TAKEX DUAL ZONE OUTDOOR PIR

MS-12TE / MS-12FE

Instruction Manual

Thank you for your purchase of this TAKEX passive infrared sensor.
This sensor will provide a 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 any damage, injury, or loss 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)

1) This sensor is equipped with an “AND”detection and pulse count system.
2) The AND detection system will issue an alarm signal only when detecion occurs in both horizontal and downward zones simultaneously.
3) The sensor is equipped with many features such as combining the sensor with other devices such as a video monitoring system to display and record the presence of an intruder.
   The sensor can be combined with an audible or visual warning device to annunciate the presence of visitors.

1 PRECAUTIONS

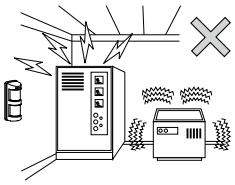
A prohibited action, you must not do. | An action you must do, and information you should keep in mind.

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

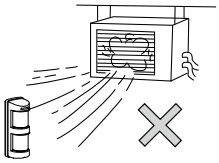
- Do not disassemble or alter this product.
- Immediately stop power supply in the event of abnormal condition.
- Do not connect devices which exceed the capacitance of this sensor.
- Strictly observe the specified vlotage (12 to 28V DC).
- Mount the sensor securely in an optimal position.
- Immediately stop power supply in the event of water entry.
- Do not use the sensor in a location with high humidity.

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.

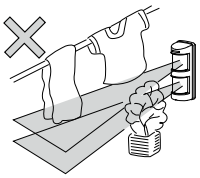
Avoid electrical noise



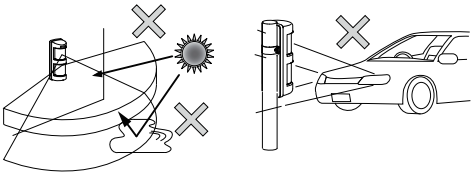
Avoid exhaust vent



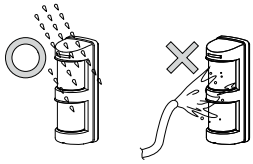
Remove all obstructions



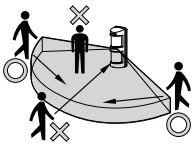
Avoid strong light



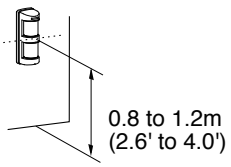
Avoid spraying water with a hose



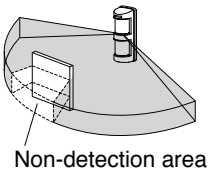
Ensure that people cross the detection area



