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**REVISIONS**

ECO	Description	Checked By	Date	Engineer	Date	Eff. Date
00104	Production Release					21/04/2009

Notes:

1. Material: 80g printing paper, white. A4 size.
2. Printing: Black
3. Pack and tie a label with part number 0-ML00-0022-01-1.

<b>SUREN</b> <sup>®</sup> <small>Suren Systems Ltd.</small>		ITEM NO 0-ML00-0022-01-1	REV 1
APPROVALS		DATE	<b>MANUAL, CL-106FT , ENGLISH</b>
DWN	SuYing Yao	21-04-2009	
CHK	Eric	21-04-2009	
ENGR			
IDENT CODE		DRAWING NO N-ML00-0022-01-1	REV 1
DO NOT SCALE DRAWING		SIZE A	SCALE 1:1
			SHEET 1 OF 3

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# CL-106FT PYROFLEX™ Motion Sensor

## Operation and Specifications

# SUREN

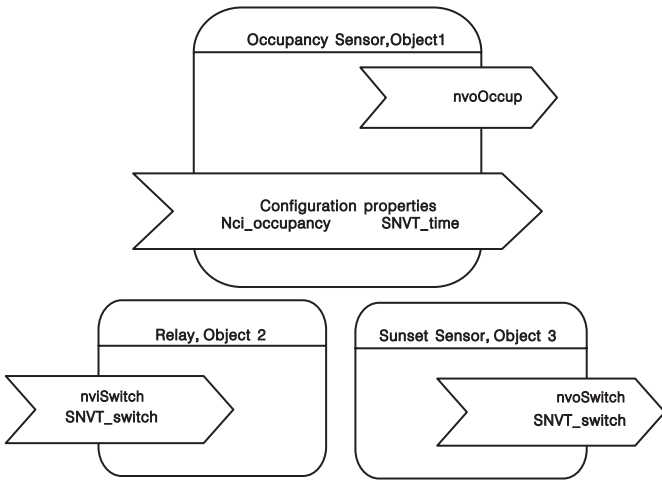
The CL-106FT is an occupancy sensor based on passive infrared (PIR) motion detection, which is used to detect the people moving in a room. The sensor provides excellent occupancy detection capability with its specially designed multi-segment optical lens and high sensitivity SUREN PYROFLEX™ IR sensor. For network communication, it contains an Echelon FT3120 Neuron IC, based on LonWorks™ technology.

In the LonMaker system environment, the sensor can be a standard LonWorks occupancy sensor object. This object generates a signal when movement is detected. At that time, if the status was UN\_OCCUPIED, then the network variable is updated with OCCUPIED. If the status was OCCUPIED with a running delay timer, the delay timer is restarted.

Whenever the status is OCCUPIED and the delay timer expires while there is no signal from the sensor, then the network variable will be updated with UN\_OCCUPIED. In LonMaker, after logical installation of the object, the delay timer has a default value of 5 seconds, and may be changed.

An accessory small-signal relay can be operated via the network or directly by the sensor, according to the setting of JP3. (See reverse side.) The relay is recognized as a standard switch object.

A sunset sensor tells if ambient light is above an adjustable threshold level. Its output is from a standard switch object.



### SENSOR INITIALIZATION

Following power-on, the CL-106FT sensor is fully operational after a two-minute warm-up.

### COMMISSIONING THE SENSOR

If the sensor has not yet been commissioned into a network, after power-on, the red "SERVICE" LED will blink ON/OFF when power is applied. After preparing the network to accept the sensor, press the "SERVICE" switch. After a brief time, the "SERVICE" LED should turn OFF. If at any time, the "SERVICE" LED is always ON, then there is a problem.

The green "TRANSMIT" LED flashes every time the sensor transmits onto the network. If it does not flash occasionally, then there is a problem.

Network Interface LED operation summary:

LED	ON	ON/OFF	OFF
SERVICE	Problem	Ready to commission	OK
TRANSMIT (after comm.)	Problem	OK	Problem

### SENSOR OPERATION

Each time motion is detected, the sensor flashes the red "DETECTION" LED (if enabled by installation of JP1) for 2-6 seconds. It can be seen through the lens. If the auxiliary relay is connected to operate directly from the sensor signal, it will close at the same time that the "DETECTION" LED is ON. (If the LED does not light, then temporarily turn sunset sensor LIGHT LEVEL adjustment fully clockwise to check.)

