



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

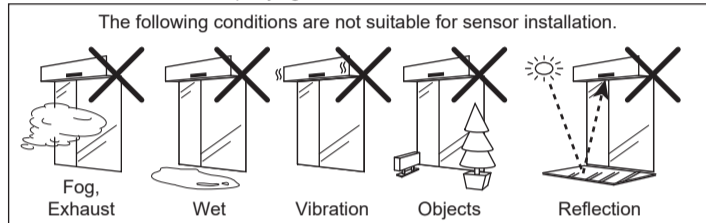
A. Maekawa
 General Manager
 OPTEX CO., LTD.
 Quality Control Dept.

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.
- NOTE** 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.

Specifications

Model	: OA-FLEX AIR T	Activation output	: Form A relay 50 V 0.3 A Max. (Resistance load)
Cover color	: 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)
FLEX EYE angle adjustment	: Depth : -14° to +2° Width : ±42°	ESPE	: Type 2
Power supply (*2)	: 12 to 24 VAC ±10 % (50/60 Hz) 12 to 30 VDC ±10 %	Weight	: 230 g (8.1 oz)
Power consumption	: < 2.5 W (< 6 VA at AC)	Accessories	: 1 Operation manual 2 Mounting screws 1 Mounting template 1 Area adjustment tool 1 Cable 3 m (9'10")(*3)
Operation indicator	: See Operation indicator table		
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		

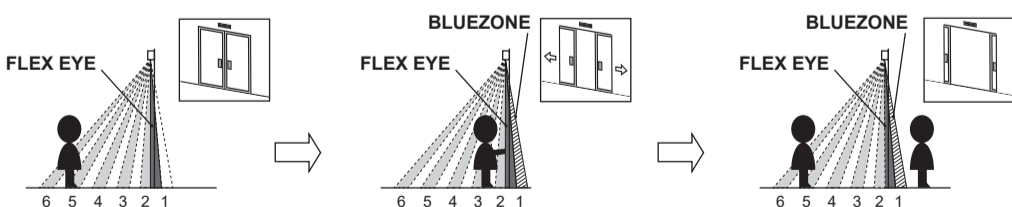
Operation indicator table

Status	Operation indicator color	1000 ms	1000 ms
Warm-up	Yellow blinking	[Diagram]	
Stand-by (Installation mode)	Yellow	[Diagram]	
Stand-by (Service mode)	Yellow & Green blinking	[Diagram]	
Stand-by (Operation mode)	Green	[Diagram]	
BLUEZONE (Lookback) detection (*4)	Blue	[Diagram]	
2nd row detection	Red blinking	[Diagram]	
3rd row detection	Red	[Diagram]	
4th - 6th row detection	Orange	[Diagram]	
FLEX EYE detection	Fast Purple blinking	[Diagram]	
FLEX EYE & 2nd-4th row detection	Purple	[Diagram]	
Communication Test output	Turn off 500 ms (*5)	[Diagram]	
Setting error	Red & Green blinking	[Diagram]	
Signal saturation	Slow Green blinking	[Diagram]	
Signal saturation (FLEX EYE)	Slow Purple blinking	[Diagram]	
Sensitivity too low(or Sensor failure)	Fast Green blinking	[Diagram]	

- 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.

Working principle

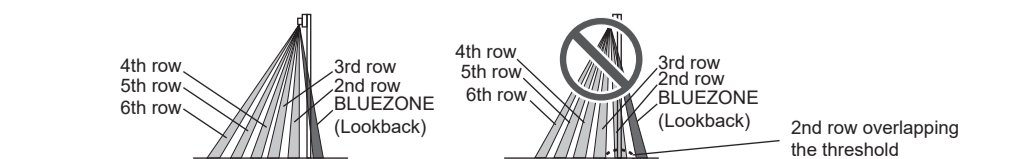
This sensor is designed to detect a hand approaching to a touchless plate as a knowing act activation device. Please make sure to understand the following working principle. If FLEX EYE mode is enabled (Dipswitch 13 is set to "ON"), this sensor an activation output when both FLEX EYE and 2nd to 4th row of detection area detect some objects. FLEX EYE means an area for the hand detection.