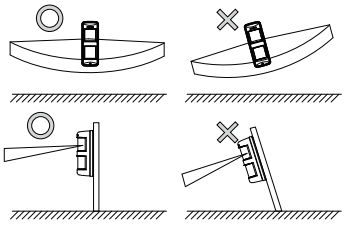
Keep installation height



Remove obstructions, including glass

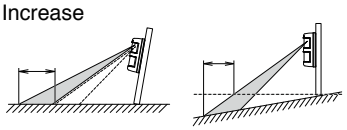


Install perpendicularly

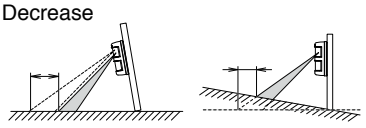


Follow these mounting condition

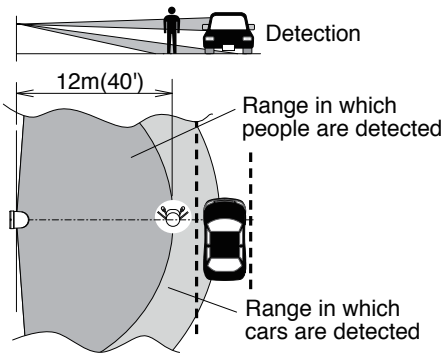
Increase



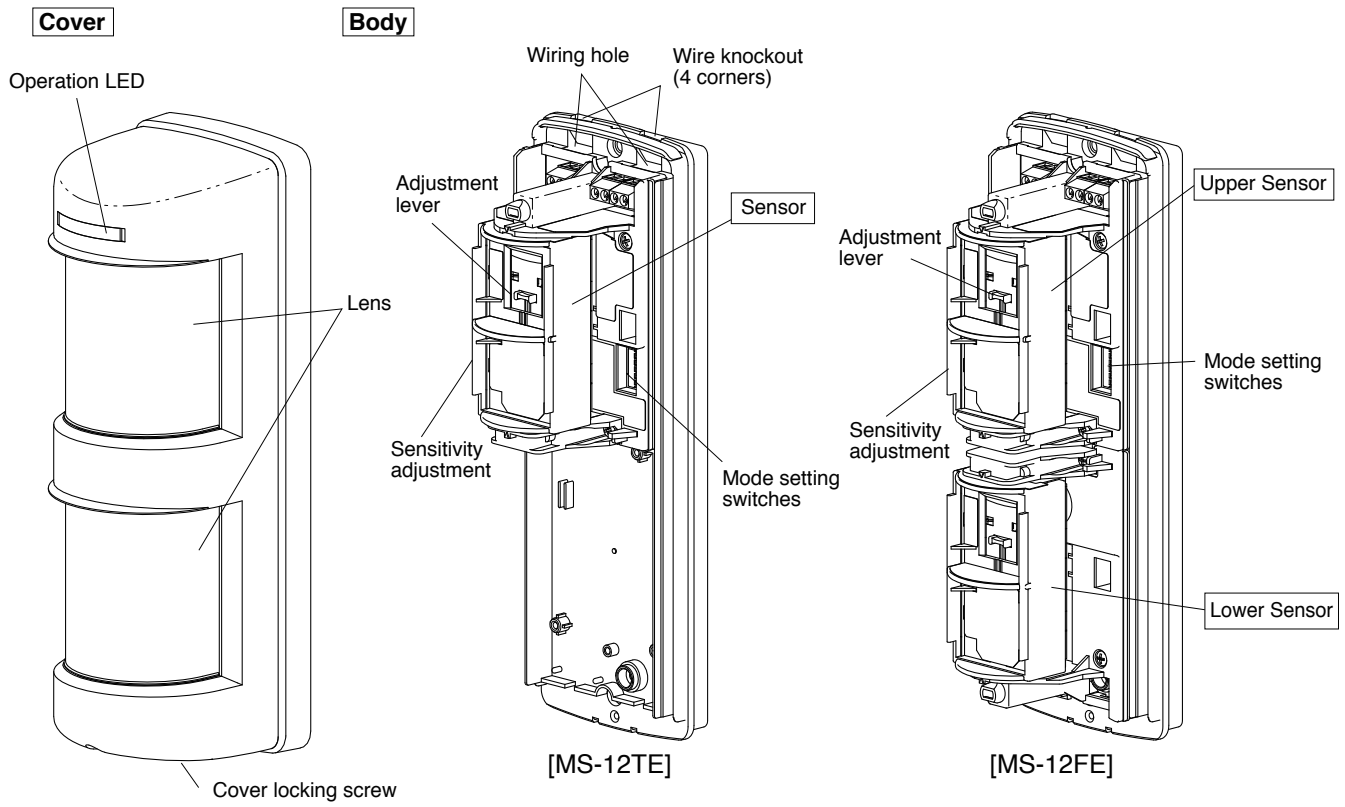
Decrease



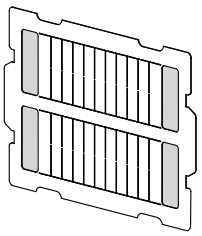
Avoid detection of cars/motorcycles on the roadside. The detection zone extends to 12m ahead; there is a possibility of detecting vehicles with temperature differences.



