X-ZONE T

5923703 JUN 2017

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 provided with this indication and improper handling may cause death or serious injury.
⚠ CAUTION	Failure to follow the instructions provided with this indication and improper handling may cause injury and/or property damage.
NOTE	Special attention is required to the section of this symbol.

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, steel plate, emergency lights or illumination in the detection area or in vicinity
-Highly reflecting floor or highly reflecting objects around the door

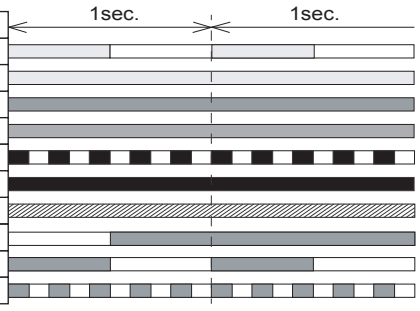
Specifications

Model : X-ZONE T
Cover color : Black
Mounting height : 6'7" to 11'6" (2.0 to 3.5m)
Detection area : See **Detection area**
Detection method : Active infrared reflection (*1)
Microwave doppler effect
Depth angle adjustment : AIR area -6 to +6°
Microwave area +25 to +45°
Power supply : 12 to 24VAC ±10% (50 / 60Hz)
12 to 30VDC ±10%
Power consumption : < 2.5W (< 4VA at AC)
Operation indicator : See **Operation indicator table**
Output hold time : < 0.5sec.
Response time : < 0.3sec.
Operating temperature : -31 to 131°F (-35 to +55°C)
Operating humidity : < 80%

Activation output : Form A relay
50V 0.3A Max.(Resistance load)
Test input : Opto coupler
Voltage 5 to 30VDC
Current 6mA Max. (30VDC)
Safety output : Form A relay
50V 0.3A Max.(Resistance load)
IP rate : IP54
Weight : 9.5oz (270g)
Accessories : 1 Operation manual
2 Mounting screws
1 Mounting template
1 Area adjustment tool
1 Cable 9'10" (3m)

Operation indicator table

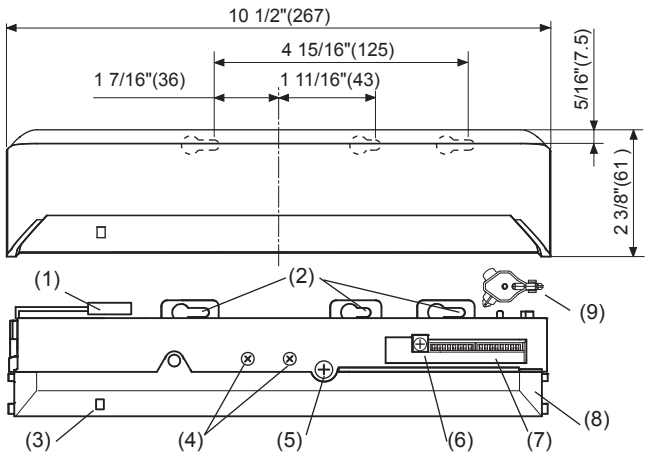
Status	Operation indicator color
Set-up	Yellow blinking
Stand-by (Installation mode)	Yellow
Stand-by (Operation mode)	Green
BLUEZONE (1st row) detection(*2)	Blue
2nd row detection	Red blinking
3rd row detection	Red
Microwave detection	Orange
Communication Test output	Turn off 500ms(*3)
Signal saturation	Slow Green blinking
Sensor failure	Fast Green blinking



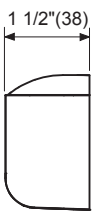
NOTE The specifications herein are subject to change without prior notice due to improvements.

*1 : Active infrared reflection has a presence detection function.
*2 : See **BLUEZONE area**
*3 :LED will be turned off about 500ms when the sensor Test output signal works well.

