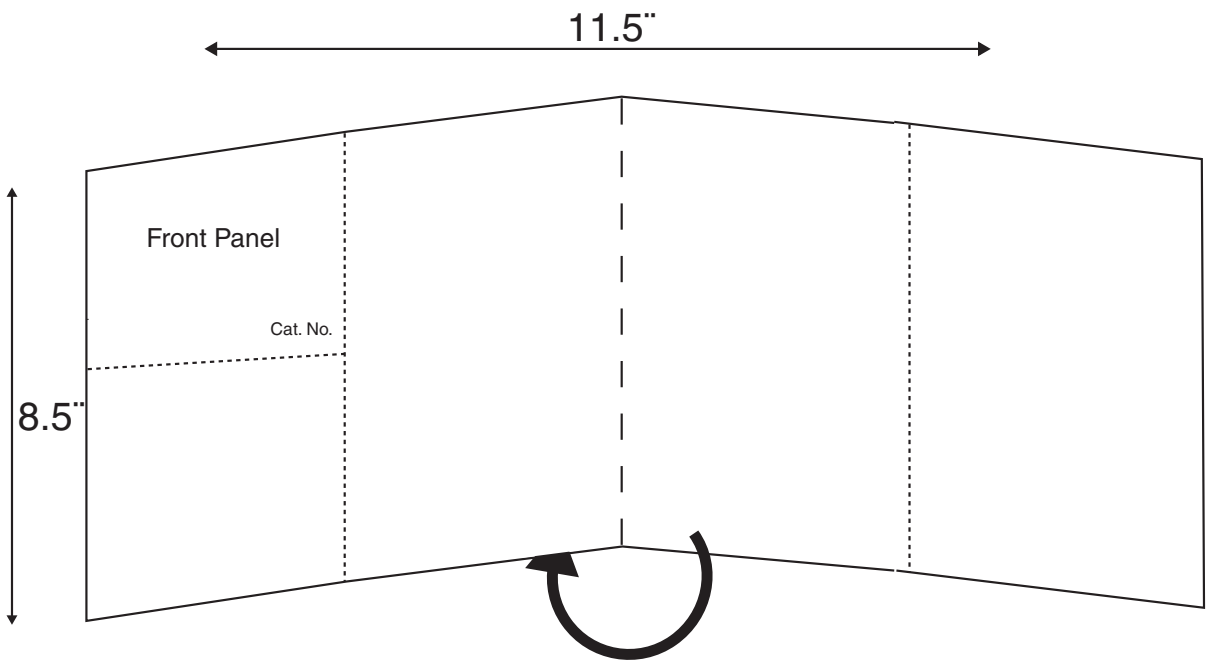


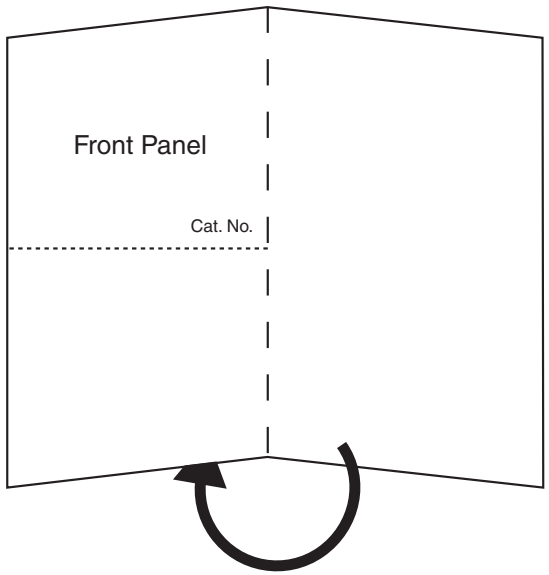
Wiring Diagram 2: Two Location Control Application

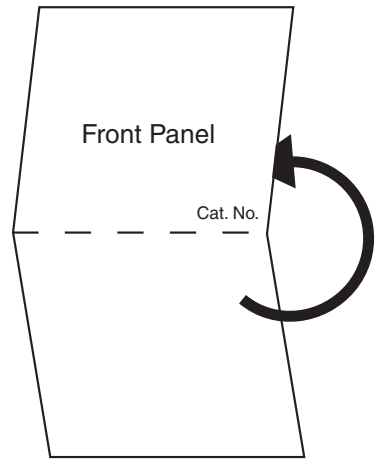


NOTE: Either Sensor can turn the lights ON. Either Sensor must time-out to OFF, or both manual buttons must be pressed for the lights to turn OFF.

FOLD SCHEME

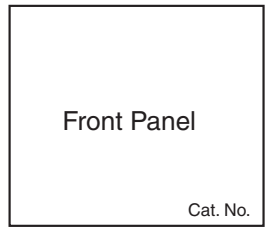






— — — — Fold Line

---------- Panel Line



LEVITON INSTRUCTION SHEET/MANUAL SPECIFICATIONS

- Artwork No/Rev Level: DI-000-ODS10-02A
- Color(s): Black over _____
  1. _____ 2. _____
  3. _____ 4. _____
- Font Families: Helvetica
- Material
  Type: 50 Lb. offset
- Coating: ❑ _____
- **Paper size:**
  Overall size: 11.5" x 8.5"
  Final fold size: 2.875" x 4.25"

DOCUMENTATION

- ECO No.: N/A
- Artist: ilka Date: 10/07/03

PK-93586-10-00-0A

Multi-Technology Ceiling Mounted Occupancy Sensor

Cat. No. OSC05-M, OSC10-M, OSC20-M

To be used with 24VDC OSP*xx* Series and CN100 Power Pack Class II Low-Voltage Wiring

INSTALLATION INSTRUCTIONS

WARNINGS AND CAUTIONS:

- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- If you are unsure about any part of these instructions, consult a qualified electrician.
- Sensors must be mounted on a vibration free surface.
- 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.

CATALOG ITEMS

Catalog No.	Description	Current Consumption	Operating Frequency	Coverage	Suggested Mounting Location
OSC05-M0W	1-Way Multi-Technology	30mA	40KHz	500 sq. ft	Mounts in corner/ over doorway
OSC10-M0W	2-Way Multi-Technology	40mA	40KHz	1000 sq. ft.	Mount in center of room/area
OSC20-M0W	2-Way Multi-Technology	32mA	32KHz	2000 sq. ft.	Mount in center of room/area

FCC COMPLIANCE STATEMENT:

This device complies with part 15 and part 18 of the FCC rules. Operation is subject to the following two conditions: (1) This device must not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Tools needed to install your Sensor:

Slotted/Phillips Screwdriver
Pliers
Cutters
Electrical Tape
Pencil

Parts Included List:

Sensor (1)
#8-32 x 1/2" Screw (2)
#8-32 x 1-1/2" Screw (2)
#8-32 Washer and Nut (2)
Threaded Rod (1) and Hex Nut (1)
Half Mask (1)
360° Perforated Mask (1)
Plastic Washer (1)

DESCRIPTION

The Occupancy Sensor is a low-voltage infrared and ultrasonic sensor that works with the OSP*xx* Series and CN100 power pack 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.

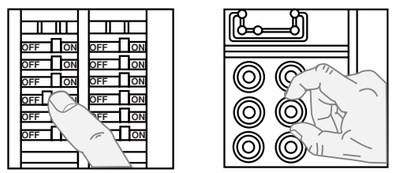
The sensor continually analyzes and adjusts to changing conditions. The sensor uses the latest microprocessor-based technology which permits it to continually adjust and optimize its performance.

The combination of ultrasonic (doppler shift) motion detection which gives maximum sensitivity and infrared motion detection which gives higher false triggering immunity yields a sensor with excellent performance.

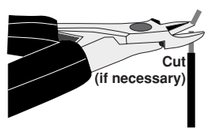
INSTALLING YOUR OCCUPANCY SENSOR

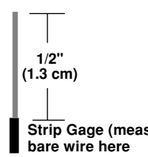
NOTE: Use check boxes ☑ when Steps are completed.

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!



Step 2 **Preparing and connecting wires:**





Step 3 **Typical Installations**:

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.

A. Drop Ceiling Installation (Mounting Option A):

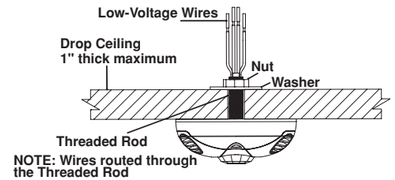
NOTE: Use the threaded rod included.

1. Select location for mounting of sensor and proper masking for your application **(refer to Mounting Location Diagram)**.
2. Use the supplied threaded rod or other methods to make a hole (1/2" to 1") in the ceiling tile just large enough to pass the body of the threaded rod through.
3. Insert the sensor wires through the flared end of the threaded rod. Position the threaded rod to the base of the sensor.
4. Insert the flared end of the threaded rod into the opening in the bottom of the sensor and twist to lock into place.

Step 3 cont'd

5. Push the wires into the hole in the ceiling tile and insert the threaded rod until the sensor is flush with the tile.
6. Insert wires through the hole in the included washer, then place the included washer over the rod and screw on the included hex nut.
7. **Class II 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.
8. Rotate the sensor to the desired orientation. Note that the sensor base and back cover are keyed. To lock the device in place, ensure that the arrows are not aligned.
9. Restore power at circuit breaker or fuse to Power Pack. **INSTALLATION IS COMPLETE.**

Mounting Option Diagram A
Occupancy Sensor Mounted to Drop Ceiling Using Threaded Rod

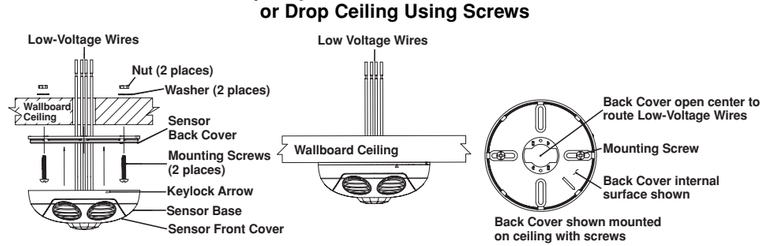


B. Wallboard or Drop Ceiling Installation (Mounting Option B):

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 and proper masking for your application **(refer to Mounting Location Diagram)**.
2. Make a hole in the ceiling tile or wallboard large enough to pass the wire connections and wire nuts through (approximately 1" diameter).
3. Remove the back cover of the sensor. Hold the back cover and body of the sensor and rotate until the two arrows line up and pull apart.
4. Install back cover of the ceiling sensor to the wallboard or drop ceiling using the included screws, nuts and washers, or screws in combination with commercially available wall anchors.
5. **Class II 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.
6. Push wire connections through the center hole of the back cover and into the ceiling.
7. Secure the sensor body to the back cover by aligning the arrows. Lock it by turning the sensor such that the arrows do not line up.
8. Rotate the sensor to the desired orientation.
9. Restore power at circuit breaker or fuse to Power Pack. **INSTALLATION IS COMPLETE.**

Mounting Option Diagram B
Occupancy Sensor Mounted to Wallboard or Drop Ceiling Using Screws

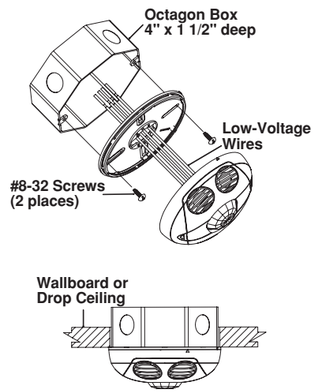


Step 3 cont'd

C. Junction Box or Surface Mount Raceway Installation (refer to Mounting Diagrams):

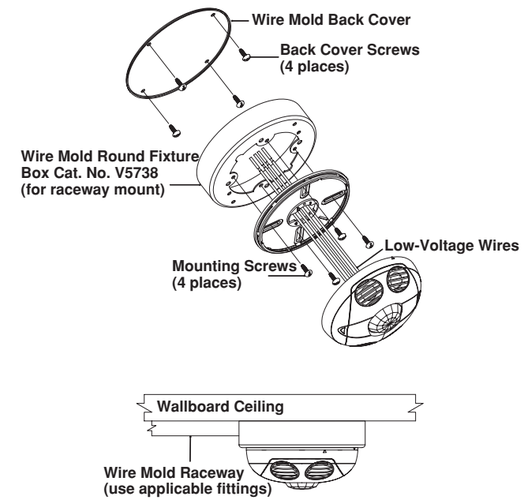
NOTE: Listed below are suggested JUNCTION BOX installation applications which require mounting to conduit in one of the following three ways:

Occupancy Sensor Mounted to Octagon Box Installed Flush to Wallboard Ceiling



Step 3 cont'd

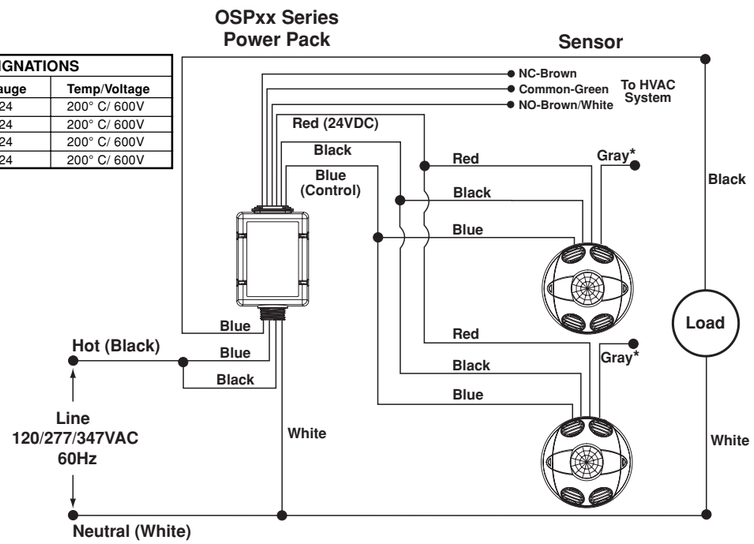
Occupancy Sensor Mounted to Round Fixture with Raceway for Wallboard Installation



Wiring Diagram: Multiple Sensor, Single Power Pack

TABLE 2: WIRE DESIGNATIONS

Name	Color	Gauge	Temp/Voltage
Power (+24V)	Red	24	200° C/ 600V
DC Return	Black	24	200° C/ 600V
Occupancy	Blue	24	200° C/ 600V
Occupancy/Photocell	Gray	24	200° C/ 600V



***NOTE:** When using the Photocell function, connect the Gray wire of the sensor to the Blue wire of the power pack. **DO NOT** use the Blue wire of sensor.

NOTE: Ensure to cap wire that is not being used.

OPERATION

- **Multi-Tech Mode –** This is the default mode of operation for the sensor. PIR technology turns lights on in this mode; however, motion detection by either technology will keep the lights on. If neither technology detects motion, the lights turn off after the delayed-off time.
- **Single-Tech Mode –** Only one technology is active in this mode. The technology is selected by the dip switches. Motion detection by the selected technology - PIR or ultrasonic - 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. Green flash indicates motion detection by ultrasonic technology. Red flash indicates motion detection by infrared technology.

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 Ultrasonic 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 ultrasonic 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. This adapting feature is not applicable when the sensor is in PIR only mode.

SETTINGS

Default Settings:

Adjustment knob settings as per "recommended manual settings," **(refer to Table 3 and Figure 1)**.

All switches in the off position **(refer to Table 4)**.

TABLE 3: ADJUSTMENT KNOB SETTINGS

Knob Color	Symbol	Function	Knob Setting	Factory Default Setting
Green		Sets the ultrasonic range	Range setting Full CCW = min. (OFF) Full CW = max.	50%
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)
Blue		Ambient Light Override (Gray wire only)	Full CCW – Lights stay OFF Full CW – Lights always turn ON (NO ambient light override) Range – 100-3000 LUX	100%

TABLE 4: SWITCH SETTINGS

SWITCH	SWITCH FUNCTIONS	SWITCH SETTINGS	
	Bank A	**OFF**	**ON**
A1	Single/Multi-Tech Mode	Multi-Tech	Single Tech
A2*	PIR/Ultrasonic Mode	PIR	Ultrasonic
A3	Manual Mode	Auto Adapting Enabled	Auto Adapting Disabled
A4	Walk-Through Disable	Walk-Through Enable	Walk-Through Disable
	Bank B		
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 Disable

*__NOTE:__ This setting is only used if the Single Technology Option (switch A1) is selected.

Test Mode: To set the delayed-off time to 6 seconds for performing a walk test. While the sensor is in test mode, the LED's will flash amber once a second.

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 6 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 6 second test mode for 15 minutes, 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 6 second test mode, simply toggle the switch B3 from OFF to ON and back to OFF.

Photocell (Ambient Light Override) adjustment:

In order to use the Ambient Light Override functionality of the sensor, the sensor must be wired to the power pack (OSP*XX*) using the gray wire instead of the blue wire. This feature allows the user to conserve energy by keeping the controlled lights off when not necessary. The sensor does this by measuring the amount of ambient light in the installed area and keeping the controlled lights off if there is enough ambient light available. To use this feature, the Photocell adjustment (blue) knob must be adjusted from the default position. Once this adjustment is made, the controlled lights will only turn on if the ambient light present is less than the setting.

To set the Photocell level (used with the gray wire connection):

NOTE: This setting must be performed when the natural light is low enough to require artificial light.

1. Remove the cover from the sensor.
2. Make note of the position of the Red and Green knobs. Rotate the Red and Green knobs full CCW and enter the sensor's Test mode as described above.
3. Rotate the Blue knob full CCW.
4. Wait for the lights to turn OFF.
5. Rotate the Red knob full CW.
6. Slowly rotate the blue knob clockwise until the lights turn ON. This is the correct setting.
7. Return the Red and Green knobs to their original positions.
8. Replace cover. Setting is complete.

Figure 1
Minimum and Default Settings

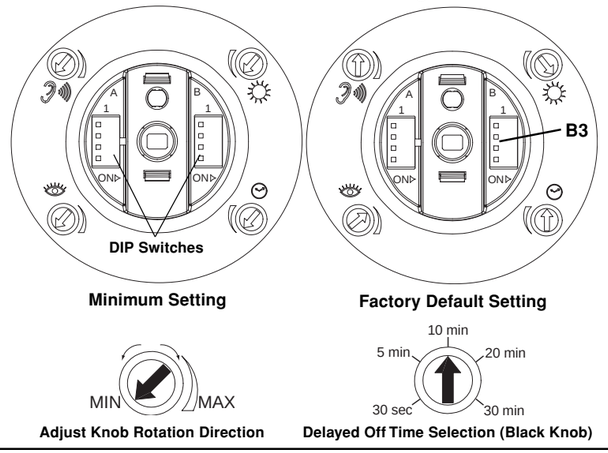


Figure 2 (Cat. No. OSC05)
Field-of-View Ranges

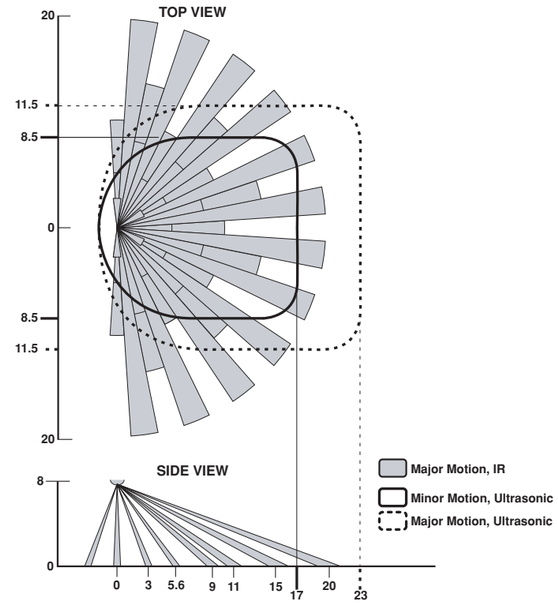


Figure 3 (Cat. No. OSC10)
Field-of-View Ranges

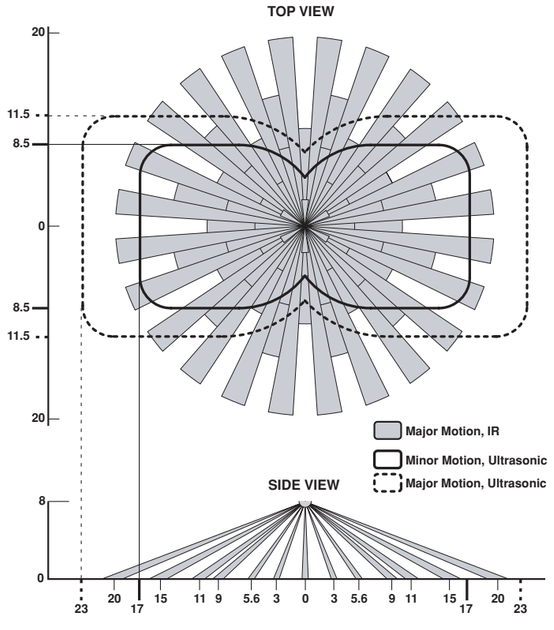
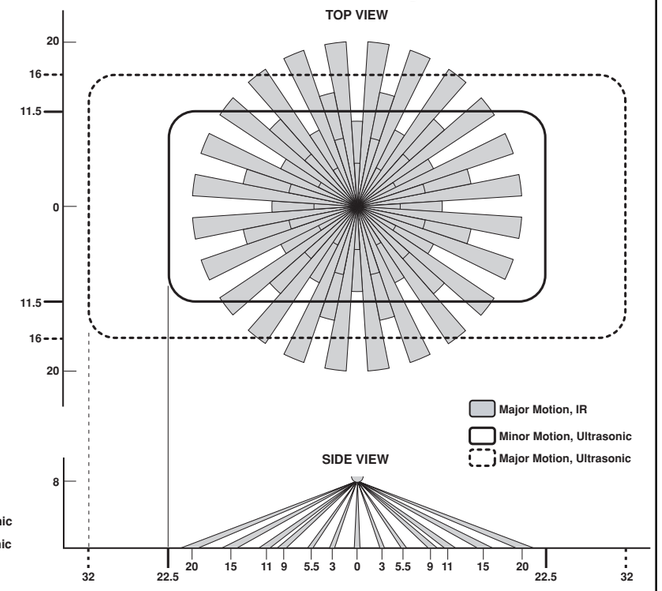
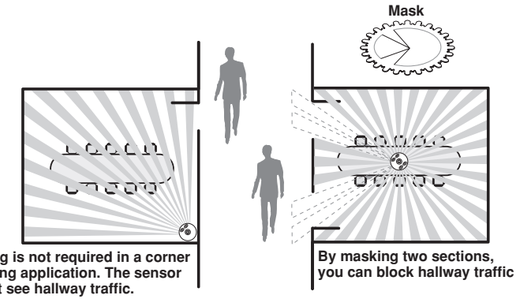


Figure 4 (Cat. No. OSC20)
Field-of-View Ranges



Mounting Location Diagram



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 and/or GREEN knob by 15%; remove motion source. If unsatisfactory, move sensor.
  - Infrared sensor can "see" into hallway. **To Test:** Put sensor in timer test mode walk and walk hallway. If lights continue to come ON, move sensor.
- Light turns ON too long
  - Timer setting too high. **To Test:** Check switch settings. Typical setting is 10 minutes.

