

# Microwave Door Sensor

## EZ / EZ+



### 1. Manufacturer's statement

5910351 2003.12

Read this document and this Operation Manual carefully before use, to ensure proper operation of this Optex sensor. Failure to read this Operation Manual may cause improper sensor operation and may result in serious injury or death. This product is a non-contact activating switch intended for mounting on the header of an automatic door. Do not use it for any other applications; otherwise proper operation and safety cannot be guaranteed.

#### Cautions:

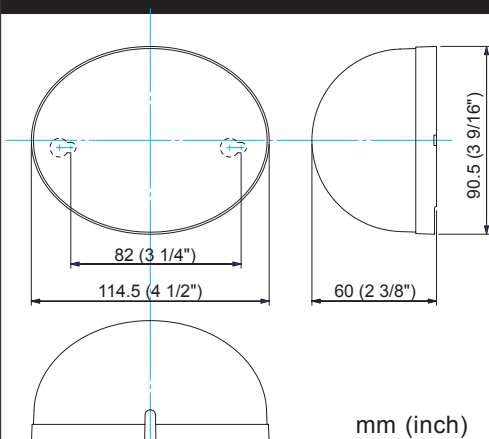
1. Follow the instructions (especially **NB**) in this Operation Manual when installing and adjusting the sensor.
2. When setting the sensor's area pattern, make sure there is no traffic around the installation site.
3. Before turning the power on, check the wiring to prevent damage or malfunction of equipment that is connected to the sensor.
4. Do not disassemble, rebuild or repair the sensor yourself; otherwise it may cause electric shock or breakdown of the sensor.
5. Only use the sensor as specified in the supplied instructions.
6. Be sure to install the sensor in accordance with the local laws and standards of your country.
7. Before leaving the jobsite, be sure this equipment is operating properly and instruct the building owner/operator on proper operation of the door and this sensor.

### 2. Specifications

Model	: EZ (S)/(BL) EZ+ (S)/(BL)	Output contact	: "Form C"-relay 50V, 0.3A Max. (resistance load)
Mounting height	: 2.1 m - 3.0 m	Relay hold time	: 0.5s/ 2s selectable
Detection area adjustments	: Low, medium, high adjustable	Operating temperature	: -20°C - + 55°C
Detection area selections	: See the chart in 'Adjustment' for the possibilities	Weight	: 175 g
Detection method	: Microwave doppler effect radar	Accessories	: 3m Connection cable 2 Mounting screws Mounting template Spot lens Back plate
Frequency	: 24.125GHz		
Transmitting power	: 2mW max.		
Detection angle adjustments	: Twisting the antenna unit vertically 27°-90° and horizontally ± 90° Module turning right 60°/left 150°		
Power supply	: 12 - 24V AC 12 - 30V DC		
Current draw	: 100mA Max. (at 12V DC)		
Operating indicator	: Green: Standby Red: Detection active		

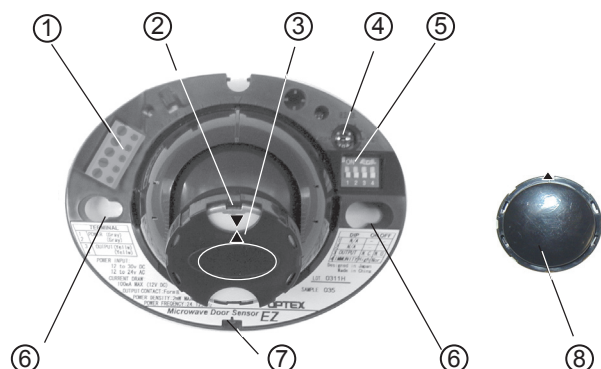
These specifications herein are subject to change without prior notice due to improvements.

### 3. Outer dimensions

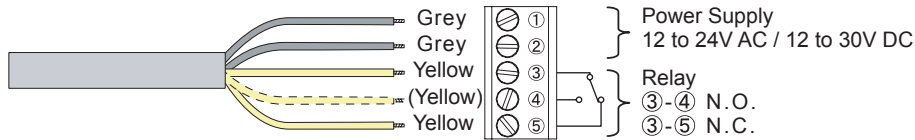


- |                               |                         |
|-------------------------------|-------------------------|
| (1) Terminal block            | (5) Dipswitches         |
| (2) Rotating antenna unit     | (6) Mounting holes      |
| (3) Standard lens             | (7) Operating indicator |
| (4) Sensitivity Potentiometer | (8) Spot lens           |

#### Name of parts

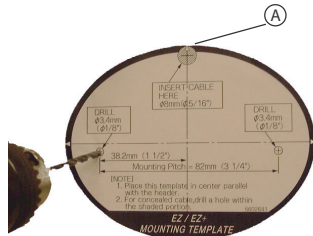


## Terminal block



## 4. Installation

1



Note

Be sure to install the sensor where it will not be directly sprayed with rainwater or snow.

