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**REVISIONS**

ECO	Description	Checked By	Date	Engineer	Date	Eff. Date
	Product Release					

Notes:

1. Material: 80g printing paper, white. A4 size.
2. Printing: Black
3. Pack and tie a label with part number 0-ML00-0037-01-1.

<b>SUREN</b> <sup>®</sup> <small>Suren Systems Ltd.</small>		ITEM NO 0-ML00-0037-01-1	REV 1
APPROVALS	DATE	<b>MANUAL, CL-1816, ENGLISH</b>	
DWN    XIAO FAN	2012-11-20		
CHK		<b>DRAWING NO N-ML00-0037-01-1</b>	
ENGR			
IDENT CODE		<b>REV 1</b>	
DO NOT SCALE DRAWING		SIZE    A4	SCALE    1:1
		SHEET    1    OF    3	

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# CL-1816 OMNI™ Motion Sensor

## Operation and Specifications

# SUREN

The CL-1816 is a motion sensor based on SUREN OMNI™ (Omni-directional) passive infrared technology, which is used to detect people moving in a room by sensing their motion. The sensor provides excellent movement detection capability with its specially designed eight-element interleaved IR detector and multi-segment lens array.

The CL-1816 is recessed for an attractive, unobtrusive appearance, while it still monitors a full 16-meter circular area from a 2.4m height.

The sensor is a three-wire unit, and is fitted with a high-capacity relay that is capable of driving a wide range of load types, including lighting or HVAC devices.

### SUREN OMNI™ A NEW TECHNOLOGY

Many passive infrared sensors exhibit inconsistent detection ranges (or sensitivities to motion) in different directions from the sensor's mounting location. SUREN's patented (and patent-pending) OMNI™ technology eliminates this directional inconsistency. Around a 16-meter circle, the CL-1816 OMNI™ detector/lens-array system develops 60 evenly-spaced alternating-polarity views (compared to only 24

unevenly-spaced alternating-polarity views found on many ordinary sensors). Superb directional consistency is built-in, because a single OMNI™ detector monitors all directions (compared to as many as four separate detectors in ordinary sensors).

### SENSOR INITIALIZATION

Following power-on, the CL-1816 sensor is fully operational after a two-minute warm-up.

### SUNSET SENSOR

For lighting applications, a sunset sensor tells if ambient light is above an adjustable threshold level, thus disabling the load activation when lighting is not needed.

### TIME-ON

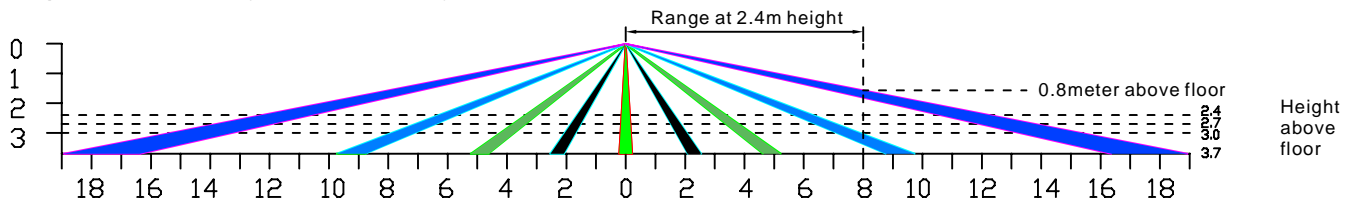
The Time-ON adjustment controls how long the relay maintains the load connection after the most recent motion seen by the OMNI™ system. Its adjustment range is from 5 seconds to 30 minutes.

## SPECIFICATIONS

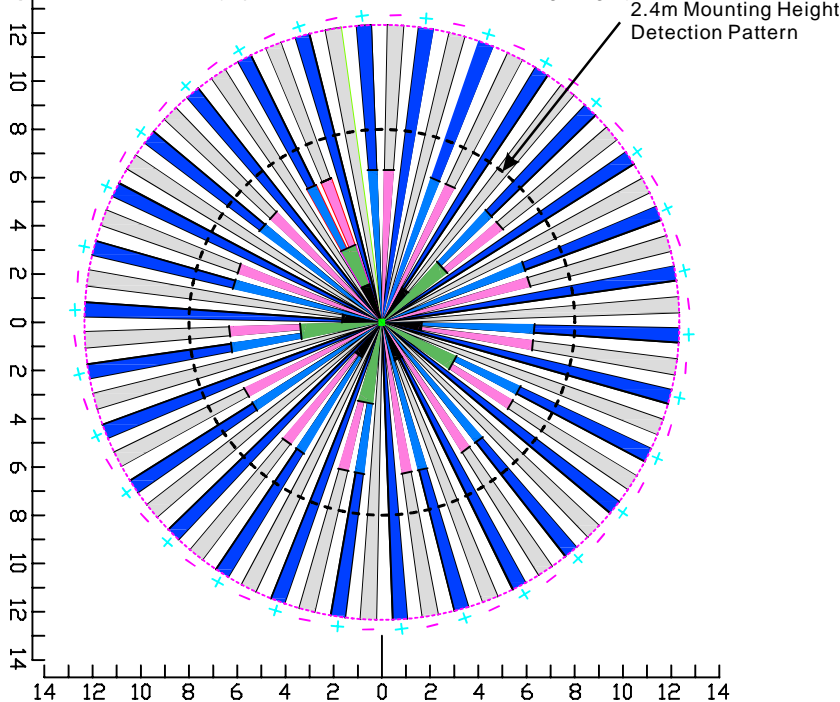
**Optical Fields of View** (shown as consolidated or multiplied by the OMNI™ system):

