

INSTALLATION INSTRUCTIONS

WARNINGS AND CAUTIONS:

- **TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER** at circuit breaker or fuse and test that power is off before wiring!
- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- Use this device with **copper or copper clad wire only**.
- If you are unsure about any part of these instructions, consult an 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					
Item No.	Ordering Abbreviation	Description	Current Consumption	Operating Frequency	Coverage
45369	SWM-1200	Multi-Technology	25mA	32KHz	1200 sq. ft.

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.

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)

DESCRIPTION

The Occupancy Sensor is a low-voltage Infrared and Ultrasonic sensor that works with the ENCELIUM® 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.

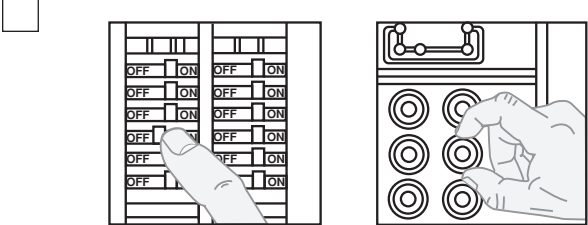
The sensor continually analyzes and adjusts to changing conditions. The sensor uses the latest microprocessor-based technology which permits it to continually adjust and optimize its performance.

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

INSTALLING YOUR OCCUPANCY SENSOR

NOTE: Use check boxes ☒ when Steps are completed.

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



**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. Note that the wall sensor can be wall mounted or ceiling mounted simply by rotating the neck. This gives greater flexibility in attaining the desired coverage.

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

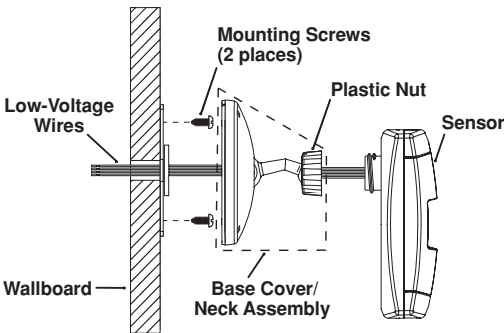
NOTE: You may use the mounting screws, nuts and washers included, or screws in combination with commercially available wall anchors.

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

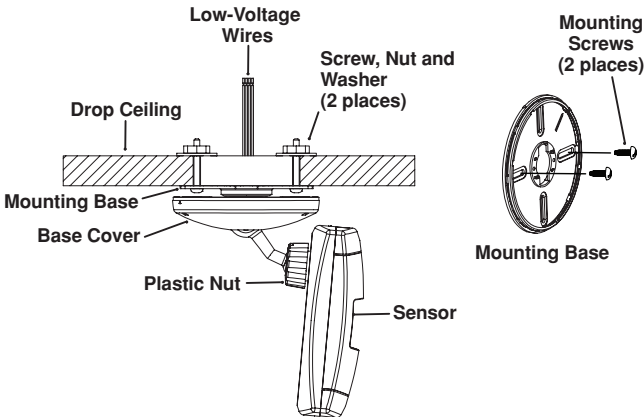
Step 3 cont'd

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

Mounting Option Diagram A  
Occupancy Sensor Mounted to Wallboard Using Screws



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



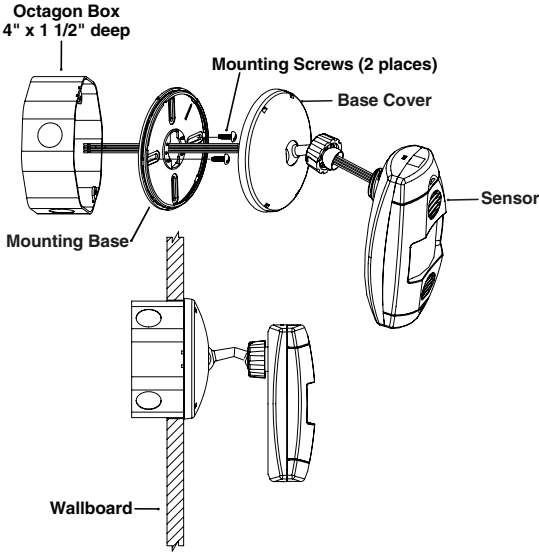
Step 3 cont'd

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

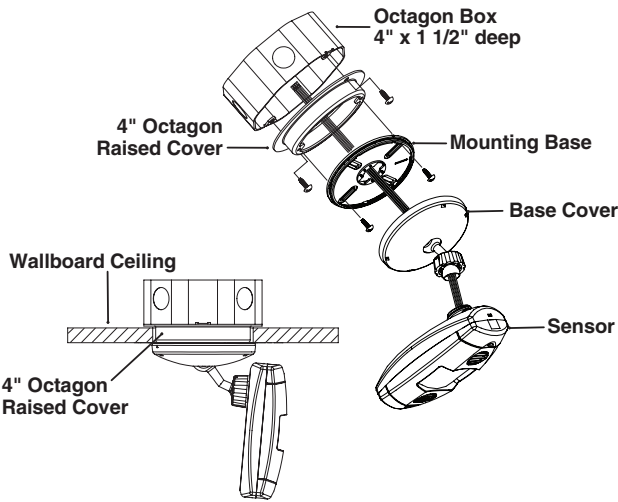
NOTE: You may use the mounting screws, nuts and washers included, or screws in combination with commercially available wall anchors.

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

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

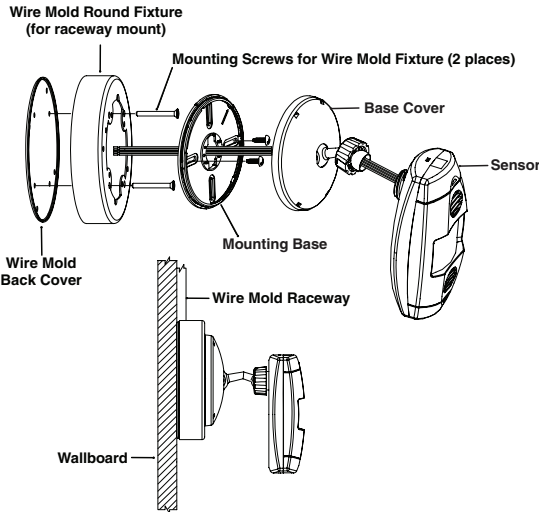


Occupancy Sensor Mounted to Octagon Box Installed Flush to Wallboard Ceiling or Drop Ceiling



Step 3 cont'd

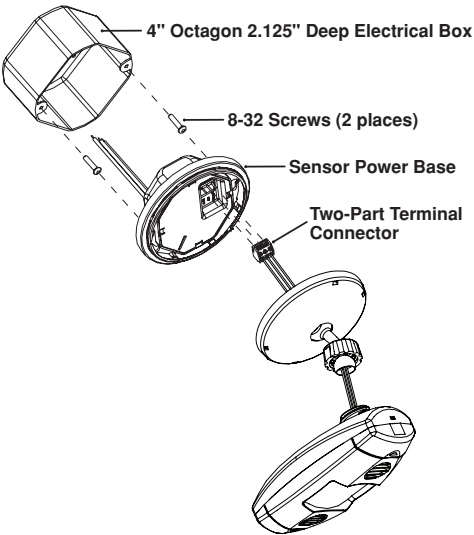
Occupancy Sensor Mounted to Wallboard Using Round Fixture with Raceway



**C. ENCELIUM® PBA-015 Power Base Installation:**

In addition to the regular mounting methods shown, the sensor can be mounted to the PBA-015 (Item No. 45376) Power Base.

1. Install the PBA-015 per the installation sheet included with the PBA-015 (Item No. 45376).
2. Remove the sensor from the box and pass the low-voltage wires through the neck/base cover assembly.
3. Screw the neck plastic nut to the sensor body to hold assembly together while connecting the wire leads.
4. Remove the two-part connector from the PBA-015 (Item No. 45376) noting the orientation it was in before removal.
5. Connect the wires from the sensor to the appropriate locations on the terminal block.
6. Push the terminal block on to the PBA-015 (Item No. 45376) pins.
7. Align the raised arrow on the side of the base cover with the arrow on the mounting ring of the PBA-015 (Item No. 45376) and push on and twist to install.
8. Rotate the assembly and adjust the neck for either ceiling or wall configuration aiming per the diagram.
9. Tighten the plastic nut on the neck to lock the position of the sensor.







# OSRAM



## ENCELIUM®

### Designer Wall Switch Occupancy Sensor

Single Pole (One Location)  
or Multi-Location

Rated: 120-277V, 50/60Hz

Item No. 45372 (SSP-LNV)

### Incandescent/Tungsten

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

DI-620-45372-00B

### LIMITED WARRANTY AND LIMITATIONS

ENCELIUM® Occupancy Sensors and Power Packs are covered by the ENCELIUM® Energy Management System Limited warranty. For the full text of the limited warranty, or to download the warranty registration form, refer to the limited warranty which is available in the Tools & Resources section of [www.sylvania.com](http://www.sylvania.com). You may also contact us to request a written copy. THE REMEDY SET FORTH IN THE WARRANTY TEXT SHALL CONSTITUTE THE EXCLUSIVE REMEDY OF THE PURCHASER AND THE SOLE LIABILITY OF OSRAM SYLVANIA INC. (OSI) FOR THE PRODUCT. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT IS MADE OR IS TO BE IMPLIED. IN NO EVENT SHALL OSI BE LIABLE FOR ANY OTHER COSTS OR DAMAGES, INCLUDING LOST PROFITS OR REVENUES, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY. IN NO EVENT SHALL OSI'S TOTAL LIABILITY FOR ANY REASON ARISING HEREUNDER EXCEED THE PURCHASE PRICE PAID BY PURCHASER FOR THE PRODUCT PURCHASED HEREUNDER.

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## FEATURES

- Switches electronic ballasts
- Low Profile, tamper-resistant lens
- Ambient Light Override

## INTRODUCTION

The SSP-LNV 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. 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<sup>2</sup>) 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 AN 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.
3. DO NOT TOUCH THE SURFACE OF THE LENS. CLEAN OUTER SURFACE WITH A DAMP CLOTH ONLY.
4. THE SSP-LNV OCCUPANCY SENSOR IS INTENDED TO REPLACE A STANDARD LIGHT SWITCH.

### TO INSTALL:

**NOTE:** SSP-LNV 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.

Figure 1: Field-of-View (Horizontal)

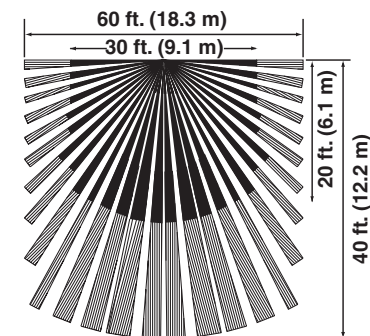


Figure 1A: Side (Vertical) Field-of-View

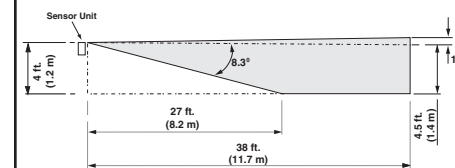


Figure 2: Sensor Features

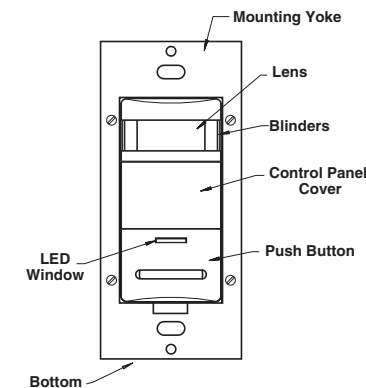
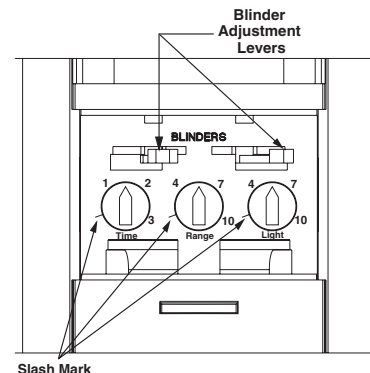


Figure 2A: Control Features



- Carefully position the wires into the wallbox, then mount the Sensor Unit into the wallbox.
- Secure device using long mounting screws provided.
- 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.
- 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 the SSP-LNV. 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**).
- Attach the Control Panel cover, and a 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:** The SSP-LNV 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. The SSP-LNV 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:

- 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**).
- Rotate the Light Control fully CCW.
- Cover the Sensor Unit with an opaque material, or leave the room and let the Sensor Unit time-out and turn the lights OFF.
- 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.
- 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:** SSP-LNV 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.

