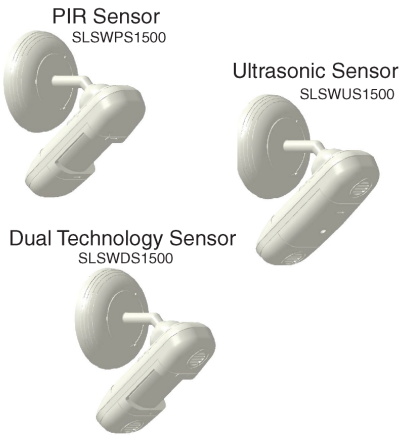
# Instruction Bulletin

63249-420-283A4
08/2009

# Wall Mount Occupancy Sensor

## SLSWPS1500, SLSWUS1500, SLSWDS1500

### INTRODUCTION




Wall Mounted Occupancy Sensors are Class 2 devices ideal for use in business or office settings. Sensors accurately detect occupancy and automatically control lighting.

The wall mounted occupancy sensors are available in three models:
- Passive Infrared (PIR) Sensor (SLSWPS1500)
- Ultrasonic (US) Sensor (SLSWUS1500)
- Dual Technology Sensor (combined PIR and US technology) (SLSWDS1500)

### CONTENTS OF THE BOX

| Item | Quantity |
|---|---|
| Sensor unit | 1 |
| Mounting hardware kit (for ceiling tile mounting) | 1 |
| #8 x 32 screws | 2 |
| Long range lens* | 1 |
| High bay lens* | 1 |
| Masking strips** | 1 sheet |

*PIR sensor only

**Dual Technology and PIR sensors only

### FEATURES

| Description | PIR | Ultrasonic | Dual Technology | |
|---|---|---|---|---|
| Coverage Area (in linear feet (LF) at the sensor height noted) | Wide Angle: 2500 sq. ft. @ 8 ft. high<br>Long Range: 102 linear ft. @ 10 ft. high<br>High Bay: 54 linear ft. @ 30 ft. high | 1000 sq. ft. | 2500 sq. ft. @ 8 ft. high | |
| Field of view | 110° | N/A | 110° | |
| Ambient light level sensing | 0.5 to 250 footcandles (FC) | | | |
| Adjustable time delay | 15 sec. to 30 min. | | | |
| Adjustable sensitivity (60 to 100% of max. coverage) | 60% | | 60% | 60% |
| Isolated relay | Form C contacts for Class 2 signaling | | | |
| LED motion indicators | 1: (red) | | 1: (red) | 2: (red=PIR)/(green=US) |

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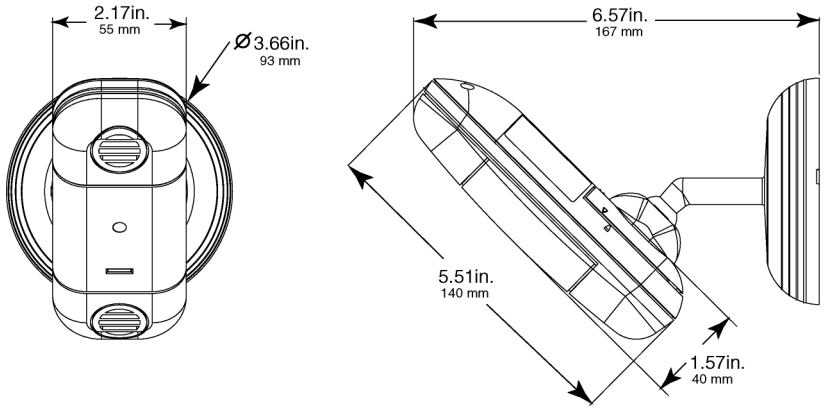
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## STANDARDS AND SPECIFICATIONS

| **Standards** | **PIR** | **Ultrasonic** | **Dual** |
|---|---|---|---|
| | UL and cUL Listed<br>FCC Part 15, Home and Office Use (Class B)<br>California Title 24 Certified | | |
| **Specifications** | **PIR** | **Ultrasonic** | **Dual** |
| Current Consumption @ 24VDC* | Active: 21mA | Active: 34mA | Active: 37mA |
| Isolated relay | Contact rating: 1A @24Vdc Resistive | | |
| Operating Temperature | 32 to 122°F (0 to 50°C) | | |
| Humidity | 0 to 90% RH non-condensing | | |

*Control power must be provided by the Power Pack SLSPP1277 or an approved equivalent.