2 PARTS DESCRIPTION



Accessories



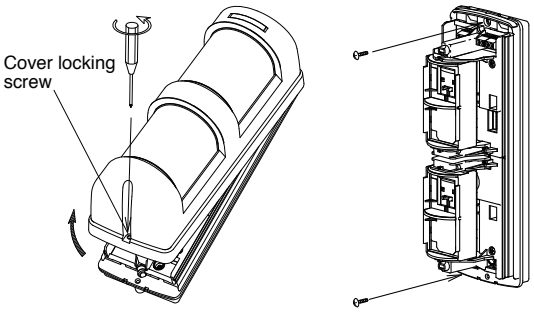
Area masking sheet
MS-12FE (2 pcs),
MS-12TE (1 pc)

Self tapping screw
(φ4 × 25) (2 pcs)

3 INSTALLATION

3-1 Installation

(1) Select a mounting location that matches the intended purpose.
→ [*1 PRECAUTIONS*] [*5 SETTING*]
(2) Loosen the cover locking screws and remove the cover to carry out wiring work.
→ [*4 WIRING*]
(3) Connect wires to the terminal.
(4) Install the unit.
(5) Check detection area and operation.
(6) Replece the cover and fasten the Cover locking screw.



3-2 Wall mounting

(1) Install the base to the wall with 2 tapping screws.
[Installed pitch:209.5mm(8.25")]

3-3 Pole mounting

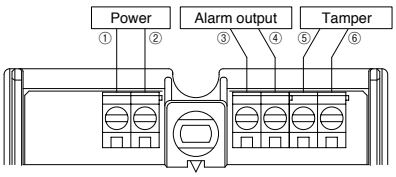
Use the pole attachment "BP-22" (sold separately)

⚠ Verify if the sensor is not mounted at an angle when viewed from the front or side.

⚠ Make sure that the sealant is used to caulk wiring hole and gaps in order to protect against insects, and to ensure rain-proofing.

4 WIRING

4-1. Terminal Configulation



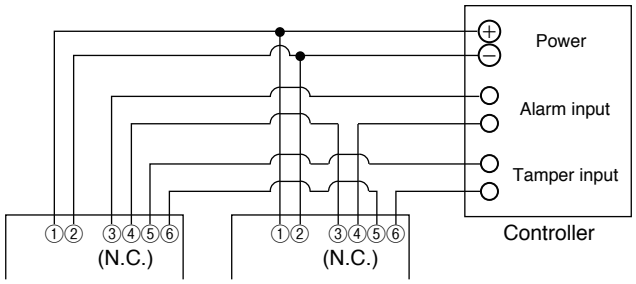
POWER SUPPLY
- 12V to 28V DC (non-polarity)
- Current consumption: 35mA Max. (MS-12TE)
  40mA Max. (MS-12FE)

ALARM OUTPUT
- Dry contact relay output form N.C./N.O. selectable
  CONTACT CAPACITY: 30V (AC/DC), 0.25A Max. (resistive load)
  CONTACT OPERATION: Detection time +off delay (2sec.)

TAMPER
- Dry contact relay output N.C.
  CONTACT CAPACITY: 30V (AC/DC), 0.1A Max. (resistive load)

※WIRE SIZE: AWG24 ~ AWG14 (0.2mm^2) ~ (2mm^2)

Standard connection (When two units are used.)



4-2. Wiring distance

Size of wire used	Power voltage	
	DC12V	DC24V
0.3mm^2 (φ0.65mm)	250m (820')	2,600m (8,500')
0.5mm^2 (φ0.8mm)	450m (1,480')	4,300m (14,100')
0.8mm^2 (φ1.0mm)	700m (2,300')	6,500m (21,300')
1.2mm^2 (φ1.25mm)	950m (3,120')	9,000m (29,500')

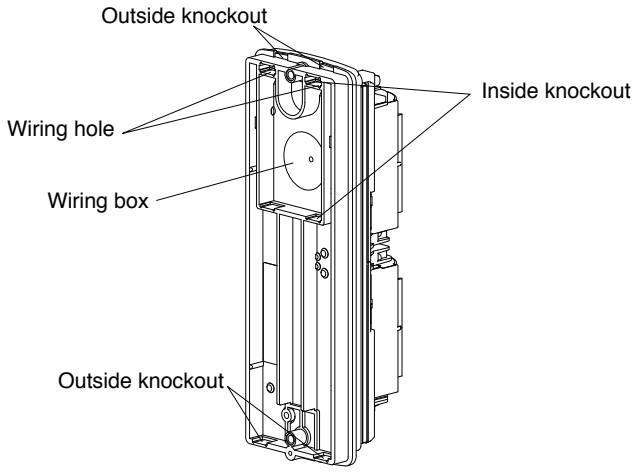
NOTE: 1) Maximum wiring distance when two or more sets are connected is the value above divided by number of sets.
2) The signal line can be wired to a distance of up to 1,000m (3,000ft.) with AWG 22 (dia. 0.65mm) telephone wire.