PRODUCT INFORMATION

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

PK-93586-10-00-0A

PK-93585-10-00-0A

Ultrasonic Ceiling Mounted Occupancy Sensor

Cat. No. OSC05-U, OSC10-U, OSC20-U

To be used with 24VDC OSP*xx* Series and CN100 Power Pack Class II Low-Voltage Wiring

INSTALLATION INSTRUCTIONS

WARNINGS AND CAUTIONS:

- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- If you are unsure about any part of these instructions, consult a qualified electrician.
- Sensors must be mounted on a vibration free surface.
- All sensors must be mounted at least 6 feet away from air vents.
- Do not mount sensors closer than 10 feet from each other.

CATALOG ITEMS

Catalog No.	Description	Current Consumption	Operating Frequency	Coverage	Suggested Mounting Location
OSC05-U0W	1-Way Ultrasonic	30mA	40KHz	500 sq. ft	Mounts in corner/ over doorway
OSC10-U0W	2-Way Ultrasonic	40mA	40KHz	1000 sq. ft.	Mount in center of room/area
OSC20-U0W	2-Way Ultrasonic	32mA	32KHz	2000 sq. ft.	Mount in center of room/area

FCC COMPLIANCE STATEMENT:

This device complies with part 15 and part 18 of the FCC rules. Operation is subject to the following two conditions: (1) This device must not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Tools needed to install your Sensor:

Slotted/Phillips Screwdriver
Pliers
Cutters
Electrical Tape
Pencil

Parts Included List:

Sensor (1)
#8-32 x 1/2" Screw (2)
#8-32 x 1-1/2" Screw (2)
#8-32 Washer and Nut (2)
Threaded Rod (1) and Hex Nut (1)
Plastic Washer (1)

DESCRIPTION

The Occupancy Sensor is a low-voltage ultrasonic sensor that works with the OSP*xx* Series and CN100 power pack 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.

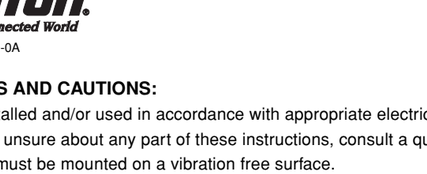
Ultrasonic (doppler shift) motion detection gives maximum sensitivity that yields a sensor with excellent performance.

INSTALLING YOUR OCCUPANCY SENSOR

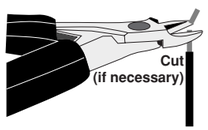
NOTE: Use check boxes ☑ when Steps are completed.

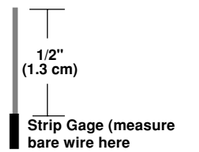
Step 1 WARNING: TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER

at circuit breaker or fuse and test that power is off before wiring!



Step 2 Preparing and connecting wires:





Step 3 Typical Installations:

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.

A. Drop Ceiling Installation (Mounting Option A):

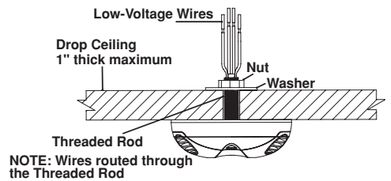
NOTE: Use the threaded rod included.

1. Select location for mounting of sensor for your application **(refer to Mounting Location Diagram)**.
2. Use the supplied threaded rod or other methods to make a hole (1/2" to 1") in the ceiling tile just large enough to pass the body of the threaded rod through.
3. Insert the sensor wires through the flared end of the threaded rod. Position the threaded rod to the base of the sensor.
4. Insert the flared end of the threaded rod into the opening in the bottom of the sensor and twist to lock into place.

Step 3 cont'd

5. Push the wires into the hole in the ceiling tile and insert the threaded rod until the sensor is flush with the tile.
6. Insert wires through the hole in the included washer, then place the included washer over the rod and screw on the included hex nut.
7. **Class II 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.
8. Rotate the sensor to the desired orientation. Note that the sensor base and back cover are keyed. To lock the device in place, ensure that the arrows are not aligned.
9. Restore power at circuit breaker or fuse to Power Pack. **INSTALLATION IS COMPLETE.**

Mounting Option Diagram A
Occupancy Sensor Mounted to Drop Ceiling Using Threaded Rod

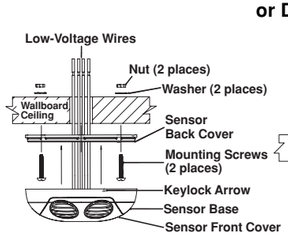


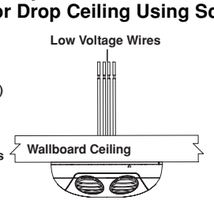
B. Wallboard or Drop Ceiling Installation (Mounting Option B):

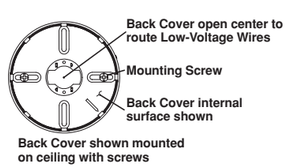
NOTE: You may use the mounting screws, nuts and washers included, or screws in combination with commercially available wall anchors.

1. Select location for mounting of sensor for your application **(refer to Mounting Location Diagram)**.
2. Make a hole in the ceiling tile or wallboard large enough to pass the wire connections and wire nuts through (approximately 1" diameter).
3. Remove the back cover of the sensor. Hold the back cover and body of the sensor and rotate until the two arrows line up and pull apart.
4. Install back cover of the ceiling sensor to the wallboard or drop ceiling using the included screws, nuts and washers, or screws in combination with commercially available wall anchors.
5. **Class II 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.
6. Push wire connections through the center hole of the back cover and into the ceiling.
7. Secure the sensor body to the back cover by aligning the arrows. Lock it by turning the sensor such that the arrows do not line up.
8. Rotate the sensor to the desired orientation.
9. Restore power at circuit breaker or fuse to Power Pack. **INSTALLATION IS COMPLETE.**

Mounting Option Diagram B
Occupancy Sensor Mounted to Wallboard or Drop Ceiling Using Screws





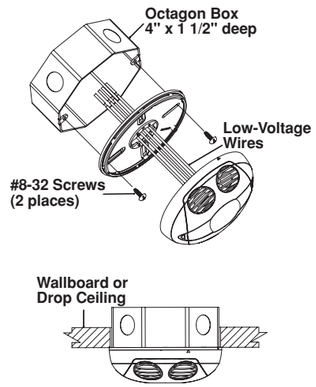


Step 3 cont'd

C. Junction Box or Surface Mount Raceway Installation (refer to Mounting Diagrams):

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

Occupancy Sensor Mounted to Octagon Box Installed Flush to Wallboard Ceiling



Step 3 cont'd

Occupancy Sensor Mounted to Round Fixture with Raceway for Wallboard Installation

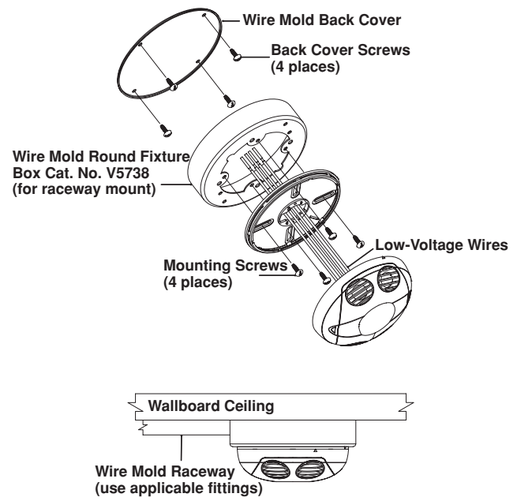
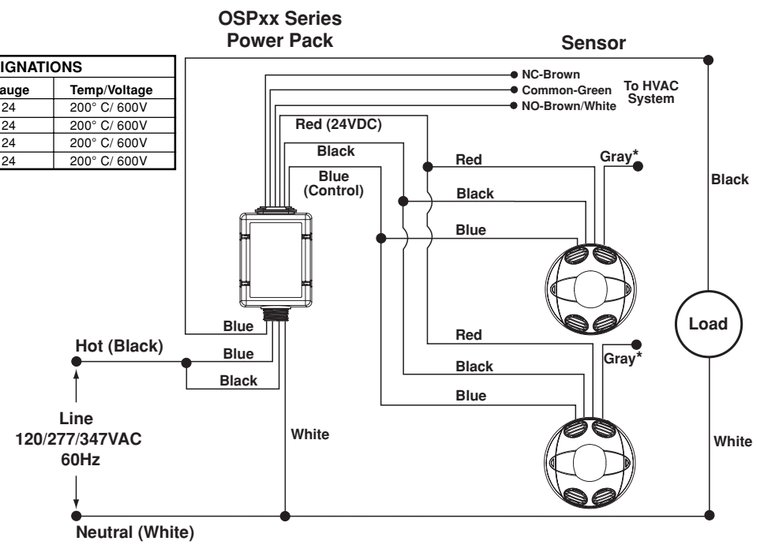


TABLE 2: WIRE DESIGNATIONS

Name	Color	Gauge	Temp/Voltage
Power (+24V)	Red	24	200° C/ 600V
DC Return	Black	24	200° C/ 600V
Occupancy	Blue	24	200° C/ 600V
Occupancy/Photocell	Gray	24	200° C/ 600V

Wiring Diagram: Multiple Sensor, Single Power Pack



***NOTE:** When using the Photocell function, connect the Gray wire of the sensor to the Blue wire of the power pack. **DO NOT** use the Blue wire of sensor.

NOTE: Ensure to cap wire that is not being used.

OPERATION

Motion detection by the ultrasonic sensor will turn on the lights as well as keeping 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. Green flash indicates motion detection by ultrasonic technology.

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 Ultrasonic 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 ultrasonic 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.

SETTINGS

Default Settings:

Adjustment knob settings as per "recommended manual settings," **(refer to Table 3 and Figure 1)**.

All switches in the off position **(refer to Table 4)**.

TABLE 3: ADJUSTMENT KNOB SETTINGS

Knob Color	Symbol	Function	Knob Setting	Factory Default Setting
Green		Sets the ultrasonic range	Range setting Full CCW = min. (OFF) Full CW = max.	50%
Black		Delayed- Off Time	Full CCW = min. (30 sec.) Full CW = max. (30 min.)	50% (10 min)
Blue		Ambient Light Override (Gray wire only)	Full CCW – Lights stay OFF Full CW – Lights always turn ON (NO ambient light override) Range – 100-3000 LUX	100%

TABLE 4: 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 Enable	Walk-Through Disable
	Bank B		
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 Disable

Test Mode: To set the delayed-off time to 6 seconds for performing a walk test. While the sensor is in test mode, the LED's will flash amber once a second.

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 6 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 6 second test mode for 15 minutes, 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 6 second test mode, simply toggle the switch B3 from OFF to ON and back to OFF.

Photocell (Ambient Light Override) adjustment:

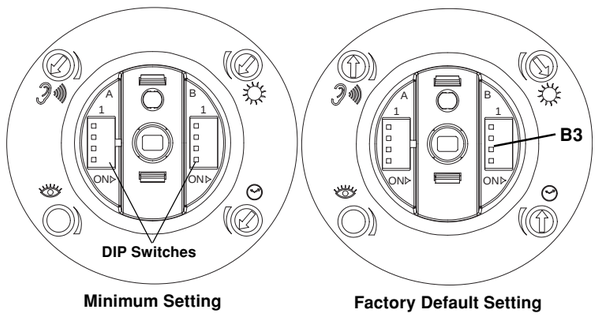
In order to use the Ambient Light Override functionality of the sensor, the sensor must be wired to the power pack (OSP*XX*) using the gray wire instead of the blue wire. This feature allows the user to conserve energy by keeping the controlled lights off when not necessary. The sensor does this by measuring the amount of ambient light in the installed area and keeping the controlled lights off if there is enough ambient light available. To use this feature, the Photocell adjustment (blue) knob must be adjusted from the default position. Once this adjustment is made, the controlled lights will only turn on if the ambient light present is less than the setting.

To set the Photocell level (used with the gray wire connection):

NOTE: This setting must be performed when the natural light is low enough to require artificial light.

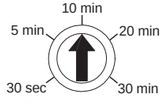
1. Remove the cover from the sensor.
2. Make note of the position of the Green knob. Rotate the Green knob full CCW and enter the sensor's Test mode as described above.
3. Rotate the Blue knob full CCW.
4. Wait for the lights to turn OFF.
5. Rotate the Green knob full CW.
6. Slowly rotate the blue knob clockwise until the lights turn ON. This is the correct setting.
7. Return the Green knob to its original position.
8. Replace cover. Setting is complete.

Figure 1
Minimum and Default Settings



Minimum Setting | **Factory Default Setting**

Adjust Knob Rotation Direction



Delayed Off Time Selection (Black Knob)

Figure 2 (Cat. No. OSC05)
Field-of-View Ranges

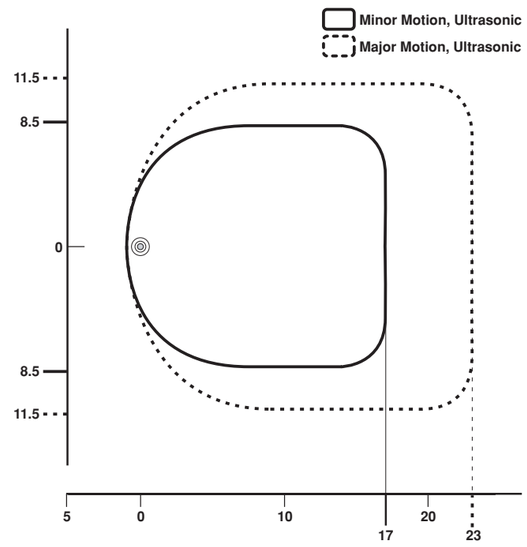


Figure 3 (Cat. No. OSC10)
Field-of-View Ranges

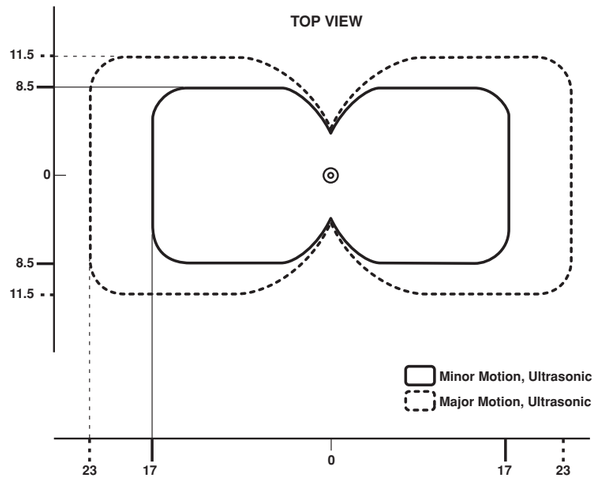
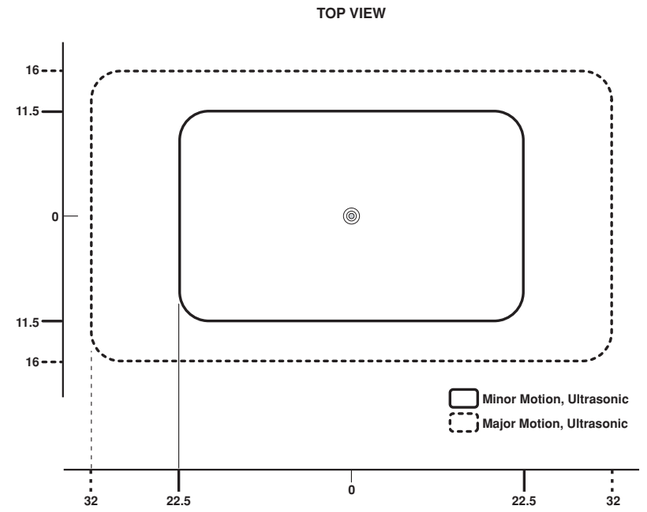
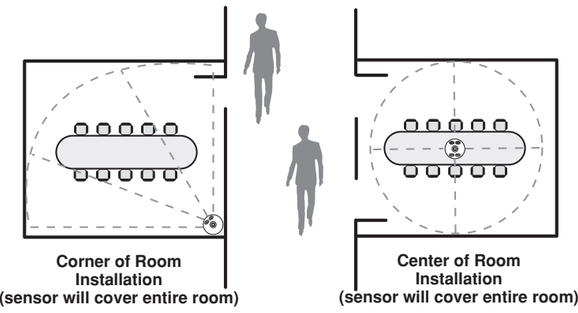


Figure 4 (Cat. No. OSC20)
Field-of-View Ranges



Mounting Location Diagram



Corner of Room Installation (sensor will cover entire room)

Center of Room Installation (sensor will cover entire room)

NOTE: When mounting device, do not point sensor openings towards the opening of a door or strong air currents.

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 GREEN knob by 15%; remove motion source. If unsatisfactory, move sensor.
- Light turns ON too long
  - Timer setting too high. **To Test:** Check switch settings. Typical setting is 10 minutes.

PRODUCT INFORMATION

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

PK-93585-10-00-0A

PK-93586-10-00-0A

Multi-Technology Ceiling Mounted Occupancy Sensor

Cat. No. OSC05-M, OSC10-M, OSC20-M

To be used with 24VDC OSP*xx* Series and CN100 Power Pack Class II Low-Voltage Wiring

INSTALLATION INSTRUCTIONS

WARNINGS AND CAUTIONS:

- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- If you are unsure about any part of these instructions, consult a qualified electrician.
- Sensors must be mounted on a vibration free surface.
- 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.

CATALOG ITEMS

Catalog No.	Description	Current Consumption	Operating Frequency	Coverage	Suggested Mounting Location
OSC05-M0W	1-Way Multi-Technology	30mA	40KHz	500 sq. ft	Mounts in corner/ over doorway
OSC10-M0W	2-Way Multi-Technology	40mA	40KHz	1000 sq. ft.	Mount in center of room/area
OSC20-M0W	2-Way Multi-Technology	32mA	32KHz	2000 sq. ft.	Mount in center of room/area

FCC COMPLIANCE STATEMENT:

This device complies with part 15 and part 18 of the FCC rules. Operation is subject to the following two conditions: (1) This device must not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Tools needed to install your Sensor:

Slotted/Phillips Screwdriver
Pliers
Cutters
Electrical Tape
Pencil

Parts Included List:

Sensor (1)
#8-32 x 1/2" Screw (2)
#8-32 x 1-1/2" Screw (2)
#8-32 Washer and Nut (2)
Threaded Rod (1) and Hex Nut (1)
Half Mask (1)
360° Perforated Mask (1)
Plastic Washer (1)

DESCRIPTION

The Occupancy Sensor is a low-voltage infrared and ultrasonic sensor that works with the OSP*xx* Series and CN100 power pack 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.

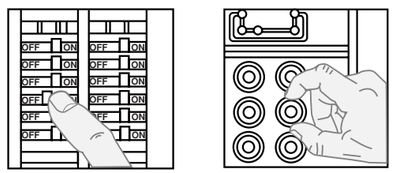
The sensor continually analyzes and adjusts to changing conditions. The sensor uses the latest microprocessor-based technology which permits it to continually adjust and optimize its performance.

The combination of ultrasonic (doppler shift) motion detection which gives maximum sensitivity and infrared motion detection which gives higher false triggering immunity yields a sensor with excellent performance.

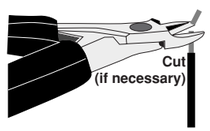
INSTALLING YOUR OCCUPANCY SENSOR

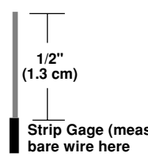
NOTE: Use check boxes ☑ when Steps are completed.

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!



Step 2 **Preparing and connecting wires:**





Step 3 **Typical Installations**:

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.

A. Drop Ceiling Installation (Mounting Option A):

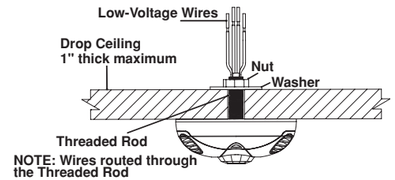
NOTE: Use the threaded rod included.