### Dimensioons




## SAFETY PRECAUTIONS

This section contains important safety precautions that must be followed before attempting to install or maintain electrical equipment. Carefully read and follow the safety precautions below.

**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

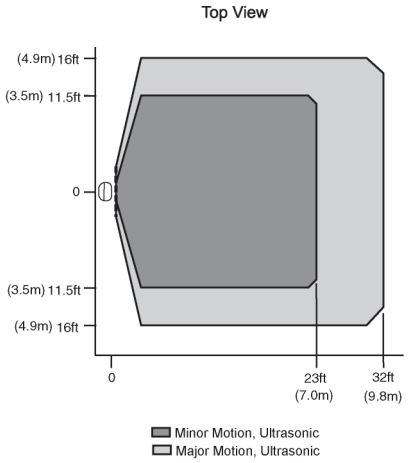
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- This equipment must be installed and serviced by qualified electrical personnel.
- Turn off all electrical power supplying this equipment before working on or inside the equipment.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

**Failure to follow these instructions will result in death or serious injury.**

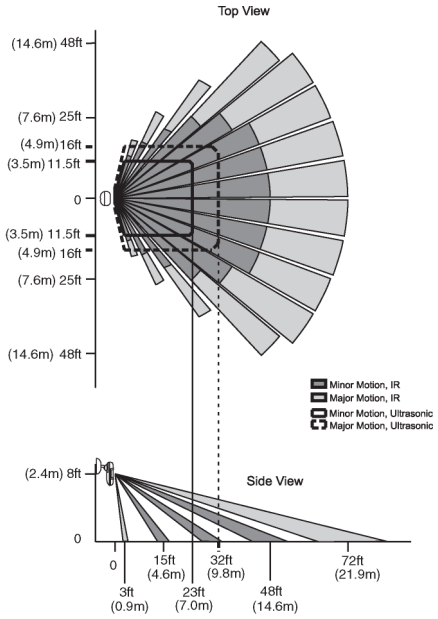

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## COVERAGE PATTERNS

### Ultrasonic (SLSWUS1500)

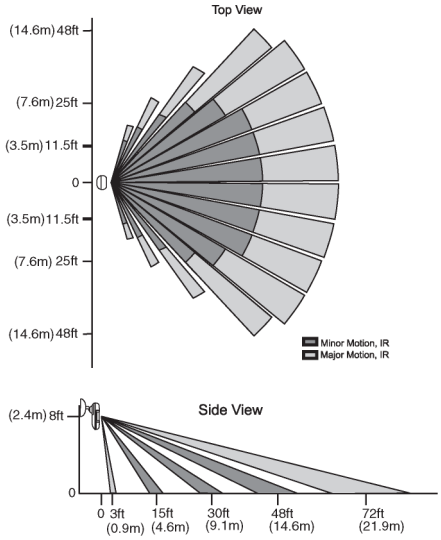



### Dual Technology (SLSWDS1500)

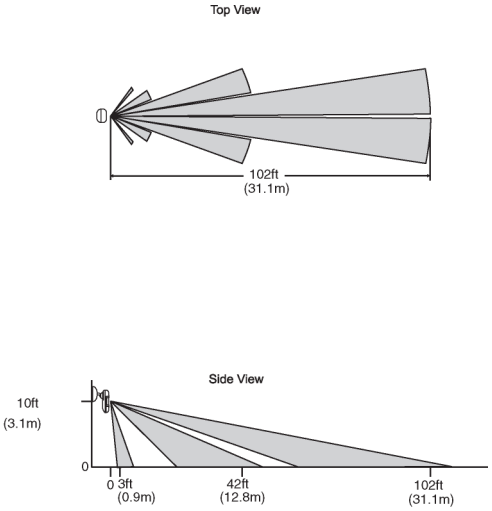



### PIR (SLSWPS1500)

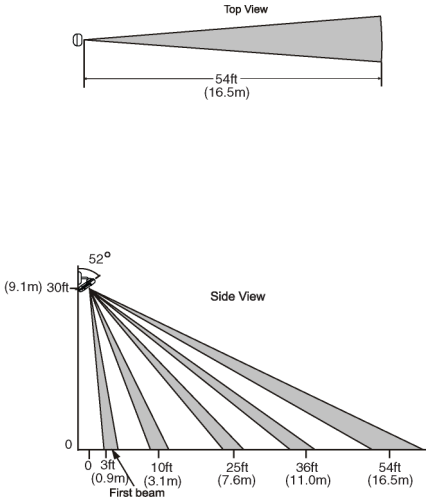
#### Wide Angle Lens




#### Long Range Lens




#### High Bay Lens




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## REPLACING THE LENS

**Figure 1: Pry Lens Holder from Sensor**

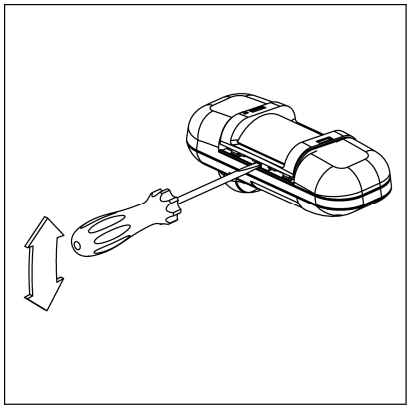


**Figure 2: Squeeze Clips to Remove Lens Holder**

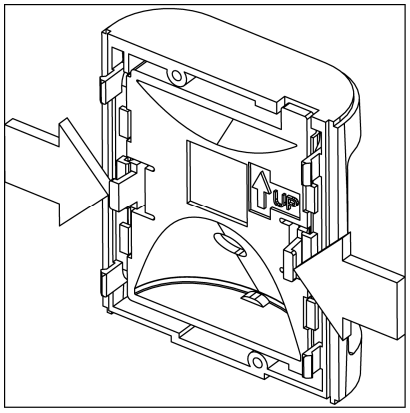
