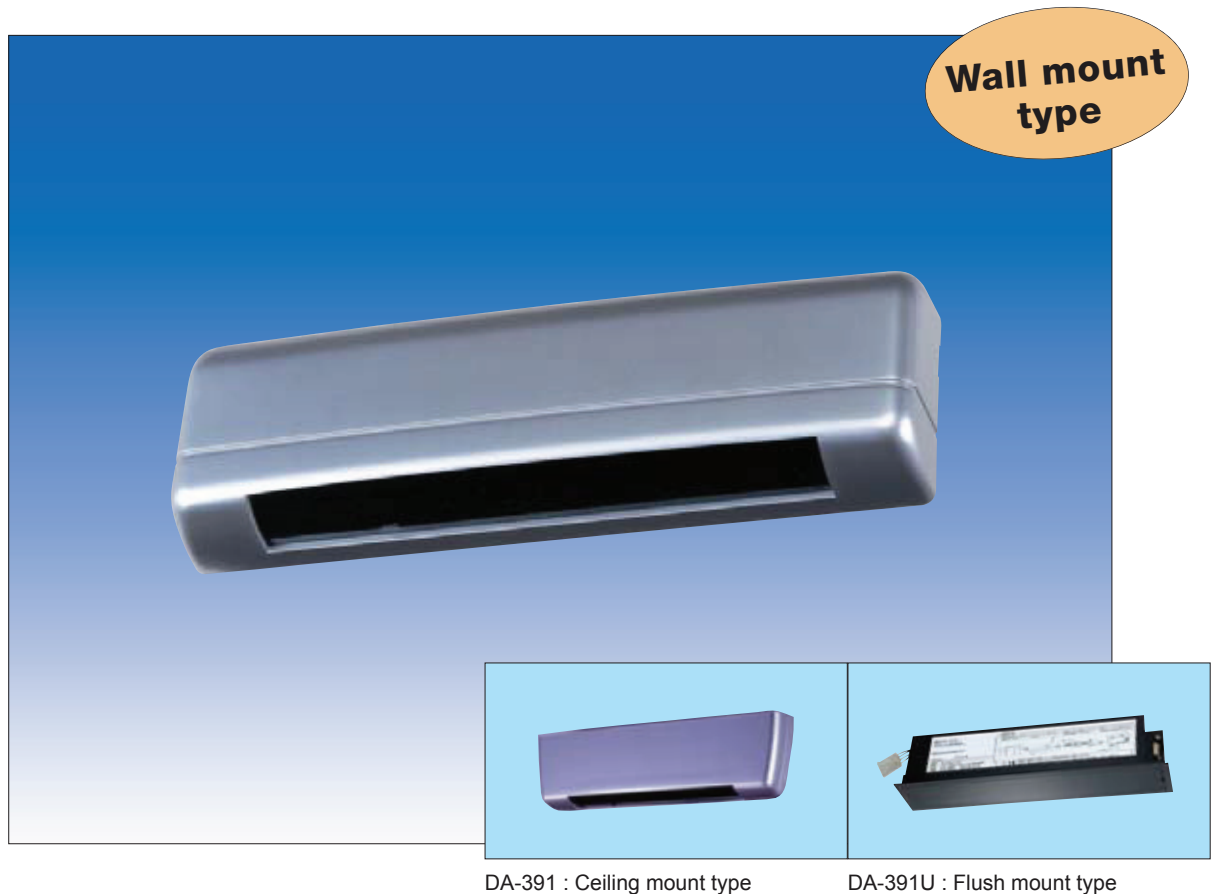# AUTO DOOR SENSOR
DA-301E

Wall mount type

DA-391 : Ceiling mount type

DA-391U : Flush mount type

HIGH-DENSITY DETECTION PATTERN (32 ZONES/4 ROWS)
INSTALLATION HEIGHT UP TO 3m
SLIM DESIGN WITH 30mm THICK BODY

HIGH DENSITY DETECTION PATTERN

• High-density detection pattern with 4 rows in depth and 8 areas per line (32 zones in total) enables DA-301E to surely detect passengers from door-side or the standing person near door-rail.

• Each line can be turned off with a dipswitch, so DA-301E can meet any detection area at narrow or wide space.

