

Ceiling-Mounted Line Voltage Occupancy Sensor

SLSCLP1000, SLSCLU2000, SLSCLD2000

INTRODUCTION

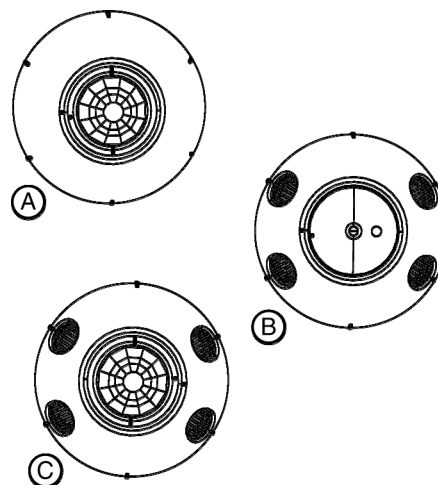
Ceiling-Mounted Occupancy Sensors are ideal for use in business and office settings to accurately detect occupancy and automatically control lighting. The ceiling-mount design of these low-profile sensors allows the greatest possible motion sensitivity. An adjustment panel is conveniently located on the front of the sensor, providing ready access to setting controls after the sensor is installed.

There are three models of ceiling-mounted sensors.

Figure 1: Ceiling Mount Line Voltage Occupancy Sensors

KEY:

- A. Passive Infrared (PIR) sensor (SLSCLP1000)
- B. Ultrasonic (US) sensor (SLSCLU2000)
- C. Dual Technology (DT) sensor—PIR and Ultrasonic combined (SLSCLD2000)



BEFORE YOU BEGIN

Before installing the Ceiling Mounted Line Voltage Occupancy Sensor, inspect it carefully. Verify the catalog number on the box label.

Table 1: Components

Description	Quantity
Occupancy sensor	1
Product instruction bulletin	1
500 sq. ft (46 sq. m) lens*	1
1000 sq. ft. (93 sq. m) lens (Factory Installed)*	1
Opaque adhesive masking tape*	1
Mounting #8x32 screws	2

*Not included with SLSCLU2000

FEATURES

Table 2: Ceiling Mounted Line Voltage Occupancy Sensor Features

Description	PIR (SLSCLP1000)	Ultrasonic (SLSCLU2000)	Dual Technology (SLSCLD2000)	
Coverage area	1000 sq. ft.	2000 sq. ft.	2000 sq. ft.	
Field of view	360°			
Ambient light level sensing	0.5-250 foot candles			
Adjustable time delay	15 sec.-30 min.			
Walk through mode	✓	✓	✓	
Adaptive PIR	✓	x	✓	
Adaptive timing	✓	✓	✓	
Auto/manual light level sensing	✓	✓	✓	
Operation Mode	x	x	✓	
Adjustable sensitivity	50-500 sq. ft. lens 100-1000 sq. ft. lens (10-100% of max. coverage)	200-2000 sq. ft. (10-100% of max. coverage)	PIR: 50-500 sq. ft. lens 100-1000 sq. ft. lens (10-100% of max. coverage)	Ultrasonic: 200-2000 sq. ft. (10-100% of max. coverage)
LED motion indicators	1 (red)	1 (red)	2 (red/green)	

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.

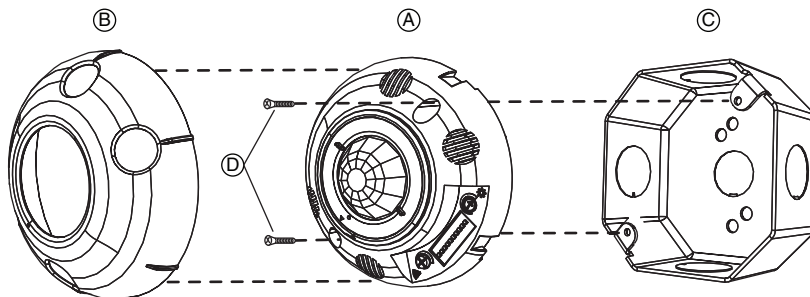
INSTALLING THE SENSORS

Mount the sensors directly to a standard 3.5 in. (8.9 cm) octagonal electrical box (no plaster ring (cover) required) using the #8x32 mounting screws provided.

