OPTEX
OA-AXIS I / II

CE

5915031 JAN 2009

MANUFACTURER'S STATEMENT

Read this operation manual carefully before use to ensure proper operation of the sensor.
Failure to read this operation manual may cause improper sensor operation and may result in serious injury or death of person. The meanings of the symbols are as follows. Please study the following first and then read the contents of this operation manual.

⚠ WARNING	Disregard of warning may cause the improper operation causing death or serious injury of person.
⚠ CAUTION	Disregard of caution may cause the improper operation causing injury of person or damage to objects.
NOTE	Special attention is required to the section of this symbol.

NOTE
1. This sensor is a non-contact switch intended for header mount / wall mount of an automatic door. Do not use for any other applications. This sensor cannot be used for industrial doors or shutters, when used, proper operation and safety cannot be guaranteed.
2. When setting the sensor's detection area, 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 equipments that are connected to the sensor.
4. Only use the sensor as specified in the operation manual provided.
5. Be sure to install the sensor in accordance with the local laws and standards of the country in which the sensor is installed.
6. Before leaving the job site make sure that the sensor is operating properly and instruct the building owner/operator on proper operation of the door and the sensor.
7. The sensor setting can only be changed by an installer or service engineer. When changed, register the changed setting and dates in the maintenance logbook accompanying the door.
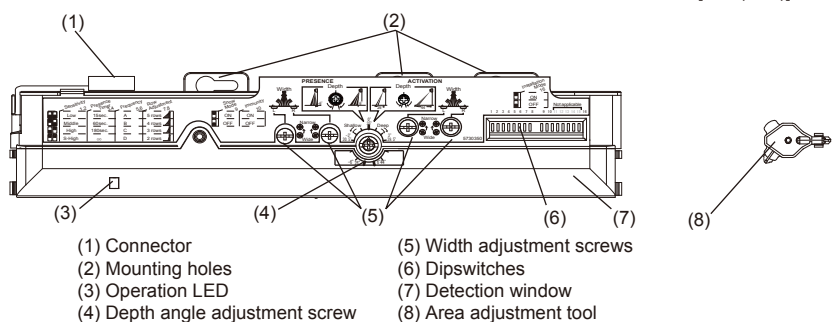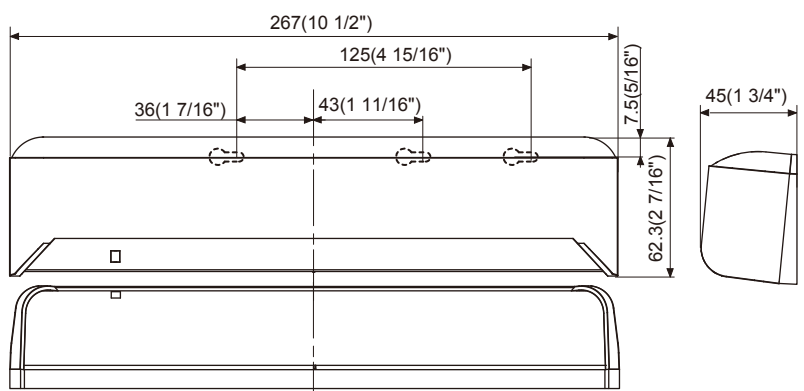
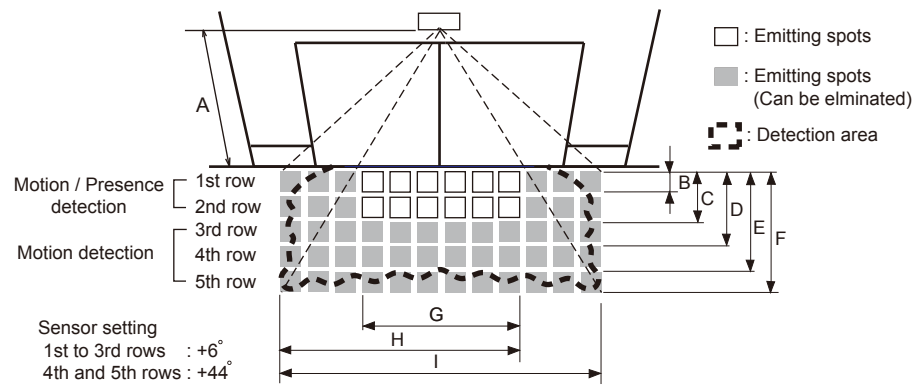| ⚠ WARNING	Do not wash, disassemble, rebuild or repair the sensor, otherwise it may cause electric shock or breakdown of equipments.
Danger of electric shock.	

SPECIFICATIONS

Model : OA-AXIS I / OA-AXIS II
Cover color : Silver / Black
Mounting height : 2.0 (6'7") to 3.5m (11'5")
Detection area : See DETECTION AREA
Detection method : Active Infrared Reflection
Depth angle adjustment : 1st to 3rd rows / -6° to +6°
  4th and 5th rows / +26° to +44°
Power supply : 12 to 24VAC(±10%)
  12 to 30VDC(±10%)
Power consumption : OA-AXIS I < 3VA
  OA-AXIS II < 4VA
Operation LED : Green / Stand-by
  Blinking Red / 1st row detection
  Red / 2nd row detection
  Orange / 3rd to 5th rows detection

Output : OA-AXIS I /
  Form C relay
  50V 0.3A Max.(Resistance load)
  OA-AXIS II /
  1st to 3rd rows / Form C relay
  50V 0.3A Max. (Resistance load)
  3rd to 5th rows / Form C relay
  50V 0.3A Max.(Resistance load)
Output hold time : Approx. 0.5 sec.
Response time : <0.3 sec.
Operating temperature : -20 to +55℃(-4 to 131°F)
IP rate : IP44
Weight : 320g (11.2oz)
Accessories : 1 Cable 3m (9'10")
  1 Operation manual
  2 Mounting screws
  1 Mounting template
  1 Area adjustment tool

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

OUTER DIMENSIONS AND PART NAMES

267(10 1/2")
125(4 15/16")
36(1 7/16")
43(1 11/16")
7.5(5/16")
45(1 3/4")
62.3(2 7/16")

[mm (inch)]

(1) Connector
(2) Mounting holes
(3) Operation LED
(4) Depth angle adjustment screw
(5) Width adjustment screws
(6) Dipswitches
(7) Detection window
(8) Area adjustment tool

