REVISIONS

ECO	Description	Checked By	Date	Engineer	Date	Eff. Date
00105	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-ML00-0019-01-1.

SUREN® Suren Systems Ltd.		ITEM NO 0-ML00-0019-01-1	REV 1
APPROVALS	DATE	MANUAL, CS-106 , ENGLISH	
DWN Sulying Yao	21-04-2009		
CHK Eric	21-04-2009		
ENGR		DRAWING NO N-ML00-0019-01-1	REV 1
IDENT CODE			
DO NOT SCALE DRAWING		SIZE A / SCALE 1:1 / SHEET 1 OF 3	

CS-106 PYROFLEX™ Motion Sensor

Operation and Specifications

SUREN

The CS-106 is a professional state-of-the art motion sensor engineered with the world's best components and materials. Every aspect of this sensor provides the most reliable motion sensing with freedom from false alarms. Microcomputer-based SureSpot™ processing assures the best possible intruder detection with superior false alarm rejection. In addition, patented PYROFLEX™ IR detection provides much stronger intrusion signals than conventional detectors the microcomputer easily tells real intrusions from false alarms. Bi-directional temperature compensation supports the best possible detection throughout the wide operating temperature range.

SENSOR INITIALIZATION

Following power-on, a CS-106 sensor is fully operational after a two-minute warm-up. During warm-up, its LED is ON. After warm-up, the sensor starts a ten-minute walk-test mode.

WALK TEST

Note: The CS-106 should be tested once per year.

In Normal Operating Mode: Enable the LED (JP1 ON). (See page 2 step 8). If the LED is not enabled, then, without removing power, set JP1 to ON. Walk across the monitored area (within the sensor's optical fields-of-view). With sensitivity set at STANDARD, the LED should turn ON (for Alarm) after about two to four normal steps. With the sensitivity set at HIGH, the LED should turn ON (for Alarm) after about one to three normal steps. Each time the LED turns ON, wait for it to turn OFF. Then, wait 12 seconds before continuing the walk-test. When there is no motion in the monitored area, the LED should remain OFF.

In Special Modes: Cycle power-off/power-on, then Walk-test immediately after warm-up with one of the 10-minute walk-test modes.

10-MINUTE WALK-TEST MODES

Immediately after completion of warm-up, the sensor starts one of two types of ten-minute walk-test mode, according to the position of JP2. (See page 2 step 8 for sensitivity setting.)

Flash Counting Mode: With the sensor sensitivity set at STANDARD, the sensor LED flashes*, until an Alarm occurs (upon the third flash for nominal signals; upon the second flash for strong signals). When an Alarm occurs, the LED stays ON for five seconds (while the Alarm relay is open).

View Finder Mode: With sensitivity set at HIGH, the sensor LED flashes* each time a person enters or leaves one of the sensor's optical fields-of-view (FOV). In this mode, the LED does not indicate Alarm state, though the Alarm works normally.

*The LED flash indicates an "event" - generally when a person enters or leaves one of the sensor fields-of-view.
After the end of the ten-minute walk-test mode, the LED operates as selected by the LED enable switch JP1.

ALARM PROCESSING

Dual-element detector fields-of-view alternate between (+) and (-) polarity. SureSpot™-qualified signal events are counted as "pulses" when polarity alternates. Depending on sensitivity setting, (+,-), (-,+), (+,-,+) or (-,+,-) will cause an alarm.

SUPERVISION

CS-106 supervision functions include these tests:
Ambient temperature in-range;
Detector electronics okay.
When a failure is detected, then:
1) the LED blinks ON/OFF every second;
2) Alarm relay will not re-close after an alarm signal event.

NOTE: The sensor will NOT initiate an alarm upon failure.

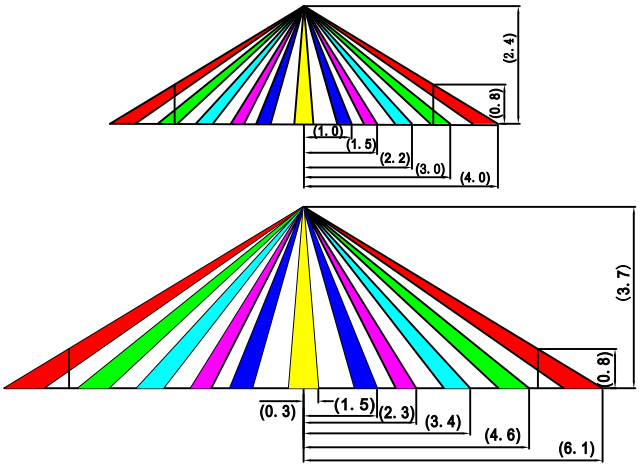
TAMPER SWITCH

If the sensor's optics/cover is rotated toward its removal position, or if it is removed, then tamper switch opens.

SPECIFICATIONS

Range: Depending on mounting height; see below.

