TAKEX

Instruction Manual

DUAL ZONE OUTDOOR PIR

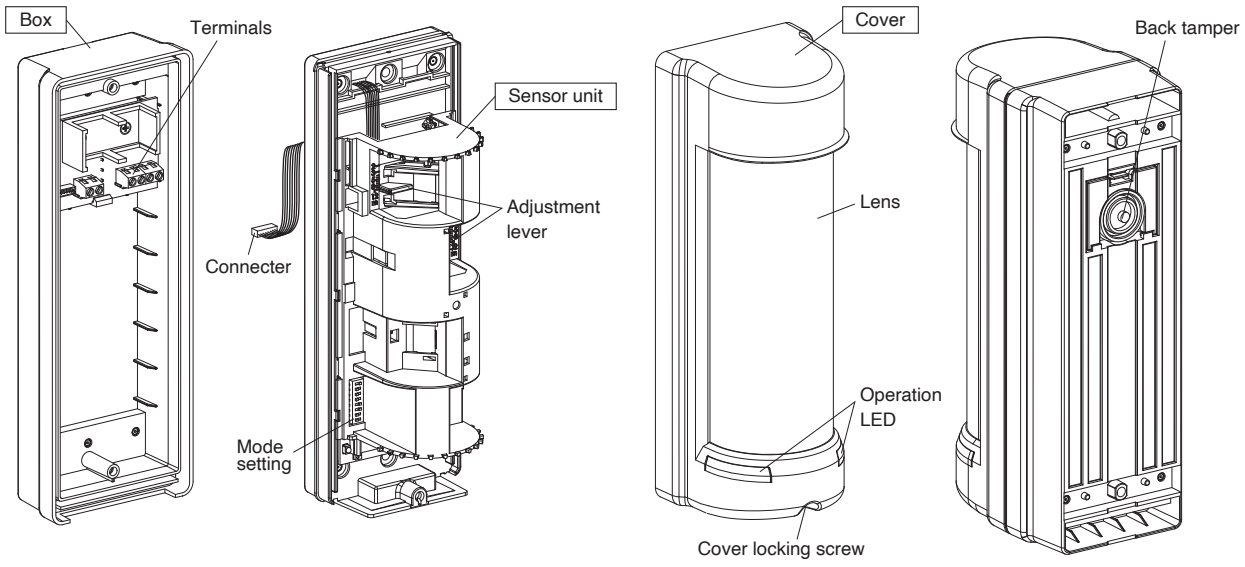
MX-12FRAM

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 or losses caused by accident, theft, Acts of God (including lightning), abuse, misuse, abnormal usage, faulty installation or improper maintenance.

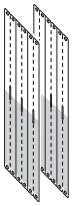
PRODUCT DESCRIPTION:

The dual zone outdoor PIR is an automatic switch which uses passive infrared sensor to detect infrared (body temperature) emitted from a human body. (Suitable for indoor/outdoor) This sensor has a detection coverage of 12 m (180 degrees) with output for alarm adjustable individually.

1 PARTS DESCRIPTION

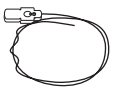


Accessories



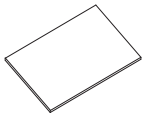
Area masking sheet
2 pcs
(Folded and stored inside the cover)

Self tapping screw
2 pcs



Battery lead with spade
1 pc

Double sided tape
1 pc



Manual
1 pc

2 PRECAUTIONS

Be sure to observe

● This manual describes precautions by classifying them based on degrees of danger and damage that would be generated when using the unit incorrectly.

⚠ Warning This indicates the possibility of severe injury, and even death, if ignored or a user handles the unit incorrectly.

⚠ Caution This indicates the possibility of minor injury and/or damage to properties, or of a notification delay in your system due to false operations and/or non-detection, if ignored or a user handles the unit incorrectly.

● These precautions are categorized throughout the manual using the following symbols.

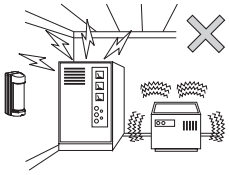
⃠ A prohibited action, you must not do.	❗ An action you must do, and information you should keep in mind.

⚠ Warning

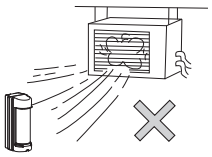
- ⃠ Do not disassemble or alter this product.
- ⃠ Immediately stop power supply in the event of abnormal condition.
- ⃠ Do not connect devices that exceed the capacitance of this sensor.
- ⃠ Mount the sensor securely in a strong location.
- ⃠ Immediately stop power supply in the event of water entry.
- ⃠ Do not use the sensor in the location with high humidity.