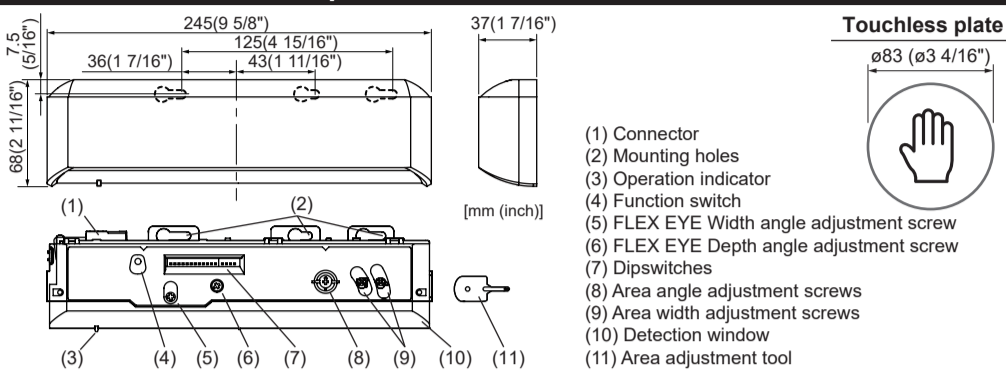
- NOTE** Safety output is designed to be used on door system that enables only while the door is open. BLUEZONE is only activated while Activation output is emitted. When no detection, BLUEZONE is deactivated. When FLEX EYE is enabled (Dipswitch 13 is set to "ON"), detection area (of 2nd to 6th row) is safety output area.

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



Detection area

Charts show the values in the following area angle adjustment settings.
 Depth : 8° Width : 0°

		Emitting area [m(feet,inch)]		
		2.00 (6'7")	2.30 (7'7")	2.50 (8'2")
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)]		
		2.00 (6'7")	2.30 (7'7")	2.50 (8'2")
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

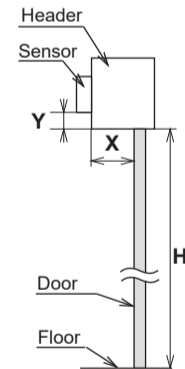
The values above are those of the **Detection area** when tested referring to the test conditions of EN 16005. (The emitting area is as shown in **Emitting area** above.)

- 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

- a. 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.)
- b. Drill two mounting holes of ø3.4 mm (ø1/8").
- c. To pass the cable through the header, drill a wiring hole of ø8 mm (ø5/16").
- d. Remove the mounting template.
- e. 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

		[m (feet,inch)]		
		2.00 (6'7")	2.30 (7'7")	2.50 (8'2")
X	0	0.14 (6")	0.14 (6")	0.14 (6")
	0.05 (2")	0.13 (5")	0.13 (5")	0.13 (5")
	0.10 (4")	0.11 (4")	0.11 (4")	0.11 (4")
	0.15 (6")	0.10 (4")	0.10 (4")	0.10 (4")
	0.20 (8")	0.09 (4")	0.09 (4")	0.09 (4")
	0.25 (10")	0.07 (3")	0.07 (3")	0.07 (3")
	0.30 (12")	0.06 (2")	0.06 (2")	0.06 (2")

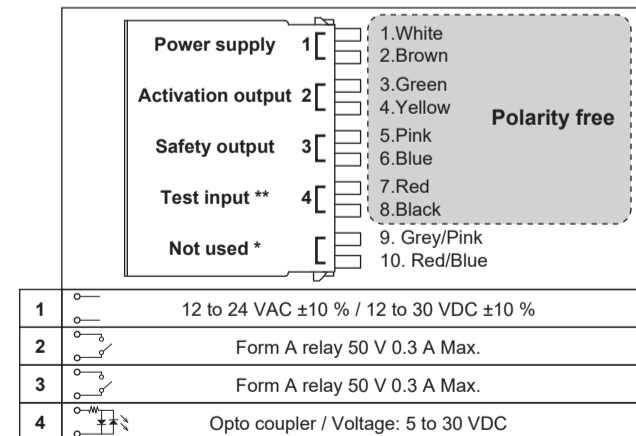
CAUTION
Risk of getting caught
 Make sure to affix the mounting template as described in the above chart, otherwise it can be dangerous since there may be no detection area around the threshold. Install the sensor as low as possible on the header.

- NOTE** Make sure not to mount the sensor lower than the bottom of 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 "4. Dipswitch settings".

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. Turn ON the power

- a. Plug the connector.
- b. 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 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.

