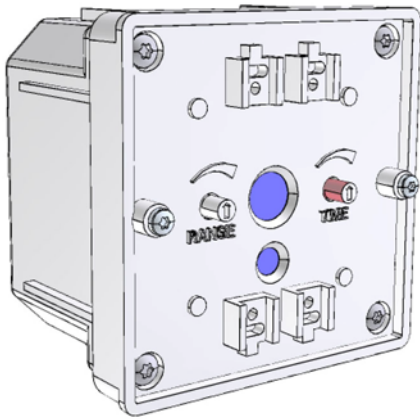


High Bay Occupancy Sensor for Use with Electronic Ballast HID Luminaires

SLSPIP210EB and SLSPIP210EBCT

INTRODUCTION

Figure 1: High Bay Occupancy Sensor for Use with Electronic Ballast HID Luminaires



The SLSPIP210EB and SLSPIP210EBCT Occupancy Sensors work with single or multiple electronic ballast HID luminaires to reduce lamp wattage by approximately 50% and then return the lamp wattage to 100% when occupancy is detected in an aisle or room. Motion is detected using passive infrared (PIR) technology. The occupancy sensor drives the dimming port of the electronic ballast with an isolated relay contact located inside the sensor. This relay opens upon observed motion.

Features

- Compatible with HID luminaires rated between 120 and 480VAC/60Hz, without adding taps or jumpers.
- Includes a user-adjustable 1 to 15 minute activity timer.
- Includes a user-adjustable range dial to customize PIR sensitivity.
- Includes a manual test switch for self diagnostics that assist with installation and debugging networks.

Features Unique to the SLSPIP210EBCT

The SLSPIP210EBCT is designed for use in cold temperatures.

The device includes:

- gaskets in the sealed housing to prevent moisture from entering.
- an internal self-heater for operation in cold temperatures.

Contents of the Box

Item	Quantity
Occupancy Sensor Unit SLSPIP210EB or SLSPIP210EBCT	1
Area Lens (attached to the Sensor)	1
Aisle Lens	1
Pinch Bracket	1
Mounting Screws (attached to the bracket)	4
Tilting Screws (attached to the bracket)	2
Yoke (attached to the Sensor)	1
1/2 inch Lock Ring (attached to the Sensor)	1
Instruction Bulletin	1

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.

COVERAGE PATTERNS

Figure 2: Coverage Pattern for Aisle Lens

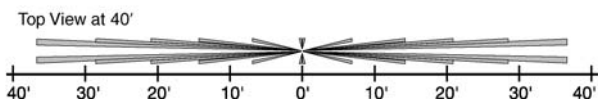
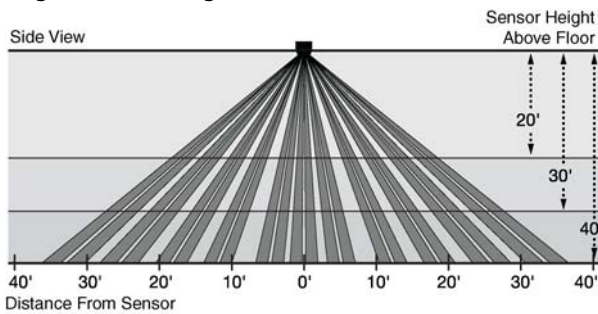
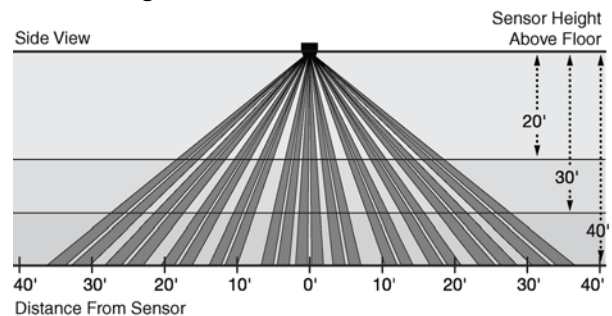
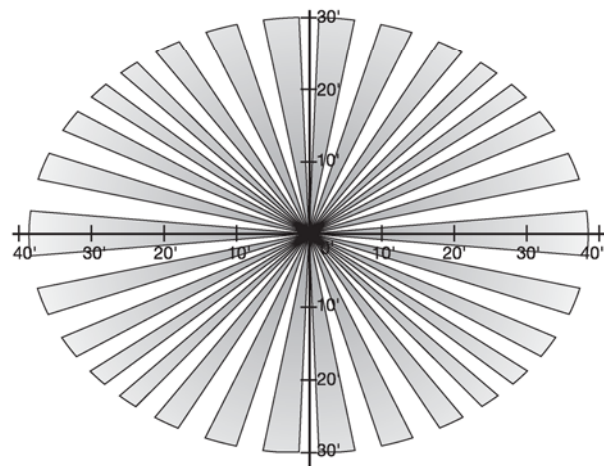


