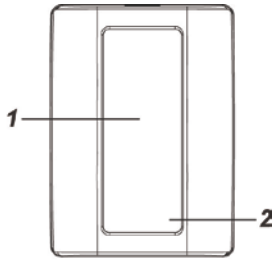
PIR Motion Sensor (IRC-29)

The PIR detects infrared signature to pick up movements within an assigned area and signals the Control Panel to activate the alarm if an intruder crosses its' path of detection.

The PIR consists of a two-part design made up of a cover and a base. The cover contains all the electronics and optics and the base provides a means for fixing. The base has knockouts to allow mounting on a flat surface or on the ceiling.

The PIR has a tamper switch which will be activated when the cover is opened, or when it is removed from the mounted surface. It can also alert you to signal communication problems and low battery situations.

● *Identifying the Parts*



1. PIR Lens

2. LED Indicator

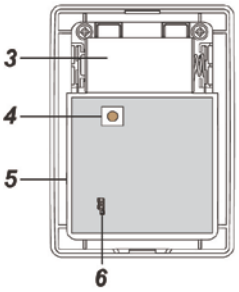
The LED indicator is inside the front cover and only visible when activated.

3. Battery Compartment

The PIR uses 1 x CR123A (3V) Battery as power source.

4. Tamper Switch

The Tamper switch protects the PIR from unauthorized cover opening or mounting surface removal.



5. Learn / Test Button

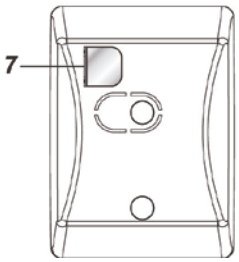
The test button is used for testing the radio performance and for learning purpose.

6. Sensitivity Increaser Jumper Switch (JP3)

- If the jumper is OFF (if the jumper link is removed or "parked" on one pin), the PIR's detection sensitivity is in normal level. **(Factory default)**

- If the jumper is ON, the PIRs detection sensitivity is high.

7. Battery Insulator



● *Sleep Timer*

The PIR has a "**sleep time**" of approximately 1 minute to conserve power. After transmitting a detected movement, the PIR will not retransmit for 1 minute; any further movement detected during this sleep period will extend the sleep time by another minute. In this way continuous movement in front of a PIR will not unduly exhaust the battery.

● *Supervision Function*

The PIR conducts a Self-test Periodically by transmitting a supervisory signal once every 15 to 18 minutes.

If the Control Panel fails to receive the Supervisory signals transmitted from a certain PIR for a preset time, an "**Out-Of-Orde**r" fault message will be generated.

● *Sensitivity Adjustment*

You can use the sensitivity increaser function to increase the PIR's detection sensitivity. To increase detection sensitivity, connect the Jumper Switch (JP3) to the **ON** position. To maintain normal detection sensitivity, disconnect the Jumper Switch (JP3) to the **OFF** position. (Factory default)

● *Test Mode*

The PIR can be put into Test mode by pressing the Test Button. In Test mode, it will disable the sleep timer and will enable the LED indicator to flash every time a movement is detected. Every time the Test Button is pressed, the PIR will transmit a test signal to the Control Panel for radio range test and enter the test mode for 3 mins. It will exit Test Mode automatically after 3 minutes and return to normal mode.

● *LED Indicator*

In Normal operation mode, the LED Indicator will flash quickly in the following situations:

- When movement is detected under low battery condition.
- When the cover is opened / removed from mounting surface and the tamper switch is triggered.
- When movement is detected if the Tamper condition persists.
- When movement is detected under Test mode.
- When the Test Button is pressed under tamper condition or if PIR is under low battery.

The LED will not flash if the PIR tamper and battery are normal and is not under test mode,

If the LED flashes to indicate signal transmission, it will flash twice rapidly upon receiving acknowledgement from panel.

● *Battery*

- The PIR uses one 3V CR123A battery as power source.
- The PIR features low battery detection function. If low battery voltage is detected, a low battery signal will be sent to the Control Panel along with regular signal transmissions for the Control Panel to display the status accordingly.
- For each installation, the battery is installed in by the factory before shipment with an Insulator inserted. Remove insulator to activate battery.
- When changing batteries, after removing the old batteries, press the Tamper Switch twice to fully discharge before inserting new batteries.

● *Getting Started*

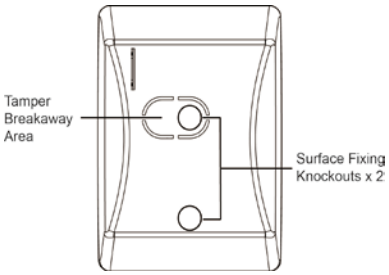
- Pull out the battery insulator to activate battery.
- The LED indicator will flash for 30 seconds. (The PIR is warming up). During the warm up period, the PIR will not be activated. It is recommended that you stay away from the detection area during this time. After the warm up period is over, the LED will turn off and the PIR will be ready for operation.
- Put the Control Panel into learning mode, refer to Control Panel manual for detail.
- Press the test button.
- Refer to Control Panel manual to complete the learn-in process.
- After the PIR is learnt-in, put the Control Panel into "**Walk Test**" mode, hold the PIR in the desired location, and press the Test button to confirm this location is within signal range of the Control Panel, refer to Control Panel manual to complete Walk Test.
- When you are satisfied that the PIR work in the chosen location, you can proceed to mounting.