DETECTION AREA

: Emitting spots
: Emitting spots (Can be eliminated)
: Detection area

Motion / Presence detection — 1st row, 2nd row
Motion detection — 3rd row, 4th row, 5th row

Sensor setting
1st to 3rd rows : +6°
4th and 5th rows : +44°

[m(feet,inch)]

A	2.20(7'2 5/8")	2.50(8'2 7/16")	2.70(8'10 5/16")	3.00(9'10 1/8")	3.50(11'5 13/16")
B	0.14(5 1/2")	0.16(6 5/16")	0.18(7 1/16")	0.20(7 7/8")	0.23(9 1/16")
C	0.42(1'4 9/16")	0.48(1'6 7/8")	0.52(1'8 1/8")	0.58(1'10 13/16")	0.67(2'2 3/8")
D	0.82(2'8 5/16")	0.93(3' 5/8")	1.00(3'3 3/8")	1.10(3'7 5/16")	1.30(4'3 3/8")
E	1.35(4'5 1/8")	1.54(5' 5/8")	1.66(5'5 3/8")	1.85(6' 13/16")	2.16(7'1 1/16")
F	1.90(6'2 13/16")	2.17(7'1 7/16")	2.34(7'8 1/8")	2.60(8'6 3/8")	3.03(9'11 5/16")
G	1.33(4'4 3/8")	1.51(4'11 7/16")	1.63(5'4 3/8")	1.81(5'11 1/4")	2.11(6'11 1/16")
H	2.05(6'8 11/16")	2.32(7'7 5/16")	2.51(8'2 13/16")	2.79(9'1 13/16")	3.26(10'8 3/8")
I	2.78(9'1 7/16")	3.15(10'4")	3.40(11'1 7/8")	3.79(12'5 3/16")	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.
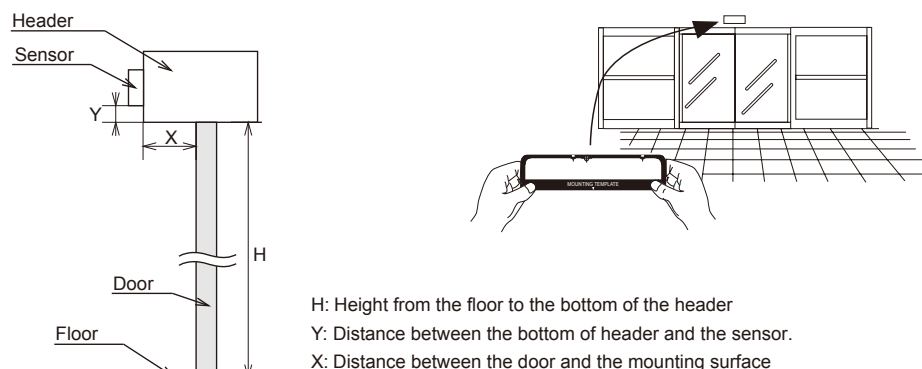
*The values of the chart above is of the emitting spots, but not of the detection area.

INSTALLATION

NOTE The following conditions are not suitable for the sensor installation.
-Fog or exhaust emission around the door.
-Wet floor
-Vibrating header or mounting surface.
-Moving objects or a heating radiator in the detection area.
-Highly reflecting floor or the presence of highly reflecting objects around the door.
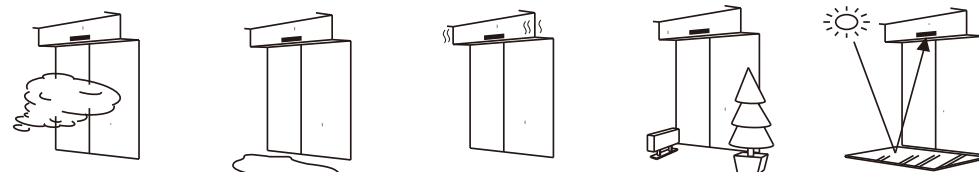
1. Affix the mounting template at the desired mounting position.
2. Drill two mounting holes of ø3.4mm (ø1/8").
3. To pass the cable through to the header, drill a wiring hole of ø8mm (ø5/16").
4. Remove the mounting template.
5. Remove the housing cover. Attach the sensor to the mounting surface with two mounting screws.

Header
Sensor
Door
Floor

H: Height from the floor to the bottom of the header
Y: Distance between the bottom of header and the sensor.
X: Distance between the door and the mounting surface

Maximum mounting distance (Y) [mm(feet,inch)]

X \ H	2,000 (6' 6")	2,200 (7' 2")	2,500 (8' 2")	3,000 (9' 10")
0	No limit			
50 (1 15/16")	200 (7 7/8")	200 (7 7/8")	200 (7 7/8")	200 (7 7/8")
100 (3 15/16")	200 (7 7/8")	200 (7 7/8")	200 (7 7/8")	200 (7 7/8")
150 (5 7/8")	130 (5 1/8")	150 (5 7/8")	170 (6 11/16")	200 (7 7/8")
200 (7 7/8")	-	110 (4 5/16")	130 (5 1/8")	150 (5 7/8")
250 (9 13/16")	-	-	-	120 (4 3/4")
300 (11 13/16")	-	-	-	-

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

NOTE The sensor mounting position may be limited depending on the header thickness and the mounting height.

Wire the cable to the door controller properly as shown in the drawing below.

OA-AXIS I

Grey / Grey — Power supply 12 to 24VAC ±10% / 12 to 30VDC ±10%
White — Common (COM.)
Yellow — Normally open (N.O.)
Green — Normally closed (N.C.)

OA-AXIS II

Grey / Grey — Power supply 12 to 24VAC ±10% / 12 to 30VDC ±10%
White — Common (COM.)
Yellow — Normally open (N.O.)   3rd to 5th * rows output
Green — Normally closed (N.C.)
White Str. — Common (COM.)
Yellow Str. — Normally open (N.O.)   1st to 3rd * rows output
Green Str. — Normally closed (N.C.)

*The outputs from the 3rd row overlaps.

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

1. Plug the connector of the sensor.
2. Supply power to the sensor. Adjust the detection area and set the dipswitches. (See ADJUSTMENTS)

NOTE Make sure to connect the cable correctly to the door controller before turning the power ON.
To enable the presence detection, do not enter the detection area for 10 seconds after supplying the power.