⚠ Caution

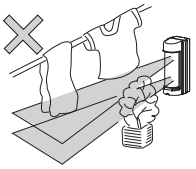
Avoid electrical noise



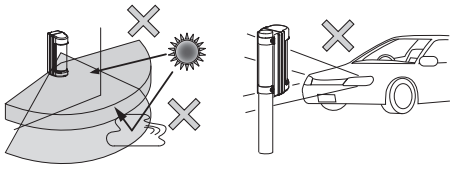
Avoid exhaust vent



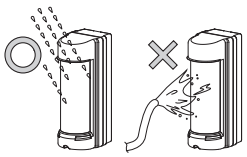
Remove all obstructions



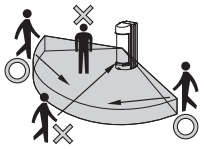
Avoid strong light



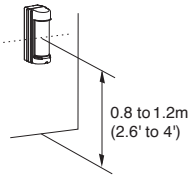
Avoid spraying water with a hose



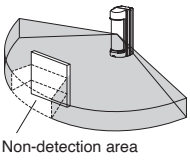
Ensure that people cross the detection area



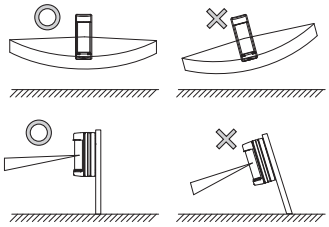
Keep installation height



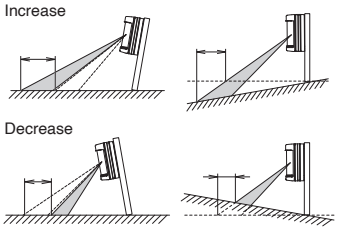
Remove obstructions, including glass



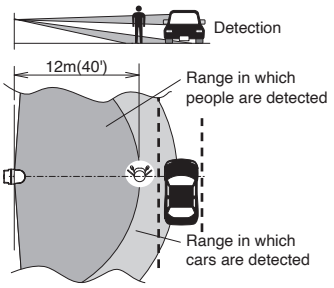
Install perpendicularly



Follow these mounting conditions



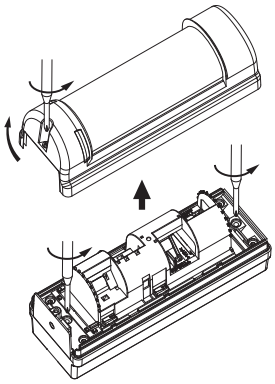
Avoid detection of cars/motorcycles on the roadside.
The detection zone extends to 12m ahead; there is a possibility of detecting vehicles with temperature differences.



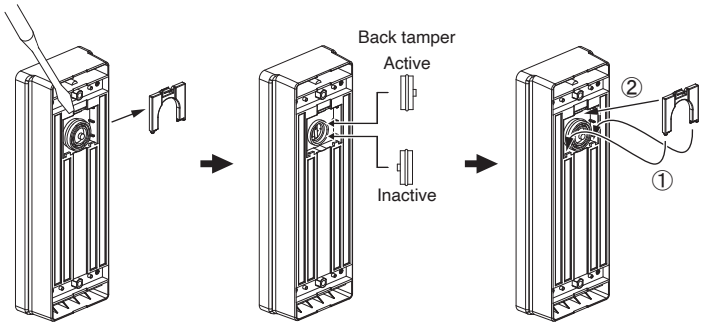
3 INSTALLATION

3-1 Before mounting

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



(2) Select the side of tamper rubber to activate / inactivate the back tamper.
*When the back tamper is active, EN compliant.

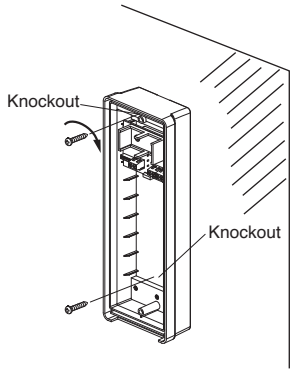


3-2 Mounting

WALL

(1) Break off the wall mounting knockouts.

(2) Fix the sensor with supplied screws.



*Wall mount installation is EN compliant.

