CDL-1608

Operation and Specification

SUREN

PIR & Ultrasonic Occupancy Sensor

CDL-1608 embodies the technology of infra red and ultrasonic motion detection into one easy-to-install occupancy sensor. Mounted at a height of 2.4m, this sensor detects people moving within 8m diameter of a full circular coverage area.

CDL-1608 can be surface mounted or flush mounted for an attractive, un-obstructive appearance. The sensor is fitted with a high-capacity relay that is capable of driving a wide range of load types, including lighting or HVAC devices.

Operation

Initialization:
The sensor becomes operational 30 seconds after power is supplied.

Detection and Activation:
When a person enters a room, the sensor detects major body motion and turns the light on. The light is kept on even as smaller body movement is detected. The sensor's **Detection Sequence Logic** (DSL) minimizes false triggering by adjusting detection sensitivity based upon sequence of occupancy events. The **Sunset Sensor** provides additional control such that lighting is not activated when there is sufficient brightness in the area.

De-Activation (Normal Occupancy Mode):
When motion is no longer detected, the sensor turns the light off after a set time delay (Delayed-Off Time).

Walk-thru Mode:
The walk-through feature is useful in areas that are momentarily occupied, e.g. hallway. If the sensor detects no movement for more than 10 seconds light was turned off, it will apply a Delayed-Off Time of 2.5 minutes. If the sensor detects movement less than 10 seconds after light was turned off, it will next turn the light off based upon the set time delay.

Specification

Power Supply:
85 - 277 V AC

Power Consumption:
3.08 W

Power Output:
85 - 277 V AC, 5 A

PIR Sensor:
Pyroelectric, 2-element

Ultrasonic Frequency:
40 Khz

Housing Material:
High-impact ABS

Dimension:
110mm Diameter x 56 mm Height

Operating Temperature Range:
-40° to 55° C

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

Approvals:
CE

Limitations of Sensor Products: Sensor products and associated systems do not offer guaranteed performance in ordinary situations or in special situations including but not limited to burglary, fire, or other emergencies. They may fail to function for diverse reasons, including (but not limited to): power failure, dead batteries, improper installation, coverage "blind spots", coverage areas overlooked during installation, component failure, or inadequate maintenance. Sensors and their associated systems should be checked weekly to ensure that all devices are working properly.

SUREN LIMITED WARRANTY

SUREN Systems, Ltd., of Fo Tan, Shatin, Hong Kong, warrants its products to be in conformance with its own plans and specifications and to be free from defects in materials and workmanship under normal use and service for twelve months from the date of original purchase. Seller's obligation shall be limited to repairing or replacing, at its option, free of charge for materials or labor, any part which is proved not in compliance with Seller's specifications or proves defective in materials or workmanship under normal use and service. Seller shall have no obligation under this Limited Warranty or otherwise if the product is altered or improperly repaired or serviced by anyone other than Seller. For warranty service, return transportation prepaid, to SUREN Systems, Ltd., Unit 15, 12/F, Block B, Wah Sang Industrial Building, 14-18 Wong Chuk Yeung Street, Fo Tan, Shatin, Hong Kong. Seller has no obligation to attend the buyer's location to retrieve the goods or make repairs on site.

There are no warranties, expressed or implied, of merchantability, or fitness for a particular purpose or otherwise, which extend beyond the description on the face hereof. In no case shall seller be liable to anyone for any consequential or incidental damages for breach of this or any other warranty, express or implied, or upon any other basis of liability whatsoever, even if the loss or damage is caused by its own negligence or fault.

Seller does not represent that the products it sells may not be compromised or circumvented; that the products will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; or that the products will in all cases provide adequate warning or protection. Customer understands that a properly installed and maintained alarm system may only reduce the risk of a burglary, robbery, or fire without warning, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury or property loss as a result.

Consequently, seller shall have no liability for any personal injury; property damage or other loss based on a claim the product failed to give any warning. However, if seller is held liable, whether directly or indirectly, for any loss or damage arising under this limited warranty or otherwise, regardless of cause or origin, seller's maximum liability shall not in any case exceed the purchase price of the product, which shall be the complete and exclusive remedy against seller.

This warranty replaces any previous warranties and is the only warranty made by Seller on this product. No increase or alteration, written or verbal, of the obligations of this Limited Warranty is authorized.

©2011 SUREN Systems, Ltd.. All rights reserved. SUREN™, HDIR™ are trademarks of SUREN.

SUREN Part no.: N-ML00-0058-01-1 Rev.1 Printed in China

CDL-1608

Installation

SUREN

Caution: This product must be installed by a qualified electrician. The casing and internal components of the device should not be removed or modified. Exposure of internal components and wiring may cause electric shock and result in death.