1. Select location for mounting of sensor and proper masking for your application **(refer to Mounting Location Diagram)**.
2. Use the supplied threaded rod or other methods to make a hole (1/2" to 1") in the ceiling tile just large enough to pass the body of the threaded rod through.
3. Insert the sensor wires through the flared end of the threaded rod. Position the threaded rod to the base of the sensor.
4. Insert the flared end of the threaded rod into the opening in the bottom of the sensor and twist to lock into place.

Step 3 cont'd

5. Push the wires into the hole in the ceiling tile and insert the threaded rod until the sensor is flush with the tile.
6. Insert wires through the hole in the included washer, then place the included washer over the rod and screw on the included hex nut.
7. **Class II 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.
8. Rotate the sensor to the desired orientation. Note that the sensor base and back cover are keyed. To lock the device in place, ensure that the arrows are not aligned.
9. Restore power at circuit breaker or fuse to Power Pack. **INSTALLATION IS COMPLETE.**

Mounting Option Diagram A
Occupancy Sensor Mounted to Drop Ceiling Using Threaded Rod

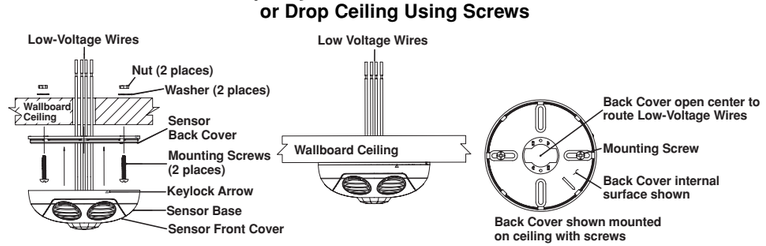


B. Wallboard or Drop Ceiling Installation (Mounting Option B):

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 and proper masking for your application **(refer to Mounting Location Diagram)**.
2. Make a hole in the ceiling tile or wallboard large enough to pass the wire connections and wire nuts through (approximately 1" diameter).
3. Remove the back cover of the sensor. Hold the back cover and body of the sensor and rotate until the two arrows line up and pull apart.
4. Install back cover of the ceiling sensor to the wallboard or drop ceiling using the included screws, nuts and washers, or screws in combination with commercially available wall anchors.
5. **Class II 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.
6. Push wire connections through the center hole of the back cover and into the ceiling.
7. Secure the sensor body to the back cover by aligning the arrows. Lock it by turning the sensor such that the arrows do not line up.
8. Rotate the sensor to the desired orientation.
9. Restore power at circuit breaker or fuse to Power Pack. **INSTALLATION IS COMPLETE.**

Mounting Option Diagram B
Occupancy Sensor Mounted to Wallboard or Drop Ceiling Using Screws

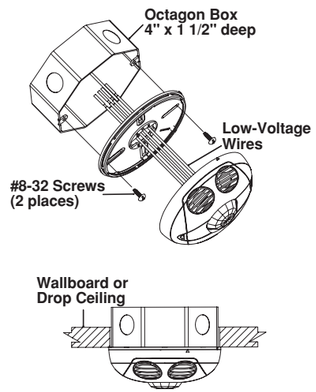


Step 3 cont'd

C. Junction Box or Surface Mount Raceway Installation (refer to Mounting Diagrams):

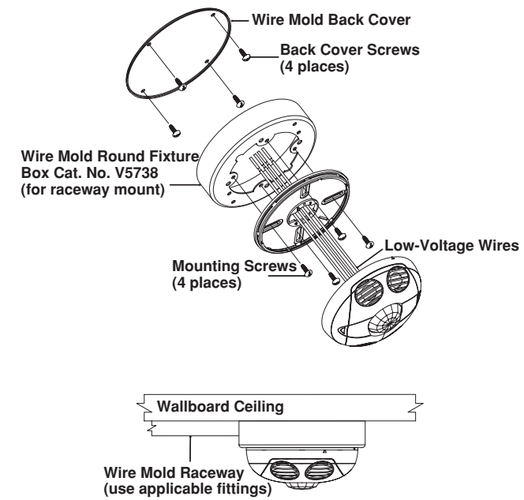
NOTE: Listed below are suggested JUNCTION BOX installation applications which require mounting to conduit in one of the following three ways:

Occupancy Sensor Mounted to Octagon Box Installed Flush to Wallboard Ceiling



Step 3 cont'd

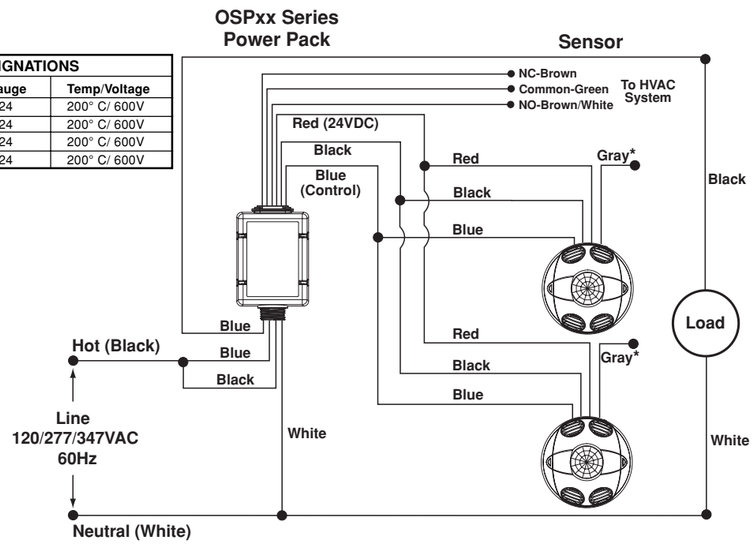
Occupancy Sensor Mounted to Round Fixture with Raceway for Wallboard Installation



Wiring Diagram: Multiple Sensor, Single Power Pack

TABLE 2: WIRE DESIGNATIONS

Name	Color	Gauge	Temp/Voltage
Power (+24V)	Red	24	200° C/ 600V
DC Return	Black	24	200° C/ 600V
Occupancy	Blue	24	200° C/ 600V
Occupancy/Photocell	Gray	24	200° C/ 600V



***NOTE:** When using the Photocell function, connect the Gray wire of the sensor to the Blue wire of the power pack. **DO NOT** use the Blue wire of sensor.

NOTE: Ensure to cap wire that is not being used.

OPERATION

- **Multi-Tech Mode –** This is the default mode of operation for the sensor. PIR technology turns lights on in this mode; however, motion detection by either technology will keep the lights on. If neither technology detects motion, the lights turn off after the delayed-off time.
- **Single-Tech Mode –** Only one technology is active in this mode. The technology is selected by the dip switches. Motion detection by the selected technology - PIR or ultrasonic - 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. Green flash indicates motion detection by ultrasonic technology. Red flash indicates motion detection by infrared technology.

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 Ultrasonic 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 ultrasonic 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. This adapting feature is not applicable when the sensor is in PIR only mode.

SETTINGS

Default Settings:

Adjustment knob settings as per "recommended manual settings," **(refer to Table 3 and Figure 1)**.

All switches in the off position **(refer to Table 4)**.

TABLE 3: ADJUSTMENT KNOB SETTINGS

Knob Color	Symbol	Function	Knob Setting	Factory Default Setting
Green		Sets the ultrasonic range	Range setting Full CCW = min. (OFF) Full CW = max.	50%
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)
Blue		Ambient Light Override (Gray wire only)	Full CCW – Lights stay OFF Full CW – Lights always turn ON (NO ambient light override) Range – 100-3000 LUX	100%

TABLE 4: SWITCH SETTINGS

SWITCH	SWITCH FUNCTIONS	SWITCH SETTINGS	
	Bank A	**OFF**	**ON**
A1	Single/Multi-Tech Mode	Multi-Tech	Single Tech
A2*	PIR/Ultrasonic Mode	PIR	Ultrasonic
A3	Manual Mode	Auto Adapting Enabled	Auto Adapting Disabled
A4	Walk-Through Disable	Walk-Through Enable	Walk-Through Disable
	Bank B		
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 Disable

*__NOTE:__ This setting is only used if the Single Technology Option (switch A1) is selected.

Test Mode: To set the delayed-off time to 6 seconds for performing a walk test. While the sensor is in test mode, the LED's will flash amber once a second.

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 6 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 6 second test mode for 15 minutes, 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 6 second test mode, simply toggle the switch B3 from OFF to ON and back to OFF.

Photocell (Ambient Light Override) adjustment:

In order to use the Ambient Light Override functionality of the sensor, the sensor must be wired to the power pack (OSP*XX*) using the gray wire instead of the blue wire. This feature allows the user to conserve energy by keeping the controlled lights off when not necessary. The sensor does this by measuring the amount of ambient light in the installed area and keeping the controlled lights off if there is enough ambient light available. To use this feature, the Photocell adjustment (blue) knob must be adjusted from the default position. Once this adjustment is made, the controlled lights will only turn on if the ambient light present is less than the setting.

To set the Photocell level (used with the gray wire connection):

NOTE: This setting must be performed when the natural light is low enough to require artificial light.

1. Remove the cover from the sensor.
2. Make note of the position of the Red and Green knobs. Rotate the Red and Green knobs full CCW and enter the sensor's Test mode as described above.
3. Rotate the Blue knob full CCW.
4. Wait for the lights to turn OFF.
5. Rotate the Red knob full CW.
6. Slowly rotate the blue knob clockwise until the lights turn ON. This is the correct setting.
7. Return the Red and Green knobs to their original positions.
8. Replace cover. Setting is complete.

Figure 1
Minimum and Default Settings

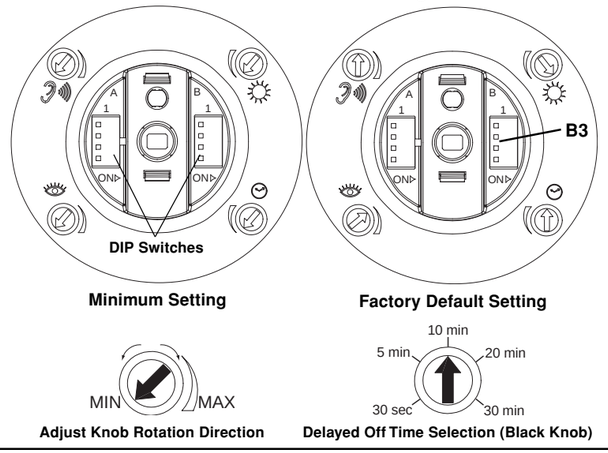


Figure 2 (Cat. No. OSC05)
Field-of-View Ranges

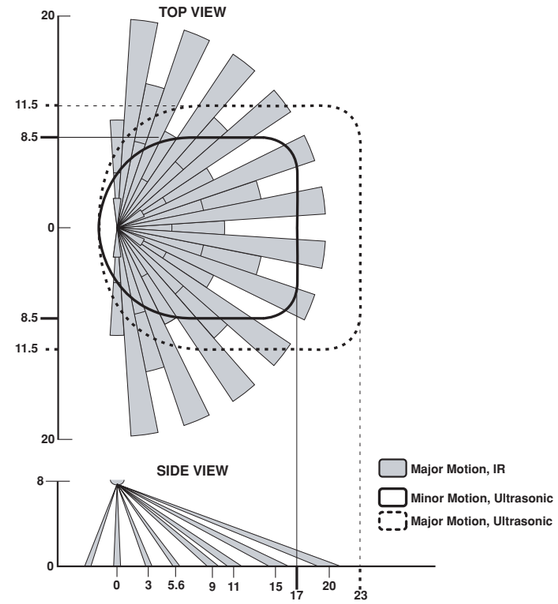


Figure 3 (Cat. No. OSC10)
Field-of-View Ranges

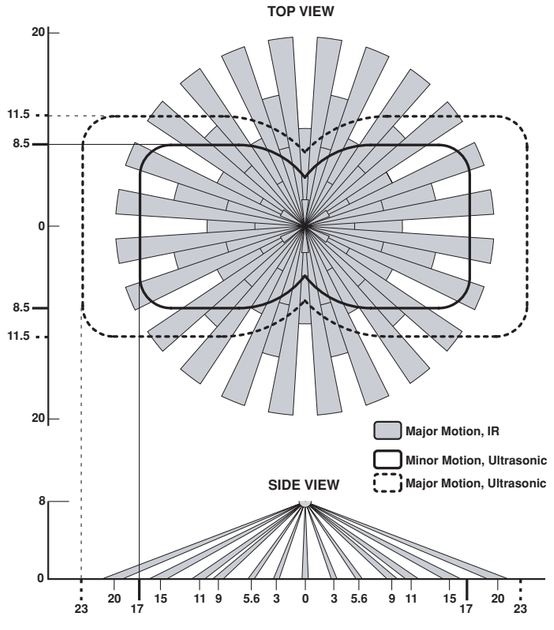
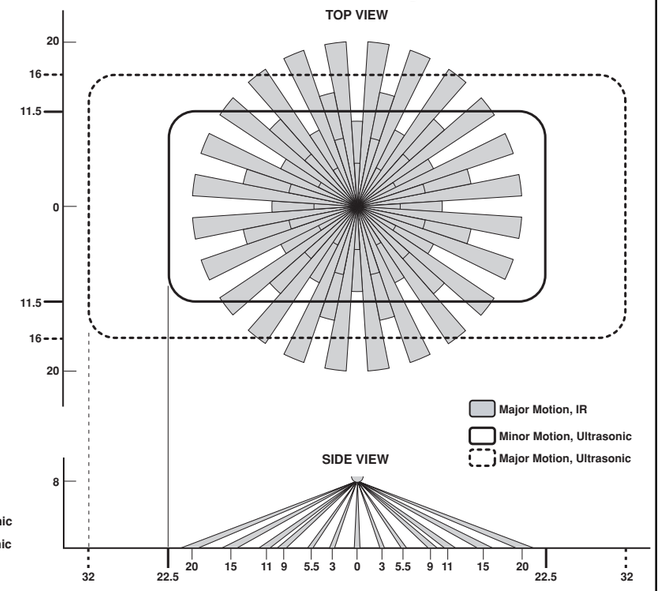
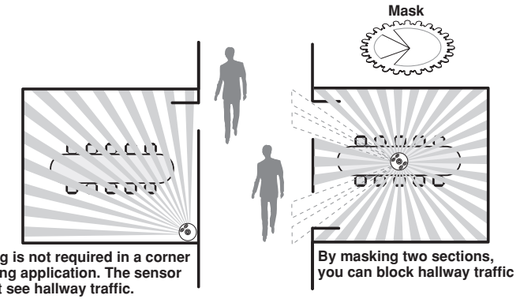


Figure 4 (Cat. No. OSC20)
Field-of-View Ranges



Mounting Location Diagram



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 and/or GREEN knob by 15%; remove motion source. If unsatisfactory, move sensor.
  - Infrared sensor can "see" into hallway. **To Test:** Put sensor in timer test mode walk and walk hallway. If lights continue to come ON, move sensor.
- Light turns ON too long
  - Timer setting too high. **To Test:** Check switch settings. Typical setting is 10 minutes.

PRODUCT INFORMATION

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

PK-93586-10-00-0A

PK-93585-10-00-0A

Ultrasonic Ceiling Mounted Occupancy Sensor

Cat. No. OSC05-U, OSC10-U, OSC20-U

To be used with 24VDC OSP*xx* Series and CN100 Power Pack Class II Low-Voltage Wiring

INSTALLATION INSTRUCTIONS

WARNINGS AND CAUTIONS:

- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- If you are unsure about any part of these instructions, consult a qualified electrician.
- Sensors must be mounted on a vibration free surface.
- All sensors must be mounted at least 6 feet away from air vents.
- Do not mount sensors closer than 10 feet from each other.

CATALOG ITEMS

Catalog No.	Description	Current Consumption	Operating Frequency	Coverage	Suggested Mounting Location
OSC05-U0W	1-Way Ultrasonic	30mA	40KHz	500 sq. ft	Mounts in corner/ over doorway
OSC10-U0W	2-Way Ultrasonic	40mA	40KHz	1000 sq. ft.	Mount in center of room/area
OSC20-U0W	2-Way Ultrasonic	32mA	32KHz	2000 sq. ft.	Mount in center of room/area

FCC COMPLIANCE STATEMENT:

This device complies with part 15 and part 18 of the FCC rules. Operation is subject to the following two conditions: (1) This device must not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Tools needed to install your Sensor:

Slotted/Phillips Screwdriver
Pliers
Cutters
Electrical Tape
Pencil

Parts Included List:

Sensor (1)
#8-32 x 1/2" Screw (2)
#8-32 x 1-1/2" Screw (2)
#8-32 Washer and Nut (2)
Threaded Rod (1) and Hex Nut (1)
Plastic Washer (1)

DESCRIPTION

The Occupancy Sensor is a low-voltage ultrasonic sensor that works with the OSP*xx* Series and CN100 power pack 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.

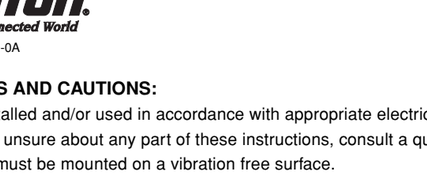
Ultrasonic (doppler shift) motion detection gives maximum sensitivity that yields a sensor with excellent performance.

INSTALLING YOUR OCCUPANCY SENSOR

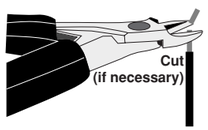
NOTE: Use check boxes ☑ when Steps are completed.

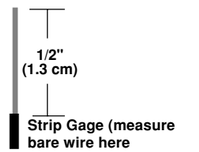
Step 1 WARNING: TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER

at circuit breaker or fuse and test that power is off before wiring!



Step 2 Preparing and connecting wires:





Step 3 Typical Installations:

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.

A. Drop Ceiling Installation (Mounting Option A):

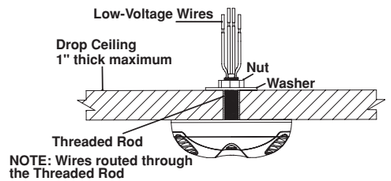
NOTE: Use the threaded rod included.

1. Select location for mounting of sensor for your application **(refer to Mounting Location Diagram)**.
2. Use the supplied threaded rod or other methods to make a hole (1/2" to 1") in the ceiling tile just large enough to pass the body of the threaded rod through.
3. Insert the sensor wires through the flared end of the threaded rod. Position the threaded rod to the base of the sensor.
4. Insert the flared end of the threaded rod into the opening in the bottom of the sensor and twist to lock into place.

Step 3 cont'd

5. Push the wires into the hole in the ceiling tile and insert the threaded rod until the sensor is flush with the tile.
6. Insert wires through the hole in the included washer, then place the included washer over the rod and screw on the included hex nut.
7. **Class II 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.
8. Rotate the sensor to the desired orientation. Note that the sensor base and back cover are keyed. To lock the device in place, ensure that the arrows are not aligned.
9. Restore power at circuit breaker or fuse to Power Pack. **INSTALLATION IS COMPLETE.**

Mounting Option Diagram A
Occupancy Sensor Mounted to Drop Ceiling Using Threaded Rod

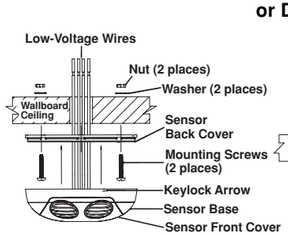


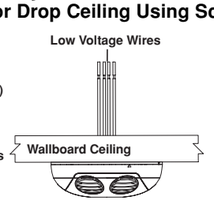
B. Wallboard or Drop Ceiling Installation (Mounting Option B):

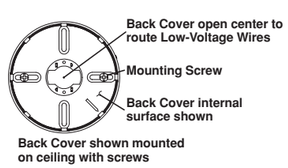
NOTE: You may use the mounting screws, nuts and washers included, or screws in combination with commercially available wall anchors.