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

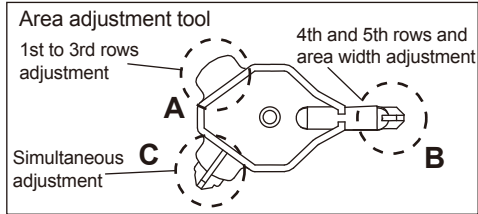| ⚠ WARNING	Do not use the sensor without the cover. When using the cable knockout, install the sensor indoors or use the rain-cover (Separetely available) otherwise electric shock or breakdown of the sensor may occur.
Danger of electric shock.	

ADJUSTMENTS

1 Area depth angle adjustment

Depth angle adjustment screw
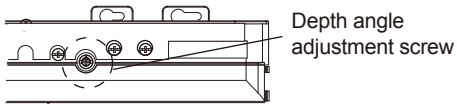
The detection area depth can be changed by the area adjustment tool.
When adjusting the 1st to 3rd rows close to the door, follow **3-7 Installation mode**.
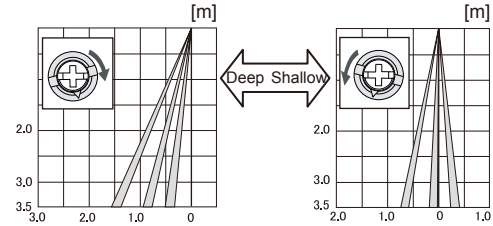
Area adjustment tool
1st to 3rd rows adjustment — **A**
4th and 5th rows and area width adjustment — **B**
Simultaneous adjustment — **C**

1-1. Independent adjustment

1st to 3rd rows
Depth angle adjustment screw for 1st to 3rd rows
Shallow / Deep
Red
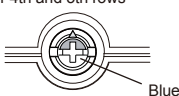
Use the area adjustment tool **(A)** as shown above and change the depth of the detection area by turning the depth angle adjustment screw.

[m] Deep Shallow [m]
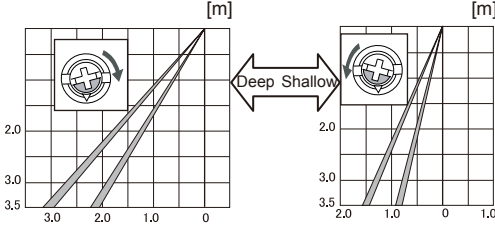2.0
3.0
3.5
3.0 2.0 1.0   3.0 2.0 1.0

4th and 5th rows
Depth angle adjustment screw for 4th and 5th rows
Shallow / Deep
Blue

Use the area adjustment tool **(B)** as shown above and change the depth of the detection area by turning the depth angle adjustment screw.

[m] Deep Shallow [m]
2.0
3.0
3.5
3.0 2.0 1.0   3.0 2.0 1.0

Check the area position with Red LED of the Operation LED using a tool such as a reflecting mirror.

NOTE Make sure the detection area does not overlap with the door / header, otherwise ghosting / signal saturation may occur.
Do not place any highly reflecting objects in the detection area, otherwise signal saturation may occur.

REFERENCE Area depth adjustment with INFRARED FINDER (Separately available)

1. Turn the depth adjustment screw to the right (Deep) to place the area most away from the door.
2. Set INFRARED FINDER sensitivity to "H" (High) and place it on the floor as shown below.

Detection area

Detection area — INFRARED FINDER
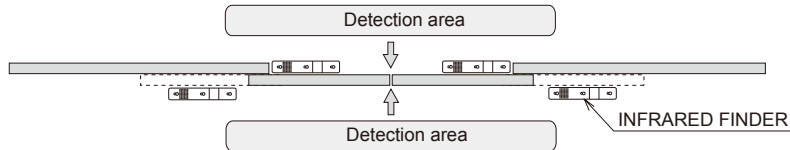
3. Turn the depth adjustment screw to the left (Shallow) until the emitting area is placed at the position where INFRARED FINDER is in the low detection status (Slow Red blinking).

1-2. Simultaneous adjustment

For the simultaneous adjustment of 1st to 5th rows, use the adjustment tool **(C)**.
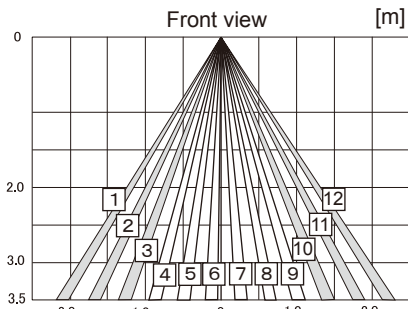
2 Width detection area adjustment

1st to 3rd rows
1 - 3 Eliminated   10 - 12 Eliminated
Narrow / Wide
Width adjustment screw (Left)

4th and 5th rows
1 - 3 Eliminated   10 - 12 Eliminated
Narrow / Wide
Width adjustment screw (Right)

Front view [m]
0
2.0
3.0
3.5
2.0 1.0 0 1.0 2.0
1 2 3 4 5 6 7 8 9 10 11 12

NOTE The actual detection area may become smaller depending on the ambient light, the color / material of the object and the floor as well as the entry speed of the object.

3 Dipswitch settings

Not applicable
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

1,2	: Sensitivity	9	: Snow mode
3,4	: Presence detection timer	10	: Immunity
5,6	: Frequency	11 to 15	: Not applicable
7,8	: Row adjustment	16	: Installation mode

3-1 Setting the sensitivity

Normally set to "Middle". " Low" decreases the sensitivity and "High / S-High" increases the sensitivity.

Low   Middle   High   S- High
1 2   1 2   1 2   1 2

3-2 Setting the presence detection timer

The 1st and 2nd rows have the presence detection function.
The presence detection timer can be selected from 4 settings.

15 sec.   60 sec.   180 sec.   ∞
3 4   3 4   3 4   3 4

NOTE To enable the presence detection, do not enter the detection area for 10 seconds after setting the timer.
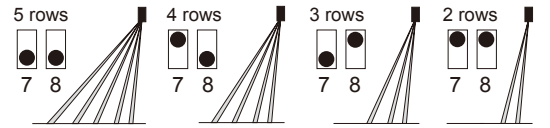
3-3 Setting the frequency

When using more than two sensors close to each other, set the different frequency for each sensor by combining dipswitch 5 and 6.