• Fine tune within 5degrees available by sensor body itself.

• Pattern depth and width are adjustable by, dip switches, pattern width and pattern angle adjustments.

PRESENCE TIMER SELECTABLE

• Presence timer is selectable for 2sec., 15sec., 60sec. and ∞ .

2-WAY POWER SYSTEM

• DA-301E is equipped with 2-way power system.

  (Powered by 100V AC and 12 to 24V AC/DC)

SELF-DIAGNOSTIC FUNCTION

With the self-diagnostic function, the sensor continuously monitors itself.

When the sensor malfunction is detected by the sensor, Red and Green LED light alternately and an alarm signal is outputted.
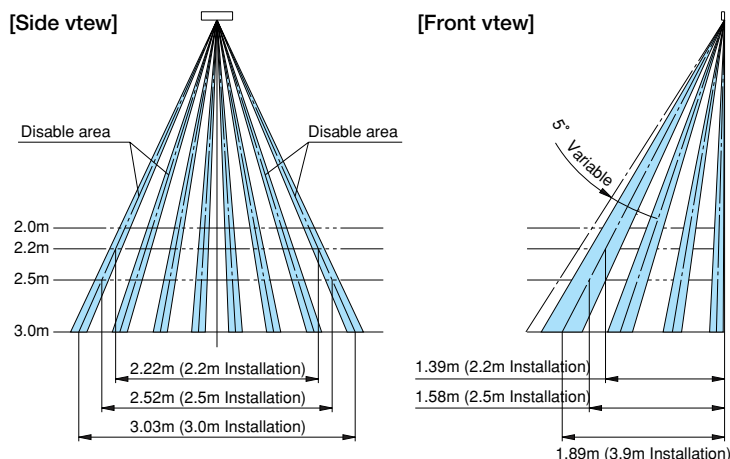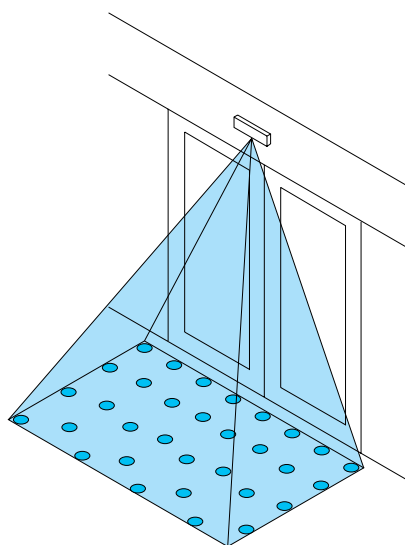
BUILT-IN MPU CONTROL

• Stable detection at snow, or in the flying insects situation is kept by "snow mode".

• Four separate selectable frequencies enable 4 sensors to be installed in the small space without crosstalk of the frequencies.
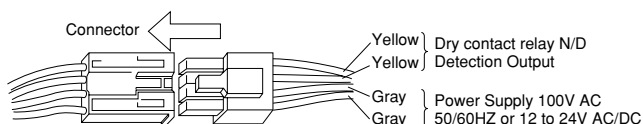
WIDE COLOR VARIATION

• Five colors: Bronze, Silver, White, Black and Mirror are available.
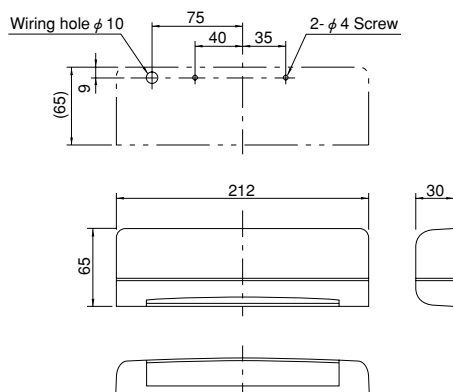
AUTO DOOR SENSOR

■DETECTION AREA

[Side vtew]

Disable area   Disable area

2.0m
2.2m
2.5m

3.0m

2.22m (2.2m Installation)
2.52m (2.5m Installation)
3.03m (3.0m Installation)

[Front vtew]

5° Variable

1.39m (2.2m Installation)
1.58m (2.5m Installation)
1.89m (3.9m Installation)

