TAKEX PA-470L Passive Infrared Sensor Instruction Manual

Contents

TAKEX

TAKEX PA-470L Passive Infrared Sensor

Product Information

Specifications:

- Model: PA-470L
- Type: Passive Infrared Sensor
- Protection Range: Wide angle 16m / Long range 20m

Product Usage Instructions

Installation

Before installation, carefully read the precautions provided in the manual.

1. Mount the unit on solid ceilings or wall surfaces using\ appropriate anchors and mounting screws.
2. Ensure the location can support the weight of the device to\ prevent falls or malfunctions.
3. Avoid placing the unit near strong electric or magnetic fields.

Wiring

Connect the unit to the power source following the wiring \instructions provided in the manual.

- Use the provided wiring channel and ensure all connections are \secure.
- Do not exceed the specified power voltage levels to prevent fire or malfunctions.

Operation

After installation and wiring, perform a system check to ensure proper functioning.

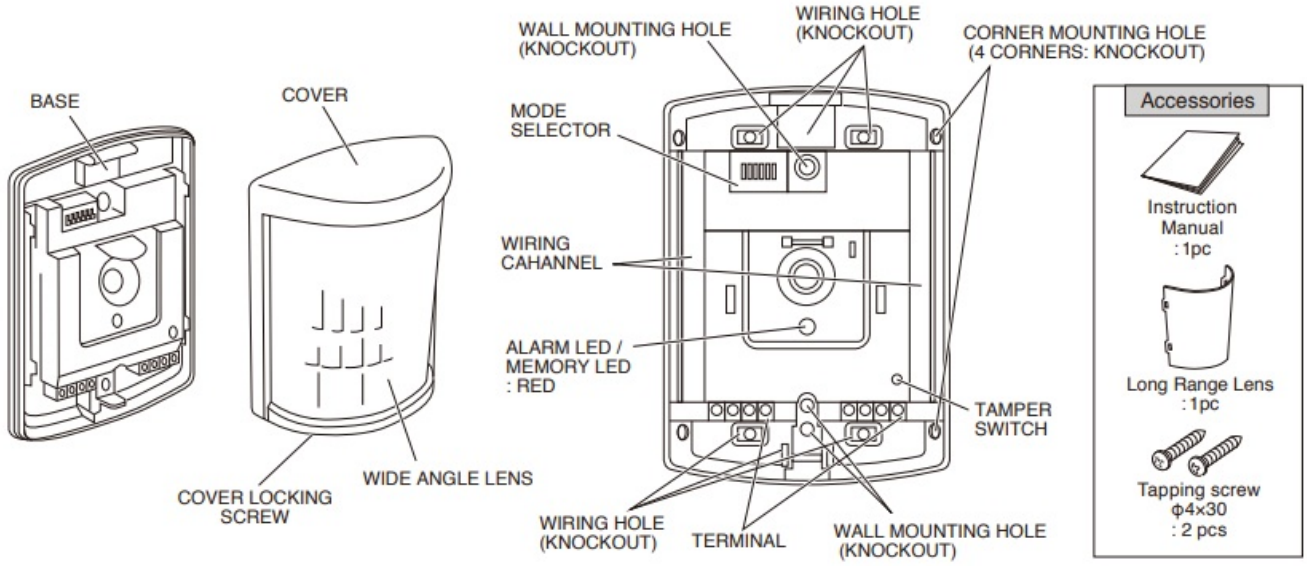
- Adjust the detection area as per the installation location and conduct an operation check.
- Regularly check for any obstructions that may affect sensor performance.

FAQ

- **Q: What should I do if the sensor is not detecting movement?**
  - A: Check for any obstructions in the detection area and ensure the sensor lens is clean. You may also need to adjust the sensor's position for optimal performance.
- **Q: Can the sensor be used outdoors?**
  - A: It is recommended to use the sensor indoors as exposure to outdoor elements like rain, direct sunlight, or extreme temperatures may affect its performance.
- **Q: How often should I test the sensor's functionality?**
  - A: It is advisable to test the sensor periodically, especially after any changes in the environment or layout of the protected area.

Thank you for purchasing this product. Before using the products, please read this instruction manual carefully to ensure correct operation

PRODUCT DESCRIPTION



PRECAUTIONS

Be sure to observe

This manual describes precautions by classifying them based on degrees of danger and Be sure to observe damage that would be generated if 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.

