CDL-608D12V/24V PIR/Ultrasonic Occupancy Sensor

SUREN

Operation and Specifications

The CDL-608D12V/24V is a low-voltage PIR/Ultrasonic Occupancy sensor to control lighting automatically. 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.

SENSOR INITIALIZATION
Following power-on, the CDL-608D12V/24V sensor is fully operational after 30sec warm-up.

SENSOR OPERATION
Multi-Tech Mode: This is the default mode of operation for the sensor.
Mode 1: Set SWITCH A1 OFF and A2 OFF: 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.
Mode 2: Set SWITCH A1 OFF and A2 ON: Either technology turns lights ON and keep the lights ON in this mode. 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 light will turn OFF after the delayed-OFF time.
Delayed-OFF time: The sensor is designed to turn the light OFF if no motion is detected after a specified time. The length of time is called the delayed-OFF time and is set using the timer 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. A Green flash indicates motion detection by ultrasonic technology. A Red flash indicates motion detection by infrared technology.

Dimming:
Set B1=ON, sensor will provide 0-10V output according to the ambient light level.Set B1=OFF, dimming function will be disable.

IR Detector: Pyroelectric, Dual elements
Power Supply:
10-24 Vdc; 30 mA at 12Vdc

Housing Material:
High-impact ABS

Dimensions:
Φ110 x 56 mm (Dia. x D)

Approvals/qualification:
CCC(Pending)
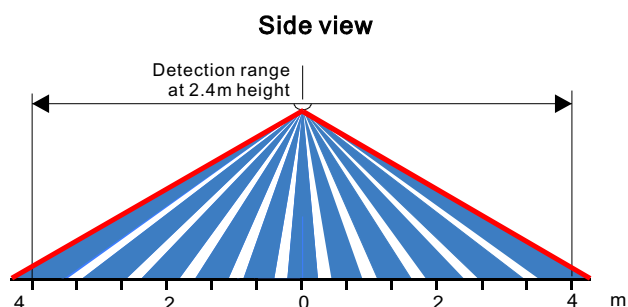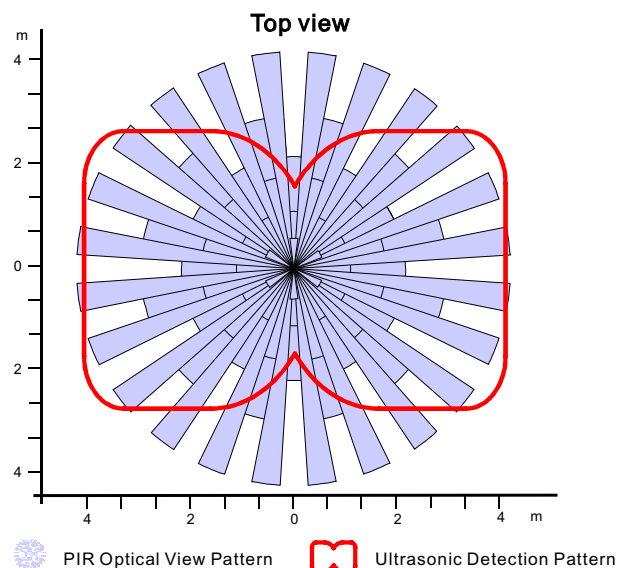 **CE**(Approved)

RF Immunity:
20 V/m 10-1000 MHz;
10 V/m 1-2 GHz

Ultrasonic Frequency:
40KHz

Operating Temperature Range:
-10°C to +50° C

Accessories:
Base ring for solid ceiling ;
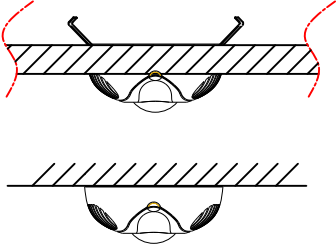Retaining spring for drop ceiling

Field-of-view:

Top view

m
4

2

0

2

4

4   2   0   2   4   m

❋ PIR Optical View Pattern   ⬚ Ultrasonic Detection Pattern

Side view

Detection range
at 2.4m height

4   2   0   2   4   m

Wiring Diagram

Illustrative wiring of an occupancy sensor with a 0-10V dimming LED driver with 12V auxiliary output.