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

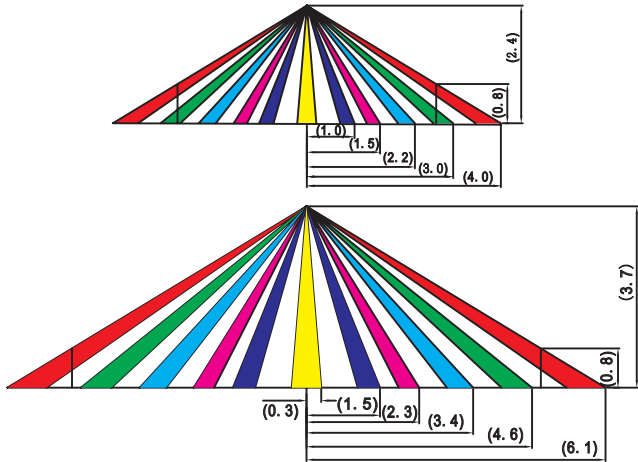
SUREN Systems, Ltd., of Fo Tan, Shatin, Hong Kong, warrants its products to be in conformance with its own plans and specifications and to be free from defects in materials and workmanship under normal use and service for twelve months from the date of original purchase. Seller's obligation shall be 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

### SPECIFICATIONS

**Range:** Depending on mounting height; see below.

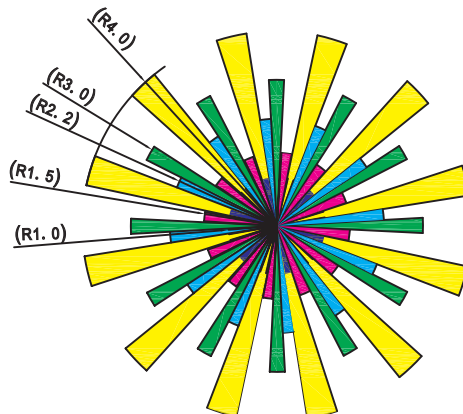
**Sensor Optical View Pattern** (side view, in meters)



### Optical Fields-of-View:

Long-range	Mid-range	Short-range	Look-down
48	48	16	10

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



**IR Sensor:**  
PYROFLEX™, Dual elements

**Power Supply:**  
8-16 Vdc; 20 mA at 12 Vdc

**Auxiliary Relay:**  
Solid state, 60V, 150 mA,  
1500 V<sub>rms</sub> isolation

**Housing Material:**  
High-impact ABS

**Dimensions:**  
ø93 x 38 mm (Dia. x D)

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

**RF Immunity:**  
20 V/m 10-100 MHz;  
10 V/m 1-2 GHz

**White Light Immunity:**  
6500 lux

**Sensitivity:**  
Selectable: 1-event or 2-event

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

**Accessories:**  
Trim ring for solid ceiling;  
Retaining spring for drop ceiling

Note: Specifications are subject to change without notice.

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.

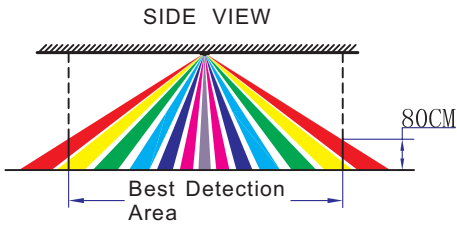
Consequently, seller shall have no liability for any personal injury; property damage or other loss based on a claim the product failed to give any warning. However, if seller is held liable, whether directly or indirectly, for any loss or damage arising under this limited warranty or otherwise, regardless 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: 7,042,134 7,141,910  
U.K. Patent NO: GB 2 427 270 Patents pending worldwide.

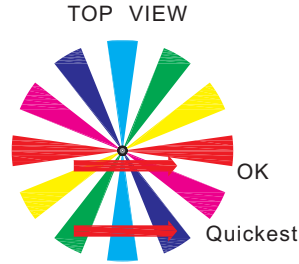
### 1: Detection Area

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.



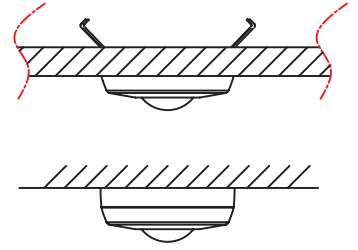
### 2: Mounting Location

For quickest light 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.



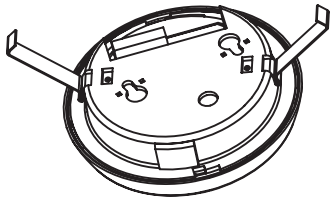
### 3: Sensor Mounting Choices

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 by means of two screws, and a trim ring added around the sensor base.



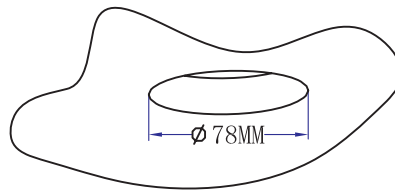
### 4: Drop-ceiling Mounting: Base Preparation

Do not remove any of the "knock-out" hole-fillers in the base. These are for use in solid-ceiling mounting. Install the two retaining springs as shown.