We categorize these precautions 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 modify this device. This may cause a fire, electrical shock, or malfunction of the device.
- If the following events occur, turn off the power of the unit immediately, and ask the place of purchase for repair. Failure to follow this may result in fire, electric shock, and/or malfunction.
    - Smoke, abnormal odor, and/or sound are found
    - Liquid, such as water, and/or foreign material has entered the unit
    - The unit has deformed and/or damaged parts
- Do not install this device in a location that cannot support its weight. This may lead the device to fall and cause an injury or malfunction of the device.
- Mount the unit on solid ceilings or wall surfaces where reinforcement materials are used. If you mount the unit on non-wood materials such as plaster board or concrete, securely mount it using anchors and mounting screws that match the wall materials. Unstable mounting may result in injury and/or property damage if the unit falls.
- Do not use the unit with power voltage levels other than those specified. Failure to follow this may result in fire, electric shock, and/or malfunction.
- Do not connect devices that exceed the indicated capacity to the output contact of the unit. Failure to follow this may result in electric shock, fire, and/or malfunction.
- Do not touch terminals with wet hands. Failure to follow this may\ result in electric shock

Caution

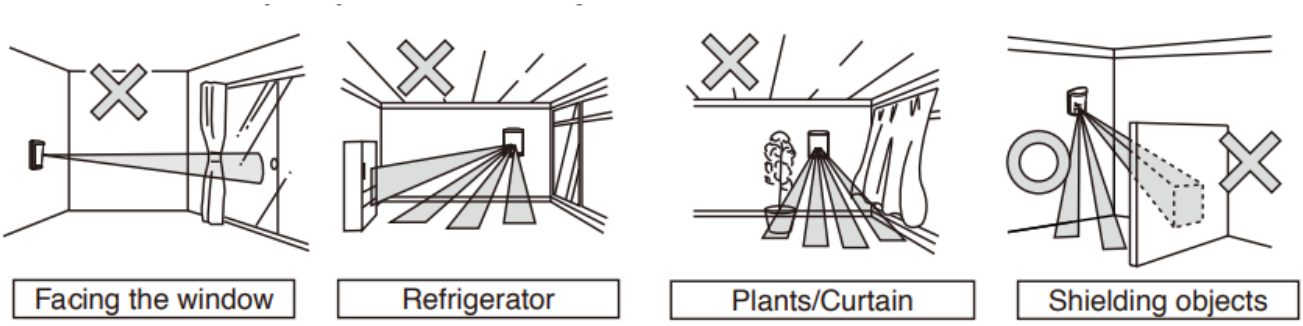
- Do not apply impact to the unit.
- Strong impact may result in performance deterioration and/or damage to the unit. \The unit may not operate properly near devices that generate a strong electric or magnetic field. Also, devices near the unit may not operate properly due to the magnetic field and/or magnetism generated from the unit.
- Make sure to confirm before operation.
- Make sure to perform a sufficient operation check on the whole system before operation.
- Refer to the detection area chart, and select the installation location. Then, check the actual operation, and adjust the appropriate area.
- Make sure to check operation when you move tables and partitions \to change the layout in protected rooms.
- Do not install the unit in places subject to oil, smoke, steam, high humidity, and/or a lot of dust.
- Electricity that is conducted through these substances may result in fire, electric shock, and/or false operation.

Caution

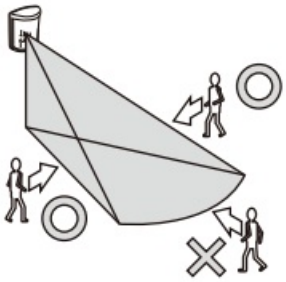
Avoid installing the unit in the following places.

Otherwise, non-detection and/or false detection may occur.

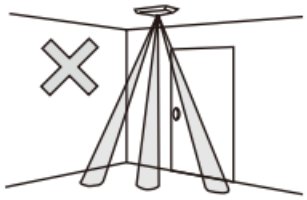
- Places subject to strong direct or reflected light (sunlight, spotlight)
- Places subject to rapid temperature fluctuations (air outlets of\ air-conditioning equipment, etc.)
- Places where moving objects are included in the protection area (plants, laundry, etc.)
- Places subject to strong vibration and/or electric noise
- Places where pets, such as dogs and cats, and/or automatic cleaning robots may pass
- Places where shielding objects (including glass and transparent resin, etc.) are placed in the protection area (shading parts will not \be detected)
- Places that people can easily touch.



