OPTEX

ENGLISH

OA-AXIS T

CE

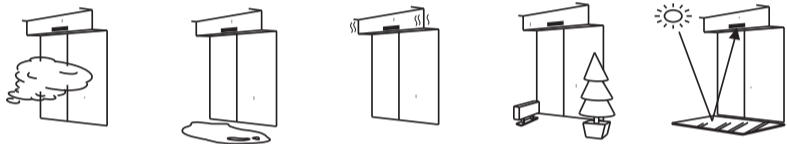**TÜV NORD** TÜV NORD CERT GmbH — Type Tested

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
Cover color : Silver / Black
Mounting height : 2.0 (6'7") to 3.0m (9'10")
Detection area : See **DETECTION AREA**
Detection method : Active infrared reflection (*1)
Depth angle : 1st to 3rd rows / -6 to +6°
 adjustment : 4th and 5th rows / +26 to +44°
Power supply (*2) : 12 to 24VAC ±10% (50 / 60Hz)
 12 to 30VDC ±10%
Power consumption : < 2.5W (< 4VA at AC)
Operation indicator : See chart below
Safety input : Opto coupler
 Voltage / 5 to 30VDC
 Current / 6mA Max. (30VDC)
Safety output : When 1st or 2nd row detects.
 Opto coupler (NPN)
 Voltage / 5 to 50VDC
 Current / 100mA Max.
 Dark current / 600nA Max.
 (Resistance load)

Activation output : When 3rd, 4th or 5th row detects.
 Form A relay
 50V 0.3A Max. (Resistance load)
Operating temperature : -20 to +55°C (-4 to 131°F)
Operating humidity : < 80%
Noise level : < 70dBA
Output hold time : < 0.5sec.
Response time : < 0.3sec.
IP rate : IP54
Category : 2 (EN ISO 13849-1:2015)
Performance level : d (EN ISO 13849-1:2015)
ESPE : Type2
Weight : 320g (11.2oz)
Accessories : 1 Operation manual
 2 Mounting screws
 1 Mounting template
 1 Area adjustment tool
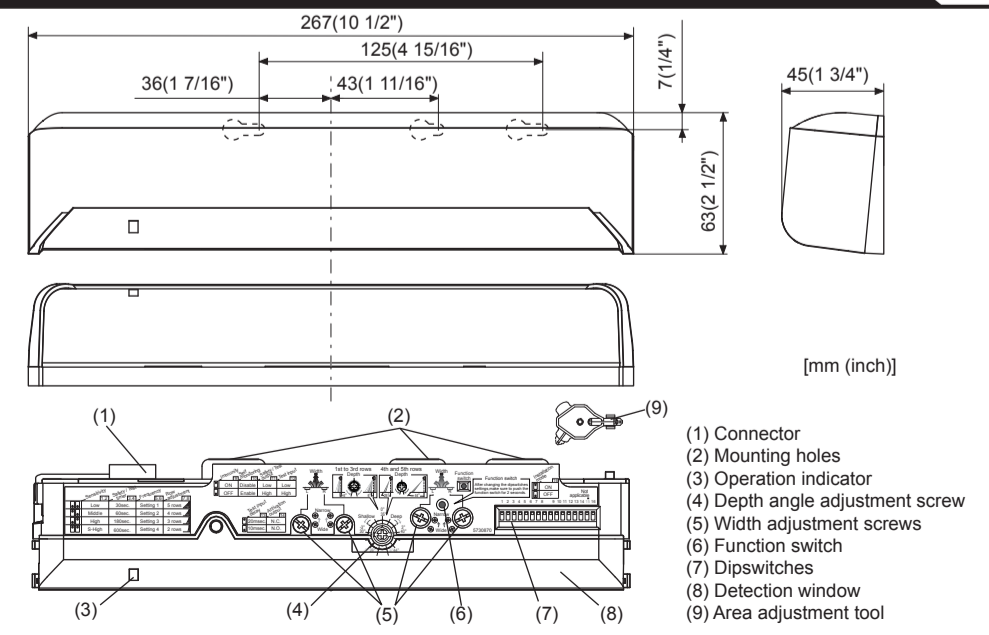 1 Cable 3m (9'10")
 (8 × 0.22mm² AWG24) (*3)

*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.
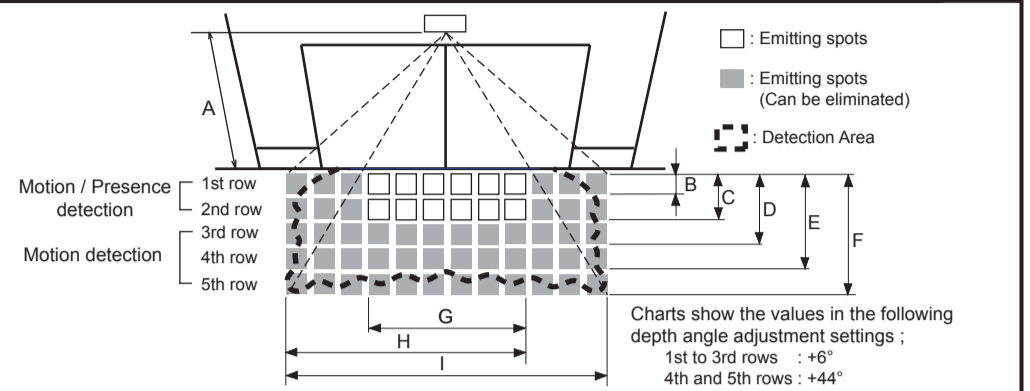*3 : Overcurrent protection with less than 2A.

