

# Intelligent Wireless Outdoor PIR Detector

## Installation Guide

### 1. General Introduction On Outdoor Application

This detector is remarkable in function, but the following notices can make it more stable if installer can pay attention to them:

#### SUNSHINE

Direct or reflective sun light is no good for detector operation, try to avoid them during installation. Our outdoor PIR adopts double-layered screen light sensing system, which is very effective for screening of interfering light.

#### WEEDS

High weeds and shrubbery in detection range may wave in wind and cause false alarm, especially for those detectors operating in horizontal fan area, so keep cutting on weeds and shrubbery.

#### RAIN

Sudden rainstorm can cool the hot pitch road or surface of other roads quickly. And all detectors can detect rain in the sky, but detector with down view window can even detect water on ground, which will bring much more interference to detectors outdoor than that mounted on wall, so everything will lower its temperature similar to water, human body or cars after pouring from rain can offer very little temperature gap for detection, so sensitivity will be lowered a lot.

#### INSECTS

Insects will trigger false alarm when they climb into detector or stay on lens, while those staying away from detectors can't trigger alarm. If there is interference from insects, please re-install detector or use insecticide. And please adopts strictly sealed components on those drilled holes or glass glue around detector.

#### CAR

Moving car in detection range may trigger false alarm to detector.

#### INSUFFICIENT TEMPERATURE DIFFERENCE

Detector is sensitive to change from temperature difference in detection area, if target temperature is very close to previous environment temperature, there will be no temperature change, detector sensitivity will be lowered and will not be triggered sometimes when there is intrusion.

#### DIRT ON LENS

Lens becomes easily dirty when used outdoor, so please check the lens from time to time in order to avoid alarm miss caused by low sensitivity from dirty lens.

#### UNSTABLE INSTALLATION BASE

Detector will trigger false alarm easily if installation base can be interfered by vibration, this is the reason why some detectors installed near to street can cause false alarm easily.

## 2. DISCLAIMER

### I. Product limitation

This wireless detector is a highly qualified product worthy of trust, but below situations might appear in radio transmission and certification limitation (FCC or other principles):

A. Whatever code is selected, control panel may be blocked caused by interference from radio signal or wave in similar frequencies.

B. Control panel can only receive an alarm signal from 1 detector in 1 time.

C. Make regular tests on radio devices in order to confirm interference is not from them and guarantee its stability

### II. Frequencies distribution in Europe

315MHz Limited in all EU members                      868.95MHz Allowed in all EU members

433.92MHz No limitation in EU members              869.2625MHz No limitation for all EU

### III. Standards

This device is certified with 1999/5/EC standards and index on radio and telecom terminal devices, 315MHz module is certified with 15<sup>th</sup> part of FCC standard, operation must follow below conditions:

(1) This device should not organize harmful interference

(2) This device must obey any interference source, including those may cause improper operation. Operator should not change the product at random, manufacturer not suggest or allow user to make modification on product except for those operation approved by FCC. Digital circuit of this product has passed test lab's test and follow B grade digital instruments standard; it is coherent with article 15 of FCC, these limitations offer protection to nocuous interference from family devices. This device mainly produce radio transmission power, improper installation may cause nocuous interference to TV or other radio devices. And also, there is no guaranty of nocuous RF interference after each installation. If device cause interference, can be recognized by switch on/off, user can lower interference by following steps:

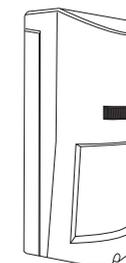
- Re-adjust or place position of antenna on receiver
- Enlarge distance between transmitter and receiver
- Turn to professional people or sellers.

## 3. Introduction on Products

This is a digital wireless motion detector with remarkable functions, it can avoid outdoor interference from sunshine, UV & RF, head light on car etc and is highly effective for water/dust/insects/ wind proof. It is matched with follow advanced technology: direct calculation and analysis technology from intelligent high-speed microchip to intrusion infrared signal, double polarity test technology, automatic temperature compensation technology, direct adjustment technology to sensitivity on digital signal, filtering technology from multi-layer infrared channels to mixed light. Its particular calculation on pets chargeable data can avoid false alarm caused by 25kg small animals effectively. At the same time, it is also outstanding in anti hot air, waving curtains etc, can offer forced test on the base of 2-grade sensitivities. Its unique low-power-consumption solution can offer a guaranty of 24 months' factory battery life expectancy. In a word, this detector is advanced and stable enough to offer best security Protection indoor and outdoor with its IP65 water proof structure.