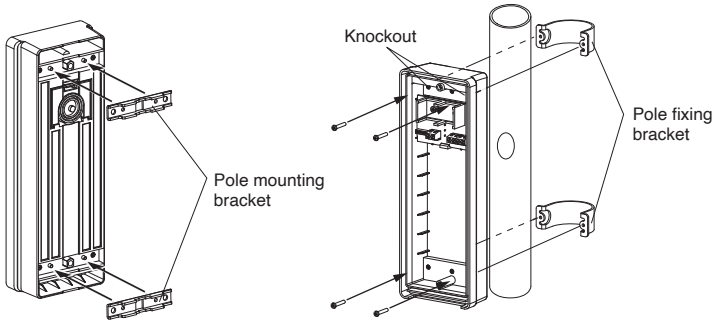
POLE

* Use the pole attachment BP-32 sold separately.
(for pole dia. 38mm to 45mm (1.50" to 1.77"))

(1) Break off the pole mounting knockouts.

(2) Fit the pole mounting brackets to the sensor unit.

(3) Fit the pole fixing bracket around the pole and fix the sensor with screws.



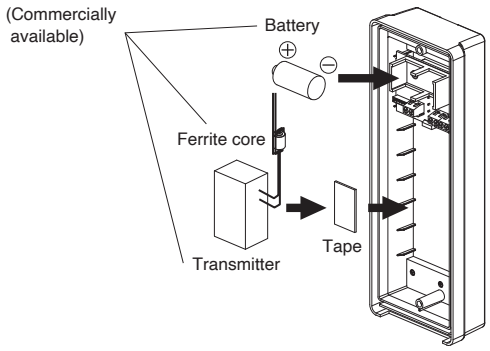
*Pole mount installation is not EN compliant.

3-3 Installing the transmitter

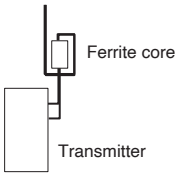
(1) Secure the transmitter with the included tape.

(2) Wire the transmitter. → [***4 WIRING***]

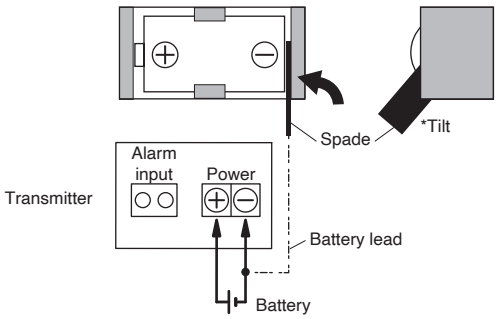
(3) Insert the battery.



Using a ferrite core makes the transmitter more resistant to noise.



(4) Insert the spade between the battery terminal and battery holder.

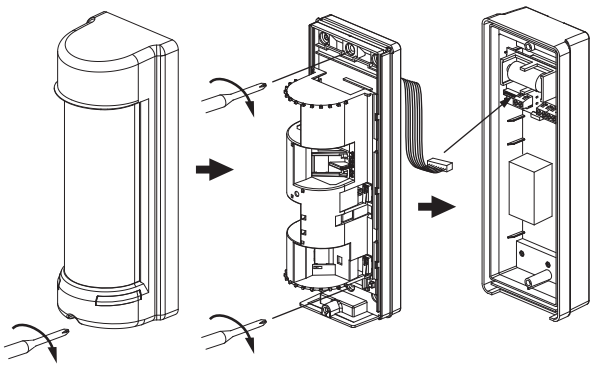


*DO NOT modify/strip the cable at the battery end, as this may cause a short circuit across the battery terminal. Battery lead use only inside box.

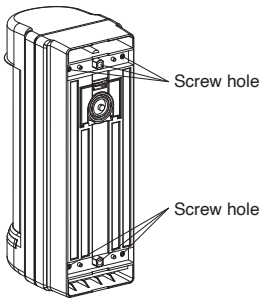
3-4 Installing the cover

(1) Attach the connector to the terminal and then install the sensor unit in the box.

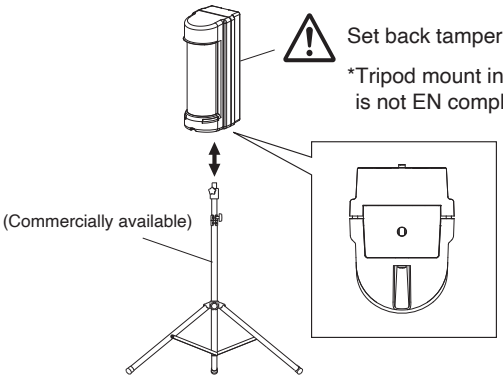
(2) Attach the cover.



Make sure that the sealant is used to caulk the screw hole.