4-3. Wiring insertion

・Exposed wiring
- Break one outside knockout and its related inside knockout as necessary.
  Pull wire through the insertion holes and connect it to the terminals.

・Mounted wiring
- Break inside knockout, pull wire through wiring hole and connect it to the terminals.

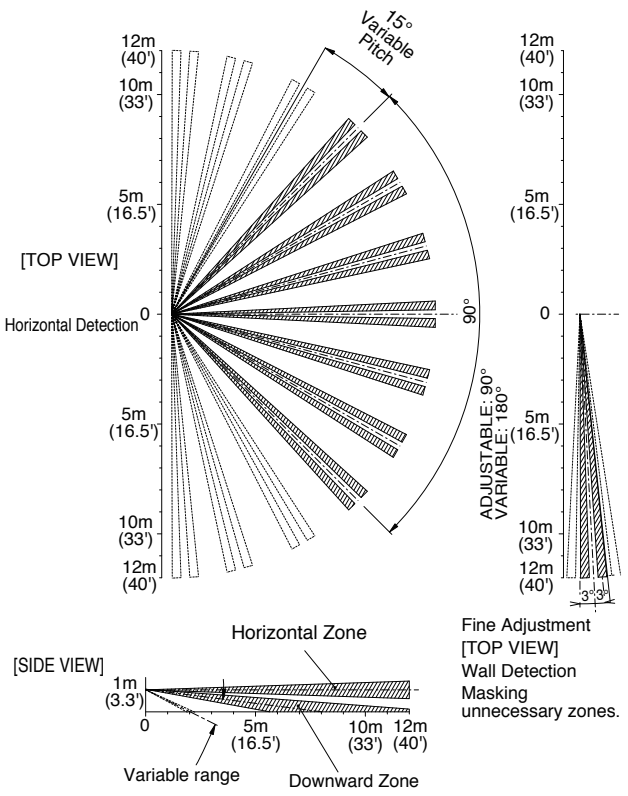
*When installing the sensor to flush mount box, use wall mount bracket "BW-24" (sold separately).