Outer dimensions and part names



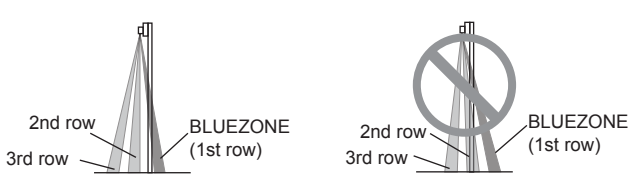
[inch (mm)]



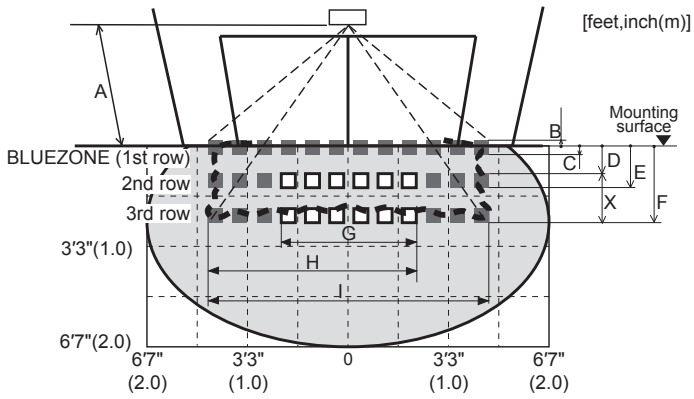
(1) Connector
(2) Mounting holes
(3) Operation indicator
(4) Width adjustment screws
(5) Depth angle adjustment screw
(6) Microwave sensitivity potentiometer
(7) Dipswitches
(8) Detection window
(9) Area adjustment tool

BLUEZONE area

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



Detection area



AIR
Mounting height : 7'3"(2.2m)
Angle adjustment : +6°
Sensitivity : Middle
□ : Emitting spots
■ : Emitting spots (can be eliminated)
: Detection area

Microwave
Mounting height : 7'3"(2.2m)
Vertical adjustment : +35°
Sensitivity : High
Area width : wide
Speed of detection object : 2"(50mm) / sec.
: Detection area

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 2"(50mm) / sec. or faster than 4'11"(1500mm) / sec.

AIR emitting area

The chart shows the values at depth angle +6°

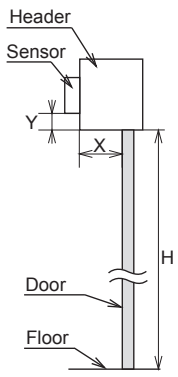
[feet,inch(m)]

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

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 ø1/8" (ø3.4mm).
3. To pass the cable through the header, drill a wiring hole of ø5/16" (ø8mm).
4. Remove the mounting template.
5. 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) [feet,inch (m)]

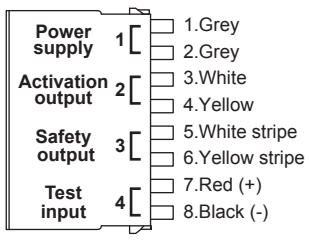
X \ H	6' 7" (2.00)	7' 7" (2.30)	8' 2" (2.50)	9' 2" (2.80)	9'10" (3.00)	11'6" (3.50)
0	No limit					
2" (0.05)	5" (0.13)	5" (0.13)	5" (0.13)	6" (0.14)	6" (0.14)	0
4" (0.10)	4" (0.11)	5" (0.12)	5" (0.12)	5" (0.12)	5" (0.12)	0
6" (0.15)	4" (0.10)	4" (0.10)	4" (0.11)	4" (0.11)	4" (0.11)	0
8" (0.20)	-	4" (0.09)	4" (0.10)	4" (0.10)	4" (0.10)	0
10" (0.25)	-	-	4" (0.09)	4" (0.09)	4" (0.09)	0
12" (0.30)	-	-	-	-	-	0

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

Wire the cable to the door controller as shown below.



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

⚠ 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.
2. 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 seconds in order to enable the presence detection.
Do not touch the dipswitches before turning the power ON, otherwise an error occurs.

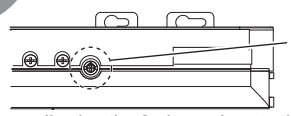
4

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

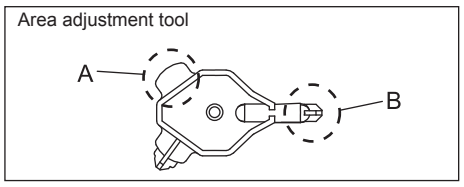
⚠ WARNING Danger of electric shock	Do not use the sensor without the cover. When using the cable knockout, install the sensor indoors or use the rain cover (Separately available) otherwise electric shock or breakdown of the sensor may occur.