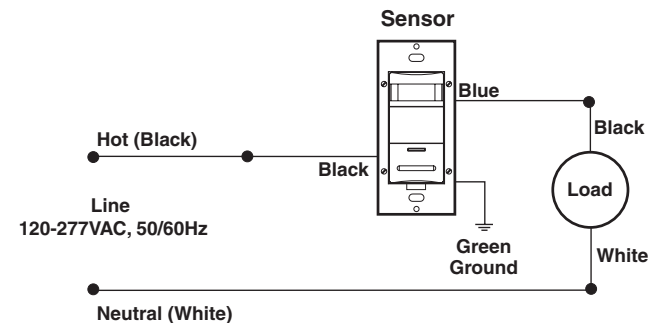
### NOTES:

- 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.

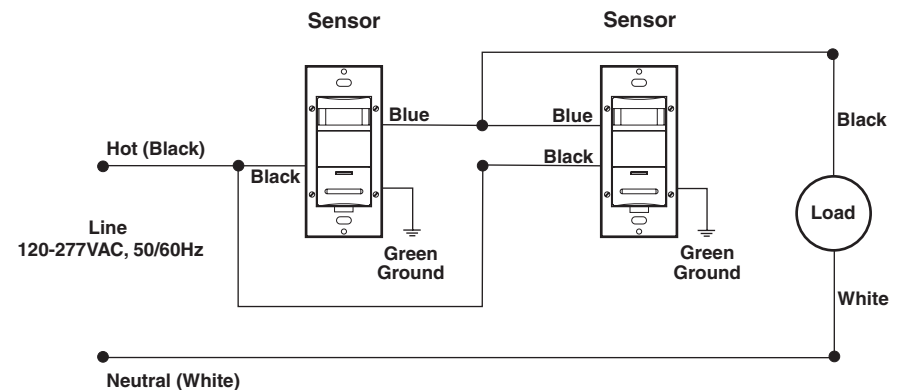
## TROUBLESHOOTING GUIDE

- 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.
- 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.
- If the lights constantly stay ON, even when the room is unoccupied:
  - Check the Time setting. See how this time compares to how long the lights stay ON.
  - Try lowering the Range Control. Rotate the knob CCW about 30°.
  - If the problem persists, try reducing again. Note: Do Not reduce so much that the sensor cannot see normal occupancy.
  - Be sure to use the Blinders to block any unwanted hallway traffic.
  - Check for reflected heat/motion as Sensor Unit may be seeing motion through a window.
  - Check for adjacent HVAC and/or heater ducts.
- For additional information, contact us at 1-800-LIGHTBULB or visit our website at [www.sylvania.com](http://www.sylvania.com).

### 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.

ENCELIUM® Multi-Technology Designer Wall Switch Occupancy Sensor

Single Pole (One Location) or Multi-Location

California Title 24 2005 Compliant

Item No. 45373 (SSM-LNV)

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

Rated: 120-277V, 50/60Hz

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.

INSTALLATION INSTRUCTIONS

WARNINGS AND CAUTIONS:

- **DISCONNECT POWER AT CIRCUIT BREAKER OR FUSE WHEN SERVICING, INSTALLING OR REMOVING FIXTURE.**
- Controlling a load in excess of the specified ratings may damage the unit and could pose risk of fire, electric shock, personal injury or death. Check your load ratings to determine suitability for your application.
- If you are unsure about any part of these instructions, consult an electrician.
- To be installed and/or used in accordance with electrical codes and regulations.

WARNINGS AND CAUTIONS:

- Do not install this unit to control a receptacle.
- The SSM-LNV (Item No. 45373) Occupancy Sensor is intended to replace a standard single-pole wall switch.
- Do not touch the surface of the lens. Clean outer surface with a damp cloth only.
- Use this device **WITH COPPER OR COPPER CLAD WIRE ONLY.**

DI-620-45373-00B

TOOLS NEEDED TO INSTALL YOUR SENSOR

Slotted/Phillips Screwdriver    Electrical Tape  
Pliers    Cutters  
Small Slotted Screwdriver

FEATURES

- 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

ENCELIUM® Multi-Technology Wall Switch Occupancy Sensor, Item No. 45373 (SSM-LNV), 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 m²). 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 SSM-LNV Occupancy Sensor 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 SSM-LNV 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.

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.

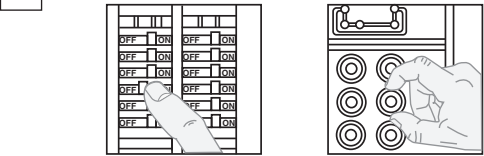
Note that occupancy sensors respond to rapid changes in temperature, so care should be taken not to mount the device near a climate control source (i.e. radiators, air exchanges, and air conditioners). Hot or cold drafts will look like body motion to the device and will trigger it if the unit is mounted 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.

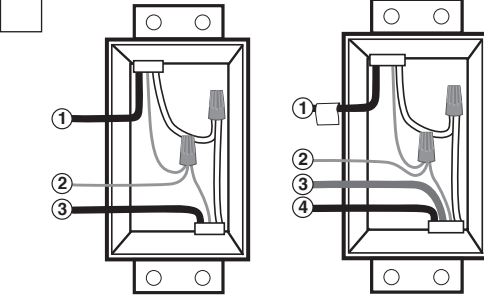
INSTALLING YOUR SENSOR

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

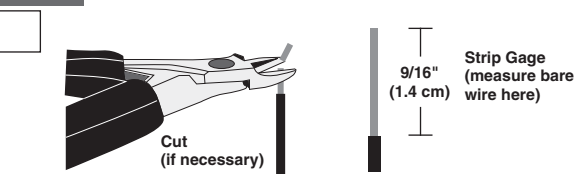
3-Way

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

Note: These products are not true 3-way devices.

**IMPORTANT:** For Multi-location 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:**

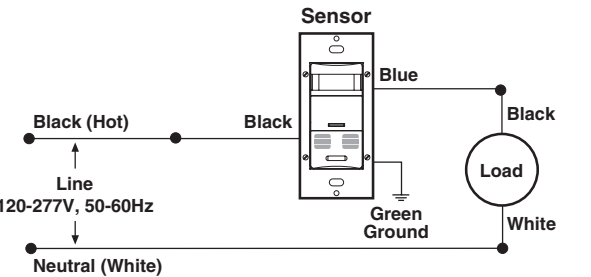


- Pull off pre-cut insulation from sensor leads.
- Make sure that the ends of the wires from the wall box are **straight (cut if necessary)**.
- Remove insulation from each wire in the wall box as shown.

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



NOTE: The Item No. 45373 (SSM-LNV) 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.

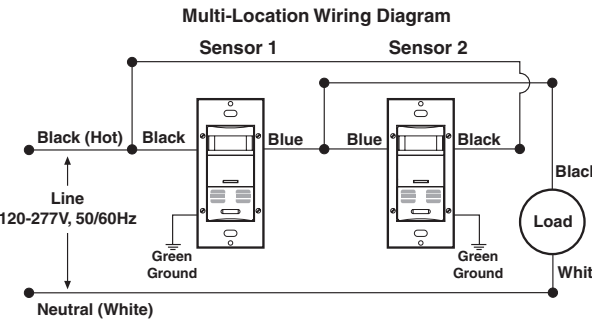
- Green or bare copper wire in wall box to Green lead.
- Line Hot wall box wire to Black lead.
- Load wall box wire to Blue lead.

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

**Step 5**    **Installing your Sensor – Multi-location Wiring Application:**



NOTE: The Item No. 45373 (SSM-LNV) 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 an 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.

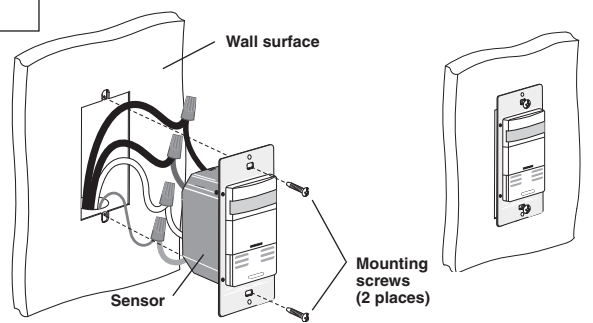
WIRING SENSOR 2:

**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 SSM-LNV sensors 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 Medium 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 medium. 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%.

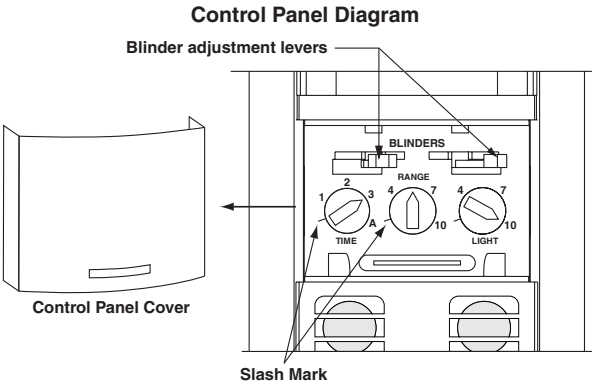
**ULTRASOUND (US) SENSITIVIY AND PIR DISABLE:** US sensitivity can be adjusted to HIGH-MEDIUM or LOW by holding the ON button for 15 seconds. The LED will flash to represent the Ultrasonic sensitivity and PIR status. Tapping the ON button during the desired LED flash indication will set the Ultrasonic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

**Note:** To disable/enable Ultrasonic Technology:

- 1 Turn the "light" adjustment knob CCW.
- 2 Hold the button down for 6-7 seconds.
- 3 Release button. Red Led blinking = PIR only.  
Green LED blinking =US active.

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 Medium with PIR and Ultrasonic technologies enabled.



## 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 sensor. Use a small straight blade screwdriver to adjust the knobs and your finger to adjust the blinder levers.

1. Remove 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:** The sensor 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:

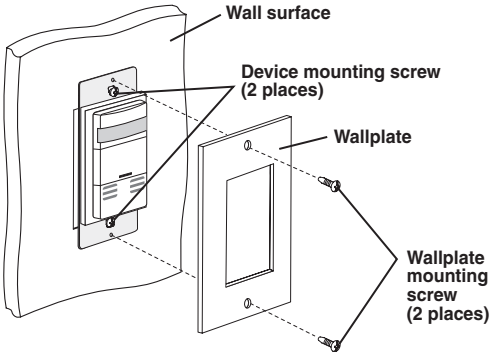
- A. Adjust the Time dial. The Sensor Amber LED will flash twice each time the Time dial is pointed at a new Time-Out value. The Time-Out values for non-adapting mode are:

**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 wallplate.



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

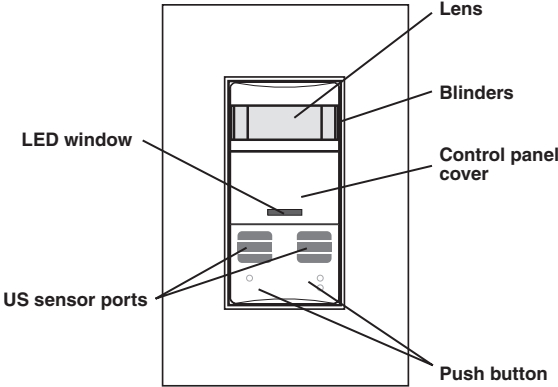
## OPERATION

### PUSH BUTTON(S)

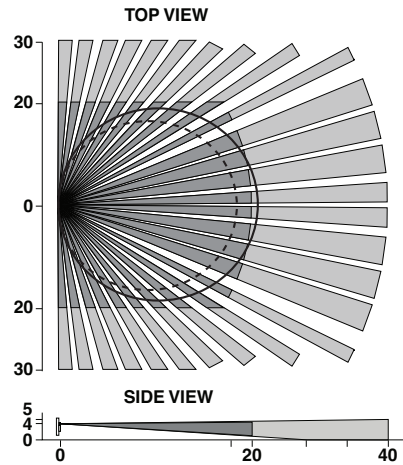
The SSM-LNV has a single push-button switch that toggles the relay and its corresponding load, ON and OFF (**refer to figure**). If the relay is OFF, the relay will turn ON when the push-button is pressed, and remain ON in the presence of motion. In the absence of motion, the Sensor Unit will Time-Out 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.

## 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.
  - H. If your SSM-LNV does not seem to be functioning and has a flashing amber LED, there may be a zero-cross failure. Please call for technical assistance.

If your SSM-LNV has a flashing amber LED, the zero-cross failure over-ride has occurred, but the sensor will still operate until you are able to reach technical assistance.