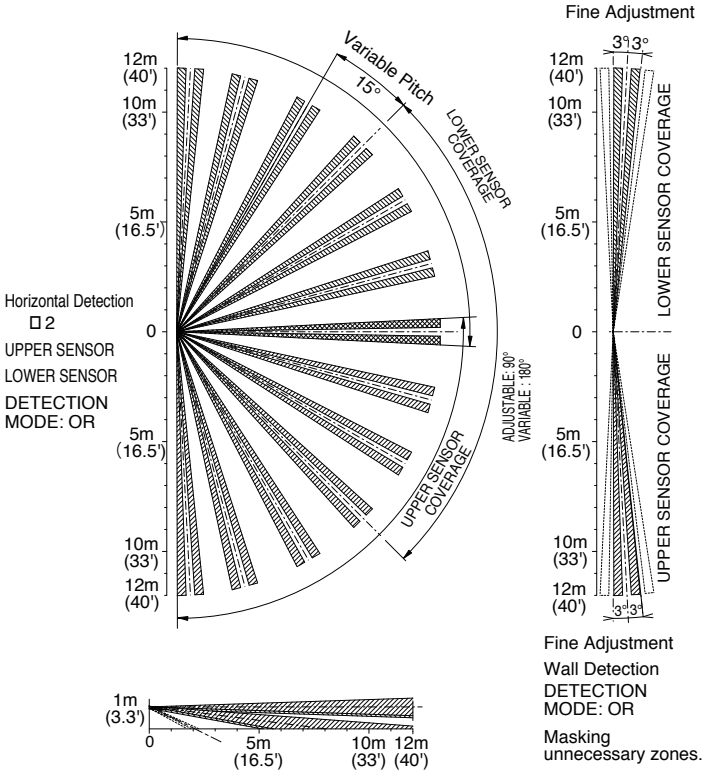
5 SETTING

5-1 PIR Detection area

MS-12TE



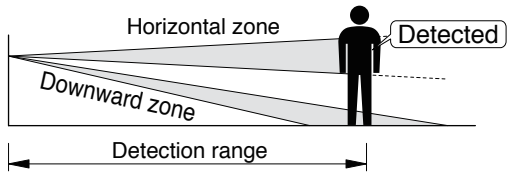
MS-12FE



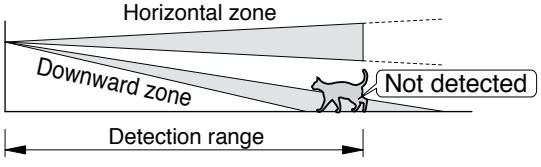
Detection distance is set by adjusting the angle of downward zone. Adjustable range 2m (6.6') to 12m (40'). [10 ranges].

The detection zone of this unit consists of a horizontal zone and a downward zone.
Detection distance can be set by adjusting the angle of downward zone.
MS-12TE is equipped with 1set of sensors on the upper side.
MS-12FE is equipped with 2sets of sensors on the upper and lower side, making it possible to select AND mode or OR mode.

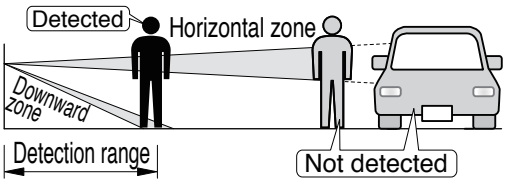
A.Both zones detect.



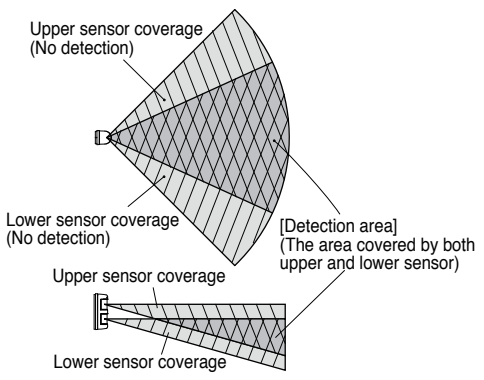
B.Horizontal zone doesn't detect.



C.Downward zone doesn't detect.

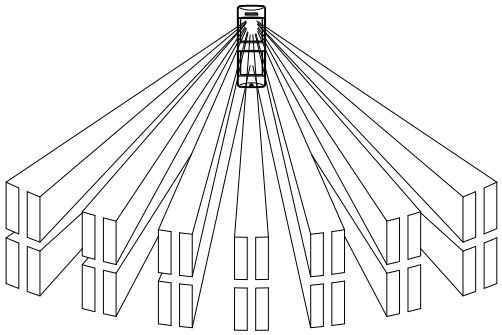


• When detection mode is set at AND , this sensor outputs an alarm signal only when both upper and lower sensor detect objects.
[Only applicable to MS-12FE]



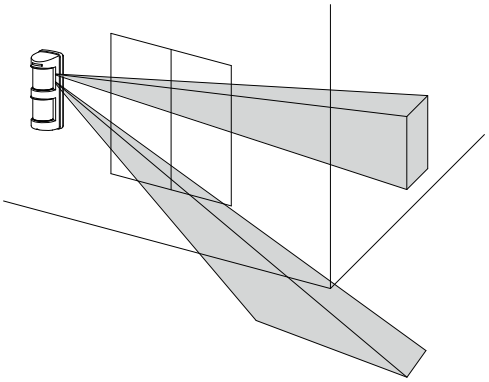
5-2 Patterns of coverage

[Wide angle detection]



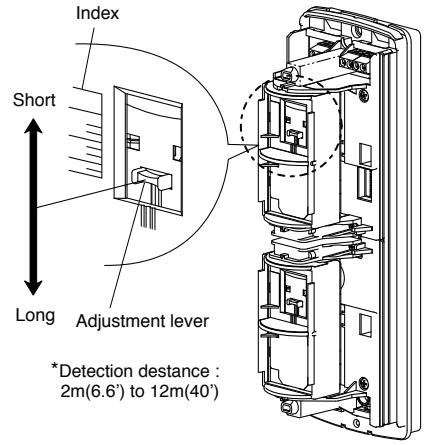
[Wall detection]