1. Select location for mounting of sensor for your application **(refer to Mounting Location Diagram)**.
2. Make a hole in the ceiling tile or wallboard large enough to pass the wire connections and wire nuts through (approximately 1" diameter).
3. Remove the back cover of the sensor. Hold the back cover and body of the sensor and rotate until the two arrows line up and pull apart.
4. Install back cover of the ceiling sensor to the wallboard or drop ceiling using the included screws, nuts and washers, or screws in combination with commercially available wall anchors.
5. **Class II 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.
6. Push wire connections through the center hole of the back cover and into the ceiling.
7. Secure the sensor body to the back cover by aligning the arrows. Lock it by turning the sensor such that the arrows do not line up.
8. Rotate the sensor to the desired orientation.
9. Restore power at circuit breaker or fuse to Power Pack. **INSTALLATION IS COMPLETE.**

Mounting Option Diagram B
Occupancy Sensor Mounted to Wallboard or Drop Ceiling Using Screws





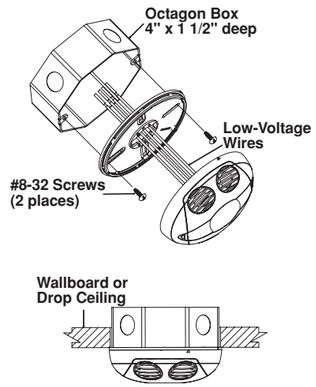


Step 3 cont'd

C. Junction Box or Surface Mount Raceway Installation (refer to Mounting Diagrams):

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

Occupancy Sensor Mounted to Octagon Box Installed Flush to Wallboard Ceiling



Step 3 cont'd

Occupancy Sensor Mounted to Round Fixture with Raceway for Wallboard Installation

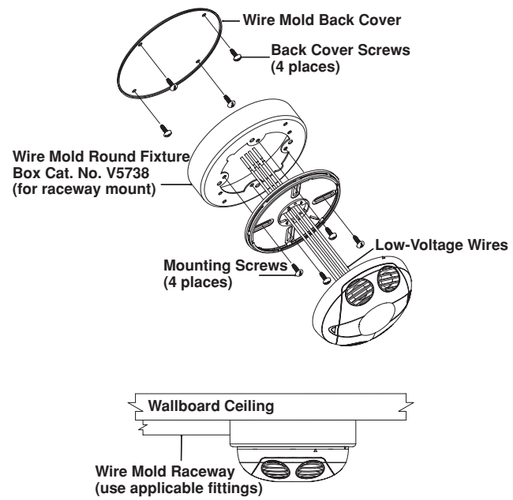
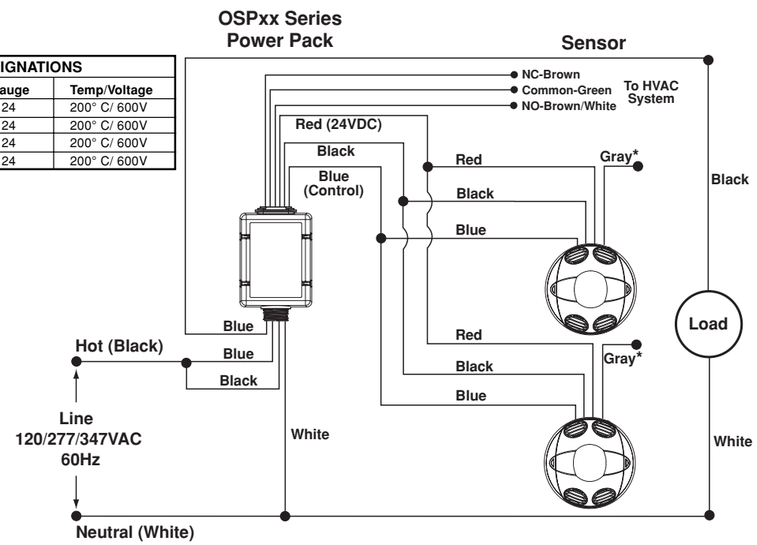


TABLE 2: WIRE DESIGNATIONS

Name	Color	Gauge	Temp/Voltage
Power (+24V)	Red	24	200° C/ 600V
DC Return	Black	24	200° C/ 600V
Occupancy	Blue	24	200° C/ 600V
Occupancy/Photocell	Gray	24	200° C/ 600V

Wiring Diagram: Multiple Sensor, Single Power Pack



***NOTE:** When using the Photocell function, connect the Gray wire of the sensor to the Blue wire of the power pack. **DO NOT** use the Blue wire of sensor.

NOTE: Ensure to cap wire that is not being used.

OPERATION

Motion detection by the ultrasonic sensor will turn on the lights as well as keeping 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. Green flash indicates motion detection by ultrasonic technology.

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 Ultrasonic 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 ultrasonic 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.

SETTINGS

Default Settings:

Adjustment knob settings as per "recommended manual settings," **(refer to Table 3 and Figure 1)**.

All switches in the off position **(refer to Table 4)**.

TABLE 3: ADJUSTMENT KNOB SETTINGS

Knob Color	Symbol	Function	Knob Setting	Factory Default Setting
Green		Sets the ultrasonic range	Range setting Full CCW = min. (OFF) Full CW = max.	50%
Black		Delayed- Off Time	Full CCW = min. (30 sec.) Full CW = max. (30 min.)	50% (10 min)
Blue		Ambient Light Override (Gray wire only)	Full CCW – Lights stay OFF Full CW – Lights always turn ON (NO ambient light override) Range – 100-3000 LUX	100%

TABLE 4: 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 Enable	Walk-Through Disable
	Bank B		
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 Disable

Test Mode: To set the delayed-off time to 6 seconds for performing a walk test. While the sensor is in test mode, the LED's will flash amber once a second.

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 6 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 6 second test mode for 15 minutes, 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 6 second test mode, simply toggle the switch B3 from OFF to ON and back to OFF.

Photocell (Ambient Light Override) adjustment:

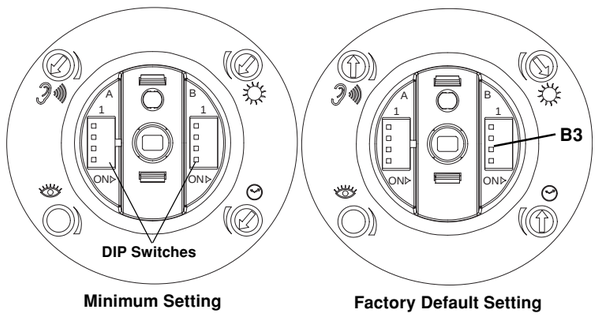
In order to use the Ambient Light Override functionality of the sensor, the sensor must be wired to the power pack (OSP*XX*) using the gray wire instead of the blue wire. This feature allows the user to conserve energy by keeping the controlled lights off when not necessary. The sensor does this by measuring the amount of ambient light in the installed area and keeping the controlled lights off if there is enough ambient light available. To use this feature, the Photocell adjustment (blue) knob must be adjusted from the default position. Once this adjustment is made, the controlled lights will only turn on if the ambient light present is less than the setting.

To set the Photocell level (used with the gray wire connection):

NOTE: This setting must be performed when the natural light is low enough to require artificial light.

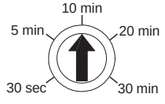
1. Remove the cover from the sensor.
2. Make note of the position of the Green knob. Rotate the Green knob full CCW and enter the sensor's Test mode as described above.
3. Rotate the Blue knob full CCW.
4. Wait for the lights to turn OFF.
5. Rotate the Green knob full CW.
6. Slowly rotate the blue knob clockwise until the lights turn ON. This is the correct setting.
7. Return the Green knob to its original position.
8. Replace cover. Setting is complete.

Figure 1
Minimum and Default Settings



Minimum Setting | **Factory Default Setting**

Adjust Knob Rotation Direction



Delayed Off Time Selection (Black Knob)

Figure 2 (Cat. No. OSC05)
Field-of-View Ranges

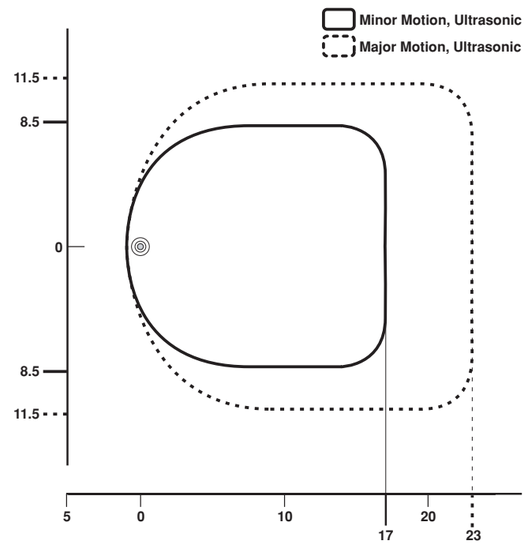


Figure 3 (Cat. No. OSC10)
Field-of-View Ranges

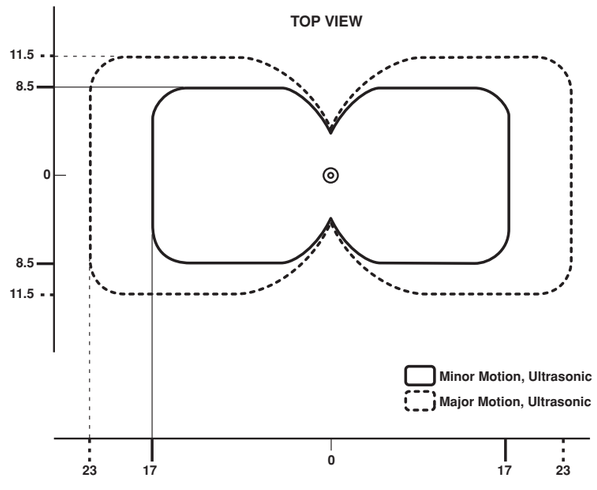
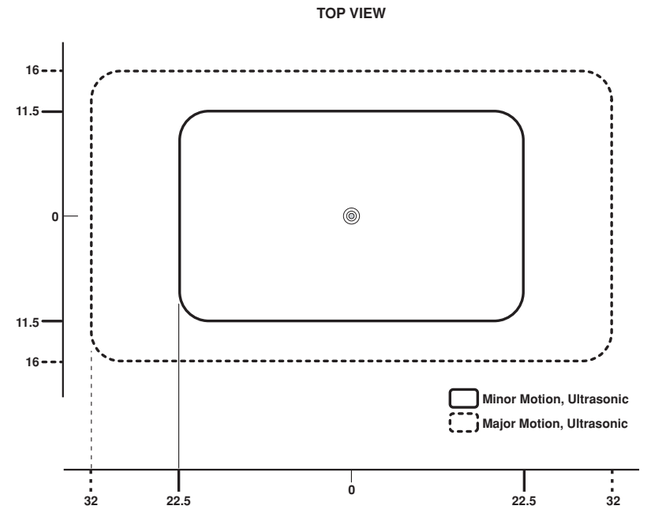
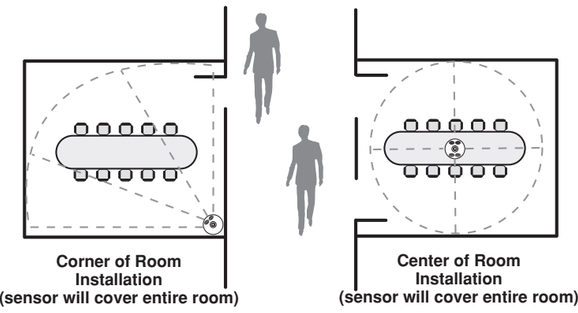


Figure 4 (Cat. No. OSC20)
Field-of-View Ranges



Mounting Location Diagram



Corner of Room Installation (sensor will cover entire room)

Center of Room Installation (sensor will cover entire room)

NOTE: When mounting device, do not point sensor openings towards the opening of a door or strong air currents.

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 GREEN knob by 15%; remove motion source. If unsatisfactory, move sensor.
- Light turns ON too long
  - Timer setting too high. **To Test:** Check switch settings. Typical setting is 10 minutes.

PRODUCT INFORMATION

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

PK-93585-10-00-0A

High Bay/Low Bay Passive Infrared Occupancy Sensor and Offset Adapter

Cat. No. OSFHU-ITW (Sensor)
Cat. No. OSFHU-CTW (Cold Storage)
Cat. No. OSFOA-00W (Adapter, sold separately)
Cat. No. OSFLO-00W (Adapter, sold separately)

Ratings:
800VA-6.67A @ 120VAC, 1/4 HP, 50-60Hz
1200VA-4.33A @ 277VAC, 1/4 HP, 50-60Hz
1500VA-4.32A @ 347VAC, 1/4 HP, 50-60Hz
– 40º F for Cat. No. OSFHU-CTW

Compatible with electronic and magnetic ballasts, electronic and magnetic low-voltage ballasts

INSTALLATION INSTRUCTIONS

LEVITON
Building A Connected World

PK-93439-10-00-5B

LIMITED 5 YEAR WARRANTY AND EXCLUSIONS

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Leviton is free of defects in materials and workmanship under normal and proper use for five years from the purchase date. Leviton's only obligation is to correct such defects by repair or replacement, at its option, if within such five year period the product is returned prepaid, with proof of purchase date, and a description of the problem to **Leviton Manufacturing Co., Inc., Att: Quality Assurance Department, 59-25 Little Neck Parkway, Little Neck, New York 11362-2591.** This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. **There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose**, but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to five years. **Leviton is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment, lost sales or profits or delay or failure to perform this warranty obligation**. The remedies provided herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.

For Technical Assistance Call:
1-800-824-3005 (U.S.A. Only)
www.leviton.com

LEVITON
Building A Connected World

PK-93439-10-00-5B

FEATURES

- Fixture or electrical box mounted Passive Infrared Occupancy Sensor
- 20 ft. x 60 ft. aisle pattern at 40 ft mounting height
- 360° field-of-view for 20 ft. to 40 ft. High Bay mounting heights
- 360° field-of-view for 15 ft. to 25 ft. Low Bay mounting heights
- Interchangeable 360° High Bay, Low Bay and aisle lens included
- Adjustable Time Delay
- LED indicator light blinks when sensor detects motion
- 42" pre-stripped color coded wire leads
- Optional peel and stick mask kit
- Offset Adapters (sold separately) positions sensor at optimum field-of-view

DESCRIPTION

Leviton's High Bay Occupancy Sensors, Cat. No. OSFHU-ITW and OSFHU-CTW (cold storage), are specifically designed for high mounted areas such as warehouses, manufacturing and other high ceiling applications. The OSFHB-xTW installs directly to an industrial luminaire or an electrical junction box. It is a self-contained sensor and relay that detects motion using the passive infrared (PIR) to sense sources (such as a person entering a room) within its field-of-view (monitored space) and automatically switches lights ON. The controlled lights will remain ON until no motion is detected and the scheduled time-delay has expired. The OSFHU-xTW is supplied with three interchangeable lens rings that allows the user to select between a 360 degree High Bay/Low Bay pattern or an aisle pattern.

Cat. No. OSFHB-ITW is UL listed, cUL listed and conforms to California Title 24 requirements. The Sensor's High Bay lens and aisle lens is designed for 20 ft. to 40 ft. mounting heights for a symmetrical pattern which will provide coverage of 50' to 60' diameter **(refer to Figure 4 and 5)**. The Low Bay lens is designed for 15 ft. to 25 ft. mounting heights for a symmetrical pattern which will provide coverage of 30' to 50' diameter **(refer to Figure 6)**. The Sensor is sensitive to the heat emitted by the human body. In order to initially trigger the Sensor, the source of heat must move from one zone of detection to another.

Note that occupancy sensors respond to rapid changes in temperature, so care should be taken not to mount the device near a climate control source (i.e. radiators, air exchanges, and air conditioners). Hot or cold drafts will look like body motion to the device and will trigger it if the unit is mounted too close. **It is recommended to mount the Occupancy Sensor at least 6 ft. away from the heating or cooling ventilation source**.

INSTALLATION INSTRUCTIONS

WARNING: TO BE INSTALLED AND/OR USED IN ACCORDANCE WITH APPROPRIATE ELECTRICAL CODES AND REGULATIONS.

WARNING: IF YOU ARE NOT SURE ABOUT ANY PART OF THESE INSTRUCTIONS, CONSULT A QUALIFIED ELECTRICIAN.

WARNING: CONTROLLING A LOAD IN EXCESS OF THE SPECIFIED RATINGS WILL DAMAGE THE UNIT AND POSE RISK OF FIRE, ELECTRIC SHOCK, PERSONAL INJURY OR DEATH. CHECK YOUR LOAD RATINGS TO DETERMINE THE UNIT'S SUITABILITY FOR YOUR APPLICATION.

OTHER CAUTIONS AND NOTES:

1. DISCONNECT POWER WHEN SERVICING LUMINAIRE OR CHANGING BULBS.
2. USE THIS DEVICE WITH COPPER OR COPPER CLAD WIRE ONLY. WITH ALUMINUM WIRE USE DEVICES MARKED CO/ALR OR CU/AL ONLY.
3. DO NOT ATTEMPT TO DISASSEMBLE OR REPAIR. CLEAN OUTER SURFACE WITH A DAMP CLOTH ONLY.

TO INSTALL:

NOTE: The OSFHU-xTW is supplied with three lens trim rings. The 360 degree High Bay lens (white color trim ring) is installed at the factory with the aisle lens (black color trim ring) and the 360 degree Low Bay lens (blue color trim ring) in the carton. Change the lens for use in aisle or Low Bay applications. See below for changing lens trim ring. The OSFHU-xTW Sensor mounts in a 1/2" knock out hole on the end of a luminaire or an electrical box. The Sensor's field-of-view may be partially obstructed by the luminaire housing **(refer to Figure 1A)**. At higher mounting heights, the outer beams are not used. As long as the bottom of the sensor is mounted within 1" from the bottom of the luminaire, the field-of-view will not be affected **(refer to Figure 1B)**.

ADAPTER NOTE: For deep bodied luminaires or to clear other obstructions use Leviton's OSFOA-00W Adapter **(refer to Figure 2A)**. The Adapter is designed to provide multiple mounting positions to accommodate different mounting heights for optimum sensor positioning **(refer to Figure 2B)**. Provided is a keyed, threaded snap-in nipple that holds the Adapter in place while tightening the provided lock-nut. If the Adapter is needed, go to **ADAPTER INSTALLATION** section. The OSFLO is a single height position adapter with a quick install snap in fitting without a lock nut **(refer to Figure 2B)**.

SENSOR INSTALLATION:

1. **WARNING:** TO AVOID FIRE, SHOCK, OR DEATH: **TURN OFF POWER** AT CIRCUIT BREAKER OR FUSE AND TEST THAT THE POWER IS OFF BEFORE WIRING.
2. The sensor comes with three lens rings, a white one for 360 degree High Bay detection (installed at factory), a black one for aisle applications, and a blue one for Low Bay applications. **NOTE:** An optional peel and stick masking kit is included. This circular adhesive label (with removable wedges) is applied to the OUTSIDE of the sensor lens. Use any number of wedges to alter field-of-view for your desired application.
3. To change lens, turn trim ring so that the two indented dots line up and pull out by the finger tabs **(refer to Figure 7A)**.
4. To insert the black aisle lens, line up the indented dots and indented tabs on underside of lens and insert into key openings and turn clockwise **(refer to Figure 7B)**.
5. Line the finger tabs with the direction of the aisle. The lens will snap into indentation bumps to indicate the lens direction is at either 90 degree or 0 degree orientation.
6. Remove the lock-nut from the threaded nipple and insert the wires and the threaded nipple into a half inch hole of the luminaire body or the electrical box.
7. Slide the lock-nut over the wires and thread clockwise on to the threaded nipple to secure the sensor firmly in place making sure the lens is orientated towards the area to be monitored (field-of-view) **(refer to Figure 3)**.
8. Connect wires per **Wiring Diagram** as follows: BLACK lead to LINE (Hot); RED lead to LOAD; WHITE lead to LINE (Neutral). Twist strands of each lead tightly and, with circuit conductors, push firmly into the appropriate wire connector. Screw connector on clockwise making sure that no bare wire shows below the connector.
9. Restore power at circuit breaker or fuse.

NOTE: Allow approximately 1 minute for charge-up. If the lights turn ON and the LED blinks when a hand is waved in front of the lens, then the Sensor was installed properly. If the operation is different, refer to the Troubleshooting Section.

The Sensor is factory preset to work without any adjustments. If you desire to change the factory settings, refer to the **SETTINGS** section.

OSFOA ADAPTER INSTALLATION:

1. Position one half of the Adapter body on the end of the luminaire to determine the appropriate mounting hole to be used on the Adapter that will position the sensor for optimum coverage. The bottom of the sensor should be at or below the luminaire body **(refer to Figure 2B)**.
2. Punch out the keyed hole of the Adapter half body to be mounted on the luminaire or electrical box **(refer to Figure 1B)**.
3. Thread the provided lock nut part way on the keyed threaded nipple and insert through the keyed hole from the inside of the Adapter half body and snap into the half inch hole of the luminaire or electrical box and tighten **(refer to Figure 2A)**.
4. Punch out the non-keyed hole on the other Adapter body half and insert the wires and threaded nipple of the Sensor into the hole. Thread the provided lock nut on the nipple and tighten positioning sensor towards the area to be monitored **(refer to Figure 2A)**.
5. Feed the sensor wires through the keyed nipple attached to the luminaire or electrical box and connect per **Wiring Diagram** as follows: BLACK lead to LINE (Hot); RED lead to LOAD; WHITE lead to LINE (Neutral). Twist strands of each lead tightly and, with circuit conductors, push firmly into the appropriate wire connector. Screw connector on clockwise making sure that no bare wire shows below the connector.
6. After wiring connections are completed, snap the two Adapter body halves together.
   NOTE: To open the Adapter, use a small, flat blade screw driver and carefully insert into slots and push tabs down while pulling the two halves apart.
7. Restore power at circuit breaker or fuse.
   NOTE: Allow approximately 1 minute for charge-up. If the lights turn ON and the LED blinks when a hand is waved in front of the lens, then the Sensor was installed properly. If the operation is different, refer to the Troubleshooting Section.

OSFLO ADAPTER INSTALLATION:

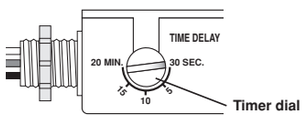
1. Position the adapter half with the insert nipple to the end of the luminaire or electrical box to determine if sensor will be positioned correctly for optimum coverage.
2. If appropriate position for coverage, insert the snap fitting into the knockout of the luminaire or electrical box (if added depth is needed for coverage, use the OSFOA with multiple positions).
3. Remove the locknut from the sensor and insert the wire leads through the mounting hole of the other half of the adapter. Slide locknut over wire leads and thread onto threaded sensor nipple and tighten so that sensor does not move. Align sensor so that it is parallel to the bottom of the luminaire or electrical box.
4. Feed the sensor wire through the adapter half mounted on the luminaire or electrical box and into the wire access area.
5. Snap the adapter half with the sensor attached to the adapter half on the luminaire or electrical box by aligning the snap fittings and pushing firmly together.
6. Connect per **Wiring Diagram** as follows: BLACK lead to LINE (Hot), RED lead to LOAD, WHITE lead to LINE (Neutral). Twist strands of each lead tightly and with circuit conductors, push firmly into appropriate wire connector. Screw connector on clockwise making sure no bare wires show below the connector.
7. Restore power at circuit breaker or fuse.