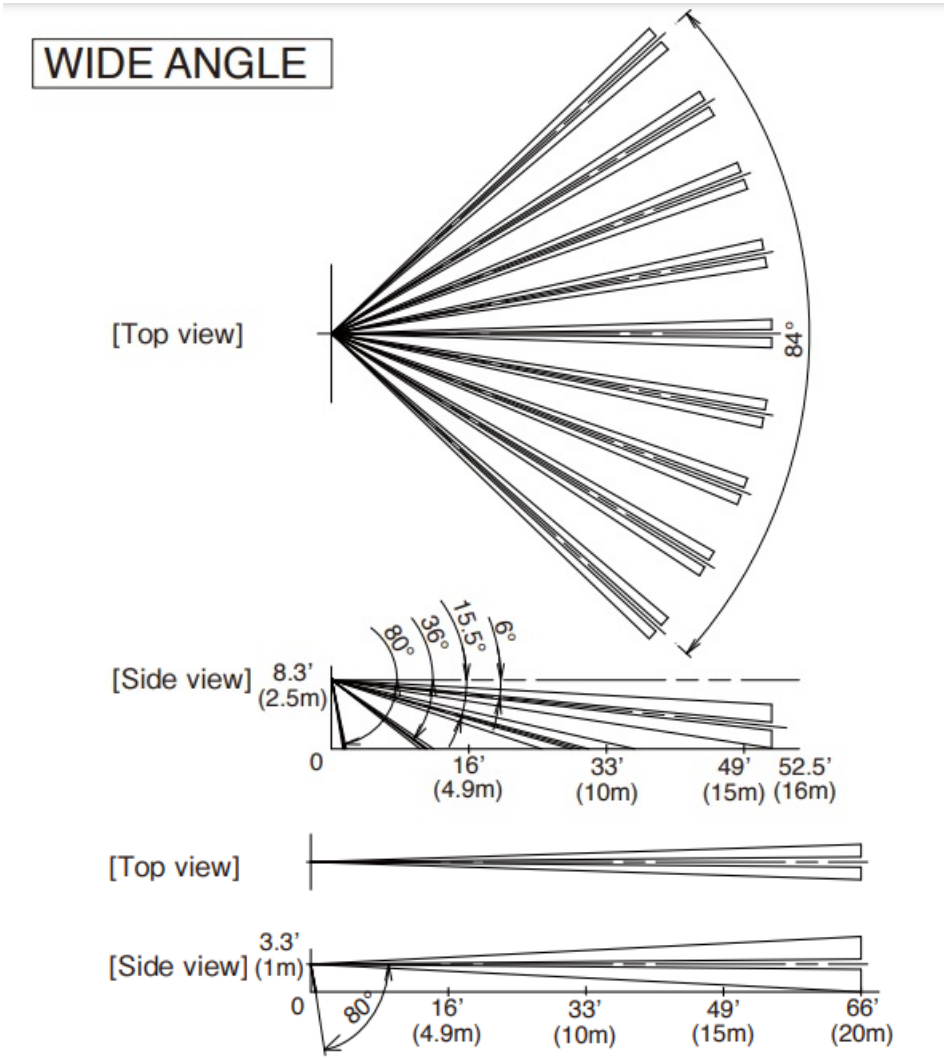
- Passive infrared sensors are designed to detect changes of far-infrared ray energy. Energy changes largely when the human body moves across the detection area. However, energy does not change so much when the human body comes closer in a straight line, or stops. In addition, if the environment of detection area generates similar changes due to certain factors, the unit will issue an alarm without being able to judge properly.



