

OAM-DUAL II



5928750 NOV 2019

Manufacturer's statement

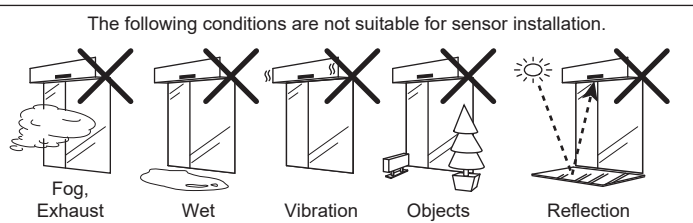
Read this operation manual carefully before use to ensure proper operation of this product. Failure to read this operation manual may cause improper operation and may result in serious injury or death of a person. The meanings of the symbols are as follows.

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**
- 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.



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	: OAM-DUAL II	Operating temperature	: -20 to +55°C (-4 to 131°F)
Cover color	: Black	Operating humidity	: < 80 % (non-condensing)
Mounting height	: 2.0 to 3.5 m (6'7" to 11'6")	Noise level	: < 70 dBA
Detection area	: See Detection area	Activation output	: Form C relay 50 V 0.3 A Max. (Resistance load)
Detection method	: Active infrared reflection (*1) Microwave Doppler effect	Safety output	: Form C relay 50 V 0.3 A Max. (Resistance load)
Transmitter frequency	: 24.125 GHz	IP rate	: IP54
Transmitter radiated power	: < 20 dBm	Weight	: 270 g (9.5 oz)
Depth angle adjustment	: AIR area -6 to +6° Radar area +25 to +45°	Accessories	: 1 Operation manual 2 Mounting screws 1 Mounting template 1 Area adjustment tool 1 Cable 3 m (9'10") 1 Narrow lens
Power supply	: 12 to 24 VAC ±10 % (50/60 Hz) 12 to 30 VDC ±10 %		
Power consumption	: < 2.5 W (< 4 VA at AC)		
Operation indicator	: See Operation indicator table		
Output hold time	: < 1.0 s		
Response time	: < 0.3 s		

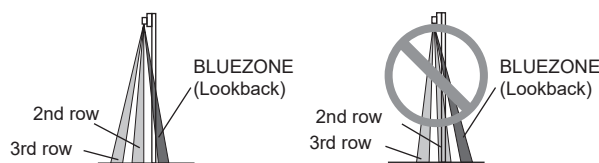
Operation indicator table

Status	Operation indicator color	Indicator Pattern
Warm-up	Yellow blinking	[Yellow bar] [Yellow bar]
Stand-by (Installation mode)	Yellow	[Yellow bar]
Stand-by (Operation mode)	Green	[Green bar]
BLUEZONE (Lookback) detection (*2)	Blue	[Blue bar]
2nd row detection	Red blinking	[Red bar] [Red bar]
3rd row detection	Red	[Red bar]
Radar detection	Orange	[Orange bar]
Signal saturation	Slow Green blinking	[Green bar] [Green bar]
Sensitivity too low(or Sensor failure)	Fast Green blinking	[Green bar] [Green bar]

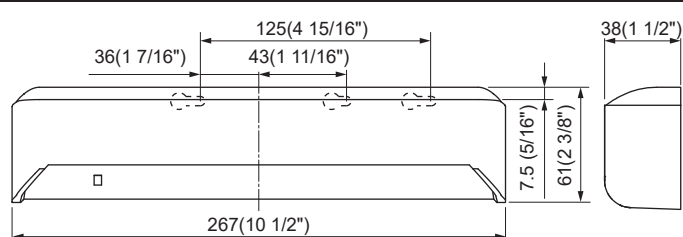
NOTE The specifications herein are subject to change without prior notice due to improvements.
 *1 : Active infrared reflection has a presence detection function.
 *2 : See **BLUEZONE**.

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.