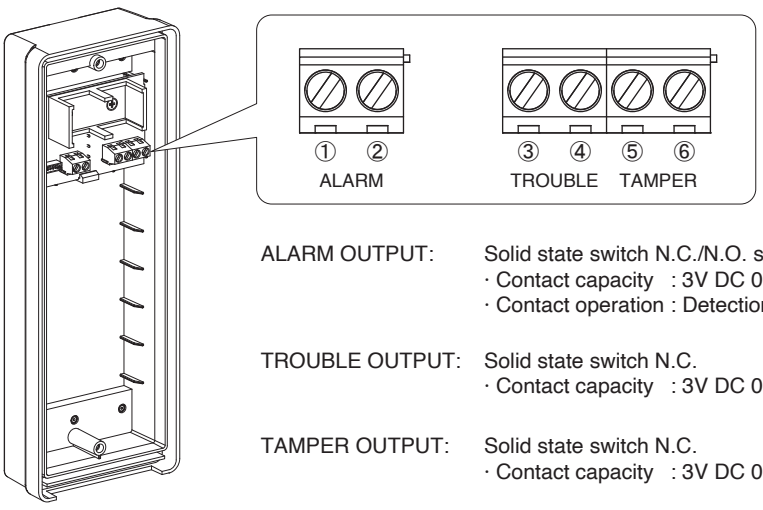


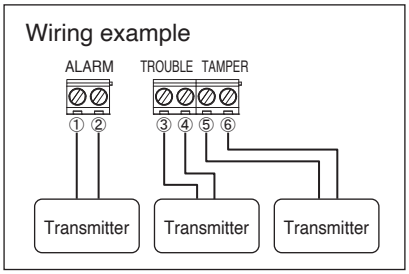
Tripod mount



4 WIRING

Terminal configuration





ALARM OUTPUT: Solid state switch N.C./N.O. selectable
· Contact capacity : 3V DC 0.01A max. (Resistive load)
· Contact operation : Detection time (+2 sec.)

TROUBLE OUTPUT: Solid state switch N.C.
· Contact capacity : 3V DC 0.01A max. (Resistive load)

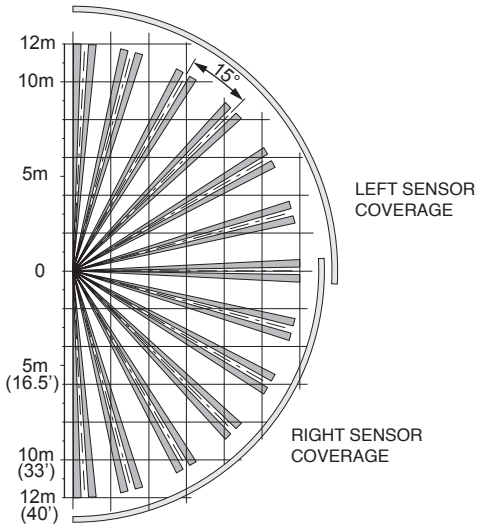
TAMPER OUTPUT: Solid state switch N.C.
· Contact capacity : 3V DC 0.01A max. (Resistive load)

5 SETTING

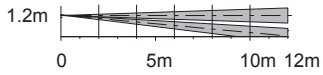
5-1 PIR Detection area

[Wide angle detection]

TOP VIEW

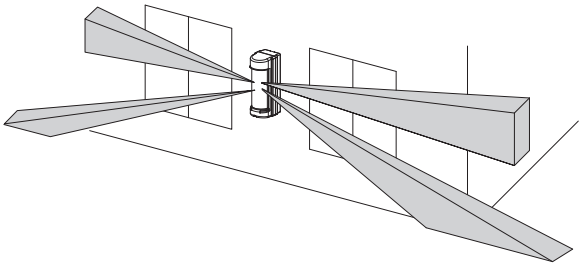


SIDE VIEW



[Wall detection]

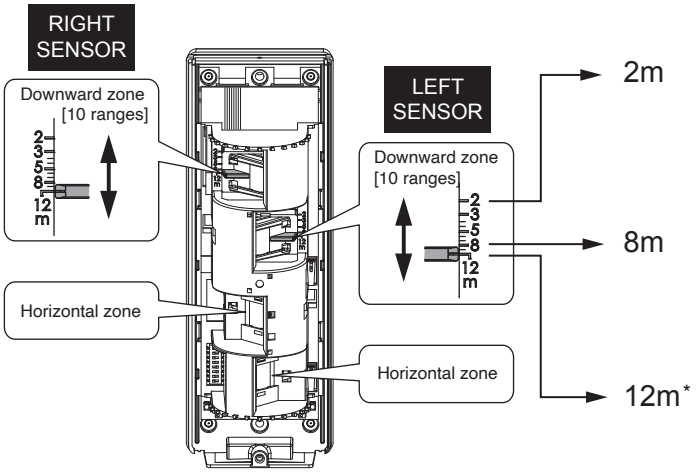
Make necessary area masking
Set the pulse count to 1. → [**5-3 Switch setting**]