+ 12V/24V DC
- GND
+0~10V

Live

0-10V Dimming
LED Driver
with 12V
Auxiliary Output

Neutral

V+

Earth

V-

LED
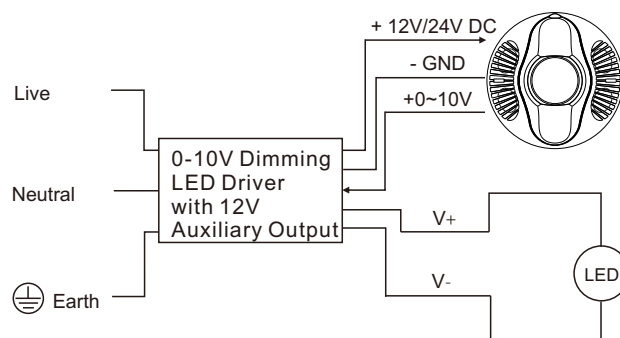
1: Sensor Mounting Choices

The sensor may be mounted either in a drop-ceiling panel, or on a solid ceiling. In a drop-ceiling panel, two metal springs serve to retain the sensor in the panel. On a solid ceiling, the sensor is mounted on a base ring (Supplied with the sensor). The base ring is fastened to the ceiling by means of two screws.
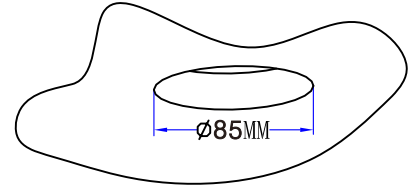
2: Drop-ceiling Mounting: Base Preparation

Install the two retaining springs as shown.
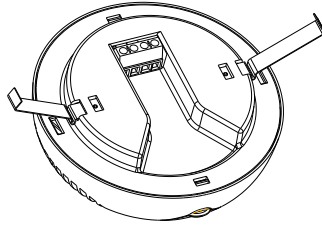
3: Drop-ceiling Mounting: Panel Preparation

Use a hole saw to cut a 85 mm circular hole in the drop-ceiling panel at the desired location.

Ø85MM

4: Drop-ceiling Mounting: Sensor Installation

Press the retaining springs together, then push the springs and the sensor base through the ceiling panel hole until the sensor rim is seated against the panel.
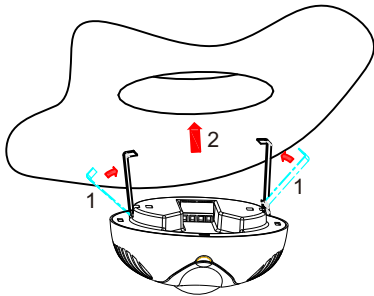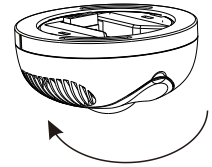
5: Solid-ceiling Mounting

1. Use the two screws (supplied with the sensor) to fasten the base ring to the ceiling
2. Align the grooves of the sensor with the tongues of the base ring
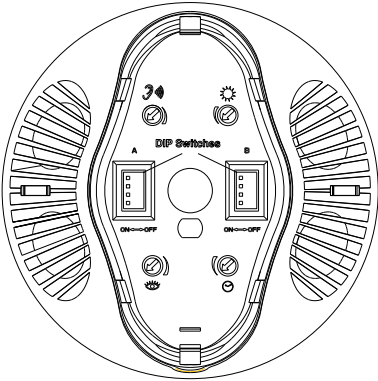3. Turn clockwise to lock the sensor into position
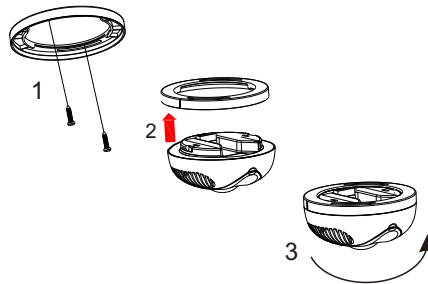
6: Sensor Opening

Slide a fingertip under the tab at one end of the control cover. Pull gently to remove the cover.

7: Operation Control Console

All aspects of sensor operation can be adjusted here.

DIP Switches

8: Ultrasonic Adjustment

For maximum range, Set fully clockwise(CW); If reduced range is required, then turn counter-clockwise (CCW) and test range.

