



**OAM-DUAL T / TV / TF / TT**

5919151 MAR 2013  
TM-0072-7

**MANUFACTURER'S STATEMENT**

Read this operation manual carefully before use to ensure proper operation of this product. Failure to read this operation manual may cause improper operation and may result in serious injury or death of a person. The meanings of the symbols are as follows.

	<b>WARNING</b> Disregard of the warning symbol can cause improper operation which may cause death or serious injury.
	<b>CAUTION</b> Disregard of the caution symbol can cause improper operation which may cause injury of a person or damage the object.
	<b>NOTE</b> Special attention is required to the section of this symbol.
	It is required to check the operation manual if this symbol is shown on the product.

- NOTE**
- This product is a non-contact switch intended for header mount or wall mount for use on an automatic sliding door. Do not use for any other applications.
  - When setting the sensor's detection area, make sure that there is no traffic around the installation site.
  - Before turning the power ON, check the wiring to prevent damage or malfunction of equipment connected to the product.
  - Only use the product as specified in the operation manual provided.
  - Be sure to install and adjust the sensor in accordance with the local laws and standards of the country in which the product is installed.
  - Before leaving the installation site make sure that the product is operating properly and instruct the building owner/operator on proper operation of the door and the product.
  - The product settings can only be changed by an installer or service engineer. When changed, the changed settings and the date shall be registered in the maintenance logbook accompanying the door.

	<b>WARNING</b> Do not wash, disassemble, rebuild or repair the sensor, otherwise it may cause electric shock or breakdown of the equipment.
<b>Danger of electric shock</b>	

- NOTE** The following conditions are not suitable for sensor installation.
- Fog or exhaust emission around the door
  - Wet floor
  - Vibrating header or mounting surface
  - Moving objects, steel plate, emergency lights or illumination in the detection area or in vicinity
  - Highly reflecting floor or highly reflecting objects around the door

**SPECIFICATIONS**

Model	: OAM-DUAL T / TV / TF / TT	Safety / test output	: Opto coupler (NPN) Voltage 5 to 50VDC Current 100mA Max. Dark current 600nA Max. (resistance load)
Cover color	: Black	Noise level	: <70dBA
Mounting height	: 2.0 (6'6") to 3.5m (11'6")	Output hold time	: <0.5 sec.
Detection area	: See <b>DETECTION AREA</b>	Response time	: <0.3 sec.
Detection method	: Active infrared reflection *1 Microwave doppler effect	Operating temperature	: -20 to +55°C (-4 to 131°F)
Depth angle adjustment	: AIR area -6 to +6° Microwave area +25 to +45°	Operating humidity	: <80%
Power supply *2	: 12 to 24VAC ±10% (50 / 60 Hz) 12 to 30VDC ±10%	IP rate	: IP54
Power consumption	: < 2.5W (< 4VA at AC)	Category	: See <b>Table 1</b>
Operation indicator	: See <b>Operation indicator table</b>	Performance level	: See <b>Table 1</b>
Test input	: Opto coupler Voltage 5 to 30VDC Current 6mA Max. (30VDC)	Weight	: 320g (11.2oz)
Activation output	: See <b>INSTALLATION 2</b>	Accessories	: 1 Operation manual 2 Mounting screws 1 Mounting template 1 Area adjustment tool 1 Cable 3m (9'10") (8 × 0.22mm <sup>2</sup> AWG24) *3

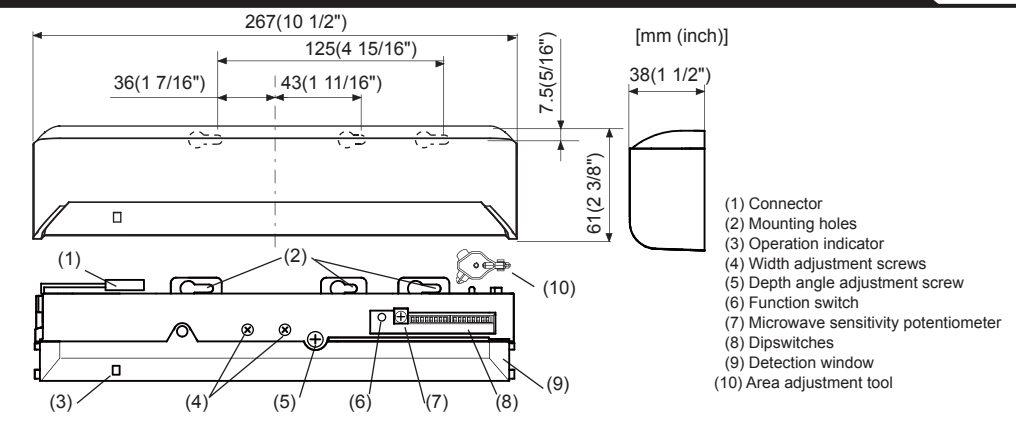
Table 1		OAM-DUAL T	OAM-DUAL TV	OAM-DUAL TF	OAM-DUAL TT
AIR part	Cat.	2 (EN ISO13849-1 : 2008)			
	PL	d (EN ISO13849-1 : 2008)			
Microwave part	Cat.	2 (EN ISO13849-1 : 2008)			
	PL	d (EN ISO13849-1 : 2008)			

**Operation indicator table**

Status	Operation indicator color	Indicator Pattern
Set-up	Yellow blinking	[Yellow bar] 1sec.
Stand-by (installation mode)	Yellow	[Yellow bar]
Stand-by (operation mode)	Green	[Green bar]
Lookback (1st row) detection*4	Blue	[Blue bar]
2nd row detection	Red blinking	[Red bar] 1sec.
3rd row detection	Red	[Red bar]
Microwave detection	Orange	[Orange bar]
Setting error	Red & green blinking	[Red & Green bar]
Signal saturation	Slow green blinking	[Slow Green bar]
Sensor failure	Fast green blinking	[Fast Green bar]

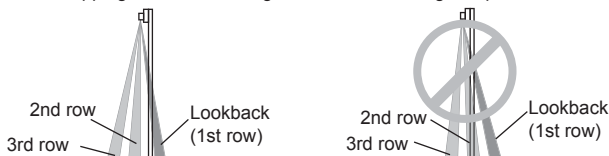
- NOTE** The specifications herein are subject to change without prior notice due to improvements.
- \*1 : Active infrared reflection has a presence detection function.
  - \*2 : The sensor has to be connected to a door system which has a SELV circuit.
  - \*3 : Overcurrent protection with less than 2A.
  - \*4 : See **LOOKBACK AREA**