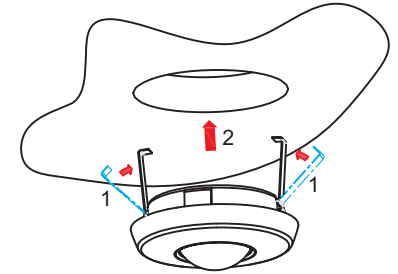
### 5: Drop-ceiling Mounting: Panel Preparation

Use a hole saw to cut a 78 mm circular hole in the drop-ceiling panel at the desired location.



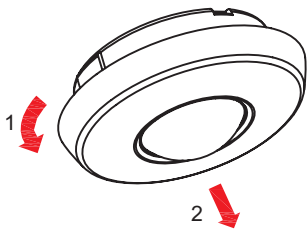
### 6: Drop-ceiling Mounting: Sensor Installation

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. Remove the sensor optics/cover as shown in picture 7, then go to picture 10 for wiring (no need to remove circuit board).



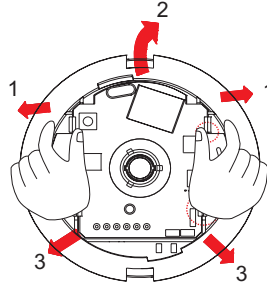
### 7: Solid-ceiling Mounting: Sensor Opening

Remove the sensor's optics/cover by rotating it counter-clockwise as shown, until it disengages from the sensor base.



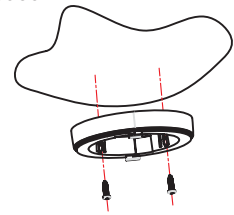
### 8: Solid-ceiling Mounting: Circuit Board Removal

1. Pull gently on one pair of retaining latches as shown. 2. lift the circuit board outward by first tilting one side. 3. Remove the PCB, if necessary, pulling gently on a third latch. From the sensor base, remove the two "knock-out" hole-fillers. If a cable will be run on the ceiling surface, then open one of the four pre-cut cable-entry slots in the side ring.



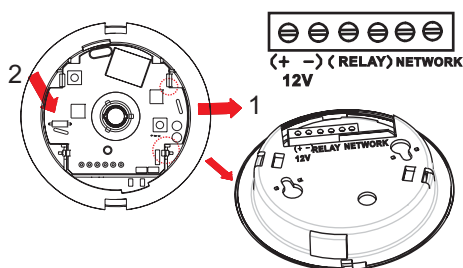
### 9: Solid-ceiling Mounting

Using the narrow part of the base holes as a guide, drill two small holes in the ceiling. Set the base aside, enlarge the two ceiling holes, and install screw anchors. Install two screws with their heads located about 4 mm from the ceiling. Install the trim ring on the base. Install the base over the screws by passing the heads through the large part of the mounting holes. Rotate the base so that the screw heads are over the narrow part of the mounting holes; then tighten the screws against the base.



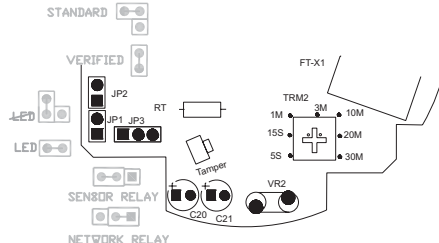
### 10: Circuit Board Installation and Wiring

1. Place one edge of the circuit board under two retaining latches. Bring the other edge to the other two latches. 2. Press gently on the circuit board to snap it under the other two latches. Connect the cable to screw terminals as shown.



### 11: Operation Programming

Set programming jumpers (across two pins is ON). JP1 ON enables the LED, to show the sensor's "motion detected" signal. JP3 sets the small-signal relay either to operate by the sensor signal, or by a network signal. (See diagram.) Sensitivity is usually "standard" (JP2 OFF). If a false-detection source cannot be excluded, then set JP2 ON at "verified". If using sensor "Light-ON" time delay control, then rotate TRM2 to the desired time.



### 12: Sunset Sensor Adjustment

When ambient light is just at a "no lighting necessary" level, and with the sensor mounted in its normal place, approach the sensor, taking care not to block much of the ambient light normally on it. Remove the optics/cover, install JP1 ON to enable the LED, and set the Light Level control fully clockwise (MAX). Replace the cover and wave a hand under the sensor. The LED should light, indicating detection (and light-activation output). Again remove the optics/cover, adjust the control a little counter-clockwise, replace the cover and test. Continue until the LED does not light after waving a hand.