Adjustments

1 Area depth angle adjustment

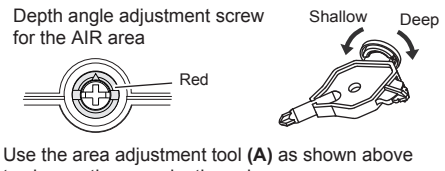


When adjusting the 2nd row close to the door, see **Table 2** dipswitch16 for the easier adjustment.

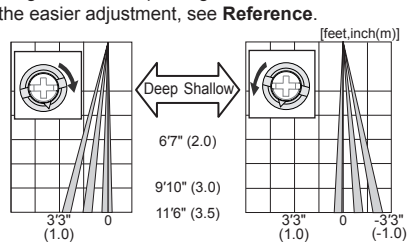


NOTE Make sure that the detection area does not overlap with the door/header, and there is no highly reflecting object near the detection area otherwise ghosting/signal saturation may occur.

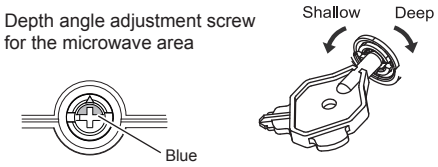
1-1 AIR adjustment



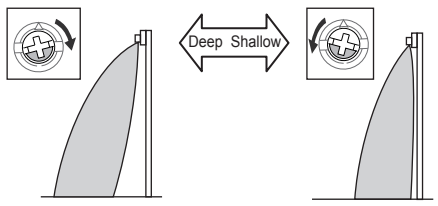
Use the area adjustment tool **(A)** as shown above to change the area depth angle.
For the easier adjustment, see **Reference**.



1-2 Microwave adjustment



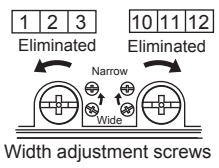
Use the area adjustment tool **(B)** as shown above to change the area depth angle.



2 Area width adjustment

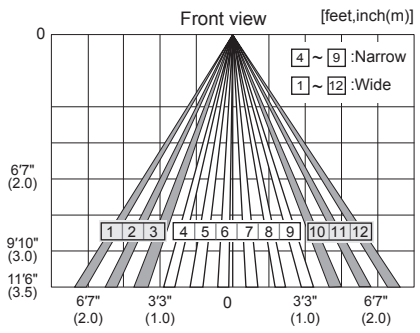
2-1 AIR adjustment

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



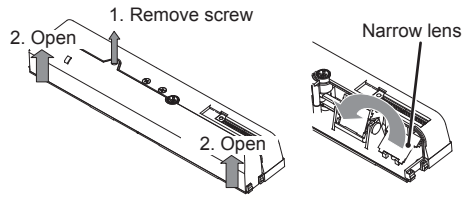
Please adjust by using the tool **(B)**

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



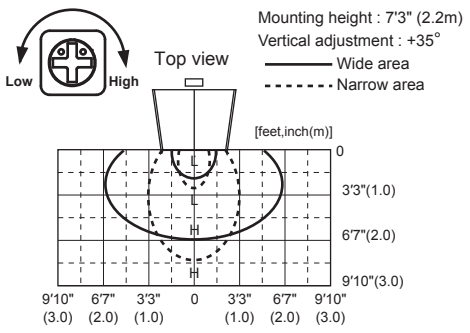
2-2 Microwave adjustment

To adjust the microwave detection area width, use the narrow lens as shown in the picture below.



3 Microwave sensitivity

Adjust the microwave detection area with potentiometer.



