TAKEX Dual Zone Outdoor PIR

OMS-12FE

Instruction Manual

We appreciate your purchase of a TAKEX passive infrared sensor. This sensor will provide long and dependable service when properly installed. Please read this Instruction Manual carefully for correct and effective use.

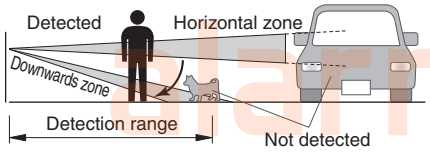
Please Note : This sensor is designed to detect intrusion and to initiate an alarm ; it is not a burglary-preventing device. TAKEX is not responsible for damage, injury or losses caused by accident, theft, Acts of God (including inductive surge by lightning), abuse, misuse, abnormal usage, faulty installation or improper maintenance.

This product is a passive sensor that can be used both indoors and outdoors, and that detects the far infrared radiation given off by body heat. Using this sensor with other products enables a variety of applications, such as giving notifications of visitors or waring in the detection of intruders.

Main Features

(1) Dual Zone system

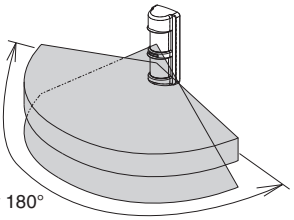
- This sensor is equipped with a DUAL ZONE system which initiates an alarm only when detection occurs in both the horizontal and downward zones simultaneously. This prevents false alarms for distant automobiles or for small animals.
- By changing the angle of the downwards zone, it is possible to change the detection distance. Distant vehicles that do not enter the downwards zone are not detected. Small animals that do not enter the horizontal zone are not detected. Similarly, birds and other objects that only enter the horizontal zone are also not detected.



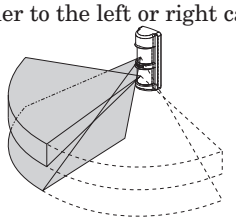
(2) Selection of area corresponding to intended purpose

→ [*3* DETECTION AREA]

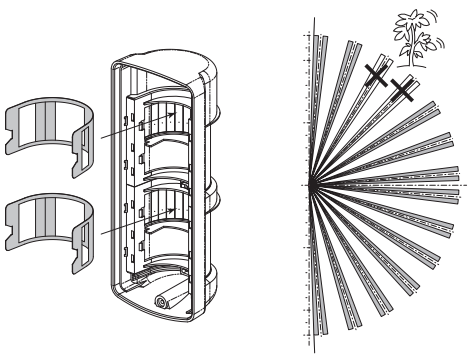
- The sensor watches a wide, 180° angle, meaning that a single unit can cover a wide range.



- A 90° zone either to the left or right can be disabled.

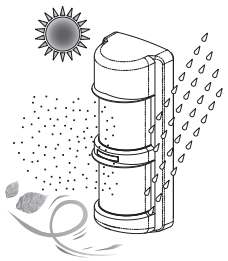


- Using the included area masking sheet enables partial masking of zones for which detection is not required.



(3) Rainproof housing

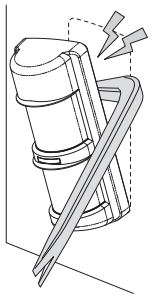
IEC standard: IP54 compliant.



(4) Back Tamper

→ [*4* FUNCTION]

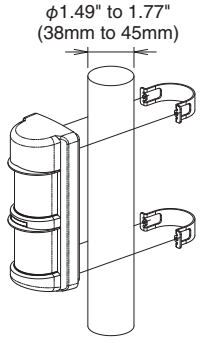
Use of the provided back tamper rubber enables detection of interference with the sensor, such as attempts to remove it from the mounting surface.



(5) Support for mounting on poles

(optional pole attachment) → [*7* INSTALLATION]

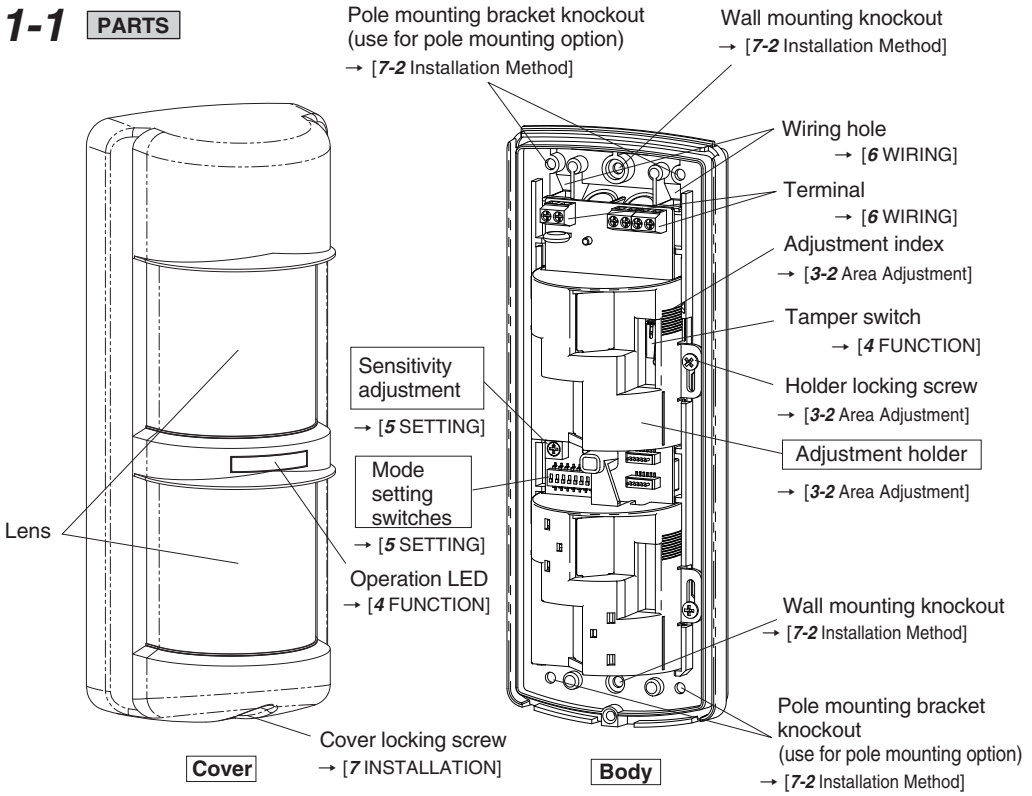
Use of the optional pole attachment enables mounting on poles with a diameter of 1.49" to 1.77" (38mm to 45mm).



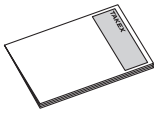
1 PARTS DESCRIPTION

•This explains the content of the packaging, as well as part names and functions as detailed in this document. Please confirm that the sensor and all parts are included in the packaging.