Figure 2: Installing the Sensor using a 3.5 in. Octagonal Electrical Box

KEY:

- A. Sensor
- B. Cover
- C. Electrical box (octagonal)
- D. #8x32 Screws (provided)

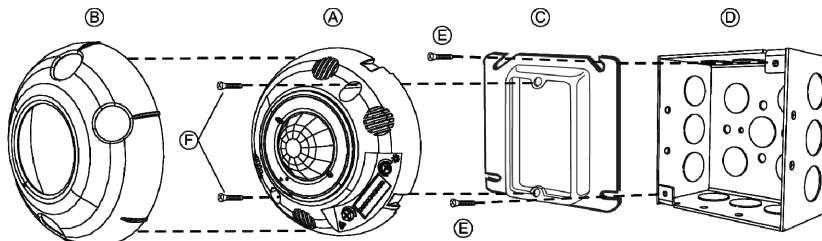


The sensors can also be mounted to 4 in. (10.2 cm) square electrical box with a single-gang plaster ring (cover) (shown below). Use the #8x32 screws provided to mount the plaster ring to the box. Use two #6x32 screws (not provided) to mount the sensor to the plaster ring.

Figure 3: Installing the Sensor using a 4 in. Square Box Electrical Box and Plaster Ring

KEY:

- A. Sensor
- B. Cover
- C. Plaster ring
- D. 4 in. (10.2 cm) square electrical box
- E. Two #8x32 screws (provided)
- F. Two #6x32 screws (not provided)



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

NOTE: Soft surfaces (carpet, drapes, acoustical tile) will absorb some of the ultra-sonic energy and reduce the unit's sensitivity. Building additions, such as cubicles and walls, may also require a higher sensitivity setting.

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

PIR LENSES

Two PIR lenses are included with each PIR (SLSCLP1000) and Dual Tech (SLSCLD2000) sensor. A 1,000 sq. ft (93 sq. m) lens is factory installed. A 500 sq. ft (46 sq. m) lens is included. Refer to the section "Switching Lenses" for instructions on removing and installing the PIR lenses.

Removing and Replacing the Outer Cover

To access the sensitivity adjustment dials, dip switches, and to switch lenses, rotate the outer cover approximately .25 in. (6.4mm) counter-clockwise and lift it off the sensor unit.

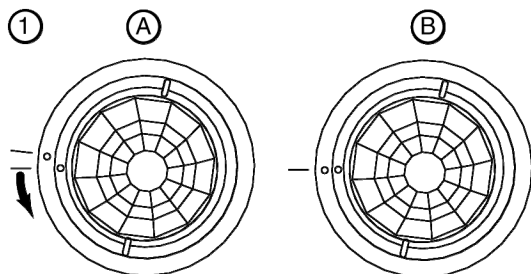
To replace the cover, simply align the dot on the outer cover with the dot on the sensor housing (US) or PIR sensor lens (PIR and DT) and rotate the outer cover approximately .25 in. (6.4mm) clockwise.

Figure 4: Installing and Removing the Outside Cover (SLSCLD200 DT shown)

KEY:

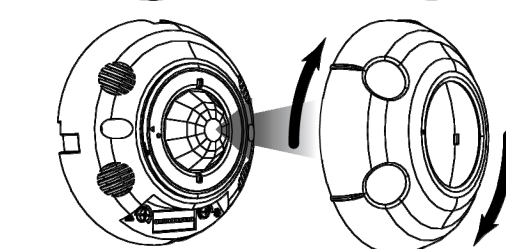
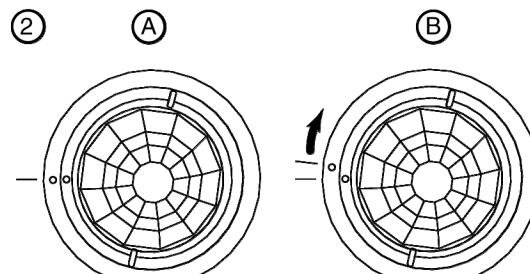
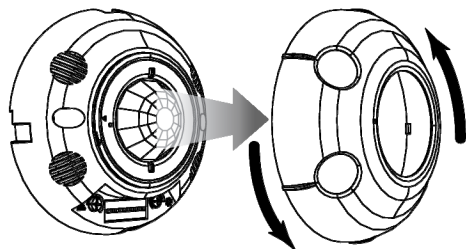
1. Removing the cover