Accessories:

- Brackets, screws and wall plugs for surface mount in solid ceiling
- Spring clips for flush mount in drop ceiling
- Infra red zone mask

Location:

- Determine the number of sensors required to cover the floor area
- Install the sensor near work area where walk-path cuts across radial lines, not towards the sensor
- Do not install the sensor near ventilation outlet
- Avoid facing the ultrasonic transceiver of the sensors to each other to minimize interference

Procedure:

- Prepare sensor mount. See illustration in the next page
- Connect the sensor as shown in the wiring diagram. Make sure power supply is turned off
- Make sure there are no wiring exposed before mounting the sensor
- Mount the sensor and turn on the power supply
- Open the cover, review settings and change if necessary. See Settings section
- Initiate test mode, replace the cover and conduct walk-test

Walk-Test:

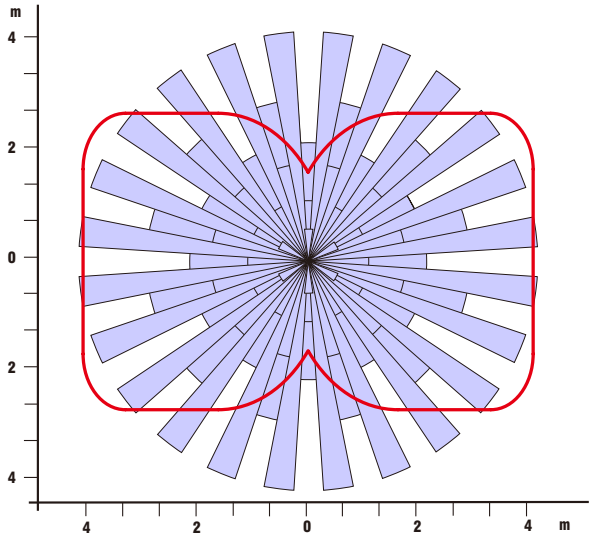
- Toggle dip switch B3 (Off-On-Off) to enter test mode. If B3 is already in the On position, moving it to the Off position will also activate test mode
- Amber LED will flash once every second when the sensor is in test mode
- During this time, the sensor will turn the light off after 5 seconds if there are no movement
- Test movement at entry point, walk path and occupancy area
- Sensor will exit test mode after 15 minutes

LED Indicator:

- LED indicator can be enabled or disabled by dip switch B2
- Recommended for troubleshooting
- Red LED indicates motion detected by infra red sensor
- Green LED indicates motion detected by ultrasonic sensor

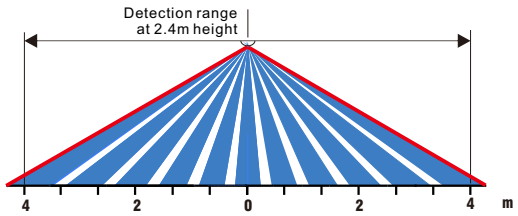
Detection Area:

Top view

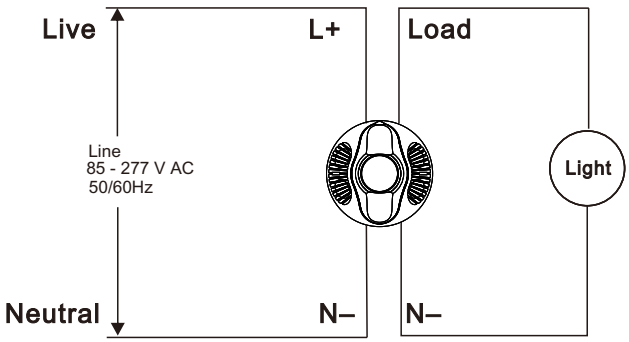


PIR Optical View Pattern Ultrasonic Detection Pattern

Side view



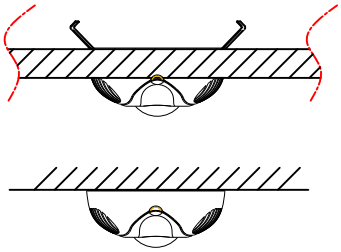
Wiring Diagram:



©2011 SUREN Systems, Ltd.. All rights reserved. SUREN™, HDIR™ are trademarks of SUREN.

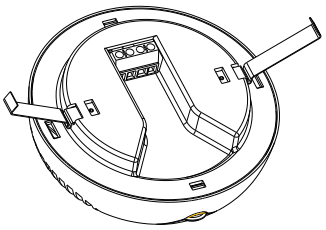
Sensor Mounting Choices

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 three screws.



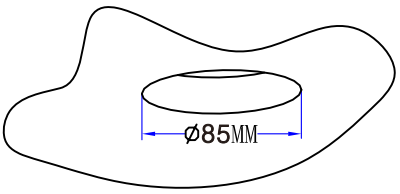
Drop-Ceiling Mounting: Base Preparation

Install the two retaining springs as shown.



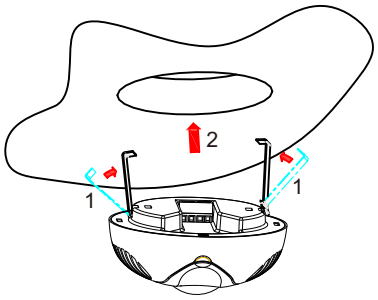
Drop-Ceiling Mounting: Panel Preparation

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



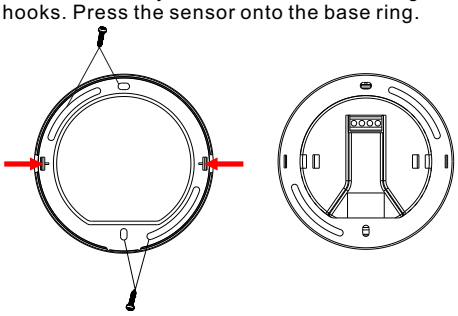
Drop-Ceiling Mounting: Sensor Installation

Press the retaining springs together, then push the springs and the sensor base through the hole until the sensor rim is seated against the panel.