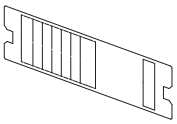
1-1 PARTS



1-2 Accessory



Instruction Manual



Area masking sheet (4set) → [3-3 AREA MASKING]

Self tapping screw (ϕ 4x35)2 pcs → [7-2 INSTALLATION METHOD]

Back tamper rubber → [4 FUNCTION]

1-3 OPERATIONAL PARTS TITLES AND FUNCTIONS

Sensitivity adjustment : Dial to adjust detection sensitivity → [5 SETTING]
Mode setting switches : Indicator LED, contact logic, pulse count, and area selection DIP switches → [5 SETTING]
Adjustment holder : Part to adjust detection distance → [3 DETECTION AREA]

2 PRECAUTIONS

•The following marks indicate precautions that should be adhered to in order that this product can be used safely. These are important; therefore ensure that you read these carefully.

Description of the Display

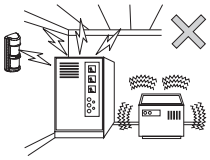
⚠ **Warning**	This mark indicates details regarding handling which, if ignored, may result in death or injury.
⚠ **Caution**	This mark indicates details regarding handling which, if ignored, may result in delays in reporting attributable to false or missed alarms.
⃠	This mark indicates a prohibition, with the item shown in the mark specifically prohibited. Example: ⃠ Disassembly prohibited
❗	This mark indicates points of which the user should be aware.

⚠ Warning

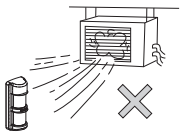
- ⃠ Ensure that you do not disassemble or alter this product, as this may lead to fire, electric shock, or damage.
- ⃠ In the event of an abnormal condition such as smoke or unusual smells or sounds being emitted, immediately stop power supply to the device, confirm that smoke is no longer being emitted, and request repair from the retailer. Continuing to use the sensor in this condition may lead to fire or electric shock.
- ⃠ Do not connect devices that exceed the capacitance as shown on the output terminal. Doing so may cause fire.
- ⃠ Do not use the sensor with voltages other than as specified (9 to 28V DC). Doing so may cause fire or electric shock.
- ⃠ Ensure that the sensor is mounted in a strong location such as over a reinforcing beam on the wall. When mounting on surfaces other than wood such as plasterboard or concrete, ensure that the sensor is securely affixed using anchors and screws suited to the surface material. If the sensor should fall off, this could result in injury or damage.
- ⃠ In the event of water entering the sensor, immediately stop power supply to the device, and contact the retailer. Continuing to use the sensor in this condition may lead to fire or electric shock.
- ⃠ Do not use the sensor in bathrooms or other locations with high humidity. Doing so may cause fire or electric shock.

Caution

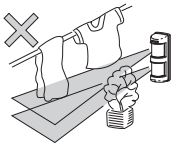
Do not install in an environment subject to electrical noise or intense vibration.



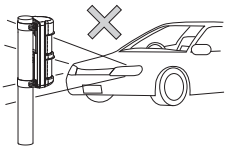
Do not install the unit by an air conditioning exhaust vent.



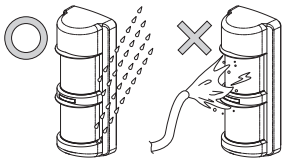
Remove all obstructions (trees, clotheslines, etc.).



Do not install the sensor in a location in which it is subject to direct light sources such as sunlight or automobile headlights.

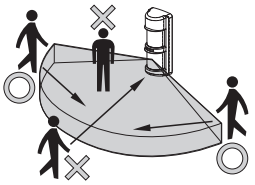


The sensor is rainproof, but not waterproof. Do not hose or otherwise directly apply water to the sensor.



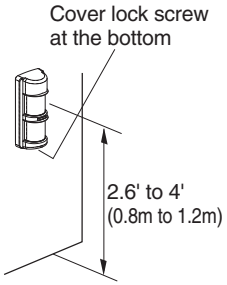
This sensor is set to detect changes in far infrared radiation energy given off by moving bodies. Accordingly, please be aware that if there is a similar change in the detection environment for a different reason, the sensor may not be able to make this distinction, resulting in a false detection.

Depending on their positioning, zones may or may not detect people easily. Position the sensor so that people pass across the detection area. If people enter straight into the detection area, or stand still in the detection area, they may not be detected.

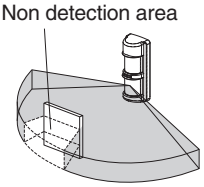


This sensor is designed to be mounted on the wall of a building or on a pole. Ensure the sensor is installed the right way up.

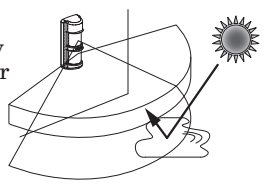
Install the unit at the height of 2.6'(0.8m) to 4.0'(1.2m) from the ground.



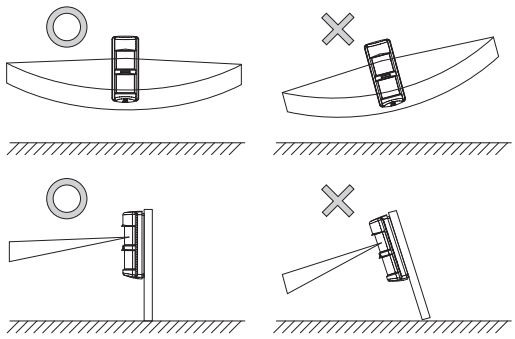
Remove all obstacles (including clear glass) which will create non detection zone.



Make sure that downward zone will not be affected by sun light reflected by water on the road etc.



Mount the sensor so that when viewed from the front, the horizontal zone is parallel to the ground. Additionally, ensure that the sensor is not at an angle when viewed from the side.

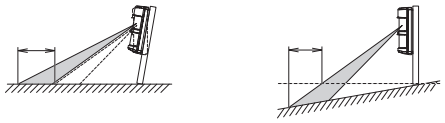


The detection distance may change because of the following.

- Sensor mounting height (within the rated values, higher mounting will increase detection distance).
- Sensor mounting condition or slope of the ground within the detection area.

- The mounted sensor is inclined upwards.
- The detection area slopes downwards away from the sensor.

→ Increased detection distance



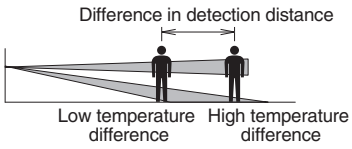
- The mounted sensor is inclined downwards.
- The detection area slopes upwards away from the sensor.

