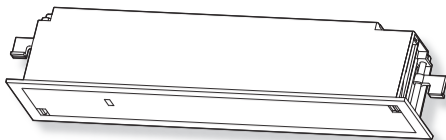




MIRAGE T



5934770 130-0023-0 APR 2024

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.

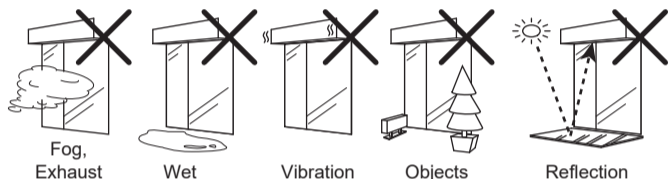
CAUTION Failure to follow the instructions that accompany this indication and improper handling may result in injury and/or damage to property.

NOTE Pay special attention to sections with this symbol.

i 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 ceiling 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

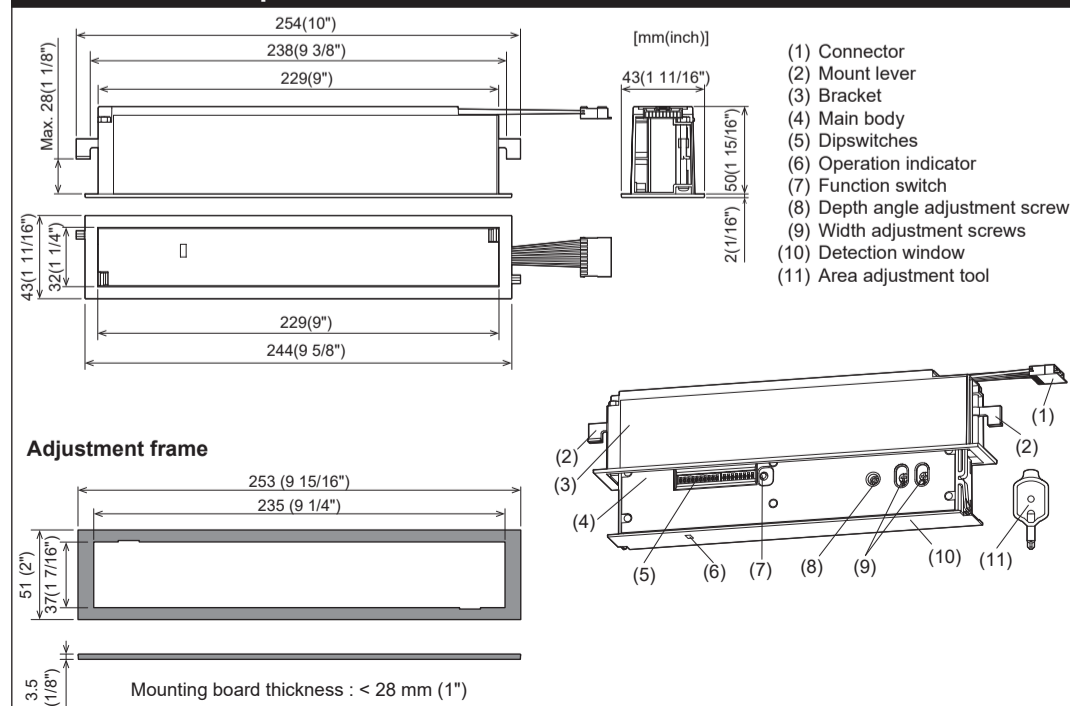
Model	: MIRAGE T	Noise level	: < 70 dBA
Color	: Black	Activation output	: Form A relay 50 V 0.3 A Max. (Resistance load)
Mounting height	: 2.0 to 3.0 m(6'7" to 9'10") (2.0 to 2.5 m(6'7" to 8'2") for EN16005 compliance)	Safety output	: Form A relay 50 V 0.3 A Max.
Detection area	: See Detection area	Test input	: Opto coupler
Detection method	: Active infrared reflection	Voltage	: 5 to 30VDC
Depth angle adjustment	: -6 to +2°	Current	: 6 mA Max.(30 VDC)
Power supply (*1)	: 12 to 24 VAC±10 % (50/60 Hz) 12 to 30 VDC±10 %	IP rate	: IP54
Power consumption	: < 1.5 W (< 2.5 VA at AC)	Category	: 2(EN ISO 13849-1:2015)
Operation indicator	: See Operation indicator	Performance level	: d(EN ISO 13849-1:2015)
Output hold time	: Approx. 500 ms	ESPE	: Type 2
Response time	: < 300 ms	Weight	: 210 g(7.4 oz)
Operating temperature	: -20 to +55°C (-4 to 131°F)	Accessories	: 1 Cable 3 m (9'10") (*2)
Operating humidity	: < 80 % (non-condensing)		1 Operation manual
			1 Area adjustment tool
			1 Adjustment frame
			1 Dust proof sticker