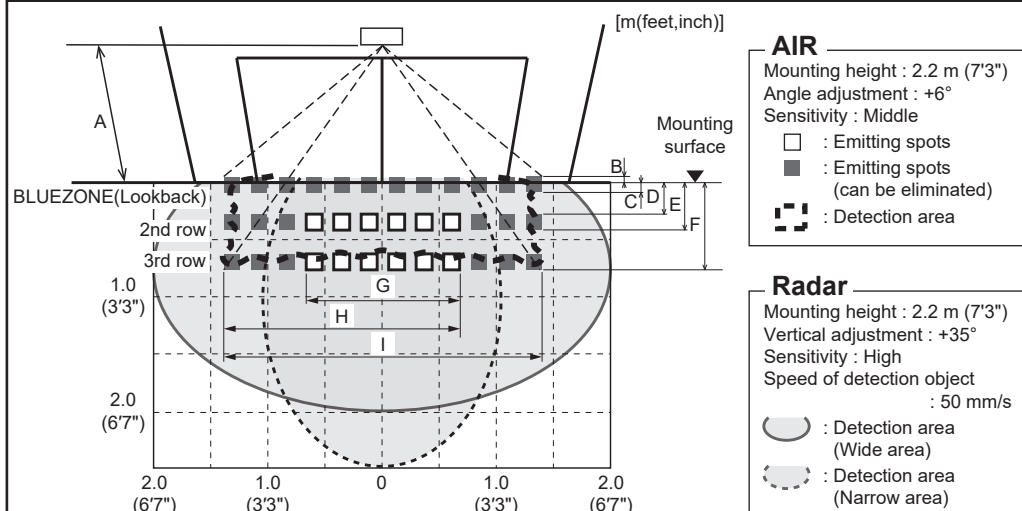


Outer dimensions and part names



- Connector
- Mounting holes
- Operation indicator
- Width adjustment screws
- Depth angle adjustment screw
- Radar sensitivity potentiometer
- Dipswitches
- Detection window
- Area adjustment tool

Detection area



AIR emitting area

The chart shows the values at depth angle +6°.

	[m(feet,inch)]					
A	2.00 (6'7")	2.20 (7'3")	2.50 (8'2")	2.70 (8'10")	3.00 (9'10")	3.50 (11'6")
B	0.05 (2")	0.06 (2")	0.07 (3")	0.07 (3")	0.08 (3")	0.09 (4")
C	0.07 (3")	0.08 (3")	0.09 (4")	0.10 (4")	0.11 (4")	0.12 (5")
D	0.23 (9")	0.25 (10")	0.28 (11")	0.31 (1')	0.34 (1'1")	0.39 (1'3")
E	0.35 (1'2")	0.39 (1'3")	0.44 (1'5")	0.48 (1'7")	0.53 (1'9")	0.61 (2')
F	0.59 (1'11")	0.65 (2'2")	0.74 (2'5")	0.80 (2'7")	0.89 (2'11")	1.03 (3'5")
G	1.21 (3'12")	1.33 (4'4")	1.51 (4'11")	1.63 (5'4")	1.81 (5'11")	2.11 (6'11")
H	1.86 (6'1")	2.05 (6'9")	2.32 (7'7")	2.51 (8'3")	2.79 (9'2")	3.25 (10'8")
I	2.52 (8'3")	2.78 (9'1")	3.15 (10'4")	3.40 (11'2")	3.79 (12'5")	4.42 (14'6")

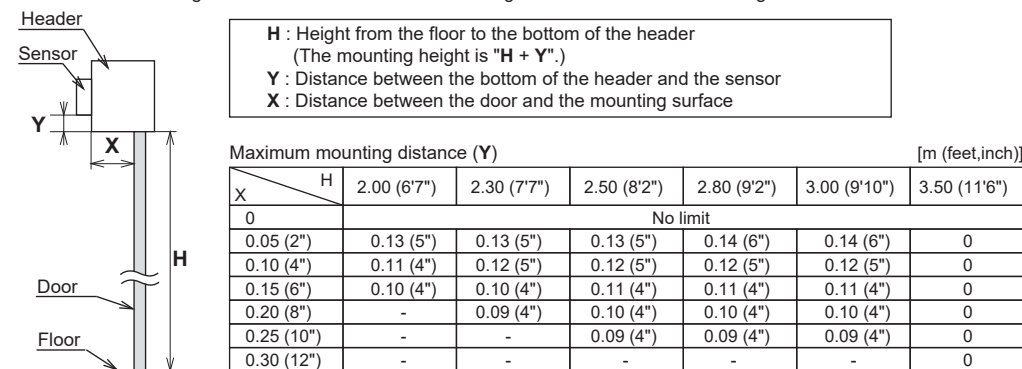
NOTE

The actual detection area may become smaller depending on the ambient light, the color/material of the object or the floor as well as the entry speed of the object. The sensor may not be activated when the entering speed of the object or a person is slower than 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 $\phi 3.4$ mm ($\phi 1/8$ ").
- To pass the cable through the header, drill a wiring hole of $\phi 8$ mm ($\phi 5/16$ ").
- Remove the mounting template.
- Remove the housing cover. Fix the sensor to the mounting surface with the two mounting screws.



NOTE

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

CAUTION 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.

Power supply	1	2	3	4	5	6	7	8
	1.Grey	2.Grey	3.White	4.Yellow	5.Green	6.White stripe	7.Yellow stripe	8.Green stripe

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

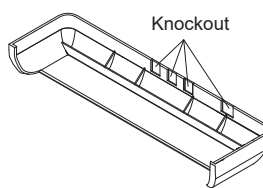
- Plug the connector.
- Supply power to the sensor. Adjust the detection area and set the dipswitches. (See **Adjustments 4. Dipswitch settings**)

NOTE

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

4. Mounting the housing cover

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

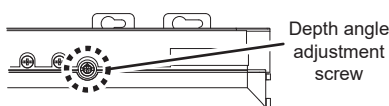


WARNING Danger of electric shock

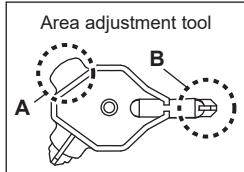
Do not use the sensor without the cover. When using the cable knockout, install the sensor indoors or use the rain cover (Separately available) otherwise electric shock or breakdown of the sensor may occur.