→ Decreased detection distance

- The sensor detects differences between body heat and background heat, therefore detection distances may vary depending on the season, or upon environmental conditions.

*Please confirm the area layout and detection in accordance with the actual mounting location by a walk test before configuring.

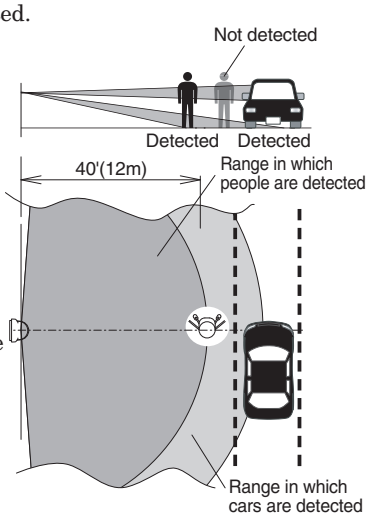
→ [8 OPERATION CONFIRMATION]



If the far edge of the area has a road upon which vehicles pass, then set the area and detection distance so that vehicles are not detected.

- If there is a road at the edge of the detection area, then cars and motorcycles that are larger sources of infrared radiation than human body may be detected even if people are not.

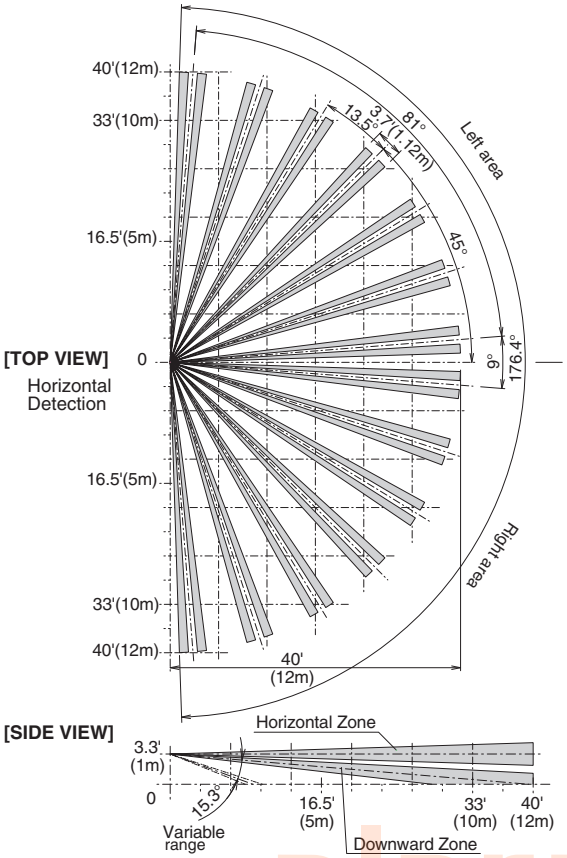
*Adjust the area and set detection distance in order that other than the desired objects are not detected.



3 DETECTION AREA

3-1 Detection Area

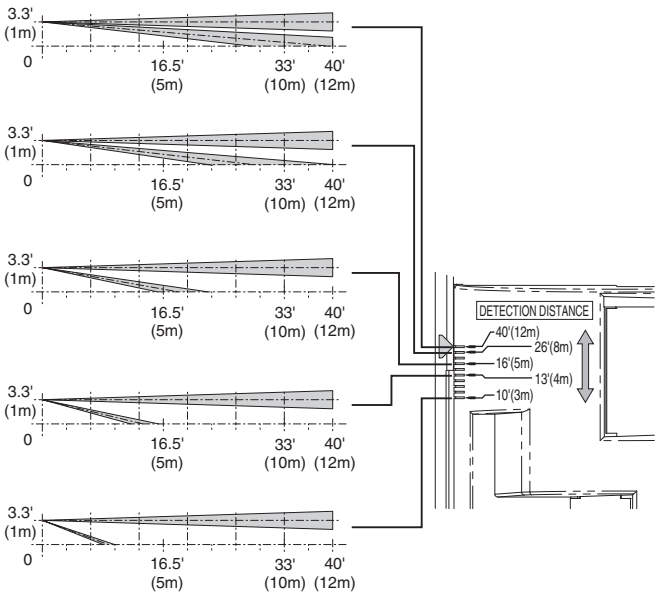
<Default detection area>



<Detection area after adjustment of detection distance>

Please refer to ***3-2*** Area Adjustment.

[SIDE VIEW]



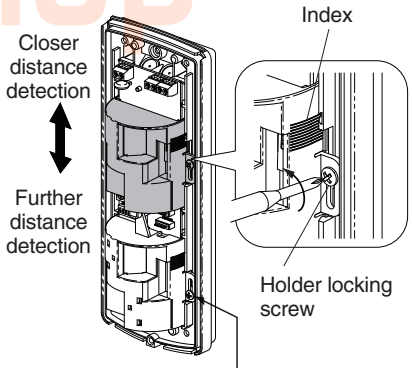
Detection distance is set by adjusting the angle of downward zone.
Adjustable range 10' (3m) to 40' (12m). [9 ranges]

3-2 Area Adjustment

- Detection distance adjustment (adjusting the detection distance is possible by adjusting the angle of the downward zone).

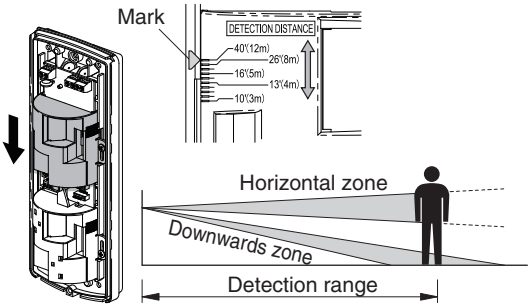
Adjusting the detection distance adjustment holder position up and down changes the detection distance. (The detection distance can be changed between 10' to 40' (approx. 3m to 12 m)

(1) Remove the cover. → [***7-1*** Removing the Cover]
(2) Loosen the detection distance adjustment holder locking screw.
(3) Referring to the index, move the holder up to move the detection distance closer, and down to move the detection distance further away.
(4) Tighten the locking screw to set the detection distance.

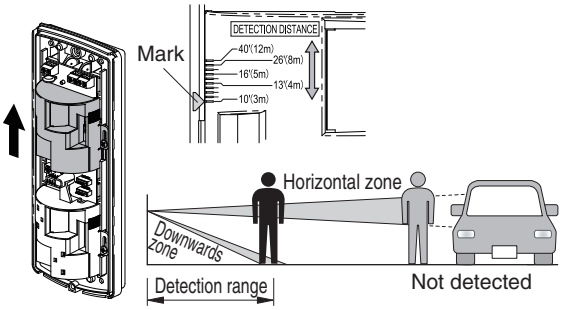


Do not loosen this screw.
The lower holder is fixed.