## PRODUCT INFORMATION

1-800-LIGHTBULB (1-800-544-4828) www.sylvania.com (US & Canada)  
01 (800) 716 7007 www.osram.com.mx (México)

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### LIMITED WARRANTY AND LIMITATIONS

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ENCELIUM® Occupancy Sensor Power Base

Item No. 45376 (PBA-015)

Rated: 120-277V, 50/60Hz

15A @ 120V – Incandescent/Tungsten 15A @ 120V – Fluorescent 15A @ 277V – Fluorescent 3/4 hp @ 120V 2 hp @ 277V

For use with ENCELIUM® SCP-xxx and SCM-xxx Occupancy Sensors

INSTALLATION INSTRUCTIONS

WARNINGS AND CAUTIONS:

- **TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER** at circuit breaker or fuse and test that power is off before wiring!
- 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 an electrician.
- Sensors must be mounted on a vibration free surface.

CATALOG ITEMS			
Item No.	Ordering Abbreviation	Power Input	Power Output
45376	PBA-015	120-277VAC, 50/60Hz	24VDC, 40mA

- Input voltage tolerance 10%
- Output voltage tolerance 15%, Output voltage listed at nominal.

WARNINGS AND CAUTIONS:

- All sensors must be mounted at least 6 feet away from air vents.
- **Disconnect power** when servicing fixture or changing lamps.
- Use this device with **copper or copper clad wire only**.

DI-620-45376-00B

Tools needed to install your Sensor

Slotted/Phillips Screwdriver  
Pliers  
Cutters

Parts Included List

Sensor Base (1)  
#8-32 x 3/4" Screw (2)  
#6-32 x 13/16" Screw (2)

FEATURES

- Adapts ENCELIUM® SCP and SCM Sensors to line-voltage
- 24VDC Output
- Mounts inside a 2.125" deep octagon or 4" square Electrical Box (w/mud ring)

DESCRIPTION

The PBA-015 adapts ENCELIUM® low-voltage ceiling occupancy sensors to operate on line-voltage electrical systems. Designed to control up to 15 amps of lighting load from a single occupancy sensor. The Power Base contains a power supply and a load switching relay. The power supply provides Class II low-voltage power for SCP/SCM Series Occupancy Sensors. The relay in the Power Base is controlled by the occupancy sensors connected via the control input of the two-part terminal connector. The Power Base includes zero cross switching circuitry to minimize inrush current associated with electronic ballasts. This reduces wear and tear on the relay contacts making the power pack last longer.

Application Notes:

PBA-015 works well where installation of a low-voltage wiring typical with traditional power packs and sensors is difficult, inconvenient or costly. It is ideal for existing buildings where access to wiring is limited or for new construction with line-voltage circuiting only.

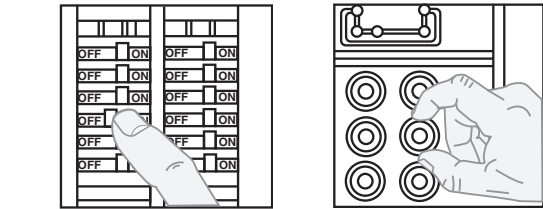
LOW-VOLTAGE CURRENT CAPACITY

PBA-015 is designed for a single occupancy sensor with a maximum current capacity of 40mA.

INSTALLING YOUR OCCUPANCY SENSOR POWER BASE

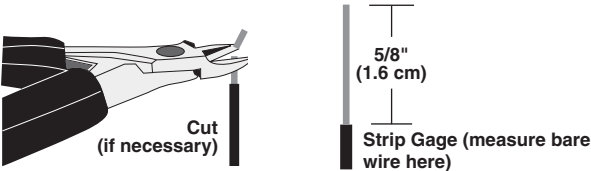
NOTE: Use check boxes ☒ when Steps are completed.

**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:**

Make sure the wires from the ceiling box are **straight (cut if necessary)**. Remove insulation from each wall box wire and Sensor Power Base as shown:

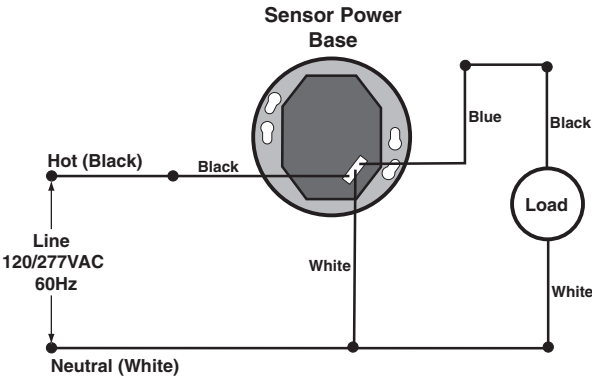


**Step 3** **Wiring your Sensor Power Base (Line Voltage):**

**NOTE:** This application is based on the wall box being pre-installed.

Connect wires per WIRING DIAGRAM as follows: Twist strands of each lead tightly together and, with circuit conductors, push firmly into appropriate wire connector. Screw connectors on clockwise making sure no bare conductors show below the wire connectors.

**Step 3 cont'd**



WIRE DESIGNATIONS		
Signal Name	Color	Gauge
<b>Line Voltage Wires</b>		
Line 120/277V	Black	14AWG
Neutral	White	14AWG
Load	Blue	14AWG
<b>Class II Two-Part Terminal</b>		
Common	Black	22AWG
Power (+24VDC)	Red	22AWG
Control (Occupancy Sensor)	Blue or Gray	22AWG

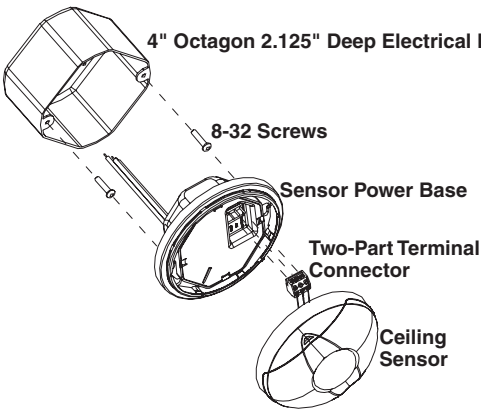
All wires rated at 105° C. 600V insulation.  
Class II wires are Teflon coated.

**Step 4** **Mount power base in desired electrical box application:**

**A. To mount inside 4" octagon 2.125" deep ceiling electrical box, refer to Figure 1. Wire per Step 2.**

- Dress line voltage wires to provide enough clearance in electrical box when device is installed.
- Partially thread the two #8-32 screws provided into mounting holes of the electrical box.
- Align the power base body so that it fits between the mounting holes of the electrical box and insert over mounting screws.
- Turn counter clockwise until it reaches the stops.
- Tighten mounting screws firmly.

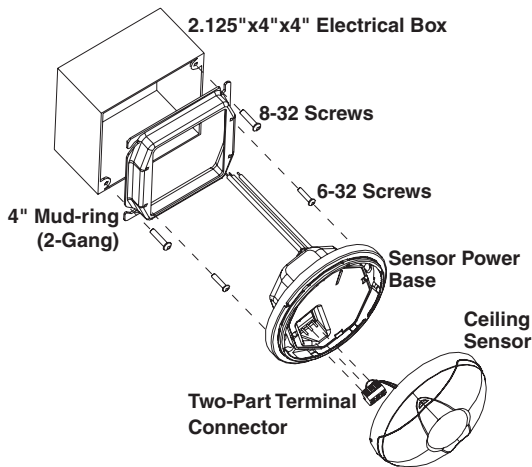
**Figure 1**  
**Ceiling Installation in a 4" Octagon 2.125" Electrical Box**



Step 4 cont'd Mount power base in desired electrical box application:

- B. To mount inside 2.125"x 4" x 4" electrical box with mud-ring, refer to Figure 2. Wire per Step 2.
- Ensure that conduit/cable entry clamp is located in corner of electrical box.
  - Dress line voltage wires to provide enough clearance in electrical box when device is installed.
  - Install a two-gang mud ring (not included) on electrical box.
  - Partially thread the two #6-32 screws provided into the two-gang mud ring, refer to Figure 2.
  - Align the Power Base body so that it fits between the mounting holes of the electrical box and insert over mounting screws.
  - Turn counter clockwise until it reaches the stops.
  - Tighten mounting screws firmly.

Figure 2  
Ceiling Installation in a  
2.125"x 4"x 4" Electrical Box



**NOTE:** For existing 1.50" deep electrical boxes, an extension ring in the same shape and size can be added to allow Sensor Power Base to fit.

Step 5 Mount Ceiling Sensor to Power Base:



Ceiling Mounted Sensors:

**NOTE:** Refer to sensor installation sheet.

- Remove ceiling mount sensor mounting base by aligning arrows and pulling apart. **Refer to sensor Installation Instructions for full details.**
- Remove two-part terminal connector from Sensor Power Base and wire per sensor Installation Instructions. **Refer to Figure 1 and 2.**

**NOTE:** Low-voltage wires should be trimmed approximately in half so the length can fit in mounting cavity between sensor and Power Base and no bare wire is exposed at the connectors.

- Plug the two-part terminal connector into the Power Base with the screws facing up.
- Align mounting indicator arrows on the Power Base and the sensor body and push on to Power Base and turn clockwise a quarter turn to secure.

Step 6 Sensor Setup:



**Refer to sensor Installation Instruction sheet for complete details.**

Step 7 Restore Power:



Restore power at circuit breaker or fuse. INSTALLATION IS COMPLETE.

OPERATION

Close Relay: When the attached occupancy sensor detects motion, it will apply +24V to the Occupancy wire causing the relay to close.

TROUBLESHOOTING

- **Lights Flickering**
  - Lamp has a bad connection.
  - Wires not secured firmly with wire connectors.
- **Lights do not turn ON**
  - Circuit breaker or fuse has tripped.
  - Lamp is burned out.
  - Lamp Neutral connection is not wired.
  - Low-voltage miswired. Verify wiring connections per appropriate Wiring Diagrams.
  - Line voltage miswired. Verify wiring connections per appropriate Wiring Diagrams.
- **Light turns ON**
  - Constant motion. To Test: Adjust sensor; remove motion source. If unsatisfactory, move sensor.
- **Light turns ON too long**
  - Adjust sensor.

PRODUCT INFORMATION

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01 (800) 716 7007 [www.osram.com.mx](http://www.osram.com.mx) (México)

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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 his own expense.

NOTES

LIMITED WARRANTY AND LIMITATIONS

ENCELIUM® Occupancy Sensors and Power Packs are covered by the ENCELIUM® Energy Management System Limited warranty. For the full text of the limited warranty, or to download the warranty registration form, refer to the limited warranty which is available in the Tools & Resources section of [www.sylvania.com](http://www.sylvania.com). You may also contact us to request a written copy. THE REMEDY SET FORTH IN THE WARRANTY TEXT SHALL CONSTITUTE THE EXCLUSIVE REMEDY OF THE PURCHASER AND THE SOLE LIABILITY OF OSRAM SYLVANIA INC. (OSI) FOR THE PRODUCT. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT IS MADE OR IS TO BE IMPLIED. IN NO EVENT SHALL OSI BE LIABLE FOR ANY OTHER COSTS OR DAMAGES, INCLUDING LOST PROFITS OR REVENUES, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY. IN NO EVENT SHALL OSI'S TOTAL LIABILITY FOR ANY REASON ARISING HEREUNDER EXCEED THE PURCHASE PRICE PAID BY PURCHASER FOR THE PRODUCT PURCHASED HEREUNDER.



ENCELIUM® Infrared Ceiling Mounted Occupancy Sensor

Item No. 45363 (SCP-0450) and Item No. 45364 (SCP-1500)

To be used with 24VDC Class II Low-Voltage Wiring

INSTALLATION INSTRUCTIONS

WARNINGS AND CAUTIONS:

- **TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER** at circuit breaker or fuse and test that power is off before wiring!
- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- Use this device with **copper or copper clad wire only**.
- If you are unsure about any part of these instructions, consult an 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 touch the surface of the lens. Clean outer surface with a damp cloth only.

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.

PK-93983-10-00-2B

Tools needed to install your Sensor

- Slotted/Phillips Pliers
- Screwdriver Pencil
- Electrical Tape Cutters

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 sensor that works with ENCELIUM® 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.

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

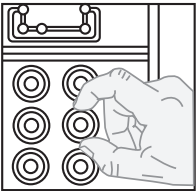
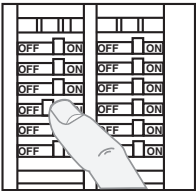
INSTALLING YOUR OCCUPANCY SENSOR

NOTE: Use check boxes ☒ when Steps are completed.

Step 1

☐

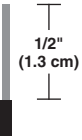
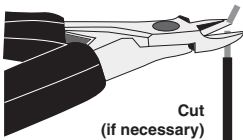
**WARNING: TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER** at circuit breaker or fuse and test that power is off before wiring!