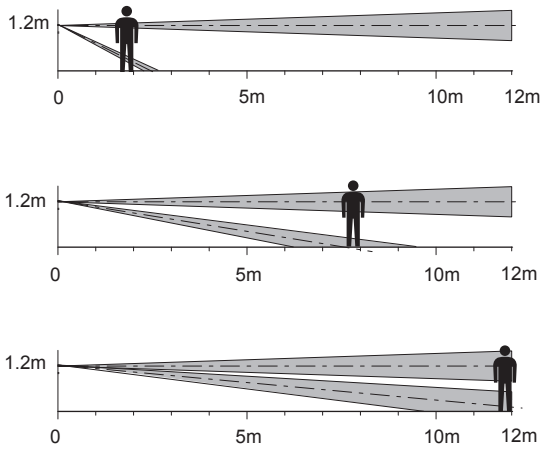


IMPORTANT NOTES

Detection range/sensitivity may change depending on the following factors:

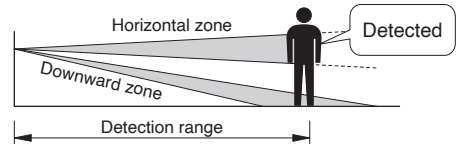
- Small difference of temperature between object and surroundings
- Moving direction of the object
- Mounting height
- Mounting orientation
- Slope in detection area



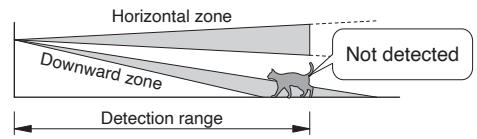


Settings and output are same for both left and right sensors.

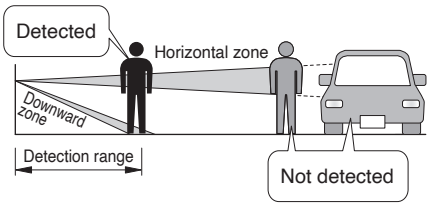
*12m range setting is EN compliant.



Alarm signal is issued only when both horizontal and downward zone detect objects simultaneously.



It does not detect small animals which are not likely to reach the height of horizontal zone.



It does not detect vehicles moving in the area outside the range of the downward zone.

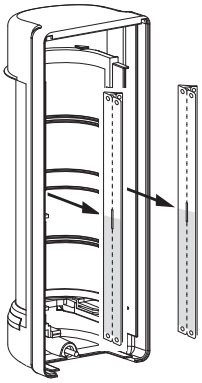
5-2 PIR Area masking

(1) Pull out the area masking sheet from the cover.

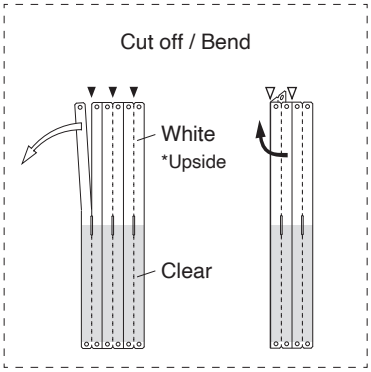
(2) Bend or cut off the sheet to fit the masking area.

(3) Attach the sheet to the projection part of optical unit.
- In case of wall detection, set the pulse count to 1
- Carry out a walk test and check the detection area

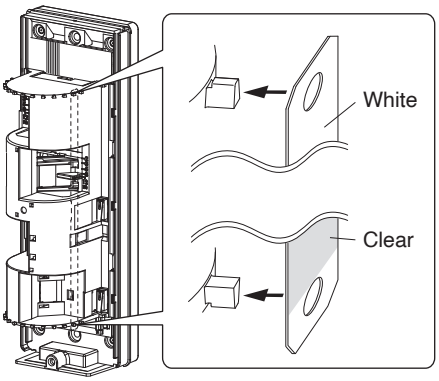
(1)



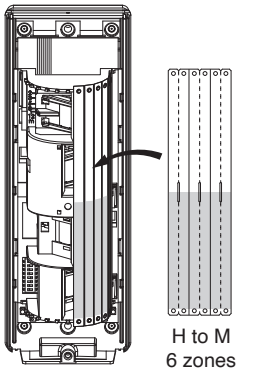
(2)

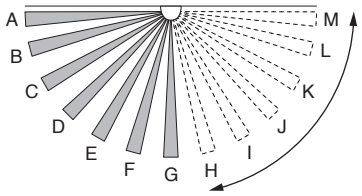


(3)