Adjustments

1. Area depth angle adjustment



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

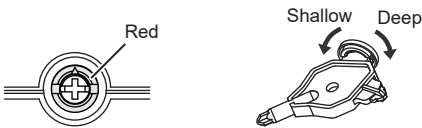


NOTE

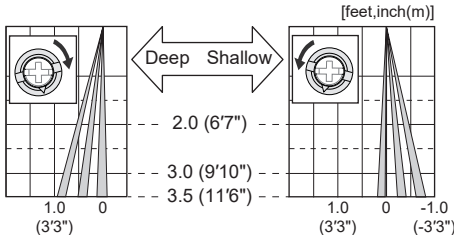
Make sure that the detection area does not overlap with the door/header, and there is no highly reflecting object near the detection area otherwise ghosting/signal saturation may occur.

a. AIR adjustment

Depth angle adjustment screw for the AIR area.

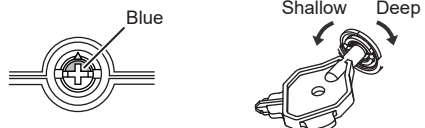


Use the area adjustment tool (A) as shown above to change the area depth angle.

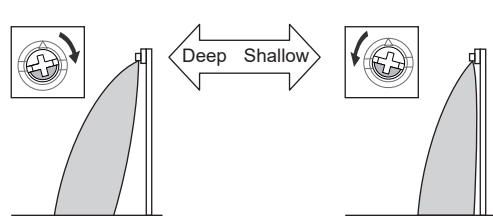


b. Radar adjustment

Depth angle adjustment screw for the Radar area.



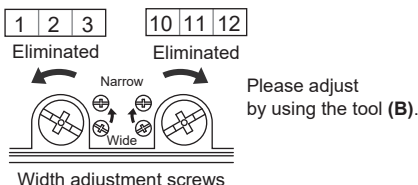
Use the area adjustment tool (B) as shown above to change the area depth angle.



2. Area width adjustment

a. AIR adjustment

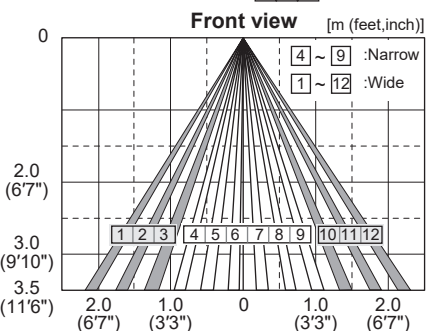
To adjust the AIR detection area width, use the adjustment screws as shown in the picture below.



NOTE

When setting the detection area width, make sure to turn the adjustment screws until it clicks.

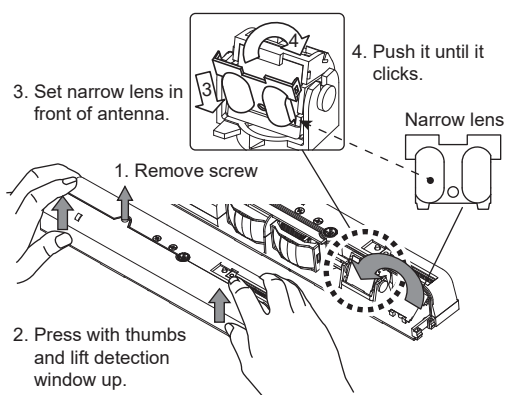
1, 2, 3 cannot be eliminated separately, neither can 10, 11, 12.



b. Radar adjustment

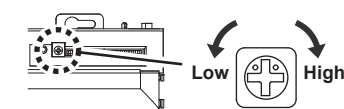
To adjust the radar detection area width, use the narrow lens referring to the following procedures.

For detection area, See **Detection area** in the front page.