Step 2

☐

Preparing and connecting wires:



Strip Gage  
(measure bare wire here)

Step 3

☐

Typical Installations:

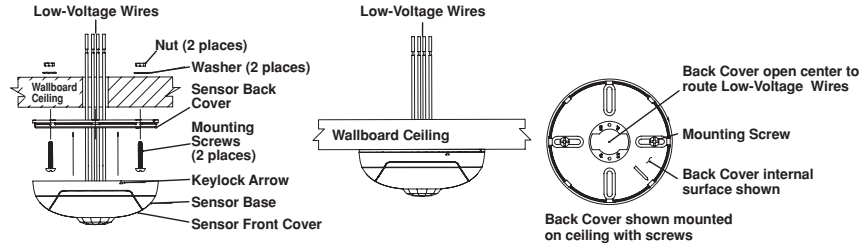
Listed are 3 typical installation options (A, B, and C). Choose one that best suits your needs. Other methods of installation may be possible but they have not been described here.

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.

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



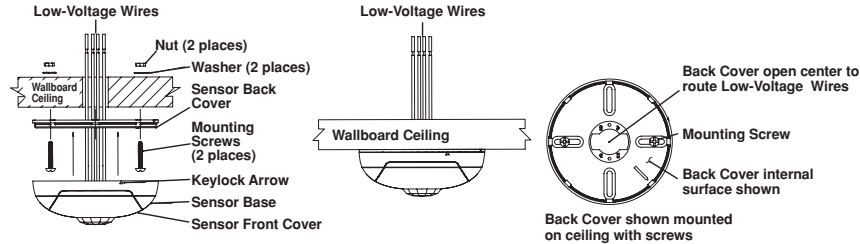
B. Wallboard or Drop Ceiling Installation (Mounting Option B):

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 ENCELIUM® 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

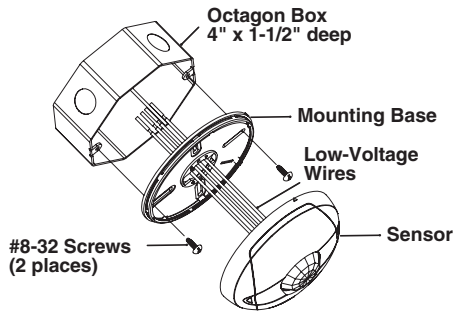


Step 3 cont'd

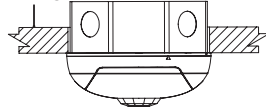
C. Junction Box or Surface Mount Raceway Installation (refer to Mounting Diagrams):

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

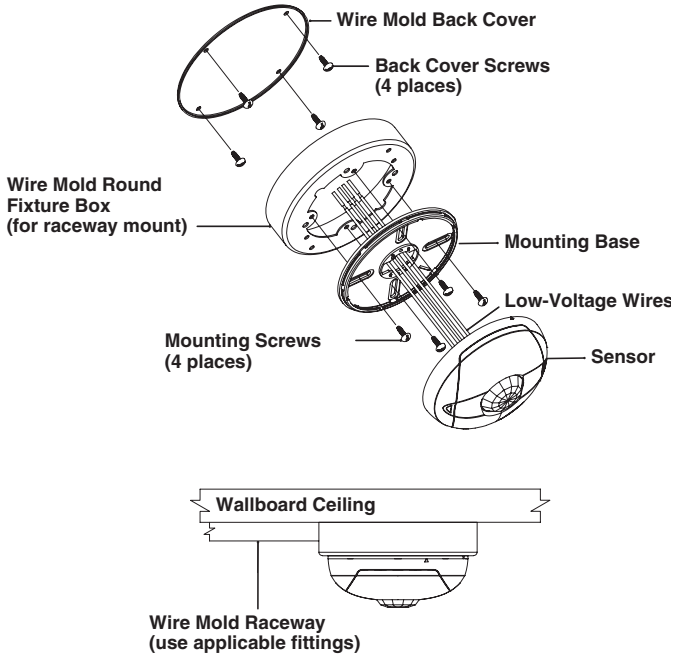


Wallboard or Drop Ceiling



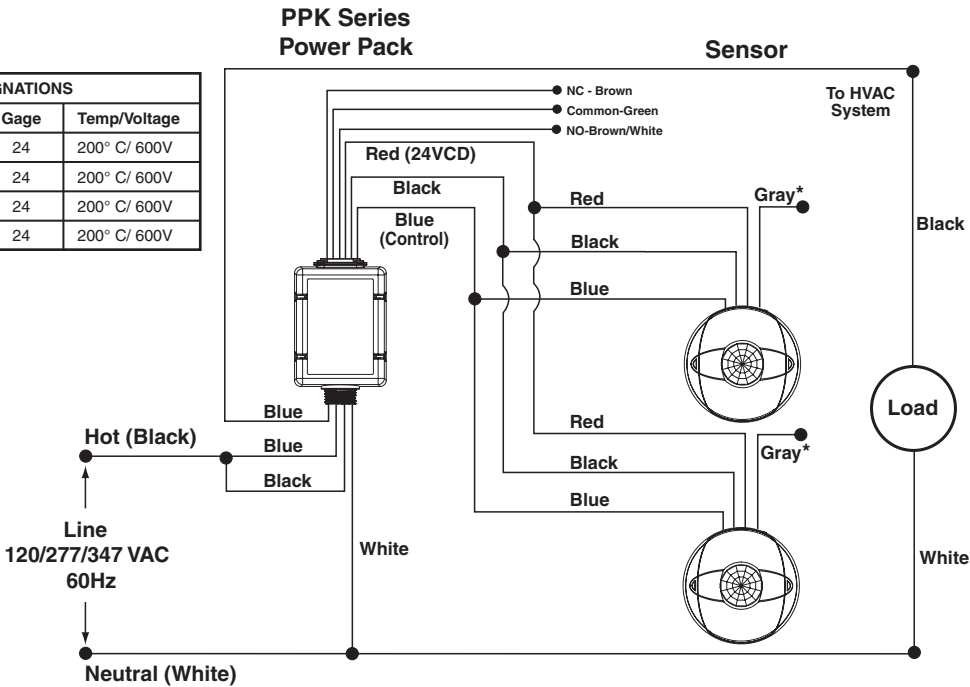
Step 3 cont'd

Occupancy Sensor Mounted to Round Fixture with Raceway for Wallboard Installation



Wiring Diagram: Multiple Sensor, Single Power Pack

TABLE 2: WIRE DESIGNATIONS			
Name	Color	Gage	Temp/Voltage
Power (+24 V)	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 the Sensor.  
NOTE: Ensure to cap wire that is not being used.

OPERATION

Motion detection by the infrared 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 timeout 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. 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 Infrared Technology:

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

SETTINGS

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

All switches in the OFF position, except A3 and A4, which are in the ON position (refer to **Table 4**).

TABLE 3 : ADJUSTMENT KNOB SETTINGS				
Knob Color	Symbol	Function	Knob Setting	Factory Default Setting
Red		Sets the infrared range	Range Setting Full CCW = min. (OFF) Full CW = max.	75 %
Black		Delayed - Off Time	Full CCW = min. (30 sec) Full CW = max. (30 min.)	50 % (10 min)
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 Enabled	Walk-Through Disabled
Bank B		OFF	ON
B1	Override to ON	Auto Mode	Lights Forced ON
B2	Override to OFF	Auto Mode	Lights Forced OFF
B3	Test Mode	OFF → ON → OFF = Enter/Exit Test Mode	
B4	LEDs Disable	LEDs Enabled	LEDs Disabled

- Test Mode:** To set the delayed-off time to 6 seconds for performing a walk test. While the sensor is in test mode, the LED's will flash amber once a second.
- ENSURE POWER IS ON.**
  - Remove front cover.
  - Locate Dip Switch 3 in Bank B (B3) (refer to **Figure 1**). B3 will be in the OFF position from the factory.
  - 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:

- 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.
- 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 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.

- Remove the cover from the sensor.
- Make note of the position of the Red knob. Rotate the Red knob full CCW and enter the sensor's Test mode as described above.
- Rotate the Blue knob full CCW.
- Wait for the lights to turn OFF.
- Rotate the Red knob full CW.
- Slowly rotate the Blue knob clockwise until the lights turn ON. This is the correct setting.
- Return the Red knob to its original position.
- Replace cover. Setting is complete.

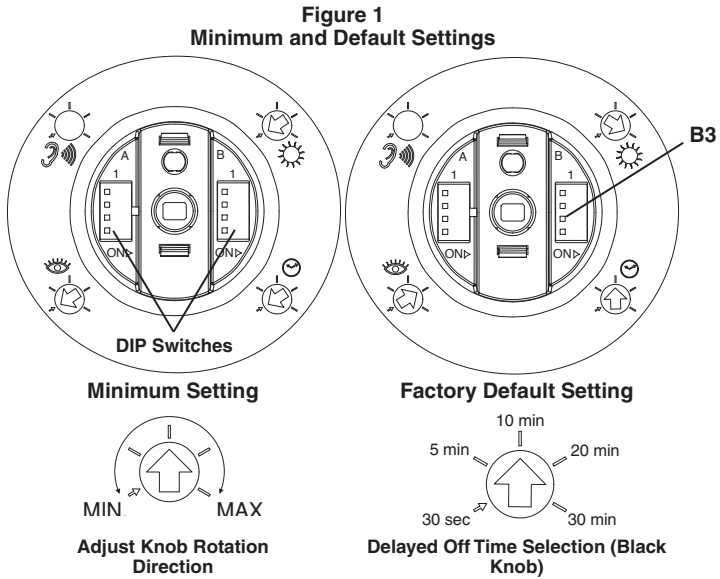


Figure 2 Item No. 45363 (SCP-0450)  
Field-of-View Ranges

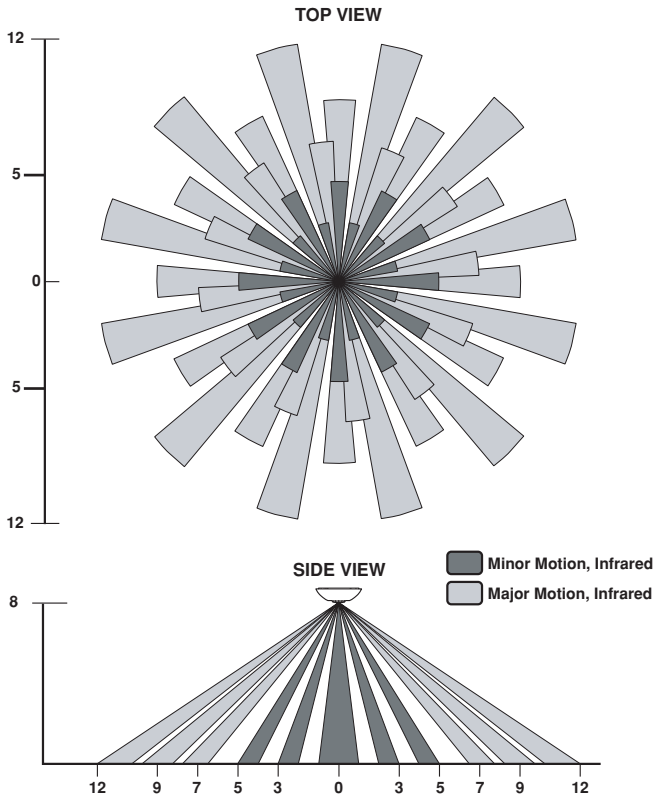
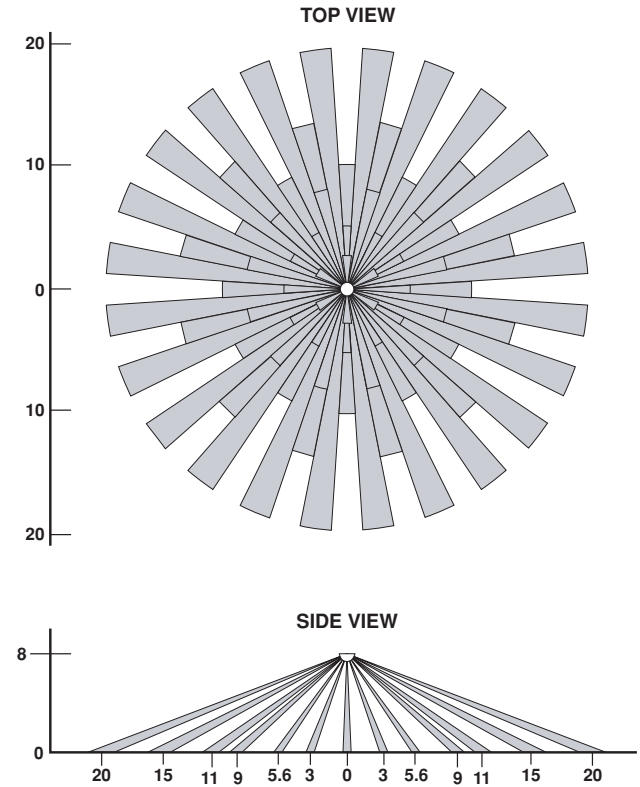
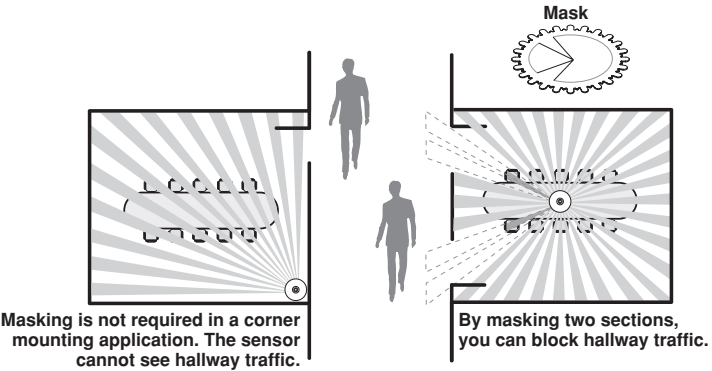