- Ask qualified personnel for any electrical work necessary for installation, if required. Failure to follow this may result in fire and/or electric shock. Securely conduct installation work according to the instruction manual.
- Also, make sure to use the supplied accessories and specified components.
- Failure to follow this may result in injury and/or property damage in the event of fire, electric shock or fall of the unit.
- This unit is for indoor use. Do not use the unit in places subject to water and/or high humidity. Failure to follow this may result in malfunction if water gets into the unit.
- This unit is not a waterproof (moisture proof/rainproof) or dust-proof \structure. Do not use the unit in places subject to water and/or high humidity, such as bathrooms, and/or subject to large amounts of dust or sand. Failure to follow this could result in malfunction.
- Do not perform aerial wiring of power and signal cables. Failure to follow this may result in electric shock, fire, and/or malfunction.
- Do not install the sensor directly on the ceiling (When installed on ceilling, use optional attachment BCW-401)

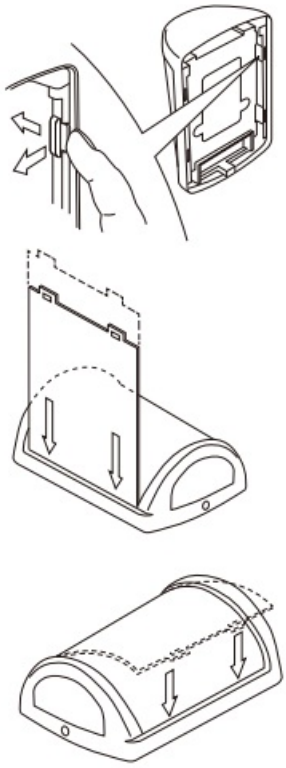


DETECTION AREA



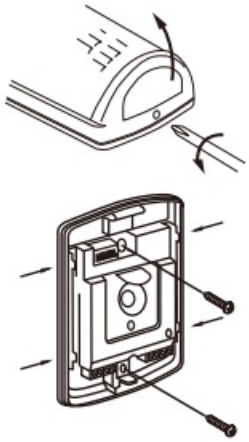
Lens exchange

1. Pull four lens tabs on back side of the cover toward inside and push them out to remove the lens.
2. Put smooth face of the lens on the front side. Push one side of the lens into one side slot of the cover until it snaps.
3. Carefully bend the lens along edges of the cover. Push other side of the tabs into the other slot of the cover until it snaps.
4. Set dip switch “6” of the mode selector to the mode corresponding to protection pattern of the lens (refer to section “6. FUNCTION”)

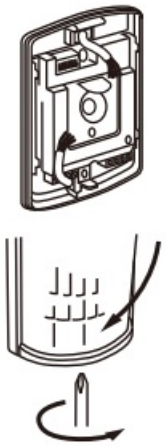


INSTALLATION

1. Loosen the cover locking screw and remove the cover. Do not remove the screw from the cover not to lose locking nut.
2. For wall mounting, use wall mounting hole located in the center of the base. For corner mounting, break 4 knockouts on both side to use corner mounting holes.

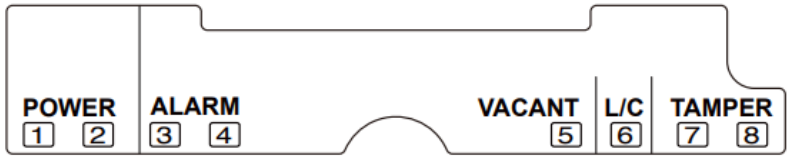


3. Break knockouts of wiring holes required to connect wires. In case wiring through upper wiring holes, pass the wires along wiring channels on either side of the base to connect them to the terminal.
4. Attach the cover and tighten the cover locking screw.



WIRING

Terminal Arrangement



7 8

TAMPER OUTPUT
Dry contact N.C.
Operation : Open when cover is detached.
30V DC 0.1A Max.

1 2

POWER
(non-polarity)
9.5V to 28V DC
25mA Max.

3 4

ALARM OUTPUT
Dry contact (semi-conductor)
N.C./N.O. selectable
Reset : approx. 2 sec.
30V DC (24V AC) 0.25A Max.
(Protective resistor 3.3Ω)

