Notes:

1. Material: 80g printing paper, white. A4 size.
2. Printing: Black
3. Pack and tie a label with part number 0-ML00-0020-01-1.

SUREN® Suren Systems Ltd.		ITEM NO 0-ML00-0020-01-1	REV 1
APPROVALS	DATE	MANUAL, MV-620, ENGLISH	
DWN Celine. Yao	11/05/09		
CHK			
ENGR		DRAWING NO N-ML00-0020-01-1	REV 1
IDENT CODE			
DO NOT SCALE DRAWING		SIZE A SCALE 1:1	SHEET 1 OF 3

MV-620 X-TEC™ Motion Sensor
Operation and Specifications

SUREN

The MV-620 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 detection. The MV-620 microwave system includes a modern, compact, DRO-based micro-strip Doppler transceiver, with PCB ″patch″ antennas. The Doppler signal is digitally processed to detect motion and reject distractions. Constant-motion signals (such as fans) are de-emphasized, and fluorescent light frequencies are digitally removed.

SENSOR INITIALIZATION

Following power-on, a MV-620 sensor is fully operational after a two-minute warm-up. During warm-up, its red LED is ON.

WALK TEST:(RED LED)

Note: The MV-620 should be tested once per year.

In Normal Operating Mode: Enable the LED(JP1 ON). If the LED is not enabled, then, without removing power, set JP1 to ON. Walk across the monitored area. The red LED should turn ON (for motion-detection) after about three to five normal steps. 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 Mode: Cycle power-off/power-on, then Walk-test immediately after warm-up, in the 10-minute walk-test mode.

10-MINUTE WALK-TEST MODE

When JP1 is OFF, the function of the microwave motion sensing system can be monitored separately during the first 10 minutes after power-on. To test the microwave system, set JP2 ON, then move within the monitored area. During movement, the yellow LED should flash.Each flash represents a microwave signal processing event, yet not necessarily motion detection. Adjust RV1 to change microwave detection range as required. 10 minutes after power-on, all LEDs will be disabled. To test actual detection range,walk test by using the red LED.

REMOTE LED ENABLE

The Remote LED Enable terminal functions exactly in parallel with JP1, in a logical OR arrangement. Thus, if either JP1 is ON or if the Remote LED Enable terminal is fed its LOW (active) voltage, then the LED is enabled. The LOW (LED enabled) voltage range is 0-1.5 Vdc. The HIGH (LED disabled) voltage range is 3.5-18 Vdc.

MOTION–DETECTION PROCESSING

The MV-620 sensor's digital signal processing includes general noise filtering, as well as special filters to remove 50/60Hz interference from flourescent lights. In addition, constant-motion background signals are characterized and then ignored, so as better to detect actual new motion within the monitored area.

SUPERVISION

MV-620 supervision functions include these tests:
   Ambient temperature in-range;
   Supply voltage between 8-16Vdc;
When a failure is detected, then:
1) The red LED blinks ON/OFF every second;
2) Relay does not re-close after a motion detection.
3) Trouble output opens.
NOTE: The sensor will NOT open its relay upon failure.

SPECIFICATIONS

Range: 15 meters
Sensor Motion-detection Pattern (top view, in meters)

Microwave monitored area
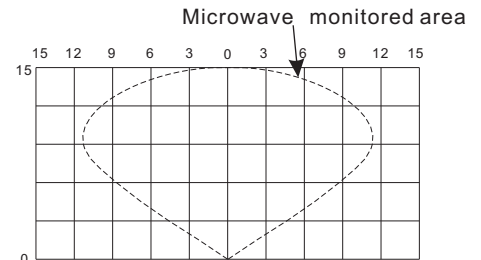
Power Supply:
8-16 Vdc; 15 mA at 12 Vdc
Relay:
Solid state, 60V, 50 mA,
1500 V_{rms} isolation

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 (Pending)
 ₡€ (Pending)

Microwave Operating Freq:
Around 10 GHz. See unit label

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

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.

