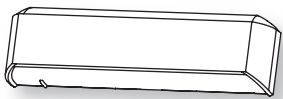




OA-FLEX T



Web manual

5929990 JAN 2021

Original instructions NI-0169-1



ENGLISH



Manufacturer's statement

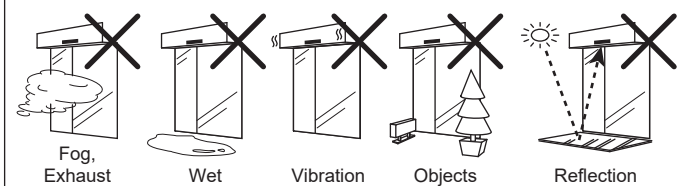
Read this operation manual carefully before use to ensure proper operation of this product.
Failure to read this operation manual may cause improper operation and may result in serious injury or death of a person.
The meanings of the symbols are as follows.

| | | |
|--|----------------|---|
| | WARNING | Failure to follow the instructions that accompany this indication and improper handling may result in serious injury or death. |
| | CAUTION | Failure to follow the instructions that accompany this indication and improper handling may result in injury and/or damage to property. |
| | NOTE | Pay special attention to sections with 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.

The following conditions are not suitable for sensor installation.



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.

Specifications

| | | | |
|-----------------------|--|-------------------|--|
| Model | : OA-FLEX T | Activation output | : Form A relay 50 V 0.3 A Max. (Resistance load) |
| Cover color | : Silver/Black | Safety output | : Form A relay 50 V 0.3 A Max. |
| Mounting height | : 2.0 to 3.0 m (6'7" to 9'10") (2.0m(6'7") to 2.5m (8'2") for EN16005 compliance) | Test input | : Opto coupler Voltage 5 to 30 VDC Current 6 mA Max. (30 VDC) |
| Detection area | : See Detection area | IP rate | : IP54 |
| Detection method | : Active infrared reflection (*1) | Category | : 2 (EN ISO 13849-1:2015) |
| Area angle adjustment | : Depth : -8° to +8° Width : ±7° | Performance level | : d (EN ISO 13849-1:2015) |
| Power supply (*2) | : 12 to 24 VAC ±10 % (50/60 Hz) 12 to 30 VDC ±10 % | ESPE | : Type 2 |
| Power consumption | : < 2.0 W (< 5 VA at AC) | Weight | : 220 g (7.8 oz) |
| Operation indicator | : See Operation indicator table | Accessories | : 1 Operation manual 2 Mounting screws 1 Mounting template 1 Area adjustment tool |
| Output hold time | : < 500 ms | | |
| Response time | : < 300 ms | | |
| Operating temperature | : -20 to +55°C (-4 to 131°F) | | |
| Operating humidity | : < 80 % (non-condensing) | | |
| Noise level | : < 70 dBA | | |

Operation indicator table

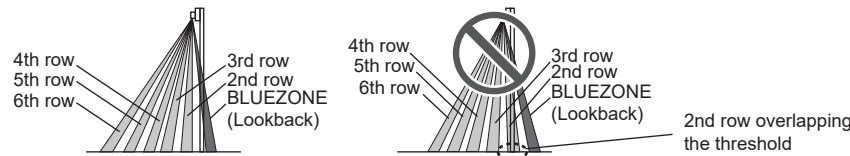
| Status | Operation indicator color | |
|--|---------------------------|--|
| Warm-up | Yellow blinking | |
| Stand-by (Installation mode) | Yellow | |
| Stand-by (Service mode) | Yellow & Green blinking | |
| Stand-by (Operation mode) | Green | |
| BLUEZONE (Lookback) detection (*4) | Blue | |
| 2nd row detection | Red blinking | |
| 3rd row detection | Red | |
| 4th - 6th row detection | Orange | |
| Communication Test output | Turn off 500 ms (*5) | |
| Setting error | Red & Green blinking | |
| Signal saturation | Slow Green blinking | |
| Sensitivity too low(or Sensor failure) | Fast Green blinking | |

