## INTRODUCTION

The i4H-PIR-OD1 Passive Infrared Detector is specially designed for providing perimeter protection. It detects the intruder before entering a house, and offers the first line of defense to a property's boundary.

There are two separate sensors in the i4H-PIR-OD1, one detects upper area, and the other detects lower area. Only when both sensors detect motion simultaneously, the PIR triggers alarm.

i4H-PIR-OD1 is rainproof and can prevent from the false alarm caused by a pet up to 20 kg or 60 cm high.

## INSTALLATION

1. Refer to Fig. 1, loosen the screw on the PIR bottom, remove the front cover, and then insert two AA alkaline batteries.
2. Enroll the ID for the PIR,
    A) Keep pressing the Clear/Enroll Button on i4H-LS-20 for over 3 seconds and then release it, the i4H-LS-20 would keep beeping and the all LEDs blink. This means the system is ready for enrolling device.
    B) Within 30 seconds, activate the PIR to transmit RF ID by placing a magnet closely to the reed sensor of the PIR, refer to Fig. 8. If you hear 3 short beeps soon later then enrolling successes, otherwise you will hear one long beep after 30 seconds that means enrolling fails, you have to repeat enrolling action.
    Note: Avoid activating any other sensors during the 30 seconds Device Enroll period.
    Remarks: In case you have to change the device's attribute, please do it on the cloud web directly, or refer to HyperSecureLink software user guide to change it by computer.
3. After the PIR power on, wait one minute for the sensors' warm-up.
4. Before mounting the PIR, please refer to Fig 3, 4 &5 to choose proper location and height for the PIR. The PIR should be mounted to detect majority of traffic flow across the detection pattern.
5. Keep the PIR 1.9 m above the floor (refer to WALK TEST paragraph below and adjust it if necessary), fix the supplied magnet for tamper detection, and then mount the base with four screws at the selected location, finally restore the top cover the PIR. Make sure the distance between the PIR and the Base Unit is within RF transmission range or use a repeater to extend the distance when necessary.

*Important notice: It's strongly recommended to mount the i4H-PIR-OD1 at the place where the sunlight doesn't shine it directly. Otherwise, the detection angle would become narrower. Additionally the lens would degrade by sunlight and need to replace after 2or 3 years, depending on sunlight strength and exposed time.*
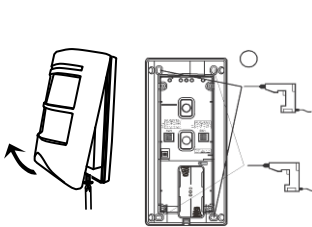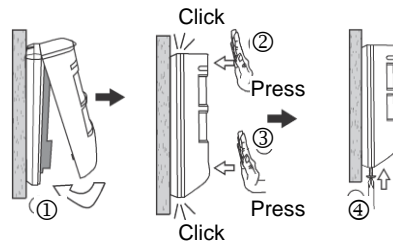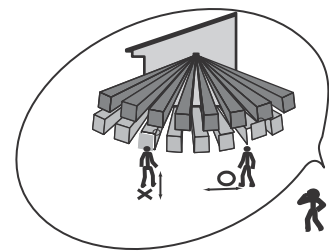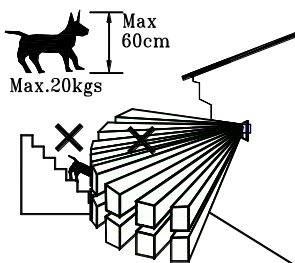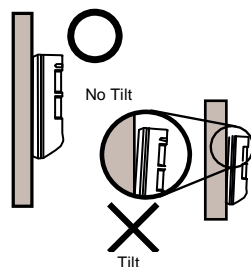


Fig. 1



Fig. 2

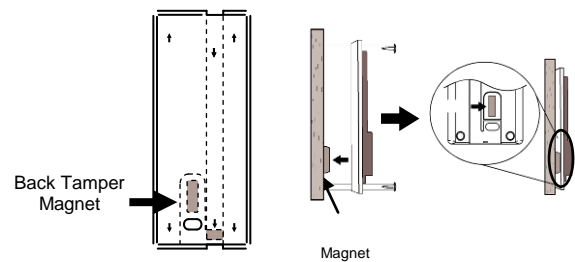

Fig. 3



Fig. 4



Fig. 5



Fig.6

**ABOUT SETTINGS ON PCB**

There are two DIP switches and a jumper JP1 on the PC board, each switch has 3 positions. Refer to Fig. 7. Setting description as follows,

**SW1,**

Position 1 (DSF, Direct Sun Filter)

ON: If the PIR would be shined by sunlight directly, this position should be set to ON to reduce the sunlight interference. ***Please note the PIR detection angle would become narrower, about 60 degrees, refer to Fig 9. If possible, avoid the location where can be shined by direct sunlight because the PIR reliability would decrease.***

OFF: If the PIR would not be shined by sunlight directly, this position should be set to OFF to get wider detection angle, about 100 degrees.

Position 2 (Alarm LED)

ON: LED would light on when motion is detected and RF transmits.

OFF: LED would keep off when motion is detected and RF transmits. This can prevent the PIR being easily discovered by the intruder. However the LED is enabled automatically when it works in TEST mode.

Position 3: Unused

**SW2**

Position 1 (Mode)

ON: Only in Walk Test Mode it should be set to ON to check LED response for the two sensors separately.