   NOTE: Allow approximately 1 minute for charge-up. If the lights turn ON and the LED blinks when a hand is waved in front of the lens, then the Sensor was installed properly. If the operation is different, refer to the Troubleshooting Section.

SETTINGS

Time-Delay: Settings should be determined during the installation period. This adjustment controls the amount of time the lights stay ON after the last detected motion. You may select settings varying from 30 seconds to 20 minutes and any time in between.

NOTE: After power is turned ON, allow two minutes for this unit to warm up before performing Time-Delay settings.



TROUBLESHOOTING

- **Lights will not turn ON**
  - **Circuit breaker or fuse is OFF:** Turn the breaker ON. Ensure the lights being controlled are in working order (i.e., working bulbs, ballasts, etc.)
  - **Sensor is wired incorrectly or may be defective:** Confirm that the sensor's wiring is done correctly and inspect visually for problems.
  - **Lens is dirty or obstructed:** Inspect the lens visually and clean if necessary, or remove the obstruction.
- **Lights will not turn OFF**
  - **Sensor is wired incorrectly or may be defective:** Confirm that the sensor's wiring is done correctly and inspect visually for problems.
  - **Sensor may be mounted too closely to an air conditioning or heating vent:** Move the sensor or close the vent.
  - **The line voltage has dropped:** Perform the necessary tests to ensure the line voltage has not dropped beneath 100V.
- **Lights turn OFF and ON too quickly**
  - **Sensor may be mounted too closely to an air conditioning or heating vent:** Move the sensor to another location or close the vent.
  - **Time delay set improperly:** Adjust the TIME DELAY.

Wiring Diagram

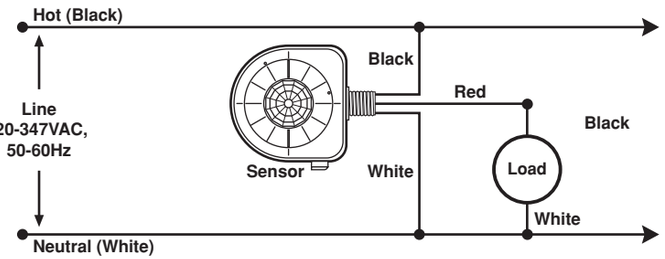


Figure 1A

INCORRECT

Sensor mounted too high
Outer beams are obstructed
Field-of-view is limited

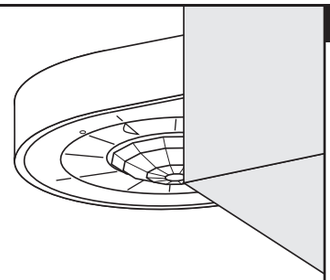


Figure 1B

CORRECT

Sensor mounted within 1" of bottom
No obstruction
Optimum field-of-view

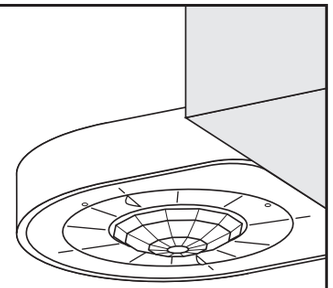


Figure 2A

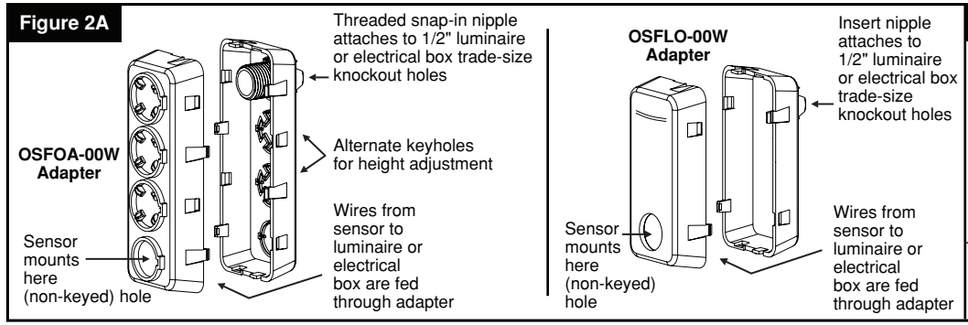


Figure 2B

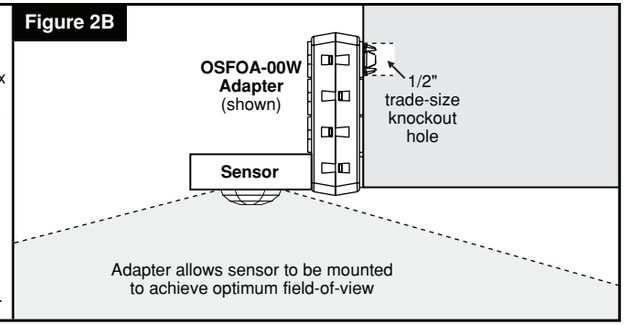


Figure 3

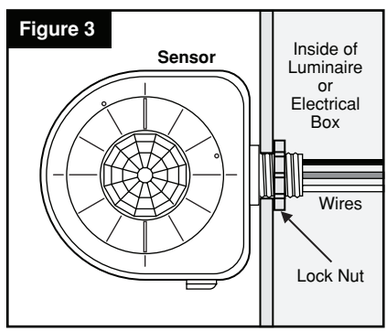


Figure 4

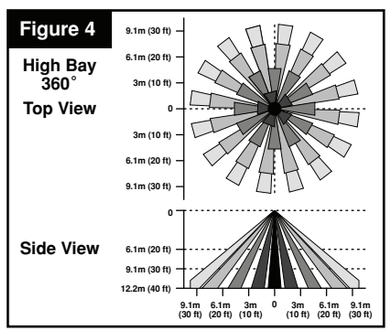


Figure 5

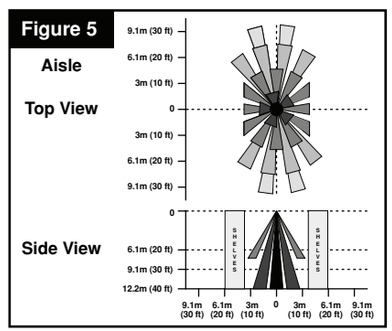


Figure 6

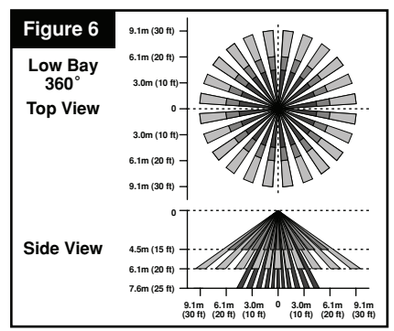
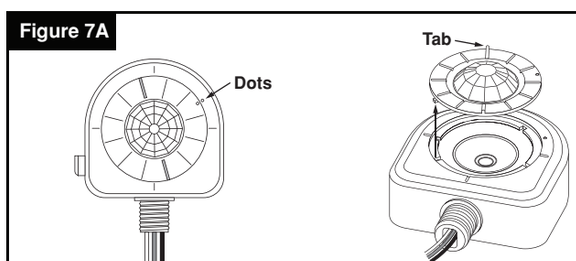


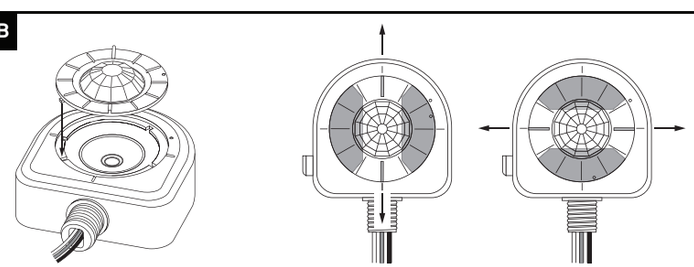
Figure 7A



Line up dots

Pull up on tab to remove 360° lens (High Bay or Low Bay)

Figure 7B



Insert aisle lens with dots lined up

Turn clockwise to set aisle direction

decora®

Single Pole (One Location) or Multi-Location

Multi-Technology Designer Wall Switch Occupancy Sensor

California Title 24 2005 Compliant

Cat. No. OSSMT-GD

Incandescent/Tungsten: 800W @ 120V **Ballast:** 1200VA @ 120V **Ballast:** 2700VA @ 277V **Motor:** 1/4hp @ 120V

Operating Temperature Range: 0°C to 50°C

Relative Humidity: 20% to 90% non-condensing

No Minimum Load Required

Compatible with incandescent lamps, low-voltage lighting with electronic and magnetic transformers, electronic and magnetic fluorescent ballasts, and fans.

LEVITON®

DI-0XX-OSSMT-00A

INSTALLATION INSTRUCTIONS

WARNINGS AND CAUTIONS:

- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- If you are unsure about any part of these instructions, consult a qualified electrician.
- Controlling a load in excess of the specified ratings will damage the unit and pose risk of fire, electric shock, personal injury or death. Check your load ratings to determine suitability for your application.
- Do not install this unit to control a receptacle.

WARNINGS AND CAUTIONS:

- The OSSMT-GD Occupancy Sensor is intended to replace a standard single-pole Decora wall switch.
- Do not touch the surface of the lens. Clean outer surface with a damp cloth only.
- Disconnect power at circuit breaker or fuse when servicing, installing or removing fixture.
- Use this device only with copper or copper clad wire. With aluminum wire use only devices marked CO/ALR or CU/AL.

TOOLS NEEDED TO INSTALL YOUR SENSOR

Slotted/Phillips Screwdriver
Pliers
Small Slotted Screwdriver
Electrical Tape
Cutters

FEATURES

- Leviton's Decora® style design
- Sensor can be ganged together with other units in a multiple-switch wall plate.
- Self-Adaptive Technology adjusts to occupancy patterns of use in auto adapt mode.
- The Adapting Time-out walk-through feature prevents lights from remaining ON for an extended period after only a momentary occupancy.
- Switches a single load circuit.
- One Push-Button which provides manual ON/OFF switching at any time.
- Adjustable horizontal field of view.
- Integrated photocell prevents lights from turning ON when room is adequately illuminated by natural light.
- True Zero-Cross relay provides maximum contact life and compatibility with electronic ballasts.
- Dual detection technology, both Passive Infrared and Ultrasonic. Can be configured as Ultrasonic Only by disabling Passive Infrared.

DESCRIPTION

Leviton's Designer Multi-Technology Wall Switch Occupancy Sensor, Cat. No. OSSMT-GD, is designed to detect motion using the passive infrared (PIR) sensor from sources (such as a person entering a room) within its field-of-view (monitored space) and automatically switch lights ON. The Occupancy Sensor senses motion within its maximum coverage area of 2400 sq. ft (223 m^2). The ultrasonic (US) sensors work with the PIR to keep the lights ON when occupied. The controlled lights will remain ON until no motion is detected and the scheduled time-delay has expired, at which point the lights will be turned OFF. In adapting time-out mode the sensor adapts its time delay settings to the occupancy patterns of a room.

The Cat. No. OSSMT-GD is an Occupancy Sensor that is designed to control a single lighting control circuit and provide the energy savings of an occupancy sensor. This device does not contain a neutral conductor. It is intended for use in retrofit applications where a neutral is not available in the wall box.

The OSSMT-GD is a single relay device, which can be Auto ON or Manual ON. The device contains a photocell that provides an Ambient Light Hold Off function. The device is configurable for either Ultrasonic with PIR or Ultrasonic Only modes of operation.

Cat. No. OSSMT-GD is ETL listed, cETL listed and conforms to California Title 24 requirements.

The PIR Occupancy Sensor uses a small semiconductor heat detector that resides behind a multi-zone optical lens. This Fresnel lens establishes dozens of zones of detection. The Sensor is sensitive to the heat emitted by the human body. In order to initially trigger the Sensor, the source of heat must move from one zone of detection to another. The device is most effective in sensing motion across its field-of-view and it is less effective sensing motion towards or away from its field-of-view). Keep this in mind when selecting the installation location **(refer to Field-of-View diagrams).**

The US Occupancy Sensor uses a non-audible, high frequency (40kHz) to sense Doppler shifts caused by motion in the space. The US is more sensitive to small motion and does not rely on line of sight for detection. If both sensors have not detected any motion for the set timeout period, the relay and its corresponding load will be turned OFF.

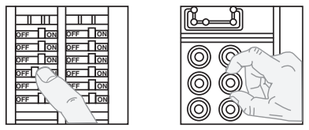
Note that occupancy sensors respond to rapid changes in temperature, so care should be taken not to mount the device near a climate control source (i.e. radiators, air exchanges, and air conditioners). Hot or cold drafts will look like body motion to the device and will trigger it if the unit is mounted too close. **It is recommended to mount the Occupancy Sensor at least 6 feet away from a climate control source.**

In addition, it is also recommended NOT to mount the Occupancy Sensor directly under a large light source. Large wattage bulbs (greater than 100W incandescent) give off a lot of heat and switching the bulb causes a temperature change that can be detected by the device. Mount the Occupancy Sensor at least 6 ft. away from large bulbs. If it is necessary to mount the device closer, lower the wattage of the bulb directly overhead.

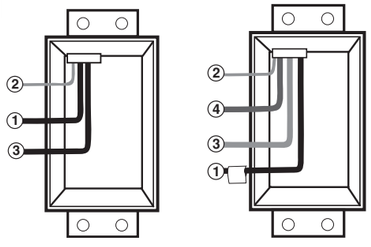
INSTALLING YOUR SENSOR

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!



Step 2 **Identifying your wiring application (most common):**

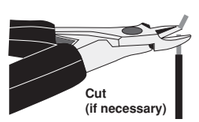


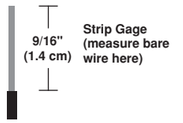
Single-Pole
1. Line (Hot)
2. Ground
3. Load

3-Way
1. Line or Load (See important* instruction)
2. Ground
3. First Traveler – note color
4. Second Traveler – note color

IMPORTANT: For 3-Way applications, note that one of the screw terminals from the old switch being removed will usually be a different color (Black) or labeled Common. Tag that wire with electrical tape and identify as the common (Line or Load) in both switch wall boxes.

Step 3 **Preparing and connecting wires:**

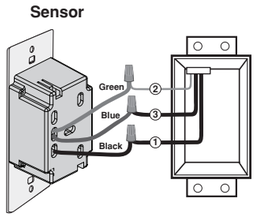


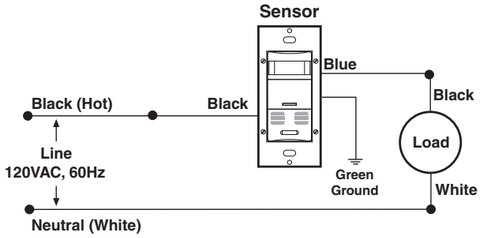


- Pull off pre-cut insulation from sensor leads.
- Make sure that the ends of the wires from the wall box are **straight (cut if necessary)**.
- Remove insulation from each wire in the wall box as shown.

Step 4 **Installing your Sensor – Single-Pole Application:**

NOTE:
The Cat. No. OSSMT-GD requires a ground wire to operate properly. If there is no ground wire, ensure electrical box is grounded and attach ground wire to box with a screw. If the ground wire is floating this device will not work.





WIRING SENSOR:

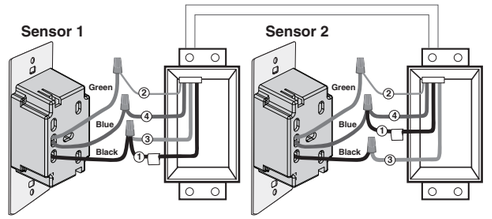
Connect wires per WIRING DIAGRAM as follows: Screw wire connector on clockwise making sure there are no bare conductors below the wire connectors. Secure each connector with electrical tape.

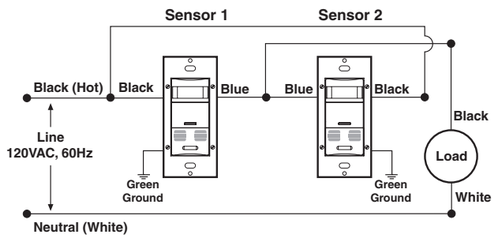
- Green or bare copper wire in wall box to Green lead.
- Line Hot wall box wire to Black lead.
- Load wall box wire to Blue lead.

NOTE: Allow 1 minute for warm-up after connecting and energizing.

Step 5 **Installing your Sensor – 3-Way Wiring Application:**

NOTE: The Cat. No. OSSMT-GD requires a ground wire to operate properly. If there is no ground wire, ensure electrical box is grounded and attach ground wire to box with a screw. If the ground wire is floating this device will not work.





NOTE: Sensor 1 **must** be installed in a wall box that has both a LINE Hot and a Ground connection. Sensor 2 **must** be installed in a wall box that has both a Load and a Ground connection.

If you are unsure about any part of these instructions, consult a qualified electrician.

NOTE: Either sensor can turn the lights ON. Both sensors must time out to OFF or both manual buttons must be pressed for the lights to go OFF

WIRING SENSOR 1:

Connect wires per WIRING DIAGRAM as follows:

- Green or bare copper wire in wall box to Sensor 1 Green lead.
- Line Hot (common) wall box wire identified (tagged) when removing old switch and First traveler from Sensor 2 to Sensor 1 Black lead.
- Second Traveler wall box wire from Sensor 2 to Sensor 1 Blue lead.

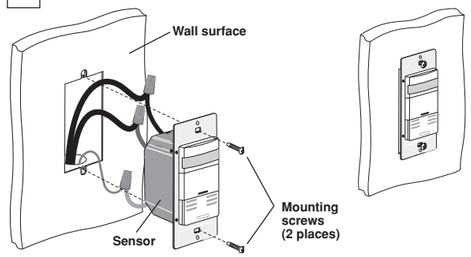
WIRING SENSOR 2:

Connect wires per WIRING DIAGRAM as follows:

- Green or bare copper wire in wall box to Sensor 2 Green lead.
- Load wall box wire identified (tagged) when removing old switch and Second Traveler from Sensor 1 to Sensor 2 Blue lead.
- First Traveler Line Hot from Sensor 1 to Sensor 2 Black lead.

NOTE: Allow 1 minute for warm-up after connecting and energizing.

Step 6 **Testing your Sensor prior to completely mounting in wall box:**



NOTE: Dress wires with a bend as shown in diagram to relieve stress when mounting device.

- Position all wires to provide room in outlet wall box for device.
- Partially secure device using long mounting screws provided.
- Restore power at circuit breaker or fuse.

NOTE: Allow 1 minute for warm-up after energizing.

NOTE: All models of the OSSMT-GD are factory preset to work without any adjustments. If necessary, adjust the Blinders and PIR Range Control to stop any unwanted activation of the lights **(refer to FEATURES section).**

- For additional Time Control Settings **(refer to the SETTINGS section).**

NOTE: To avoid PERMANENT DAMAGE to the unit, be careful NOT TO OVERTURN the control knobs or levers when setting the Sensor. The controls can be accessed by removing the wallplate (if applicable) and control panel cover **(refer to Control Panel Diagram).** Use a small straight blade screwdriver to adjust knobs and blinder levers.

NOTE: DO NOT press in on blinder levers or use excessive force **(refer to Control Panel Diagram).**

- Attach the Control Panel cover when the desired settings are complete.

If lights do not turn ON, refer to the TROUBLESHOOTING section.

FEATURES

NOTE: To access control settings, remove the control panel cover. If necessary, remove the warning label that covers the adjustment dials (refer to Control Panel Diagram).

Factory Settings: The sensor is shipped from the factory to work in almost all situations, without any added adjustments. The factory settings are: Blinders open, 10 minutes fixed Time-Out, Lights always turn ON regardless of existing light levels, Medium passive infrared (PIR) range, and High Ultrasonic range. The PIR and ultrasonic technologies are both active.

Blinders: The blinders are two independent shutters that can narrow the field-of-view from a maximum of 180° down to 32°. The blinders are operated by moving the blinder levers towards or away from the center of the Sensor. The blinder levers can be found above the control dials in the control panel **(refer to Control Panel Diagram)**.

Time-Outs: The Sensor has three types of Time-Outs: Fixed, Adapting, and Walkthrough.

- **Fixed Time-Out:** The value of this Time-Out is user selected through the use of the Time Control Setting (refer to Control Panel Diagram and Time-Out Settings).

- **Adapting Time-Out:** When activated, the value of this Time-Out (30 minutes) is changed by the Sensor based on room occupancy and lighting conditions.
- **Walk-through Time-Out:** The value of this Time-Out is preset to 2.5 minutes and only exists in the Adapting Time-Out mode.

Fixed Time Delay: The fixed Time-Out value is selected by rotating the Time Control dial. There are four (4) values from which to choose. Each mark around the dial corresponds to a different value as indicated below **(refer to Control Panel Diagram).**

NOTE: All time durations are approximate within ±10 seconds.

Adapting Time Delay: The Sensor has built in adapting intelligence that changes the Adapting Time-Out duration in response to the occupancy conditions of the room it is installed in. If the Sensor detects "large," infrequent motion it will INCREASE the Adapting Time-Out duration. If the Sensor detects "large," frequent motion (as in several persons in a room during a meeting), it will DECREASE the time-out duration only if it was NEVER increased (this is because the builtin intelligence will always proceed in the direction of "increasing" adapting Time-Out once it has increased it for any of the occupancy conditions sensed). The Adapting Time-Out duration will range from 10 to 30 minutes in time plus the Walk-Through Time Delay.

