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.

CL-106FT PYROFLEX™ Motion Sensor
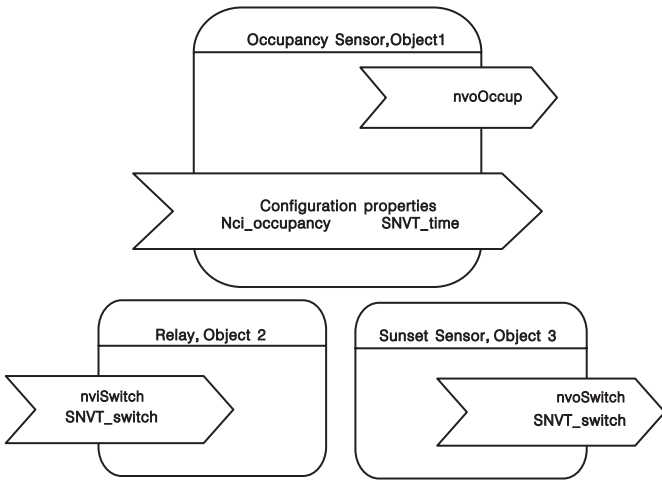## Operation and Specifications

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 PYROFLEXTM 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.

Occupancy Sensor, Object1
nvoOccup

Configuration properties
Nci_occupancy   SNVT_time

Relay, Object 2
nviSwitch
SNVT_switch

Sunset Sensor, Object 3
nvoSwitch
SNVT_switch

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.)

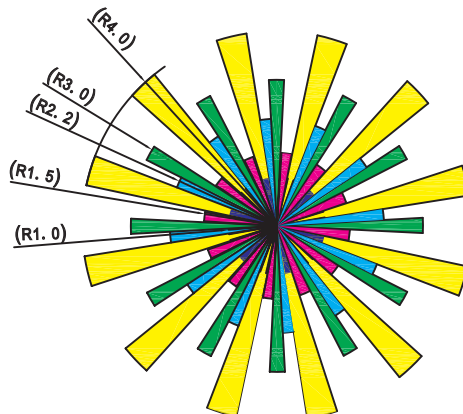## SPECIFICATIONS

Range: Depending on mounting height ; see below.

Sensor Optical View Pattern (side view, in meters)
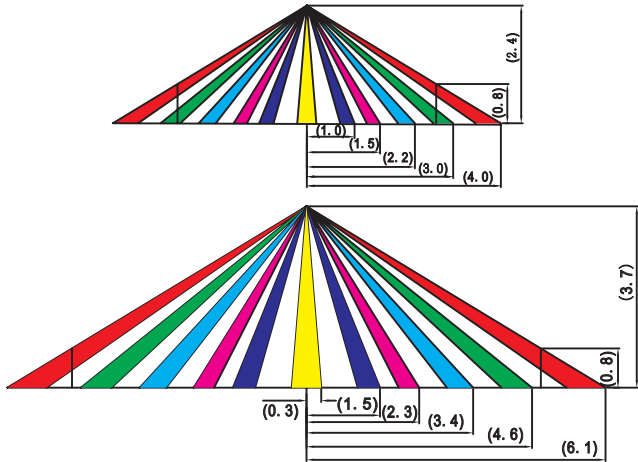
Optical Fields-of-View:

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$_{rms}$ isolation

Housing Material:
High-impact ABS

Dimensions:
Φ93 x 38 mm (Dia. x D)

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

RF Immunity:
20 V/m 10-1000 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.

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.
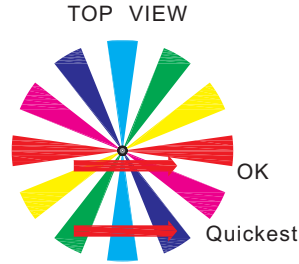
SIDE VIEW

80CM

Best Detection Area
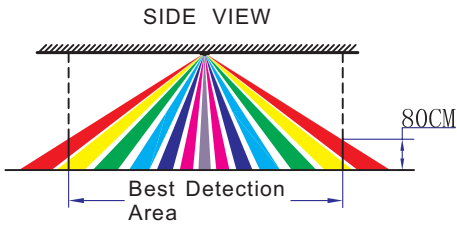
2: Mounting Location

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.