Figure 3: Coverage Pattern for Area Lens



Top View From Area Lens at 40'



WIRING DIAGRAMS FOR TYPICAL APPLICATIONS

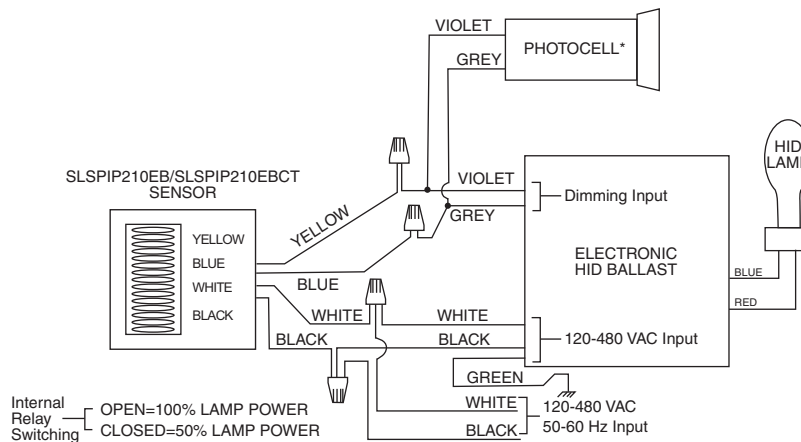
There are three ways to wire the sensors depending upon the type of application.

Using the Sensor with Daylight Sensing Photocell

Electronic HID ballasts contain provisions for dimming to intermediate power levels between 50% and 100% wattage, a feature frequently used with daylight-sensing photocells. A typical energy conservation strategy employing both occupancy sensors and photocell is to dim the lamp to 50% wattage in the absence of motion. When motion is detected, lamp power rises to 100% or to a lower wattage dictated by the photocell. See "Wiring Diagram - Sensor Used with a Photocell" figure.

NOTE: Use of a photocell is not required for sensor operation. However, if photocell use is desired, Multipoint[®] photocell (Model Number: EDS) or equivalent is required for wiring applications.

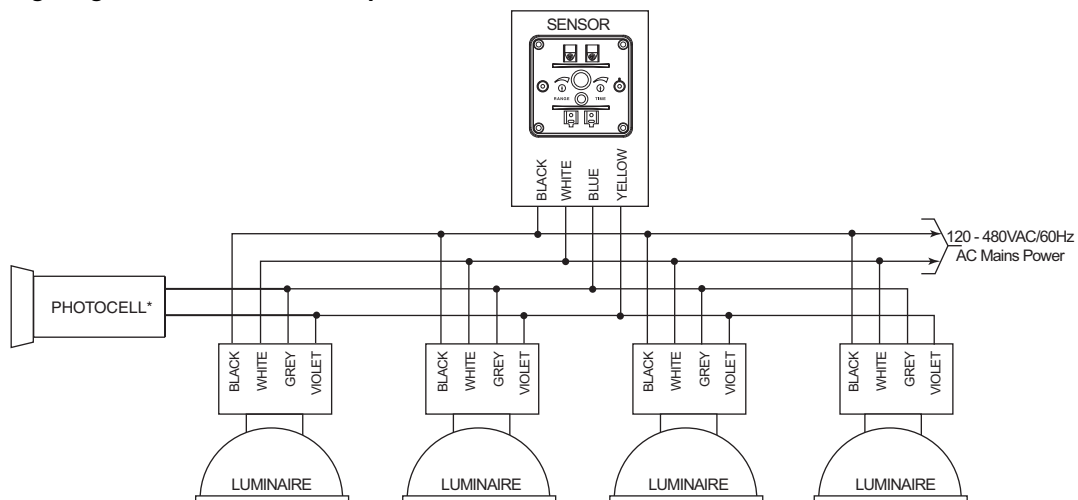
Figure 4: Wiring Diagram - Sensor Used with a Photocell