Figure 3 Item No. 45364 (SCP-1500)  
Field-of-View Ranges



Mounting Location Diagram



TROUBLESHOOTING FOR POWER-PACK OPERATION

- Lights do not turn ON**
  - Circuit breaker or fuse has tripped.
  - Low-voltage miswired. **To Test:** Connect RED to BLUE wire at power pack to force lights ON.
  - Line voltage miswired. **To Test:** Connect BLUE to BLUE relay wires (of power pack) to force the lights ON.
- Lights stay ON**
  - Constant motion. **To Test:** Reduce RED knob by 15%; remove motion source. If unsatisfactory, move sensor.
  - Infrared sensor can "see" into hallway. **To Test:** Put sensor in timer test mode 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

1-800-LIGHTBULB (1-800-544-4828) www.sylvania.com (US & Canada)  
01 (800) 716 7007 www.osram.com.mx (México)  
Imported by/Importé par/Importado por:  
**OSRAM SYLVANIA Inc.**  
54 Cherry Hill Drive, Danvers, MA 01923  
**OSRAM SYLVANIA LTD./LTÉE**  
2001 Drew Rd., Mississauga, Ontario L5S 1S4  
**OSRAM S.A. de C.V.**  
Camino a Tepalcapa No. 8 Col. San Martin  
Tultitlán Edo. de México C.P. 54900  
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ENCELIUM® is a registered trademark of OSRAM SYLVANIA Inc.

**LIMITED WARRANTY AND LIMITATIONS**

ENCELIUM® Occupancy Sensors and Power Packs are covered by the ENCELIUM® Energy Management System Limited warranty. For the full text of the limited warranty, or to download the warranty registration form, refer to the limited warranty which is available in the Tools & Resources section of www.sylvania.com. You may also contact us to request a written copy. THE REMEDY SET FORTH IN THE WARRANTY TEXT SHALL CONSTITUTE THE EXCLUSIVE REMEDY OF THE PURCHASER AND THE SOLE LIABILITY OF OSRAM SYLVANIA INC. (OSI) FOR THE PRODUCT. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT IS MADE OR IS TO BE IMPLIED. IN NO EVENT SHALL OSI BE LIABLE FOR ANY OTHER COSTS OR DAMAGES, INCLUDING LOST PROFITS OR REVENUES, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY. IN NO EVENT SHALL OSI'S TOTAL LIABILITY FOR ANY REASON ARISING HEREUNDER EXCEED THE PURCHASE PRICE PAID BY PURCHASER FOR THE PRODUCT PURCHASED HEREUNDER.



ENCELIUM® Multi-Technology Ceiling Mounted Occupancy Sensor  
Item No. 45365 (SCM-0 500), Item No. 45366 (SCM-1000), Item No. 45367 (SCM-2000)  
To be used with 24VDC Class II Low-Voltage Wiring

INSTALLATION INSTRUCTIONS

WARNINGS AND CAUTIONS:

- **TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER** at circuit breaker or fuse and test that power is off before wiring!
- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- Use this device with **copper or copper clad wire only**.
- If you are unsure about any part of these instructions, consult an 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						
Item No.	Ordering Abbreviation	Description	Current Consumption	Operating Frequency	Coverage	Suggested Mounting Location
45365	SCM-0500	1-Way Multi-Technology	30 mA	40 kHz	500 sq. ft	Mount in corner/ over doorway
45366	SCM-1000	2-Way Multi-Technology	40 mA	40 kHz	1000 sq. ft	Mount in center of room/area
45367	SCM-2000	2-Way Multi-Technology	32 mA	32 kHz	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.

PK-93985-10-00-2B

Tools needed to install your Sensor

Slotted/Phillips Screwdriver  
Cutters

Electrical Tape  
Pencil

Pliers

Parts Included List

- (1) Sensor

(2) #8-32 x 1/2" Screw

(2) #8-32 x 1-1/2" Screw

(2) #8-32 Washer and Nut
- (1) Threaded Rod (1) and Hex Nut

(1) Half Mask

(1) 360° Perforated Mask

(1) Plastic Washer

DESCRIPTION

The Occupancy Sensor is a low-voltage infrared and ultrasonic sensor that works with ENCELIUM® 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.

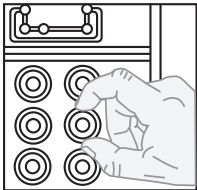
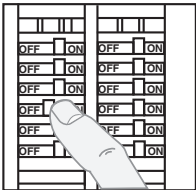
The combination of ultrasonic (doppler shift) motion detection which gives maximum sensitivity and infrared motion detection which gives higher false triggering immunity yields a sensor with excellent performance.

INSTALLING YOUR OCCUPANCY SENSOR

NOTE: Use check boxes ☒ when Steps are completed.

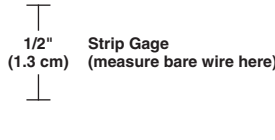
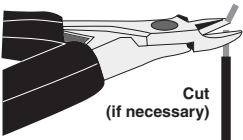
Step 1

**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)

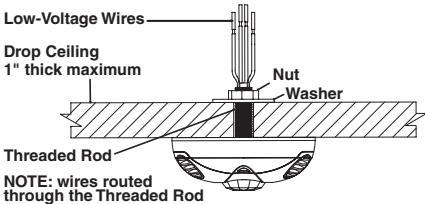
NOTE: Use the threaded rod included.

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.

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 ENCELIUM® 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.

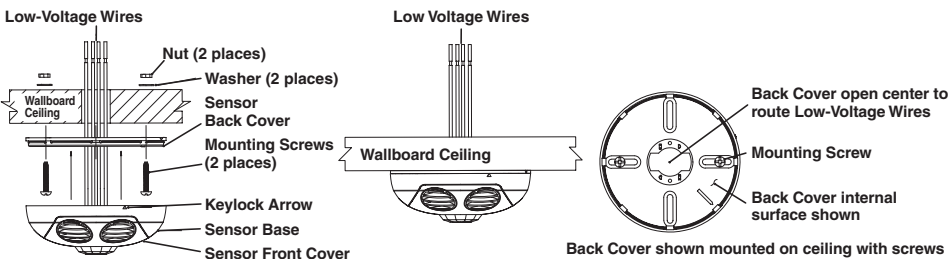
Mounting Option Diagram A  
Occupancy Sensor Mounted to Drop Ceiling Using Threaded Rod



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 ENCELIUM® 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.

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

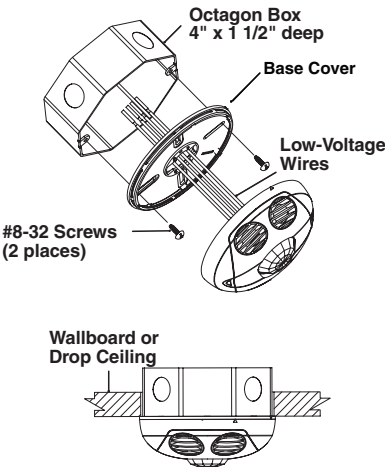


Step 3 Cont.

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

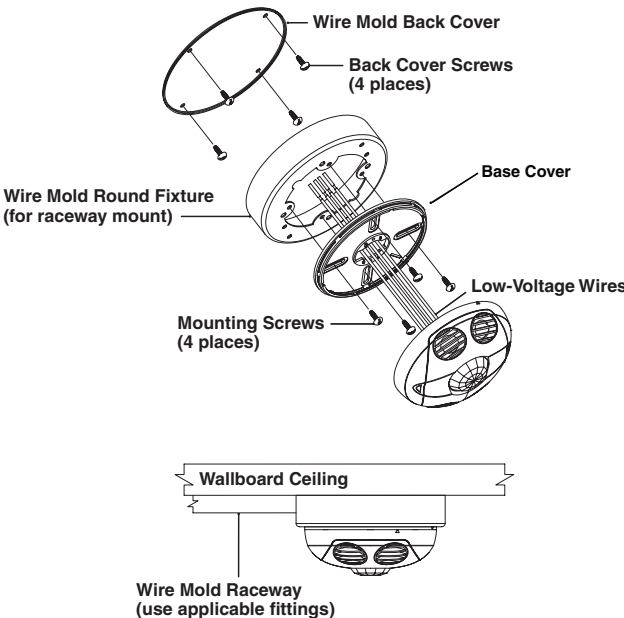
NOTE: Listed below are suggested JUNCTION BOX installation applications which require mounting to conduit in one of the following three ways:

Occupancy Sensor Mounted to Octagon Box  
Installed Flush to Wallboard Ceiling



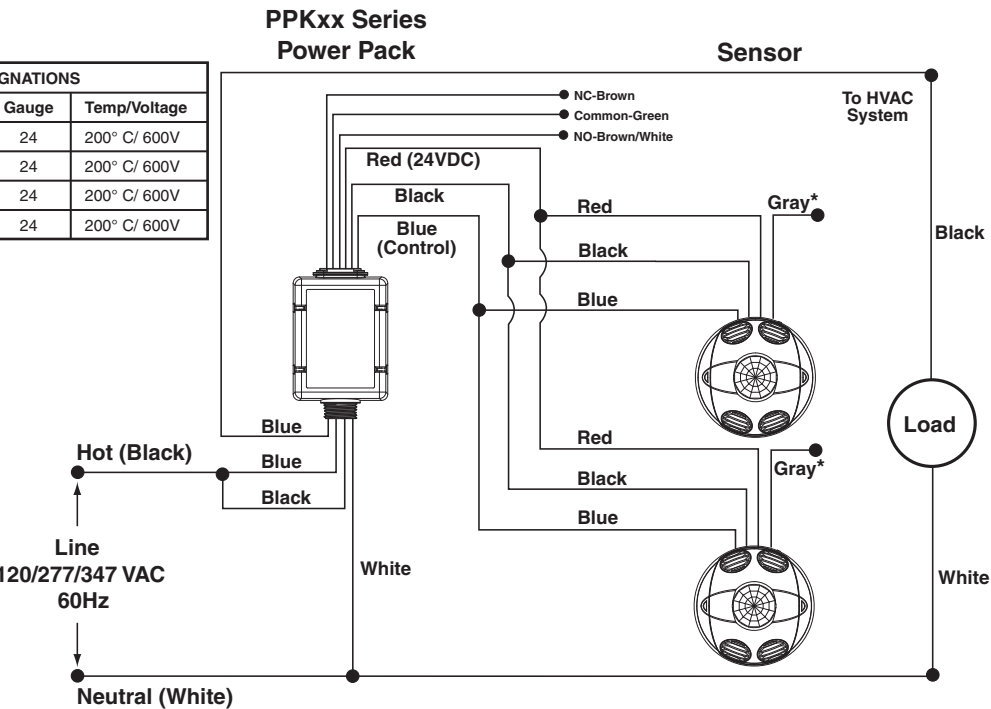
Step 3 Cont.

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 timeout 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, except A3 and A4, which are in the ON position (refer to Table 4).

TABLE 3: ADJUSTMENT KNOB SETTINGS				
Knob Color	Symbol	Function	Knob Setting	Factory Default Settings
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 Enabled	Walk-Through 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	LEDs Disable	LEDs Enabled	LEDs Disabled

\*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.

- ENSURE POWER IS ON.**
- Remove front cover.
- Locate Dip Switch 3 in Bank B (B3) (refer to Figure 1). B3 will be in the OFF position from the factory.
- 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:

- 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.
- 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 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.

- Remove the cover from the sensor.
- 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.
- Rotate the Blue knob full CCW.
- Wait for the lights to turn OFF.
- Rotate the Red knob full CW.
- Slowly rotate the blue knob clockwise until the lights turn ON. This is the correct setting.
- Return the Red and Green knobs to their original positions.
- Replace cover. Setting is complete.