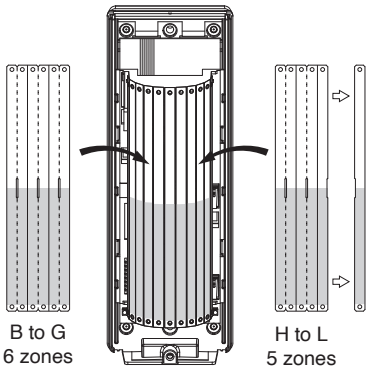


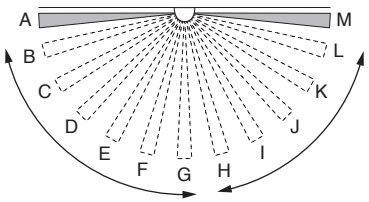
Protection 90 degrees



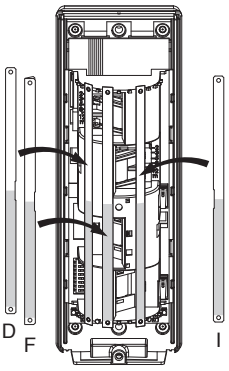


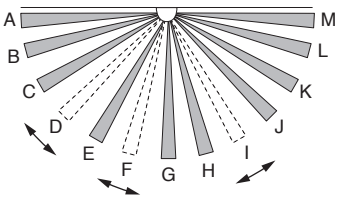
Wall / window protection





Partial masking

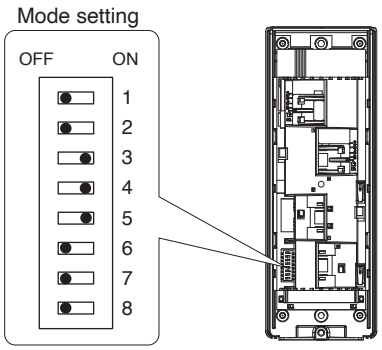




5-3 Switch setting

MODE SETTING

1	ALARM OUTPUT	N.C.	N.O.
2,3	PIR SENSITIVITY	60	80
		100	120
4	PULSE COUNT	1	3
5,6	ANTI-MASKING ENVIRONMENTAL LEVEL	OFF	Lv.0
		Lv.1	Lv.2
7	ALARM PROHIBITION TIMER	3s	180s
8	VACANT	OFF	



1	ALARM OUTPUT	OFF 1	N.C. [Factory set]
		ON 1	N.O.
2 , 3	PIR SENSITIVITY	OFF 2 3	60%
		OFF ON 2 3	80%
		OFF ON 2 3	100% [Factory set]
		ON 2 3	120%
4	PULSE COUNT	OFF 4	1
		ON 4	3 [Factory set]

5 , 6	ANTI-MASKING ENVIRONMENTAL LEVEL *1	OFF 5 6	OFF EN compliant setting
		OFF ON 5 6	LV.0 *2 [Factory set]
		OFF ON 5 6	LV.1 *2
		ON 5 6	LV.2 *2
7	ALARM PROHIBITION TIMER	OFF 7	3 seconds [Factory set] EN compliant setting
		ON 7	180 seconds
8	VACANT	OFF 8	OFF

*1 If the ANTI-MASKING function does not work properly depending on the environment, change the setting appropriately. LV.0(normal) → LV.2(high)

*2 ANTI-MASKING function is not mandatory for Grade 2.

6 CHECKING

6-1 Operation check

(1) Insert the battery and attach the cover to automatically start the warm-up and walk test function (for 5 min) after 1 min of LED blinking.

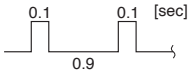
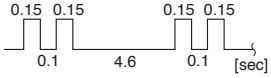
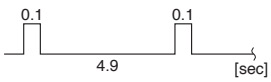
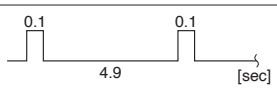
(2) Check that the LED lights on both detection side (left and right) within the set detection area.

(3) Readjust the detection area if necessary.

(4) Anti-masking performs learning function for 3 min after cover is attached. For this to be successful, do not approach within 10cm of the lens during this period.

(5) Check also operation of connected devices, when applicable.

6-2 LED indication

Status		LED operation	Recovery
Warm-up		Blinking (approx. 1 min.) 	———
Alarm detection	Walk test	Lights (approx. 1 sec.)	———
	Operation	No	———
Masking detection		Blinking rapidly 	・Detection 2 times ・Cover removal
Self-diagnosis error *		Blinking slowly 	・Return to the normal status ・Power supply reset
Low battery		Blinking slowly 	・Change to new battery [Replace within 30 days]

*Detection and notification of the problems caused by broken wiring inside the sensor, malfunction, etc.