OFF: It must be set to OFF in NORMAL Mode.

Position 2 (PC, Pulse Count)

ON: PIR triggers alarm only after 3 pulses are detected within about 10 seconds. The detection sensitivity is lower but the reliability becomes higher.

OFF: PIR triggers alarm when 1 pulse is detected, this has higher sensitivity.

Position 3 (Sens, Sensitivity)

ON: Lower detection sensitivity with higher reliability. This is used in harsh environment.

OFF: Higher detection sensitivity with lower reliability. This is recommended when the detection range is over 5 meters.

**JUMPER JP1,**

It must be placed at "OFF" position in Normal Mode; and at "ON" position only in Walk Test mode.
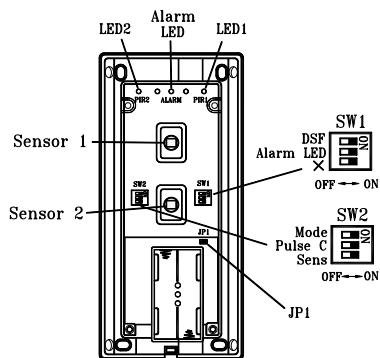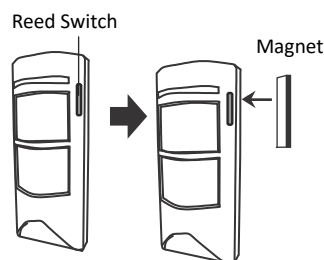


**Fig. 7**

**Fig. 8**

**WALK TEST**

It is essential to perform Walk Test to verify the optimum detection coverage of the PIR. Steps as follows,

1. Refer to Fig. 8 for the reed switch location on PIR PC board and place a magnet (you can use the one supplied with Door Sensor) closely to the reed switch, until the LED turns ON→OFF→ON, this takes about 3 or 4 seconds, and then remove the magnet. Afterward the PIR would enter "TEST" mode for 3 minutes.

2. Walk into the detection area at normal speed and observe the Alarm LED (Red) indicator. The LED stays ON normally, and turns OFF when the PIR detects motion.

3. If necessary you can check the detection status of the two sensors by setting jumper JP1 at "ON" position and SW2 position 1 to ON, refer to Fig 7. Under this condition, the LED1 for sensor 1 and the LED2 for sensor 2 would react independently, and then you can adjust the mounting height to fulfill your detection coverage if needed. Note that only when the two sensors detect motion simultaneously, the PIR triggers alarm.

4. Test mode can be terminated before the 3-minute timeout by placing the magnet closely to the reed switch of the PIR again, and the Alarm LED would turn OFF. The PIR restores to NORMAL mode afterward. In NORMAL mode, the PIR activates the RF transmission when it initially detects movement, and then disables the RF transmission until it has not detected any motion for 3 minutes. In other words, if the PIR is installed in a heavy traffic area, it won't transmit RF

signal continuously until the area has been evacuated for 3 minutes. The purpose of this feature is to reduce power consumption and prolong battery life.

### RADIO LINK TEST
It's a must to make sure the RF communication with LS-30 base unit is OK after installation. Refer to Fig. 8 and place a magnet closely to the PIR reed switch to activate RF transmission, check if the base unit can receive the radio signal.
Also check the RSSI on the LCD of the base unit to assure RF link is secure. You can use a repeater to extend radio range when needed.

### PULSE COUNT SELECTION
The i4H-PIR-OD1 is equipped with a selectable pulse counter to adapt different environment. It can be selected by placing the jumper on the desired setting. Refer to the SW2 of Fig. 7 and above paragraph "ABOUT SETTING ON PCB".
1 *pulse:* This setting has higher sensitivity of detection. This should be selected when the detection range is longer (over 5 m)
3 *pulses:* Alarm is activated only if 3 pulses are detected within approximately10 seconds. This setting provides the higher protection against false alarms caused by environmental disturbances.

### LED ON/OFF SELECTION
To prevent the PIR from being discovered easily by the intruder, LED can be disabled by putting SW1 position 2 at OFF position, see Fig. 7. However the LED would be enabled automatically when the PIR is in "TEST" mode.

### DETECTION PATTERN
Refer to Fig. 9

### SPECIFICATIONS
Detector Type: dual element
Coverage Angle: 100$^o$ @25℃ and DSF disabled
Pet Immunity: Up to 20kg, 60cm high
RFI Immunity: Max. 40V/m (10~10000MHZ)
Detectable Speed: 0.3~3m/sec.
Power: two AA alkaline batteries
Current: 40uA @ standby, 15mA @ activation
Estimated Battery Life: 2~3 years (@ actuated 40 times/day)
Pulse Count: 1 or 3 pulses selectable
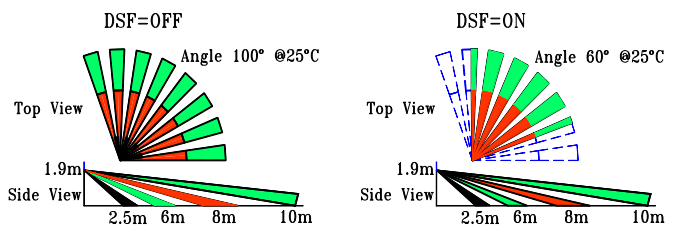Recommended Mounting Height: About 1.9 m above the floor.
Working Temperature: -20℃~50℃



**Fig. 9**