Operation indicator

Status	Operation indicator color	1sec.		1sec.
Stand-by (Installation mode)	Yellow			
Stand-by (Operation mode)	Green			
1st row detection	Blinking Red			
2nd row detection	Red			
3rd, 4th or 5th row detection	Orange			
Setting error	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 switch
(7) Dipswitches
(8) Detection window
(9) 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

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 (6'7")	2.20 (7'3")	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')	1.35 (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 (9'1")	3.15 (10'4")	3.40 (11'2")	3.79 (12'5")
X	0.19 (7")	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 EN 16005, make sure that the detection area is within the values in the chart below.

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

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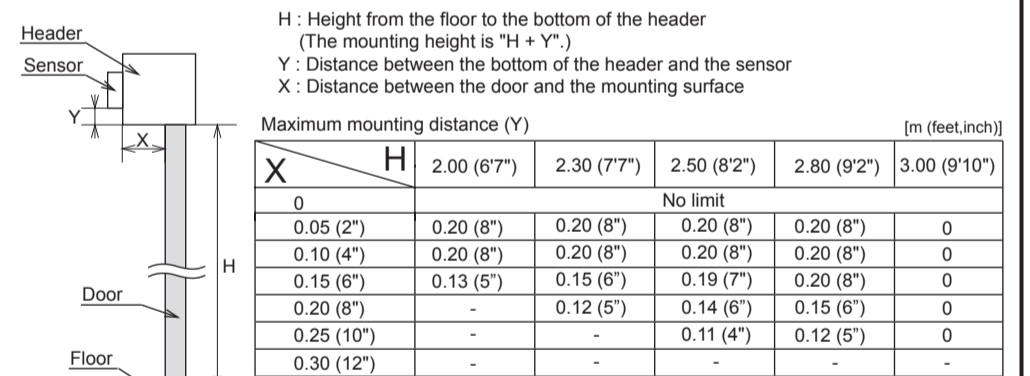 Speed of detection object : 50mm / sec.

The values above are those of the **Detection area** when tested referring to the test conditions of EN 16005.
(The emitting area is as shown in **Emitting area** above.)
*: When installed at higher than 2.20m(7'3"), EN 16005 requirements are fulfilled only within the area width "I" of 2.54m(8'4").

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.
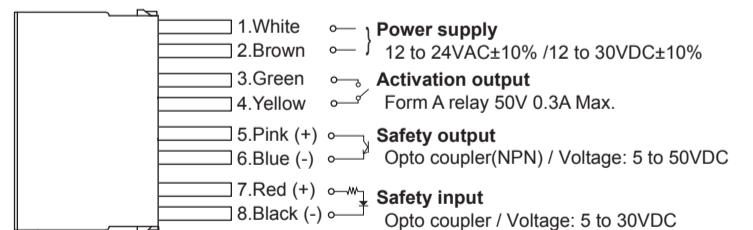

Header
Sensor
Y
X
H
Door
Floor

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

Maximum mounting distance (Y)

[m (feet,inch)]

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

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

| ⚠ 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
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 output** Opto coupler(NPN) / Voltage: 5 to 50VDC
6.Blue (-)
7.Red (+) — **Safety 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. After changing the dipswitch and/or potentiometer settings, make sure to push the function switch for 2 seconds.

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
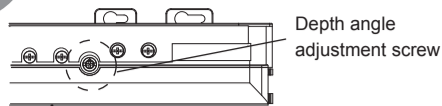
When adjusting the 1st row close to the door, see **3-11 Installation mode** for the easier adjustment.