Walk-Through Time Delay: The walk-through feature which is only active in the Adapting Time-Out mode, 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 in the following manner: When a person enters the room, the lights will turn ON. If the person leaves the room before the walk-through time-out of 2.5 minutes, the Sensor will turn the lights OFF after 2.5 minutes. If the person stays in the room for longer than 2.5 minutes, the Sensor will instead use the stored Adapting Time-Out Delay setting.

If the Sensor detects motion within 30 seconds after the lights turn OFF, it will turn the lights ON and increase the time-out value by 1.5 times the existing value.

The Adapting Time-Out may be reset to the base value of 30 minutes by rotating the Time Control to a new time selection value and then back to the Adapting Time-Out value **(refer to Control Panel Diagram).**

Ambient Light Override: The Ambient Light Override is used to keep the lights OFF if there is already enough natural light in the room. For proper operation, the Ambient Light Override adjustment must be performed when there is enough natural light **(refer to the SETTINGS section).** If the adjustment is made when there is less natural light, the lights may not turn ON even though they are needed and will require manual activation of the push-buttons to turn the lights ON.

NOTE: The ambient light level in the center of a room will be different than the level at the wall where the switch is located.

Ambient Light Dial: The ambient light setting is adjusted with the Ambient Light Dial **(refer to Control Panel Diagram).** Turning the Light Dial fully counter-clockwise (CCW), sets the Sensor to manual ON mode (see following section). If the light control is in the fully CW position, the lights will turn ON whenever motion is detected, even in full daylight. Intermediate settings will cause the lights to turn ON only when the ambient light is below the level selected by the light control.

NOTE: When the setting is at the minimum CCW level, the lights will stay OFF when the room is dim. When the setting is at the maximum level clockwise (CW), the lights will turn ON when the room is bright.

Manual ON Mode: When the light control is in the fully CCW position the lights will never automatically turn ON. In this mode the lights need to be manually turned ON by the push-button, and will turn OFF with the absence of motion.

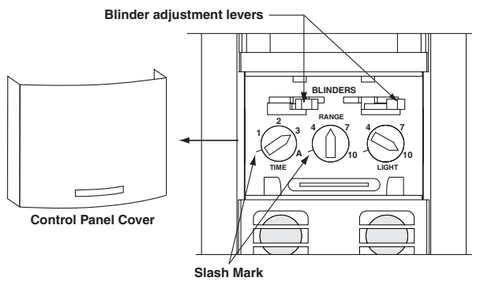
PIR RANGE: To decrease PIR detection range and sensitivity, rotate the knob CCW **(refer to Control Panel Diagram).** The detection range can be adjusted from 100% down to 30%.

ULTRASOUND (US) SENSITIVIY AND PIR DISABLE: US sensitivity can be adjusted to HIGH-MEDIUM- LOW by holding the ON button for 15 seconds. The LED will flash to represent the Ultrasonic sensitivity and PIR status. Tapping the ON button during the desired LED flash indication will set the Ultrasonic sensitivity and PIR status. Use the following chart:

US Sensitivity and PIR Disable	
3 amber flashes	High ultrasonic sensitivity, PIR enabled
2 amber flashes	Medium ultrasonic sensitivity, PIR enabled
1 amber flash	Low ultrasonic sensitivity, PIR enabled
3 green flashes	High ultrasonic sensitivity, PIR disabled
2 green flashes	Medium ultrasonic sensitivity, PIR disabled
1 green flash	Low ultrasonic sensitivity, PIR disabled

NOTE: The program times out in 30 seconds from the last button press. The factory setting for the US sensitivity is HIGH with PIR and Ultrasonic technologies enabled.

Control Panel Diagram



SETTINGS

NOTE: To avoid PERMANENT DAMAGE to the unit, be careful NOT TO OVERTURN or use excessive force when setting the control knobs or levers of Cat No. OSSMT-GD. Use a small straight blade screwdriver to adjust the knobs and your finger to adjust the blinder levers.

1. Remove Decora® wallplate and Control Panel Cover from Sensor.
2. Rotate the Time dial to select the desired fixed Time-Out value.
3. If the Sensor is installed within 6 feet of an air duct, rotate the Range Control 1/4 turn counter-clock-wise (CCW).
4. **Set the Ambient Light Level - AMBIENT LIGHT:** Cat. No. OSSMT-GD has an adjustment to determine at what minimum ambient light level the unit will operate. The adjustment should be made when the ambient light is at the level where no artificial light is needed. Follow these steps to make a more accurate adjustment of the light control. This feature will not work in Manual-On mode.
   - **A.** With the lights ON, rotate the Time Control fully CCW to the set the Time-Out to the thirty (30) second test mode **(refer to Control Panel Diagram).**
   - **B.** Rotate the Light Control fully CCW.
   - **C.** Manually turn OFF the lights.
   - **D.** Rotate the Light Control clockwise (CW) SLOWLY, until the lights turn ON. This is the setting for the current level of light in the room. Adjust the light control back (CCW) a little so the lights will not turn on with the current room lighting level. Leave the room and wait for the 30-second timeout and 30-second vacancy confirmation to expire. Perform a walk through to see if the lights turn on with the new ambient light level adjustment. Repeat this adjustment as needed to keep the lights from turning on under conditions when enough light is present.

     NOTE: When the light control is in the fully CCW position the lights will never automatically turn ON. This is the Manual-On mode, where the lights need to be manually turned ON by the push-button, and will turn OFF with the absence of motion.

     If the light control is in the fully CW position, the lights will turn ON whenever motion is detected, even in full daylight.

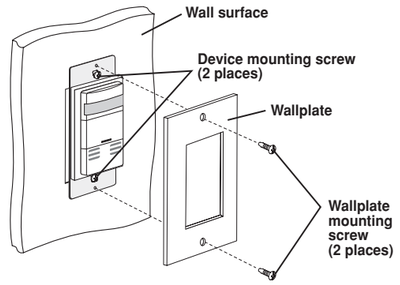
     Intermediate settings will cause the lights to turn ON only when the ambient light is below the level selected by the light control.

     NOTE: The ambient light in a room will change with the time of day and the season of the year.
5. **Time-Out Settings:**
   - **A.** Adjust the Time dial. The Sensor Amber LED will flash twice each time the Time dial is pointed at a new Time-Out value. The Time-Out values for non-adapting mode are:

     NOTE: To return to adapting mode, rotate the Time dial to full CW position (A setting). Be sure the Time dial is rotated until an Amber LED flash is issued to be sure a new setting was selected.

Face Marking	Value of Time
(/) Slash Mark	30 second fixed time-out for performing a walk test
1	10 minutes fixed time-out
2	20 minutes fixed time-out
3	30 minutes fixed time-out
A	Auto Adapting

6. If desired, adjust the blinders to block any unwanted motion.
7. Replace the Control Panel Cover and Decora® wallplate.



- Secure device by firmly tightening mounting screws.
- Install Decora® style wallplate (sold separately).

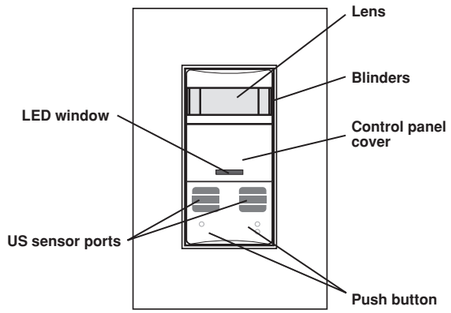
OPERATION

PUSH BUTTON(S)

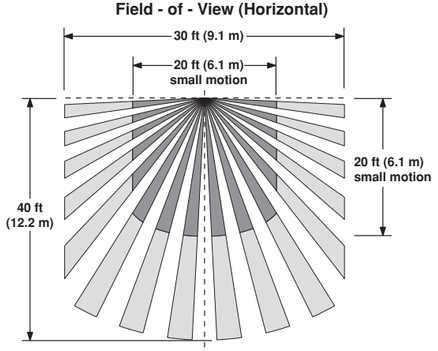
Cat. No. OSSMT-GDx has a single push-button switch that toggles the relay and its corresponding load, ON and OFF **(refer to figure)**. If the relay is OFF, the relay will turn ON when the push-button is pressed, and remain ON in the presence of motion. In the absence of motion, the Sensor Unit will Time-Out and turn the relay OFF.

NOTES:

- The Motion Indicator LED will blink every second while motion is detected. A red blink represents PIR detection, a green blink represents Ultrasonic detection.
- When the Time-Out expires and the relay turns OFF a 30 second vacancy confirmation exist to turn the relay back ON. After this time the device will be placed into a lower detection threshold mode.
- In Manual-ON mode, the button must be pressed to turn the lights ON. In the absence of motion, the unit will Time-Out and turn the lights OFF.
- If Manual-On mode is desired, keep the Light knob in the fully counter-clockwise (CCW) position.

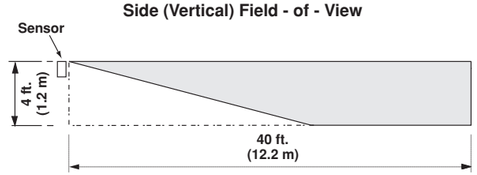


Field - of - View (Horizontal)



Small Motion = Dual Technology coverage. This also represents the maximum ultrasonic range coverage.

Side (Vertical) Field - of - View



TROUBLESHOOTING

1. If there is no response from the unit and the LED never blinks or the push button does not activate the lights 1-1/2 minutes after power is applied, then uninstall device and verify wiring **(Step 4)**.
2. If the lights constantly stay ON, even when the room is unoccupied:
   - **A.** Check the Time setting. See how this time compares to how long the lights stay ON.
   - **B.** Try lowering the PIR Range Control. Rotate the knob counterclockwise about 30°.
   - **C.** If the problem persists, try reducing again.

     NOTE: Do not reduce so much that the Sensor Unit cannot see normal occupancy.
   - **D.** Try lowering the Ultrasonic Sensitivity.
   - **E.** Be sure to use the Blinders to block any unwanted hallway traffic.
   - **F.** Check for reflected heat/motion as the Sensor Unit may be seeing motion through a window.
   - **G.** Check for adjacent HVAC and/or heater ducts.

PRODUCT INFORMATION

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

FCC COMPLIANCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

DI-0XX-OSSMT-00A

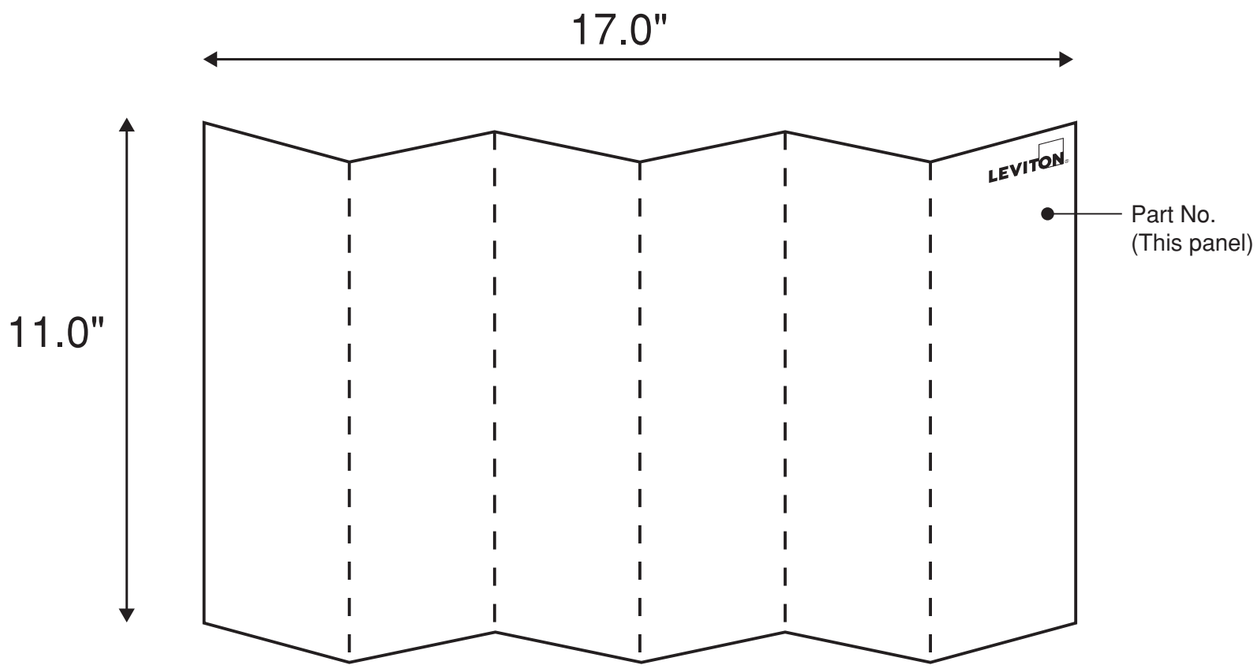
LEVITON INSTRUCTION SHEET/MANUAL SPECIFICATIONS

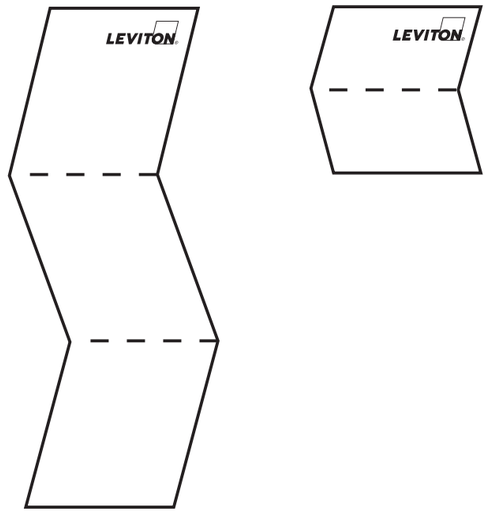
- Artwork No/Rev Level: DI-0XX-OSSMT-00A
- Color(s): 1 over 1
  1. Black 2. _____
  3. _____ 4. _____
- Font Families: Helvetica
- Material
  Type: 40 Lb. offset
- Coating: ❑ _____
- Paper size:
  Overall size: 17" X 11"
  Final fold size: 2.8" X 1.8"

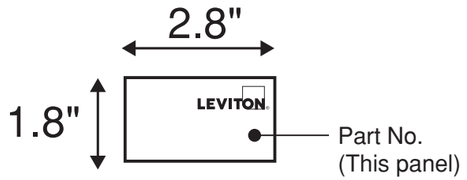
DOCUMENTATION

- ECO No.: N/A
- Artist: LG Date: 05-27-08

FOLD SCHEME







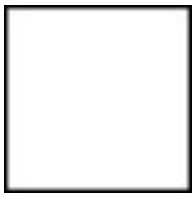
Final Fold Size

— — — — Fold Line

PRODUCT SPECIFICATIONS / INFO

Trade Price: $0.00 E

Color: White



ODS10-IDW

Description

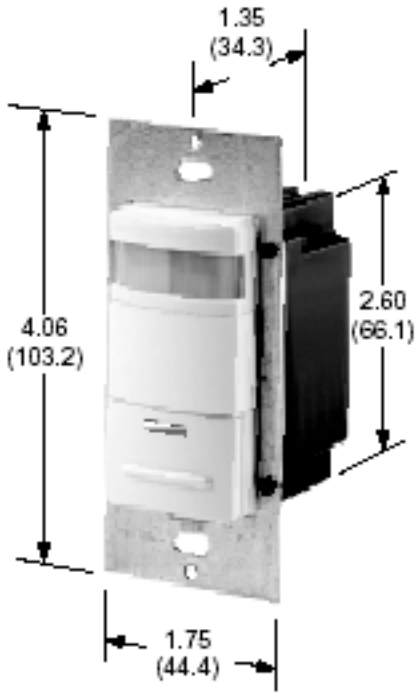
800W@120V INC 1200VA@120V 2700VA@277V FL, 120/277 Volt AC 60Hz, Single-Pole, 180 Degree, 2100 Sq. Ft. Coverage, Decora Passive Infrared Wall Switch Occupancy Sensor, Commercial Grade - White. * 347V available - please consult factory.

UPC Code: 07847701018

Product Features

Switch Type:	Single-Pole
Adjustment:	Manual
Technology:	Passive Infrared
Pattern Degrees:	180
Coverage Range Sq. Ft.:	2100
Time Adjustment:	30s-20m
Load Rating:	800W@120V INC 1200VA@120V 2700VA@277V FL
Voltage:	120/277 Volt AC 60Hz
Wiring Neutral / Ground:	Ground Required
Photo Cell:	Ambient Override ON
Wallplate:	Order Separately
Color:	White
Standards and Certifications:	UL/cUL
Warranty:	5-Year Limited
Code Compliance:	California Title 24

Packaging Specifications	
Standard Pack	10
Inner Pack	0
Unit Pack	BOXED
Carton Length	11.75
Carton Width	6
Carton Depth	5.25
Cube	.21
Carton Weight	3.32



SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Manufacturing Co., Inc.
201 North Service Road, Melville, NY 11747
Telephone: 1-800-323-8920 · FAX: 1-800-832-9538 · Tech Line (8:30AM-7:30PM E.S.T. Monday-Friday): 1-800-824-3005

Leviton Manufacturing of Canada, Ltd.
165 Hymus Boulevard, Pointe Claire, Quebec H9R 1E9 · Telephone: 1-800-469-7890 · FAX: 1-800-824-3005

Leviton S. de R.L. de C.V.
Lago Tana 43, Mexico DF, Mexico CP 11290 · Tel.: (+52)55-5082-1040 · FAX: (+52)5386-1797 · www.leviton.com.mx

ISO 9001 REGISTERED Quality Manufacturer

Visit our Website at: www.leviton.com

PRODUCT SPECIFICATIONS / INFO

OSC20-M0W

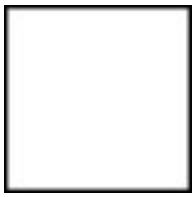
Description

Multi-Technology, 360 Degree, 2000 Sq. Ft.Coverage, Self-Adjusting, Ceiling Mount Occupancy Sensor, Commercial Grade - White

UPC Code: 07847718013

Trade Price: $137.49 E

Color: White



Product Features

Sensor Type:	Multi-Technology
Adjustment:	Self-Adjusting
Sensor Technology:	PIR/Ultrasonic 32kHz
Pattern Degrees:	360
Coverage Range Sq. Ft.:	2000
Manual Time Adjustment:	30s-30m, 6s Test Mode
Load Rating:	Uses Power Pack
Input Voltage:	24VDC
Current Consumption:	32mA
Photo Cell:	Ambient Override ON
Color:	White
Standards and Certifications:	CUL/US Cert
Warranty:	5-Year Limited
Housing Material:	High-Impact, Injection Moulded Plastic
Code Compliance:	California Title 24

Features and Benefits

- Small Size: Installed sensor appears almost invisible.
- Fast Simple Installation: Easy ceiling mount, three wire connection (low voltage) and twist-lock sensor attachment.
- Accurate, Consistant Switching: Occupant complaints are eliminated; lights are on when room is occupied, off when empty. annoying false-offs are minimized and lights on at night is eliminated.
- Self-Adapting: An internal microprocessor continually analyzes, evaluates and adjusts settings. Performance is kept at a maximum and user complaints are eliminated.
- Maximum Reliability, Low Cost: All digital circuitry uses a minimum of components.
- Non-Volatile Memory: Learned and adjusted settings saved in protected memory. Power outages will not cause status loss.
- Ambient Light Recognition: The photocell prevents lights from turning on when room is adequately lit by natural light.
- Excellent Warranty: 5-Year Limited warranty.
- Typical Applications: Cafeteria, Computer Room, Office w/Cubicles, Office Open, File Room, Classroom, Lounge, All Restroom types, Open Area, or Gymnasium

Control Specifications	
Adjustment	Self-Adjusting
Manual Time Adjustment	30s-30m, 6s Test Mode
Timer Factory Preset	10 Minutes
Sensitivity Adjustment	0 to 100 Pct
Sensitivity Factory Preset	Ultrasonic 50 Pct Infrared 75 Pct
Photo Cell Adjustment	20 to 3000 Lux
Photocell Factory Preset	3000 Lux (disable photocell)
Single/Multi-Tech Mode	Switchable ON/OFF PIR/ULTRA
LED Disable	LEDS Enable/LEDS Disable

Environmental Specifications	
Operating Temperature	32F to 104F 0C to 40C
Operating Humidity	0 Pct to 95 Pct Relative, Non-Condensing

Mechanical Specifications	
Sensor Technology	PIR/Ultrasonic 32kHz
Pattern Degrees	360
Coverage Range Sq. Ft.	2000
Major Motion Area	64X32 Feet
Minor Motion Area	45X23 Feet
Photo Cell	Ambient Override ON

Standards and Certifications	
CUL/US	Listed 9034
ANCE	Compliant
NOM	057
Code Compliance	California Title 24
ASHRAE	Standard 90.1 Compliant
FCC	Compliant

Electrical Specifications	
Input Voltage	24VDC
Current Consumption	32mA
Output Voltage	24VDC w/Short Circuit Protection
Load Rating	Uses Power Pack

Material Specifications	
Color	White
Housing Material	High-Impact, Injection Moulded Plastic
LED Indicator	Red Infrared Motion & Green Ultrasonic Motion
PIR Lens Type	Extended Range
Qty of Transducer Pairs	2
Transducer Size	16 mm Diameter
Wire Leads	Color Coded 6 Inch
Sensor Weight	5oz/142g

Packaging Specifications	
Standard Pack	10
Inner Pack	0
Unit Pack	BOXED
Carton Length	11.75
Carton Width	9.5
Carton Depth	6.5
Cube	.41
Carton Weight	6

SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Manufacturing Co., Inc.
201 North Service Road, Melville, NY 11747
Telephone: 1-800-323-8920 · FAX: 1-800-832-9538 · Tech Line (8:30AM-7:30PM E.S.T. Monday-Friday): 1-800-824-3005

Leviton Manufacturing of Canada, Ltd.
165 Hymus Boulevard, Pointe Claire, Quebec H9R 1E9 · Telephone: 1-800-469-7890 · FAX: 1-800-824-3005

Leviton S. de R.L. de C.V.
Lago Tana 43, Mexico DF, Mexico CP 11290 · Tel.: (+52)55-5082-1040 · FAX: (+52)5386-1797 · www.leviton.com.mx

ISO 9001 REGISTERED Quality Manufacturer

Visit our Website at: www.leviton.com

PRODUCT SPECIFICATIONS / INFO

OSFHU-ITW

Description

High-Bay Fixture Mount Occupancy Sensor, 360 and Aisle way (360 degree lens and Aisle way lens included), Passive Infrared Technology, 800VA - 6.67A@120VAC 50-60Hz, 1200VA - 4.33A@277VAC 50-60Hz, 1500VA - 4.32A@347VAC 50-60Hz, 120/277/347v ac, Commercial Grade - White California Title 24 Compliant.