NOTE

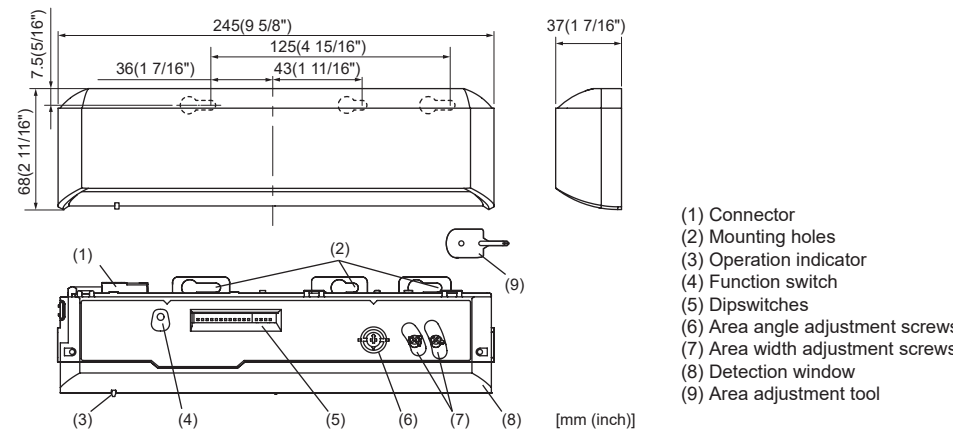
- The specifications herein are subject to change without prior notice due to improvements.
- *1 : BLUEZONE (Lookback), 2nd and 3rd rows have a presence detection function.
 - *2 : When using this sensor, the sensor has to be connected to a door system which has the SELV circuit.
 - *3 : Overcurrent protection with less than 2A.
 - *4 : See **BLUEZONE (Lookback) area**
 - *5 : LED will be turned off approx. 500 ms when the sensor Test output signal works well.

BLUEZONE (Lookback) area

When dipswitch 15 is set to "ON", the BLUEZONE (Lookback) area, that provides extra safety over the threshold is activated. In case the BLUEZONE (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.



Outer dimensions and part names



Complied standards and extract from EC declaration of conformity

DIN 18650-1:2010 Chapter 5.7.4 ESPE
EN 16005:2012/AC:2015 Chapter 4.6.8 and Annex C
EN 61000-6-2:2005/AC:2005
EN 61000-6-3:2007 +A1:2011/AC:2012
EMC Directive 2014/30/EU
Machinery Directive 2006/42/EC

EN 61496-3:2001 clause 4. 3. 5 and 5. 4. 7. 3
EN 12978:2003 +A1:2009
EN ISO 13849-1:2015
EN ISO 13849-2:2012

Notified Body 0044 : TÜV NORD CERT GmbH Langemarckstr. 20 45141 Essen Germany
For technical document, see European Subsidiary

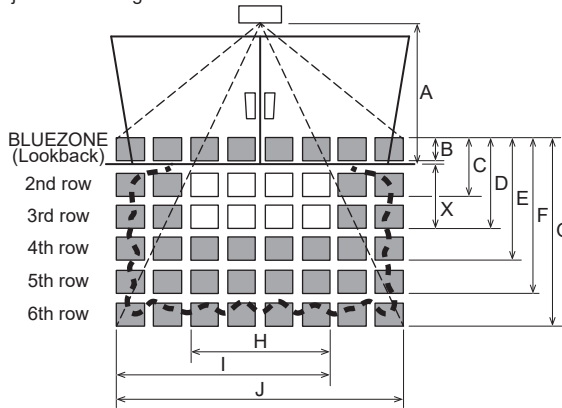
A. Maekawa
General Manager
OPTEX CO., LTD.
Quality Control Dept.

Detection area

Charts show the values in the following area angle adjustment settings

Depth : 8°
Width : 0°

| | |
|--|--------------------------------------|
| | : Emitting spots |
| | : Emitting spots (can be eliminated) |
| | : Detection area |