Setting 1   Setting 2   Setting 3   Setting 4
5 6   5 6   5 6   5 6
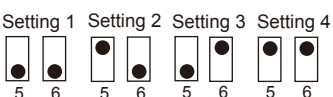
3-4 Setting the area depth

The 5th, 4th, and 3rd rows can be eliminated by combining dipswitches 7 and 8.

*When 2 rows setting is selected, only the presence detection area remains.

5 rows   4 rows   3 rows   2 rows
7 8   7 8   7 8   7 8

NOTE Always check the area according to the expected entry speed and determine the appropriate number of rows.
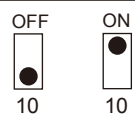When setting motion and motion / presence detection area sparately, make sure that there is no gap between two areas.

3-5 Setting the snow mode

Set this switch to ON, if the sensor is used in a region with snow.

OFF   ON
9   9
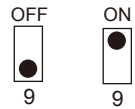
3-6 Setting the immunity

Set this switch to ON, when less influence by the header vibration is required.

OFF   ON
10   10

3-7 Installation mode

Use this switch to ON when adjusting the presence detection area close to the door face.
* During the installation mode, only the 1st row remain.
* Door open state
* Operation LED glows yellow.

OFF   ON
16   16
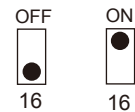
CHECKING

Check the operation according to the chart below.

① White : COM.   ④ White Str. : COM.
② Yellow : N.O.   ⑤ Yellow Str. : N.O.
③ Green : N.C.   ⑥ Green Str. : N.C.

Entry	Power off	Outside of detection area	Entry into 4th or 5th row	Entry into 3rd row	Entry into 2nd row	Entry into 1st row
Status	-	Stand-by	Motion detection active	Motion/Presence detection active		Presence detection
Operation LED	None	Green		Orange	Red	Blinking Red
OA-AXIS I Output	①②③	①②③			①②③	
OA-AXIS II Output from 1st to 3rd rows*	④⑤⑥	④⑤⑥			④⑤⑥	
Output from 3rd to 5th rows*	①②③	①②③	①②③		①②③	

*The outputs from the 3rd row overlaps.

INFORM BUILDING OWNER / OPERATOR OF THE FOLLOWING ITEMES

⚠ WARNING
1. Always keep the detection window clean. If dirty, wipe the window lightly with a damp cloth.
   (Do not use any cleaner or solvent.)
2. Do not wash the sensor with water.
3. Do not disassemble, rebuild or repair the sensor yourself, otherwise electric shock may occur.
4. When an operation LED blinks green, contact your installer or service engineer.
5. Always contact your installer or service engineer when changing the settings.
6. Do not paint the detection window.

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

TROUBLESHOOTING

Problem	Operation LED	Possible cause	Possible countermeasures
Door does not open when a person enters the detection area.	None	Power supply voltage.	Set to the stated voltage.
		Wrong wiring or connection failure.	Check the wires and connector.
	Unstable	Wrong detection area positioning.	Check **ADJUSTMENTS 1 & 2.**
		Sensitivity is too low.	Set the sensitivity higher.
		Short presence detection timer.	Set the presence detection timer longer.
		Dirty detection window.	Wipe the detection window with a damp cloth. (Do not use any cleaner or solvent.)
Door opens when no one is in the detection area. (Ghosting)	Unstable	Vibration of the header.	Set the sensitivity lower or the immunity to ON.
		Water drops on the detection window.	Use the rain-cover (Separately available). Or install in a place keeping the waterdrops off.
		The detection area overlaps with that of another sensor.	Check **ADJUSTMENTS 3-3.**
		The detection area overlaps with the door / header.	Adjust the detection area to "Deep" (Outside).
		Reflecting objects in the detection area. Or reflecting light on the floor.	Remove the objects.
		Sensitivity is too high.	Set the sensitivity lower.
		It snows and pours.	Set the snow mode to ON.
		Objects that move or emit light in the detection area. (Ex.Plant, illumination,etc.)	Remove the objects.
		Wet floor.	Check the installation condition referring to **INSTALLATION** on the reverse side.
		The exhaust emission or fog penetrate into the detection area.	
Door remains open	Red or Orange	Sudden change in the detection area.	Check **ADJUSTMENTS 3-1 & 3-2.** If the problem still persists, hard-reset the sensor.(Turn the power OFF and ON again.)
	Proper	Wrong wiring or connection failure.	Check the wires and connector.
	Twice Green blinking	The relay is reaching the end of its life cycle.	Contact your installer or the sales engineer.
	Slow Green blinking	Signal saturation	Remove highly reflecting objects from the detection area. Or lower the sensitivity. Or change the area angle.
		The detection area overlaps with the door / header.	Adjust the detection area to "Deep" (Outside).
Door remains closed	Proper	Wrong wiring or connection failure.	Check the wires and connector.

OPTEX

OA-AXIS T

CE | TÜV SÜD | DIN 18650 | EN 12978

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.

⚠ WARNING	Disregard of warning may cause the improper operation causing death or serious injury of a person.
⚠ CAUTION	Disregard of caution may cause the improper operation causing injury of a person or damage to objects.
NOTE	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

1. 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.
2. When setting the sensor's detection area, make sure that there is no traffic around the installation site.
3. Before turning the power ON, check the wiring to prevent damage or malfunction of equipment connected to the product.
4. Only use the product as specified in the operation manual provided.
5. 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.
6. 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.
7. 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.

| ⚠ WARNING
Danger of electric shock. | Do not wash, disassemble, rebuild or repair the sensor, otherwise it may cause electric shock or breakdown of the equipment. |

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 or objects that emit light near the detection area.
-Highly reflecting floor or highly reflecting objects around the door.