5

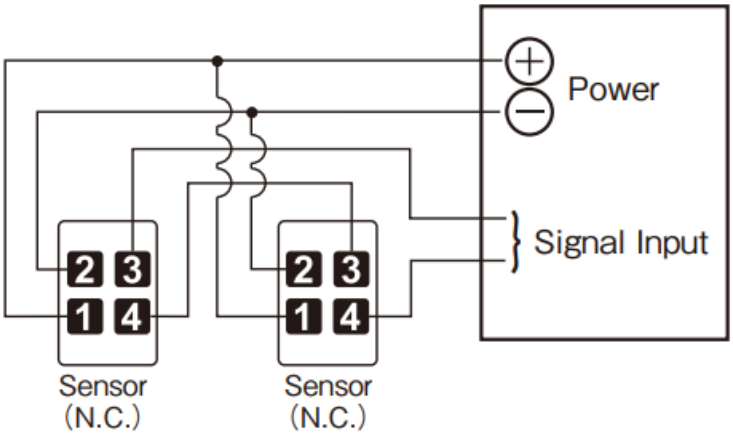
VACANT

6

LED Control
(Refer to section “6.FUNCTION”)

Basic connection

[When two units are used]



WIRING DISTANCE BETWEEN SENSOR AND POWER SOURCE

- Allow approx. one minute for warm-up after power is supplied.(Alarm LED is flashing) In the meantime, no alarm is initiated.

- After the one minute has passed, the unit will be in the armed condition and will trigger an alarm when detecting a human body.

Note

1. Maximum wiring distance, when two or more sets are connected, is the value above divided by numbers of sets.
2. The signal line can be wired to a distance of 3,280 ft (1,000m) with AWG 22 (0.65mm dia.) wire.

Size of wire used	Distance at 12VDC	Distance at 24VDC
AWG 22 (Dia.0.65mm)	2500ft (750m)	14000ft (4400m)
AWG 18 (Dia.1.0mm)	4600ft (1400m)	28000ft (8500m)
AWG 16 (Dia.1.25mm)	8500ft (2600m)	50000ft (15200m)

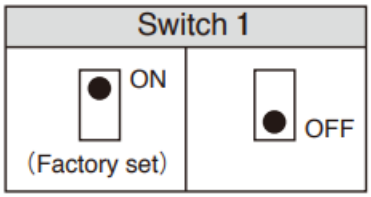
FUNCTION

MODE SELECTOR

Sensor operation can be adjusted to fit the environmentals / applications with the built-in mode selector.

ALARM LED

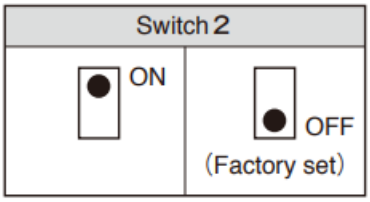
The alarm LED will light up, synchronized with the alarm contact, if you set the mode selector at ON.



ALARM MEMORY CHANGEOVER

Memory LED will inform you which sensor initiated an alarm during alert conditions when two or more sensors are connected on the same line.

When this setting is “ON”, memory is always stored when sensor is armed. \When an alarm has been activated, the memory LED \flashes for 3 min. and then remains lit for 47 min. \It automatically reset and memory is also canceled. \NOTE : Same LED is used to indicate alarm and alarm memory.

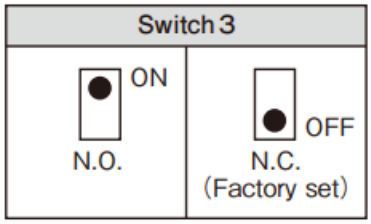


ALARM CONTACT CHANGEOVER

Change alarm contact to N.O. when sensor is used for an application other than security purpose, such as light

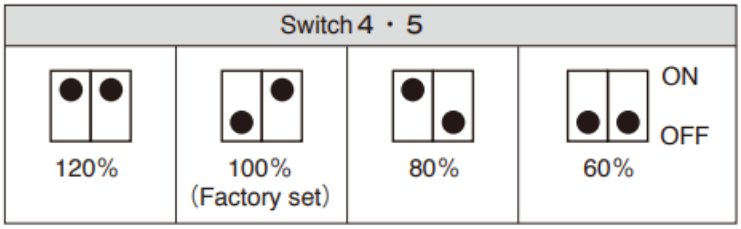
control.

- ON N.O.
- OFF N.C.



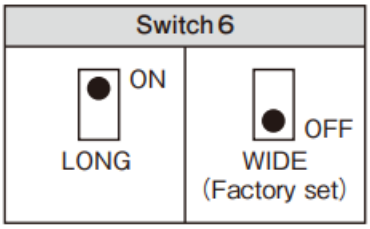
SETTING OF SENSITIVITY

When the operation checks resultin in excessive or insufficient high sensitivity of sensor, change setting of sensitivity Switch with a mode selector and re-check the operation. Four settings are available.