Using the Occupancy Sensor with Multiple Electronic HID Luminaires

One Occupancy Sensor can drive multiple electronic luminaires. See "Wiring Diagram - Sensor with Multiple Electronic HID Luminaires" figure.

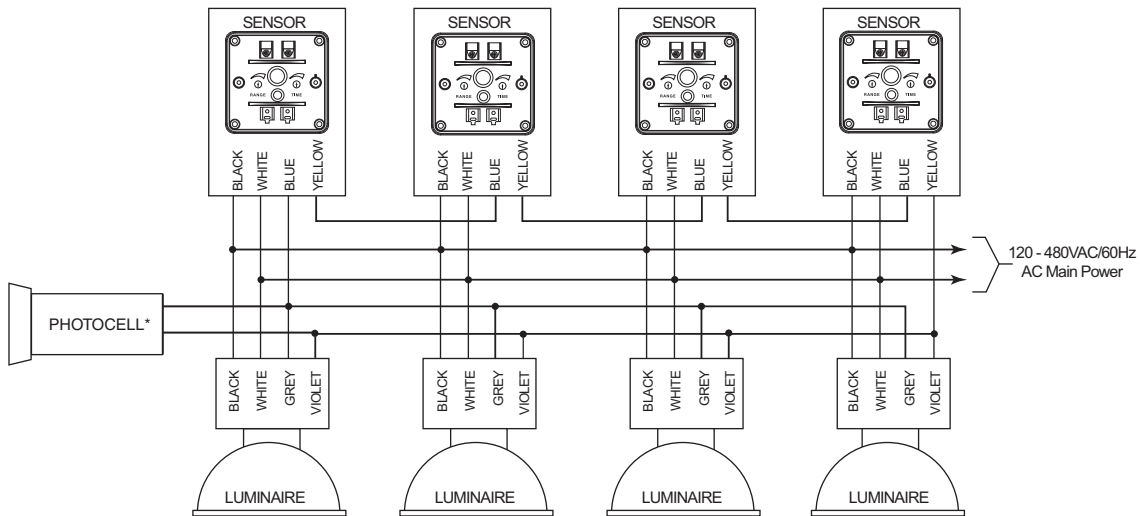
Figure 5: Wiring Diagram - Sensor with Multiple Electronic HID Luminaires



Using the Occupancy Sensor for Ganged Response

Multiple SLSPIP210EB and SLSPIP210EBCT sensors can be used to drive one or more electronic luminaires to achieve ganged response. A typical installation in a warehouse would employ three occupancy sensors per aisle, one on each end and one at mid-aisle. If any sensor observes motion, then all luminaires in the aisle go to the high wattage step. For this configuration, sensors are wired in a series. See "Wiring Diagram - Multiple Sensors for Ganged Response" figure.

Figure 6: Wiring Diagram - Multiple Sensors for Ganged Response



INSTALLATION

The Occupancy Sensor can be mounted in a variety of configurations, and using various installation methods because of its compatibility with many different types of luminaires. Consider the ballast housing used and specific installation circumstances, such as location on the luminaire, when selecting a mounting method.

NOTE: The Occupancy Sensor does not work with HID luminaires equipped with magnetic ballasts.