MV-620 Installation Instructions

1: Mounting Location

A. Wall mounting:
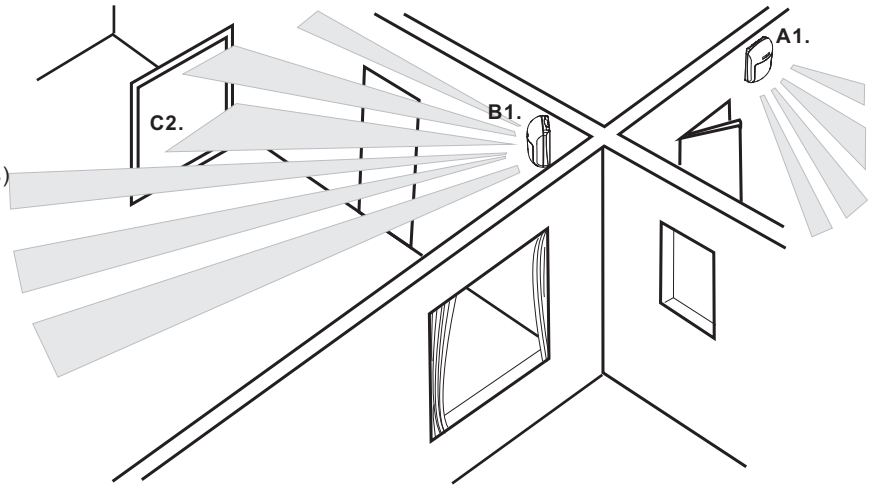1. Sensor base fastened flat on vertical wall (± 2 degrees)

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 above floor of monitored area
2. Clear line-of-sight from sensor to monitored area
   Note: metal will block microwave sensor's view

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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.
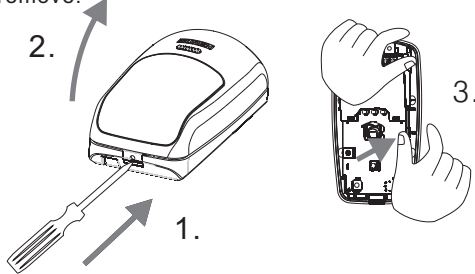
3: Base Hole Preparation

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.
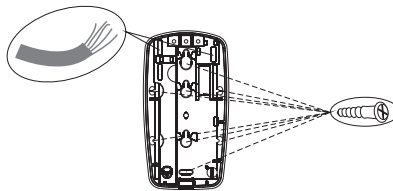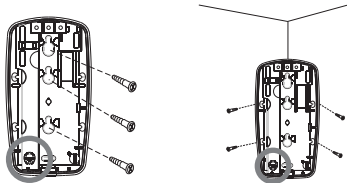
4: Cable Preparation

Remove 8 cm of cable jacket. Pass the cable wires through the selected hole. Lay cable in wire channel. Secure cable with cable tie.
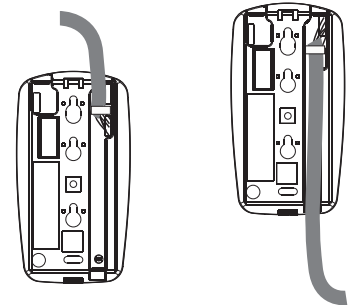
5: Wall Mounting
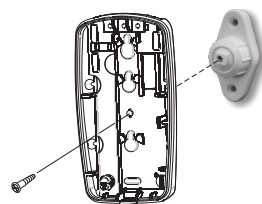
Use screws to mount on wall or in corner.

Set circuit board alignment post in position "0".

2.3m

Alignment Post position "0"

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.

Trouble
Remote LED Enable
TAMPER | Relay Detect | POWER
(-) (+)
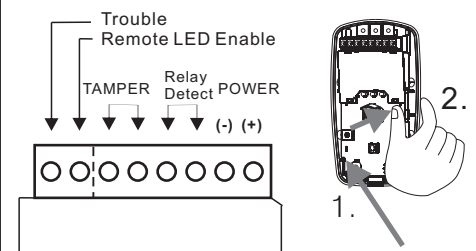
8: Operation Programming Jumpers

Set JP1 to enable or disable the red LED, as required. Set JP2 to enable or disable the 10-minute test. If flourescent lights are present, then set JP3 according to the mains power frequency. Factory-set jumper positions are shown below in gray.

MV-620			
FUNCTION	JP	ON	OFF
Light Imm.	3	60Hz	50Hz
10-min. test	2	DISABLE	ENABLE
Red LED	1	ENABLE	DISABLE

9: Microwave Range Adjustment

Adjust RV1 clockwise to increase microwave detection range.

RV1

10: Red LED Indicator Operation

The chart below shows possible LED indications.

LED	MV-620	
	Sensor State	**LED Display**
Red	Warm-up	ON
	Detection	ON 5 Seconds (IF LED ENABLED)
	Failure	Flashing
	Normal	OFF
Yellow	MW Event (IN10-M TEST MODE)	ON
	NO Event	OFF