When using at 12m distance



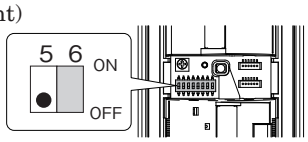
When using at 3m distance



The sensor has two areas, right and left, and each area has two zones of detection — the horizontal zone and the downward zone. The system initiates an alarm when detection occurs in both of these in a same area simultaneously. If changes in temperature occur to the left and right area in different zones simultaneously, (e.g. the left horizontal zone and the right downward zone), this will not be interpreted as detection.

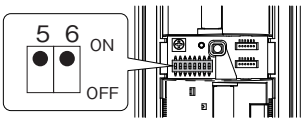
•Disable the right or left detection area
(by DIP switches 5 and 6, it is possible to disable 90° ranges to the left or right)

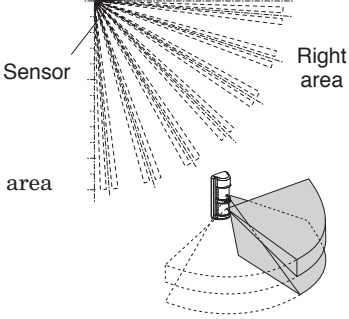
*The default is a 180° detection area.
Regardless of the settings of DIP switch 6, if DIP switch 5 is OFF, then the sensor will cover a 180° detection area. → [5 SETTING]



To activate only the left area (disable the right area)

1) Set DIP switches 5 and 6 to ON.
→ [5 SETTING]

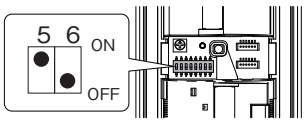


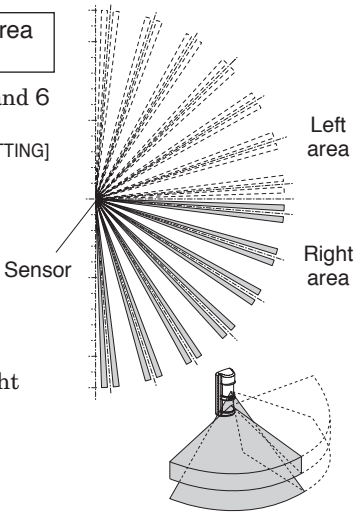


2) Confirm that only the left area is being activated.

To activate only the right area (disable the left area)

1) Set DIP switch 5 to ON, and 6 to OFF.
→ [5 SETTING]





2) Confirm that only the right area is being activated.

3-3 Area Masking

•Using the included area masking sheet, certain zones can be eliminated.

Preparation of the area masking sheet

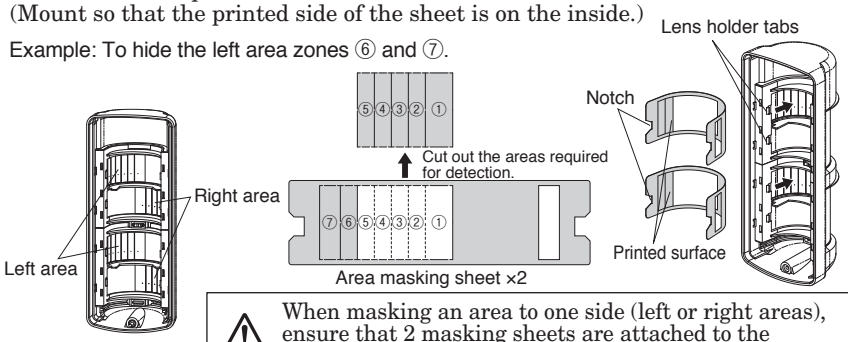
Cut along the perforations in the area masking sheet corresponding only to the areas for which detection is required.
Refer to the reference diagram for masking and cut the same numbers, and ensure that the same areas of both lenses are masked (using 2 masks) as a set.

The cut sections of the area masking sheet are the areas that are detected. Once the sheet has been cut, it cannot be restored, therefore take care when cutting.

Attach the area masking sheet

Bend the sheet to form a semicircle and fit inside of the cover's lens holder, then insert the cutout portion of the sheet into the tabs on the lens holder.
(Mount so that the printed side of the sheet is on the inside.)

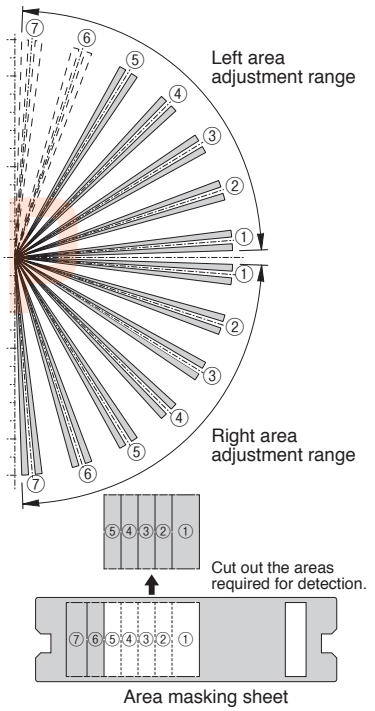
Example: To hide the left area zones ⑥ and ⑦.



When masking an area to one side (left or right areas), ensure that 2 masking sheets are attached to the corresponding portion of the lenses.

Example: To hide the left area zones ⑥ and ⑦.

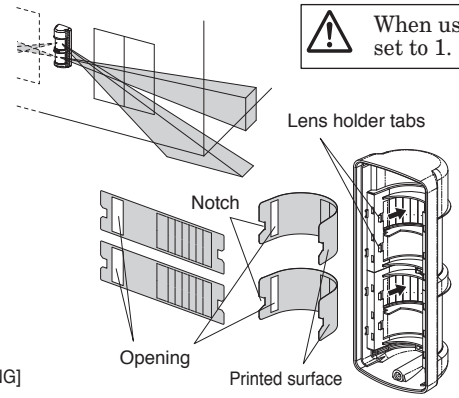
Reference diagram for masking



[Wall detection]

•For detection one side

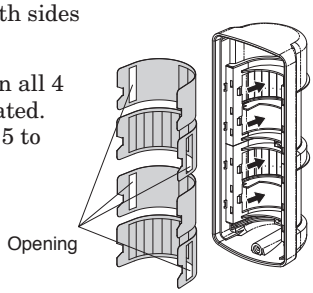
1) Without cutting the area masking sheet, mount the area masking sheet as is in the lens holder so that the opening is positioned at the edge of the lens.
2) As necessary, disable either the left or right side areas using mode setting switches.
→ [5 SETTING]



When using wall detection, ensure that the count setting is set to 1.
→ [5 SETTING]

•For detection both sides

Mount the area masking sheet on all 4 lenses as illustrated. (See DIP switch 5 to OFF.)