Operation indicator

Status	Color	Duration
Warm-up	Yellow blinking	1000 ms
Stand-by (Installation mode)	Red & Green blinking	1000 ms
Stand-by (Service mode)	Yellow & Green blinking	
Stand-by (Operation mode)	Green / Off (*3)	
1st row detection	Red blinking	
2nd row detection	Red	
3rd / 4th row detection	Orange	
Communication Test output	Turn off 500 ms (*4)	
Setting error	Red & Green blinking	
Signal saturation	Slow Green blinking	
Sensitivity too low (or sensor failure)	Fast Green blinking	
Switching LED off/on mode	Slow Blue blinking (*3)	

- NOTE**
- *1 : The sensor has to be connected to a door system which has a SELV circuit.
 - *2 : Overcurrent protection with less than 2 A.
 - *3 : Keep pushing the function switch in 10 s and slow blue blinking. LED during standby can be changed from "Green" to "Off".
 - *4 : LED will be turned off approx. 500 ms when the sensor Test output signal works well.

Dimensions and part names



Compliant standards and EU declaration of conformity excerpt

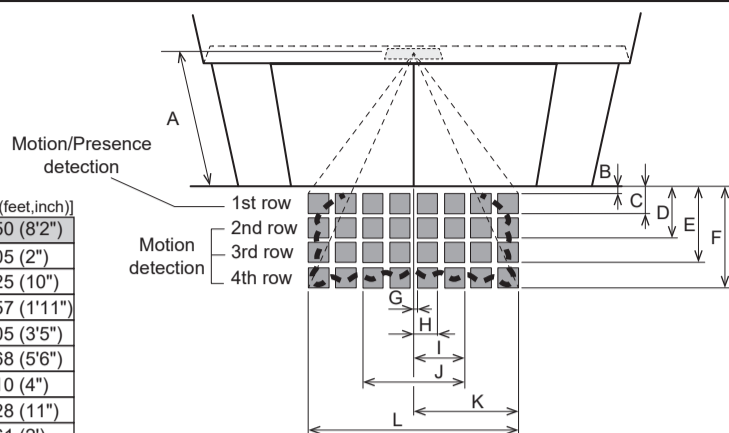
DIN 18650-1:2010 Chapter 5.7.4 ESPE Chapter 5.8.2.4.3 | EN 16005:2012/AC:2015 Chapter 4.6.8 and Annex C | EN 61000-6-2:2005/AC:2005
EN 61000-6-3:2007 +A1:2011/AC:2012 | EMC Directive 2014/30/EU | Machinery Directive 2006/42/EC | EN 61496-3:2001 clause 4.3.5 and 5.4.7.3
EN 12978:2003 +A1:2009 | EN ISO 13849-1:2015 | EN ISO 13849-2:2012