7 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 work	(1) The battery is not installed correctly. (2) The sensor unit and box are not connected with a connector.	(1) Install the battery correctly. → [***3 INSTALLATION***] (2) Connect the sensor unit and box with a connector. → [***3 INSTALLATION***]
The sensor does not detect anything	(1) The detection area is blocked by an object (which may include glass). (2) Unsuitable detection area settings (including detection distance). (3) Approximately 1 minute has not passed since turning the power ON.	(1) Remove obstacles. (2) Readjust detection area. → [***5 SETTING***] (3) 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. → [***5 SETTING***] (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) Something is moving within the detection area, or there are sudden changes in temperature. (2) A source of electrical noise (broadcasting station, amateur radio station, etc.) is nearby. (3) Direct or reflected light such as sunlight or headlights sometimes shines onto the sensor itself or into the detection area. (4) The sensor is mounted on an angle (the horizontal zone is tilted). (5) Cars or motorcycles are sometimes detected at the edge of the detection area.	(1) Remove the problem object. (2) Change the mounting location or remove the noise source. → [***2 PRECAUTIONS***] (3) 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. → [***5 SETTING***] (4) Ensure the sensor is not mounted at an angle. → [***5 SETTING***] (5) Reduce the set distance. Readjust detection area. → [***5 SETTING***]
The operation LED is on, but connected devices are not operating.	(1) Check that connected devices are operating correctly.	(1) Investigate with reference to the instruction manuals of the connected devices.

Maintenance

1. Clean the device with soft and wet cloth and wipe off water drop. Use water with weak neutral detergent to clean especially dirty parts. Do not use substances such as thinner or benzene.
2. Perform operation check on a regular basis.

8 SPECIFICATIONS

Model	MX-12FRAM
Detection system	Passive infrared
Coverage	Horizontal detection Angle : 180°, Detection distance : 12m(40') Horizontal zone : 14 zones Downward zone : 14 zones
Coverage adjustment	Detection distance : 2 to 12m(10 to 40') [10 ranges] (by adjusting vertical angle of downward curtain)
Supply voltage	Nominal voltage 3V DC(CR123A×1 [Approx. 1400mAh])
Battery life	Approx.5 years (at normal temperature, excluding wireless transmitter)
Low battery	2.6V DC
Current consumption	Standby 30μA , max. 5.5mA
Alarm output	Solid state switch N.C./N.O. selectable · Contact capacity : 3V DC 0.01A max. (Resistive load) · Contact operation : Detection time (+2 sec.) (Alarm detection / Masking detection)
Trouble output	Solid state switch N.C. · Contact capacity : 3V DC 0.01A max. (Resistive load) (Masking detection / Low supply voltage / Self-diagnosis error)
Tamper output	Solid state switch N.C. · Contact capacity : 3V DC 0.01A max. (Resistive load) (Cover tamper / Back tamper(when enabled))
Operation LED	Red LED ・Warm-up (Blinking) ・Alarm detection (Lights approx.1sec only Walk test) ・Masking detection (Blinking rapidly) ・Self-diagnosis error (Blinking slowly) ・Low battery (Blinking slowly)
Pulse count	1 / 3 times (selectable with mode setting)
Sensitivity adjustment	60% / 80% / 100% / 120% (selectable with mode setting)
Anti-masking	OFF / LV.0 / LV.1 / LV.2 (selectable with mode setting)
Alarm prohibition timer	3s / 180s (selectable with mode setting)
Functions	Anti-masking, Back tamper, Trouble alarm, Low battery monitoring
Ambient temperature	–25°C to +60°C (–13°F to +140°F)
Ambient humidity	93% max.
Mounting position	Indoor / Outdoor
Mounting height	1.2m
Ingress protection	IP55 (Wall mount)
Weight	470g (16.5oz)
Appearance	Body : resin (white) / Lens : resin (white)
Optional	Pole attachment : BP-32