Figure 7: Occupancy Sensor Components

- KEY:
- A. Sensor
 - B. Time dial
 - C. Mounting post
 - D. Range dial
 - E. LED
 - F. "TEST SWITCH HERE" decal

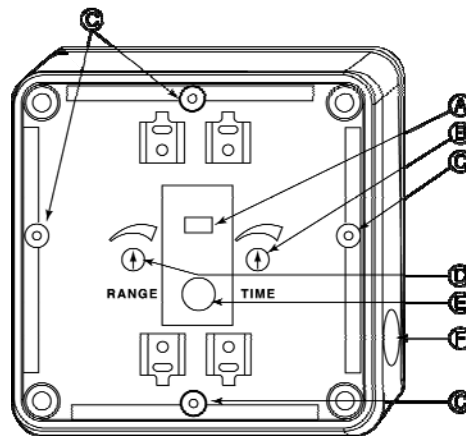
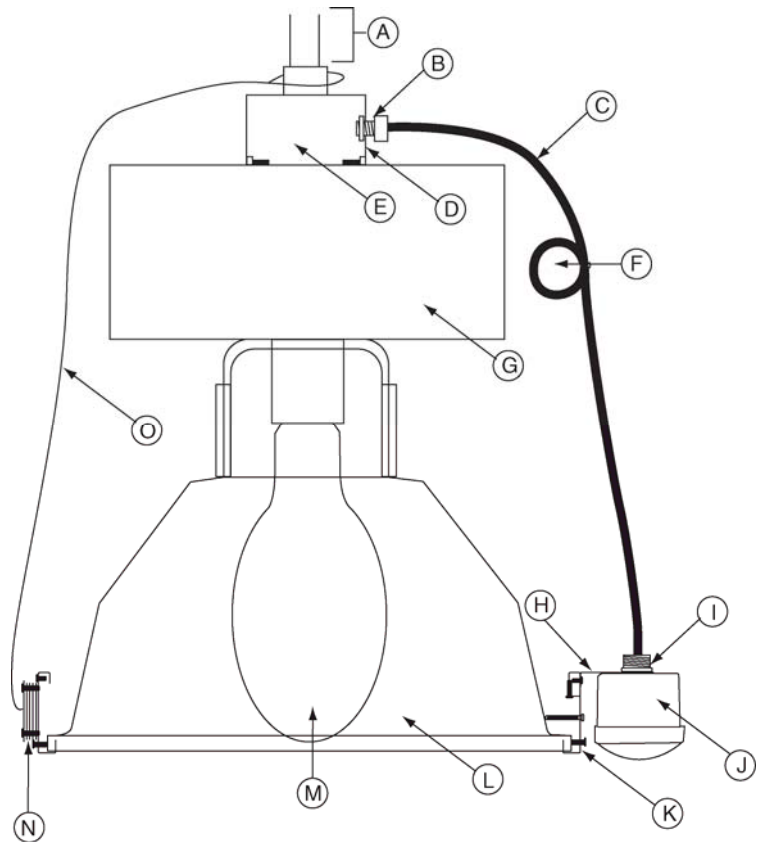


Figure 8: Sensor with Luminaire and Components

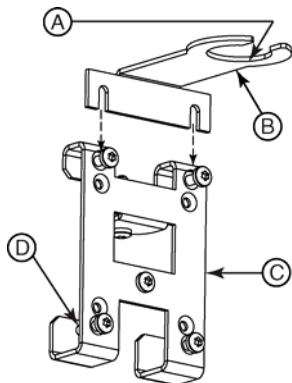
KEY:

- A. Mounting Stem
- B. Cord Grip
- C. Wire Harness
- D. Access Door
- E. Wiring Box
- F. Excess Cord Loop
- G. Ballast Housing
- H. Yoke
- I. Threaded Nipple
- J. Sensor
- K. Pinch Bracket
- L. Reflector
- M. Lamp
- N. Counterweight
- O. Safety Wire



NOTE: Mounting the Occupancy Sensor below the reflector may cause discoloration to the Sensor's housing.

