Section 10   Troubleshooting

Problems	Cause	Solution
Door does no operate	Sensor Connector	Tighten connector or reconnect.
	Power Supply	Check that the power supply is properly connected and AC-DC12&24V.
Door operates intermittently	Sensor is very dusty or covered in water drops, etc.	Clean the sensor. (do not use thinner or alcohol to clean sensor)
	Sensitivity too low	Turn up sensitivity.
	Detection pattern in the wrong position	Alter the detection pattern by changing sensor angle, dip switch settings and/or pattern width adjustments.
Door operates by itself	Sensitivity too high	Turn down ensitivity.
	Another sensor is too close by	Change the frequency to each sensor.
	Sensor detects the door movement	If the indicator LED is an Orange color, adjust the pattern depth angle away from the door.
	There is a cloth mat in the monitored area.	Turn the sensor power off and then on again, and allow it 10 seconds
	Detection pattern too far in front of the door, detecting people passing by	Adjust the detection pattern - move it closer to the door
	The condition of the monitored area is varying. ·Dusty / Dirty ·Snow	The condition of the monitored area can change due to heavy dust or dirty, heavy snow of footprints being left in fresh snow, this will cause the door to open sometimes. Set the Stationary Time-out to a short times. See Ssction 7.

Section 11   Technical Data

Model	HR98-i Motion & Presence Sensor
Detection Method	Active Infrared Detection (Motion & Presence)
Maximum InstalledHeight	2.4 to 4.0m
Pattern Adjustments	Wide or Narrow Pattern Width (Side Dial)
	1 to 4 Rows Pattern Depth (Dip Switches)
	Angle Adjustment $0°$ to $10°$ in 5 steps (Body Angle)
	Sensitivity (Potentiometer)
Detection Beams	12 Beams * 4 Rows = 48 Beams
Presence Detection	1 & 2 Rows (Door side) → by Presence Timer
Motion Detection	3 & 4 Rows (Approach side)
Power Supply	AC-DC 12 to 24V ± 10%
Power Consumption	AC24V-3VA , AC 12V-3VA
	DC24V-75mA , DC12V-150mA
Output Contact	Form C Relay : DC50V 0.1A (Resistor load)
	Yellow Wire : Normally Open
	Green Wire : Normally Closed
	White Wire : Common
Output Holding Time	Approx. 0.5 seconds
Presence Timer	Limits of ∞, 10 and 1 minutes, 2 seconds (Row 1 & 2 only)
LED Indication	RED-Detecting , GREEN-Standby , ORANGE-Hunting Door
	Switch between RED and GREEN-Abnormal
Protection	IP54 (IEC60529)
Temperature Range	-4°F to 140°F (-20°C to 60°C)
Weight	0.77 lbs. (0.35kg)
Color	Black or Silver (Painting is possible)
Accessories	Connection Cable , Mounting Template , Installation Instructions

Section 12   External Dimensions

φ 0.39"(10mm) - Wiring Hole
Mounting Pitch 2.95" (75mm)
2.95" (75mm)
1.57" (40mm)
1.38" (35mm)
2.95" (75mm)
Indicator Lamp
10.24" (260mm)
1.69" (43mm)
" = inches