Notified Body 0044 : TÜV NORD CERT GmbH Am TÜV 1, 45307 Essen Germany

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

Detection area

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



Emitting area

Depth angle : 0°

	[m(feet,inch)]		
A	2.00 (6'7")	2.20 (7'3")	2.50 (8'2")
B	0.04 (2")	0.05 (2")	0.05 (2")
C	0.20 (8")	0.22 (9")	0.25 (10")
D	0.46 (1'6")	0.50 (1'8")	0.57 (1'11")
E	0.84 (2'9")	0.92 (3')	1.05 (3'5")
F	1.34 (4'5")	1.48 (4'10")	1.68 (5'6")
G	0.08 (3")	0.08 (3")	0.10 (4")
H	0.22 (9")	0.25 (10")	0.28 (11")
I	0.49 (1'7")	0.54 (1'9")	0.61 (2')
J	0.98 (3'3")	1.08 (3'6")	1.23 (4')
K	1.02 (3'4")	1.12 (3'8")	1.27 (4'2")
L	2.03 (6'8")	2.24 (7'4")	2.54 (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 50 mm/s or faster than 1500 mm/s.

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")	2.20 (7'3")	2.50 (8'2")
D	0.43 (1'5")	0.43 (1'5")	0.56 (1'10")
J	0.97 (3'2")	1.04 (3'5")	1.12 (3'8")
L	2.06 (6'9")	2.23 (7'4")	2.26 (7'5")

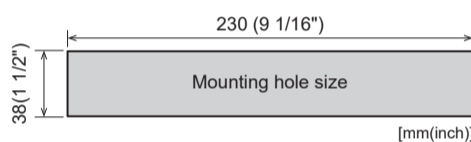
Test conditions required by EN 16005

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

Installation

1. Mounting

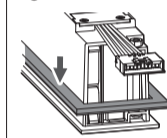
Drill the mounting hole either under the header or ceiling.



NOTE

- Be sure that the mounting position is within the value of those in **Specifications**.
- When the mounting hole is exposed, use the adjustment frame. (Figure 1)

Figure 1



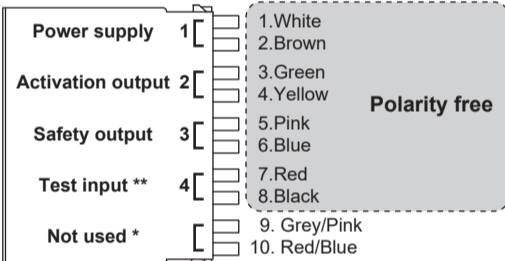
2. Wiring

Wire the cable to the door controller. Plug the connector for the sensor to that for the cable.

* The following 2 cables are not used.

- 9. Grey/Pink
- 10. Red/Blue

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



WARNING

Danger of electric shock

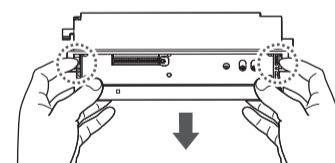
Before starting the procedure, make sure that the power is turned OFF. When passing the cable through the hole, do not tear the shield otherwise it may cause electric shock or breakdown of the sensor.

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. Pull out the main body

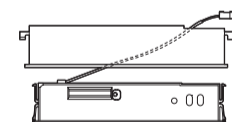
Push the pawls on both ends of the detection window inward and pull out the main body.

Remove the main body from the bracket while holding the pawls on both ends of the main body.



CAUTION Risk of breaking

The cable between the main body and the bracket cannot be removed. Do not pull the cable strongly, otherwise it may be damaged.



4. Fix the bracket

a. Fold the mount levers inside (Figure 1) and insert the bracket into the mounting hole.

b. Adjust the mounting levers up/down with the screws on both sides (Figure 2) and fix the bracket to the mounting holes.

Figure 1

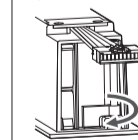
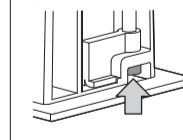


Figure 2



NOTE

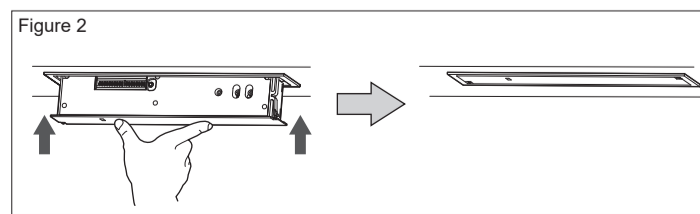
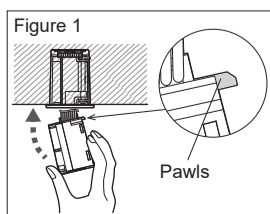
Be sure to fix firmly, otherwise the sensor may fall off resulting in injuries.