SPECIFICATIONS

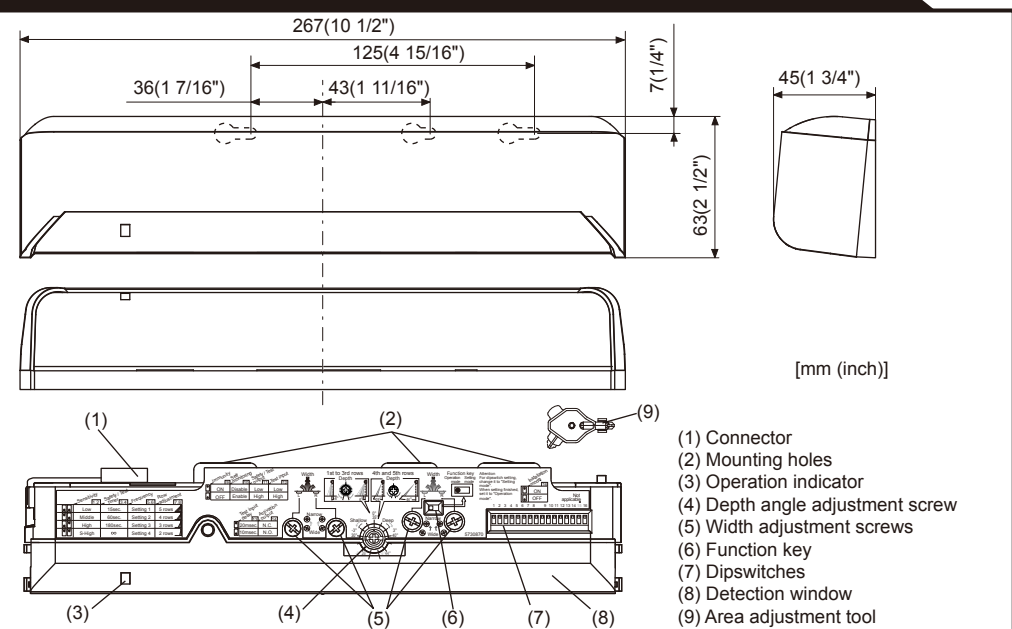|			
Model	: OA-AXIS T	Safety / Test output	: When 1st or 2nd row detects.
Cover color	: Silver / Black		Opto coupler (NPN)
Mounting height	: 2.0 (6'6") to 3.0m (9'10")		Voltage / 5 to 50VDC
Detection area	: See **DETECTION AREA**		Current / 100mA Max.
Detection method	: Active infrared reflection (*1)		Dark current / 600nA Max.
Depth angle	: 1st to 3rd rows / -6 to +6°		(Resistance load)
adjustment	4th and 5th rows / +26 to +44°	Noise level	:<70dBA
Power supply (*2)	: 12 to 24VAC ±10% (50 / 60 Hz)	Output hold time	:<0.5 sec.
	12 to 30VDC ±10%	Response time	:<0.3 sec.
Power consumption	: < 2.5W (< 4VA at AC)	Operating temperature	: -20 to +55°C (-4 to 131°F)
Operation indicator	: See chart below	Operating humidity	:<80%
Test input	: Opto coupler	IP rate	: IP54
	Voltage / 5 to 30VDC	Category	: 2 (EN ISO 13849-1 : 2008)
	Current / 6mA Max. (30VDC)	Performance level	: d (EN ISO 13849-1 : 2008)
Activation output	: When 3rd, 4th or 5th row detects.	Weight	: 320g (11.2oz)
	Form A relay	Accessories	: 1 Operation manual
	50V 0.3A Max. (Resistance load)		2 Mounting screws
			1 Mounting template
			1 Area adjustment tool
			1 Cable 3m (9'10")
			(8 × 0.22mm² AWG24) (*3)

*1 : The 1st and 2nd rows have presence detection function.
*2 : When using this sensor, the sensor has to be connected to a door system which has the SELV circuit.
*3 : Overcurrent protection with less than 2A.

Operation indicator

Status	Operation indicator color	1sec.	1sec.
Stand-by (Setting mode)	Blinking Blue		
Stand-by (Installation mode)	Yellow		
Stand-by (Operation mode)	Green		
1st row detection	Blinking Red		
2nd row detection	Red		
3rd, 4th or 5th row detection	Orange		
Wrong dipswitch setting	Red & Green blinking		
Signal saturation	Slow Green blinking		
Sensor failure	Fast Green blinking		

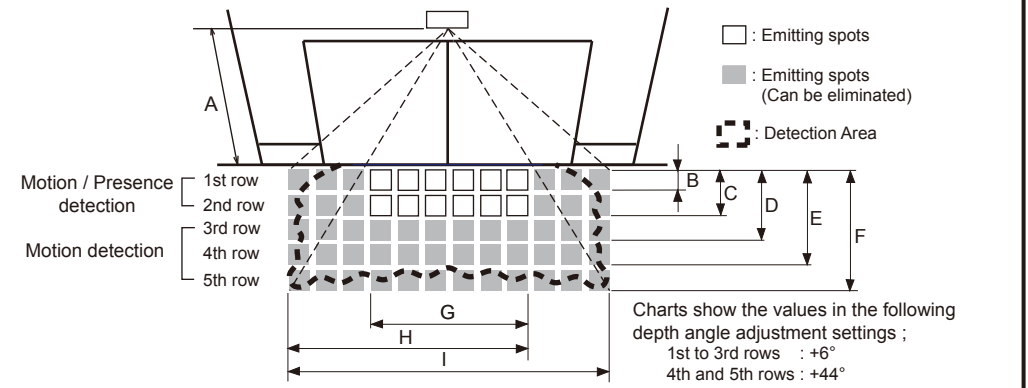NOTE   The specifications herein are subject to change without prior notice due to improvements.

OUTER DIMENSIONS AND PART NAMES

267(10 1/2")
125(4 15/16")
36(1 7/16")
43(1 11/16")
7(1/4")
45(1 3/4")
63(2 1/2")

[mm (inch)]

(1) Connector
(2) Mounting holes
(3) Operation indicator
(4) Depth angle adjustment screw
(5) Width adjustment screws
(6) Function key
(7) Dipswitches
(8) Detection window
(9) Area adjustment tool

COMPLIANCE

DIN 18650-1:2010	DIN 18650-2:2010	EN 12978+A1:2009	Machinery Directive 2006/42/EC
EMC Directive 2004/108/EC	EN ISO 13849-1:2008	EN ISO 13849-2:2008	prEN 16005
EN 61696-3:2001 clause 4. 3. 5 and 5. 4. 7. 3			

Notified Body: TÜV SÜD Product Service GmbH, Daimlerstraße 40 60314 Frankfurt Germany