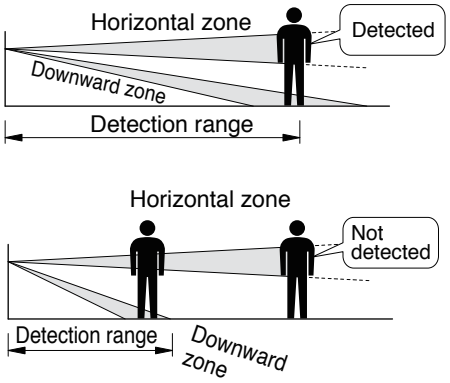
⚠ When using wall detection,
ensure that the count setting is set to 1.
→ [**5-5 Switch setting**]



5-3 Area adjustment

[DETECTION DISTANCE ADJUSTMENT]

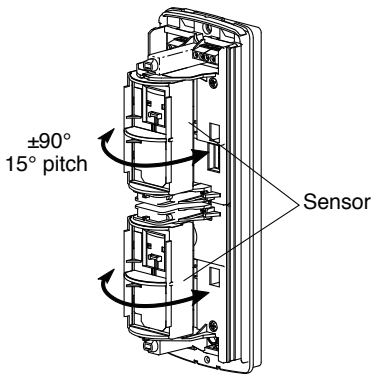


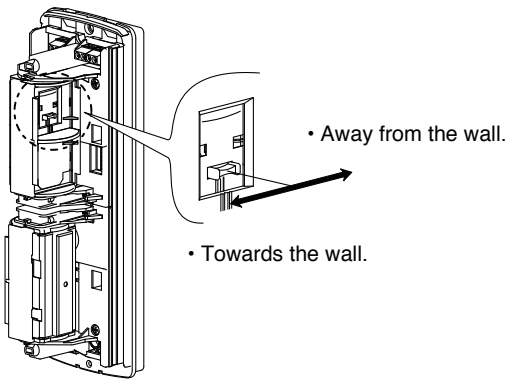


[Wall detection]

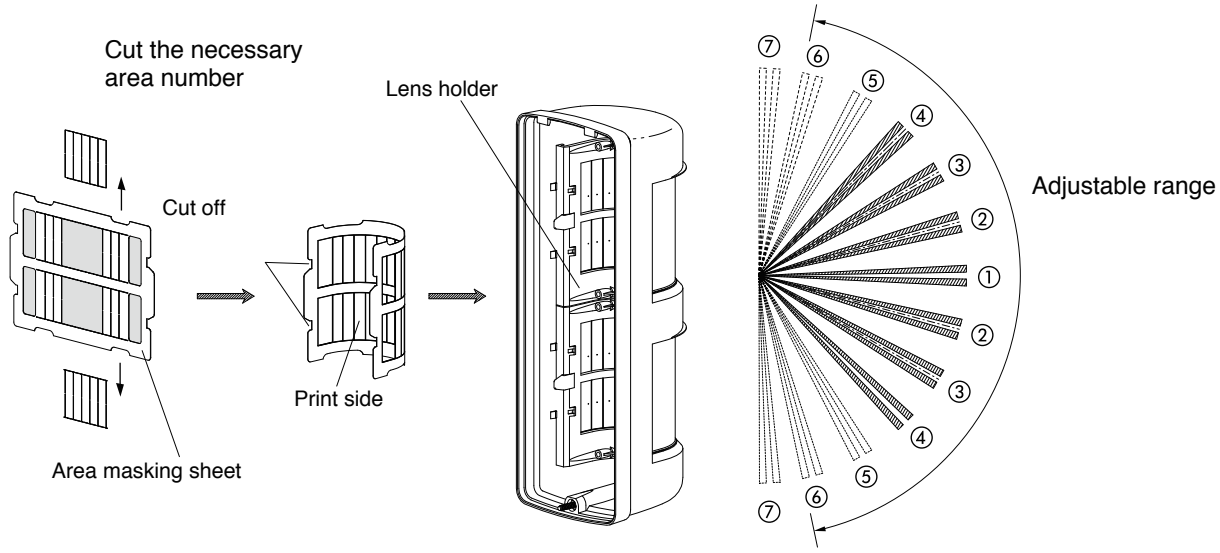
- Make sure that the lever be set at 0° for horizontal detection.
- When shifting detection zone away from the wall, slide the lever towards the wall.
- When shifting detection zone towards the wall, slide the lever away from the wall.