Note

Be sure that the mounting height is within the value of those in "Specification".

1. Affix the mounting template to the mounting surface.
2. Drill two mounting holes (Ø 3.4mm).
3. To carry through the wire through the header, see (A).
4. After drilling holes, remove the mounting template.

3

1. Connect the cable to the terminal block with a screwdriver.
2. Hook the excess cables on the claw hook for easier handling.



4

1. Apply power to the sensor. Then, adjust each detection area. (See adjustment)

Note

Make sure you connect the cable correctly to the control unit of the door before turning the power on.

2

1. Remove the cover and attach the sensor with screws.

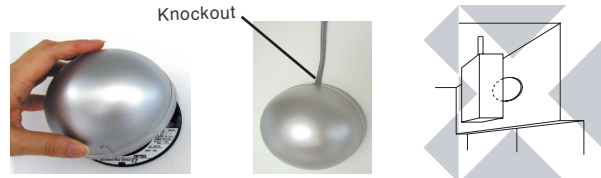


5

1. Replace the cover on the sensor.
2. If wiring is to be exposed, break the knockout.

Note

Do not place an object in front of the sensor (such as an exit sign) in order to avoid the microwave being blocked.



## 5. Adjustment

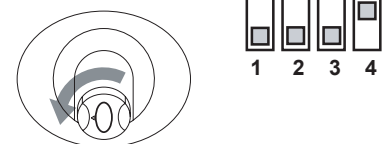
1

### Selection of the lens

1. Select the desired area shape using the adequate lens. (Factory setting= Standard lens)

	WIDE AREA	NARROW AREA	SPOT AREA
State of lens			
Area shape			

2. When selecting the **NARROW AREA**, turn the rotating antenna unit to the left and set Dipswitch 4 (Immunity) to ON.



3. When selecting the **SPOT AREA**, remove the standard lens and place the Spot lens so that two triangles come in the same position.



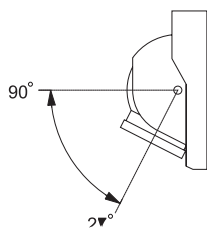
## 5. Adjustment (continued)

### 2 Adjusting the detection area depth

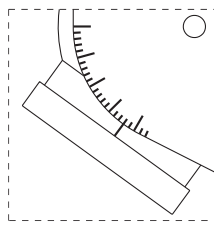
Adjustable range: 63°= 3 x 21 steps

**Note** Make sure the detection area does not overlap with the door/header, otherwise ghosting may occur.

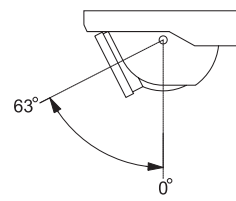
HEADER MOUNT



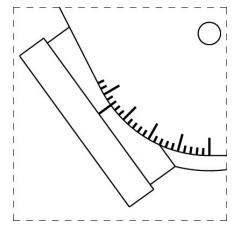
when 36°



CEILING MOUNT



when 54°

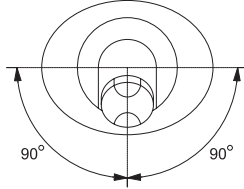


### 3 Adjusting the detection area pattern

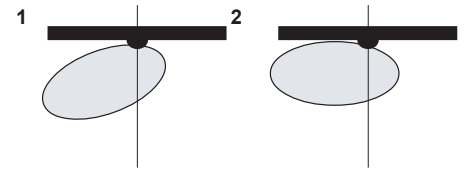
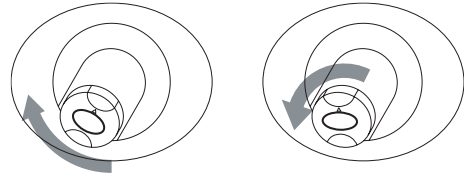
Adjustable range: 180°= 5 x 36 steps (right:90°, left: 90°)

\*The example below is when adjusting the area toward left.

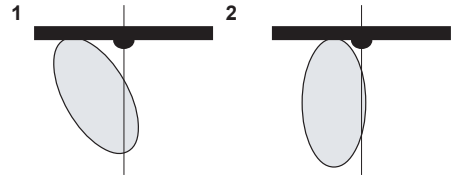
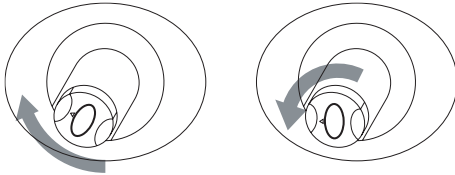
- By twisting the spherical part to the right, the area can be shifted towards left, but tilted.
- With the **WIDE/NARROW AREA**, twist the rotating antenna unit so that the ellipse on the standard lens tilts as desired. With the **SPOT AREA**, make sure that ▲ on the spot lens comes on top.