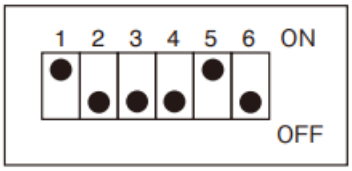
PROTECTION PATTERN CHANGEOVER

Two protection patterns (Wide angle/Long range) are selectable by replacing lens. Reselect the dip switch when exchanging lens (refer to “3. DETECTION AREA”). Do not set the switch OFF for long-range protection. ON



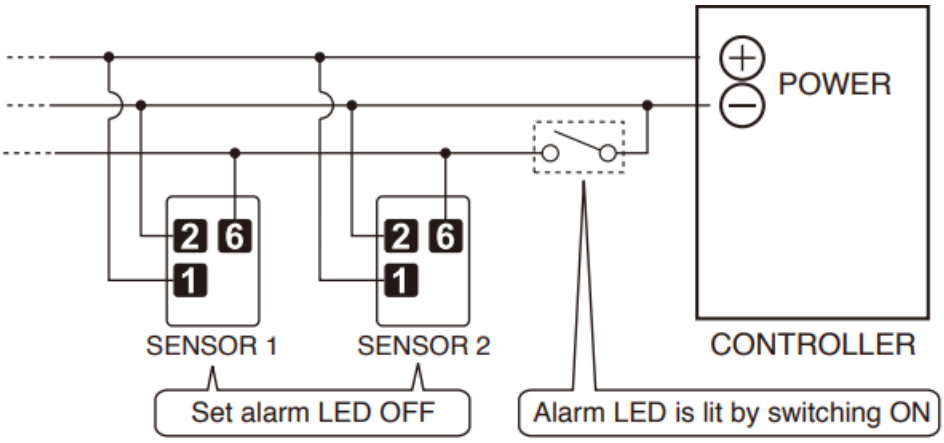
- ON LONG
- OFF WIDE

FACTORY SET



LED CONTROL

LED can be remotely controlled from the control panel. Even after setting alarm LED OFF, combined use of alarm LED control terminal (6 LED Control) and power terminal (negative) enables to reset the mode back to alarm LED ON, which makes it easy to operate a walk test even after installation of the sensor.



TROUBLE ALARM

This function checks/monitors the sensor unit itself in accordance with the built-in program. When trouble is found out as a result of the check/monitor, alarm LED lights and an alarm signal also continuously outputs.

1. Unit trouble
   Trouble alarm outputs when inner circuit/wiring is damaged/broken. See “8. TROUBLESHOOTING” and remedy table.
   NOTE :
   The monitor functions regardless of mode settings but an alarm is not indicated in case of setting alarm LED at OFF position. When power is reset during the alarm status, trouble alarm stops only for warming up time.
2. Low voltage
   When power voltage of sensor drops down (approx. 8.5V DC or less), trouble alarm outputs before sensor operation becomes unstable due to low voltage. See “8. TROUBLESHOOTING”
   NOTE :
   The monitor functions regardless of mode settings but an alarm is not indicated in case of setting alarm LED at OFF position. When power voltage recovers to normal level during the alarm status, trouble alarm stops.

OPERATION CHECK

When installation is completed, turn the power “ON” and check operation after about 1min. warming up time, as follows:

1. Make sure that alarm LED finished flickering.
2. Make a walk test in the protected area to check if an alarm is initiated. Check alarm LED and control panel for sensor operation.
3. After correct operation has been confirmed, use the mode selector switch to disable the alarm LED, if required.

