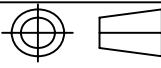



ECO.NO	ZONE	DETAILS	DESIGN	DATE
00109				2007-3-16
00406				2009-5-14
S19004		删除 "Printed in China"		2019-4-19

Notes:

1. Material: 80g printing paper, white.size 290*210MM.
2. Printing: Black
3. Pack and tie a label with part number 0-ML00-0007-01-2.

	 青嶸科技有限公司 A&R Technologies Ltd.							
	DIMENSION TOLERANCES UNLESS OTHERWISE SPECIFIED		CLIENT	PART NAME		英文版说明书		
	>0.0AND≤5	+/-0.055mm	MOULD NO	SX-815/SX-810	PART NO		0-ML00-0007-01-2	
	>5AND≤10	+/-0.060mm	MATERIAL	REV	4	DESIGN	范绮玲	DATE
	>10AND≤25	+/-0.075mm	SIZE	/	SCALE	/	CHECK	DATE
	>25AND≤50	+/-0.100mm	SHEET		UNIT	mm	APPROVAL	DATE
>50AND≤100	+/-0.150mm							
>100AND≤150	+/-0.200mm							
>150	+/-0.250mm							
Angular	+/-0.25°							

SX-815/SX-810 X-TEC™ Motion Sensor

Operation and Specifications

SUREN

The SX-815/SX-810 are professional state-of-the-art motion sensors engineered with the world's best components and materials. Every aspect of these sensors provide the most reliable motion sensing with freedom from false alarms. SX-815/SX-810 include two motion sensing systems: microwave Doppler motion sensing and PIR motion sensing. Together, the two systems' signals are evaluated by SUREN-proprietary signal processing algorithms, which reject false alarm conditions while detecting intruders. The SX-815/SX-810 microwave system include a modern, compact, DRO-based micro-strip Doppler transceiver, with PCB "patch" antennas. The Doppler signal is digitally processed to detect intruders and reject distractions. Constant-motion signals (such as fans) are de-emphasized, and fluorescent light frequencies are digitally removed. On the PIR side, patented PYROFLEX™ IR detection provides much stronger intrusion signals than conventional detectors, thus providing an information-rich signal to the microcontroller. Inside the microcontroller, SureSpot™ digital processing finds intruder signals among the complex curves and dips of real-world signal waveforms.

SENSOR INITIALIZATION

Following power-on, SX-815/SX-810 sensors are fully operational after a two-minute warm-up. During warm-up, its red alarm LED is ON.

WALK TEST: (RED LED)

Note: The SX-815/SX-810 should be tested once per year.

In Normal Operating Mode: Enable the LEDs (JP1 ON). If the LEDs are 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 red alarm LED should turn ON (for Alarm) after about three to five normal steps. With the sensitivity set at HIGH, the LED should turn ON (for Alarm) after about two to four normal steps. Often, before the red LED turns ON, one of the single-system LEDs will turn ON. Each time the red 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.

SINGLE-SYSTEM TEST: PIR (Green LED), MICROWAVE (Yellow LED)

When JP1 is OFF, the function of each motion sensing system can be monitored separately during the first 10 minutes after power-on. To test the PIR system, set JP2 OFF, then walk across the monitored area (within the sensor's optical fields-of-view). Each time a field-of-view is entered, the green LED should flash. To test the microwave system, set JP2 ON, then move within the monitored area. During movement, the yellow LED should flash. Adjust RV1 to change microwave detection range as required. 10 minutes after power-on, all LEDs will be disabled.

ALARM PROCESSING

A PIR motion sensor works by counting signal events, often called "pulses". The SX-815/SX-810's PIR system include SureSpot™ to provide expert qualification of true intruder-caused pulses. However, the SX-815/SX-810 dual-technology processing system do not simply count pulses. Instead, SUREN-proprietary processing includes expert algorithms for real-time analysis of the combined PIR and microwave signals. This provides the best intruder detection while rejecting false alarms.

SUPERVISION

SX-815/SX-810 supervision functions include these tests:

- Ambient temperature in-range;
- Supply voltage is lower than 8Vdc;

When a failure is detected, then:

- 1) The red alarm LED blinks ON/OFF every second;
- 2) Alarm relay does not re-close after an alarm signal event.
- 3) Trouble output opens.

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

Limitations of Security Products: Security products and alarm systems do not offer guaranteed protection against burglary, fire, or other emergencies. They may fail to warn for diverse reasons, including (but not limited to): power failure, dead batteries, improper installation, coverage "blind spots", coverage areas overlooked during installation, defeat by technically sophisticated intruders, component failure, or inadequate maintenance. Alarm systems should be checked weekly to ensure that all devices are working properly. AN ALARM SYSTEM IS NOT A SUBSTITUTE FOR INSURANCE.