**OUTER DIMENSIONS AND PART NAMES**



**LOOKBACK AREA**

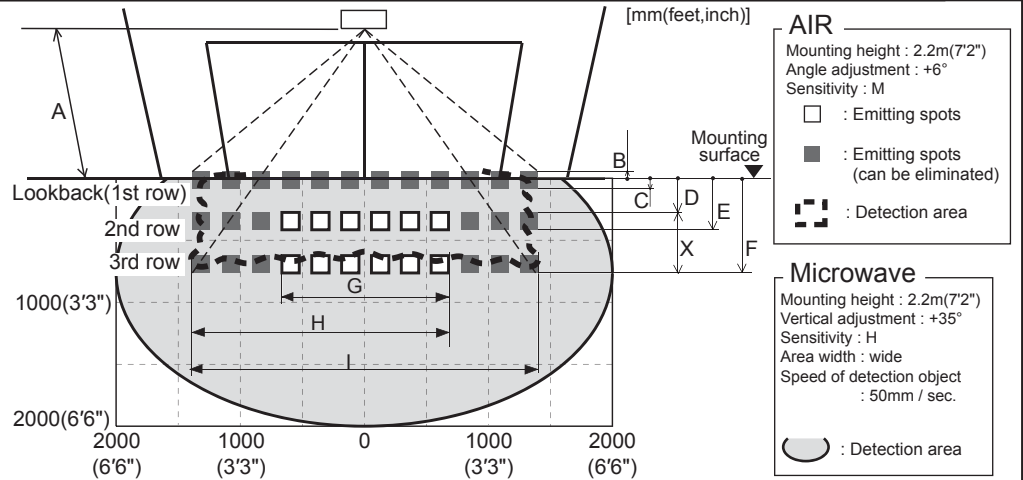
When dipswitch 15 is set to ON, the lookback area, that provides extra safety over the threshold, is activated. In case the lookback function is not required, set dipswitch 15 to OFF. Do not set the 2nd row overlapping the threshold regardless of the setting of dipswitch 15.



**COMPLIANCE**

EN16005:2012	EN12978+A1:2009	Machinery Directive 2006/42/EC
EMC Directive 2004/108/EC	EN ISO13849-1:2008	EN ISO13849-2:2008
EN61496-3:2001 clause 4. 3. 5 and 5. 4. 7. 3		AutSchR (OAM-DUAL TV/TF/TT Only)
Notified Body: TÜV SÜD Product Service GmbH, Daimlerstraße 40 60314 Frankfurt Germany		

**DETECTION AREA**



**AIR emitting area**

The chart shows the values at depth angle +6° [m(feet,inch)]

	2.00 (6'6")	2.20 (7'2")	2.50 (8'2")	2.70 (8'10")	3.00 (9'10")	3.50 (11'6")
A	2.00 (6'6")	2.20 (7'2")	2.50 (8'2")	2.70 (8'10")	3.00 (9'10")	3.50 (11'6")
B	0.05(2")	0.06 (2")	0.07 (3")	0.074(3")	0.08 (3")	0.09 (4")
C	0.07(3")	0.08 (3")	0.09 (4")	0.09 (4")	0.10 (4")	0.12 (5")
D	0.23 (9")	0.25 (10")	0.28 (11")	0.31 (1')	0.34 (1'1")	0.39 (1'4")
E	0.35 (1'2")	0.39 (1'3")	0.44 (1'5")	0.48(1'7")	0.53 (1'9")	0.61 (2')
F	0.59 (1'11")	0.65 (2'2")	0.74 (2'5")	0.80 (2'8")	0.89 (2'11")	1.03(3'5")
G	1.21 (3'12")	1.33 (4'4")	1.51(4'11")	1.63 (5'4")	1.81 (5'11")	2.11 (5'11")
H	1.86 (6'1")	2.05 (6'9")	2.32 (7'7")	2.51 (8'3")	2.79 (9'2")	3.25 (10'8")
I	2.52(8'3")	2.78 (9'1")	3.15 (10'4")	3.40 (11'2")	3.79 (12'5")	4.42 (14'6")

**AIR detection area**

To comply with EN16005, make sure that the detection area is within the values of the chart below.

	2.00 (6'6")	2.20 (7'2")	3.00 (9'10")
A	2.00 (6'6")	2.20 (7'2")	3.00 (9'10")
X	0.23 (9")	0.25 (10")	0.34 (1'1")
G	1.02 (3'4")	1.12 (3'8")	1.53 (5')
I*	2.41 (7'11")	2.65 (8'8")	3.60 (11'10")

Test conditions required by EN16005  
Floor : Grey paper  
Detection object : EN 16005 CA reference body  
Sensitivity : middle  
Speed of detection object : 50mm / sec.

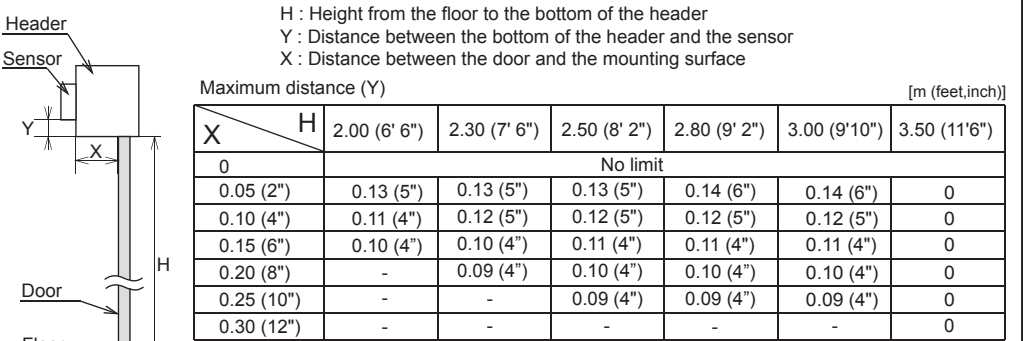
The values mentioned in "detection area" refer to the test conditions as described in the EN16005 (the emitting area is specified in "emitting area").

\*: When installed at higher than 3.0m(9'10"), EN16005 requirements are fulfilled only within the area width "I" of 3.6m(11'10").

- NOTE** The actual detection area may become smaller depending on the ambient light, the color / material of the object or the floor as well as the entry speed of the object. The sensor may not be activated when the entering speed of the object or a person is slower than 50mm / sec. or faster than 1500mm / sec.