■WIRING CONNECTION

Connector

Yellow
Yellow } Dry contact relay N/D Detection Output

Gray
Gray } Power Supply 100V AC 50/60HZ or 12 to 24V AC/DC

■OPTIONAL

●Waterproof cover
〈BK-301〉

●Bracket
〈MB-301〉

■EXTERMINAL DIMENSIONS (unit:mm)

Wiring hole φ 10   75   2- φ 4 Screw
                    40   35
(65)   9

212   30
65
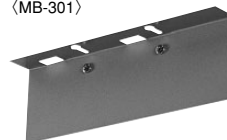
■SPECIFICATIONS

Mode	DA-301E
Detection system	Near infrared beam
Max. installation height	3m
Sensitivity adjustment	Adjustable
Frequency	4 frequencies selectable with a dip switch
Area adjustable range	Main body adjustable angle: 0˚ to 5˚ Pattern depth: 1 line to 4 lines Pattern width: adjustable by Area switch
Power supply	100V AC±10% 50/60Hz or 12V to 24V AC/DC±10%
Power consumption	1.8VA or less or 80mA or less
Contact output	Dry contact relay N/O, 50VDC 0.1A or less (Resistive load)
Output holding time	Approx. 0.5sec.
Presence timerl	Selectable with a dip switch (2sec., 15sec., 60sec. or)
LED	Detection: Red Operation: Green Attenuation: Orange Trouble: Red and Green
Ambient temperature	−20℃ to +60℃
Weight	190g

TAKEX

# DA-301E Motion & Presence Sensor _INSTALLATION INSTRUCTIONS_

Active Infrared Motion & Presence Sensor for Automatic Door Control

We would like to extend our thanks to you for purchasing this sensor. We at takex is committed to providing you with quality products and excellent customer service. Before installing this sensor, please read the following instructions carefully:

Section 1   General Description / Features

The DA-301E 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 the door on single slide and bi-parting sliding doors.