TOP VIEW

OK

Quickest

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.
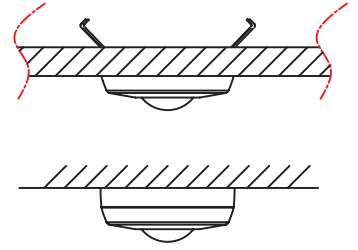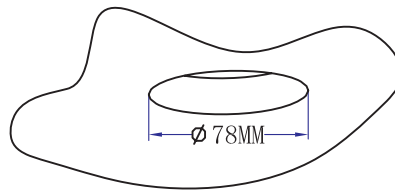
4: Drop-ceiling Mounting: Base Preparation

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.
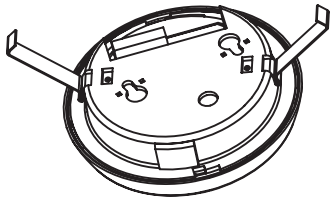
5: Drop-ceiling Mounting: Panel Preparation

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

Ø 78MM

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).
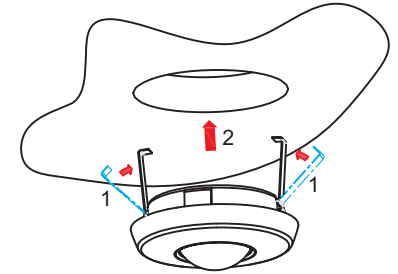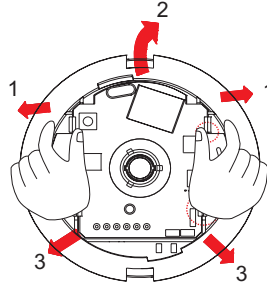
7: Solid-ceiling Mounting: Sensor Opening

Remove the sensor's optics/cover by rotating it counter-clockwise as shown, until it disengages from the sensor base.
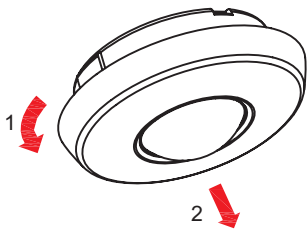
8: Solid-ceiling Mounting: Circuit Board Removal

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.
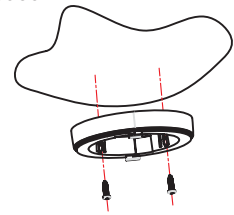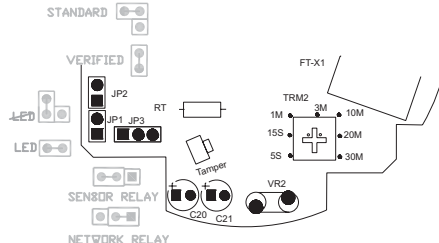
10: Circuit Board Installation and Wiring

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.

(＋ －) (RELAY) NETWORK
12V
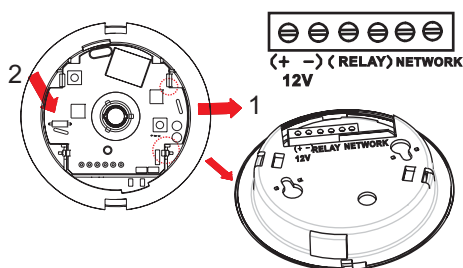
RELAY NETWORK
12V

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.

STANDARD

VERIFIED

JP2

LED

JP1 JP3

RT

Tamper

SENSOR RELAY

NETWORK RELAY

FT-X1

TRM2
1M   3M   10M
15S   20M
5S   30M

VR2

C20   C21

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.

CW   MAX

LIGHT
LEVEL