Solid-Ceiling Mounting

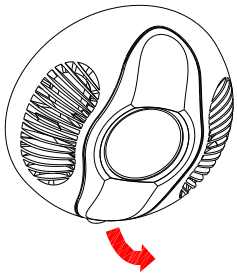
Use the three screws (supplied with the sensor) to fasten the base ring to the ceiling. Align the sensor's two eyelets with the base ring's two hooks. Press the sensor onto the base ring.



Note: The mounting clips indicated by the arrows represent the direction of the longer ultrasonic range shown in the Detection Area diagram.

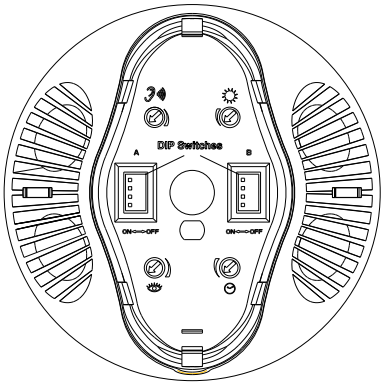
Sensor Opening

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



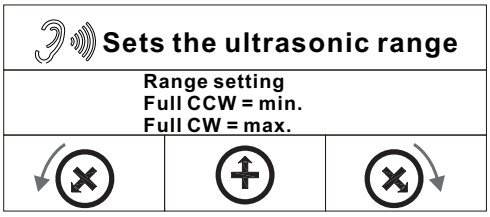
Operation Control Console

All aspects of sensor operation can be adjusted here.



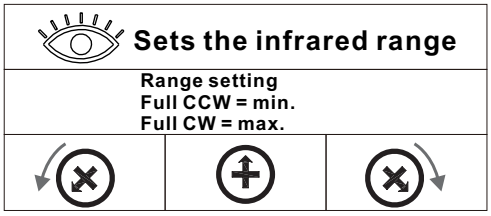
Ultrasonic Adjustment

For maximum range and sensitivity, set fully clockwise (CW). If reduced range and sensitivity are required, then turn counter-clockwise (CCW) and test.



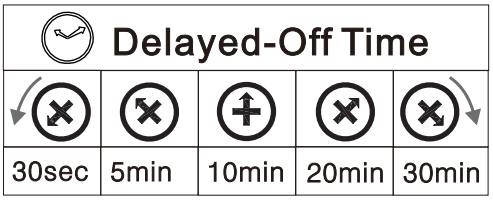
Infrared Adjustment

For maximum range and sensitivity, set fully clockwise (CW). If reduced range and sensitivity are required, then turn counter-clockwise (CCW) and test.



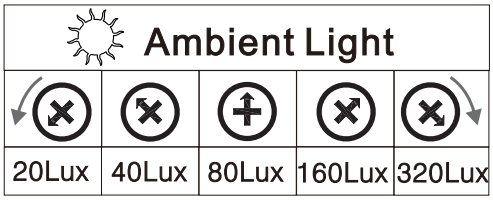
Delayed-Off Time Adjustment

The sensor turns light off if motion is not detected within the Delayed-Off Time interval. For less disruption, adjust clockwise (CW). For better energy savings, adjust counter-clockwise (CCW).



Sunset Sensor Adjustment

The sunset sensor saves energy by not switching the light on when there is sufficient daylight in the room. It can be enabled or disabled by the dip switch B1. When the sunset sensor is enabled, the sensor goes into stand-by mode when the natural light level exceeds the selected Lux level inhibiting the light from turning on. To set the Lux level, draw curtains or shades until the room is at the darkness that light should be turned on. Adjust the Lux level from low to high until lighting is activated. Note that the sunset sensor is disabled when the occupancy sensor is in test mode.



Dip Switch Settings

Dip Switch	Function	Settings	
		Off	On
	Bank A		
A1	Multi/Single Technology	Features enabled by the combination of	
A2	Technology Activated	A1 & A2 are shown in the table below.	
A3	Not Used		
A4	Walk-Thru/Normal	Walk-Thru Enabled	Normal Occupancy
	Bank B		
B1	Sunset Sensor	Enabled	Disabled
B2	LED Indicator	Enabled	Disabled
B3	Test Mode	Off-On-Off / On-Off	
B4	Not Used		

A1	A2	Feature
Off	Off	PIR technology turns light on; however, motion detection by either technology will keep the light on. If neither technology detects motion, the light turns off after the Delayed-Off time. [Choose this option to reduce false activation due to ultrasonic technology.]
Off	On	PIR or Ultrasonic technology turns light on and keeps light on. If neither technology detects motion, the light turns off after the Delayed-Off time. [Default]
On	Off	Only PIR technology is active.
On	On	Only Ultrasonic technology is active.