- The DA-301E offers a self-diagnostic function. A defined signal will be outputted, when a sensor malfunction is detected by the sensor.
- Self Diagnostic means the sensor continuously Monitors it self.
- Detection area of the sensor is adjustable.
- Pattern depth and width are adjustable using mounting height, dip switches, pattern width and pattern angle adjustments.
- 'Snow mode' prevents malfunction due to falling snow, falling leaves, insects, etc.'
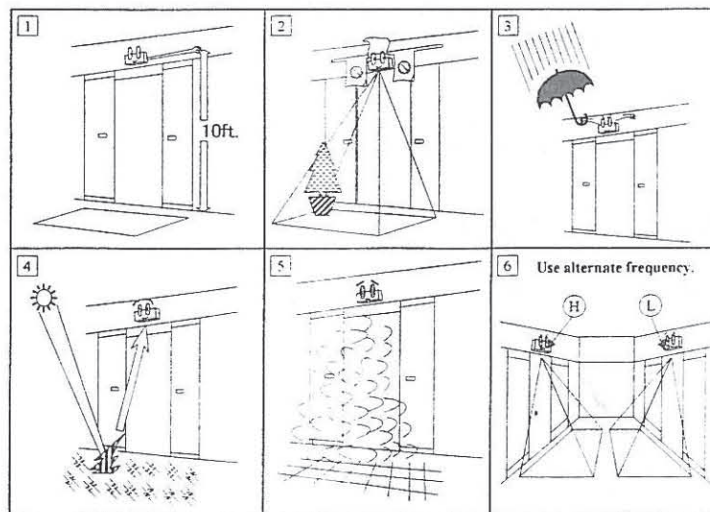- Microprocessor provides programmable Presence Timer (∞, 60, 15, or 2 seconds).
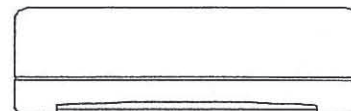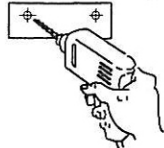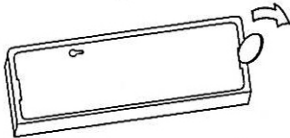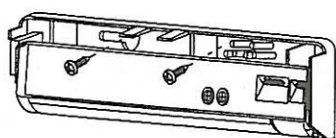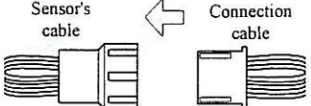
Section 2   Parts Identification
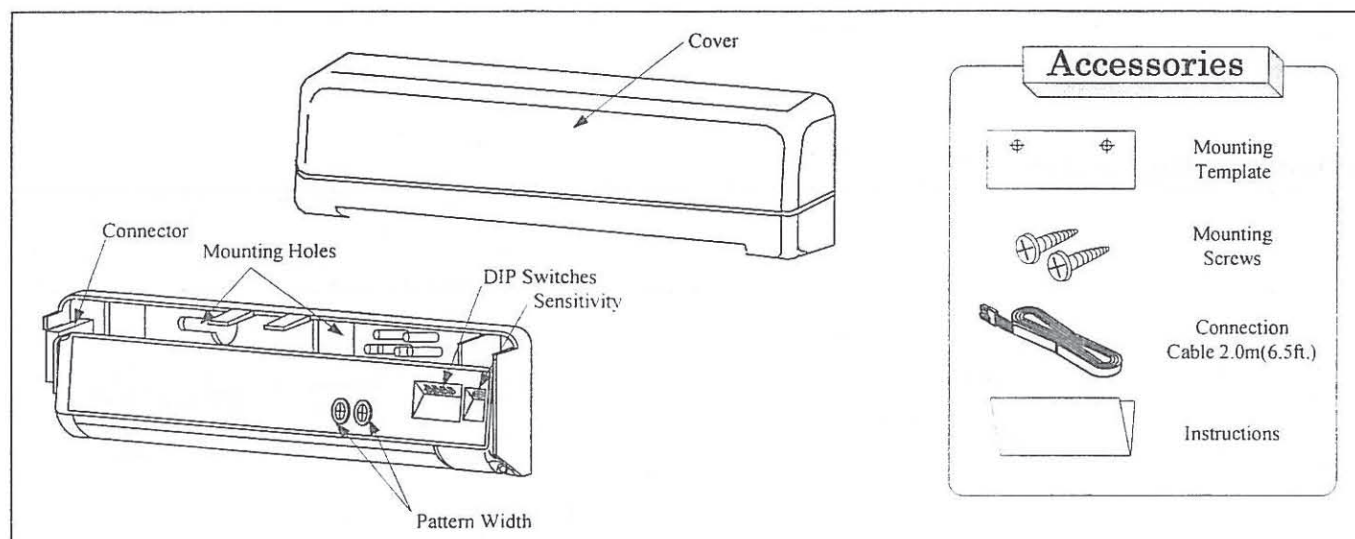
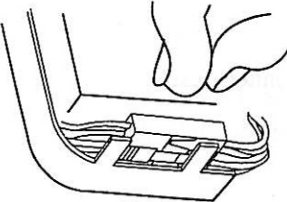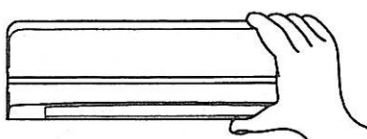## Section 3   Mounting Information
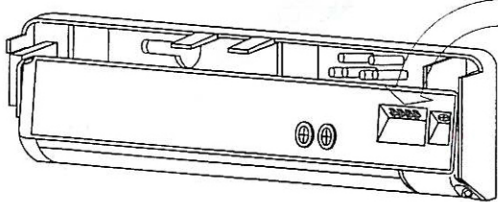
1. Do not mount higher than 3m (10ft).