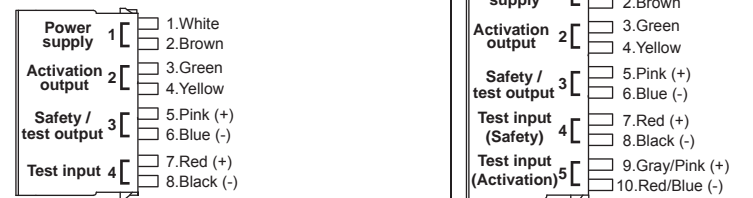
**INSTALLATION**

- Affix the mounting template at the desired mounting position. Refer to the chart in below.
- Drill two mounting holes of ø3.4mm (ø1/8").
- To pass the cable through the header, drill a wiring hole of ø8mm (ø5/16").
- Remove the mounting template.
- Remove the housing cover. Fix the sensor to the mounting surface with the two mounting screws.



- NOTE** Make sure not to mount the sensor lower than the bottom of header.
- CAUTION** Make sure to affix the mounting template as described in the above chart, otherwise it can be dangerous since there may be no detection area around the threshold. Install the sensor as low as possible on the header.
- Risk of getting caught**

- Wire the cable to the door controller as shown below.



	OAM-DUAL T	OAM-DUAL TV	OAM-DUAL TF	OAM-DUAL TT
1	12 to 24VAC±10% / 12 to 30VDC±10%			
2	Form A relay 50V 0.3A Max.	(+) Voltage output 3.2V@10mA (-) Min. 4.5V(no load)	Frequency output 100Hz±10%	Form A relay 50V 0.3A Max.
3	Opto coupler(NPN) / Voltage: 5 to 50VDC			
4	Opto coupler / Voltage: 5 to 30VDC			
5	Opto coupler / Voltage: 5 to 30VDC			

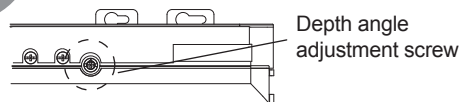
- WARNING** Before starting the procedure, make sure that the power is turned OFF. When passing the cable through the hole, do not tear the shield otherwise it may cause electric shock or breakdown of the sensor.
- Danger of electric shock**

- Plug the connector.
  - Supply power to the sensor. Adjust the detection area and set the dipswitches. (See **ADJUSTMENTS 4. Dipswitch settings**)
- NOTE** Make sure to connect the cable correctly to the door controller before turning the power ON. When turning the power ON or after adjusting the settings, do not enter the detection area for more than 10 seconds in order to enable the presence detection. Do not touch the dipswitches before turning the power ON, otherwise an error occurs. After changing the dipswitches and/or potentiometer, make sure to push the function switch for 2 seconds.

- Place the housing cover. If wiring is to be exposed, break the knockout.
- WARNING** Do not use the sensor without the cover. When using the cable knockout, install the sensor indoors or use the rain cover (separately available) otherwise electric shock or breakdown of the sensor may occur.
- Danger of electric shock**

## ADJUSTMENTS

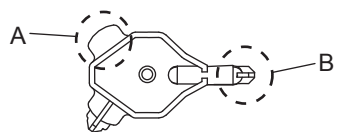
### 1 Area depth angle adjustment



When adjusting the 2nd row close to the door, follow **Table 2** dipswitch 16 for the easier adjustment.

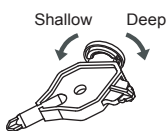
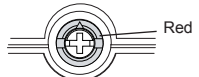
**NOTE** Make sure that the detection area does not overlap with the door / header, and there is no highly reflecting object near the detection area otherwise ghosting / signal saturation may occur.

#### Area adjustment tool

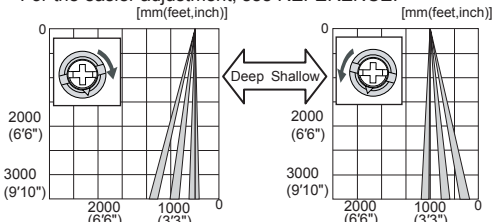


#### 1-1 AIR adjustment

Depth angle adjustment screw for the AIR area

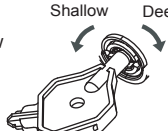


Use the area adjustment tool (A) as shown above to change the area depth angle. For the easier adjustment, see REFERENCE.

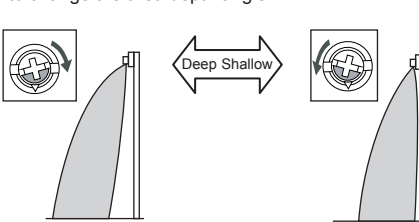


#### 1-2 Microwave adjustment

Depth angle adjustment screw for the microwave area



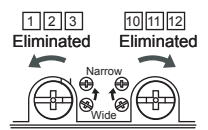
Use the area adjustment tool (B) as shown above to change the area depth angle.



### 2 Area width adjustment

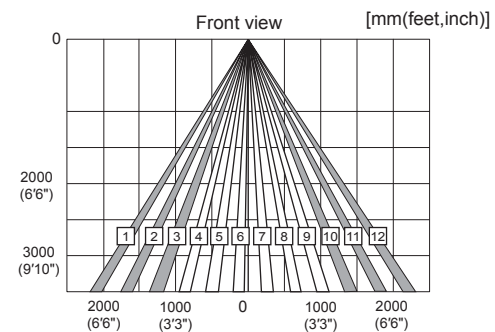
#### 2-1 AIR adjustment

To adjust the AIR detection area width, use the adjustment screws as shown in the picture below.



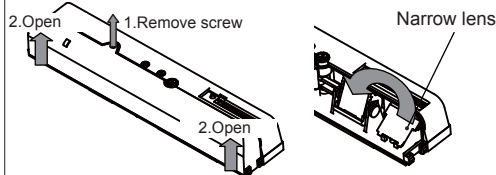
Width adjustment screws

**NOTE** When setting the detection area width, make sure to turn the adjustment screws until it clicks. [1][2][3] cannot be eliminated separately, neither can [10][11][12]



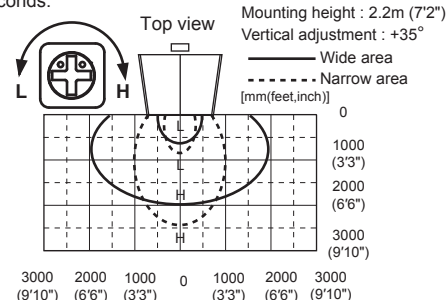
#### 2-2 Microwave adjustment

To adjust the microwave detection area width, use the narrow lens as shown in the picture below.



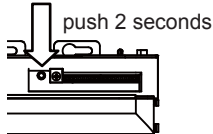
### 3 Microwave sensitivity

Adjust the microwave detection area with potentiometer. Afterwards, make sure to push the function switch for 2 seconds.



### 4 Dipswitch settings

After changing the dipswitch settings, make sure to push the function switch for 2 seconds.