- A. Rotate the outer cover approximately .25 in. (6.4mm) counter-clockwise.
- B. Align the dots and lift the outer cover off of the sensor housing



2. Replacing the cover

- A. Align the dot on the lens with the dot on the Outer cover. Ensure that the tabs on the back of the outer cover are inserted in the slots of the sensor housing.
- B. Rotate the Outer cover approximately .25 in. (6.4mm) clockwise to lock it into position.



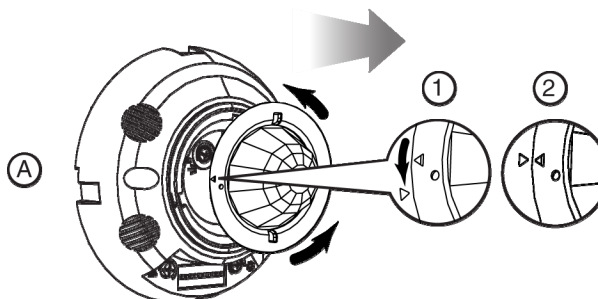
Switching Lenses

Figure 5: Removing and Installing the Lenses

KEY:

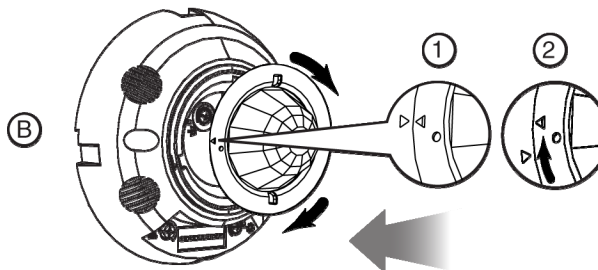
A. Removing the Lens

- 1. Rotate the attached lens approximately .25 in. (6.4mm) counter-clockwise
- 2. Align the arrows and lift the lens off of the sensor housing



B. Installing the lens

- 1. Align the arrows on the lens with the arrow on the sensor. Ensure that the tabs on the back of the lens are inserted in the slots of the sensor housing.
- 2. Rotate the lens approximately .25 in. (6.4mm) clockwise to lock it into position.



Coverage Patterns

Figure 6: PIR Ceiling Mounted Occupancy Sensor

KEY:

1. Top view
2. Side view
- A. 1,000 Sq. ft. lens
- B. 500 Sq. ft. lens
- C. Major motion
- D. Minor motion

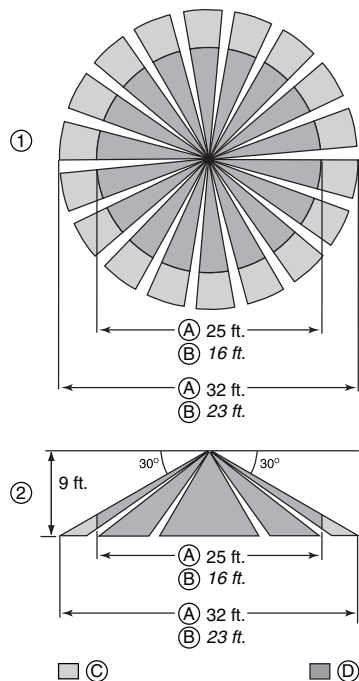
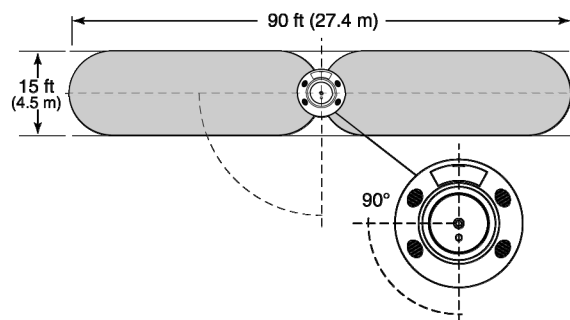
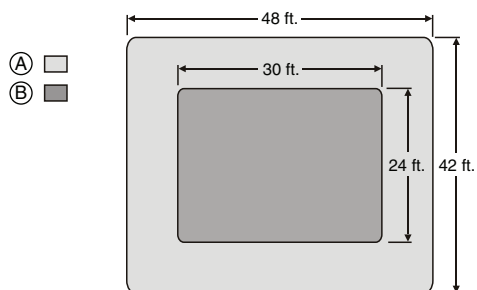