Emitting area

| | [m(feet,inch)] | | |
|---|----------------|--------------|--------------|
| A | 2.00 (6'7") | 2.30 (7'7") | 2.50 (8'2") |
| B | 0.13 (5") | 0.16 (6") | 0.17 (7") |
| C | 0.38 (1'3") | 0.46 (1'6") | 0.50 (1'8") |
| D | 0.71 (2'4") | 0.86 (2'10") | 0.94 (3'1") |
| E | 0.84 (2'9") | 1.01 (3'4") | 1.09 (3'7") |
| F | 1.34 (4'5") | 1.62 (5'4") | 1.76 (5'9") |
| G | 1.75 (5'9") | 2.11 (6'11") | 2.29 (7'6") |
| H | 0.92 (3') | 1.11 (3'8") | 1.20 (3'11") |
| I | 1.49 (4'11") | 1.80 (5'11") | 1.95 (6'5") |
| J | 2.06 (6'9") | 2.48 (8'2") | 2.69 (8'10") |

Detection area

To comply with EN 16005, make sure that the detection area is within the values of the chart below.

| | [m(feet,inch)] | | |
|---|----------------|--------------|-------------|
| A | 2.00 (6'7") | 2.30 (7'7") | 2.50 (8'2") |
| X | 0.24 (9") | 0.25 (10") | 0.23 (9") |
| H | 0.85 (2'9") | 0.91 (2'12") | 0.96 (3'2") |
| J | 2.01 (6'7") | 2.20 (7'3") | 2.44 (8') |

Test conditions required by EN 16005

Floor : Grey paper
Detection object : EN 16005 CA reference body
Sensitivity : High
Speed of detection object : 50 mm/s

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.)

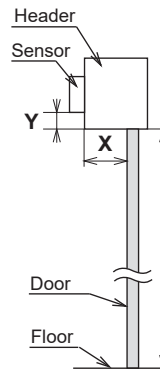
NOTE

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 50 mm/s or faster than 1500 mm/s.

Installation

1. Mounting

- Place 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.)
- Drill two mounting holes of ø3.4 mm (ø1/8").
- To pass the cable through the header, drill a wiring hole of ø8 mm (ø5/16").
- Remove the mounting template.
- Remove the housing cover. Fix the sensor to the mounting surface with the two mounting screws.



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") |
| 0 | | 0.14 (6") | 0.14 (6") |
| 0.05 (2") | | 0.13 (5") | 0.13 (5") |
| 0.10 (4") | | 0.11 (4") | 0.11 (4") |
| 0.15 (6") | | 0.10 (4") | 0.10 (4") |
| 0.20 (8") | | 0.09 (4") | 0.09 (4") |
| 0.25 (10") | | 0.07 (3") | 0.07 (3") |
| 0.30 (12") | | 0.06 (2") | 0.06 (2") |

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. Wiring

Wire the cable to the door controller.

* The following 2 cables are not used.
Grey/Pink
Red/Blue

** See DIP 8(Test input) comment in **"3. Dipswitch settings"**.

| | | |
|-------------------|---|------------------------------|
| Power supply | 1 | 1.White 2.Brown |
| Activation output | 2 | 3.Green 4.Yellow |
| Safety output | 3 | 5.Pink 6.Blue |
| Test input ** | 4 | 7.Red 8.Black |
| Not used * | | 9. Grey/Pink 10. Red/Blue |

Polarity free



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.

| | |
|---|---|
| 1 | 12 to 24 VAC ±10 % / 12 to 30 VDC ±10 % |
| 2 | Form A relay 50 V 0.3 A Max. |
| 3 | Form A relay 50 V 0.3 A Max. |
| 4 | Opto coupler / Voltage: 5 to 30 VDC |

3. Turn ON the power

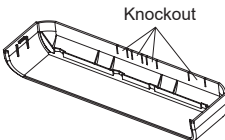
- Plug the connector.
- Supply power to the sensor. Adjust the detection area and set the dipswitches.
(See **Adjustments 3. Dipswitch settings**)

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 s 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 settings, make sure to push the function switch for 2 s.

4. Mounting the housing cover

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



WARNING Danger of electric shock

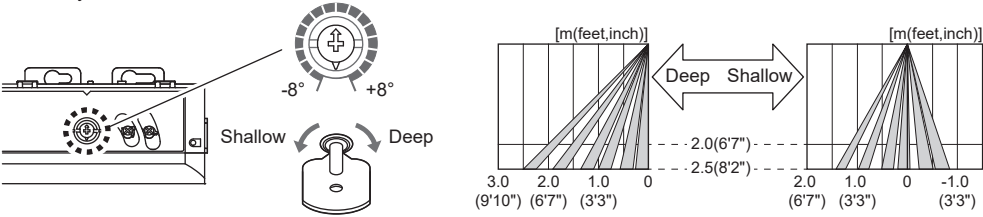
Do not use the sensor without the cover. When using the cable knockout, install the sensor indoors or use the rain cover (Separately available) otherwise electric shock or breakdown of the sensor may occur.