**Table 2**

■ AIR settings ■ Microwave settings □ Other settings

Dipswitch	Function	Setting				Comment
Dipswitch 1	Sensitivity	Low 1 2	Middle 1 2	High 1 2	S-High 1 2	Set the sensitivity according to the mounting height. Values below dipswitch are reference only. Adjust the sensitivity according to your risk assessment.
Dipswitch 2		2.0 to 3.0m	2.0 to 3.0m	2.5 to 3.2m	3.0 to 3.5m	
Dipswitch 3	Presence timer	30sec 3 4	60sec 3 4	180sec 3 4	600sec 3 4	To comply with EN16005, set the timer to "30sec." or more. To enable the presence detection, do not enter the detection area for 10 seconds after setting the timer.
Dipswitch 4						
Dipswitch 5	Frequency	Setting1 5 6	Setting2 5 6	Setting3 5 6	Setting4 5 6	When using more than two sensors close to each other, set the frequency different for each sensor.
Dipswitch 6						
Dipswitch 7	Safety / Testoutput (to the door controller)	High 7	Low 7			
Dipswitch 8	Test input (from the door controller)	High 8	Low 8			The delay time between test input and Safety / Test output is 10msec.
Dipswitch 9	Direction	Bi 9	Uni 9			When dipswitch 9 is set to uni-directional, this setting enables the door to close earlier when a person walks away from the door.
Dipswitch 10	Autocaution	OFF 10	ON 10			When dipswitch 10 is set to ON, a person wavering in the motion detection area can be detected. This is only effective when dipswitch 9 is set to uni-directional.
Dipswitch 11	Immunity	OFF 11	ON 11			Set dipswitch 9 to ON when the sensor operates by itself (ghosting). When dipswitch 11 is set to ON the actual detection area may occur smaller.
Dipswitch 12	Activation output	N.O. 12	N.C. 12			Select N.O/N.C for the activation output (OAM-DUAL T only)
	Activation / Testoutput (to the door controller)	N.O. 12	N.C. 12			Select N.O/N.C for the activation / Testoutput. (OAM-DUAL TT only)
Dipswitch 13	AIR output	Safety 13	Safety + Activation 13			When dipswitch 13 is ON, the sensor outputs safety and activation simultaneously.
Dipswitch 14	Self monitoring	Enable 14	Disable 14			When the door remains open and the operation indicator shows fast / slow green blinking, refer to TROUBLESHOOTING. If the door still remains open, set dipswitch 14 to "Disable". To comply with EN16005, set the self monitoring to "Enable".
Dipswitch 15	Lookback	OFF 15	ON 15			When dipswitch 15 is set to ON, the lookback (1st row) is active and looks through the threshold.
Dipswitch 16	Installation mode	OFF 16	ON 16			Set dipswitch 16 to ON to adjust the 2nd row. After setting the row switch dipswitch 16 OFF. During the installation mode only the 2nd row remains active and the operation indicator shows yellow.

## CHECKING

Check the operation in the operation mode according to the chart below.

Entry	Power OFF	Outside of detection area	Entry into microwave area	Entry into 3rd row	Entry into 2nd row	Entry into Lookback (1st row)	
							Status
Operation indicator		None	Green	Orange	Red	Red blinking	Blue
Activation output	OAM-DUAL T/TT	12 N.O.	13 Safety				
		12 N.C.					
		12 N.O.	13 Safety + Activation				
		12 N.C.					
OAM-DUAL TV	13 Safety	0V	*	<=0.5V		*	
	13 Safety + Activation	0V	*	<=0.5V		<=0.5V	
OAM-DUAL TF	13 Safety	0Hz	100Hz	0Hz		100Hz	
	13 Safety + Activation	0Hz	100Hz	0Hz		0Hz	
Safety / Test output	7 High	OFF	ON			OFF	
	7 Low	OFF	OFF			ON	

\*3.2V@10mA Min.4.5V(no load)

## INFORM BUILDING OWNER / OPERATOR OF THE FOLLOWING ITEMS

### WARNING

- Always keep the detection window clean. If dirty, wipe the window with a damp cloth. Do not use any cleaner / solvent.
- Do not wash the sensor with water.
- Do not disassemble, rebuild or repair the sensor yourself, otherwise an electric shock may occur.
- When the operation indicator blinks green, contact your installer or service engineer.
- Always contact your installer or service engineer when changing the settings.
- Do not paint the detection window.

### NOTE

- When turning the power ON, always walk-test the detection area to ensure the proper operation.
- Do not place any objects that move or emit light in the detection area. (e.g. plant, illumination, etc.)

## TO COMPLY WITH EN16005

Make sure to confirm the following content to comply with EN16005.

- Detection area settings (See **DETECTION AREA**)
- Presence timer (See **ADJUSTMENTS 4. Dipswitch settings**)
- Self monitoring (See **ADJUSTMENTS 4. Dipswitch settings**)

## TROUBLESHOOTING

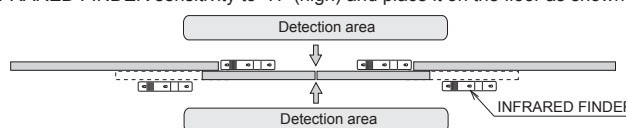
Door operation	Operation indicator	Possible cause	Possible countermeasures
Door does not open when a person enters the detection area.	None	Wrong power supply voltage.	Set to the stated voltage.
	Unstable	Wrong wiring or connection failure.	Check the wires and connector.
		Wrong detection area positioning.	Check <b>ADJUSTMENTS 1, 2, 3 &amp; 4.*</b>
Door opens when no one is in the detection area. (ghosting)	Proper	Sensitivity is too low.	Set the sensitivity higher.*
		Short presence timer.	Set the presence timer longer.*
		Dirty detection window.	Wipe the detection window with a damp cloth. Do not use any cleaner or solvent.
	Unstable	Objects that move or emit light in the detection area.	Remove the objects.
		The detection area overlaps with another sensor.	Check <b>Table 2</b> dipswitch 5, 6.*
		Waterdrops on the detection window.	Wipe the detection window with a damp cloth. Do not use any cleaner or solvent.
Door remains open	Proper	Detection area overlaps with door / header.	Adjust the detection area to "deep" (outside). Or set dipswitch 11 to ON.*
		Sensitivity is too high.	Set the sensitivity lower.*
		Raining or snowing	Set dipswitch 9 and / or dipswitch 11 to ON.*
	Yellow	Others	Set dipswitch 11 to ON.*
		Sudden change in the detection area	Check <b>Table 2</b> dipswitch 1 to 4* If the problem still persists, hard-reset the sensor. (Turn the power OFF and ON again)
		Wrong wiring or connection failure.	Check the wires and connector.
Fast green blinking	Fast green blinking	Setting error of dipswitches	Check <b>Table 2</b> dipswitch 7, 8, 12, 14.*
		Installation mode is set to ON.	Set dipswitch 16 to OFF.*
	Slow green blinking	Sensitivity is too low.	Set the sensitivity higher.* Set AIR area width to "wide".
		Dirty detection window	Wipe the detection window with a damp cloth. Do not use any cleaner or solvent.
Red & green blinking	Sensor failure	Contact your installer or service engineer.	
	Signal saturation (2nd or 3rd row)	Remove highly reflecting objects from the detection area. Lower the sensitivity.* Change the area depth angle for AIR area.	
Slow green blinking	Slow green blinking	The detection area overlaps with the door / header.	Adjust the detection area to "deep". (outside)
		Setting error of dipswitch and/or potentiometer	After changing the dipswitches and/or potentiometer settings, make sure to push the function switch for 2 seconds.
Proper operation	Slow green blinking	Signal saturation (Lookback)	Remove highly reflecting objects from the detection area. Lower the sensitivity.* Change the area depth angle for AIR area.