Figure 7: Ultrasonic Ceiling Mounted Occupancy Sensor

KEY:

- A. Major motion
- B. Minor motion

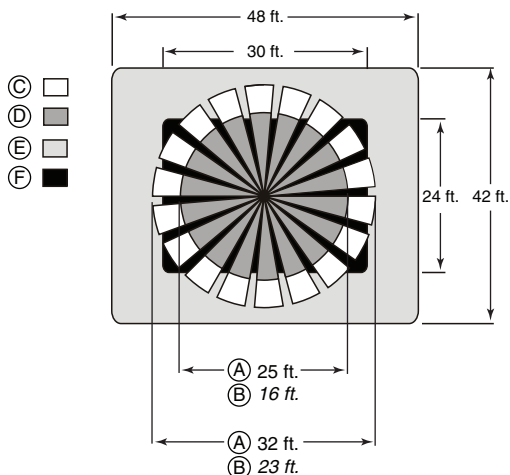


Hallway Orientation and Coverage Pattern

Figure 8: Dual Technology Ceiling Mounted Occupancy Sensor

KEY:

- A. 1,000 Sq. ft. lens
- B. 500 Sq. ft. lens
- C. PIR Major motion
- D. PIR Minor motion
- E. Ultrasonic major motion
- F. Ultrasonic minor motion



Wiring the Sensors

Use the wiring diagrams in this section to properly make all the wiring connections. Follow all applicable national and local electrical codes.

Turn off all electrical power supplying the circuits you are working on before attempting to wire the sensor. Always use a properly rated voltage sensing device to confirm that power is off.

Figure 9: Wiring Diagram - Single Sensor

KEY:

A. Power source (Refer to the operating range described in the specifications table.)

B. Line/Hot (+)

C. Neutral (-)

D. Load

E. Override (Off)

F. Sensor (PIR shown)

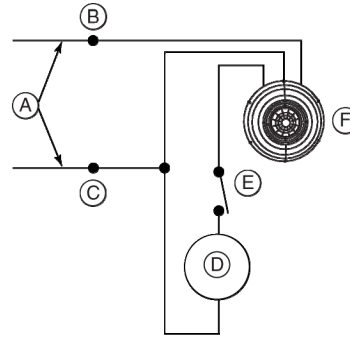


Figure 10: Wiring Diagram - Multiple Sensors

KEY:

A. Power source (Refer to the operating range described in the specifications table.)

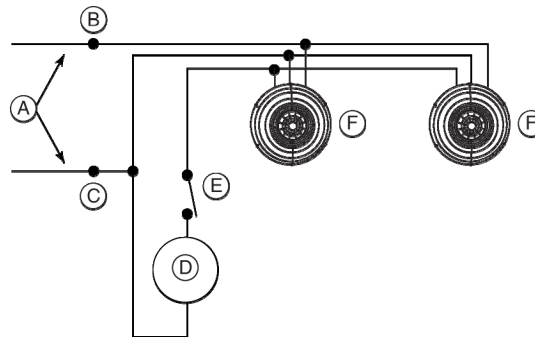
B. Line/Hot (+)

C. Neutral (-)

D. Load

E. Override (Off)

F. Sensor (s) (PIR shown)



OPERATION

1. Restore power to the circuit.
2. Whenever motion is detected the LED(s) on the sensor housing will briefly flash on and the lights will turn or remain on.