Fine adjustment [Wall detection]





5-4 Area masking sheet



*Zone ⑦ cannot be masked by Area masking sheet.

5-5 Switch setting

・Warm up period

Operation LED blinks for about 1 min after supplying power.
The unit doesn't operate for this time as it is the sensor stabilizing period.

・LED ON/OFF selectable switch

ON ● 1	ON [Factory set]	• Lights at alarm • Light flickers during warm up period.
OFF ● 1	OFF	LED disabled

・Contact output selectable

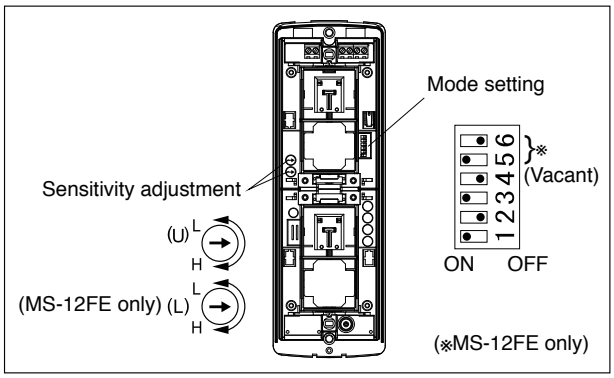
ON ● 2	N.O.	OFF ● 2	N.C. [Factory set]

・Pulse count selectable

The number of counts can be selected according to the environmental conditions.

ON ● 3 , 5 *	3 [Factory set]	Less sensitive; prevents false alarms caused by temperature fluctuation.
OFF ● 3 , 5 *	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.

*MS-12FE has two sets of above switches for upper and lower sensor.



・Detection mode [Only applicable to MS-12FE]

ON ● 6	AND	Alarm signal is issued only when both upper and lower sensor detect objects simultaneously.
OFF ● 6	OR [Factory set]	Alarm signal is issued when either upper or lower sensor detect objects.

・Sensitivity adjustment

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

6 CHECKING

6-1 Setting for Operation check

(1) Refer to the **5-3 Area adjustment**, and set the horizontal angle and detection distance.
(2) Make functional settings in accordance with the purpose of use of this unit.
(3) Attach the cover to the unit and fix it by tightening the cover locking screw.
(4) Turn the power ON and wait for 1 min until the alarm LED stops blinking.
(5) After the warm up time is over, operate a walk test in the detection area to check, if the required area is covered.
(6) If necessary, readjust the angle and distance of the detection area as well as sensitivity and pulse count.

6-2 Operation check

(1) Make final setting according to the purpose.
(2) Attach cover and check if operation LED and connected devices operate properly.
* Make sure that there is no undesirable detection of traffic including vehicles if there is a path or road at the front of detection zone.