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)

Section 4   Mounting and Wiring

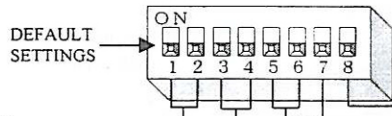|		
1. Using the mounting template provided, drill mounting and wire holes.	2. Remove cover using a quarter (or other coin).	3. Fasten unit with mounting screws provided.
4. Connect wiring. Push connector. Sensor's cable ⟵ Connection cable Red & Black = Power [Nonpole] Yellow = Normally Open [NO] Yellow = Common	5. Place connector in holder.	6. Set desired sensor parameters as noted in Sections 5 & 7. ⇒ **5. DIP Switch Settings** ⇒ **7. Adjusting Detection Pattern**
7. Place cover on sensor and clean the sensor.	⚠ **NOTE:** For maximum pattern depth and width, mount the DA-301E as high as possible and use the maximum pattern angle (5°)	

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 Diagnostic
2 Secs	4 R		H		Snow	ON
15 Secs	3 R		MH			
60 Secs	2 R		ML		Normal	OFF
∞ Secs	1 R	4 R 3 R 2 R 1 R	L			
1 2	3 4		5 6		7	8

①**Presence Timer :** The DA-301E will detect a stationary object only for the time period set by the Presence Timer.
The timer will reset and begin if any movement is detected.

②**Pattern Depth (Rows) :** To adjust the pattern depth, set switches 3 and 4 as shown.

③**Frequency :** When more than 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 using switch 7. Snow Mode should only be used in environments with heavy snowfall or other extreme conditions.

⑤**Self Diagnostic:** (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).
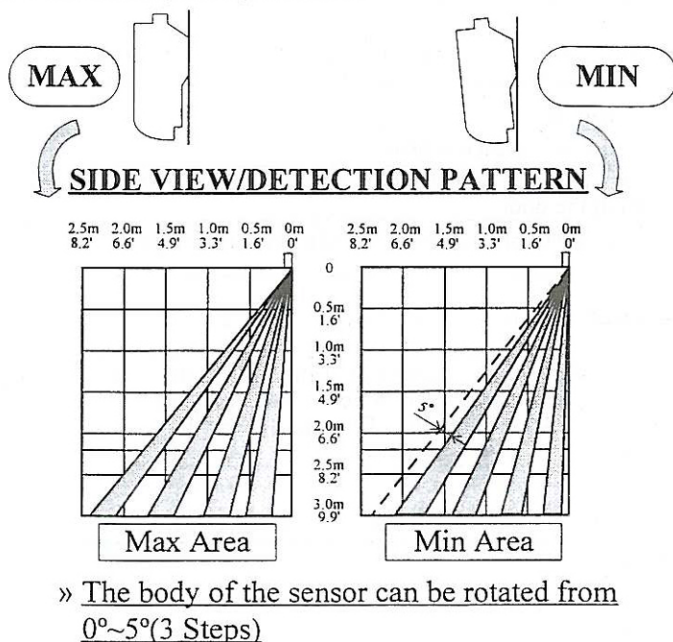⑤ TEST the presence feature, especially near the door.

When carrying out the following work, DISCONNECT POWER TO THE SENSOR:

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

Section 7   Adjusting Detection Pattern

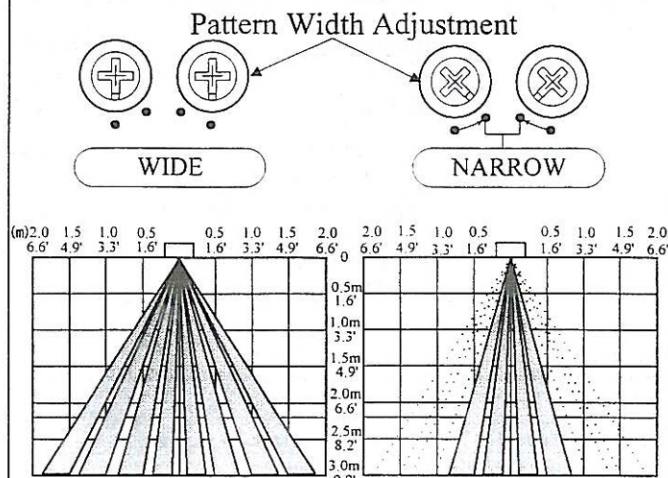Adjust the detection pattern according to the following diagrams:

1. Pattern Angle Adjustment.

MAX   MIN

SIDE VIEW/DETECTION PATTERN

| Max Area | Min Area |

» <u>The body of the sensor can be rotated from 0°~5°(3 Steps)</u>

2. Pattern Width Adjustment

Mask Adjustments for single and/or double doors.