Figure 1  
Minimum and Default Settings

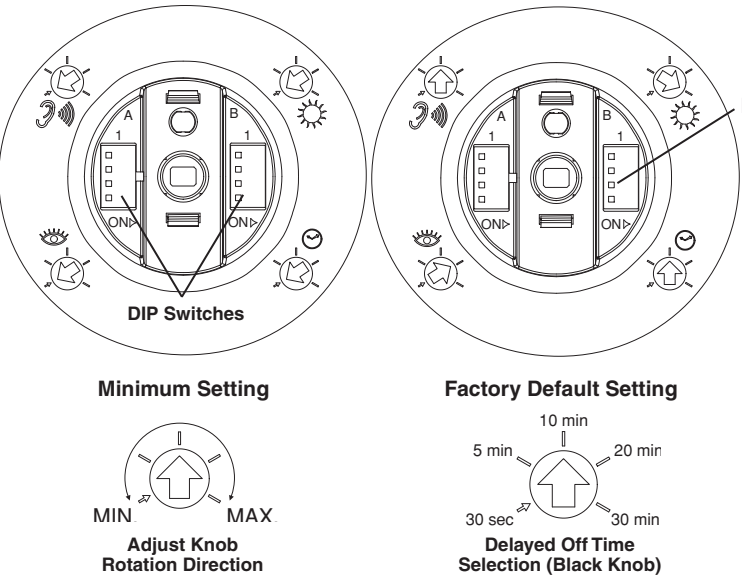


Figure 2 Item No. 45365 (SCM-0500)  
Field-of-View Ranges

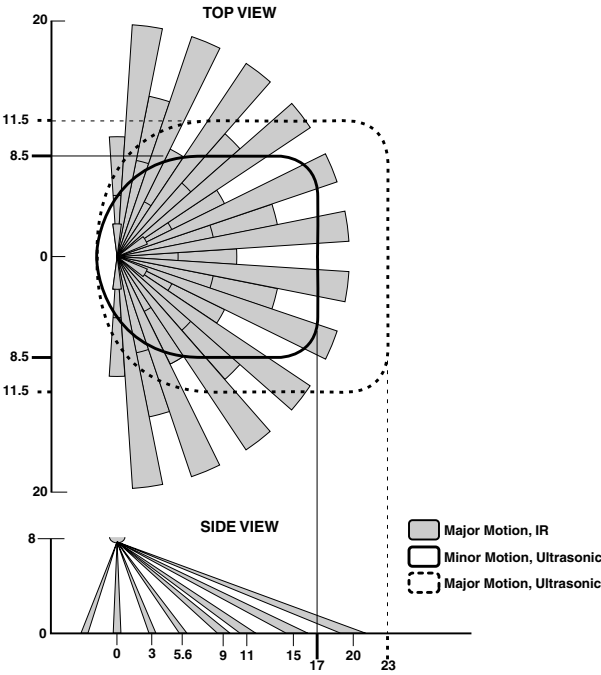
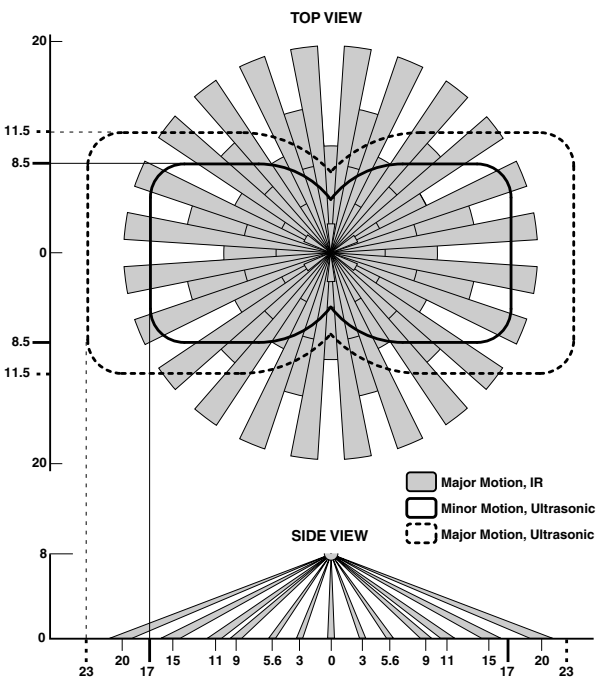


Figure 3 Item No. 45366 (SCM-1000)  
Field-of-View Ranges



PRODUCT INFORMATION

1-800-LIGHTBULB (1-800-544-4828) www.sylvania.com (US & Canada)  
01 (800) 716 7007 www.osram.com.mx (México).

Imported by/Importé par/Importado por:

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OSRAM SYLVANIA LTD./LTÉE

2001 Drew Rd., Mississauga, Ontario L5S 1S4

OSRAM S.A. de C.V.

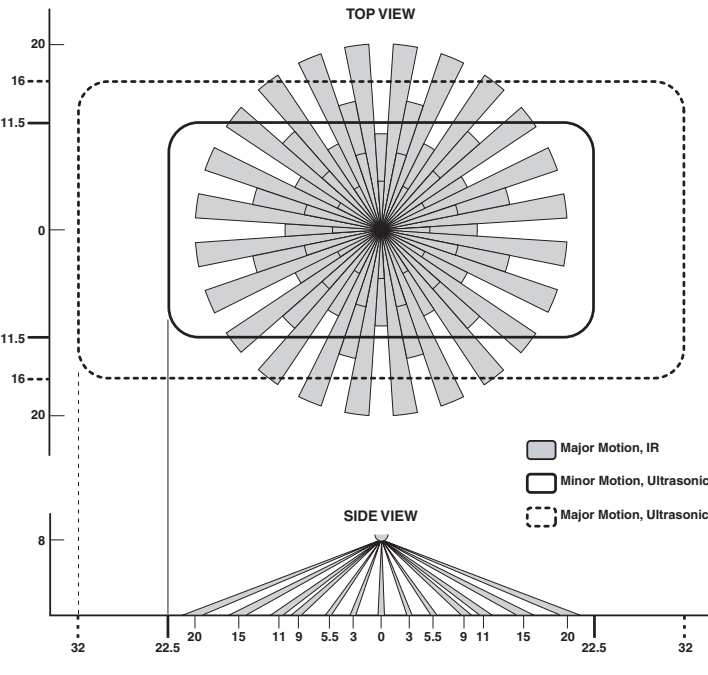
Camino a Tepalcapa No. 8 Col. San Martin

Tultitlán Edo. de México C.P. 54900

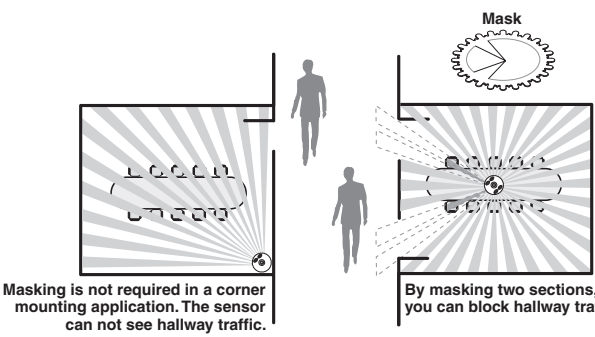
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Figure 4 Item No. 45367 (SCM-2000)  
Field-of-View Ranges



Mounting Location Diagram



TROUBLESHOOTING (for Power Pack Operation)

- 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.

LIMITED WARRANTY AND LIMITATIONS

ENCELIUM® Occupancy Sensors and Power Packs are covered by the ENCELIUM® Energy Management System Limited warranty. For the full text of the limited warranty, or to download the warranty registration form, refer to the limited warranty which is available in the Tools & Resources section of www.sylvania.com. You may also contact us to request a written copy. THE REMEDY SET FORTH IN THE WARRANTY TEXT SHALL CONSTITUTE THE EXCLUSIVE REMEDY OF THE PURCHASER AND THE SOLE LIABILITY OF OSRAM SYLVANIA INC. (OSI) FOR THE PRODUCT. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT IS MADE OR IS TO BE IMPLIED. IN NO EVENT SHALL OSI BE LIABLE FOR ANY OTHER COSTS OR DAMAGES, INCLUDING LOST PROFITS OR REVENUES, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY. IN NO EVENT SHALL OSI'S TOTAL LIABILITY FOR ANY REASON ARISING HEREUNDER EXCEED THE PURCHASE PRICE PAID BY PURCHASER FOR THE PRODUCT PURCHASED HEREUNDER.

ENCELIUM® Infrared Wall Mounted Occupancy Sensor  
Item No. 45371 (SWP-HBAY), Item No. 45370 (SWP-LRNG), Item No. 45368 (SWP-WV00)  
To be used with 24VDC Class II Low-Voltage Wiring

INSTALLATION INSTRUCTIONS

WARNINGS AND CAUTIONS:

- **TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER** at circuit breaker or fuse and test that power is off before wiring!
- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- Use this device with **copper or copper clad wire only**.
- If you are unsure about any part of these instructions, consult an 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 touch the surface of the lens. Clean outer surface with a damp cloth only.

CATALOG ITEMS				
Item No.	Ordering Abbreviation	Description	Current Consumption	Coverage
45371	SWP-HBAY	High Bay	15mA	55 ft. mounted at 30 ft
45370	SWP-LRNG	Long Range	15mA	100 ft. mounted at 10 ft.
45368	SWP-WV00	Wide View	15mA	2500 sq. ft.

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 cuse undesired operation.

PK-93986-10-00-2B

Tools needed to install your Sensor

Slotted/Phillips Screwdriver      Electrical Tape  
Pliers                                      Pencil  
Cutters

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)

DESCRIPTION

The Occupancy Sensor is a low-voltage infrared sensor that works with ENCELIUM® 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.

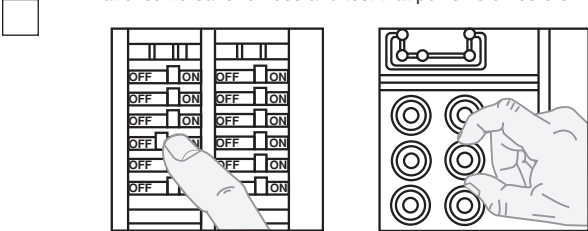
The sensor continually analyzes and adjusts to changing conditions. The sensor uses the latest microprocessor-based technology which permits it to continually adjust and optimize its performance.

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

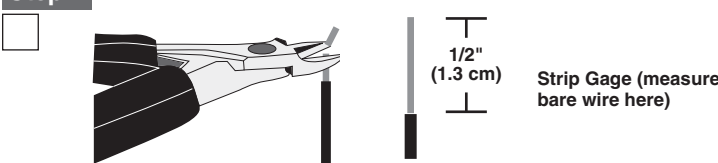
INSTALLING YOUR OCCUPANCY SENSOR

NOTE: Use check boxes ☒ when Steps are completed.

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



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. Note that the wall sensor can be wall mounted or ceiling mounted simply by rotating the neck. This gives greater flexibility in attaining the desired coverage.

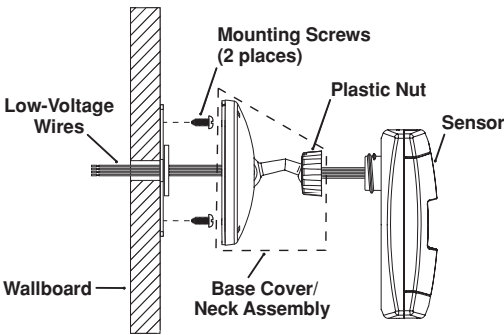
A. Wall or Ceiling Installation Using Screws (Mounting Option A):

- NOTE: You may use the mounting screws, nuts and washers included, or screws in combination with commercially available wall anchors.
1. Select location for mounting of sensor for your application (refer to Mounting Location Diagram).
  2. Make a hole in the wallboard or ceiling large enough to pass the wire connections and wire nuts through (approximately 1" diameter).
  3. Drill holes for mounting screws using mounting base as template.