4 Dipswitch settings

Table 2

AIR settings Microwave settings Other settings

	Function	Setting				Comment
Dipswitch 1 Dipswitch 2	Sensitivity	Low 1 2 2.0 to 3.0m	Middle 1 2 2.0 to 3.0m	High 1 2 2.5 to 3.2m	S-High 1 2 3.0 to 3.5m	Set the sensitivity according to the mounting height. Values below dipswitches are reference only. Adjust the sensitivity according to your risk assessment.
Dipswitch 3 Dipswitch 4	Presence timer	30sec. 3 4	60sec. 3 4	180sec. 3 4	600sec. 3 4	To enable the presence detection, do not enter the detection area for 10 seconds after setting the timer.
Dipswitch 5 Dipswitch 6	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.
Dipswitch 7	Rain mode	Normal 7	Rain 7			Set this switch to Rain if the sensor is used in a region with a lot of rain.
Dipswitch 8	Snow mode	Normal 8	Snow 8			Set this switch to Snow if the sensor is used in a region with snow or a lot of insects.
Dipswitch 9	Direction	Bi 9	Uni 9			When dipswitch 9 is set to "Uni", this setting enables the door to close faster when a person walks away from the door.
Dipswitch 10	Immunity	OFF 10	ON 10			Set dipswitch 10 to "ON" when the sensor operates by itself (Ghosting). When dipswitch 10 is set to "ON" the actual detection area may occur smaller.
Dipswitch 11	Activation output (to door controller)	N.O. 11	N.C. 11			Select "N.O."/"N.C." for Activation output.
Dipswitch 12	Safety output (to door controller)	N.O. 12	N.C. 12			Select "N.O."/"N.C." for Safety output. The delay time between Test input and Safety output is 10msec..
Dipswitch 13	Test input (from door controller)	High 13	Low 13			
Dipswitch 14	Simultaneous output	OFF 14	ON 14			When Dipswitch 14 is set to ON, both the activation & safety relay outputs will operate simultaneously regardless of detection area. But only the Safety output relay, will respond back with a Safety output when it receives a Test input.
Dipswitch 15	BLUEZONE (1st row)	OFF 15	ON 15			When dipswitch 15 is set to "ON", the BLUEZONE(1st row) is active and looks through the threshold.
Dipswitch 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 "OFF".

Checking

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

Entry					Power OFF	Outside of detection area	Entry into microwave area	Entry into 3rd row	Entry into 2nd row	Entry into BLUEZONE (1st row)
Status					-	Stand-by	Motion detection active	Motion / Presence detection active		
Operation indicator					None	Green	Orange	Red	Red blinking	Blue
Activation output	11	N.O.	14	OFF						
		N.C.								
	11	N.O.		ON						
		N.C.								
Safety output	12	N.O.	14	OFF						
		N.C.								
	12	N.O.		ON						
		N.C.								

Inform building owner / operator of the following items

⚠ WARNING
1. Do not wash the sensor with water.
2. Do not disassemble, rebuild or repair the sensor yourself, otherwise electric shock may occur.

⚠ CAUTION
1. Do not paint the detection window.

NOTE
1. Always keep the detection window clean. If dirty, wipe the window with a damp cloth.(Do not use any cleaner / solvent.)
2. When the operation indicator blinks Green, contact your installer or service engineer.
3. Always contact your installer or service engineer when changing the settings.
4. When turning the power ON, always walk-test the detection area to ensure the proper operation.
5. Do not place any objects that move or emit light in the detection area. (e.g. Plant, illumination, etc.)

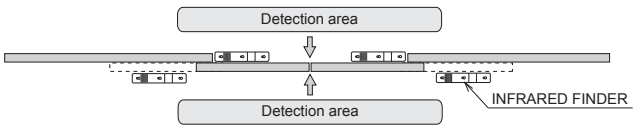
Troubleshooting

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 **Table 2** 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 10 to "ON".
		Sensitivity is too high.	Set the sensitivity lower.
		Raining or snowing.	Set dipswitch "7","8","9","10" to "Rain","Snow", "Uni","ON".
		Others	Set dipswitch 11 to "ON".
	Proper	Wrong setting of dipswitches.	Check **Table 2** dipswitch 7, 8, 12.
Door remains open	Proper	Sudden change in the detection area.	Check **Table 2** 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.
Proper operation	Yellow	Installation mode is set to "ON".	Set dipswitch 16 to "OFF".
	Slow Green blinking	The detection area overlaps with the door / header.	Adjust the detection area to "Deep" (Outside).
		Signal saturation.	Remove highly reflecting objects from the detection area. Or lower the sensitivity. Or change the area depth angle for AIR area.

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).

FCC WARNING (For USA)
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

-NOTICE-
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-Reorient or relocate the receiving antenna
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio / TV technician for help.

-NOTICE-
1. The antennas cannot be exchanged.
2. To comply with FCC RF exposure compliance requirements, aseparation distance of at least 20cm must be maintained between the antenna of this device and all persons.

IC (For CANADA)
Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference received, indluding interference that may cause undesired operation of the device.

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