3-4 Area Confirmation

When masking of the detection area is completed, carry out a walk test to check that the detection area is suitable.
→ [8 WALK TEST]

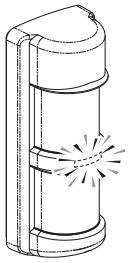
4 FUNCTION

WARM UP

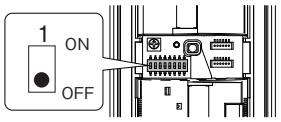
After turning the power ON, the operation LED will blink for approximately 1 minute.
During this time, the device is stabilizing, and will not operate.

OPERATION LED (RED)

Wake-up : blinking (approx. 1 minute)
Sensor detection : ON (synchronize to an alarm output)
Sensor trouble : ON (continues until resolved)
Low in power supply voltage
: blinking (continues until resolved)



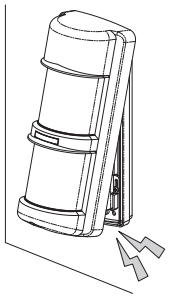
*LED (only for sensor detection) can be disabled by the settings switch.
→ [5 SETTING]



TAMPER

(Cover tamper)

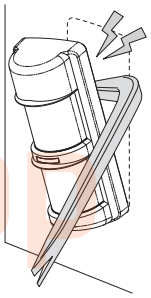
If the cover is removed, or if it is incorrectly mounted, a tamper alarm is output and a warning given.
In this condition, if the cover is then attached correctly, then output is stopped.
When the tamper alarm is issued, immediately check the sensor operation and installation.



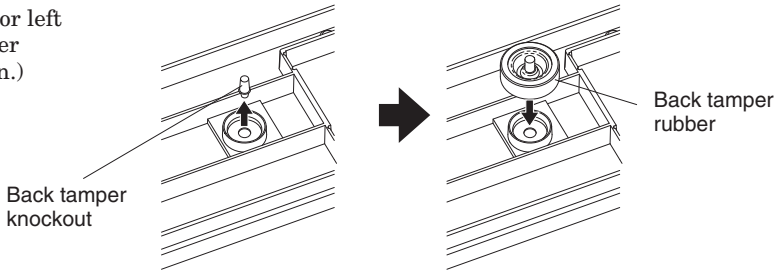
BACK TAMPER

(Sensor mounting status monitoring): Default is disabled

The back tamper rubber should be mounted to activate the function.
If the sensor is removed, or if it is incorrectly mounted, a tamper alarm is output and a warning given.
In this condition, if the sensor is then attached correctly, then output is stopped.
When the tamper alarm is generated, immediately check the sensor operation and installation. (The sensor cannot differentiate between cover and sensor tampering)



*Back tamper rubber cover installation procedure
Move the knockout tab on the rear of the sensor left and right, and twist off. Attach the back tamper rubber. (Take care with the mounting direction.)
Additionally, after attachment, ensure that operation is checked.



⚠ When the back tamper knockout is broken, ensure that the back tamper rubber is attached.
Additionally, when mounting, take care that the back tamper rubber is not broken.

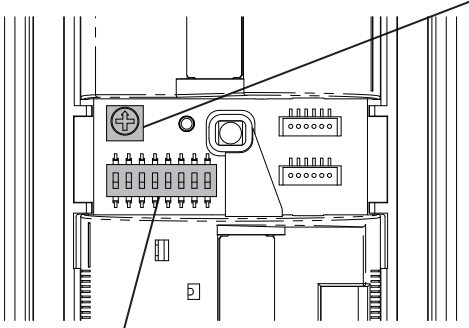
SENSOR TROUBLE DETECTION FUNCTION

A function that detects and notifies the user of problems resulting from issues such as broken wiring within the sensor. This generate a continuous alarm in the event of a sensor malfunction.
This also notifies the user of the malfunction by continuously lighting the operation LED. If a malfunction occurs, immediately check the sensor.

POWER SUPPLY VOLTAGE MONITORING FUNCTION

A function that monitors the input power supply voltage to the sensor, and if a reduction is detected, notifies the user. This issues a continuous alarm in the event of a reduction in power supply voltage. This also notifies the user of the malfunction by continuously flashing the operation LED. If a malfunction occurs, immediately check the power source and the sensor.

5 SETTING



Mode setting switches

SENSITIVITY ADJUSTMENT

The sensor can be adjusted in accordance with the environment and intended purpose.
Normally, use medium (100%).
Setting the sensitivity to 170% will trigger detection even at small changes in temperature.
Use this in stable environments.
Setting the sensitivity to 30% will not trigger detection unless there is a large change in temperature.
Use this in environments which are subject to large changes in temperature.

Sensitivity can be adjusted between 30% and 170%.
[Factory set : 100%]

∗When changing the sensitivity dial, ensure that a walk test is carried out to check that the sensitivity is suitable.

OPERATION LED (switch1)

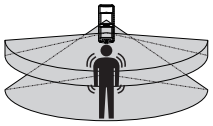
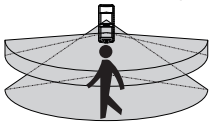
1 2 3 4 5 6 7 8 ON / OFF	ON [Factory set]
1 2 3 4 5 6 7 8 ON / OFF	OFF

∗The display cannot be set to OFF for warm-up period, device trouble, or low power supply voltage.

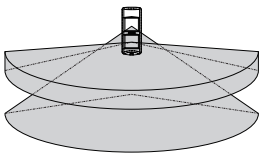
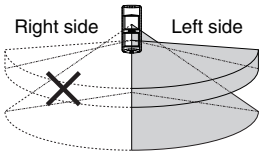
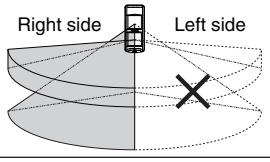
ALARM CONTACT (switch2)

1 2 3 4 5 6 7 8 ON / OFF	N.O.	NORMAL / ALARM
1 2 3 4 5 6 7 8 ON / OFF	N.C. [Factory set]	NORMAL / ALARM

PULSE COUNT (switch3,4)

1 2 3 4 5 6 7 8 ON / OFF	1	Set for sensitive detection of even small movements by people, however this may be more susceptible to false alarms.  ⚠ For wall detection, use this setting.
1 2 3 4 5 6 7 8 ON / OFF	2	In normal operation, use this setting.  [Factory set]
1 2 3 4 5 6 7 8 ON / OFF	3	This setting is suitable for locations with frequent changes in temperature. This is not as susceptible to false alarms as pulse count 2, however this is also not as sensitive to people.
1 2 3 4 5 6 7 8 ON / OFF	4	This is not as susceptible to false alarms as pulse count 3, however this is also not as sensitive to people.