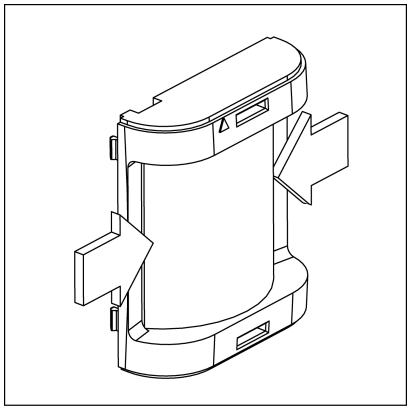



**Figure 3: Push Front Sides of Lens to Remove**



Three lenses are provided with the PIR for customized coverage pattern needs: the wide angle, long range and high mount lens.

To remove and replace a lens on the PIR sensor:

1. Use a flat head screwdriver to gently pry the side of the lens holder from the sensor. See Figure 1.
2. Squeeze together the two protruding clips located on the back of the lens holder. See Figure 2.
3. Remove the back of the lens holder.
4. Gently push the front side of the lens to remove from the lens holder. See Figure 3.
5. Select a new lens. The lens type is identified on the top of the lens in clear lettering.
6. Hold the new lens by the sides and gently bend to curve. The smooth surface is the outside of the lens, and the small notch indicates the bottom of the lens. See Figure 4.
7. Gently push the curved lens into the back of the lens holder.
8. Confirm the small notch at the bottom of the lens is aligned with the spur on the bottom of the lens holder, and all sides of the lens are secured under the sides of the holder.
9. Push the lens holder backing onto the lens holder until the two clips snap into place.
10. Align the small triangle on top of the lens holder with the triangle on the sensor. See Figure 5.
11. Push the lens holder back into the sensor until it snaps into place.