Section 13   Warranty

HR98-i Motion & Presence Sensor *INSTALLATION INSTRUCTIONS*

Active Infrared Motion & Presence Sensor for Industrial Door Control
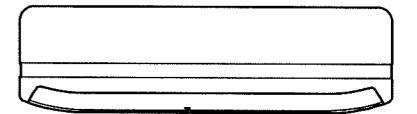
We would like to extend our thanks to you for purchasing this sensor. We at Hotron Ireland Ltd. are committed to providing you quality products and excellent customer service.
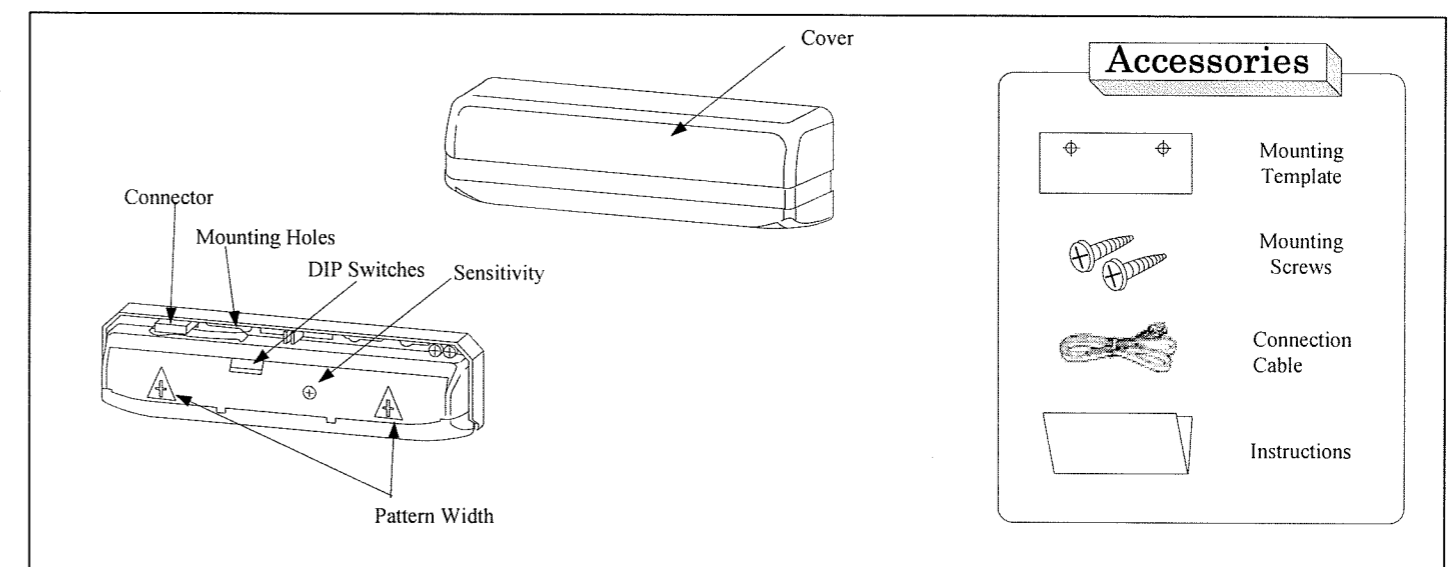*Before installing this sensor, PLEAS READ THE FOLLOWING INSTRUCTIONS CAREFULLY :*

Section 1   General Description / Features

The HR98-i is a microprocessor controlled active infrared motion and presence detector which serves two purposes. First, it is designed to Activate any automatic door made today. Second, it provides presence detection close to All types of Automatic doors.

· Wide & Narrow pattern width of the sensor is high density adjustable by twin revolving lends units.
· Pattern depth and width are adjustable using mounting height, dip switches, pattern width and pattern angle adjustments.
· Frequency is select in four channels.
· Self-Diagnostic means the sensor continuously Monitors it self.
· Snow Mode Switch ensures against false operation caused by snow, insects, etc.
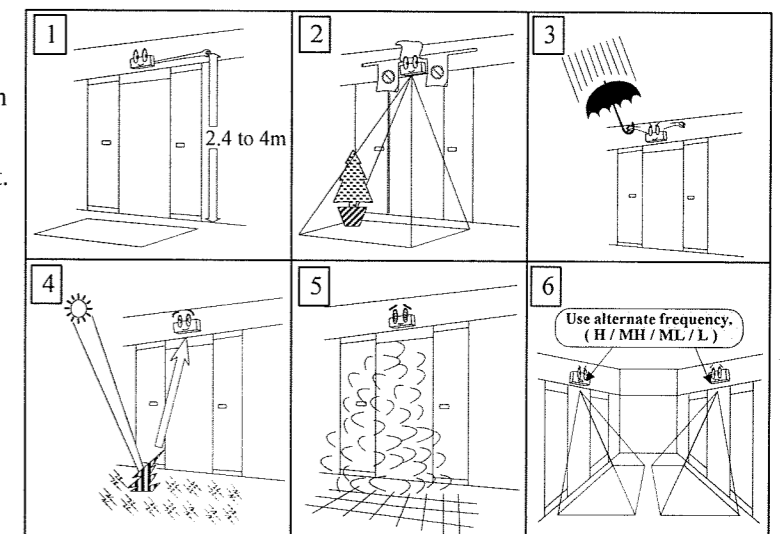· Microprocessor provides programmable Presence Timer (∞, 10M, 60, or 2 seconds).
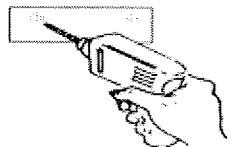
Section 2   Parts Identification

Cover
Connector
Mounting Holes
DIP Switches
Sensitivity
Pattern Width
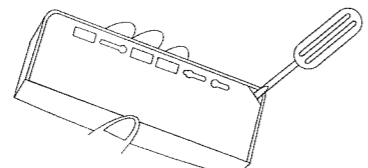
Accessories
Mounting Template
Mounting Screws
Connection Cable
Instructions