UPC Code: 07847735430

Trade Price: $56.25 E

Packaging Specifications	
Standard Pack	10
Inner Pack	0
Unit Pack	BOXED
Carton Length	10.5
Carton Width	9
Carton Depth	5.5
Cube	.3
Carton Weight	5.25

SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Manufacturing Co., Inc.
201 North Service Road, Melville, NY 11747
Telephone: 1-800-323-8920 · FAX: 1-800-832-9538 · Tech Line (8:30AM-7:30PM E.S.T. Monday-Friday): 1-800-824-3005

Leviton Manufacturing of Canada, Ltd.
165 Hymus Boulevard, Pointe Claire, Quebec H9R 1E9 · Telephone: 1-800-469-7890 · FAX: 1-800-824-3005

Leviton S. de R.L. de C.V.
Lago Tana 43, Mexico DF, Mexico CP 11290 · Tel.: (+52)55-5082-1040 · FAX: (+52)5386-1797 · www.leviton.com.mx

ISO 9001 REGISTERED Quality Manufacturer

Visit our Website at: www.leviton.com

PRODUCT SPECIFICATIONS / INFO

Trade Price: $68.75 E

Color: Ivory

OSSMT-GDI

Description

Multi-Technology Wall Switch sensor, no neutral, 1200 Sq. Ft. Major Motion Coverage, 400 Sq. Ft. Minor Motion Coverage, 800W@120V INC, 1200VA@120V FL, 2700VA@277V FL, 1/4HP@120V Motor, Commercial Grade - Ivory California Title 24 Compliant.

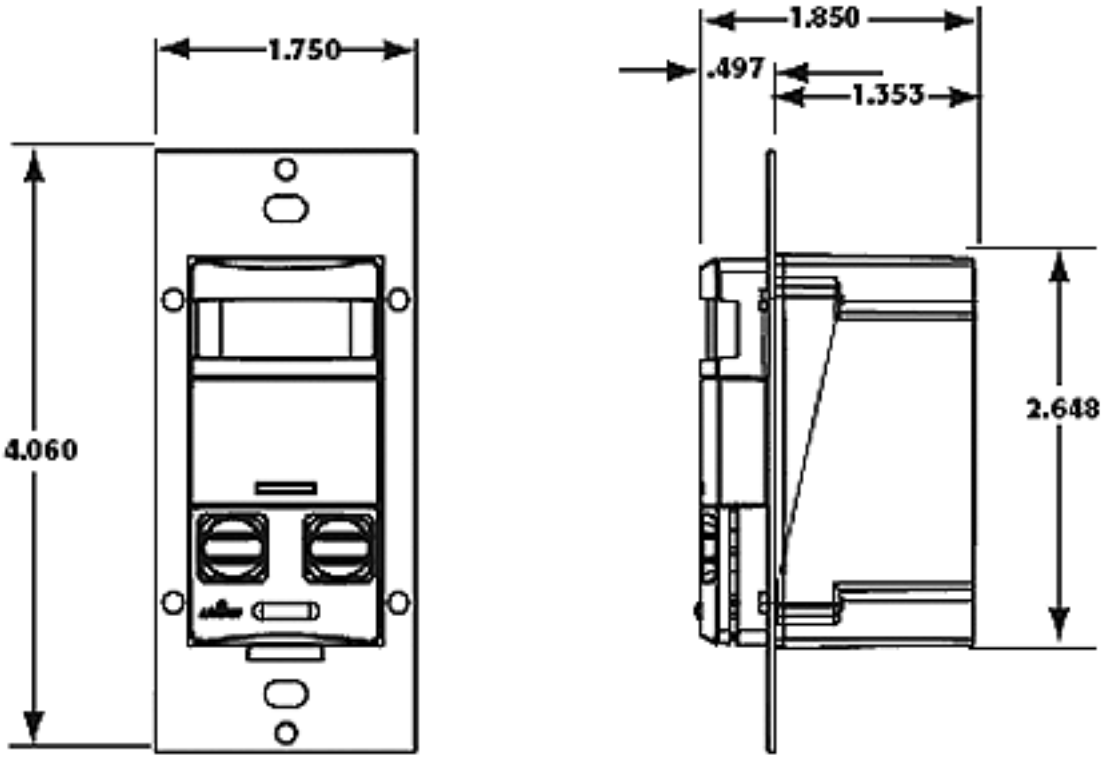
UPC Code: 07847740697

Product Features

Neutral:	Not Required
Switch Type:	Single-Pole
Adjustment:	Self-Adjusting
Technology:	Multi-Technology PIR/Ultrasonic
Pattern Degrees:	180
Coverage Range Sq. Ft.:	2400
Load Rating:	800W@120V INC 1200VA@120V 2700VA@277V FL
Time Adjustment:	30s-30m
Voltage:	120/277 Volt AC 60Hz
Photo Cell:	Ambient Override OFF
Color:	Ivory
Warranty:	5-Year Limited
Code Compliance:	California Title 24

Features and Benefits

- Self-Adaptive Technology: callbacks for adjustment are eliminated. Time delay and sensitivity settings are continually adjusted to occupant patterns of use in auto adapt mode.
- Exclusive Walk-through Feature: provides increased energy savings by not leaving the lights ON for an extended period after only momentary occupancy.
- Maximum Reliability, Low Cost: All digital circuitry uses a minimum of components.
- Convenient Push-Button: Provides manual ON/OFF light switch at any time.
- Fast, Simple Installation: Fits in a standard wall box and replaces a single-pole wall-switch; neutral and ground connection required. Sensor can be ganged together with other units in a multiple-switch wallplate.
- Adjustable Horizontal Field of View (PIR): May be adjusted between 180 degree and 32 degree of arc by using integral blinders located on either side of the lens.
- Optional Manual Adjustments for Delayed OFF Time Settings: Allows customized adjustments to maximize energy savings.
- Ambient Light Recognition: Integrated photocell prevents lights from turning ON when the room is adequately illuminated by natural light.
- Small Motion Sensitivity (US): The ultrasonic technology provides excellent small motion sensitivity.
- True Zero-Cross Relay: Switches at the zero crossing point of the AC power curve to ensure maximum contactor life and compatibility with electronic ballasts.



SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Manufacturing Co., Inc.
201 North Service Road, Melville, NY 11747
Telephone: 1-800-323-8920 · FAX: 1-800-832-9538 · Tech Line (8:30AM-7:30PM E.S.T. Monday-Friday): 1-800-824-3005

Leviton Manufacturing of Canada, Ltd.
165 Hymus Boulevard, Pointe Claire, Quebec H9R 1E9 · Telephone: 1-800-469-7890 · FAX: 1-800-824-3005

Leviton S. de R.L. de C.V.
Lago Tana 43, Mexico DF, Mexico CP 11290 · Tel.: (+52)55-5082-1040 · FAX: (+52)5386-1797 · www.leviton.com.mx

ISO 9001 REGISTERED Quality Manufacturer

Visit our Website at: www.leviton.com

PRODUCT SPECIFICATIONS / INFO

Trade Price: $68.75 E

Color: Ivory

OSSMT-GDI

Description

Multi-Technology Wall Switch sensor, no neutral, 1200 Sq. Ft. Major Motion Coverage, 400 Sq. Ft. Minor Motion Coverage, 800W@120V INC, 1200VA@120V FL, 2700VA@277V FL, 1/4HP@120V Motor, Commercial Grade - Ivory California Title 24 Compliant.

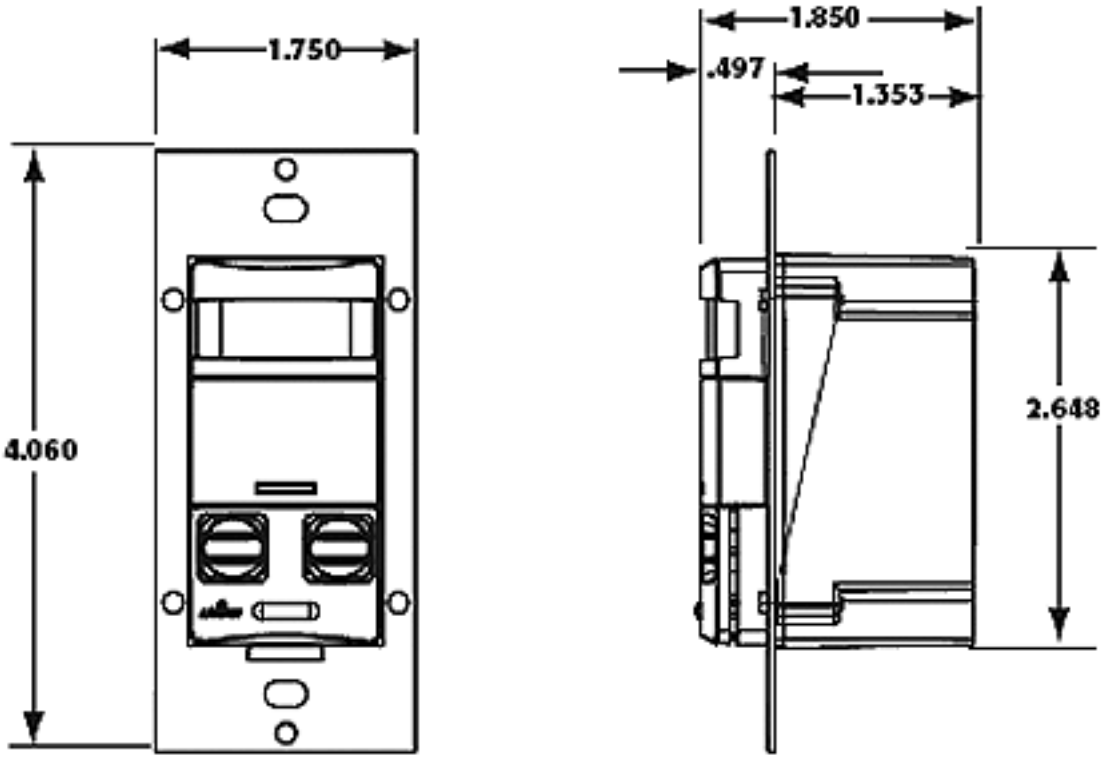
UPC Code: 07847740697

Product Features

Neutral:	Not Required
Switch Type:	Single-Pole
Adjustment:	Self-Adjusting
Technology:	Multi-Technology PIR/Ultrasonic
Pattern Degrees:	180
Coverage Range Sq. Ft.:	2400
Load Rating:	800W@120V INC 1200VA@120V 2700VA@277V FL
Time Adjustment:	30s-30m
Voltage:	120/277 Volt AC 60Hz
Photo Cell:	Ambient Override OFF
Color:	Ivory
Warranty:	5-Year Limited
Code Compliance:	California Title 24

Features and Benefits

- Self-Adaptive Technology: callbacks for adjustment are eliminated. Time delay and sensitivity settings are continually adjusted to occupant patterns of use in auto adapt mode.
- Exclusive Walk-through Feature: provides increased energy savings by not leaving the lights ON for an extended period after only momentary occupancy.
- Maximum Reliability, Low Cost: All digital circuitry uses a minimum of components.
- Convenient Push-Button: Provides manual ON/OFF light switch at any time.
- Fast, Simple Installation: Fits in a standard wall box and replaces a single-pole wall-switch; neutral and ground connection required. Sensor can be ganged together with other units in a multiple-switch wallplate.
- Adjustable Horizontal Field of View (PIR): May be adjusted between 180 degree and 32 degree of arc by using integral blinders located on either side of the lens.
- Optional Manual Adjustments for Delayed OFF Time Settings: Allows customized adjustments to maximize energy savings.
- Ambient Light Recognition: Integrated photocell prevents lights from turning ON when the room is adequately illuminated by natural light.
- Small Motion Sensitivity (US): The ultrasonic technology provides excellent small motion sensitivity.
- True Zero-Cross Relay: Switches at the zero crossing point of the AC power curve to ensure maximum contactor life and compatibility with electronic ballasts.



SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Manufacturing Co., Inc.
201 North Service Road, Melville, NY 11747
Telephone: 1-800-323-8920 · FAX: 1-800-832-9538 · Tech Line (8:30AM-7:30PM E.S.T. Monday-Friday): 1-800-824-3005

Leviton Manufacturing of Canada, Ltd.
165 Hymus Boulevard, Pointe Claire, Quebec H9R 1E9 · Telephone: 1-800-469-7890 · FAX: 1-800-824-3005

Leviton S. de R.L. de C.V.
Lago Tana 43, Mexico DF, Mexico CP 11290 · Tel.: (+52)55-5082-1040 · FAX: (+52)5386-1797 · www.leviton.com.mx

ISO 9001 REGISTERED Quality Manufacturer

Visit our Website at: www.leviton.com

Occupancy Sensor
Multi-Technology Ceiling Sensor

OSC20-MOW
OSC10-MOW
OSC05-MOW

The most advanced sensor available. Combines multi-technology with all-digital architecture. Eliminates false triggering. The result is a trouble-free, "install and forget" solution for lighting control.

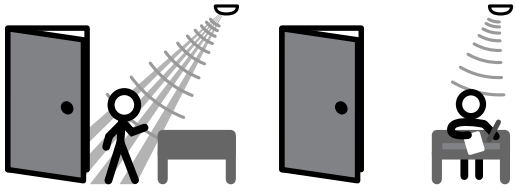
THE OSCxx-MOW SERIES OCCUPANCY SENSOR

- MULTI-TECHNOLOGY FOR HIGHEST RELIABLITY INFRARED & ULTRASONIC
- SIMPLE, FAST INSTALLATION
- SELF-ADJUSTING
- ALL-DIGITAL, COMPLETE RELIABILITY
- PHOTOCELL BUILT-IN
- CEILING MOUNT

OSCxx-MOW

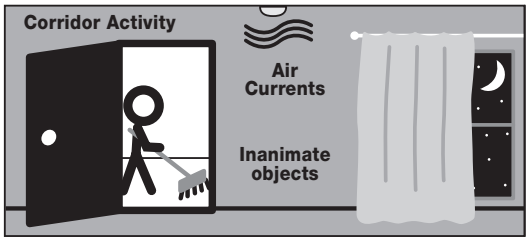
GENERAL OPERATION

Occupancy sensors have two tasks: keeping the lights on while the room is occupied and, conversely keeping the lights off when unoccupied. Ultrasonic (doppler shift) motion detection gives maximum sensitivity yet can be vulnerable to false triggering from air conditioning currents, corridor activity and movement of inanimate objects. Infrared motion sensing gives immunity to false triggering, but lacks sensitivity at greater distances. Leviton multi-technology sensors combine the benefits of both infrared and ultrasonic technologies for unrivaled performance and reliability.



Upon room entry, the infrared detects motion and turns lights on.

Ultrasonic keeps lights on even with very minor motion.



When unoccupied, lights stay off while air conditioning system cycles on and off, and cleaning crews occupy corridors.

ADAPTIVE FUNCTIONS

The OSCxx-MOW constantly analyzes and adapts to changing conditions:

HOW THE ODCXX-M AUTOMATICALLY ADAPTS

Condition	Example	Adaptive Reaction
Timer Left In Test Mode - The sensor remains in an 6 sec. test mode.	An installer accidentally leaves the sensor in the 6 sec. timer test mode and the lights may go off or on every 6 sec.	The sensor automatically resets the timer to 10 min after 15 min of test mode.
False-On -The sensor incorrectly turns the lights on.	The sensor detects movement in the corridor or hallway and the room lights turn on.	After an initial movement is sensed, if another movement is not sensed within the timer setting then the delayed off time setting is automatically reduced.
False-Off -The sensor incorrectly turns the lights off.	The sensor does not detect movement because an occupant sits virtually motionless at a desk and the lights turn off.	If motion is sensed within a short period after the lights go off, then the current delayed off-time setting is increased.

LEVITON SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Mfg. Co., Inc.
59-25 Little Neck Pkwy • Little Neck, NY 11362-2591 • Tech Line: 1-800-824-3005 • Fax: 1-800-832-9538
Visit our Website at: www.leviton.com

LEVITON® Building a Connected World

Product Specifications

OSCxx-MOW

PRODUCT SPECIFICATIONS

FEATURES

Self-adjusting Settings: Callbacks for adjustment are eliminated. Time delay settings are continually adjusted.
Non-Volatile Memory: Learned and adjusted settings saved in protected memory. Power outages will not cause status loss.
Wide Coverage: Select the approximate area needed. Units from 500 to 2000 sq. ft. available.
Ambient Light Recognition: The photocell prevents lights from turning on when the room is adequately lit by natural light
Small Size: The spherical-section shape makes the installation almost invisible.
Accurate, Consistent Switching: Occupant complaints are eliminated; lights are on when room is occupied, off when empty. Annoying false-offs are minimized and lights on at night is eliminated.
Fast, Simple Installation: A single mounting post and three color-coded wires make installation easy.
Photocell: 20-3,000 Lux adjustable. Factory set 3,000 L (photocell disable)
Timer Settings: Automatic and Manual - 30s to 30 min.
Test mode - 6 sec.

SPECIFICATIONS

Indicator

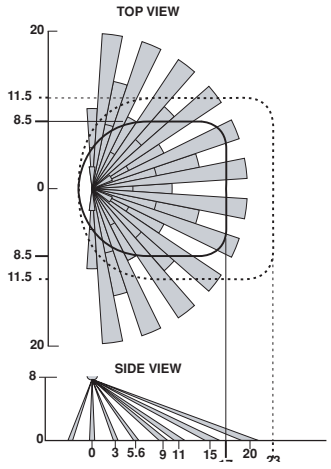
Green LED Lamp: Ultrasonic motion.
Red LED Lamp: Infrared motion.
Construction: Two ultrasonic transmitters and two narrow bandwidth receivers each 16mm in diameter. Frequency -- Crystal controlled to ±.005%. Transducers -- Oriented north and south (OSC20-M, OSC10-M only, others use single pairs), angled 30° down from horizontal. Housing -- Rugged, high-impact, flame class rating, UV inhibitors. Color coded leads are 6".
Size & Weight: 4.5" dia., 1.5" height; 5 oz. (114 mm dia., 38 mm height; 142 g.)
Power Requirements: 24 VDC, (use OSPxx power pack.)

Model	Power Requirement
OSC05-MOW	30MA
OSC10-MOW	40MA
OSC20-MOW	32MA

Output: 24 VDC active high logic control signal with short circuit protection.
Operating Environment: 32°F to 104°F (0°C to 40°C); 0% to 95% non-condensing, relative humidity. For indoor use only.
Warranty: 5 years.

RANGES

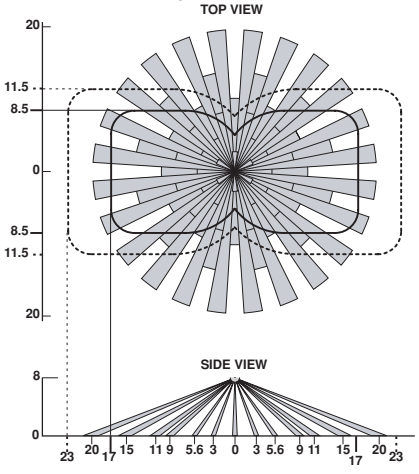
OSC05-M 500 sq. ft.



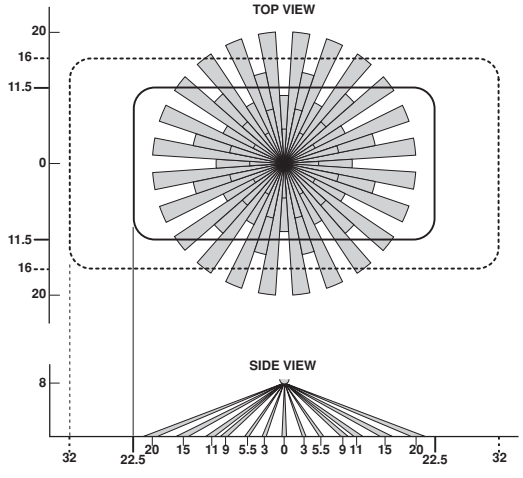
Major Motion, IR
Minor Motion, Ultrasonic
Major Motion, Ultrasonic

Ceiling height = 8 ft.