**Figure 4: Push Lens into Holder**

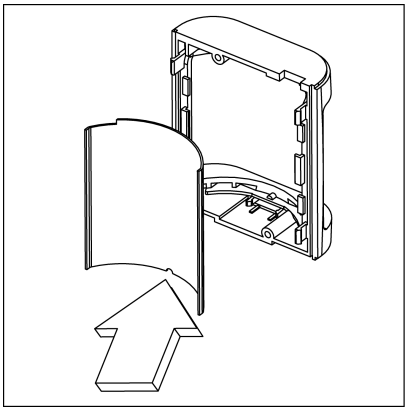
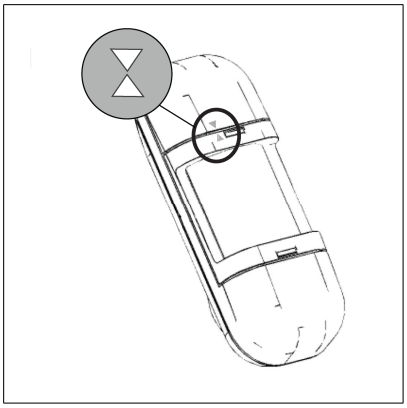
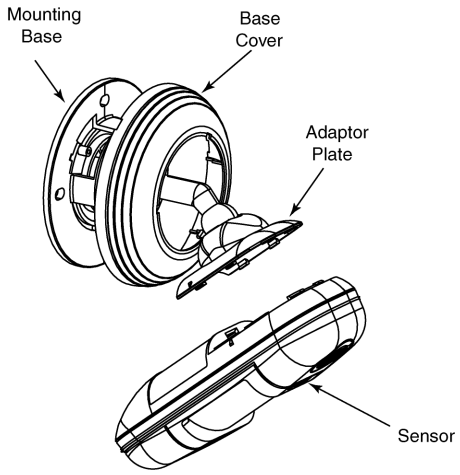


**Figure 5: Align Lens Holder and Sensor Triangles**




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## INSTALLATION




The sensor can be mounted to a variety of wall and ceiling surfaces such as acoustical tile, drywall, and plywood.

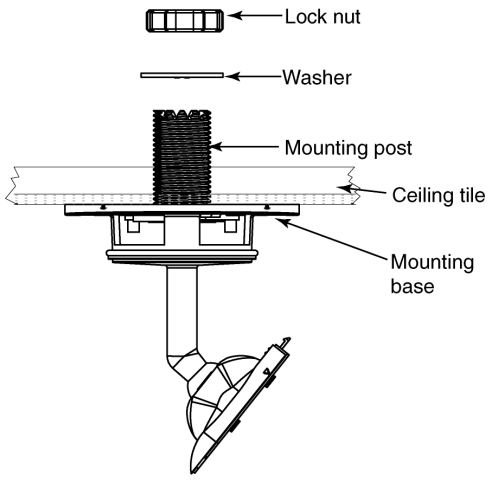
There are three mechanisms for mounting the sensor:

1. Mounting post: mount to the ceiling using the mounting post provided.
2. Junction box: mount to the wall or ceiling using a junction box.
3. Surface: mount directly to the wall or ceiling.

Refer to the following three sections of this bulletin for information on each mounting mechanism.

*NOTE: Install the sensor at least five feet away from sources of air flow, such as HVAC vents, and ceiling fans.*

### Mounting with Supplied Mounting Post




Use the hardware mounting kit provided to mount the sensor to a ceiling.

1. Turn OFF the circuit breaker supplying power to the sensor's power pack. Use a properly rated voltage sensing device to verify the power is OFF.
2. Drill a 7/8-in. diameter hole into the wall or ceiling surface at the mounting location.