FRONTAL VIEW/DETECTION PATTERN

Pattern Width 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.**

Sensitivity

High
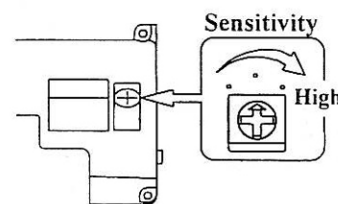
Section 9   Self Diagnostic

DA-301E is continuously emitting infrared beams and checking the reflected beams. If no reflection is sensed by DA-301E an output signal as described below will result.

For 12 seconds the relay starts chattering ON/OFF(4 times in 12 seconds) then the relay remains in the ON condition for 60 seconds This cycle will repeat itself until the problem is resolved or the power is disconnected.

At the same time the Indicator Lamp will switch continuosly 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
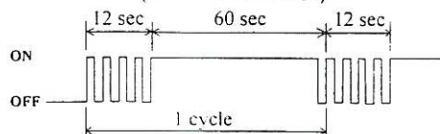
***** EXTREMELY IMPORTANT *****

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 :

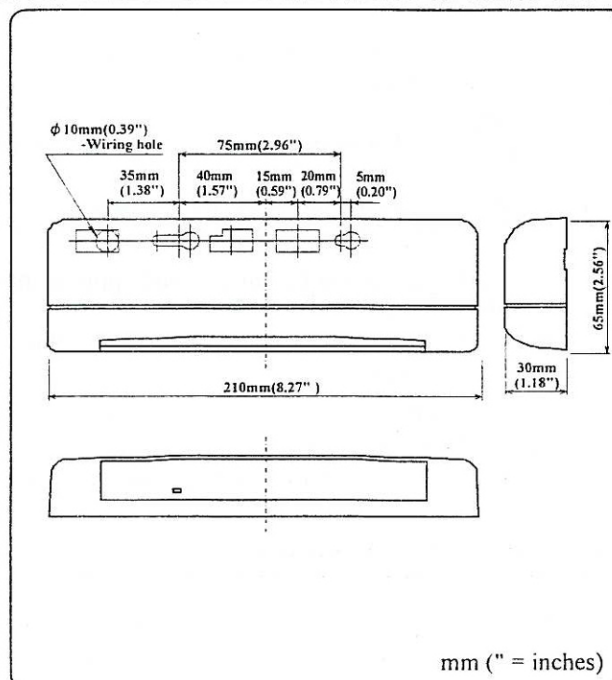Place the proper labels on the door per ANSI/BHMA A156.10. & BS 7036.

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.
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 Sensitivity.
	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 or footprints being left in fresh snow, this will cause the door to open sometimes. Set the Presence Timer to a short times. See Section 5.

Section 11   Technical Data

Model	DA-301E Motion & Presence Sensor
Detection Method	Active Infrared Detection
Maximum Installed Height	3m(10ft.)
Pattern Adjustments	Pattern Width (wide or narrow) Pattern Depth (1 to 4Rows) Angle Adjustment 0°to 5°in 3 steps Sensitivity
Power Supply	12 to 24V AC or DC +/-10% GRAY wires (Nonpole)
Power Consumption	AC24V-1.3VA , AC12V-1.0VA DC24V-40mA.DC12V-80mA
Output Contact	Relay : DC50V 0.1A(Resistor Load) Yellow Wire : Normally Open Yellow Wire : Common
Output Holding Time	Approx. 0.5 seconds
Presence Timer	Limits of ∞, 60, 15 and 2 seconds
LED Indication	RED-Detecting , GREEN-Standby , ORANGE-Hunting Door Switch between RED and GREEN - Abnormal
Temperature Range	-4 F° to 140 F° (-20 ℃ to 60 ℃)
Weight	0.190kg. (0.42lbs.)
Color	Black or Silver (Painting is possible)
Accessories	Cable : 2.0m (6.5ft) . Mounting Template , Installation Instructions

Section 12   External Dimensions

φ10mm(0.39")
-Wiring hole

75mm(2.96")

35mm (1.38") 40mm (1.57") 15mm (0.59") 20mm (0.79") 5mm (0.20")

65mm(2.56")

30mm (1.18")

210mm(8.27")

mm (" = inches)

MP-3619 04.07