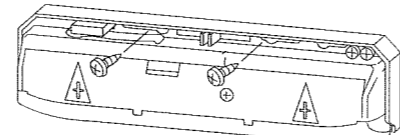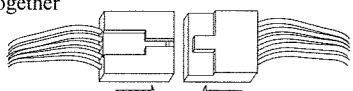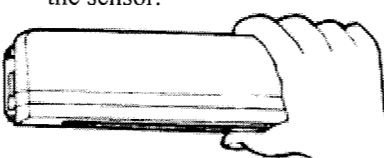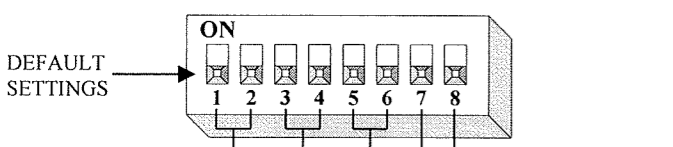## Section 3   Mounting Information

1 Do not mount higher than 4.0m.

2 Do not leave any objects which may move in the detection pattern.

3 Do not mount where rain or snow will fall directly on unit.

4 Do not mount in a place where reflection of sunlight will shine on unit.

5 Do not mount in a humid or steamy environment.

6 Do not mount five devices in proximity to each other. When using from 2 to 4 devices in proximity, use alternate frequency settings as shown. (Maximum 4 sensors)

2.4 to 4m

Use alternate frequency. (H / MH / ML / L)

Section 4   Mounting and Wiring

1 Using the mounting template provided, drill mounting and wire holes.	**2** Remove cover using a driver.	**3** Fasten unit with mounting screws provided.
4 Connect wiring. Push amp connectors tightly together Red & Black = Power (Non Pole) Yellow = Normally Open Green = Normally Closed White = Com.	**5** Set desired sensor parameters as noted in Sections 5 & 7. ⇨ **Section 5 DIP Switch Settings** ⇨ **Ssetion 7 Adjusting Detection Pattern**	**6** Place cover on sensor and clean the sensor.

⚠ **NOTE**: For maximum pattern depth and width, mount the HR98i as high as possible and use the maximum pattern angle. (10°)

Section 5   Dip Switch Settings

DEFAULT SETTINGS

ON
1 2 3 4 5 6 7 8

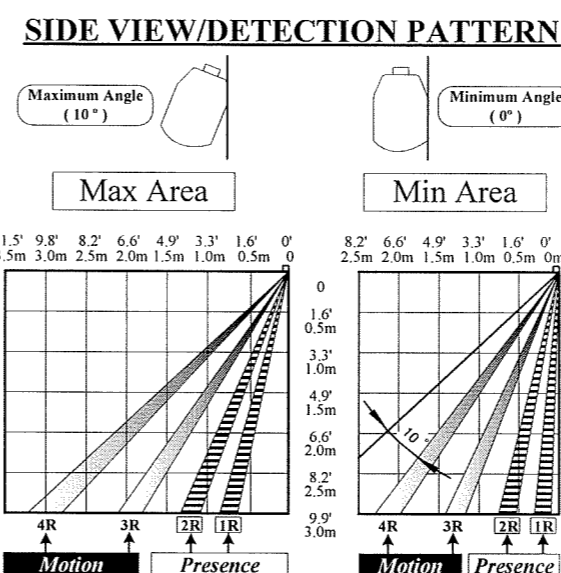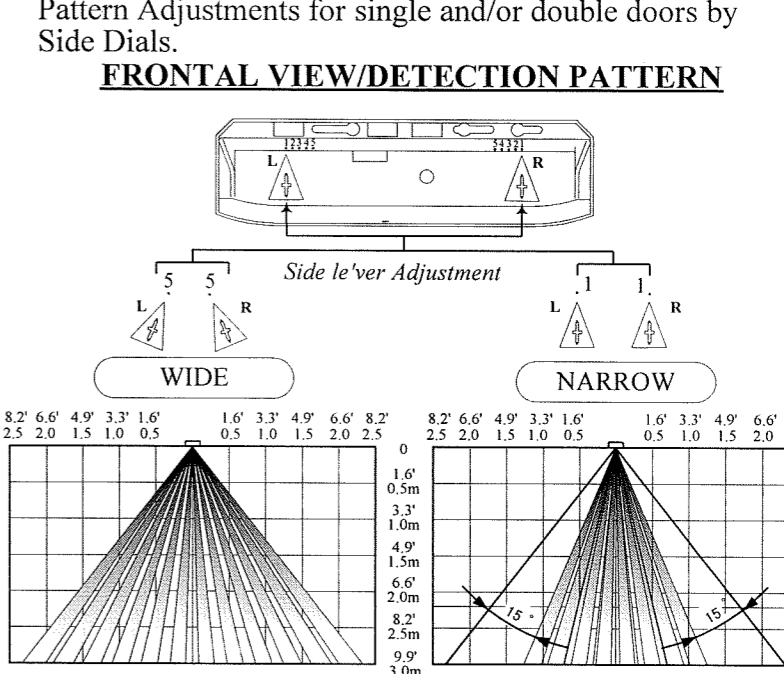| ① Presence Timer	② Pattern Depth (Rows)	③ Frequency	④ Monitor mode	⑤ Self Monitoring
2 Sec	4 R	H	Snow	ON
60 Sec	3 R	MH		
10 Min	2 R	ML	7	8
∞	1 R	L	Normal	OFF
1 2	3 4		5 6	

4 3 2 1
R R R R

① **Presence Timer :** Timer is adjustable using switches 1 and 2. Only 1 & 2 Rows will detect a stationary object for the time period set by the Presence Timer. **HR98-i provide infinity time for 1 & 2 Rows.** The timer will reset and begin if _any_ movement is detected.