   *NOTE: For acoustical tile, you can use the threaded mounting post to drill a mounting hole. Press the cutter end of the mounting post firmly against the tile, and twist the post back and forth.*
3. Feed the sensor wiring through the mounting post, then twist and lock the mounting post to the back of the mounting base.
4. Insert the mounting post into the hole drilled in step 2. Secure the sensor assembly from the top of the ceiling tile using the supplied washer and lock nut.
5. Wire the sensor according to the "Wiring the Sensor" section of this bulletin. Follow all applicable national and local electrical codes.
6. Firmly press the base cover onto the mounting base until the base snaps into place.
7. Align the six pin connector on the adapter plate with the pin holes on the sensor.
8. Firmly press the pins to the connector until secure.
9. Align the small arrows on the adaptor plate with the arrows on the sensor.
10. Push the sensor up to lock into place.

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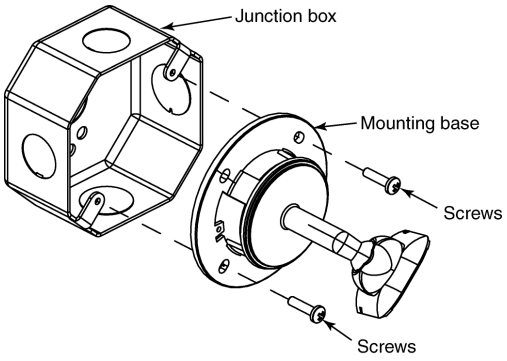
### Mounting to a Junction Box

**⚠ WARNING**

**HAZARD OF ELECTRICAL SHOCK, EXPLOSION OR ARC FLASH.**

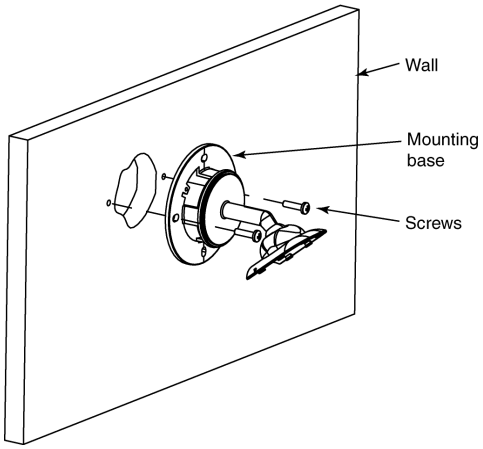
Do Not Install To Cover a Junction Box Having Class 1, 3, Or Power and Lighting Circuits.

**Failure to follow this instruction can result in personal injury or equipment or property damage.**




1. Turn OFF the circuit breaker supplying power to the sensor's power pack. Use a properly rated voltage sensing device to verify the power is OFF.
2. Attach the mounting base to a standard 3.5-inch junction box (not provided) using the two #8 x 32 screws provided.
3. Wire the sensor according to the "Wiring the Sensor" section of this bulletin. Follow all applicable national and local electrical codes.
4. Firmly press the base cover onto the mounting base until the base snaps into place.
5. Align the six pin connector on the adapter plate with the pin holes on the sensor.
6. Firmly press the pins to the connector until secure.
7. Align the small arrows on the adaptor plate with the arrows on the sensor.
8. Push the sensor up to lock into place.

### Surface Mounting




1. Turn OFF the circuit breaker supplying power to the sensor's power pack. Use a properly rated voltage sensing device to verify the power is OFF.
2. Drill a hole large enough to accommodate wiring at the mounting location.
3. Attach the mounting base to the wall or ceiling using a secure method, such as with screws and wall anchors (not provided).
4. Wire the sensor according to the "Wiring the Sensor" section of this bulletin. Follow all applicable national and local electrical codes.
5. Firmly press the base cover onto the mounting base until the base snaps into place.
6. Align the six pin connector on the adapter plate with the pin holes on the sensor.
7. Firmly press the pins to the connector until secure.
8. Align the small arrows on the adaptor plate with the arrows on the sensor.
9. Push the sensor up to lock into place.