\*After changing the dipswitches and/or potentiometer settings, make sure to push the function switch for 2 seconds.

## REFERENCE

Area depth adjustment with INFRARED FINDER (separately available)

- Turn the depth angle adjustment screw to the right (deep) to place the detection area most away from the door.
- Set INFRARED FINDER sensitivity to "H" (high) and place it on the floor as shown below.



- Turn the depth angle adjustment screw to the left (shallow) until the emitting area is placed at the position where INFRARED FINDER is in the low detection status (slow red blinking).

### Manufacturer

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### European Subsidiary

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E-MAIL: info@optex.nl WEBSITE: www.optex.nl

# X-ZONE



5919221 OCT 2012

## MANUFACTURER'S STATEMENT

Read this operation manual carefully before use to ensure proper operation of this product. Failure to read this operation manual may cause improper operation and may result in serious injury or death of a person. The meanings of the symbols are as follows.

	<b>WARNING</b>	Disregard of the warning symbol can cause improper operation which may cause death or serious injury.
	<b>CAUTION</b>	Disregard of the caution symbol can cause improper operation which may cause injury of a person or damage the object.
	<b>NOTE</b>	Special attention is required to the section of this symbol.

### NOTE

- This product is a non-contact switch intended for header mount or wall mount for use on an automatic sliding door. Do not use for any other applications.
- When setting the sensor's detection area, make sure that there is no traffic around the installation site.
- Before turning the power ON, check the wiring to prevent damage or malfunction of equipment connected to the product.
- Only use the product as specified in the operation manual provided.
- Be sure to install and adjust the sensor in accordance with the local laws and standards of the country in which the product is installed.
- Before leaving the installation site make sure that the product is operating properly and instruct the building owner/operator on proper operation of the door and the product.
- The product settings can only be changed by an installer or service engineer. When changed, the changed settings and the date shall be registered in the maintenance logbook accompanying the door.

	<b>WARNING</b>	Do not wash, disassemble, rebuild or repair the sensor, otherwise it may cause electric shock or breakdown of the equipment.
<b>Danger of electric shock</b>		

### NOTE

- The following conditions are not suitable for sensor installation.
- Fog or exhaust emission around the door
  - Wet floor
  - Vibrating header or mounting surface
  - Moving objects, steel plate, emergency lights or illumination in the detection area or in vicinity
  - Highly reflecting floor or highly reflecting objects around the door

## SPECIFICATIONS

Model	: X-ZONE	Safety output	: Form C relay
Cover color	: Black		: 50V 0.3A Max.(Resistance load)
Mounting height	: 2.0 (6'6") to 3.5m (11'6")	Output hold time	: <1.0 sec.
Detection area	: See <b>DETECTION AREA</b>	Response time	: <0.3 sec.
Detection method	: Active infrared reflection*1 Microwave doppler effect	Operating temperature	: -35 to +55°C (-31 to 131°F)
Depth angle adjustment	: AIR area -6 to +6° Microwave area +25 to +45°	Operating humidity	: <80%
Power supply	: 12 to 24VAC ±10% (50 / 60 Hz) 12 to 30VDC ±10%	IP rate	: IP54
Power consumption	: < 2.5W (< 4VA at AC)	Weight	: 320g (11.2oz)
Operation indicator	: See <b>Operation indicator table</b>	Accessories	: 1 Operation manual 2 Mounting screws 1 Mounting template 1 Area adjustment tool 1 Cable 3m (9'10") 1 Narrow lens
Activation output	: Form C relay 50V 0.3A Max.(Resistance load)		

### Operation indicator table

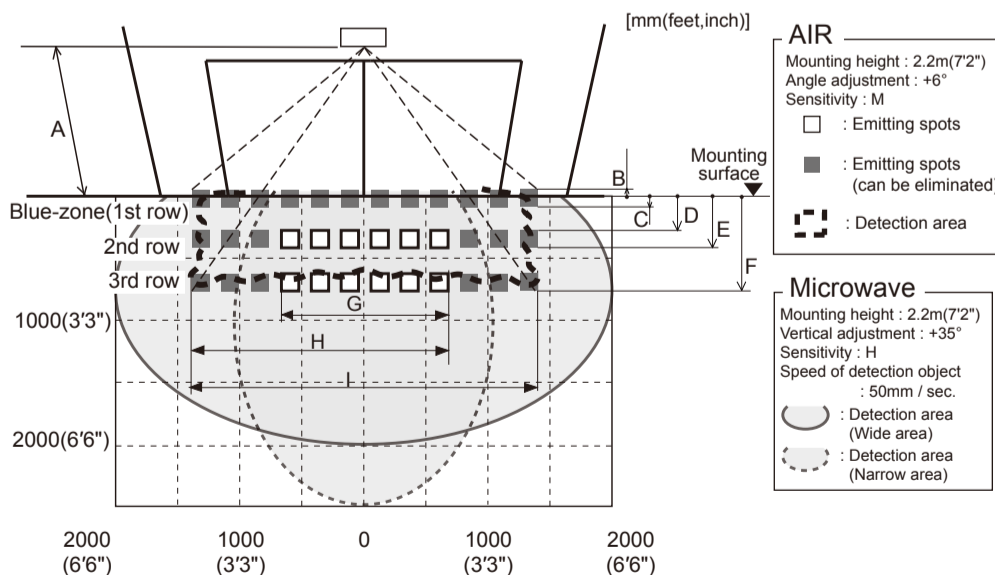
Status	Operation indicator color	1sec.	1sec.
Set-up	Yellow blinking	[Yellow bar]	[Yellow bar]
Stand-by (installation mode)	Yellow	[Yellow bar]	[Yellow bar]
Stand-by (operation mode)	Green	[Green bar]	[Green bar]
Blue-zone (1st row) detection*2	Blue	[Blue bar]	[Blue bar]
2nd row detection	Red blinking	[Red bar]	[Red bar]
3rd row detection	Red	[Red bar]	[Red bar]
Microwave detection	Orange	[Orange bar]	[Orange bar]
Signal saturation	Slow green blinking	[Green bar]	[Green bar]
Sensor failure	Fast green blinking	[Green bar]	[Green bar]

**NOTE** The specifications herein are subject to change without prior notice due to improvements.

\*1 : Active infrared reflection has a presence detection function.