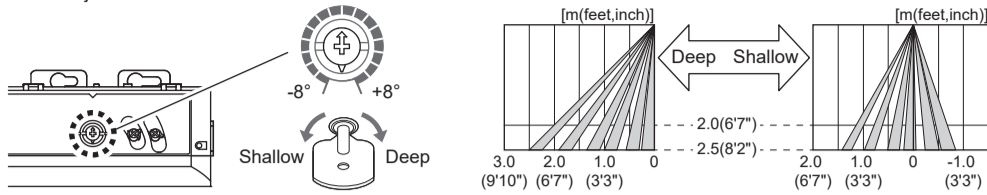
WARNING **Danger of electric shock**
 Do not use the sensor without the cover. When using the cable knockout, install the sensor indoors or use the rain cover (Separately available) otherwise electric shock or breakdown of the sensor may occur.

Adjustments

1. Area angle adjustment

a. Area depth angle adjustment

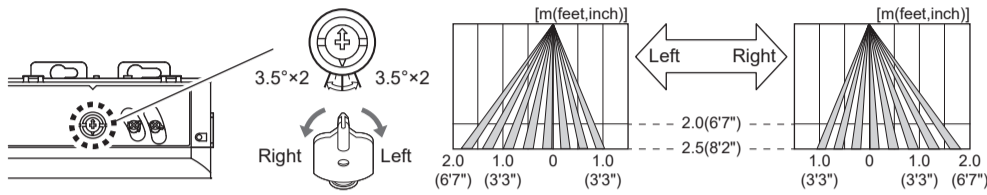
When adjusting the 2nd row close to the door, see dipswitch 16 in **4. Dipswitch settings** and **Reference** for the easier adjustment.



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.

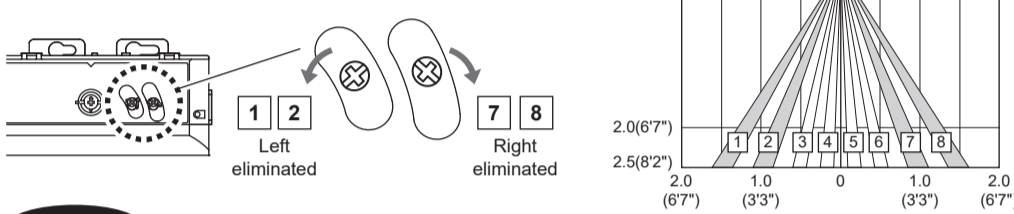
b. Area width angle adjustment

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.

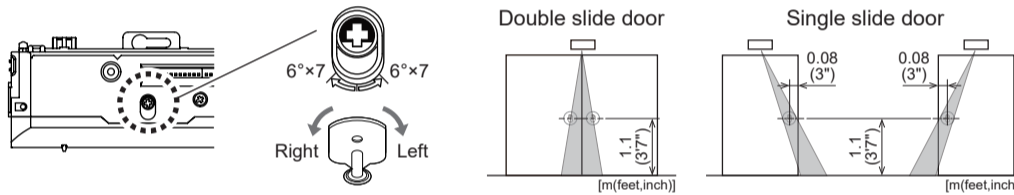


NOTE When setting the detection area width, make sure to turn the adjustment screws until it clicks. 1|2 cannot be eliminated separately, neither can 7|8.

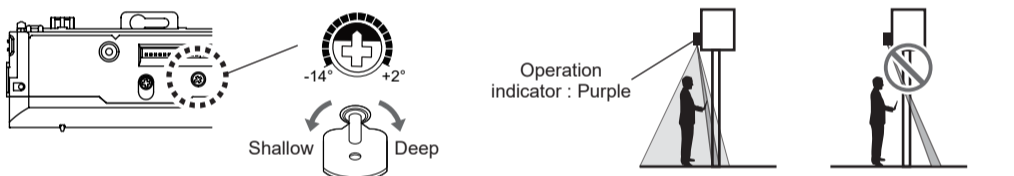
3. FLEX EYE angle adjustment

Make sure to adjust the FLEX EYE angle depending on the door type and the intended touchless plate position otherwise the sensor may not detect when a hand is approached.

a. FLEX EYE width angle adjustment



b. FLEX EYE depth angle adjustment



NOTE After adjusting the angle, make sure that the FLEX EYE is placed on the proper position for your use. Affix the touchless plate on the appropriate position after adjusting the FLEX EYE.

CAUTION Risk of getting caught

Make sure to affix the touchless plate where a hand is not caught by the door during door opening and closing.