Long-range	Mid-range	Short-range	Look-down
240 ( 60)	120 ( 30)	40 ( 60)	56 ( 84)

**Sensor Optical View Pattern** (side view, in meters)



**Sensor Optical View Pattern** (top view, in meters, 2.4m mounting height)



**IR Detector:** Pyroelectric, 8-element interlocking

**Warm-up Time:** 1 minute

**Operating Voltage:** 220V/AC-240V/AC

100V/AC-130V/AC

**Power Frequency:** 50Hz/60Hz

**Rate Load:** 2000W(220V/AC)

1000W(110V/AC)

**Conductors Required:** Active, Neutral, Switched Load

**Maximum Load Current:** 16A General

1000W Fluorescent

1000W Incandescent

**Housing Material:** High-impact ABS

**Dimensions:** 98 x 73 x 128 mm (H x W x D)

**Approvals/qualification:** UL(Pending)

CE(Pending)

**IP Rating:** IP 44

**RF Immunity:** 20 V/m 10-1000 MHz;

10 V/m 1-2 Ghz

**Operating Temperature Range:** -40°C to +55°C

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.

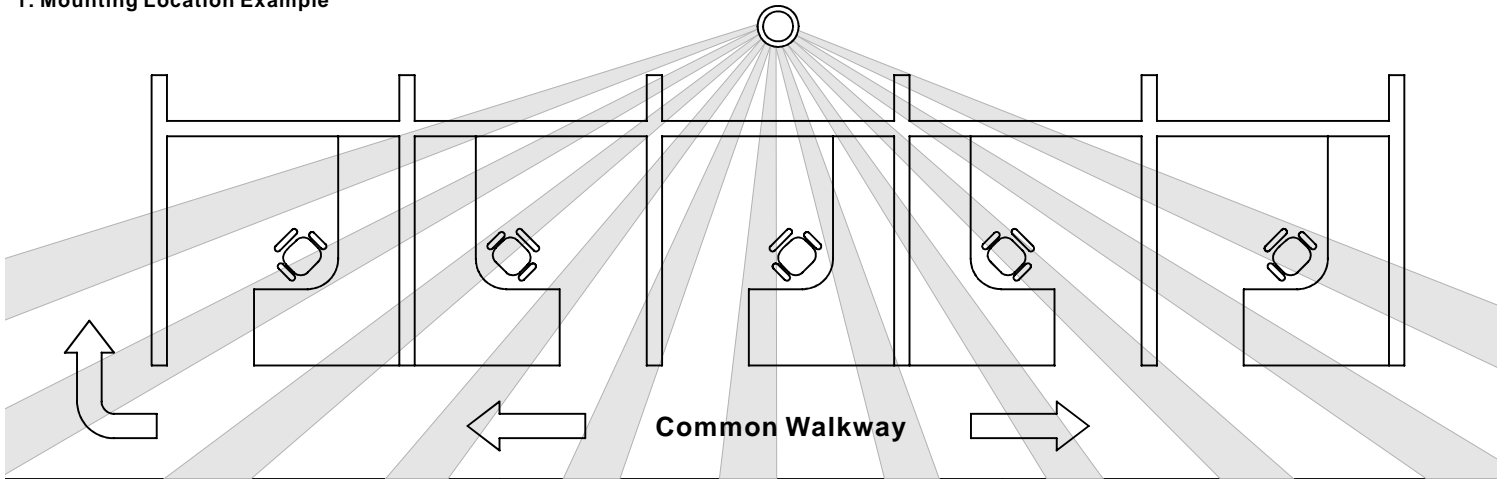
Seller does not represent that the products it sells may not be compromised or circumvented; that the products will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; or that the products will in all cases provide adequate warning or protection. Customer understands 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.