NOTE: When first installed, the sensor may have to warm up for a few minutes before it is fully operational.

3. Set the Time Delay to the Test setting.
4. Vacate the room until the lights turn off.
5. Re-enter the room. Lights should turn on immediately. If lights do not turn on immediately, verify correct sensor wiring.
6. Once the sensor is operational, adjust the settings.

Sensitivity Adjustment Dials and Dip Switches

Refer to the section Removing and Replacing the outer Cover to access the sensitivity adjustment dials and dip switches.

Figure 11: Sensitivity Adjustment and Dip Switches – SLSCLP1000

KEY:

- A. PIR (SLSCLP1000) Sensitivity dial
- B. Photocell dial
- C. Dip switches

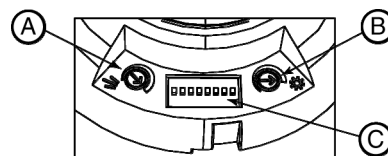


Figure 12: Sensitivity Adjustment and Dip Switches - SLSCLU2000

KEY:

- A. Ultrasonic (SLSCLU2000) Sensitivity dial
- B. Photocell dial
- C. Dip switches

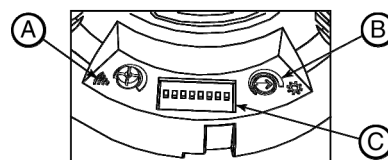
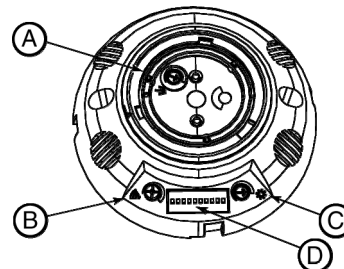


Figure 13: Sensitivity Adjustment and Dip Switches - SLSCLD2000

KEY:

- A. Dual Technology (SLSCLD2000) PIR Sensitivity dial
- B. US Sensitivity dial
- C. Photocell dial
- D. Dip switches



Automatic Operation

Dip switch 8 is set to ON for Automatic operation.

When the sensor detects occupancy, the output turns ON, closing the relay contacts. A delayed-off timer (re)starts whenever occupancy is detected. When the timer expires, the output turns OFF, opening the relay contacts.

Manual ON Operation

Dip switch 8 is set to OFF for Manual operation. When Manual ON is selected, the output shall be forced on, relay contact closed. This setting is used to bypass the sensor and keep the lights on.

Sensor Adjustment

Follow the guidelines and refer to the diagrams below to properly adjust the sensor or switches lenses for proper operation.

Sensitivity Adjustment

The sensor's sensitivity is adjustable from 10% to 100% of maximum coverage to increase or decrease the distance and movement required to trigger the sensor. Turning the adjustment dial fully counter-clockwise selects the minimum coverage sensitivity. Turning the adjustment pot fully clockwise selects the maximum coverage sensitivity. The factory default setting is the maximum coverage position (100%).

Time Delay Settings

DIP switches 1 – 3 are used to determine how long lights will stay on after motion is no longer detected. Settings range from 15 seconds to 30 minutes. The default setting is 18 minutes. The possible settings are shown in the "Time Delay Settings" table.

Table 3: Time Delay Settings

DIP Switch Number	1	2	3
Time delay:			
15 secs (TEST)	●	●	●
2 Min.	●	●	–
5 Mins	●	–	●
10 Mins	●	–	–
15 Mins	–	●	●
18 Mins ★	–	●	–
25 Mins	–	–	●
30 Mins	–	–	–

●=ON, – =OFF, ★ =Factory Preset

Photocell Adjustment

The sensor has a manual and automatic light level set up feature. Use dip switch #7 to select between Manual and Automatic. When the dip switch is set to the OFF position (DOWN) the sensor is set to manual adjustment.

The manual adjustment enables the photocell potentiometer. It sets the light level above which ambient light will not trigger the sensor. The ambient light level can be set from 0.5–250 foot-candles.