② **Pattern Depth (Rows) :** To adjust the pattern depth,
Row 1 & 2 = Presence Dtection
Row 3 & 4 = Motion Dtection

③ **Frequency :** When more then two sensors are used in close proximity to each other, to prevent interference use alternate frequency settings.
(H + MH + ML + L = Maximum 4 sensors)

④ **Monitor Mode :** A Snow Mode is available. Snow Mode should only be used in environments with heavy snowfall or other extreme conditions Exit.

⑤ **Self-Monitoring :** "ON"=When power is first supplied to HR98-i the sensor automatically performs a Self Diagnosis. (See Section 9)

Section 6   Power

BEFORE APPLYING POWER, READ AND FOLLOW THESE INSTRUCTIONS:
When power is applied, the sensor will read and store the environmental optical parameters. This is necessary for Presence Detection to work properly.

① CLEAR THE AREA OF ANY UNNECESSARY OBJECTS.
② Apply POWER.
③ Vacate the Detection Pattern immediately. While the sensor sees ANY moving objects in its DETECTION PATTERN, it will not proceed to the following step.
④ DO NOT enter DETECTION PATTERN for 10 seconds (Presence Detection Setting).
⑤ TEST the presence feature, especially near the door.

When carrying out the following work, **TURN OFF THE POWER:**

1. When the floor conditions change (woolen/rubber).
2. Adjusting pattern or sensitivity.

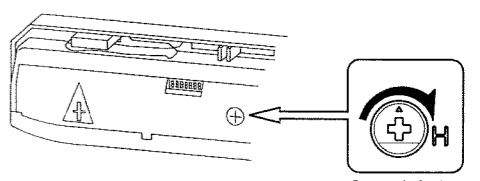# Section 7   Adjusting Detection Pattern

Adjust the detection pattern according to the following diagrams:

1. Pattern Angle Adjustment.

SIDE VIEW/DETECTION PATTERN

Maximum Angle (10°)   Minimum Angle (0°)

Max Area   Min Area

| Motion | Presence | | Motion | Presence |

» The body of the sensor can be rotated from 0°~10°(5 Steps)

2. Pattern Width Adjustment
Pattern Adjustments for single and/or double doors by Side Dials.

FRONTAL VIEW/DETECTION PATTERN

Side le'ver Adjustment

WIDE   NARROW

⚠ **Detection pattern will vary according to objects, material, color and speed.**

Section 8   Verification of Operation

1. After mounting, setting parameters and applying power, walk test unit to verify detection pattern.
2. If the door does not operate properly, recheck the dip switch settings and pattern adjustments.
3. After rechecking, if there is still a problem, adjust the sensitivity.

» **Adjust high (clockwise) to increase sensitivity.**
» **Adjust low (counter-clockwise) to decrease sensitivity.**

⚠ **APPLY ONLY SMALL TORQUE**

Sensitivity

Section 9   Self Diagnostics

Infra-red beams are received on the Receiver side of the HR98-i, then the following occurs. For 12 seconds the relay starts chattering ON/OFF (4 times in 12 sec's) then the relay remains in the ON condition for 60 seconds then the cycle repeats itself. At the same time the Indicator Lamp will switch continuously between RED and GREEN. The door will remain in an Open position throughout.

Relay Output Timing Chart
(When no refrection)

12 sec   60 sec   12 sec
ON
OFF
1 cycle
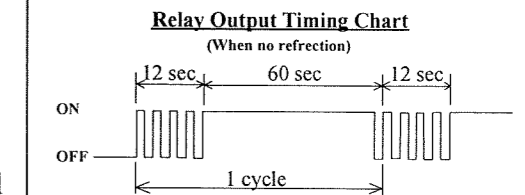
***** EXTREMELY IMPORTANT *****

After final set-up, test unit(s) completely to ensure that proper coverage has been achieved (width, depth and location of the pattern must be tested).

After the installation and operational check of the system :
1. Place the proper labels on the door per ANSI/BHMA A156.10. & BS7036.
2. Instruct the owner of the door system operation and how to test it. This should be checked on a daily basis.
3. Instruct the owner on what to do if the door or any of its components become damaged.
4. Strongly recommend to the owner that the complete entry be inspected twice a year as part of the service agreement.