\*2 : See **BLUE-ZONE**

## DETECTION AREA



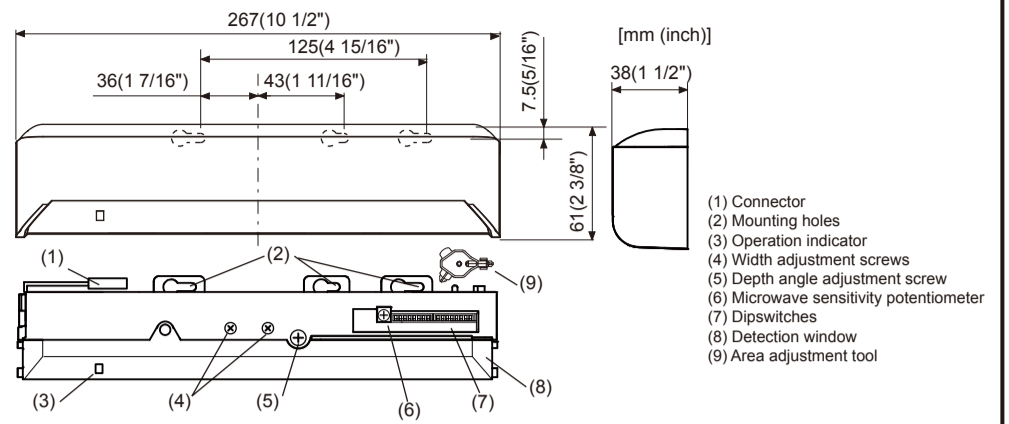
### AIR emitting area

The chart shows the values at depth angle +6° [m(feet,inch)]

A	2.00 (6'6")	2.20 (7'2")	2.50 (8'2")	2.70 (8'10")	3.00 (9'10")	3.50 (11'6")
B	0.05(2")	0.06 (2")	0.07 (3")	0.074(3")	0.08 (3")	0.09 (4")
C	0.07(3")	0.08 (3")	0.09 (4")	0.10 (4")	0.11 (4")	0.12 (5")
D	0.23 (9")	0.25 (10")	0.28 (11")	0.31 (1')	0.34 (1'1")	0.39 (1'4")
E	0.35 (1'2")	0.39 (1'3")	0.44 (1'5")	0.48(1'7")	0.53 (1'9")	0.61 (2')
F	0.59 (1'11")	0.65 (2'2")	0.74 (2'5")	0.80 (2'8")	0.89 (2'11")	1.38 (3'5")
G	1.21 (3'12")	1.33 (4'4")	1.51(4'11")	1.63 (5'4")	1.81 (5'11")	2.11 (5'11")
H	1.86 (6'1")	2.05 (6'9")	2.32 (7'7")	2.51 (8'3")	2.79 (9'2")	3.25 (10'8")
I	2.52(8'3")	2.78 (9'1")	3.15 (10'4")	3.40 (11'2")	3.79 (12'5")	4.42 (14'6")

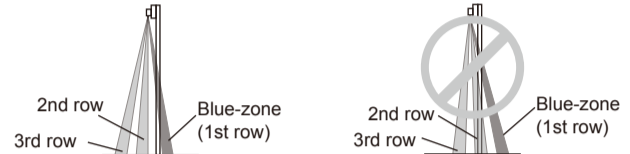
**NOTE** The actual detection area may become smaller depending on the ambient light, the color / material of the object or the floor as well as the entry speed of the object. The sensor may not be activated when the entering speed of the object or a person is slower than 50mm / sec. or faster than 1500mm / sec.

## OUTER DIMENSIONS AND PART NAMES



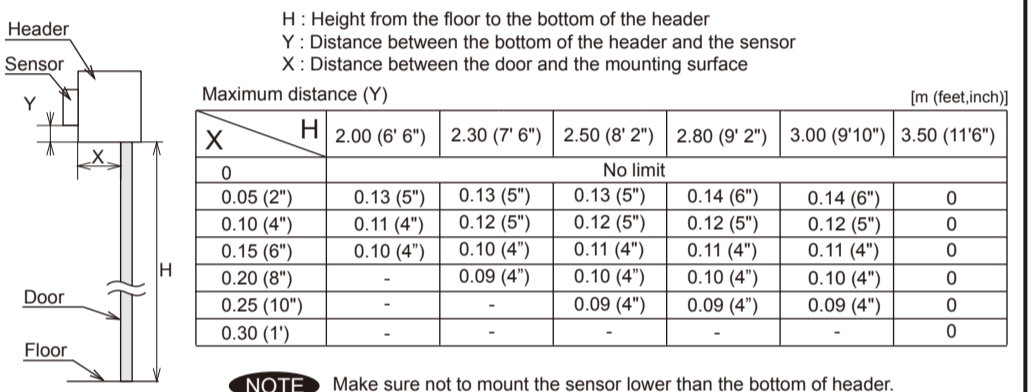
## BLUE-ZONE

When dipswitch 15 is set to ON, the blue-zone area, that provides extra safety over the threshold, is activated. In case the blue-zone function is not required, set dipswitch 15 to OFF. Do not set the 2nd row overlapping the threshold regardless of the setting of dipswitch 15.



## INSTALLATION

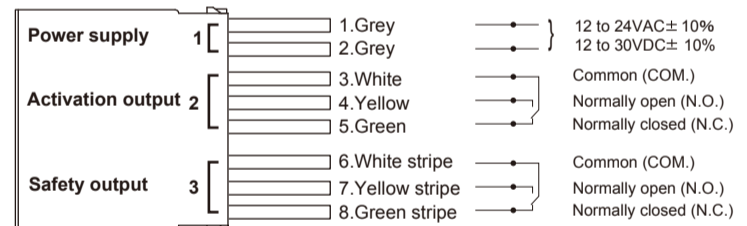
- Affix the mounting template at the desired mounting position. Refer to the chart in below.
- Drill two mounting holes of ø3.4mm (ø1/8").
- To pass the cable through the header, drill a wiring hole of ø8mm (ø5/16").
- Remove the mounting template.
- Remove the housing cover. Fix the sensor to the mounting surface with the two mounting screws.