Turn the dial to the desired setting: from 0.5 foot-candles (fully counter-clockwise) to 250 foot-candles (fully clockwise). The default setting is 250 foot-candles. This setting also disables the photocell (e.g. ambient light will not inhibit sensor operation).

Automatic Photocell Setup

The automatic photocell setup feature simplifies sensor's light level threshold setup for faster, easier installation. Once dip switch #7 is turned to the On position (up) the sensor disables the manual photocell potentiometer. The sensor then reads and stores the light level in the area automatically. The saved light level setting becomes the threshold the sensor uses for day light harvesting. Refer to the operational description below.

Move dip switch #7 to ON (UP) to start the automatic light level setup process.

- The sensor turns on the load, ignoring any occupancy detections.
- The sensor will sit idle for 10 seconds, flashing the red LEDs.

NOTE: The 10 seconds gives the installer time to move away from the sensor, thus preventing shadowing or ambient light interference. During this time the lights will remain on.

- After the 10 seconds has expired, the sensor takes a measurement of the light level in the area with the lighting on.
- The sensor saves the light level measurement into memory. From this point forward this saved light level reading is the light level threshold for the sensor.
- The red LED flashes rapidly for 3 seconds to confirm the sensor has stored the new light level.
- Once the light level threshold is saved the setup process is complete. The sensor return to it's previous operating mode.

To turn off the automatic light level feature, turn dip switch #7 to OFF (DOWN). This returns the sensor to manual photocell adjustment operation.

Resetting the Light Level

To reset the light level threshold, Toggle dip switch #7 from OFF (DOWN) to ON (UP). This will force the sensor receive and store a new light level reading.

Modes of Operation

Dual Technology Sensor Settings

Table 4: Modes of Operation (Dual Technology only)

Initial Detection	Maintain Detection	Dip Switch 9	Dip Switch 10	Modes	Description
Either Sensor	Either Sensor	1	1	Mode 1	Instant ON
PIR	Either Sensor	0	1	Mode 2	Normal Operation
Both	Either Sensor	1	0	Mode 3	Less false conditions
PIR	PIR	0	0	Mode 4	PIR Only

Override ON Setting - Lights always on

Mode 1 – Instant ON

Any PIR or ultrasonic event triggers the sensor. The delayed-off timer (re)starts whenever an event is detected by either source. The output turns OFF when the set time expires. This mode provides the quickest detection.

Mode 2 – Normal Operation (Factory Default Setting)

When the sensor is in the OFF state (unoccupied), any PIR event triggers the sensor. When the sensor is in the ON state (occupied) either a PIR or ultrasonic event re-triggers the sensor. The delayed-off timer (re)starts when (re)triggered. The output will turn OFF when the timer expires. This mode reliably isolates and prevents false triggering from undesired sources.

Mode 3 – Less False ON/OFF Conditions

When the sensor is in the OFF state (unoccupied), both PIR and Ultrasonic events are required to trigger the sensor. When the sensor is in the ON state (occupied) either a PIR or ultrasonic event retrigger the sensor. The delayed-off timer (re)starts when (re)triggered. The output will turn OFF when the timer expires. This mode is the most resistant to triggering in order to prevent false on conditions and is the easiest to retrigger prevents false off conditions.

STANDARDS AND SPECIFICATIONS

Table 5: Ceiling Mount Line Voltage Occupancy Sensors Product Standards and Specifications

Standards	
UL and cUL Listed	
FCC Part 15, Home and Office Use (Class B)	
California Title 24 Certified	
Specifications	
Operating Range VAC	120Vac: 1000W Max ballast load, or 1000W Tungsten, or ¼ Hp motor 230Vac: 1500W Max ballast load 277Vac: 1800W Max ballast load 347Vac: 1500W Max ballast load
Frequency	120Vac: 60Hz ; 230Vac,277Vac,347Vac: 50 or 60Hz
Operating Temperature	32 to 122°F (0 to 50°C)
Humidity	0 to 90% RH non-condensing