Figure 9: Attaching the Yoke to the Pinch Bracket



KEY:

- A. Attach sensor to yoke and secure with lock nut
- B. Yoke
- C. Pinch Bracket
- D. Attach pinch bracket to reflector and tighten

1. Turn OFF the circuit breaker supplying power to the luminaire. Use a properly rated sensing device to verify power is OFF.
2. Punch out the access door knockout on the side of the wiring box, or drill a hole to accommodate the cord grip.
3. Insert the cord grip and wire harness through the wiring box. Use a strain relief mechanism (not provided) at the point where the wire harness enters the wiring box.
4. Wire the sensor to the luminaire. Refer to the wiring diagram(s).
5. Screw the yoke to the pinch bracket. Refer to the "Attaching the Yoke to the Pinch Bracket" figure.
6. Use the screws on the bracket to attach the sensor to the rim of the reflector. The mounting bracket is reversible: Use the end of the bracket that fits the thickness of the reflector rim. Refer to the "Pinch Bracket with Screws" figure.

NOTE: Over-tightening the mounting bracket screws on an acrylic reflector can cause stress cracks to form months after installation.

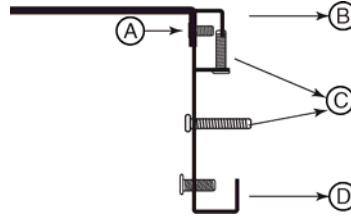
7. Use the arrows on the lens cover to orient the lens to the walkway below if using the aisle lens.
8. Use the long screws in the pinch bracket to adjust the angle of the sensor and provide additional gripping of the reflector's rim.

9. An optional counterweight may be purchased separately and mounted to the opposite side of the luminaire reflector to balance the assembly. Use a safety wire to secure the counterweight to the ballast housing.
10. Bundle excess wire harness wire into an excess cord loop and tie so that the wire does not touch the hot reflector.

Figure 10: Pinch Bracket with Screws

KEY:

- A. Screw here to connect yoke and claw bracket.
- B. Use this end of the claw bracket to attach sensor to a thick reflector.
- C. Tilting screws
- D. Use this end of the claw bracket to attach sensor to a thin reflector.



Adjustment

Settings are located behind the lens holder. Before making adjustments, unscrew the lens holder from the Occupancy Sensor. Refer to the "Switching the Lens" section for information on removing the lens.

Range

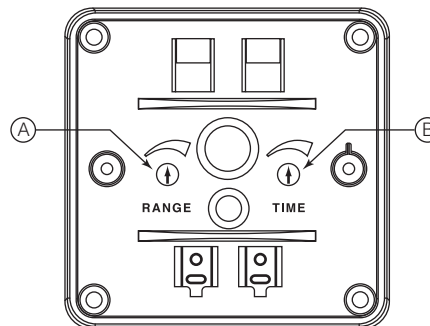
The range dial is set to determine the amount of movement required to trigger the sensor. The range is preset at the most common level of 50% sensitivity however sensor range is influenced by environmental factors such as the floor temperature. Turn the dial to the desired setting from 0% (fully counter-clockwise) to 100% (fully clockwise).

Time

The time dial is set to assign the length of time the luminaire stays ON after motion is no longer detected. The time is preset at 10 minutes. Turn the dial to the desired setting from 1 minute (fully counter-clockwise) to 15 minutes (fully clockwise).

Figure 11: Range and Time Adjustment Dials

KEY:
A. Range dial
B. Time dial



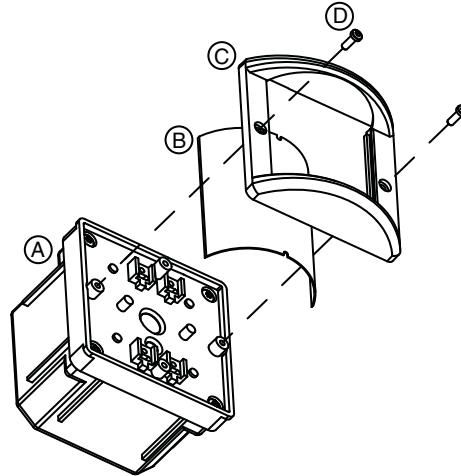
SWITCHING THE LENS

The Occupancy Sensor comes with two lenses: an area lens (green decal) and an aisle lens (red decal). The area lens comes installed on the unit.