DETECTION AREA

☐ : Emitting spots
▨ : Emitting spots (Can be eliminated)
⬚ : Detection Area

Motion / Presence detection — 1st row, 2nd row
Motion detection — 3rd row, 4th row, 5th row

Charts show the values in the following depth angle adjustment settings ;
1st to 3rd rows : +6°
4th and 5th rows : +44°

Emitting area

[m(feet,inch)]

A	2.00 (6'6")	2.20 (7'2")	2.50 (8'2")	2.70 (8'10")	3.00 (9'10")
B	0.13 (5")	0.14 (6")	0.16 (6")	0.18 (7")	0.20 (8")
C	0.38 (1' 3")	0.42 (1' 5")	0.48 (1' 7")	0.52 (1' 8")	0.58 (1' 11")
D	0.74 (2' 5")	0.82 (2' 8")	0.93 (3' 1")	1.00 (3' 3")	1.10 (3' 7")
E	1.23 (4' 1")	1.35 (4' 5")	1.54 (5' 1")	1.66 (5' 5")	1.85 (6' 1")
F	1.74 (5' 9")	1.90 (6' 3")	2.17 (7' 1")	2.34 (7' 8")	2.60 (8' 6")
G	1.06 (3' 6")	1.33 (4' 4")	1.51 (4' 11")	1.63 (5' 4")	1.81 (5' 11")
H	1.86 (6' 1")	2.05 (6' 9")	2.32 (7' 7")	2.51 (8' 3")	2.79 (9' 2")
I (*)	2.52 (8' 3")	2.78 (9' 2")	3.15 (10' 4")	3.40 (11' 2")	3.79 (12' 5")
X	0.19 (8")	0.21 (8")	0.24 (9")	0.26 (10")	0.28 (11")

X is the distance between the 1st row and the mounting surface.

Detection area

To comply with DIN 18650, make sure that the detection area is within the values in the chart below.

A	2.00 (6'6")	2.20 (7'2")
C	0.23 (9")	0.24 (10")
G	1.02 (3' 4")	1.10 (3' 7")
I	2.41 (7' 11")	2.54 (8' 4")

Test conditions required by DIN 18650
Floor : Kodak Grey card
Detection object :
DIN 18650 Test body (Mat black)

The values above are when the sensitivity is set to "Middle" and speed of detection object is 50mm / sec..

The values above are those of the detection area when tested referring to the test conditions of DIN 18650. (The emitting area is as shown in **Emitting area** above.)
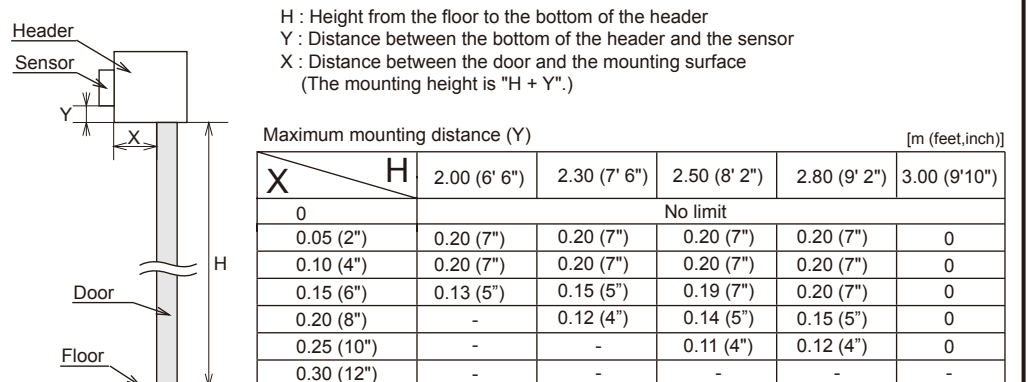*: When installed at higher than 2.35m(7'8"), DIN 18650 requirements are fulfilled only within the area width "I" of 3m(9'10").

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.
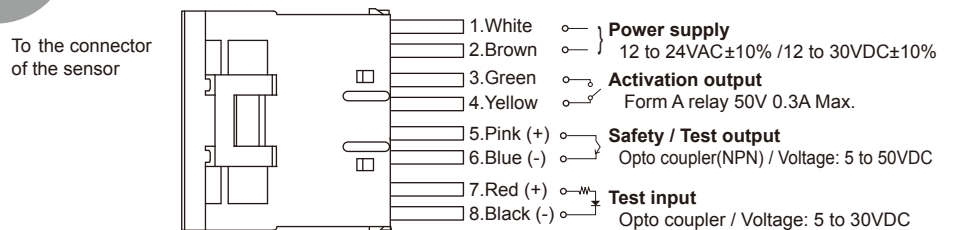
INSTALLATION

1
1. Affix the mounting template at the desired mounting position.
(When setting the detection area close to the door, mount the sensor according to the chart below.)
2. Drill two mounting holes of ø3.4mm (ø1/8").
3. To pass the cable through the header, drill a wiring hole of ø8mm (ø5/16").
4. Remove the mounting template.
5. Remove the housing cover. Fix the sensor to the mounting surface with the two mounting screws.

Header
Sensor
Door
Floor

H : Height from the floor to the bottom of the header
Y : Distance between the bottom of the header and the sensor
X : Distance between the door and the mounting surface
(The mounting height is "H + Y".)

Maximum mounting distance (Y)

[m (feet,inch)]

X \ H	2.00 (6' 6")	2.30 (7' 6")	2.50 (8' 2")	2.80 (9' 2")	3.00 (9'10")
0	No limit				
0.05 (2")	0.20 (7")	0.20 (7")	0.20 (7")	0.20 (7")	0
0.10 (4")	0.20 (7")	0.20 (7")	0.20 (7")	0.20 (7")	0
0.15 (6")	0.13 (5")	0.15 (5")	0.19 (7")	0.20 (7")	0
0.20 (8")	-	0.12 (4")	0.14 (5")	0.15 (5")	0
0.25 (10")	-	-	0.11 (4")	0.12 (4")	0
0.30 (12")	-	-	-	-	-

| ⚠ CAUTION
Risk of getting caught. | 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. |