Sensor Current Consumption

Table 6: SLSCLP1000

Voltage input	Current consumption	Power Factor	Power consumption
347Vac 60Hz	7.5mA	0.068	0.18W
277Vac 60Hz	6mA	0.09	0.15W
230Vac 60Hz	5mA	0.1	0.11W
230Vac 50Hz	4.2mA	0.1	0.09W
120Vac 60Hz	2.5mA	0.20	0.06W

Table 7: SLSCLD2000/SLSCLU2000

Voltage input	Current consumption	Power Factor	Power consumption
347Vac 60Hz	28mA	0.107	1.04W
277Vac 60Hz	22mA	0.133	0.81W
230Vac 60Hz	18mA	0.162	0.67W
230Vac 50Hz	15mA	0.162	0.56W
120Vac 60Hz	8.3mA	0.311	0.31W

DIMENSIONS

Figure 15: SLSCLP1000 PIR Ceiling Mount Line Voltage Sensor

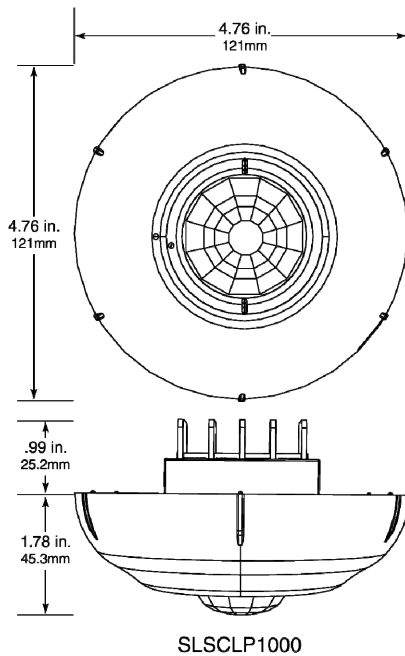


Figure 16: SLSCLU2000 US Ceiling Mount Line Voltage Sensor

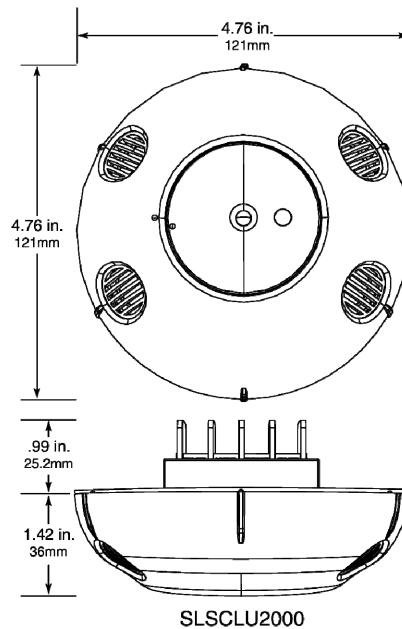
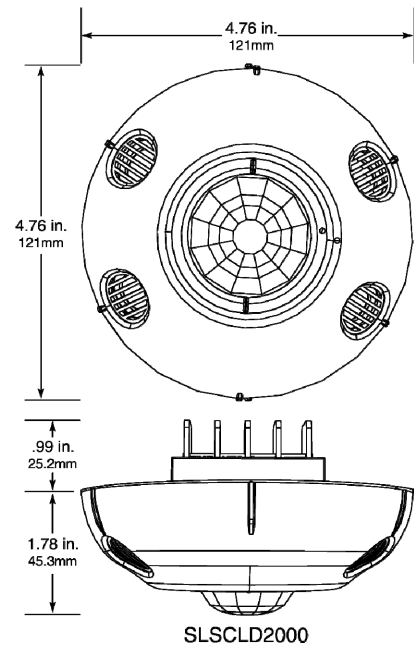


Figure 17: SLSCLD2000 DT Ceiling Mount Line Voltage Sensor



SUPPORT AND SERVICE

Contact the Customer Information Center for technical support by phone at 1-888-778-2733 or e-mail at lightingcontrol.support@us.schneider-electric.com.

Contact your local Schneider Electric service representative for repairs or service to your network.

You may also find helpful information on our web site at:

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