AREA SELECT (switch5,6)

1 2 3 4 5 6 7 8 ON / OFF	Use 180° area [Factory set]	Regardless of the settings of switch 6, the sensor will cover a 180° detection area. 
1 2 3 4 5 6 7 8 ON / OFF	Use left 90° area	The right area is disabled.  Right side Left side
1 2 3 4 5 6 7 8 ON / OFF	Use right 90° area	The left area is disabled.  Right side Left side

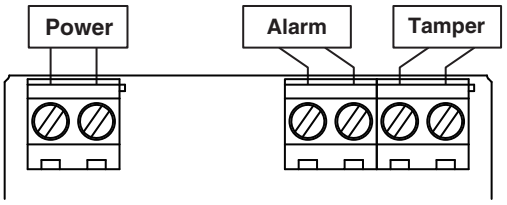
FACTORY SET

1 2 3 4 5 6 7 8 ON / OFF

∗Switches 7 and 8 are not used. Ensure these are OFF during operation.

6 WIRING

6-1 Terminal Configuration



Supply Voltage

- 9V to 28VDC (non polarity)
- Current consumption 20mA MAX

Alarm output

- Dry contact (semi-conductor) (N.O/N.C selectable)

CONTACT OPERATION : Reset Approx 2 sec.
CONTACT CAPACITY : 30V (AC/DC), 0.5A MAX.
(resistive load)

Tamper

- Dry contact (circut line) (N.C. only)

CONTACT CAPACITY : 30V (AC/DC), 0.1A MAX.
(resistive load)

6-2 Wiring Distance

- For solid wire

Size of wire used	Power voltage	
	DC12V	DC24V
ϕ 0.5mm	2200'(670m)	11000'(3400m)
ϕ 0.65mm	3700'(1130m)	18500'(5640m)
ϕ 0.9mm	7200'(2200m)	36000'(11000m)
ϕ 1.2mm	12500'(3810m)	64000'(19500m)

- For stranded wire

Size of wire used	Power voltage	
	DC12V	DC24V
0.2mm^2	2250'(686m)	11000'(3400m)
0.3mm^2	3400'(1040m)	17000'(5200m)
0.5mm^2	5700'(1740m)	28500'(8690m)
0.75mm^2	8500'(2590m)	42000'(12800m)

- AWG description

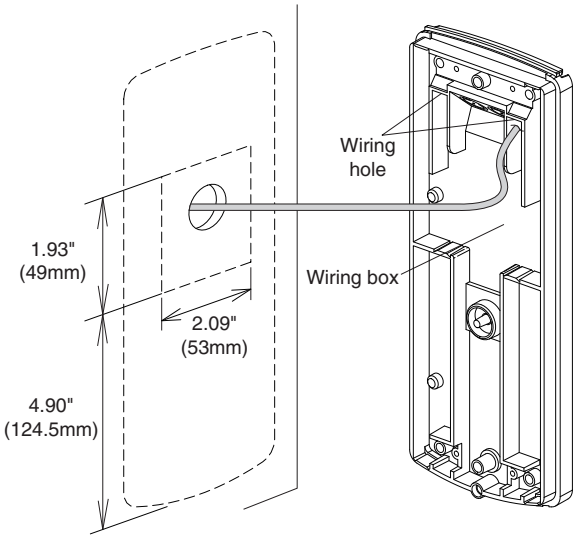
Size of wire used	Power voltage	
	DC12V	DC24V
AWG24	2300'	11600'
AWG22	3700'	18500'
AWG20	5900'	29500'
AWG18	9300'	46900'

NOTE : 1) Maximum wiring distance when two or more sets are connected is the value above divided by number of sets.

6-3 Wiring Insertion

For embedded wiring

Position the back of the sensor so that the wiring box is aligned with the wiring from the wall, then feed the wiring through the wiring hole and connect to the terminals.

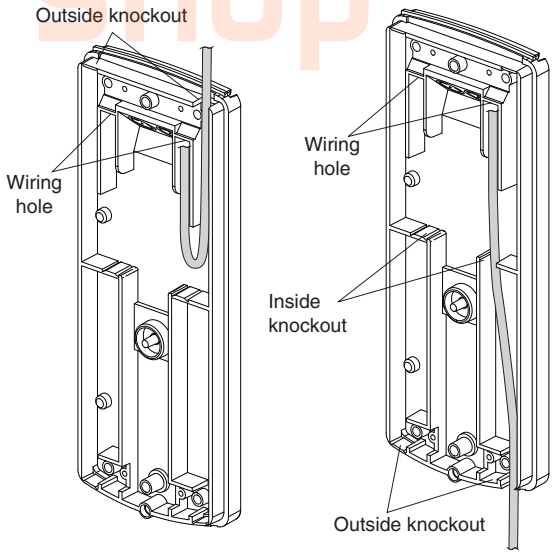


For external wiring

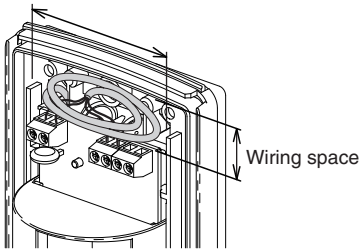
Determine the path for the wiring, use nippers to break off the outside and inside sensor knockouts to use, then feed the wiring through the wiring hole and connect to the terminals.

⚠ For external wiring, use a cable conduit and joint box, and ensure the wiring is not exposed.

Wiring from above **Wiring from below**



❗ After wiring the terminal board, wind any remaining wires into the wiring space within the sensor.



⚠ A gap remains after feeding the wiring through the wiring hole, therefore use sealant to caulk this gap in order to prevent the entry of insects, and to ensure waterproofing.

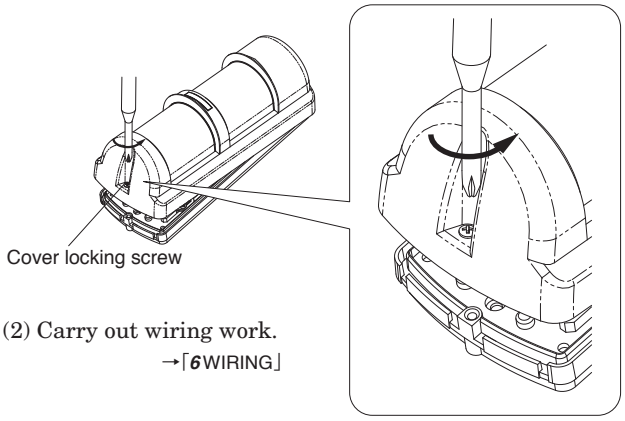
7 INSTALLATION

Select a mounting location that matches the intended purpose.