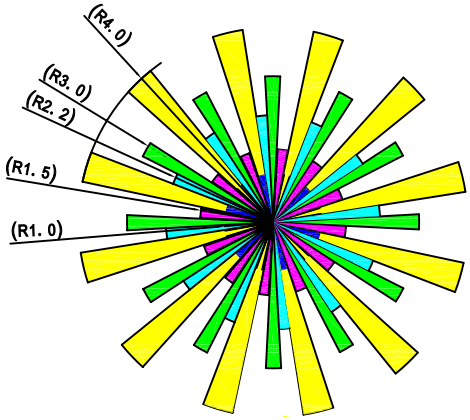
Sensor Optical View Pattern (side view, in meters)



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)



Tamper Switch:
(NC) 50mA @ 30Vdc

IR Sensor:
PYROFLEX™, Dual elements

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

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: 2-event or 3-event

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

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

Temperature Compensation:
Bi-directional

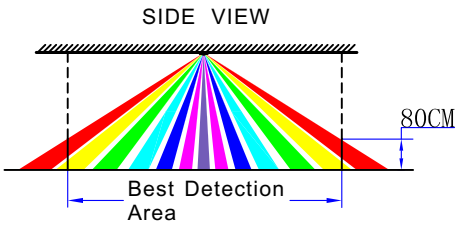
Note: Specifications are subject to change without notice.

U.S. Patent NO: 7,042,134 7,141,910
U.K. Patent NO: GB 2 427 270 Patents pending worldwide.

SUREN Part no.: N-ML01-0019-01-1 Rev. 1 Printed in China

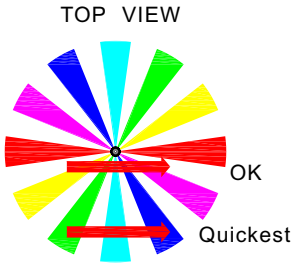
1: Detection Area

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.



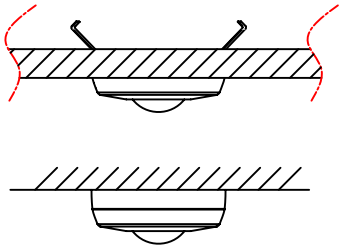
2: Mounting Location

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.



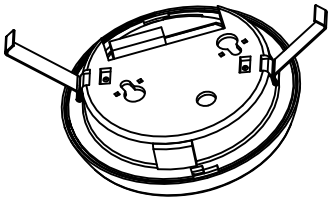
3: Sensor Mounting Choices

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.



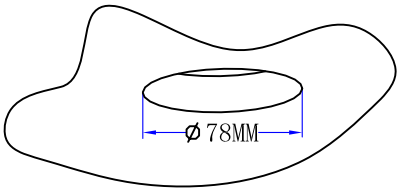
4: Drop-ceiling Mounting: Base Preparation

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.



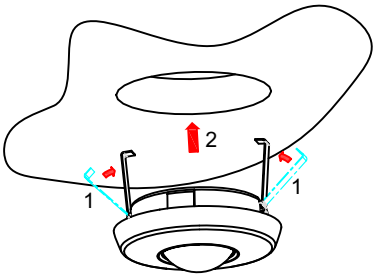
5: Drop-ceiling Mounting: Panel Preparation

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



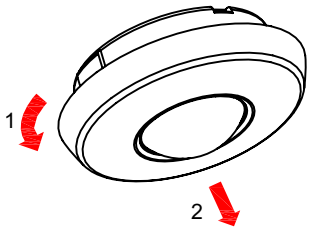
6: Drop-ceiling Mounting: Sensor Installation

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).



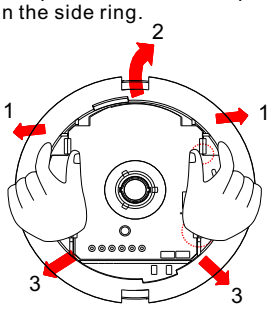
7: Solid-ceiling Mounting: Sensor Opening

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



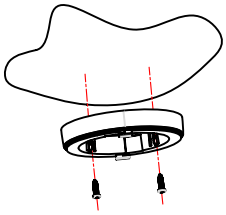
8: Solid-ceiling Mounting: Circuit Board Removal

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.



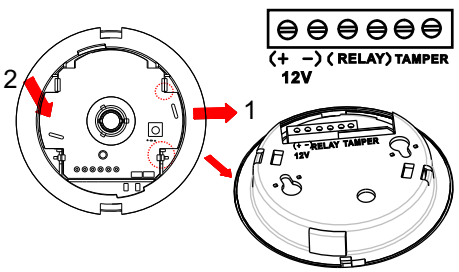
9: Solid-ceiling Mounting

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.



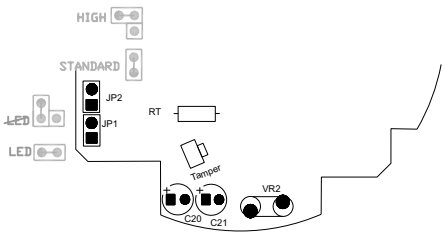
10: Circuit Board Installation and Wiring

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. (See diagram.) Sensitivity is usually "standard" (JP2 ON). If agressive detection is needed, then set Jp2 OFF for "high" sensitivity.



12: LED Indicator Operation

The chart below shows possible LED indications.

CS-106	
Sensor State	**LED Display**
Warm-up	ON
Alarm	ON 5 Seconds (IF LED ENABLED)
Failure	Flashing
Normal	OFF