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.
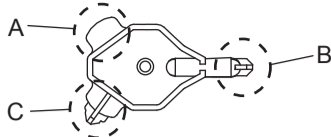
1-1. Independent adjustment
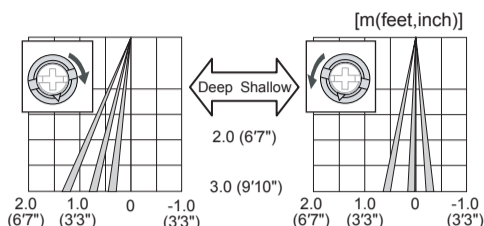
1st to 3rd rows

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

Shallow Deep

Red

Use the area adjustment tool **(A)** as shown above to change the area depth angle for the 1st to 3rd rows.
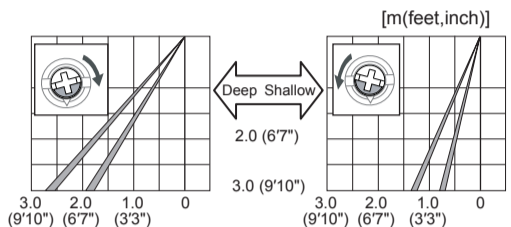
[m(feet,inch)]

Deep Shallow

2.0 (6'7")

3.0 (9'10")

2.0 (6'7") 1.0 (3'3") 0 -1.0 (3'3")
2.0 (6'7") 1.0 (3'3") 0 -1.0 (3'3")

4th and 5th rows

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

Shallow Deep

Blue

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

[m(feet,inch)]

Deep Shallow

2.0 (6'7")

3.0 (9'10")

3.0 (9'10") 2.0 (6'7") 1.0 (3'3") 0
3.0 (9'10") 2.0 (6'7") 1.0 (3'3") 0

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.
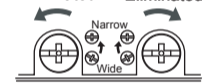
Detection area

Detection area
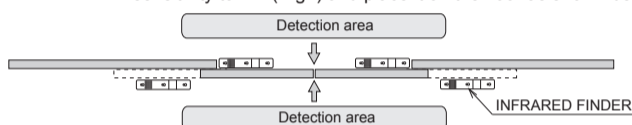
INFRARED FINDER

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).
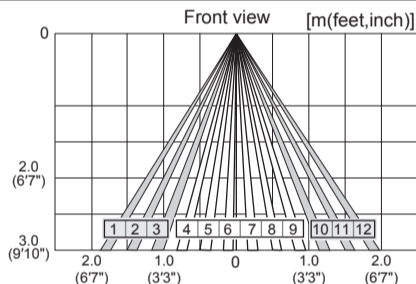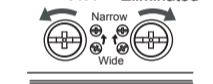
2 Area width adjustment

Front view [m(feet,inch)]

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 (6'7")

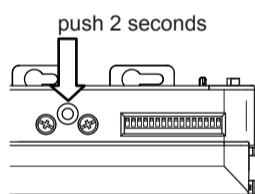3.0 (9'10")

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

2.0 (6'7") 1.0 (3'3") 0 1.0 (3'3") 2.0 (6'7")

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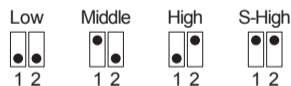1 2 3 cannot be eliminated separately, neither can 10 11 12.

3 Dipswitch settings

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

push 2 seconds

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 (6'7")	2.2 (7'3")	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 timer

The 1st and 2nd rows have the presence detection function.

30sec. 60sec. 180sec. 600sec.
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.
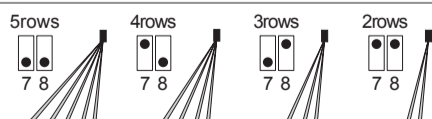
3-3. Setting the frequency

When using more than one sensor 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
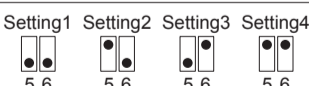
3-4. Setting the row adjustment

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 EN 16005, dipswitch 10 must be set to "Enable".
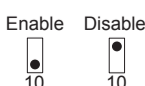
3-7. Setting the Safety output (to door controller)

Dipswitch11 is for the Safety output (to door controller).

High Low
11 11

3-8. Setting the Safety input (from door controller)

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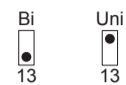
High Low
12 12

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

3-9. Settings the direction recognition

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

Bi Uni
13 13

NOTE Uni-directional function is disabled in case the detection at 1st and/or 2nd row continues for more than 5sec..

3-10. Setting the Activation output

Dipswitch14 is for the Activation output to door controller.

N.O. N.C.
14 14

3-11. Installation mode

Set dipswitch 16 to "ON" to adjust the 1st row.
During the Installation mode only the 1st row remains active and the operation indicator shows yellow.
After setting the row set dipswitch 16 "OFF".

OFF ON
16 16

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.						
	14 N.C.						
Safety output	11 High	OFF	ON		OFF		ON
	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 timer.	Set the presence 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 wipe the detection window with a damp cloth. Do not use any cleaner or solvent. Or install in a place keeping the waterdrops off.
		The detection area overlaps with the door/header.	Adjust the detection area to "Deep" (Outside).
		Sensitivity is too high.	Set the sensitivity lower.(*)
		Others	Set dipswitch 9 to "ON".(*)
	Proper	Wrong setting of dipswitches.	Check **ADJUSTMENTS 3-7, 3-8, 3-10**.(*)
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.
	Yellow	Installation mode is set to "ON".	Set dipswitch 16 to "OFF".(*)
	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	Setting error.	After changing the dipswitch settings, make sure to push the function switch for 2 seconds.
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.

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