→ [*2* PRECAUTIONS]
→ [*3* DETECTION AREA]

7-1 Removing the Cover

(1) Loosen the cover locking screws, and remove the cover.



(2) Carry out wiring work.

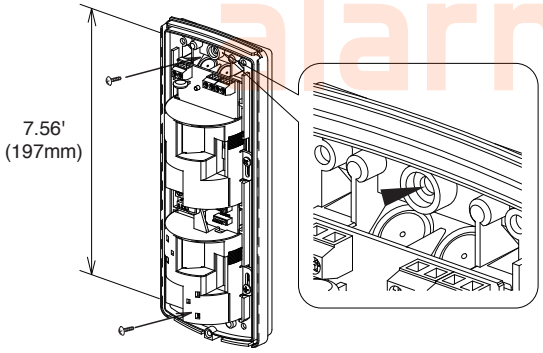
→「*6* WIRING」

7-2 Installation Method

For wall mounting

Remove the wall-mounting knockout, and fix the sensor to the wall using the included screws.

Wall mounting screws (4mm×35mm): ×2
Mounting pitch: 7.56" (197mm)



⚠ Ensure that the sensor is not at an angle when viewed from the front.

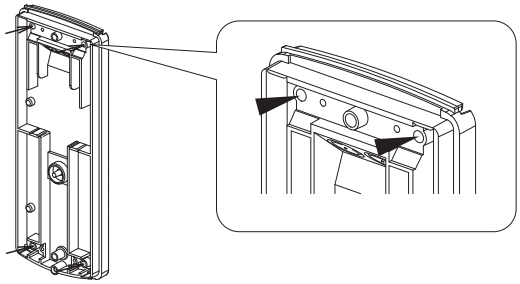
⚠ As necessary, use sealant to caulk around the screws or gaps between the sensor body and the mounting surface in order to protect against insects, and to ensure waterproofing.

For pole mounting

Using the pole attachment : BP-32 (Sold Separately)

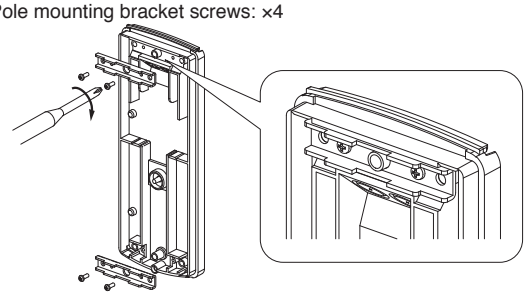
[Supported pole diameter of 1.50" to 1.77" (38mm to 45mm)]

(1) Remove the pole mounting bracket knockouts (4 locations).



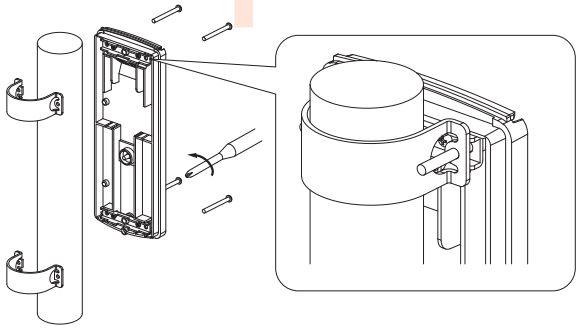
(2) Secure the optional pole mounting bracket to the sensor using screws.

Pole mounting bracket: ×2
Pole mounting bracket screws: ×4



(3) Place the optional fixing bracket around the pole, and fix the sensor to the pole with the pole bracket and screws.

Fixing bracket: ×2
Fixing bracket mounting screws (M4×40mm): ×4



⚠ Ensure that the sensor is not at an angle when viewed from the front or side.

⚠ Ensure that sealant is used to caulk wiring hole and gaps in order to protect against insects, and to ensure waterproofing.

8 WALK TEST *(OPERATION CONFIRMATION)*

(1) Set the operation LED ON.

(2) Attach the cover to the sensor body, turn on the power, and wait approximately 1 minute for the operation LED to stop blinking.

(3) Walk across the detection area, and confirm the area positioning and distance by the operation LED. (The operation LED lights when an alarm is initiated.)

(4) Change the detection area distance, masking, sensitivity, and pulse count settings as necessary.

→ [*3* DETECTION AREA]
→ [*4* FUNCTION]
→ [*5* SETTING]

(5) Confirm operation of connected devices if there are.

9 TROUBLESHOOTING

Solve possible problems according to the following table. If normal operations cannot be restored by this means, contact either the dealer from whom you bought the unit or TAKEX.

Trouble	Check	Corrective Action
The sensor does not detect anything	(1) The power supply is not connected (including broken wiring), or the power supply voltage is low. (2) The detection area is shielded by an object (which may include glass). (3) Unsuitable detection area settings (including detection distance). (4) Has not approximately 1 minute passed since turning the power ON (has the operation LED stopped blinking?)	(1) Check the power wiring, and ensure appropriate power supply voltage. → [*6* WIRING] (2) Remove obstacles. (3) Readjust detection area. → [*3* DETECTION AREA] (4) Wait approximately 1 minute.
The sensor sometimes does not detect anything	(1) Unsuitable detection area settings (including detection distance). (2) The detection lens is covered with dust or water droplets. (3) Unsuitable detection or pulse count settings.	(1) Readjust detection area. → [*3* DETECTION AREA] (2) After wiping with a damp soft cloth, wipe off water droplets. (3) Ensure appropriate detection and pulse count settings. → [*5* SETTING]
The sensor generates an alarm, although there are no people within detection area	(1) Unstable power supply voltage. (2) Something is moving within the detection area, or there are sudden changes in temperature. (3) A source of electrical noise (broadcasting station, amateur radio station, etc.) is nearby. (4) Direct or reflected light such as sunlight or headlights sometimes shines onto the sensor itself or into the detection area. (5) The sensor is mounted on an angle (the horizontal zone is tilted). (6) Cars or motorcycles are sometimes detected at the edge of the detection area.	(1) Ensure appropriate power supply voltage. (2) Remove the problem object. (3) Change the mounting location or remove the noise source. → [*2* PRECAUTIONS] (4) Change the mounting location, or location of the reflective item. Readjust detection area. Use the area masking sheet to hide zones for which detection is not required. → [*3* DETECTION AREA] (5) Ensure the sensor is not mounted at an angle. → [*3* DETECTION AREA] (6) Reduce the set distance. Readjust detection area. → [*3* DETECTION AREA]
The operation LED is on, but connected devices are not operating.	(1) Wiring failure, broken wire, or short. (2) Check that connected devices are operating correctly.	(1) Connect wiring correctly. (2) Investigate with reference to the instruction manuals for the connected devices.