Adjustments

1. Area angle adjustment

a. Area depth angle adjustment

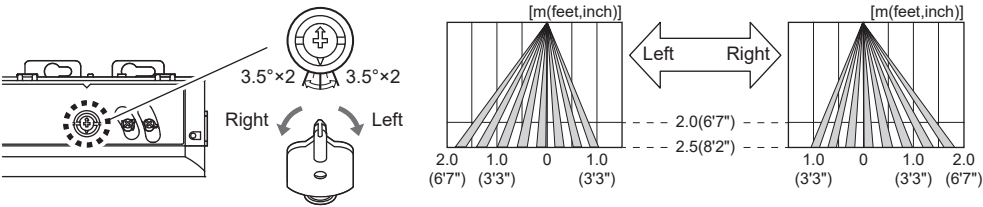
When adjusting the 2nd row close to the door, see dipswitch 16 in **3. Dipswitch settings** and **Reference** for the easier adjustment.



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.

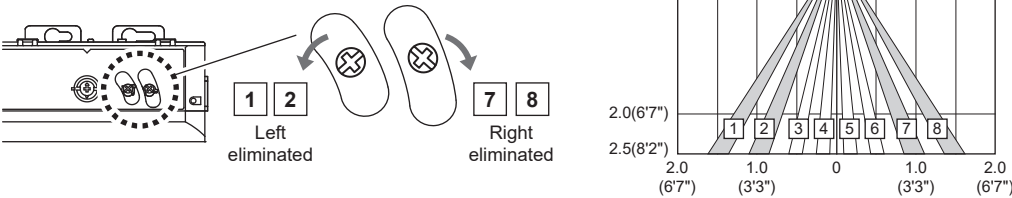
b. Area width angle adjustment

The angle of the detection area can both be moved 7° either left or right in 2 steps.



2. Area width adjustment

Adjust the detection area width with the adjustment screws.



NOTE When setting the detection area width, make sure to turn the adjustment screws until it clicks. **1****2** cannot be eliminated separately, neither can **7****8**.

3. Dipswitch settings

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

* Dip switch No. 2 : Not used

☐ Safety setting ☒ Activation setting ☐ Other setting ☐ Factory default settings

| Dip switch No. | Function | Setting | | | | Comment |
|----------------|------------------------------------|-----------------|-----------------|---|----------------------|--|
| 1 | Sensitivity | Low 1 | High 1 | | | Set the sensitivity according to the mounting height. Values below dipswitches are reference only. Adjust the sensitivity according to your risk assessment. |
| 3 | Presence timer | 30 s 3 4 | 60 s 3 4 | 600 s 3 4 | 2 s (Motion)* 3 4 | To enable the presence detection, do not enter the detection area for 10 s after setting the timer. |
| 4 | | | | | | |
| 5 | Frequency | Setting1 5 6 | Setting2 5 6 | Setting3 5 6 | Setting4 5 6 | When using more than one sensor close to each other, set the frequency different for each sensor. |
| 6 | | | | | | |
| 7 | Safety output (to door controller) | N.C. 7 | N.O. 7 | Dipswitch 8 Test input OFF (High) 0 V ON (Low) 0 V | | 10 ms delay time between Test input and Safety output. If the door controller has no Test, put Test input to "OFF" and do not connect Black and Red wires. "High" or "Low" indicates the Test input signal level from door controller. |
| 8 | Test input (from door controller) | OFF (High) 8 | ON (Low) 8 | | | |
| 9 | Row adjustment | 6 rows 9 10 | 5 rows 9 10 | 4 rows 9 10 | 3 rows 9 10 | Set the depth rows with dipswitches 9 and 10. |
| 10 | | | | | | |
| 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. |
| 12 | Activation output | N.O. 12 | N.C. 12 | | | Select "N.O."/"N.C." for Activation output. |
| 13 | Simultaneous output | OFF 13 | ON 13 | | | When Dipswitch 13 is set to "ON", both Activation & Safety output will operate simultaneously regardless of detection area. But only Safety output will respond back with Safety output when it receives Test input. |
| 14 | Self monitoring | ON 14 | OFF* 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 "OFF". |
| 15 | BLUEZONE (Lookback) | OFF 15 | ON 15 | | | When dipswitch 15 is set to "ON", the BLUEZONE (Lookback) is active and looks through the threshold. |
| 16 | Installation mode | OFF 16 | ON 16 | | | Set dipswitch 16 to "ON" to adjust the 2nd row. During the installation mode only the 2nd row remains active and the operation indicator shows yellow. After setting the row, set dipswitch 16 to "OFF". |