Sets the ultrasonic range

Range setting
Full CCW = min.(OFF)
Full CW = max.
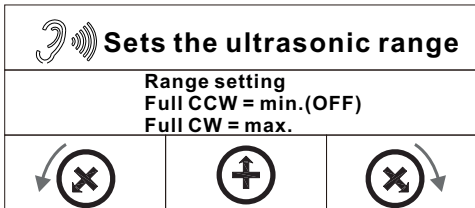
9: Infrared Adjustment

For maximum range, Set fully clockwise(CW); If reduced range is required, then turn counter-clockwise (CCW) and test range.

Sets the infrared range

Range setting
Full CCW = min.(OFF)
Full CW = max.
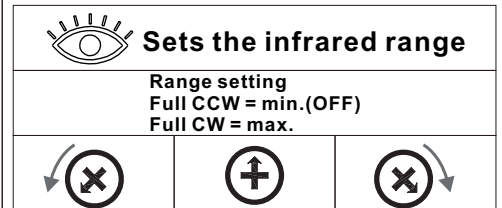
10: Delayed-OFF time Adjustment

Each time motion is detected, the load remains activated for a pre-set time, which is set by the delayed-OFF time adjustment. The fully counter-clockwise setting (30 seconds) can be used for testing. The fully clockwise setting is 30 minutes. If motion is detected during the ON time, then the load remains activated until the full delayed-OFF time has passed since the latest motion detection.

Delayed-OFF time

30sec	5min	10min	20min	30min
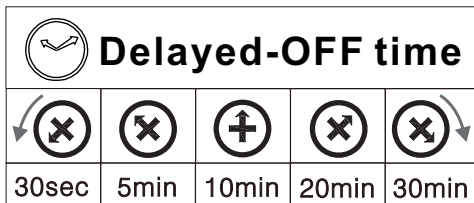
11: Dimming and Sunset Sensor Adjustment

1. B1 Set ON, Dimming Enable and the sensor output 0~10V with ambient light(10~320 Lux) when the motion is detected.
2. B1 Set OFF, with ambient light is just at a no lighting necessary level, and with the sensor mounted as normal, remove the control cover, set the Light Level control fully clockwise. Replace the cover and walk under the sensor. The LED should light, indicating detection (and load-activation output). Re-adjust the control a little counter-clockwise and test. Continue until the LED does not light.

Ambient Light

20Lux	60Lux	120Lux	200Lux	320Lux
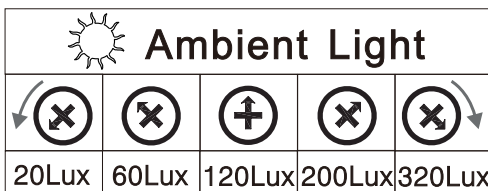
12: Operation Mode Adjustment

TABLE 4: SWITCH SETTINGS			
SWITCH	SWITCH FUNCTIONS	SWITCH SETTINGS	
	Bank A	OFF	ON
A1	Single/Multi-Tech Mode	Multi-Tech	Single Tech
A2*	Multi-Tech (A1 OFF)	Multi-Tech mode1	Multi-Tech mode2
	Single Tech (A1 ON)	PIR	Ultrasonic
A3	Manual Mode	Auto Adapting Enabled	Auto Adapting Disabled
A4	Walk-Through Mode	Walk-Through Enable	Walk-Through Disable
	Bank B		
B1	Light Mode	Lights Adjust Enable	Dimming Enable
B2	LEDs Mode	LEDs Enabled	LEDs Disable
B3	Test Mode	OFF→ ON → OFF = Enter/Exit Test Mode	
B4	N/A	N/A	N/A

∗NOTE: This setting is used the Multi Technology and Single Technology Option;

Test Mode: To set the delayed-OFF time to 5 seconds for performing a walk test. While the sensor is in test mode, the LEDs will flash amber once a second.
1. ENSURE POWER IS ON.
2. Remove front cover.
3. Locate Dip Switch 3 in Bank B (B3) (refer to Figure 1) B3 will be in the OFF position from the factory.
4. To enter Test Mode, move switch to ON and back to OFF. The test mode has now been entered with a 5 second delayed-OFF time. **NOTE**: If B3 is already in the ON position, then test mode can be entered by just moving it to the OFF position.

NOTES:
1. The timer will remain in the 5 second test mode for 15 minutes, then automatically exit test mode and reset to the delayed-OFF time setting as defined by the black timer knob.
2. To manually take the timer out of the 5 second test mode, simply toggle the switch B3 from OFF to ON and back to OFF.