5. Turn ON the power

Supply power to the sensor. Adjust the detection area and set the dipswitches. (See **Adjustments**)

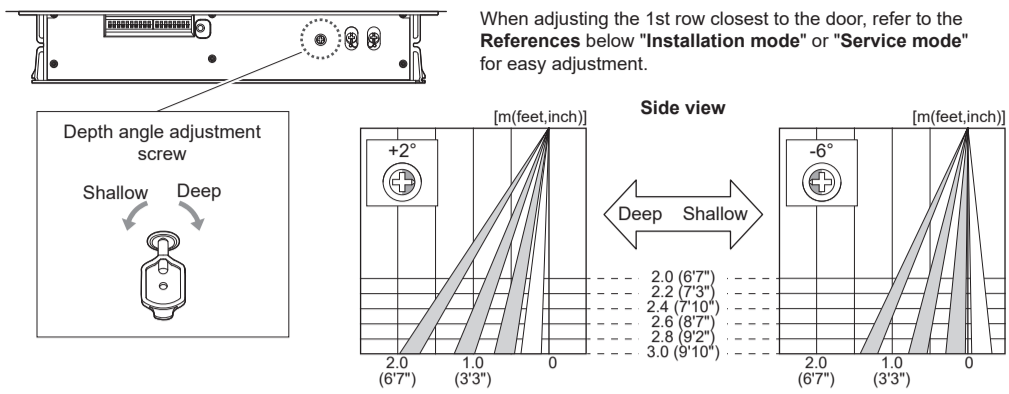
6. Fix the main body

- Tilt the main body (Figure 1) and insert it into the bracket, aligning the pawls with the groove of the bracket.
- Push the main body up until it's fixed with a click (Figure 2).



Adjustments

1. Area angle adjustment



Reference

Installation mode

- Door stays open -

- During the "Installation mode", only the 1st row remains transmitting.
- During the "Installation mode", Activation output and Safety output are always active.

Transmitting area depends on the dipswitch settings below.
 • Dipswitch 11 - 14: Single spot adjustment

To Installation mode

- Change any of the dipswitch settings. (Operation indicator shows Red & Green blinking.)
- Adjust the detection area.

To Operation mode

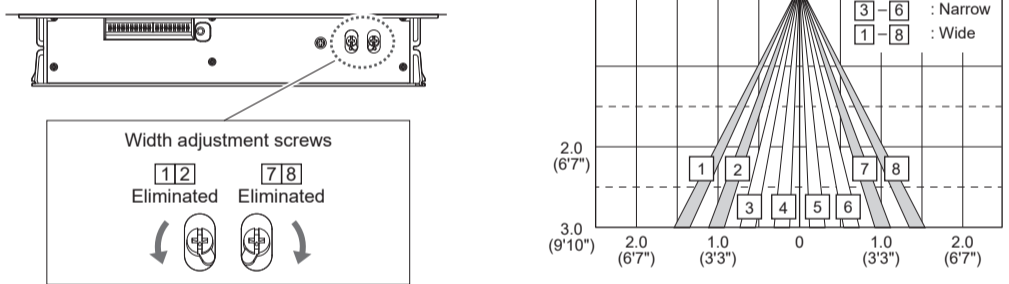
Keep pushing the function switch for 2 s until the operation indicator goes off.

After installation, be sure to turn to the "Operation mode" because it does not comply with EN 16005.

NOTE

Transition to service mode by pushing the function switch for 5 s in installation mode.

2. Area width adjustment



NOTE

When adjusting the width adjustment screws, make sure to turn until it clicks otherwise the proper operation may not be obtained.
 [1][2] cannot be eliminated separately, neither can [7][8]. [3][4][5][6] can be eliminated separately by dipswitch 11, 12, 13 and 14 settings. See 3. Dipswitch settings.