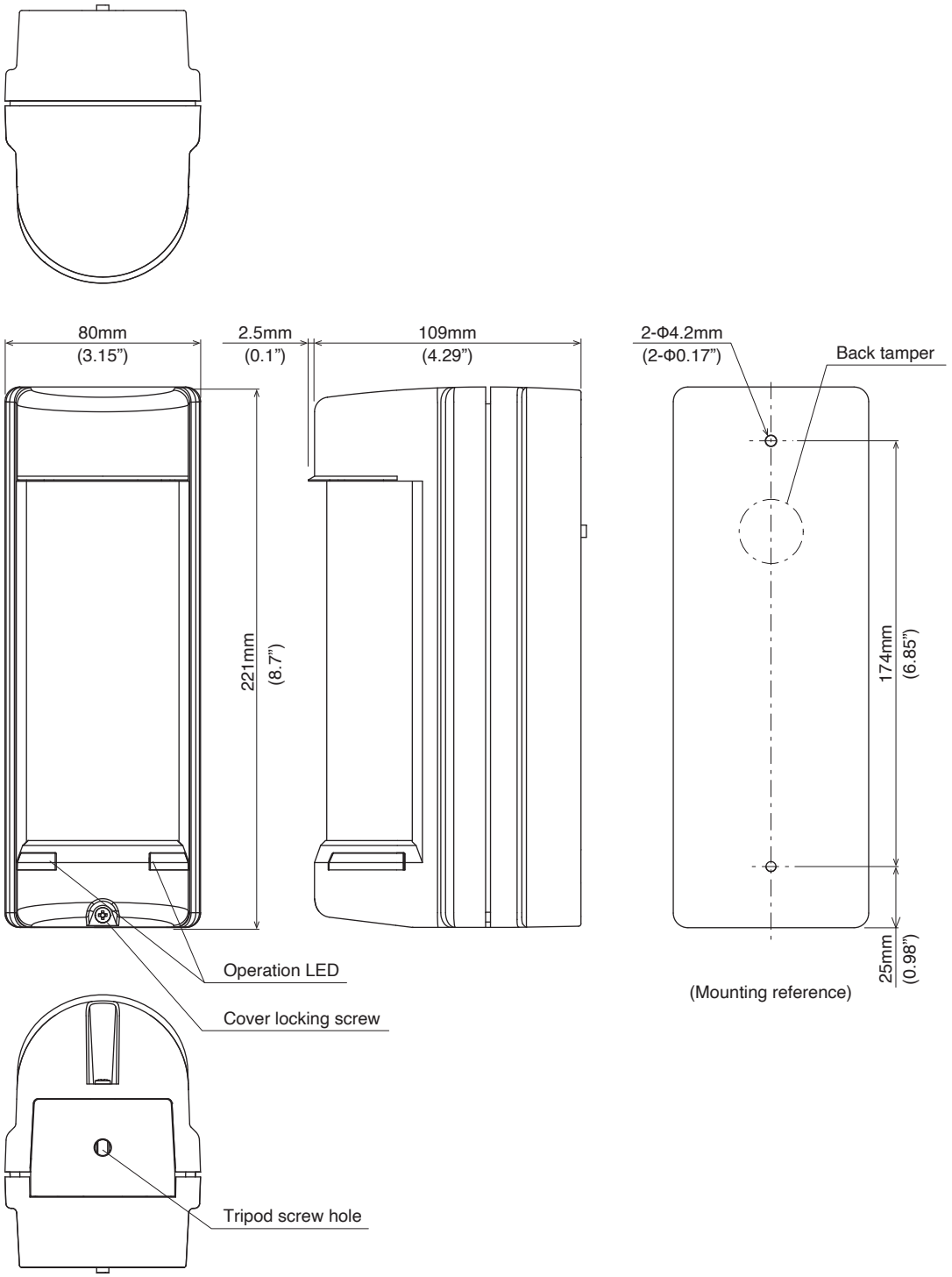
* Specifications and design are subject to change without prior notice.

REGULATORY APPROVALS

- Security Grade 2
- Environmental Class IV
- Power supply Type C
- Applied Standards;
  EN 50131-1
  EN 50131-2-2
  EN 50131-6

Tested and certified by KIWA.

9 EXTERNAL DIMENSIONS



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 natural disasters, 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.

TAKENAKA ENGINEERING CO., LTD.

In Japan
Takenaka Engineering Co., Ltd.
83-1, Gojo-Dori, Sotokan Nishi-iru, Higashino, Yamashina-ku, Kyoto 607-8156, Japan
Tel : 81-75-501-6651
https : // www. takex-eng. co. jp /

In the U.S.
Takex America Inc.
1810 Oakland Rd, Suite F, San Jose, CA 95131, USA
Tel : +1-408-747-0100
https : // www. takex. com

In Australia
Takex America Inc.
4/15 Howleys Road, Notting Hill, VIC, 3168
Tel : +61-(0)3-9544-2477
https : // www. takex. com

In the U.K.
Takex Europe Ltd.
Aviary Court, Wade Road, Basingstoke, Hampshire. RG24 8PE, U.K.
Tel : +44-(0)1256-475555
https : // www. takex. com

No.06-344 C5082