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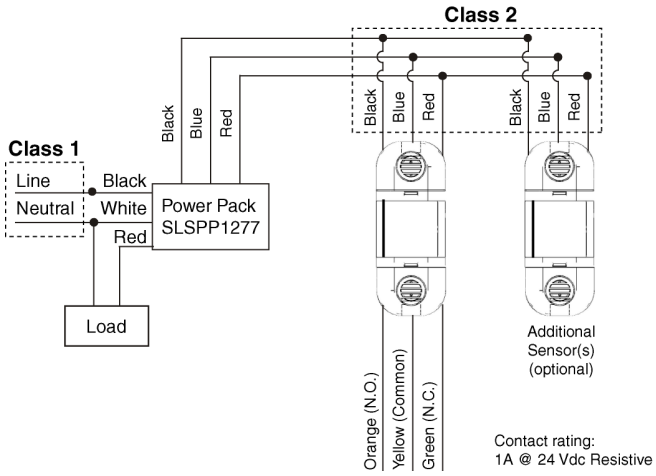
### Wiring the Sensor

**⚠ WARNING**

**CLASS 2 DEVICE WIRING ONLY**

- Do not reclassify and install as Class 1, 3, or Power and Lighting wiring.
- To be connected to a Class 2 power source only.
- Wiring connections shall be rated suitable for the wire size employed.

**Failure to follow this instruction can result in personal injury or equipment or property damage.**




Wiring Color Table

| Wire Color | Function |
|---|---|
| Black | 0 VDC |
| Red | +24 VDC |
| Green | Isolated contact NC |
| Yellow | Isolated contact common |
| Orange | Isolated contact NO |
| Blue | Control output |

*Confirm the Sensor is connected to the Class 2 side of the Power Pack. Refer to the Power Pack SLSPP1277 Instruction Bulletin for additional information.

## OPERATION

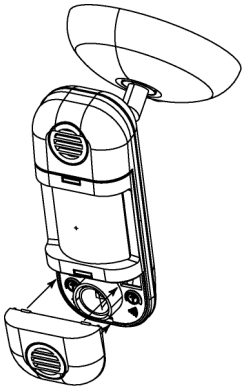
1. Turn ON the circuit breaker and any wall switches that may be supplying power to the sensor's power pack.
2. When motion is detected, the LED(s) on the sensor housing flash for approximately 0.5 seconds before the lights turn ON.

*NOTE: When first installed, the sensor may need several minutes to warm up before fully operational.*

3. Set the Time Delay to the Test setting of 15 seconds. Refer to the "Setting the Time Delay" section for instructions.
4. Vacate the room until the lights turn OFF.
5. Re-enter the room. Lights will turn ON immediately. If lights do not turn ON, refer to the "Wiring Diagram" illustration, and verify the sensor wiring.
6. When correct sensor operation is confirmed, adjust the settings as described in the "Adjusting the Settings" section.

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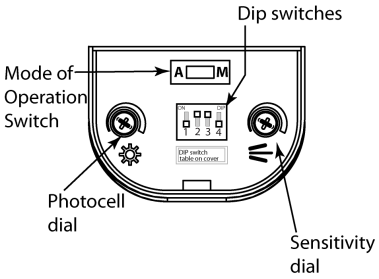
### Adjusting the Settings



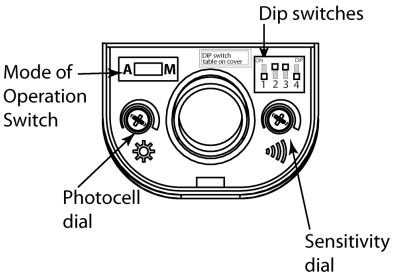
1. Before making adjustments, gently pry the sides of the access cover off with a flat head screwdriver and pull the cover away from the sensor. The cover is located below the sensor LED.
2. Replace the cover when adjustments are complete.

Sensor Adjustment

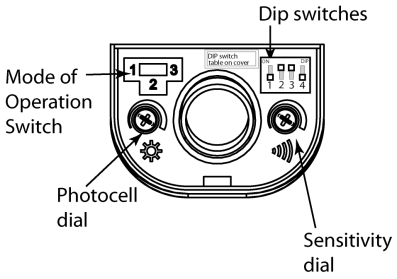
**PIR (SLSWPS1500)**




**Ultrasonic (SLSWUS1500)**




**Dual Technology (SLSWDS1500)**




Mode of Operation

The mode of operation settings determines when lights are turned ON, or when lights remain ON.