SUREN LIMITED WARRANTY

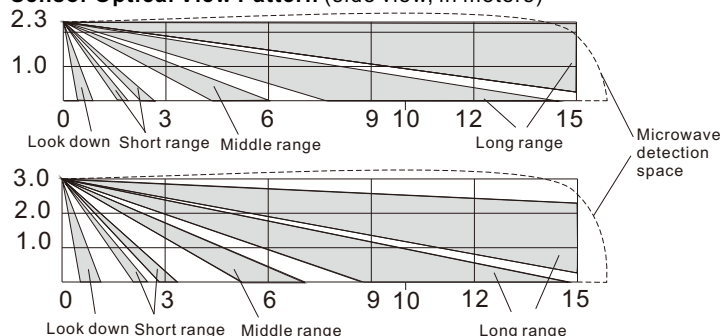
SUREN Systems, Ltd., of Fo Tan, Shatin, Hong Kong, warrants its products to be in conformance with its own plans and specifications and to be free from defects in materials and workmanship under normal use and service for twelve months from the date of original purchase. Seller's obligation shall be 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: 15 meters (SX-810, 10 meters)

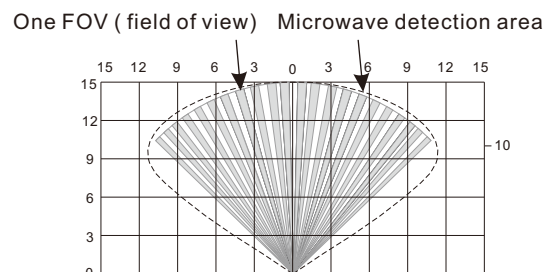
Sensor Optical View Pattern (side view, in meters)



Optical Fields-of-View:

Long-range	Mid-range	Short-range	Look-down
44	12	6	4

Sensor Optical View Pattern (top view, in meters)



IR Sensor:
PYROFLEX™, Dual elements

Power Supply:
8-16 Vdc; 15 mA at 12 Vdc

Alarm Relay:
Solid state, 60V, 50 mA,
1500 V_{rms} isolation

Tamper Switch:
Form A (NC). 50 mA at 30 Vdc

Trouble:
Normally closed to (-), NPN
open collector, 30 Vdc, 100mA

Housing Material:
High-impact ABS

Dimensions:
112 x 50 x 42 mm (H x W x D)

Lighting Rejection:
Selectable: 50 or 60 Hz

Approvals/qualification:
CCC
CE

Microwave Operating Freq:
Around 10 GHz. See unit label

Events Detection:
SureSpot™ processing engine

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

White Light Immunity:
6500 lux

Sensitivity: PIR
Selectable: 2-event or 3-event

Range: Microwave
20%-100% adjustable

Operating Temperature Range:
-10°C to +55°C (+14°F to +131°F)

Storage:
-40°C to +60°C (-40°F to +140°F)

Accessories:
Mounting bracket:
MB-100

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.

Patents US: 7,141,910; 7,042,134; China: ZL 2005 3 0146970. 4, other Patents issued and pending worldwide.

SX-815/SX-810 Installation Instructions

1: Mounting Location

A. Wall mounting:

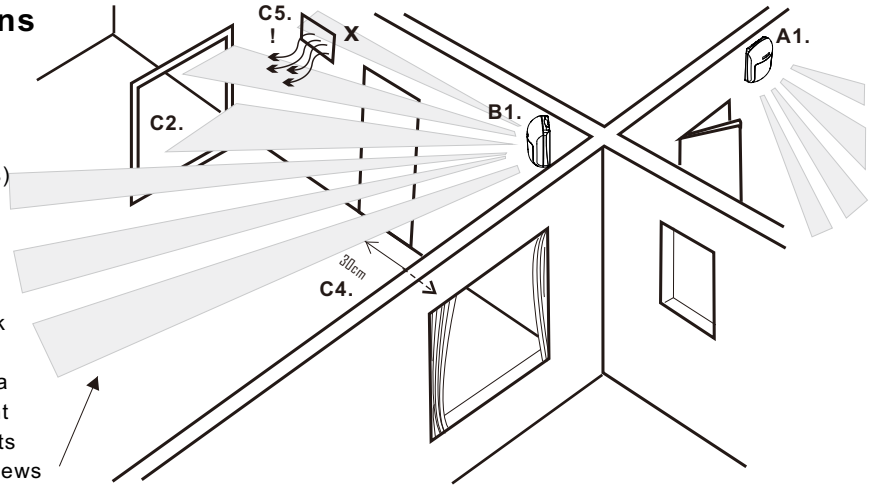
1. Sensor base fastened flat on vertical wall (± 2 degrees)

B. Bracket mounting:

1. Bracket fastened to semi-vertical surface (± 15 degrees)
2. Sensor on bracket in vertical position (± 2 degrees)

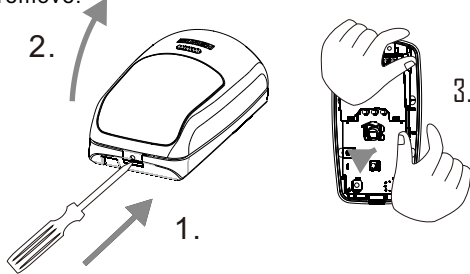
C. All mounting:

1. Height = 2.3 m or 3m above floor of monitored area
2. Clear line-of-sight from sensor to monitored area
Note: glass will block PIR sensor's view; metal will block microwave sensor's view
3. Wall temperature similar to walls/floor of monitored area
4. Sensor aimed away from windows and reflected sunlight
5. Sensor aimed away from heaters or heater/cooler outlets
6. Sensor aimed so that likely intruder paths cross three views



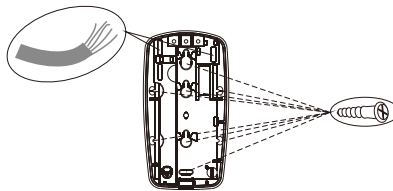
2: Sensor Disassembly

In slot at sensor bottom, use screwdriver or thumbnail to (1.) Push inward on cover latch. (2.) Remove cover. (3.) Push outward on circuit board latch at sensor base right side. Using circuit board terminal block as handle, gently lift circuit board right side and remove.



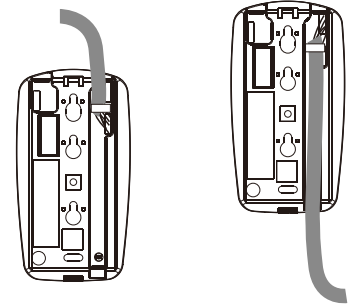
3: Base Hole Preparation

Identify necessary holes on diagram;
1. For wall mounting, knock out hole covers.
2. For corner or 45 degree wall mounting, use drill to open at least two holes at base side depressions.
3. For bracket mounting. See 6 for more.
If cable ties will be added for wire strain relief, select holes needed, then clear out thin plastic material covering those holes.



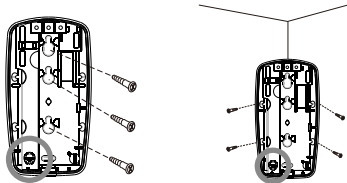
4: Cable Preparation

Remove 8 cm of cable jacket. Pass the cable wires through the selected hole. Lay cable in wire channel. Secure cable with cable tie.



5: Wall Mounting

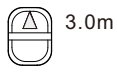
Use screws to mount on wall or in corner.



Set circuit board alignment post in position "0" or "1" to select mounting height.



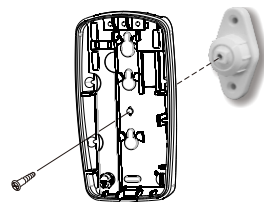
2.3m
Alignment Post position "0"
Use with:
Wide-angle lens.



3.0m
Alignment Post position "1"
Use with:
Wide-angle lens

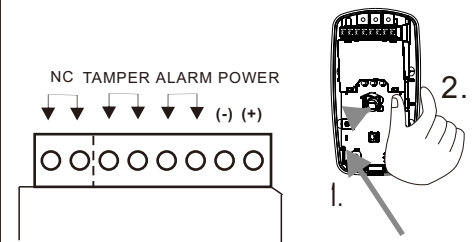
6: Bracket Mounting

Use screws to mount bracket in desired location, use tool to open a 3 mm hole in the center of the square recess at the rear of the base. Use screw to mount sensor base onto bracket. Refer to 5 for setting circuit board alignment post.



7: Circuit Board Installation

To replace circuit board, (1.) place circuit board left edge into two left-hand mounting slots in sensor base. (2.) On right-hand side, gently press circuit board into place until latch snaps over circuit board. Cut cable wires to appropriate length and connect wires/EOL resistor to sensor terminal block.



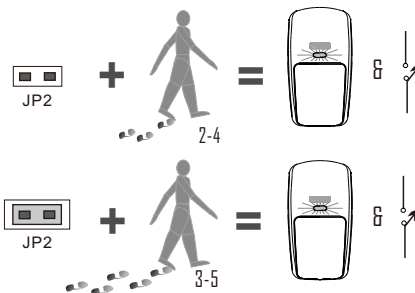
8: Operation Programming Jumpers

If there is a way for intruders to pass only a very short distance in the sensor's view, or if aggressive detection is required, then use high sensitivity (JP2=OFF). Otherwise, standard sensitivity (JP2=ON) is fine for ordinary applications. Set microwave light-immunity jumper JP3 to local power frequency. Factory-set jumper positions are shown below in gray.

SX-815/SX-810			
FUNCTION	JP	ON	OFF
Light Imm.	3	60Hz	50Hz
Sensitivity	2	STANDARD	HIGH
LED Enable	1	ENABLE	DISABLE

9: PIR Motion Sensitivity; Microwave Range

With standard sensitivity, PIR detection occurs in 3 to 5 steps. With high sensitivity, detection occurs in 2 to 4 steps.



Adjust RV1 clockwise to increase microwave detection range.



10: Red Alarm LED Indicator Operation

The chart below shows possible LED indications.

LED	SX-815/SX-810	
	Sensor State	LED Display
Red	Warm-up	ON
	Alarm	ON 5 Seconds (IF LED ENABLED)
	Failure	Flashing
Yellow	Normal	OFF
	MW Event	ON
Green	NO Event	OFF
	PIR Event	ON
	NO Event	OFF