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
Completely inactive	No power supply, broken wire or improper voltage.	Correct power supply or replace broken wire.
	Cover shielded by substances (including glass).	Remove the substances.
	Improper area adjustment.	Readjust the protection area setting.
	Not yet 1minute after power turned on. (Operation LED is flickering.)	Allow for warming up time (about 1min.)
	No area covered by both upper and lower sensor when set at AND mode. [Only applicable to MS-12FE]	Readjust the sensor angle so that the area to be detected is covered by both upper and lower sensor.
Sometimes inactive	Improper area adjustment.	Readjust the protection area setting.
	Cover face is soiled with dust or water drop.	Clean the cover with soft cloth.
	Area covered by both upper and lower sensor is too small to be detected when set at AND mode. [Only applicable to MS-12FE]	Readjust the sensor angle.
Activated when no person has passed	Unstable power voltage.	Stabilize the power voltage.
	Something moving in protected area or too rapid temperature variations.	Remove the cause.
	Large electrical noise source such as power machine nearby or its wiring close to that of sensor.	Relocate the device.
	Intense reflection of sun light or head light shining on the sensor.	Relocate the device. Readjust the protection area setting.
	Reflective lights such as sun light or head light affect the downward zone.	Remove reflective objects. Readjust the protection area setting.
	Improper installation of the sensor with tilting.	Install the sensor correctly without tilting.
	Detection distance of the downward zone is too long.	Readjust the detection distance.
	Cars or motor bikes located at the front of detection area may activate the sensor.	Readjust the area setting and range adjustment so that there is no such undesirable detections.
The alarm LED lights, but connected device is inactive	Poor contact connection or broken wire or short circuit.	Check the wiring or connection.
	Contact output is not working.	Check the contact output terminal using a tester.
	Is the connected device operation normal ?	Check the connected device.

MAINTENANCE

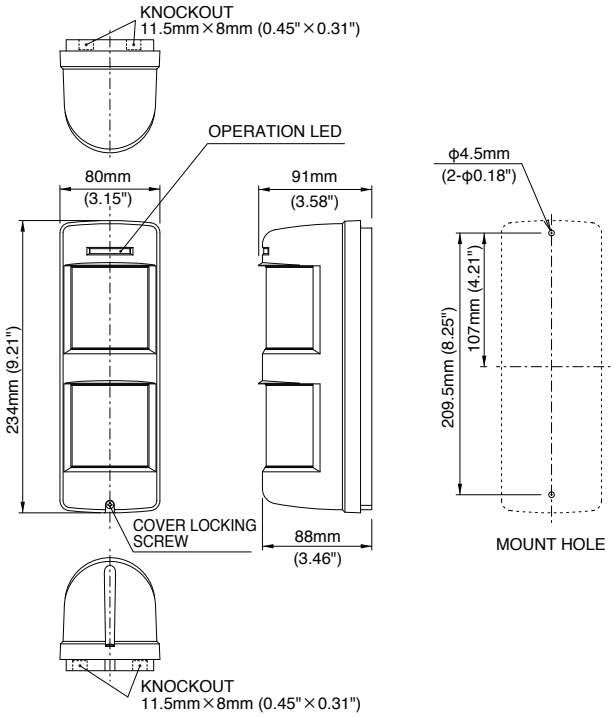
1. Clean the device with a soft, damp cloth and wipe off water drops. Use water with weak neutral detergent to clean stubborn dirt. Do not use substances such as thinner or benzene.
2. Perform operation check on a regular basis.

8 SPECIFICATIONS

Model	MS-12TE	MS-12FE
Detection system	Passive infrared	
Coverage	When horizontal detection Angle: 90° Detection distance: 12m (40') Horizontal zone : 7zones Downward zone: 7zones	Angle: 90°×2 2sets of MS-12TE sensors
Coverage adjustment	Horizontal: ±90° Detection distance: 2m ~ 12m (6.6' ~ 40') (By adjusting vertical angle of downward curtain)	
Power supply	12 to 28V DC (non-polarity)	
Current consumption	35mA Max.	40mA Max.
Alarm output	Dry contact relay output N.C./N.O. selectable ＊Contact capacity: 30V (AC/DC), 0.25A MAX. (Resistive load) ＊Contact operation: Detection time+off delay (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 (LED disabled) Lighting at alarm (LED disabled)	
Pulse count	1 / 3 (selectable with DIP switch)	
Sensitivity adjustment	Approx. 30% (L)-Approx. 170% (H) (By Potentiometer)	
Detection mode	———	AND／OR selectable
Connection	Terminals	
Ambient temperature	−20℃ to 50℃ (−4°F to 122°F)	
Mounting position	Indoor／Outdoor	
Ingress protection	IP 54	
Weight	390g (13.7oz)	470g (16.5oz)
Appearance	Body : resin (white)／Lens : resin (grey)	
Optional	Wall mount attachment (BW-24)　Pole attachment (BP-22)	

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

9 EXTERNAL DIMENTIONS



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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