* No EN 16005 compliance.

Service mode

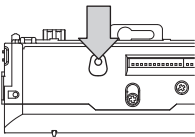
- During "Service mode", 1st row transmitting is OFF and 2nd to 6th row is ON. The operation indicator shows Yellow & Green blinking.
- After installation, be sure to turn to the "Operation mode" because it does not comply with EN 16005.
- The sensor automatically returns to "Operation mode" after 15 min from the transition.

To Service mode

Keep pushing function switch for 5 s until the operation indicator starts to blink after off.

To Operation mode

Keep pushing function switch until the operation indicator goes off.



Checking

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

| Entry | | Power OFF | Outside of detection area | Entry into 4th to 6th row | Entry into 3rd row | Entry into 2nd row | Entry into BLUEZONE (1st row) |
|---------------------|----|-----------|---------------------------|---------------------------|---------------------------|--------------------|-------------------------------|
| Status | | - | Stand-by | Motion detection | Motion/Presence detection | | |
| Operation indicator | | None | Green | Orange | Red | Red blinking | Blue |
| Activation output | 12 | N.O. | OFF | | | | |
| | 12 | N.C. | ON | | | | |
| | 12 | N.O. | OFF | | | | |
| | 12 | N.C. | ON | | | | |
| Safety output * | 7 | N.C. | OFF | | | | |
| | 7 | N.O. | ON | | | | |
| | 7 | N.C. | OFF | | | | |
| | 7 | N.O. | ON | | | | |

* : During warm-up, Safety output is constantly active.

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 an 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

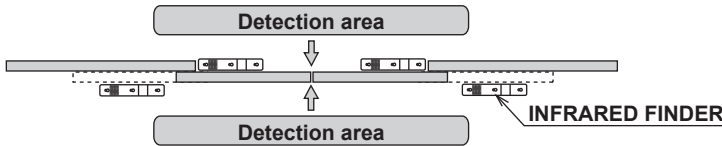
| Door operation | Operation indicator | Possible cause | Possible countermeasures |
|---|-------------------------|--|---|
| Door does not open when a person enters the detection area. | None | Wrong power supply voltage. | Set to the stated voltage. |
| | | Wrong wiring or connection failure. | Check 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 settings. | Check the wires and/or dipswitches. |
| | | | |
| 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 dipswitch 5, 6. (*) |
| | | 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). Or set dipswitch 11 to "ON". (*) |
| | | Sensitivity is too high. | Set the sensitivity lower. (*) |
| | | Others | Set dipswitch 11 to "ON". (*) |
| | Proper | Wrong setting of dipswitches. | Check Adjustments 3 dipswitch 7, 8, 12. (*) |
| | | | |
| Door remains open | Proper | Sudden change in the detection area. | Check Adjustments 3 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. |
| | 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. |
| | | Sensitivity too low or sensor failure. | Contact your installer or service engineer. |
| | Slow Green blinking | Signal saturation.(2nd and/or 3rd row) | Remove highly reflecting objects from the detection area. Or lower the sensitivity. (*) Or change the area depth angle. |
| | | 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 s. |
| | | | |
| | Slow Green blinking | Signal saturation. 4th, 5th, 6th row and/or BLUEZONE) | Remove highly reflecting objects from the detection area. Or lower the sensitivity. (*) Or change the area depth angle. |
| | Yellow & Green blinking | Service mode is enabled. | Switch to the Operation mode that keep pushing function switch until the operation indicator goes off. |

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

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.
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)



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