Periodic checks

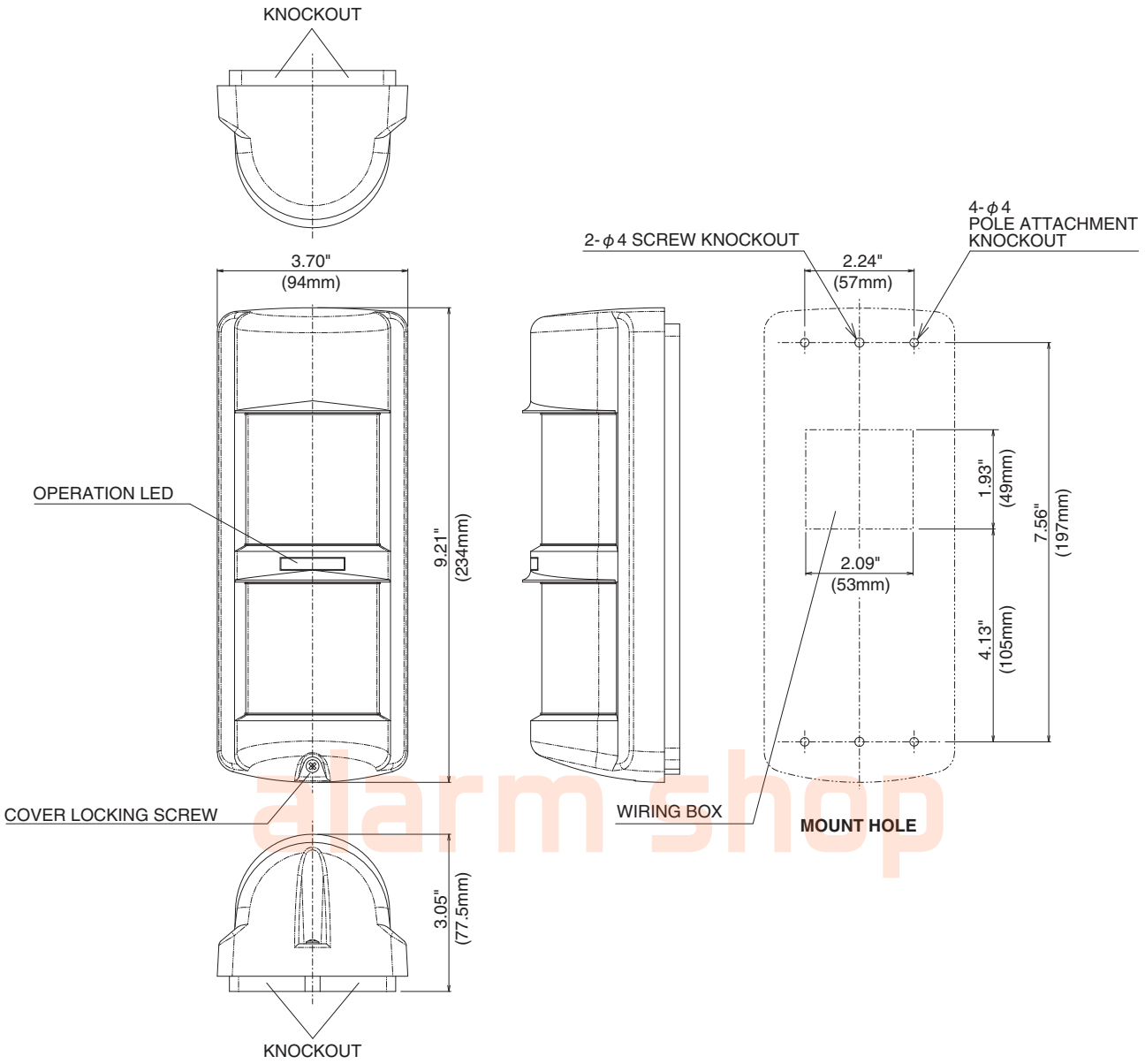
1. When cleaning, after wiping with a damp soft cloth, wipe off water droplets.
   If very dirty, lightly wipe with a diluted neutral detergent using a soft cloth, then wipe so that no detergent remains.
   Do not use solvents such as thinners or benzene. (Doing so may lead to deformation, discoloration, or deterioration of plastic parts.)
2. Periodically (approximately weekly) confirm operation.

10 SPECIFICATIONS

Model	OMS-12FE
Detection system	Passive infrared
Coverage	When horizontal detection Angle : 180° Detection distance : 40' (12m) Horizontal zone : 14zones Downward zone : 14zones
Coverage adjustment	Horizontal : L/R 90° (selectable) Detection distance : 10'～40' (3m～12m) (By adjusting vertical angle of downward curtain)
Supply voltage	9 to 28V DC (non-polarity)
Current consumption	20mA MAX.
Alarm output	Dry contact relay output N.C./N.O. selectable ＊Contact capacity : 30V (AC/DC), 0.2A MAX. (Resistive load) ＊Contact operation : Detection time(2sec)
Tamper output	Dry contact relay output N/C ＊Contact capacity : 30V (AC/DC), 0.1A MAX. (Resistive load)
Operation LED	Red LED Blinking at warming up Lighting at alarm (LED disabled)
Counts selectable switch	1/2/3/4 times (with a switch)
Sensitivity adjustment	＊Approx. 30% -Approx. 170% (By Potentiometer)
Connection	Terminals
Ambient temperature	−4°F to + 122°F (−20℃ to + 50℃)
Mounting position	Indoor / Outdoor
Ingress protection	IP 54 (equivalent) (Wall Mount)
Weight	16.5oz (470g)
Appearance	Body : AES resin Lens : PE resin
Optional	Pole attachment : BP-32

11 EXTERNAL DIMENSIONS

Scale：Free
Unit：inch(mm)



Limited Warranty :

TAKEX products are warranted to be free from defects in material and workmanship for 12 months from original date of shipment. Our warranty does not cover damage or failure caused by Acts of God (including inductive surge by lightning), abuse, misuse, abnormal usage, faulty installation, improper maintenance or any repairs other than those provided by TAKEX. All implied warranties with respect to TAKEX, including implied warranties for merchantability and implied warranties for fitness, are limited in duration to 12 months from original date of shipment. During the Warranty Period, TAKEX will repair or replace, at its sole option, free of charge, any defective parts returned prepaid. Please provide the model number of the products, original date of shipment and nature of difficulty being experienced. There will be charges rendered for product repairs made after our Warranty period has expired.

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