4. Dipswitch settings

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

■ 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.
2	FLEX EYE sensitivity	Low 2	High 2	Adjust sensitivity for FLEX EYE.
3	Presence timer	30 s 3 4	60 s 3 4	To enable the presence detection, do not enter the detection area for 10 s after setting the timer.
4		600 s 3 4	2 s (Motion)* 3 4	
5	Frequency	Setting1 5 6	Setting2 5 6	When using more than one sensor close to each other, set the frequency different for each sensor.
6		Setting3 5 6	Setting4 5 6	
7	Safety output (to door controller)	N.C. 7	N.O. 7	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	Set the depth rows with dipswitches 9 and 10.
10		4 rows 9 10	3 rows 9 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	FLEX EYE mode	ON 13	OFF 13	Select the FLEX EYE mode "ON" or "OFF". ON : Activation output is emitted when a detection occurs in FLEX EYE and the 2nd to 4th row. OFF : Activation output is emitted when a detection occurs in the 2nd to 6th row.

Dip switch No.	Function	Setting		Comment
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

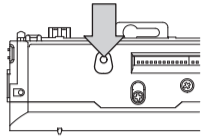
- During "Service mode", FLEX EYE and 1st row transmitting are OFF and 2nd to 6th row is ON. The operation indicator shows Yellow & Green blinking.
- After installation, be sure to turn to the "Operation mode" because it does not comply with EN 16005.
- The sensor automatically returns to "Operation 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 FLEX EYE and 2nd to 4th row
Status	-	Stand-by	Motion detection	Motion/Presence detection		
Operation indicator	None	Green	Orange	Red	Red blinking	Purple
Activation output (*1)	12 ● N.O. ● N.C.	○	○	○	○	○
Safety output (*2)	7 ● N.C. ● N.O.	○	○	○	○	○

Entry	Entry into BLUEZONE (Lookback) (*3)	Entry into FLEX EYE only
Status	Motion/Presence detection	Motion detection active
Operation indicator	Blue	Fast Purple blinking
Activation output (*1)	12 ● N.O. ● N.C.	○
Safety output (*2)	7 ● N.C. ● N.O.	○

*1 : Activation output shows the status of when FLEX EYE mode is "ON".
*2 : During warm-up, Safety output is constantly active.
*3 : When dipswitch 15 is set to "ON".

Troubleshooting

Door operation	Operation indicator	Possible cause	Possible countermeasures	
Door operation	None	Wrong power supply voltage. Wrong wiring or connection failure.	Set to the stated voltage. Check the wires and connector.	
	Door does not open when a person enters the detection area.	Unstable	Wrong detection area (2nd to 4th row) and FLEX EYE positioning. Sensitivity of detection area (2nd to 4th row) is too low. Sensitivity of FLEX EYE is too low. Short presence timer. Dirty detection window.	Check Adjustments 1, 2, 3 . (*) Set the detection area sensitivity higher (*). Set the FLEX EYE 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 settings.	Check the wires and/or dipswitches.
Door opens when a person enters the detection area.		Proper	FLEX EYE function is not working. (Dipswitch 13 is up side position)	Check Adjustments 4 dipswitch 13. (*)
		Unstable	Objects that move or emit light in the detection area. The detection area overlaps with that of another sensor. Waterdrops on the detection window. The detection area overlaps with the door/header. Sensitivity of detection area is too high. Sensitivity of FLEX EYE is too high. Others	Remove the objects. Check Adjustments 4 dipswitch 5, 6. (*) 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. Adjust the detection area to "Deep"(Outside). Set the detection area sensitivity lower (*). Set the FLEX EYE sensitivity lower (*). Set dipswitch 11 to "ON". (*)
Door remains open	Proper	Sudden change in the detection area.	Check Adjustments 4 dipswitch 1, 3, 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 of detection area is too low.	Set the detection area sensitivity higher (*).	
Sensitivity of FLEX EYE is too low.		Set the FLEX EYE sensitivity higher (*).		
Dirty detection window.		Wipe the detection window with a damp cloth. Do not use any cleaner or solvent.		
Slow Green blinking	Sensitivity too low or sensor failure.	Contact your installer or service engineer.		
	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 Purple blinking	Signal saturation. (FLEX EYE)	Remove highly reflecting objects from the FLEX EYE. Lower the FLEX EYE sensitivity. Change the area depth angle for FLEX EYE.	
		FLEX EYE overlaps with the header.	Adjust FLEX EYE to "Deep" (Outside).	
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.

Manufacturer

OPTEX CO., LTD.

5-8-12 Ogoto Otsu 520-0101, Japan
Tel : +81(0)77 579 8700
www.optex.net

EMEA Subsidiary

OPTEX Technologies B.V.

Henricuskade 17, 2497 NB The Hague, The Netherlands
Tel : +31(0)70 419 41 00
info@optex.eu
www.optex.eu