PIR Detection Coverage

- When mounted vertically, the PIR has a horizontal detection coverage of 10° and vertical detection coverage of 110° to the front.
- The PIR will only be activated by movements across the 10° horizontal coverage.
- The PIR can be mounted vertically, horizontally on the wall surface or on the ceiling. Different mounting methods provide different PIR detection coverage and range (Please refer to **Mounting Methods** below for details).

Mounting Methods

- The PIR is designed to be mounted on either a flat surface on a wall or on a ceiling with fixing screws and plugs provided.
- If the mounted PIR is forcedly removed, the Tamper Breakaway Area will be left on the wall separated from the PIR, the tamper will then be triggered.
- The base has two knockouts, where the plastic is thinner and can be broken for mounting purpose.
  I. Remove the fixing screw and cover assembly.
  II. Break through the knockouts on the inside of base.
  III. Using the holes as a template, drill holes in the surface.
  IV. Insert the wall plugs if fixing it into plaster or brick.
  V. Screw the base into the wall plugs.
  VI. Screw the cover onto the base.
- There are different mounting methods including vertical/horizontal and ceiling mountings, and each of them has different application. Please refer to the below mounting methods.



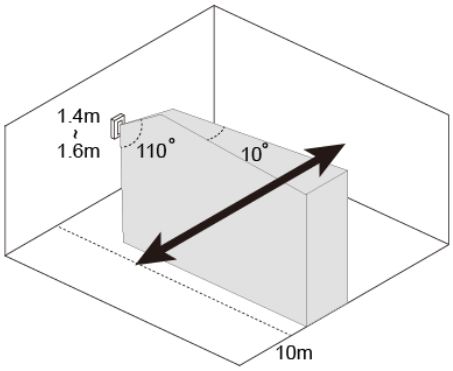
Vertical Wall Mount:

- The PIR is designed to give a typical detection range of 10 meters when mounted at 1.4 meters to 1.6 meters above the ground vertically.
- Avoid mounting over 1.7 meters, otherwise the PIR detection range maybe affected.

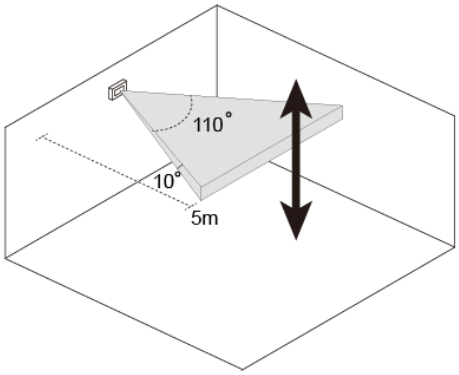
Horizontal Wall Mount:

- When mounted horizontally, the PIR has a detection range of 5 meters against vertically movement only. It will **NOT** be able to detect horizontal movement. This practice is usually used to protect intruder from sky light or roof hatch.
- Avoid mounting below 2.2 meters, which may affect detection performance.

Vertical

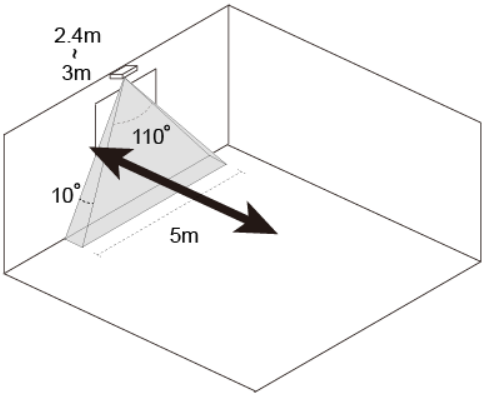


Horizontal



Ceiling Mount:

- Mount the PIR on ceiling to look downward over a door or window.
- When mounted at 2.4~3 meter height and looking down, the PIR has coverage of about **5** meters at ground level.
- Avoid mounting over 4 meters, which may affect detection performance.



Installation

- Decide on the location of the PIR if it is to be horizontal / vertical or ceiling mounted.
- After the installation site is selected, follow the steps described above to mount the PIR.
- Press the Test Button to enter Test Mode. Walk around the protected area noting when the LED lights up and check that the detection coverage is adequate.
- When detection coverage is found to be satisfying, installation is now completed.

Installation Recommendations

<IMPORTANT NOTE>

☞ When deciding on the height of the PIR mounting site, remember to take the possible blind spot into consideration. The blind spot underneath the PIR enlarges proportionally to the height of the PIR mounting site.

☞ Please note that performance is affected by external factors, such as height of detected object, desired detection range, installation area…etc. The suggested mounting height could be adjusted according to actual installation environment factors.

- In a position such that an intruder would normally move across the PIR's field of view from side to side.
- Where its field of view will not be obstructed e.g. by curtains, ornaments etc.

◆ **Limitations**

- Do not position a PIR to look directly at a door protected by a Door Contact, this could cause the Door Contact and PIR radio signals to be transmitted at the same instant when entering, canceling each other out.
- Do not install the PIR completely exposed to direct sunlight.
- Avoid installing the PIR in areas where devices may cause rapid change of temperature in the detection area, i.e. air conditioner, heaters, etc.
- Avoid large obstacles in the detection area.
- Not pointing directly at sources of heat e.g. fires or boilers, and not above radiators.
- Avoid moving objects in the detection area i.e. curtain, wall hanging etc.

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:
. Reorient or relocate the receiving antenna.
. Increase the separation between the equipment and receiver.
. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
. Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

FCC Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.