TROUBLESHOOTING

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

Trouble	Check	Corrective Action

Completely inactive	(1) Power supply is not connected(including broken wiring). (2) Power supply voltage is low. (3) 1 minute has not passed yet since turning the power ON. (4) The detection area is blocked by obstacles (which may include glass). (5) Improper detection (including detection distance). (6) Improper function mode setting.	(1) Check the power wiring. (2) Supply appropriate power voltage. (3) Wait approximately 1 minute. (4) Remove obstacles. (5) Readjust detection area. (6) Readjust mode setting.
Sometimes inactive	(1) Improper detection area settings (including detection distance). (2) Improper function mode setting. (3) Detection lens is covered with dust or water droplets. (4) Small difference between human and ambient temperature	(1) Readjust detection area. (2) Readjust mode setting. (3) Clean the lens with soft and dry cloth. (4) Increase sensitivity up to 120%
Activated when no person has passed	(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) Strong light (direct or reflected) such as sunlight or headlights from front side of the detection area. (5) Detecting someone passing outside the detection area. (6) Movement of pets is detected (7) Movement of robot cleaners is detected	(1) Supply appropriate power voltage. (2) Remove problem object. (3) Change mounting location. (4) Change mounting location or shield light with blinds, etc. (5) Readjust detection area. (6) Prevent pets from entering detection area. (7) Prevent robot cleaners from entering detection area.
Alarm LED lights, but connected devices are inactives	(1) Wiring failure, broken wire, or short-circuit (2) Alarm signal is not output. (3) Setting of alarm output is inappropriate. (4) Connected devices don’t function normally.	(1) Connect wiring correctly, or repair problem wire (2) Check terminal connection with a tester, etc (3) Readjust setting of alarm output. (4) Check connected devises

Alarm LED continues lighting or blinking and alarm output doesn't stop. (Abnormal detection)	(1) Reset power supply and wait for warm-up to be done.	(1) Contact the dealer or TAKEX (Devise or wire may be broken inside)

MAINTENANCE

- To clean the device, use a soft, wet cloth and then wipe off any water drops. If the device is particularly dirty, dip the soft cloth in the water that contains a weak neutral detergent. Wipe the device gently with the cloth, then wipe off any detergent that remains. Do not use substances such as thinner or benzene. (The plastic parts may deform, discolor or change their properties.)
- Perform operation checks on a regular basis.