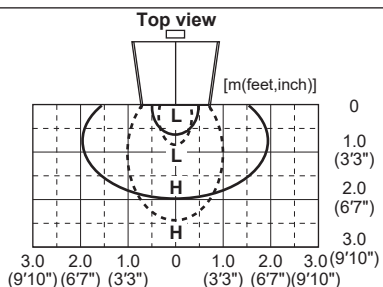


3. Radar sensitivity

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



Mounting height : 2.2 m
Vertical adjustment : +35°
— Wide area
- - - - - Narrow area



4. Dipswitch settings

Table 1 ■ AIR settings ■ Radar settings □ Other setting □ Factory default settings

Dip switch No.	Function	Setting				Comment
1	Sensitivity	Low	Middle	High	S-High	Set the sensitivity according to the mounting height. Values below dipswitches are reference only. Adjust the sensitivity according to your risk assessment.
2		1 2	1 2	1 2	1 2	
3	Presence timer	30 s	180 s	600 s	∞	All rows have the presence detection function. The presence timer can be selected from 4 settings.
4		3 4	3 4	3 4	3 4	
5	Frequency	Setting 1	Setting 2	Setting 3	Setting 4	When using more than one sensor close to each other, set the frequency different for each sensor.
6		5 6	5 6	5 6	5 6	
7	Rain mode	Normal	Rain			Set this switch to rain if the sensor is used in a region with a lot of rain.
8	Snow mode	Normal	Snow			Set this switch to snow if the sensor is used in a region with snow or a lot of insects.
9	Direction	Bi	Uni			When dipswitch 9 is set to "Uni", this setting enables the door to close earlier when a person walks away from the door.
10	Auto caution	OFF	ON			When dipswitch 10 is set to "ON", a person wavering in the activation detection area can be detected. This is only effective when dipswitch 9 is set to "Uni-directional".
11	Immunity	OFF	ON			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	For future use					
13	AIR output	Safety	Safety + Activation			When dipswitch 13 is set to "Safety + Activation", the sensor outputs safety and activation simultaneously.
14	For future use					
15	BLUEZONE (Lookback)	OFF	ON			When dipswitch 15 is set to "ON", the BLUEZONE (Lookback) is active and looks through the threshold.
16	Installation mode	OFF	ON			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".

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

Table 2 → Detection → Non-detection

Bi OFF	Uni OFF
<p>Bi-direction(Bi)</p>	<p>Uni-direction(Uni)</p>
<p>Bi-direction</p> <p>When dipswitch 9 is set to "Bi", "Bi-direction" mode is effective, regardless of dipswitch 10 setting.</p>	<p>Uni-direction with Auto caution mode</p>

Checking

Check the operation in the operation mode 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 radar area	Entry into 3rd row	Entry into 2nd row	Entry into BLUEZONE (Lookback)
Status	-	Stand-by	Motion detection active	Motion/Presence detection active		
Operation indicator	None	Green	Orange	Red	Red blinking	Blue
Safety 13	Safety output	④ ⑤ ⑥	④ ⑤ ⑥	④ ⑤ ⑥		
	Activation output	① ② ③	① ② ③	① ② ③		
Safety + Activation 13	Safety output	④ ⑤ ⑥	④ ⑤ ⑥	④ ⑤ ⑥		
	Activation output	① ② ③	① ② ③	① ② ③		

Inform building owner/operator of the following items

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

NOTE

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

Troubleshooting

Door operation	Operation indicator	Possible cause	Possible countermeasures
Door does not open when a person enters the detection area.	None	Wrong power supply voltage.	Set to the stated voltage.
	Unstable	Wrong wiring or connection failure.	Check the wires and connector.
		Wrong detection area positioning.	Check Adjustments 1, 2, 3, 4 .
Door opens when no one is in the detection area. (Ghosting)	Unstable	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.
		Objects that move or emit light in the detection area.	Remove the objects.
		The detection area overlaps with that of another sensor.	Check Table 1 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.	
Door remains open.	Proper	The detection area overlaps with the door/header.	Adjust the detection area (AIR or Radar) to "Deep". Or set dipswitch 11 to "ON".
		Sensitivity is too high.	Set the sensitivity lower.
Proper operation.	Yellow	Raining or snowing.(AIR)	Set dipswitch 7 and/or dipswitch 8 to "ON".
		Raining or snowing.(Radar)	Set dipswitch 9 and/or dipswitch 11 to "ON".
	Fast Green blinking	Others	Set dipswitch 11 to "ON".
		Sudden change in the detection area.	Check Table 1 dipswitch 1 to 4. If the problem still persists, hard-reset the sensor. (Turn the power OFF and ON again)
Slow Green blinking	Proper	Wrong wiring or connection failure.	Check the wires and connector.
		Installation mode is set to "ON".	Set dipswitch 16 to "OFF".
	Unstable	Sensitivity is too low.	Set the sensitivity higher. Set AIR area width to "Wide".
Proper	Slow Green blinking	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.
Proper	Slow Green blinking	The detection area overlaps with the door/header.	Adjust the detection area to "Deep".
		Signal saturation. (AIR)	Remove highly reflecting objects from the detection area or lower the sensitivity or change the area depth angle for AIR area.

OPTEX hereby declares that the radio equipment type OAM-DUAL series complies with RED 2014/53/EU. The full text of the EU DoC is available at the following internet address: www.optex.net

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