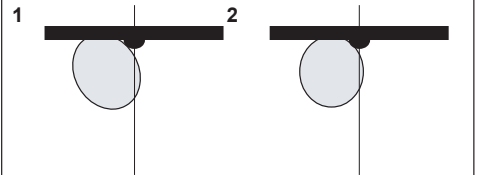
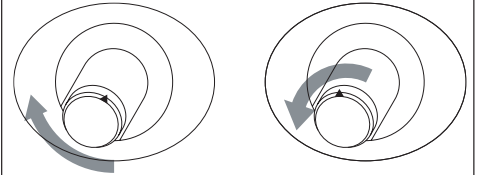
WIDE AREA



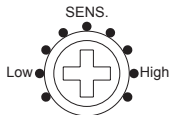
NARROW AREA



SPOT AREA



### 4 Setting of the sensitivity potentiometer



Adjust the detection area with the sensitivity potentiometer.

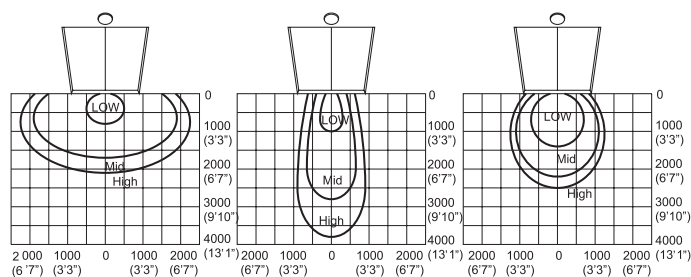
Sensitivity Potentiometer	WIDE AREA		NARROW AREA		SPOT AREA	
	Width	Depth	Width	Depth	Width	Depth
<b>High</b>	4.5m	2.1m	1.8m	3.8m	2.5m	2.5m
<b>Mid</b>	3.8m	1.7m	1.3m	2.8m	2.2m	2.2m
<b>Low</b>	1.0m	0.8m	0.6m	1.0m	1.4m	1.4m

\* The values are the reference and not guaranteed.

\* The area position may differ according to the size/material/entry speed of the object and the installation environment. (Especially when the material of the door, floor and the surrounding wall is metallic, the area may be bigger).

### 5 Detection area

The chart below is when the mounting height is 2.2m and the vertical angle 36°.



# 6 Setting of the dipswitches

## Dipswitch 1: Detection mode **EZ+ ONLY**

You can programm this sensor not to detect traffic walking away form the sensor.

 1 2 3 4	<b>Traffic approaching the door</b>	<b>Traffic departing the door</b>
<b>OFF: Multidirectional</b>		
<b>ON: Unidirectional</b>		

## Dipswitch 2: Auto-Caution Mode **EZ+ ONLY**



If a person is wavering in the detection area, the sensor will automatically change to "Multidirectional". For the safety purpose, set Dipswitch 2 to ON.

## Dipswitch 3: Relay Hold Time



The Relay Hold Time can be set for 0.5s or 2s.  
When OFF: 0.5s (Factory setting)  
When ON: 2.0s

## Dipswitch 4: Immunity



If there is external interference, set Dipswitch 4 to ON. This allows the sensor to operate normally in that environment.

## Checking

Check the operation accordingly to the chart below.

Inform the following items to the building owner/operator

	Power OFF	5 sec. after the power is turned on	Outside the detection area	Entry into the detection area	Outside the detection area
Sensor status	Power off	Warming up	Stand-by	Detection active	Stand-by
Operating indicator	OFF	Blinking green	Green	Red	Green
Output contact					

1. When turning the power on, always walk-test the sensor.
2. Always keep the detection window clean. If dirty, wipe the window lightly with a damp cloth.
3. Do not wash the sensor with water.
4. Do not disassemble, rebuild or repair the sensor yourself; otherwise an electric shock may occur.
5. Contact your installer or the sales engineer if you want to change the settings.
6. Do not place an object that moves or emits light in the detection area. (ex. plant, illumination, etc).

## TROUBLESHOOTING

Trouble	Possible cause	Solution
Does not operate	Power supply is not adequate	Adjust to the stated voltage
	Connection failure	Check the wiring and the terminal block
Does not operate consistently	Dirty cover	Clean the cover
	There was an abrupt condition change in the detection area	Check the installation conditions
Operates by itself (Ghosting)	There is a moving object in the detection area (ex. Plants, posters, etc.)	Remove the object
	Waterdrops on detection window	Keep the cover free from waterdrops
	Vibration of the header	Secure the header
	The detection area overlaps with the door	Adjust the sensor angle away from the door

Contact your installer or the sales engineer if:  
- you need to change the settings or replace the sensor.  
- the trouble still persists after checking and remedying as described above.



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