OSC10-M 1000 sq. ft.



OSC20-M 2000 sq. ft.



LEVITON SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Mfg. Co., Inc.
59-25 Little Neck Pkwy • Little Neck, NY 11362-2591 • Tech Line: 1-800-824-3005 • Fax: 1-800-832-9538

Visit our Website at: www.leviton.com

LEVITON® Building a Connected World

Product Specifications

OSCxx-MOW

CONTROLS

DIP switch settings			
Switch	**Switch Functions**		**Switch Settings**
	Bank A	**OFF**	**ON**
A1	Single/Multi-Tech Mode	Multi-Tech	Single Tech
A2	PIR/Ultrasonic Mode	PIR	Ultrasonic
A3	Manual Mode	Auto Adapting Enabled	Auto Adapting Disabled
A4	Walk-Thru Disable	Walk-Thru Enabled	Walk-Thru Disabled
	Bank B		
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	LED Disable	LEDS Enabled	LEDS Disabled

Knob Color: Control	Function	Automatic Operation	Conditions Analyzed in Automatic Operation	Knob Setting Under Manual Operation**	Recommended Manual Setting
Green: Ultrasonic Sensitivity	Sets the ultrasonic range	Sensor analyzes room and sets sensitivity to optimal setting	Air currents False-on occurrences False-off "	Linear range setting Full CCW = min (off) Full CW = max range	50% 
Red: Infrared Sensitivity	Sets the infrared range	Same as above	Room (surface) temp Lens dirt Signal to noise ratio	Same as above	75% 
Black: Timer	Sets the length of time lights will remain on after last motion is sensed	Timer setting generally increased during learning period, then decreases to minimize "on" time	False-off occurrences Error free operation decreases the timer setting	Linear range setting Full CCW = min Full CW = max (30 min.)	33% 10 min. 
Blue: Photocell	Sets level of daylight needed to prevent the lights from turning on	No automatic operation	N/A	Linear range setting Full CCW = min daylight Full CW = max (off)	Off unless used 

**When a function is set to "Automatic Operation" the initial setting is determined by the position of the knob. CCW is counter clockwise, CW is clockwise

Models					
Part Number	**Coverage**	**Transducer Pairs**	**Operating Frequency**	**Infrared Lens**	**Additional Features**
OSC05-M	500 sq. ft.	One	40kHz	Extended Range	Photocell
OSC10-M	1000 sq. ft.	Two	40kHz	Extended Range	Photocell
OSC20-M	2000 sq. ft.	Two	32kHz	Extended Range	Photocell

NOTE: Sensor activates upon infrared detection. Place sensors to provide infrared coverage at room entrances.

LEVITON SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

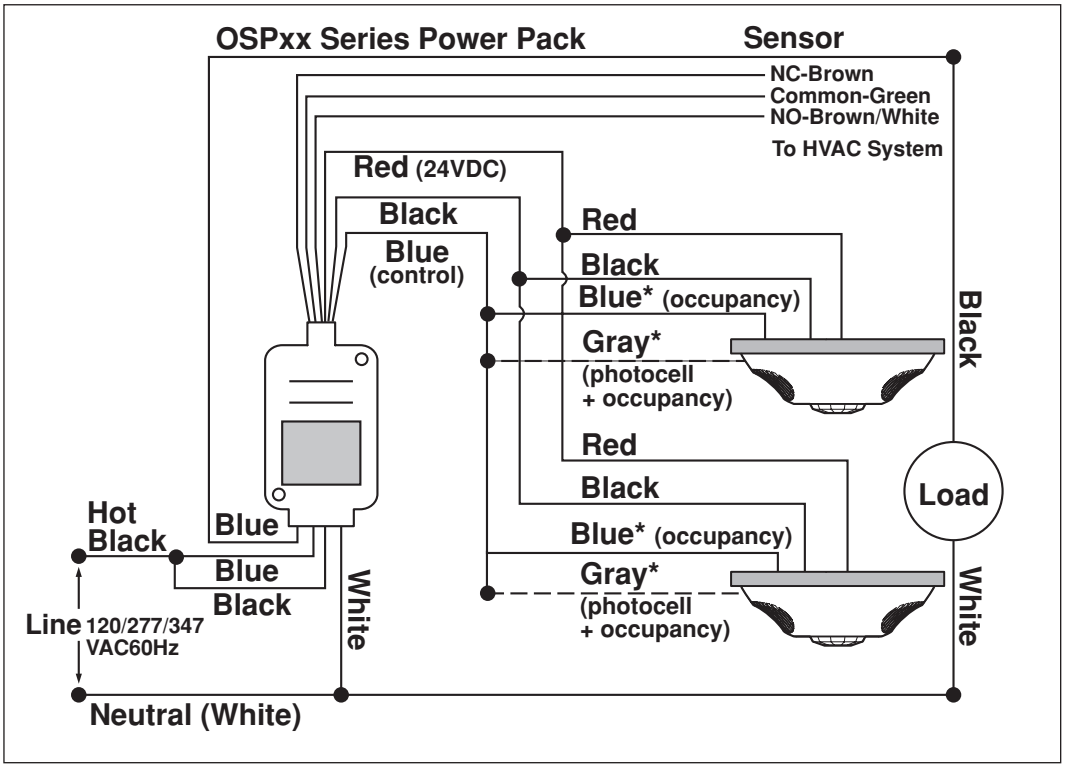
Leviton Mfg. Co., Inc.
59-25 Little Neck Pkwy • Little Neck, NY 11362-2591 • Tech Line: 1-800-824-3005 • Fax: 1-800-832-9538
Visit our Website at: www.leviton.com

LEVITON® Building a Connected World

AUTOMATIC ADJUSTMENTS

The automatic timer and automatic sensitivity features of the ODCxx-MOW work independently to prevent "false-offs" and "false-ons." When the sensor detects motion immediately after it turns the lights out, a "false-off" is detected, timer increased. If the sensor turns the lights on, but detects no immediate follow-up motion, "false-on" is detected, timer is decreased.

PHYSICAL WIRING



**When the photocell function is not being used, connect the Blue Occupancy Sensor lead to the Blue Power Pack lead. When using the Photocell function, connect the Gray Occupancy Sensor lead to the Blue Power pack lead–Do not use the Blue Occupancy Sensor lead for the photocell function.*

LEVITON SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Occupancy Sensor
Ultrasonic Ceiling Sensor

OSC20-U
OSC10-U
OSC05-U

Microprocessor based, the OSCxx-U has a self adapting feature that compensates for air flow, giving it excellent immunity to air currents and other interference.

THE OSCxx-U OCCUPANCY SENSOR

- ULTRASONIC SENSING TECHNOLOGY (US)
- EXCELLENT RANGE AND SENSITIVITY
- SIMPLE, FAST INSTALLATION
- SELF-ADJUSTING
- DIGITAL TECHNOLOGY, COMPLETE RELIABILITY
- PHOTOCELL CONTROL

GENERAL OPERATION

The OSCxx-U is a low voltage occupancy sensor that controls indoor lighting. The sensor fills the room with continuous high frequency (ultrasonic) sound waves. Any movement within the sensor's range causes a shift in the original emitted frequency. The sensor's receiver identifies any change in frequency as motion and either turns the lights on or maintains lights on.

AUTOMATICALLY ADAPTS

Interference	Symptoms	OSCxx-U Action
Air Flow	Lights on frequently	Auto adjust US threshold Low pass filter
Timer Left In Test Mode	Lights cycle on/off	Auto sets timer to operating mode
US Sensitivity	False-ons	Auto adjust time-out
	False-offs	Auto adjust time-out
Time-out Too Long	Lights on too long	Auto adjust Time Delay

Designed for "install and forget" use, the OSCxx-U automatically analyzes room conditions and adapts to errors or changing environment.

FEATURES

Small Size: Installed sensor appears almost invisible.
Fast, Simple Installation: Easy ceiling mount, three wire connection (low voltage) and twist-lock sensor attachment.
Maximum Reliability, Low Cost: All digital circuitry uses a minimum of components.
Small Motion Sensitivity: The ultrasonic technology provides excellent small motion sensitivity.
Timer Setting: Automatic - and Manual 30 sec. to 30 min. Test mode - 6 sec.
Non-Volatile Memory: Learned and adjusted settings saved in protected memory are not lost during power outages.
Wide Coverage: Units from 500 to 2000 sq. ft. available.
Ambient Light Recognition: The photocell prevents lights from turning on when the room is adequately lit by natural light.

OSCxx-U

HOW THE OSCXX-U AUTOMATICALLY ADAPTS

Condition	Example	Adaptive Reaction
Timer Left In Test Mode - The sensor remains in an 6 sec. test mode.	An installer accidentally leaves the sensor in the 6 sec. timer test mode and the lights may go off or on every 6 sec.	The sensor automatically resets the timer to 10 min after 15 min of test mode.
False-On -The sensor incorrectly turns the lights on.	The sensor detects movement in the corridor or hallway and the room lights turn on.	After an initial movement is sensed, if another movement is not sensed within the timer setting then the delayed off time setting is automatically reduced.
False-Off -The sensor incorrectly turns the lights off.	The sensor does not detect movement because an occupant sits virtually motionless at a desk and the lights turn off.	If motion is sensed within a short period after the lights go off, then the current delayed off-time setting is increased.

A dedicated internal microprocessor continually analyzes the room environment and adjusts itself automatically. The internal timer and ultrasonic sensitivity are automatically adjusted. Once installed, the OSCxx-U does not require manual adjustment or calibration.

LEVITON SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Mfg. Co., Inc.
59-25 Little Neck Pkwy • Little Neck, NY 11362-2591 • Tech Line: 1-800-824-3005 • Fax: 1-800-832-9538
Visit our Website at: www.leviton.com

LEVITON® Building a Connected World

Product Specifications

OSCxx-U

PRODUCT SPECIFICATIONS

Models				
Part Number	**Transducer Pairs**	**Coverage**	**Operating Frequency**	**Additional Features**
OSC05-U	One	500 sq. ft.	40kHz	Photocell
OSC10-U	Two	1000 sq. ft.	40kHz	Photocell
OSC20-U	Two	2000 sq. ft.	32kHz	Photocell

CONTROLS

US (Ultrasonic Sensitivity): High to low range.
Self Adjusting Timer: Timer is factory set at 10 minutes. User can easily select 30s, 30 minutes using internal controls. Sensor may increase timer automatically through self-adapting features to meet room or occupancy patterns.

PC (Photocell Adjustment): 20 to 3,000 Lux

INDICATOR

Green LED Lamp: Ultrasonic motion.

DIP switch settings			
Switch	**Switch Functions**		**Switch Settings**
	Bank A	**OFF**	**ON**
A1	N/A	—	—
A2	N/A	—	—
A3	Manual Mode	Auto Adapting Enabled	Auto Adapting Disabled
A4	Walk-Thru Disable	Walk-Thru Enabled	Walk-Thru Disabled
	Bank B		
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	LED Disable	LEDS Enabled	LEDS Disabled

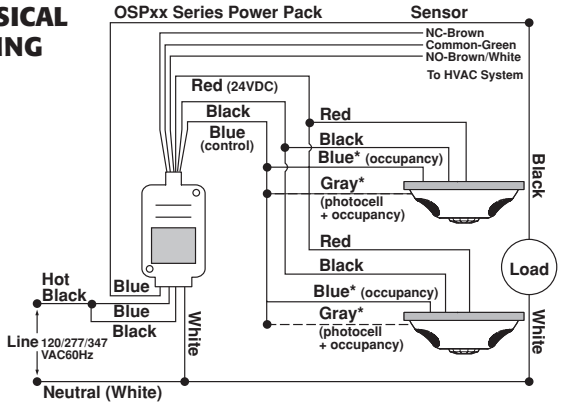
SPECIFICATIONS

Construction: One or two ultrasonic transmitters and one or two narrow bandwidth receivers each 16mm in diameter. Frequency – Crystal controlled to ±.005%. Transducers – Oriented north and south. Housing – Rugged, high-impact, injection molded plastic. Color coded leads 6" (16.24 cm).
Size & Weight: 4.5" dia., 1.5" height; 5 oz. (114 mm dia., 38 mm height; 142 g).
Color: White.
Power Requirements: 24 VDC, from OSPxx power pack.

Model	Power Requirement
OSC05	30MA
OSC10	40MA
OSC20	32MA

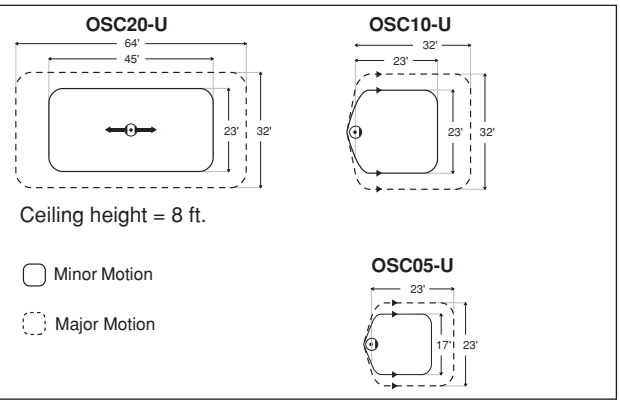
Output: 24 VDC active high logic control signal with short circuit protection.
Operating Environment: 32°F to 104°F (0°C to 40°C); 0% to 95% relative humidity, non-condensing. For indoor use only.
Warranty: 5 years.

PHYSICAL WIRING



**When the photocell function is not being used, connect the Blue Occupancy Sensor lead to the Blue Power Pack lead. When using the Photocell function, connect the Gray Occupancy Sensor lead to the Blue Power pack lead–Do not use the Blue Occupancy Sensor lead for the photocell function.*

RANGES (APPROXIMATE)



LEVITON SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Mfg. Co., Inc.
59-25 Little Neck Pkwy • Little Neck, NY 11362-2591 • Tech Line: 1-800-824-3005 • Fax: 1-800-832-9538

LEVITON® Building a Connected World

Occupancy Sensor
Ultrasonic Ceiling Sensor

OSC20-U
OSC10-U
OSC05-U

Microprocessor based, the OSCxx-U has a self adapting feature that compensates for air flow, giving it excellent immunity to air currents and other interference.

THE OSCxx-U OCCUPANCY SENSOR

- ULTRASONIC SENSING TECHNOLOGY (US)
- EXCELLENT RANGE AND SENSITIVITY
- SIMPLE, FAST INSTALLATION
- SELF-ADJUSTING
- DIGITAL TECHNOLOGY, COMPLETE RELIABILITY
- PHOTOCELL CONTROL

GENERAL OPERATION

The OSCxx-U is a low voltage occupancy sensor that controls indoor lighting. The sensor fills the room with continuous high frequency (ultrasonic) sound waves. Any movement within the sensor's range causes a shift in the original emitted frequency. The sensor's receiver identifies any change in frequency as motion and either turns the lights on or maintains lights on.

AUTOMATICALLY ADAPTS

Interference	Symptoms	OSCxx-U Action
Air Flow	Lights on frequently	Auto adjust US threshold Low pass filter
Timer Left In Test Mode	Lights cycle on/off	Auto sets timer to operating mode
US Sensitivity	False-ons	Auto adjust time-out
	False-offs	Auto adjust time-out
Time-out Too Long	Lights on too long	Auto adjust Time Delay

Designed for "install and forget" use, the OSCxx-U automatically analyzes room conditions and adapts to errors or changing environment.

FEATURES

Small Size: Installed sensor appears almost invisible.
Fast, Simple Installation: Easy ceiling mount, three wire connection (low voltage) and twist-lock sensor attachment.
Maximum Reliability, Low Cost: All digital circuitry uses a minimum of components.
Small Motion Sensitivity: The ultrasonic technology provides excellent small motion sensitivity.
Timer Setting: Automatic - and Manual 30 sec. to 30 min. Test mode - 6 sec.
Non-Volatile Memory: Learned and adjusted settings saved in protected memory are not lost during power outages.
Wide Coverage: Units from 500 to 2000 sq. ft. available.
Ambient Light Recognition: The photocell prevents lights from turning on when the room is adequately lit by natural light.

OSCxx-U

HOW THE OSCXX-U AUTOMATICALLY ADAPTS

Condition	Example	Adaptive Reaction
Timer Left In Test Mode - The sensor remains in an 6 sec. test mode.	An installer accidentally leaves the sensor in the 6 sec. timer test mode and the lights may go off or on every 6 sec.	The sensor automatically resets the timer to 10 min after 15 min of test mode.
False-On -The sensor incorrectly turns the lights on.	The sensor detects movement in the corridor or hallway and the room lights turn on.	After an initial movement is sensed, if another movement is not sensed within the timer setting then the delayed off time setting is automatically reduced.
False-Off -The sensor incorrectly turns the lights off.	The sensor does not detect movement because an occupant sits virtually motionless at a desk and the lights turn off.	If motion is sensed within a short period after the lights go off, then the current delayed off-time setting is increased.

A dedicated internal microprocessor continually analyzes the room environment and adjusts itself automatically. The internal timer and ultrasonic sensitivity are automatically adjusted. Once installed, the OSCxx-U does not require manual adjustment or calibration.

LEVITON SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Mfg. Co., Inc.
59-25 Little Neck Pkwy • Little Neck, NY 11362-2591 • Tech Line: 1-800-824-3005 • Fax: 1-800-832-9538
Visit our Website at: www.leviton.com

LEVITON® Building a Connected World

Product Specifications

OSCxx-U

PRODUCT SPECIFICATIONS

Models				
Part Number	**Transducer Pairs**	**Coverage**	**Operating Frequency**	**Additional Features**
OSC05-U	One	500 sq. ft.	40kHz	Photocell
OSC10-U	Two	1000 sq. ft.	40kHz	Photocell
OSC20-U	Two	2000 sq. ft.	32kHz	Photocell

CONTROLS

US (Ultrasonic Sensitivity): High to low range.
Self Adjusting Timer: Timer is factory set at 10 minutes. User can easily select 30s, 30 minutes using internal controls. Sensor may increase timer automatically through self-adapting features to meet room or occupancy patterns.

PC (Photocell Adjustment): 20 to 3,000 Lux

INDICATOR

Green LED Lamp: Ultrasonic motion.

DIP switch settings			
Switch	**Switch Functions**		**Switch Settings**
	Bank A	**OFF**	**ON**
A1	N/A	—	—
A2	N/A	—	—
A3	Manual Mode	Auto Adapting Enabled	Auto Adapting Disabled
A4	Walk-Thru Disable	Walk-Thru Enabled	Walk-Thru Disabled
	Bank B		
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	LED Disable	LEDS Enabled	LEDS Disabled

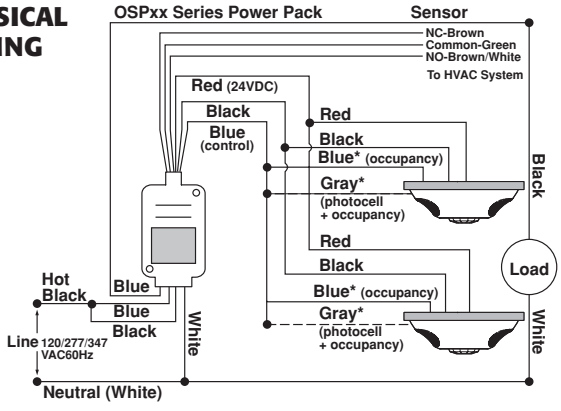
SPECIFICATIONS

Construction: One or two ultrasonic transmitters and one or two narrow bandwidth receivers each 16mm in diameter. Frequency – Crystal controlled to ±.005%. Transducers – Oriented north and south. Housing – Rugged, high-impact, injection molded plastic. Color coded leads 6" (16.24 cm).
Size & Weight: 4.5" dia., 1.5" height; 5 oz. (114 mm dia., 38 mm height; 142 g).
Color: White.
Power Requirements: 24 VDC, from OSPxx power pack.

Model	Power Requirement
OSC05	30MA
OSC10	40MA
OSC20	32MA

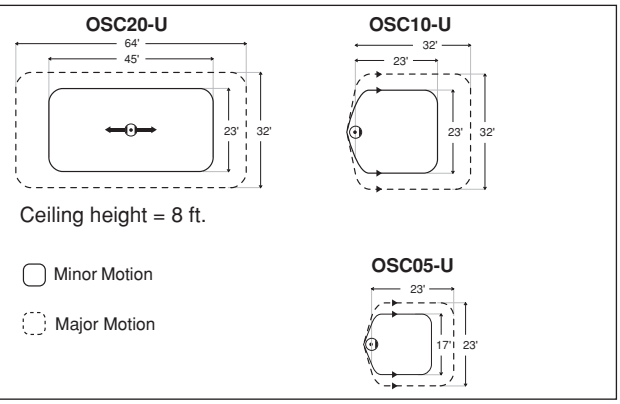
Output: 24 VDC active high logic control signal with short circuit protection.
Operating Environment: 32°F to 104°F (0°C to 40°C); 0% to 95% relative humidity, non-condensing. For indoor use only.
Warranty: 5 years.

PHYSICAL WIRING



**When the photocell function is not being used, connect the Blue Occupancy Sensor lead to the Blue Power Pack lead. When using the Photocell function, connect the Gray Occupancy Sensor lead to the Blue Power pack lead–Do not use the Blue Occupancy Sensor lead for the photocell function.*

RANGES (APPROXIMATE)



LEVITON SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

Leviton Mfg. Co., Inc.
59-25 Little Neck Pkwy • Little Neck, NY 11362-2591 • Tech Line: 1-800-824-3005 • Fax: 1-800-832-9538

LEVITON® Building a Connected World