3. Dipswitch settings

After changing the dipswitch settings, make sure to push the function switch for 2 s. (The operation indicator will go off)

Safety setting
 Activation setting
 Other setting
 Factory settings

No.	Function	Setting	Comment
1	Sensitivity	Low 1 2	Set the sensitivity according to the mounting height. Values below dipswitches are reference only. Adjust the sensitivity according to your risk assessment.
2		Middle 1 2 2.0 - 2.5 m	
3	Presence timer	High 1 2 2.3 - 2.7 m	To enable the presence detection, do not enter the detection area for 10 s after setting the timer. * No EN 16005 compliance.
4		S-High 1 2 2.5 - 3.0 m	
5		30 s 3 4	
6		60 s 3 4 600 s 3 4 2 s * (Motion) 3 4	
5	Frequency	1 5 6	When using more than one sensor close to each other, set the frequency different for each sensor.
6		2 5 6 3 5 6 4 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.
8	Test input (from door controller)	OFF (High) 8 ON (Low) 8	"High" or "Low" indicates the Test input signal level from door controller.
9	Row adjustment	4 9 10	Set the depth rows with dipswitches 9 and 10. To comply with EN 16005, detection area depth must be more than equal 1,000 mm from the door surface. ** When dipswitch 9,10 are set to "1", activation output and safety output are active simultaneously. See "Checking".
10		3 9 10 2 9 10 1** 9 10	

No.	Function	Setting	Comment
11	Single spot adjustment	ON 11 OFF 11	Use this adjustment when further width area elimination is needed in addition to elimination of area width adjustment by width adjustment screws. (See 2. Area width adjustment)
12		ON 12 OFF 12	
13		ON 13 OFF 13	
14		ON 14 OFF 14	
15	Immunity	OFF 15 ON 15	Set dipswitch 15 to "ON" when the sensor operates by itself. (Ghosting) When set to "ON", the actual detection area may occur smaller.
16	Activation output	N.O. 16 N.C. 16	Select "N.O." / "N.C." for Activation output to door controller.
17	Self monitoring	ON 17 OFF* 17	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 17 to "OFF". * No EN 16005 compliance.
18	All presence	OFF 18 ON 18	When dipswitch 18 is set to "ON", 1st to 4th rows have presence detection function. Refer to Checking in detail.

Checking

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

Row adjustment	Status	Operation indicator	None	Green	Orange	Red	Red blinking
			Power OFF	Outside of detection area	Entry into 3rd to 4th row	Entry into 2nd row	Entry into 1st row
			-	Stand-by	**	**	Presence detection
9	4 9 10	Activation output 16	N.O. 16				
			N.C. 16				
10	3 9 10	Safety* output 7	N.C. 7				
			N.O. 7				
9	1 9 10	Activation output 16	N.O. 16				
			N.C. 16				
10	2 9 10	Safety* output 7	N.C. 7				
			N.O. 7				

* During warm-up, Safety output is constantly active.
 ** Depends on dipswitch 18 setting ; "OFF" : Motion detection
 "ON" : Presence detection
 *** When dipswitch 18 set to "ON".

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.
		Wrong detection area positioning.	Check Adjustments 1, 2, 3. (*)
	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.
Door opens when no one is in the detection area. (Ghosting)	Proper	Wrong wiring or settings.	Check the wires and/or dipswitches.
		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. (*)
	Unstable	Waterdrops on the detection window.	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.	Adjust the detection area to "Deep"(Outside).
		Sensitivity is too high.	Set the sensitivity lower. (*)
Door remains open	Proper	Wrong setting of dipswitches.	Check Adjustments 3 dipswitch 7, 8, 16. (*)
		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.
	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.	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.	Adjust the detection area to "Deep"(Outside).	
	Red & Green blinking	Installation mode is enabled.	After changing the dipswitch settings, make sure to push the function switch for 2 s.
Proper operation	None	LED Off mode is enabled.	Switch to the operation mode that keep pushing function switch until the operation indicator shows slow blue blinking.
	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.

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