**NOTE** Make sure not to mount the sensor lower than the bottom of header.

	<b>CAUTION</b>	Make sure to affix the mounting template as described in the above chart, otherwise it can be dangerous since there may be no detection area around the threshold. Install the sensor as low as possible on the header.
<b>Risk of getting caught</b>		

- Wire the cable to the door controller as shown below.

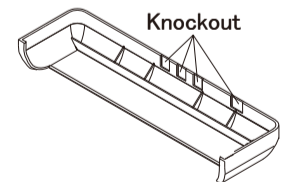


	<b>WARNING</b>	Before starting the procedure, make sure that the power is turned OFF. When passing the cable through the hole, do not tear the shield otherwise it may cause electric shock or breakdown of the sensor.
<b>Danger of electric shock</b>		

- Plug the connector.
- Supply power to the sensor. Adjust the detection area and set the dipswitches. (See **ADJUSTMENTS 4. Dipswitch settings**)

**NOTE** Make sure to connect the cable correctly to the door controller before turning the power ON. When turning the power ON or after adjusting the settings, do not enter the detection area for more than 10 seconds in order to enable the presence detection.

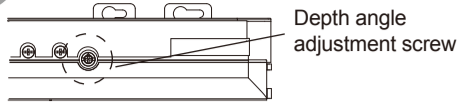
- Place the housing cover. If wiring is to be exposed, break the knockout.



	<b>WARNING</b>	Do not use the sensor without the cover. When using the cable knockout, install the sensor indoors or use the rain cover (separately available) otherwise electric shock or breakdown of the sensor may occur.
<b>Danger of electric shock</b>		

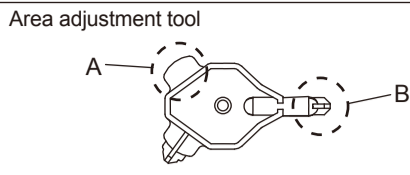
# ADJUSTMENTS

## 1 Area depth angle adjustment

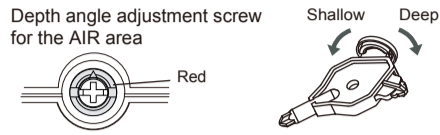


When adjusting the 2nd row close to the door, follow **Table 1** dipswitch 16 for the easier adjustment.

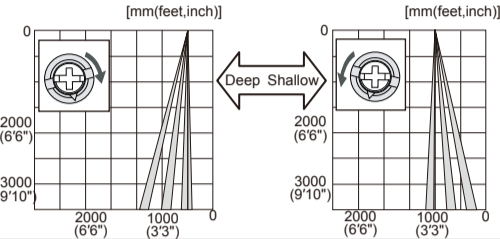
**NOTE** Make sure that the detection area does not overlap with the door / header, and there is no highly reflecting object near the detection area otherwise ghosting / signal saturation may occur.



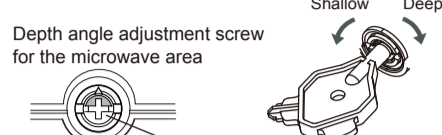
### 1-1 AIR adjustment



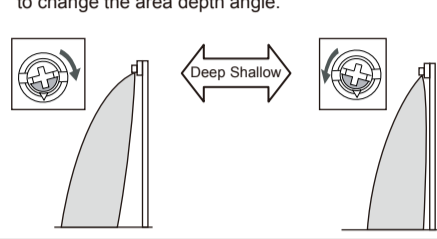
Use the area adjustment tool (A) as shown above to change the area depth angle.



### 1-2 Microwave adjustment



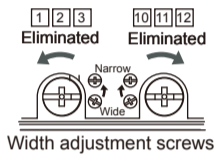
Use the area adjustment tool (B) as shown above to change the area depth angle.



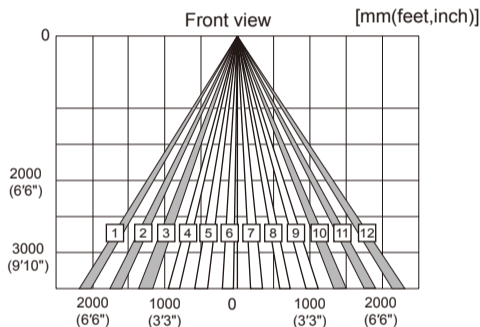
## 2 Area width adjustment

### 2-1 AIR adjustment

To adjust the AIR detection area width, use the adjustment screws as shown in the picture below.

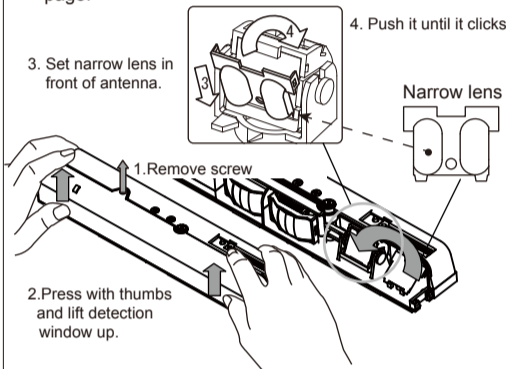


**NOTE** When setting the detection area width, make sure to turn the adjustment screws until it clicks. **1, 2, 3** cannot be eliminated separately, neither can **10, 11, 12**.



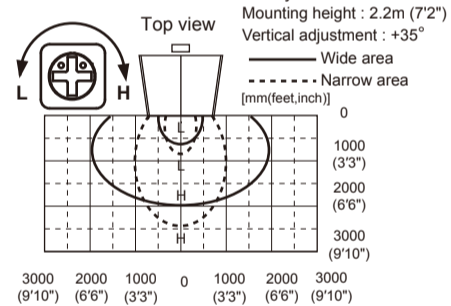
### 2-2 Microwave adjustment

To adjust the microwave detection area width, use the narrow lens referring to the following procedures. For detection area, See **DETECTION AREA** in the front page.



### 3 Microwave sensitivity

Adjust the microwave detection area with potentiometer. Turning it clockwise increases the sensitivity and turning counterclockwise lowers the sensitivity.