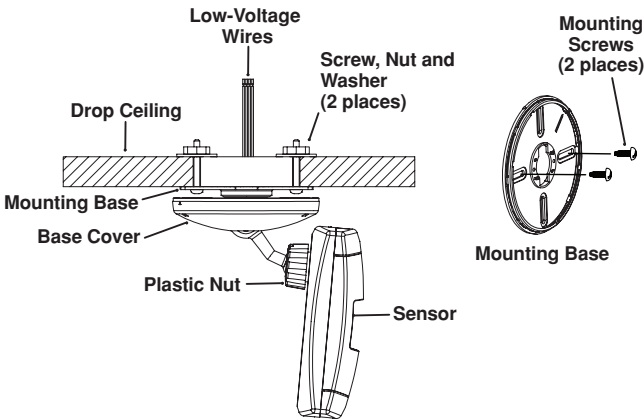
Step 3 cont'd

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

Mounting Option Diagram A  
Occupancy Sensor Mounted to Wallboard Using Screws



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



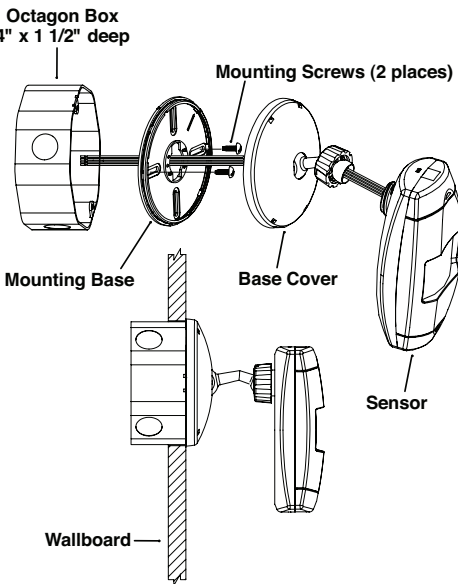
Step 3 cont'd

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

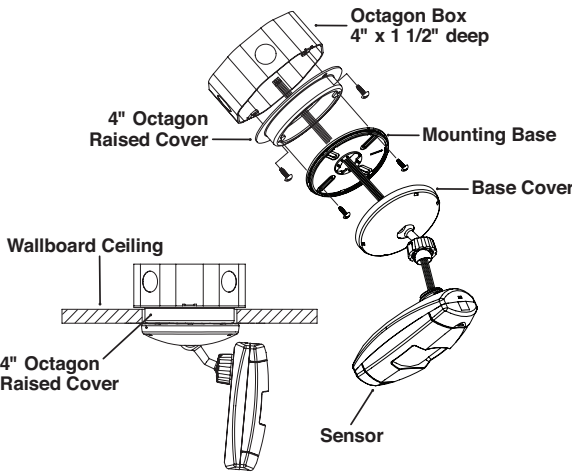
NOTE: You may use the mounting screws, nuts and washers included, or screws in combination with commercially available wall anchors.

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

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

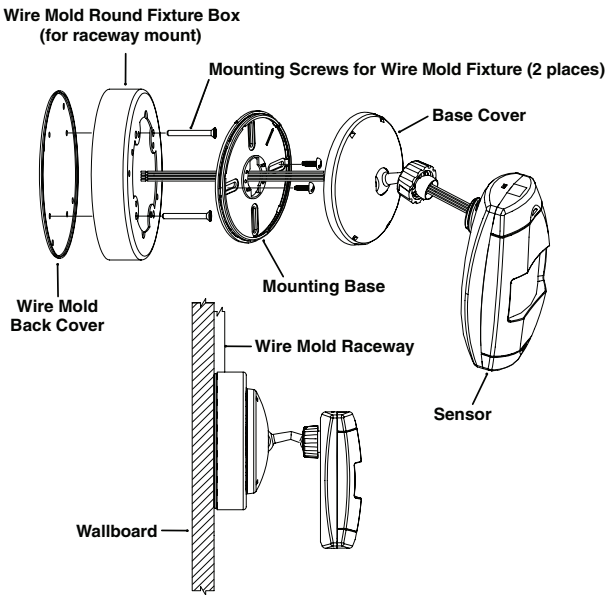


Occupancy Sensor Mounted to Octagon Box Installed Flush to Wallboard Ceiling or Drop Ceiling



Step 3 cont'd

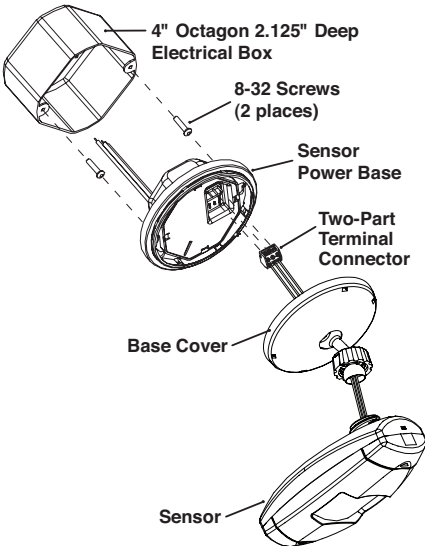
Occupancy Sensor Mounted to Wallboard Using Round Fixture with Raceway



C. PBA-015 Power Base Installation:

In addition to the regular mounting methods shown, the sensor can be mounted to the PBA-015 (Item No. 45376) Power Base.

1. Install the PBA-015 per the installation sheet included with the PBA-015 (Item No. 45376).
2. Remove the sensor from the box and pass the low-voltage wires through the neck/base cover assembly.
3. Screw the neck plastic nut to the sensor body to hold assembly together while connecting the wire leads.
4. Remove the two-part connector from the PBA-015 noting the orientation it was in before removal.
5. Connect the wires from the sensor to the appropriate locations on the terminal block.
6. Push the terminal block on to the PBA-015 pins.
7. Align the raised arrow on the side of the base cover with the arrow on the mounting ring of the PBA-015 and push on and twist to install.
8. Rotate the assembly and adjust the neck for either ceiling or wall configuration aiming per the diagram.
9. Tighten the plastic nut on the neck to lock the position of the sensor.





## OPERATION

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

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

The walk-through feature works as follows: When a person enters the room, the lights will turn on. If the person leaves the room before the default walk-through time-out of 2.5 minutes, the sensor will turn the lights off. If the person stays in the room for longer than 2.5 minutes, the sensor will proceed to the standard operation.

- LED Operation** – There are two LED indicators that will flash when motion is detected. The LED flash can be disabled using the LED disable switch setting (refer to Table 2). Red flash indicates motion detection by infrared technology.

## ADAPTIVE FUNCTIONS

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

### Operation:

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

The adapted settings can be reset using the DIP switch.

### Occupancy Pattern Learning For Delayed Off Time:

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

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

### Occupancy Pattern Learning for Infrared Technology:

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

### Default Settings:

Adjustment knob settings as per “Factory Default Setting”, (refer to Table 1 and Figure 1).

All switches in the OFF position, except A3 and A4, which are in the ON position (refer to Table 2).

TABLE 1 : AJUSTMENT KNOB SETTINGS				
Knob Color	Symbol	Function	Knob Setting	Factory Default Setting
Red		Sets the infrared range	Range Setting Full CCW = min. (OFF) Full CW = max.	75 %
Black		Delayed - Off Time	Full CCW = min. (30 sec.) Full CW = max. (30 min.)	50 % (10 min)
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 2: SWITCH SETTINGS			
Switch	Switch Functions	Switch Settings	
	Bank A	OFF	ON
A1	N/A	N/A	N/A
A2	N/A	N/A	N/A
A3	Manual Mode	Auto Adapting Enabled	Auto Adapting Disabled
A4	Walk-Through Disable	Walk-Through Enabled	Walk-Through Disabled
	Bank B	OFF	ON
B1	Override to ON	Auto Mode	Lights Forced ON
B2	Override to OFF	Auto Mode	Lights Forced OFF
B3	Test Mode	OFF → ON → OFF = Enter/Exit Test Mode	
B4	LEDs Disable	LEDs Enabled	LEDs Disabled

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

- ENSURE POWER IS ON.**
- Remove front cover.
- Locate Dip Switch 3 in Bank B (B3) (refer to Figure 1). B3 will be in the OFF position from the factory.
- 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:

- 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.
- 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.

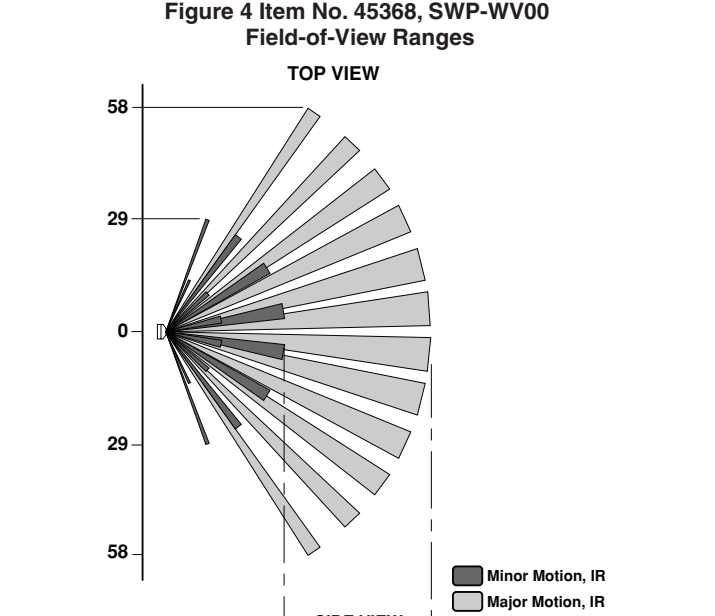
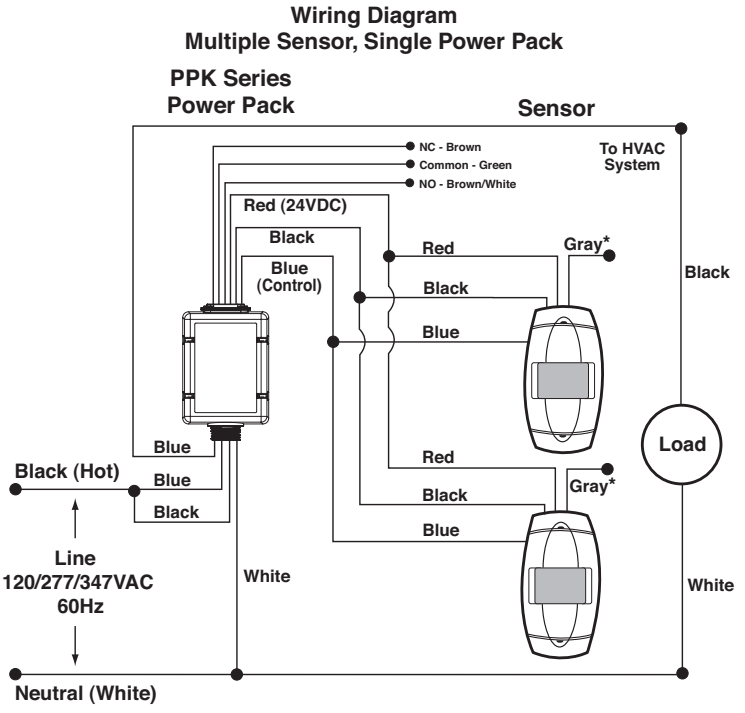
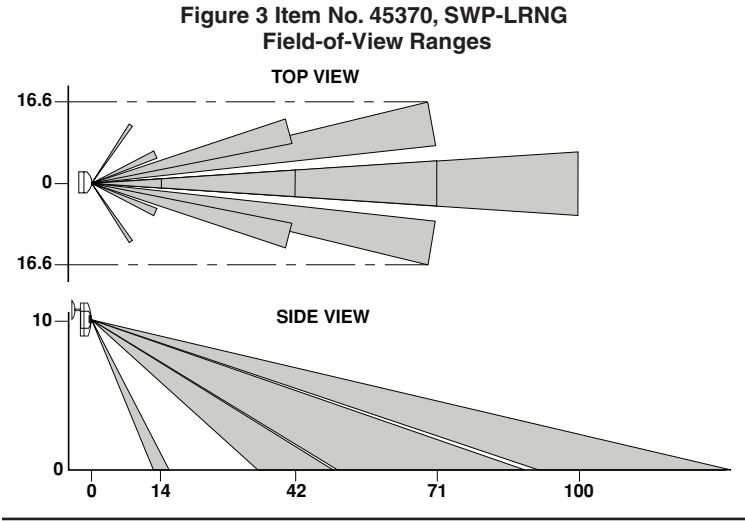
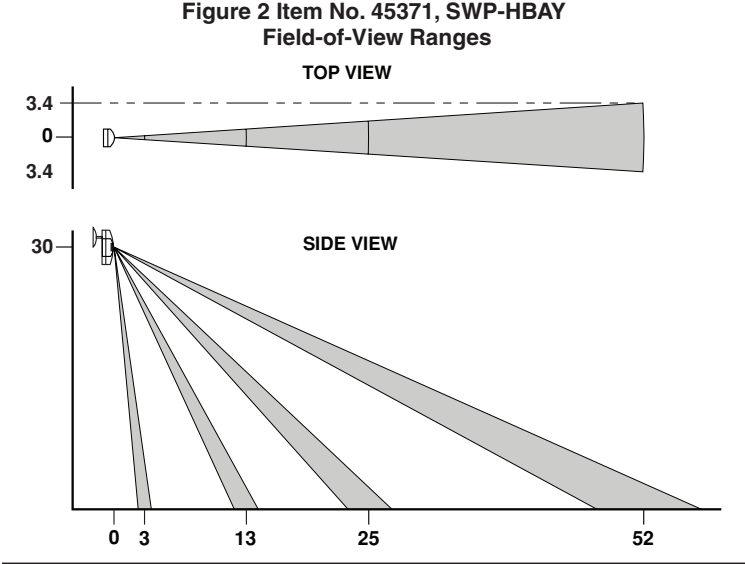
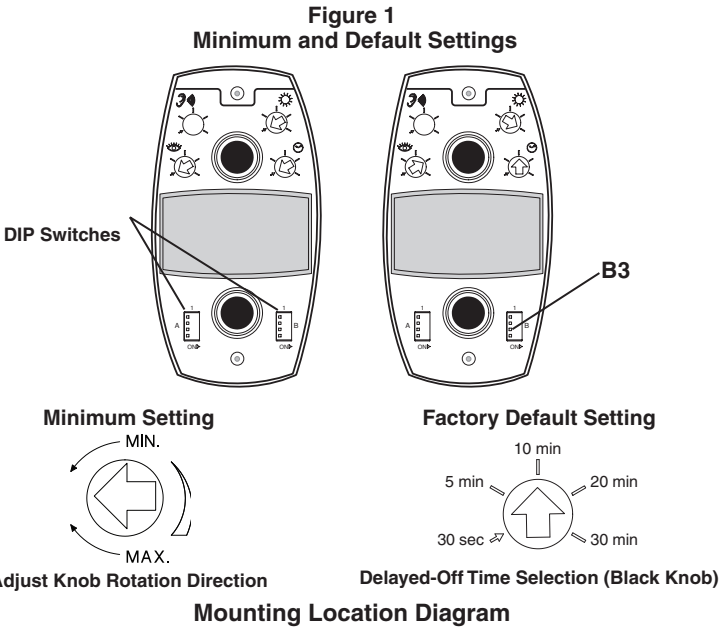
### Photocell (Ambient Light Override) adjustment:

In order to use the Ambient Light Override functionality of the sensor, the sensor must be wired to the power pack 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.

- Remove the cover from the sensor.
- Make note of the position of the Red knob. Rotate the Red knob full CCW and enter the sensor's Test mode as described above.
- Rotate the Blue knob full CCW.
- Wait for the lights to turn OFF.
- Rotate the Red knob full CW.
- Slowly rotate the blue knob clockwise until the lights turn ON. This is the correct setting.
- Return the Red knob to its original position.
- Replace cover. **Setting is complete.**



## TROUBLESHOOTING POWER PACK INSTALLATIONS

- Lights do not turn ON**
  - Circuit breaker or fuse has tripped.
  - Low-voltage miswired. **To Test:** Connect RED to BLUE wire at power pack to force lights ON.
  - Line voltage miswired. **To Test:** Connect BLUE to BLUE relay wires (of power pack) to force the lights ON.
- Lights stay ON**
  - Constant motion. **To Test:** Reduce RED knob by 15%; remove motion source. If unsatisfactory, move sensor.
  - Infrared sensor can "see" into hallway. **To Test:** Put sensor in timer test mode 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.

TABLE 3: 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.

## PRODUCT INFORMATION

1-800-LIGHTBULB (1-800-544-4828) www.sylvania.com (US & Canada)  
01 (800) 716 7007 www.osram.com.mx (México)  
Imported by/Importé par/Importado por:  
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54 Cherry Hill Drive, Danvers, MA 01923  
**OSRAM SYLVANIA LTD/LTÉE**  
2001 Drew Rd., Mississauga, Ontario L5S 1S4  
**OSRAM S.A. de C.V.**  
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PK-93986-10-00-2B

### LIMITED WARRANTY AND LIMITATIONS

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OSRAM

ENCELIUM®

Occupancy Sensor

Power Pack

	Item No. 45374
	(PPK-020)
	Rated: 120-277V, 50/60Hz
	20A, 2400W @ 120V – Incandescent/Tungsten
	20A, 2400VA @ 120V – Fluorescent
	20A, 5540VA @ 277V – Fluorescent
	1HP @ 120V – Motor Load
	2HP @ 277V – Motor Load
	Item No. 45375
	(PPK-347)
	Load Ratings:
	15A, 5200VA @ 347V, 60Hz – Fluorescent
	0.5A 125V, 1A 30VDC – HVAC Relay

INSTALLATION INSTRUCTIONS

PK-93987-10-00-2B

**LIMITED WARRANTY AND LIMITATIONS**  
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FEATURES				
<ul style="list-style-type: none"><li>Regulated 24VDC, 150mA output current (120mA for PPK-347)</li><li>Mounts inside Fluorescent Ballast cavity</li><li>Mounts inside or outside Junction Box</li><li>Teflon coated Class II wires for plenum wiring</li></ul>				
RATINGS				
Item Number	HVAC Relay	Power Input¹	Power Output²	
45374 (PPK-020)	No	120-277VAC, 50/60Hz	24VDC, 150mA	3.6W
45375 (PPK-347)	Yes	347VAC, 60Hz	³24VDC, 120mA	3.0W
¹ Input voltage tolerance 10% Frequency tolerance 5%.				
² Output voltage tolerance 15%, Output voltage listed at nominal.				
³ Voltage range for the PPK-347 is 19-27VDC based on load and temperature conditions.				
DESCRIPTION				
The power pack contains a power supply, a load switching relay and on some models, a HVAC relay. The power supply provides Class II low-voltage power for Occupancy Sensors. The relay in the power pack is controlled by the occupancy sensors connected via the 22 Gauge Blue “occupancy” wire. Multiple occupancy sensors can be connected to a single power pack in order to fully cover an area.				
The power packs include zero cross switching circuitry to minimize inrush current associated with incandescent and electronic ballasts. This reduces wear and tear on the relay contacts making the power pack last longer.				
<b>Application Notes:</b>				
<ol style="list-style-type: none"><li>When a lighting load exceeds a single power pack’s rating, the load can be split between multiple power packs. The low voltage occupancy input (Blue wire) and DC return (Black wires) of the power packs must be connected together for all power packs to operate together as one. Connect the Blue (occupancy) wires of all power packs and sensors together. Connect the Black (return) wires of all power packs and sensors together. Connect the Red (+24VDC) wires of the sensors to the Red wires of only one power pack. Never connect the Red (+24VDC) wires of two different power packs together.</li><li>When more sensors are required than one power pack can supply, multiple power packs can be used to supply power to the occupancy sensor, but not switch any load. The primary power pack is the power pack switching the load. The secondary power packs only provide low voltage power to the occupancy sensor(s). Connect as many sensors to the primary power pack as possible (see current capacity section below), by connecting the Red wires of the sensors to the Red wire (+24VDC) of the primary power pack. Connect the Red wires (+24VDC) of the remaining sensors to the Red wires of the secondary power pack. Connect the Black (return) wires of all power packs and all sensors together. Connect the Blue (occupancy) wire of all sensors together to the Blue wire (occupancy) of the primary power pack. Never connect the Red (+24VDC) wires of two different power packs together.</li></ol>				
FCC COMPLIANCE STATEMENT Item No. 45374 (PPK-020) Only				
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 his own expense.				

LOW-VOLTAGE CURRENT CAPACITY				
For Item No. 45374 (PPK-020)	Total Number of Sensor	≤	150mA	
For Item No. 45375 (PPK-347)	Total Number of Sensor	≤	120mA	

INSTALLATION INSTRUCTIONS		
<b>WARNING:</b> TO BE INSTALLED AND/OR USED IN ACCORDANCE WITH APPROPRIATE ELECTRICAL CODES AND REGULATIONS. <b>WARNING:</b> IF YOU ARE NOT SURE ABOUT ANY PART OF THESE INSTRUCTIONS, CONSULT AN ELECTRICIAN.		
<b>OTHER CAUTIONS:</b>		
<ol style="list-style-type: none"><li>DISCONNECT POWER WHEN SERVICING FIXTURE OR CHANGING LAMPS.</li><li>USE THIS DEVICE WITH <b>COPPER OR COPPER CLAD WIRE ONLY.</b></li></ol>		
<b>TO INSTALL:</b>		
<ol style="list-style-type: none"><li><b>WARNING:</b> TO AVOID FIRE, SHOCK, OR DEATH; <b>TURN OFF POWER</b> AT CIRCUIT BREAKER OR FUSE AND TEST THAT POWER IS OFF BEFORE WIRING!</li><li><b>Mount power pack per desired application:</b><ol style="list-style-type: none"><li>To mount outside 4"x4" junction box using 2" EMT nipple, <b>refer to Figure 1.</b> Wire per Step 3A and 3B.</li><li>To mount inside 4"x4" junction box, <b>refer Figure 2.</b> Wire per Step 3A and 3B.<ul style="list-style-type: none"><li>Ensure that conduit/cable entry clamp is located in corner of junction box.</li><li>Dress wires to provide enough clearance when device is installed.</li></ul></li></ol><b>CAUTION:</b> Low-voltage wires must also be dressed so they are separate from the high voltage (Class I) conductors. Refer to local building codes for the appropriate installation requirements for the low-voltage wiring. Jacketing over the low-voltage wires may be required to provide appropriate insulation from the high-voltage wiring.</li><li>To mount inside ballast cavity of light fixture, <b>refer Figure 3A.</b> Wire per Step 3A and 3B.<b>CAUTION:</b> Low-voltage wires must also be dressed so they are separate from the high voltage (Class I) conductors. Refer to local building codes for the appropriate installation requirements for the low-voltage wiring. Jacketing over the low-voltage wires may be required to provide appropriate insulation from the high-voltage wiring.</li><li>To mount outside ballast cavity of light fixture, <b>refer Figure 3.</b> Wire per Step 3A and 3B.</li></ol>		
<b>3A. Line Voltage Wiring:</b> Remove 5/8" (1.6 cm) of insulation from each circuit conductor. Make sure that ends of conductors are straight. Connect lead wires from Power Pack to LINE circuit per appropriate 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.		
<b>3B. Class II and HVAC Wiring:</b> Connect Low-Voltage wires from Power Pack to Sensor per appropriate 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.		
<ol style="list-style-type: none"><li>Refer to sensor Installation Instructions for further details.</li><li>Restore power at circuit breaker or fuse. <b>INSTALLATION IS COMPLETE.</b></li></ol>		
WIRE DESIGNATIONS		

Signal Name	Color	Gauge
<b>Line Voltage Wires</b>		
Line 120/277V (PPK-020) Line 347V (PPK-347)	Black	18AWG
Neutral	White	18AWG
Load	Blue	14AWG
Load	Blue	14AWG
<b>Class II Wires</b>		
Power (24VDC)	Red	22AWG
Return	Black	22AWG
Occupancy	Blue	22AWG
<b>HVAC Wires</b>		
HVAC Common	Green	22AWG
HVAC NO (Normally Open)	Brown/White	22AWG
HVAC NC (Normally Closed)	Brown	22AWG

All wires rated at 105° C, 600V insulation.  
Class II wires are Teflon coated, for plenum applications.  
HVAC wiring is Class I and Class II rated.

OPERATION
<p><b>Close Relay:</b> When the attached occupancy sensor detects motion, it will apply +24V to the Occupancy wire causing the relay to close. This includes the HVAC relay on equipped models.</p> <p><b>Open Relay:</b> When the attached occupancy sensor does not detect motion the relay will open. This includes the HVAC relay on equipped models.</p>
TROUBLESHOOTING

- Lights Flickering**
  - Lamp has a bad connection.
  - Wires not secured firmly with wire connectors.
- Lights do not turn ON**
  - Circuit breaker or fuse has tripped.
  - Lamp is burned out.
  - Lamp Neutral connection is not wired.
  - Low-voltage miswired. Verify wiring connections per appropriate Wiring Diagrams.
  - Line voltage miswired. Verify wiring connections per appropriate Wiring Diagrams.
- Lights stay ON**
  - Constant motion. **To Test:** Adjust sensor; remove motion source. If unsatisfactory, move sensor.
- Light turns ON too long**
  - Adjust sensor.

Figure 1

Line Voltage Wires

Class II Wires

Mounts outside junction box

Figure 2  
(if permitted by local codes)

Line Voltage Wires

Class II Wires

Mounts inside junction box

Figure 3A

Nipple Adapter

Class II Wires

Line Voltage Wires

Ballast Cavity

Ballast

Mounts inside fixture

Figure 3B

Class II Wires

Line Voltage Wires

Ballast Cavity

Ballast

Mounts Outside fixture

Wiring Diagram 1:  
Multiple Sensors, Single Power Pack

Wiring Diagram 2:  
Multiple Sensor, Multiple Power Packs

**NOTE:** For Wiring Diagrams 1-2, the 347V Power Pack configuration is a separate device

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