Refer to the Sensor Adjustment illustrations for the mode of operation switch.

| Sensor | Mode | Description |
|---|---|---|
| PIR and Ultrasonic | A* | Automatic mode: Lights turn ON or remain ON only when the sensor detects motion. |
| | M | Manual bypass override ON mode. Lights are always ON. |
| Dual Technology | 1 | Instant ON setting. Either PIR or ultrasonic detection turns lights ON or causes lights to remain ON. |
| | 2* | Only PIR detection turns the lights ON. Either PIR or ultrasonic detection causes the lights to remain ON. |
| | 3 | Override ON setting. Lights are always ON. |

* Normal, default sensor setting.


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## Setting the Time Delay




*Factory Default Setting

Use the dip switches to assign a length of time the lights stay ON when motion is no longer detected.

Refer to the Access Cover Components illustrations for the dip switch location. Push the dip switch up to set to ON, and down to set to OFF.

**Time Delay Duration Values**

| Time Delay | Dip Switch 1 | Dip Switch 2 | Dip Switch 3 | Dip Switch 4 |
|---|---|---|---|---|
| 15 seconds (test setting) | ON | ON | ON | ON |
| 2 minutes | ON | ON | ON | OFF |
| 4 | ON | ON | OFF | ON |
| 6 | ON | ON | OFF | OFF |
| 8 | ON | OFF | ON | ON |
| 10 | ON | OFF | ON | OFF |
| 12 | ON | OFF | OFF | ON |
| 14 | ON | OFF | OFF | OFF |
| 16 | OFF | ON | ON | ON |
| 18* Factory Default | OFF | ON | ON | OFF |
| 20 | OFF | ON | OFF | ON |
| 22 | OFF | ON | OFF | OFF |
| 24 | OFF | OFF | ON | ON |
| 26 | OFF | OFF | ON | OFF |
| 28 | OFF | OFF | OFF | ON |
| 30 | OFF | OFF | OFF | OFF |

## Photocell Adjustment (automatic mode only)

The Sensor contains a light sensor that controls when the load turns ON based on the light level. The sensor detects the ambient light level and enables or disables the load based on the photocell dial setting.

To select an ambient light level to turn the load ON:

1. Use a 1/8-inch flat-blade screwdriver to turn the photocell dial.
2. Use the dial to set the operation of the load to one of the modes described in the table below.

**Setting the Light Level Adjustment**

| Mode | Adjustment Dial Setting | Functionality |
|---|---|---|
| Automatic ambient light level operation | Manually set between fully counterclockwise and clockwise. | From the full counterclockwise position, slowly rotate the dial while also making sufficient movement to trigger the sensor. Stop when the load turns ON. When the area is occupied, the load turns ON when the ambient light level is below the set level. To prevent cycling, the load does not turn OFF when the light level rises. |
| Light level operation disabled (factory default) | Fully clockwise | Turn the photocell dial fully clockwise. The load ignores the ambient light level, and always turns ON when a user enters the room. |

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Sensitivity Adjustment

The sensitivity dial is set to determine the amount of movement required to trigger the sensor and the distance from which movement can be detected. The sensitivity can be adjusted from 60% to 100% maximum coverage. Turn the dial to the desired setting from 60% (fully counter-clockwise) to 100% (fully clockwise). The default setting is 100%.

*NOTE: Consider the characteristics of the room when adjusting the sensitivity of the Ultrasonic and Dual Tech sensors. Hard surfaces (concrete, tile, glass) are reflective and create a higher sensitivity for ultrasonic detection.*

*Soft surfaces (carpet, drapes, acoustical tile) absorb some of the ultrasonic energy and reduce the sensor's sensitivity. Building additions, such as cubicles and walls, may also require a higher sensitivity setting.*

Masking the Lens

To help prevent unwanted detection, such as people moving in adjacent areas, you can partially mask the lens of the PIR and Dual sensors with the supplied white masking strips.


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