## 4 Dipswitch settings

**Table 1** ■ AIR settings ■ Microwave settings □ Other settings

Dipswitch	Function	Setting				Comment
Dipswitch 1	Sensitivity	Low 1 2	Middle 1 2	High 1 2	S-High 1 2	Set the sensitivity according to the mounting height. Values below dipswitch are reference only.
Dipswitch 2		2.0 to 3.0m	2.0 to 3.0m	2.5 to 3.2m	3.0 to 3.5m	
Dipswitch 3	Presence timer	30sec 3 4	60sec 3 4	180sec 3 4	600sec 3 4	All rows have the presence detection function. The presence timer can be selected from 4 settings.
Dipswitch 4		Setting1 5 6	Setting2 5 6	Setting3 5 6	Setting4 5 6	
Dipswitch 5	Frequency	Setting1 5 6	Setting2 5 6	Setting3 5 6	Setting4 5 6	When using more than two sensors close to each other, set the frequency different for each sensor.
Dipswitch 6		Setting1 5 6	Setting2 5 6	Setting3 5 6	Setting4 5 6	
Dipswitch 7	Rain mode	Normal 7	Rain 7	Set this switch to Rain if the sensor is used in a region with a lot of rain.		
Dipswitch 8	Snow mode	Normal 8	Snow 8	Set this switch to Snow if the sensor is used in a region with snow or a lot of insects.		
Dipswitch 9	Direction	Bi 9	Uni 9	When dipswitch 9 is set to uni-directional, this setting enables the door to close earlier when a person walks away from the door.		
Dipswitch 10	Auto caution	OFF 10	ON 10	When dipswitch 10 is set to ON, a person wavering in the activation detection area can be detected. This is only effective when dipswitch 9 is set to uni-directional.		
Dipswitch 11	Immunity	OFF 11	ON 11	Set dipswitch 11 to ON when the sensor operates by itself (ghosting). When dipswitch 11 is set to ON the actual detection area may occur smaller.		
Dipswitch 12	For future use					
Dipswitch 13	AIR output	Safety 13	Safety + Activation 13	When dipswitch 13 is ON, the sensor outputs safety and activation simultaneously.		
Dipswitch 14	For future use					
Dipswitch 15	Blue-zone	OFF 15	ON 15	When dipswitch 15 is set to ON, the blue-zone (1st row) is active and looks through the threshold.		
Dipswitch 16	Installation mode	OFF 16	ON 16	Set dipswitch 16 to ON to adjust the 2nd row. After setting the row switch dipswitch 16 OFF. During the installation mode only the 2nd row remains active and the operation indicator shows yellow.		

\*Please refer to **Table 2** for the details.

**Table 2**

Bi OFF	Door	Bi-direction(Bi)	Uni OFF	Uni-direction(Uni)	Detection
9 10	Sensor		9 10		
9 10	Detection area		9 10		
9 10		Bi-direction	Uni ON	Uni-direction with Auto caution mode	
9 10		When Dipswitch 9 is set to Bi, Bi-direction mode is effective, regardless of Dipswitch 10 setting.			

## CHECKING

Check the operation in the operation mode according to the chart below. ①White : COM. ④White Str. : COM.  
②Yellow : N.O. ⑤Yellow Str. : N.O.  
③Green : N.C. ⑥Green Str. : N.C.

Entry	Power OFF	Outside of detection area	Entry into microwave area	Entry into 3rd row	Entry into 2nd row	Entry into blue-zone (1st row)
Status	-	Stand-by	Motion detection active	Motion/Presence detection active		
Operation indicator	None	Green	Orange	Red	Red Blinking	Blue
Safety 13	Safety output ④⑤⑥	Safety output ④⑤⑥	Safety output ④⑤⑥	Safety output ④⑤⑥		
Safety & Activation 13	Activation output ①②③	Activation output ①②③	Activation output ①②③	Activation output ①②③		

## INFORM BUILDING OWNER / OPERATOR OF THE FOLLOWING ITEMS

### WARNING

- Always keep the detection window clean. If dirty, wipe the window with a damp cloth. Do not use any cleaner / solvent.
- Do not wash the sensor with water.
- Do not disassemble, rebuild or repair the sensor yourself, otherwise an electric shock may occur.
- When the operation indicator blinks green, contact your installer or service engineer.
- Always contact your installer or service engineer when changing the settings.
- Do not paint the detection window.

### NOTE

- When turning the power ON, always walk-test the detection area to ensure the proper operation.
- Do not place any objects that move or emit light in the detection area. (e.g. plant, illumination, etc.)

## TROUBLESHOOTING

Door operation	Operation indicator	Possible cause	Possible countermeasures	
Door does not open when a person enters the detection area.	None	Wrong power supply voltage. Wrong wiring or connection failure.	Set to the stated voltage. Check the wires and connector.	
	Unstable	Wrong detection area positioning. Sensitivity is too low. Short presence timer. Dirty detection window.	Check <b>ADJUSTMENTS 1, 2, 3 &amp; 4</b> . Set the sensitivity higher. Set the presence timer longer. Wipe the detection window with a damp cloth. Do not use any cleaner or solvent.	
		Proper	Wrong wiring or connection failure.	Check the wires and connector.
		Door opens when no one is in the detection area. (ghosting)	Unstable	Objects that move or emit light in the detection area.
	The detection area overlaps with another sensor.			Check <b>Table 1</b> dipswitch 5, 6.
	Waterdrops on the detection window.			Wipe the detection window with a damp cloth. Use the rain-cover (Separately available).
Detection area overlaps with door / header.	Adjust the detection area (AIR or Microwave) to "deep". Or set dipswitch 11 to ON.			
Sensitivity is too high.	Set the sensitivity lower.			
Raining or snowing(AIR) Raining or snowing(Microwave) Others	Set dipswitch 7 and / or dipswitch 8 to ON. Set dipswitch 9 and / or dipswitch 11 to ON. Set dipswitch 11 to ON.			
Door remains open	Proper	Sudden change in the detection area Wrong wiring or connection failure.	Check <b>Table 1</b> dipswitch 1 to 4. If the problem still persists, hard-reset the sensor. (Turn the power OFF and ON again) Check the wiring.	
	Yellow	Installation mode is set to ON.	Set dipswitch 16 to OFF.	
Proper operation	Fast green blinking	Sensor failure Sensitivity is too low. Dirty detection window	Contact your installer or service engineer. Set the sensitivity higher. Set AIR area width to "wide". Wipe the detection window with a damp cloth. Do not use any cleaner or solvent.	
		Slow green blinking	The detection area overlaps with the door / header. Signal saturation (AIR)	Adjust the detection area to "deep". Remove highly reflecting objects from the detection area or lower the sensitivity or change the area depth angle for AIR area.

### FCC WARNING(For USA)

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### -NOTICE-

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### -NOTICE-

- The antennas cannot be exchanged.
- To comply with FCC RF exposure compliance requirements, a separation distance of at least 20cm must be maintained between the antenna of this device and all persons.

### IC(For CANADA)

Operation is subject to the following two conditions:

- this device may not cause interference, and
- this device must accept any interference received, including interference that may cause undesired operation of the device.

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