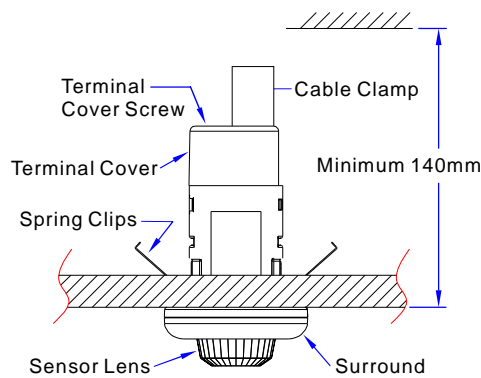
U.S. Patent NO: 7,579,595 Patents pending worldwide.

# 1: Mounting Location Example



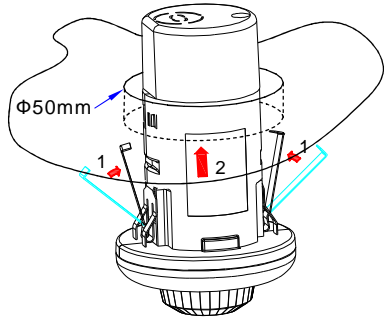
## 2: Location Choices

The sensor may be mounted in a drop-ceiling panel. Two metal springs serve to retain the sensor in the panel.



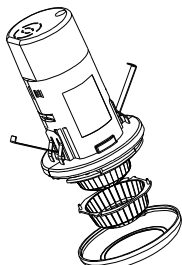
## 5: Sensor Installation

Cut a 50mm circular hole in the drop-ceiling panel. 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.



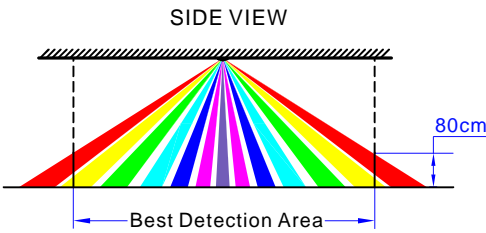
## 8: Configuring the Detection Area

The two longest-range fields-of-view in any direction can be blocked by means of a mask that is provided with the sensor. The mask is configured by selectively breaking away the mask sections so as to uncover only the lens elements in the necessary directions. The mask is installed by removing the surround, placing the mask's two location pegs in the provided holes, and replacing the surround.



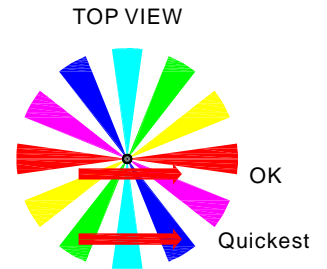
## 3: Detection Area

The sensor's outer limit of detection is where its outer field-of-view descends below about 80 cm from the floor. This depends on mounting height. Locate the sensor so that a person entering the area will pass through an outer field of view to 80 cm or higher from the floor.

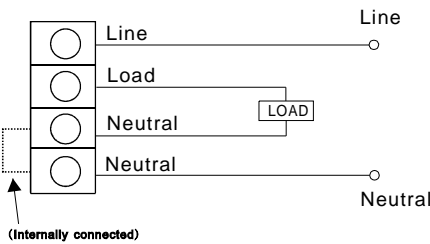


## 4: Mounting Location

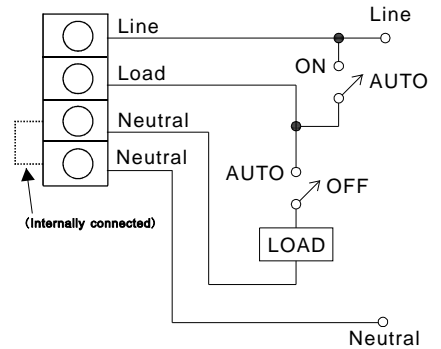
For quickest load activation, locate the sensor so that a person entering the area will not be following a straight line leading directly under the sensor. This way, the person entering will be crossing the (radial) fields of view-the best way to be "seen" by the sensor.



## 6: Wiring Diagram: Automatic Operation

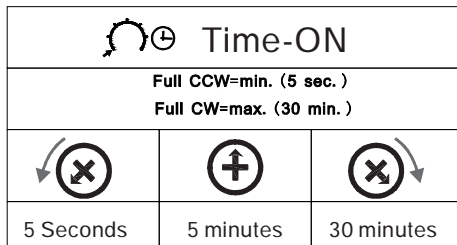


## 7: Wiring Diagram: Manual Override



## 9: Time-ON Adjustment

Each time motion is detected, the load remains activated for a pre-set time, which is set by the Time-ON adjustment. The fully counter-clockwise setting (5 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 ON time has passed since the latest motion detection.



## 10: Sunset Sensor Adjustment

When ambient light is just at a "no lighting necessary" level, and with the sensor mounted in its normal place, remove the surround, and set the Light Level control fully clockwise, and the Time-ON adjustment counter-clockwise to 5 seconds (minimum). Replace the surround and walk under the sensor. The LED should light, indicating detection (and load-activation output). Again remove the surround, adjust the control a little counter-clockwise, replace the surround and test. Continue until the LED does not light during walking. Range- 100-3000 LUX.