To switch the lens:

1. Unscrew the lens holder from the Sensor. Refer to the "Removing the Lens Holder and Lens from the Sensor" figure.

Figure 12: Removing the Lens Holder and Lens from the Sensor



2. Push the front sides of the lens to remove from the lens holder. Refer to the "Removing the Lens" figure.
3. Hold the new lens by the sides and gently bend to curve the smooth surface is the outside of the lens, and the small notches indicate the top and bottom of the lens. Refer to the "Inserting the Lens" figure.
4. Push the lens holder back into the sensor until it snaps.

Figure 13: Removing the Lens

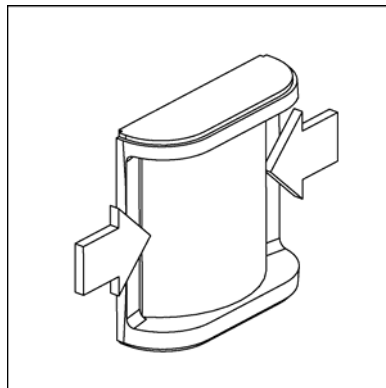
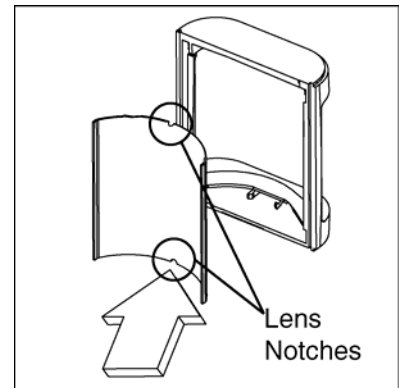


Figure 14: Inserting the Lens



LUMINAIRE WARM-UP

Electronic HID luminaires require the lamp to be operated at 100% wattage for 15 minutes after it's turned ON to assure long lamp life.

Electronically-ballasted HID fixtures accomplish start-on-high inside the ballast. During the start-on-high interval the ballast ignores the state of its dimming port and the attached occupancy sensor.

During the start on high interval the electronic ballast will not respond to the manual override test switch on the occupancy sensor.

TESTING THE OCCUPANCY SENSOR

The Occupancy Sensor has an LED that blinks three distinct patterns to indicate if motion is detected by the luminaire.

Table 1: LED Blinking Patterns for the Luminaire

Pattern	Motion Observed?	Luminaire State
Single flash	No	The luminaire is at 50% wattage
Double flash	No	The luminaire is at 100% wattage
Triple flash	Yes	The luminaire is at 100% wattage

During testing, the installer uses a magnet to toggle the Occupancy Sensor's relay and confirm proper operation. Follow the instructions below to toggle the luminaire between 100% wattage and 50% wattage.

1. Turn ON the circuit breaker that supplies power to the Occupancy Sensor's power pack.
2. Wait until the 15 minute luminaire warm-up period is complete.
3. Place a pocket magnet near the "TEST SWITCH HERE" decal on the Occupancy Sensor. Refer to the "Occupancy Sensor Components" figure. The audible click indicates the Occupancy Sensor has changed states.

NOTE: Use a magnet of sufficient strength. A pocket magnet is generally strong enough; however a flexible refrigerator magnet is not.

4. Remove and replace the magnet to change the state again. As the magnet is removed and replaced, the luminaire toggles between the high brightness and dimmed states.

STANDARDS AND SPECIFICATIONS

Standards

UL and cUL Listed

FCC Part 15 Class B

Specifications

SLSPIP210EB

SLSPIP210EBCT

Specifications	SLSPIP210EB	SLSPIP210EBCT
Fixture Compatibility	HID with electronic ballast dimming port	
Dimming Method	Relay-switched	
Relay Current Rating	4 amperes RMS maximum	
AC Line Voltage (white and black wires)	120/208/240/277/347/480VAC	
Power Consumption	3 watts maximum	
Ambient Temperature Range	32 to 122 °F (0 to 50 °C) non-condensing	-10 to 122 °F (-23 to 50 °C) non-condensing
Observed Motion ON time	1 to 15 minutes (user adjustable)	
Wire Harness	4 Conductor 18 AWG stranded copper wire	
Wire Harness Length	36 inches (914 mm)	
Dimensions (including mounting nipple)	3.25in. x 3.25in. x 3.25in. (82.56mm x 82.56mm x 82.56mm)	

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