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

To the connector of the sensor

1.White — **Power supply** 12 to 24VAC±10% /12 to 30VDC±10%
2.Brown
3.Green — **Activation output** Form A relay 50V 0.3A Max.
4.Yellow
5.Pink (+) — **Safety / Test output** Opto coupler(NPN) / Voltage: 5 to 50VDC
6.Blue (-)
7.Red (+) — **Test input** Opto coupler / Voltage: 5 to 30VDC
8.Black (-)

| ⚠ WARNING
Danger of electric shock. | 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. |

3
1. Plug the connector of the sensor.
2. Supply power to the sensor. Adjust the detection area and set the dipswitches. (See **ADJUSTMENTS**)
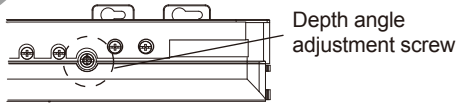
NOTE   Make sure to connect the cable correctly to the door controller before turning the power ON.
When turning the power ON or after adjusting the settings, do not enter the detection area for more than 10 seconds in order to enable the presence detection.
Do not touch the dipswitches before turning the power ON, otherwise an error occurs.
When changing the settings of dipswitch, see **ADJUSTMENTS 3 Dipswitch settings**.

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

| ⚠ WARNING
Danger of electric shock. | 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. |

ADJUSTMENTS

1 Area depth angle adjustment
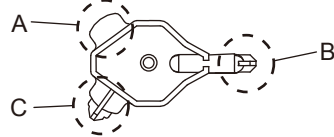
Depth angle adjustment screw

Area adjustment tool

A
B
C

When adjusting the 1st row close to the door,
follow **3-11 Installation mode** 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.
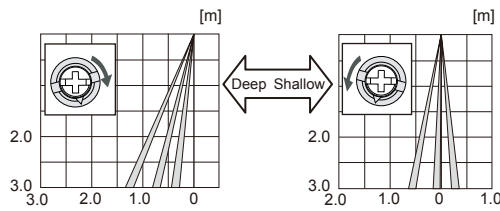
1-1.Independent adjustment

1st to 3rd rows

Depth angle adjustment screw
for the 1st to 3rd rows

Red

Shallow   Deep

[m]   Deep Shallow   [m]

2.0   2.0

3.0   3.0
3.0 2.0 1.0 0   0 1.0 2.0 3.0

Use the area adjustment tool **(A)** as shown above to
change the area depth angle for the 1st to 3rd rows.

4th and 5th rows

Depth angle adjustment screw
for the 4th and 5th rows

Blue

Shallow   Deep

[m]   Deep Shallow   [m]

2.0   2.0

3.0   3.0
3.0 2.0 1.0 0   0 1.0 2.0 3.0

Use the area adjustment tool **(B)** as shown above to
change the area depth angle for the 4th and 5th rows.
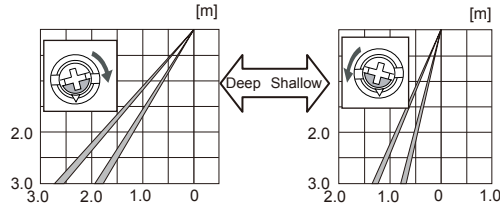
1-2.Simultaneous adjustment

For the simultaneous adjustment of the 1st to 5th rows, use the adjustment tool **(C)**.

> **REFERENCE** Area depth adjustment with INFRARED FINDER (Separately available)
>
> 1. Turn the depth angle adjustment screw to the right (Deep) to place the detection area most away from the door.
> 2. Set INFRARED FINDER sensitivity to "H" (High) and place it on the floor as shown below.
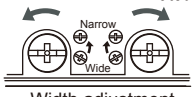>
> Detection area
> Detection area
> INFRARED FINDER
>
> 3. Turn the depth angle adjustment screw to the left (Shallow) until the emitting area is placed at the position where INFRARED FINDER is in the low detection status (Slow Red blinking).
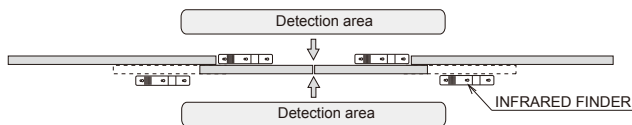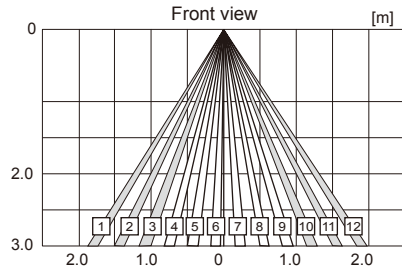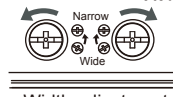
2 Area width adjustment

Front view   [m]

1st to 3rd rows

1 2 3 Eliminated   10 11 12 Eliminated

Narrow   Wide

Width adjustment
screws (Left)

4th and 5th rows

1 2 3 Eliminated   10 11 12 Eliminated

Narrow   Wide

Width adjustment
screws (Right)

0

2.0

3.0
2.0   0   2.0

1 2 3 4 5 6 7 8 9 10 11 12

NOTE When adjusting the width adjustment screws, make sure to turn until it clicks otherwise the proper operation may not be obtained.
1 2 3 cannot be eliminated separately, neither can 10 11 12 .

3 Dipswitch settings

Follow these steps to change the settings of dipswitches.
1. Change the function key from the "Operation mode" to the "Setting mode".
   During the "Setting mode", the operation indicator is blinking Blue
   (only when stand-by status) and the door remains open.
2. Change the dipswitch settings.
3. When the setting is finished, change the function key back to the "Operation mode".

Function key

Setting mode   Operation mode
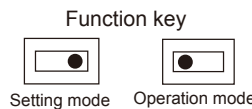
NOTE When the above procedures (1-3) are not followed, an error (Red & Green blinking) occurs.
Make sure to use the sensor only in the" Operation mode".
The sensor does not operate properly in the "Setting mode".

3-1.Setting the sensitivity

Refer to the chart below for the suitable sensitivity to your installation environment.

Low   Middle   High   S-High
1 2   1 2   1 2   1 2
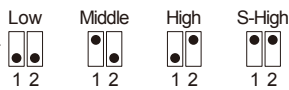
Floor condition		Mounting height [m (feet,inch)]				
		2.0 (6' 6")	2.2 (7' 2")	2.5 (8' 2")	3.0 (9' 10")	For example
	Low reflection	Middle	Middle	High	S-High	-Carpet -Dark color floor
	Middle reflection	Low	Middle	Middle	S-High	-Concrete
	High reflection	Low	Low	Middle	High	-Tile -Marble

NOTE Special attention to the setting is required when the door is used often by the elderly or children.
Please adjust the sensitivity and the presence detection timer according to your risk assessment.