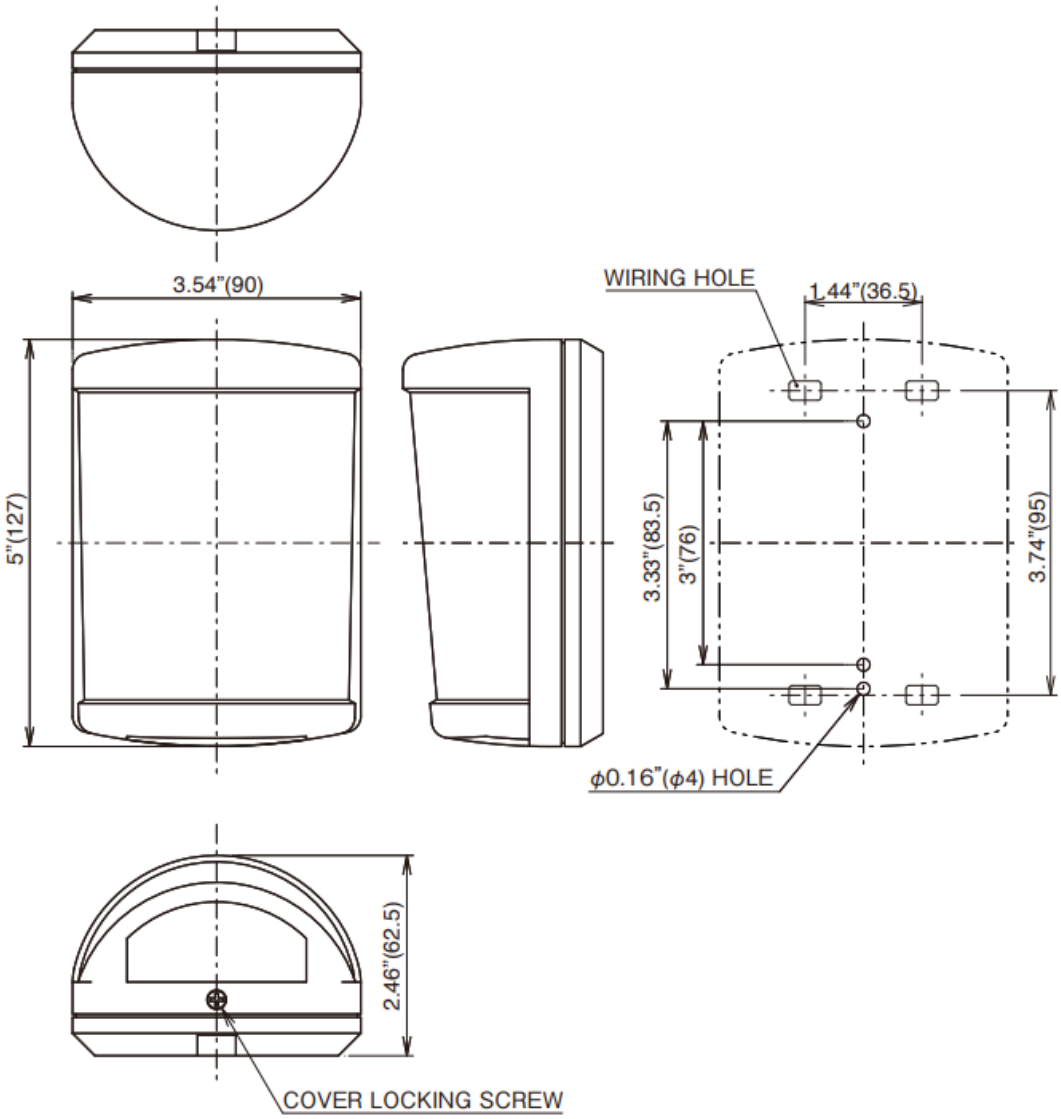
SPECIFICATIONS

Model	PA-470L	
Detection System	Passive infrared (QUAD Fuzzy logic)	
Coverage	Wide angle protection 52.5' (16m)	Long range protection 66' (20m
Sensitive zone	88 (22pairs)	8 (2pairs)
Supply Voltage	9.5 to 28V DC non-polarity	
Current consumption	25mA Max. N.C. N.O. selectable	
Alarm output	Dry contact (Semi-Conductor) Reset : Approx, 2 sec. (N.C./N.O. selectable) 24V DC (30V AC) 0.25A Max. (protective resistor 3.3Ω)	
Tamper output	Dry contact (type N.C.) Open when the cover is detached 30V DC 0.1A MAX. (protective resistor 3.3Ω)	
LED(Red)	Alarm LED Flickering (every 0.5 sec.) : Warming-up Lighting (approx. 2 sec.) : Alarm Flickering (every 0.25 sec.) : Trouble indication Continuous lighting: Trouble alarm (LED disabled except trouble indication) Memory LED Flickering : Memory activated Lighting : Memory indication	

LED control	Controls alarm LED indication / with terminal L/C
Trouble signal	Unit trouble : Monitoring inner circuit and wiring damage Operation: Trouble alarm Low voltage trouble: Monitoring low voltage Operation: Trouble alarm
Ambient temperature rang e	+14°F to +122°F (without dewdrops) (10℃ 50℃)
Mounting position	Indoor (Wall/pillar) A ceiling mount is possible with optional attachment
Wiring connections	Terminals
Weight	5.82oz (165g)
Appearance	resin (White)

EXTERNAL DIMENSIONS

Unit: inch (mm)



Option : Ceiling/Wall mounting attachment : BCW-401

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.

Contact

In Japan

- Takenaka Engineering Co., Ltd. 83-1, Gojo-sotokan,
- Higashino, Yamashina-ku,
- Kyoto 607-8156, Japan

- Tel : 81-75-501-6651
- Fax : 81-75-593-3816
- http://www.takex-eng.co.jp/

In the U.S.

- Takex America Inc. 3350, Montgomery Drive, Santa Clara,
- CA 95054, U.S.A
- Tel : 408-747-0100
- Fax : 408-734-1100
- http://www.takex.com

In Australia

- Takex America Inc.
- 4/15 Howleys Road, Notting Hill, VIC, 3168
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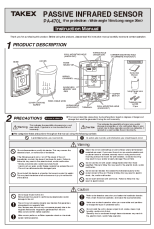
In the U.K.

- Takex Europe Ltd.
- Takex House, Aviary Court, Wade Road, Basingstoke, Hampshire. RG24 8PE, U.K.
- Tel : (+44) 01256-475555
- Fax : (+44) 01256-466268
- http://www.takexeurope.com

Documents / Resources

	TAKEX PA-470L Passive Infrared Sensor [pdf] Instruction Manual PA-470L, PA-470L Passive Infrared Sensor, PA-470L, Passive Infrared Sensor, Infrared Sensor, Sensor

References

- User Manual