3-2.Setting the presence detection timer

The 1st and 2nd rows have the presence detection function.
To comply with DIN 18650, set the timer to " 60sec." or more.

30sec.   60sec.   180sec.   ∞
3 4   3 4   3 4   3 4

NOTE To enable the presence detection, do not enter the detection area for 10 seconds after setting the timer.
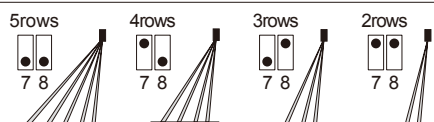
3-3.Setting the frequency

When using more than two sensors close to each other, set the different frequency for each sensor by dipswitches 5 and 6.

Setting1   Setting2   Setting3   Setting4
5 6   5 6   5 6   5 6
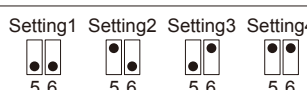
3-4.Setting the row adjustment

Set the depth rows with dipswitches 7 and 8.

5rows   4rows   3rows   2rows
7 8   7 8   7 8   7 8

NOTE When "2rows" are selected, the activation output
is disabled.

3-5.Setting the immunity

Set dipswitch 9 to ON when the sensor operates by itself (Ghosting).

OFF   ON
9   9

NOTE When dipswitch 9 is set to ON ,the actual detection area may become smaller.

3-6.Setting the self monitoring

When the door remains open and the LED indicator shows fast or slow green blinking, please refer to the **TROUBLESHOOTING**.
If the door still remains open, set dipswitch 10 to "Disable".

Enable   Disable
10   10

NOTE To comply with DIN18650 dipswitch 10 must be set to "Enable".
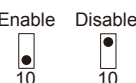
3-7.Setting the Safety / Test output (to door controller)

Dipswitch11 is the Safety / Test output (to door controller).

High   Low
11   11
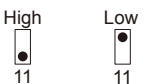
3-8.Setting the test input (from door controller)

Dipswitch12 is the test input (from door controller).
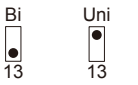
High   Low
12   12

NOTE The delay time between test input and Safety / Test output is 10msec.

3-9.Settings the direction recognition

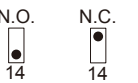When Dipswitch13 is "Uni", uni-directional function is activated.
This function enables the door to close earlier if a person walks away from the door.

Bi   Uni
13   13

NOTE Uni-directional function is disabled in case presence area detection continues more than 5sec.

3-10.Setting the activation output

Set dipswitch 14 to "N.O." (Normally Open) or "N.C." (Normally Closed) .
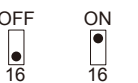
N.O.   N.C.
14   14

3-11.Installation mode

Set dipswitch 16 to ON when adjusting the 1st row close to the door.
When the setting is finished, set to OFF.
During the installation mode, only the 1st row remains, and the operation indicator glows Yellow.

OFF   ON
16   16

NOTE If the function key is set back to the "Operation mode" while the installation mode is still ON, an error occurs.

CHECKING

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

Entry	Power OFF	Outside of detection area	Entry into 3rd to 5th row	Entry into 2nd row	Entry into 1st row	Outside of detection area
Status	-	Stand-by	Motion detection active	Motion / Presence detection active		Stand-by
Operation indicator	None	Green	Orange	Red	Blinking Red	Green
Activation output 14 N.O.						
Activation output 14 N.C.						
Safety / Test output 11 High	OFF	ON	OFF			ON
Safety / Test output 11 Low	OFF	OFF	ON			OFF

INFORM BUILDING OWNER / OPERATOR OF THE FOLLOWING ITEMS

⚠ **WARNING**

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

NOTE
1. When turning the power ON, always walk-test the detection area to ensure the proper operation.
2. 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	Set to the stated voltage.
		Wrong wiring or connection failure	Check the wires and connector.
	Unstable	Wrong detection area positioning	Check **ADJUSTMENTS 1 , 2 & 3**.(*)
		Sensitivity is too low.	Set the sensitivity higher.(*)
		Short presence detection timer	Set the presence detection timer longer.(*)
		Dirty detection window	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.	Remove the objects.
		The detection area overlaps with that of another sensor.	Check **ADJUSTMENTS 3-3**.(*)
		Waterdrops on the detection window	Use the rain-cover (Separately available). Or install in a place keeping the waterdrops off.
		Detection area overlaps with door / header.	Adjust the detection area to "Deep" (Outside).
		Sensitivity is too high.	Set the sensitivity lower.(*)
		Others	Set the immunity to ON.(*)
Door remains open	Proper	Sudden change in the detection area	Check **ADJUSTMENTS 3-1 & 3-2**.(*) 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.
		Wrong setting of dipswitches.	Check **ADJUSTMENTS "3-6"- "3-10"**.(*)
	Yellow	Installation mode is set to ON.	Set installation mode to OFF.(*)
	Blinking Blue	Wrong setting of function key	Set to the"Operation mode".
	Fast Green blinking	Sensitivity is too low.	Set the sensitivity higher.(*)
		Dirty detection window	Wipe the detection window with a damp cloth. (Do not use any cleaner or solvent.)
		Sensor failure	Contact your installer or service engineer.
	Slow Green blinking	Signal saturation (1st or 2nd row)	Remove highly reflecting objects from the detection area. Or lower the sensitivity.(*) Or change the area depth angle for 1st to 3rd rows.
		The detection area overlaps with the door / header.	Adjust the detection area to "Deep" (Outside).
	Red & Green blinking	Wrong setting of dipswitch	1. Set the function key to the "Setting mode". 2. Change the dipswitch 16 setting (ON➔OFF or OFF➔ON ➔OFF). 3. Set the function key back to "Operation mode".
Proper operation	Slow Green blinking	Signal saturation (3rd, 4th or 5th row)	Remove highly reflecting objects from the detection area. Or lower the sensitivity.(*) Or change the area depth angle.

* Before changing these settings, set the function key to the "Setting mode". When finished, set back to the "Operation mode".