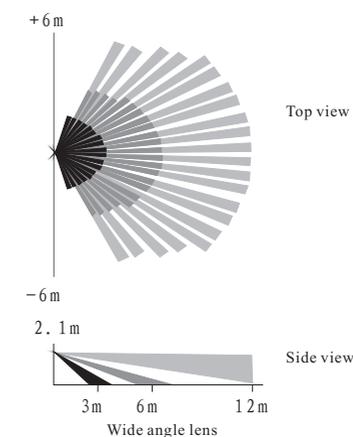
## 4. Main Function

- Super mini power-consumption solution
- 2 grade sensitivities for option
- Digital pet immunity up to 25kg
- Bi-directional temperature compensation
- High capacity battery (24 months guaranty)
- EDS/electric shock proof/mobile interference proof
- Anti white light
- Low voltage alarm
- Fully sealed optical parts
- Multi-direction bracket fit for corner/wall/ceiling mount



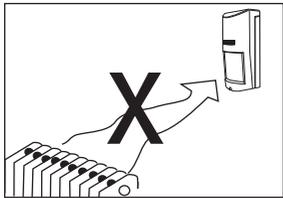
## 5. Technical Parameter

Power	: 3.6V 1/2 AA Lithium battery
Current	: 12uA (stand by) 15mA (alarm)
Mount height	: 1.8m-2.4m
Detection range	: 12m*12m 100°
Temperature compensation	: digital
Sensitivity	: 2/3 pulses for option
Anti EMI	: 0.1-500MHz/30V/m
Anti white light	: >10,000 lux
Alarm output	: EV1527 or PT2262
Alarm time	: 2s
Alarm interval	: 4 min (USE mode)
Wireless distance	: ≥200m (open space)
Frequencies	: 315/433MHz
Operation temperature	: -10°C/+55°C
Operation humidity	: 95% RH
Detection speed	: 0.2-3.5 m/s
Fire proof	: ABS plastic
Pet immunity	: 25kg
Water proof	: IP65
Size	: 148*75*54mm

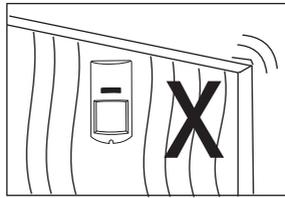


## 6. INSTALLATION GUIDE

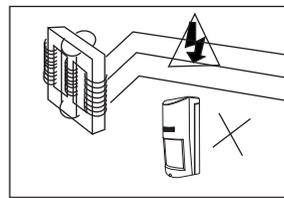
Select most suitable installation point fit for PIR detection, put detector onto proper position, keep away from door, window, running machine or heat source.



Don't face detector to cold/heat source



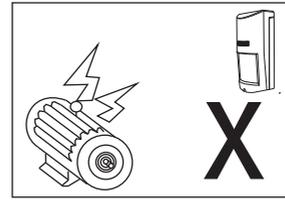
Installation base should be stable



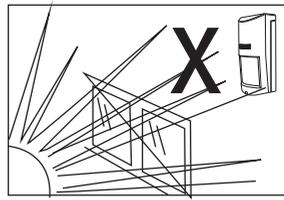
Keep away from high-pressure cable



Attention to car interference



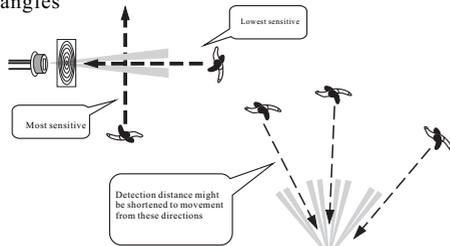
Keep away from strong EMI interference



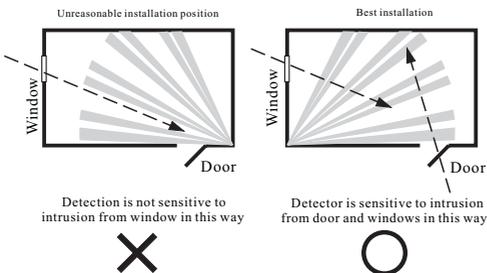
Don't face directly to the sun

### On installation angle

Detection is with mechanical difference to intrusion angles

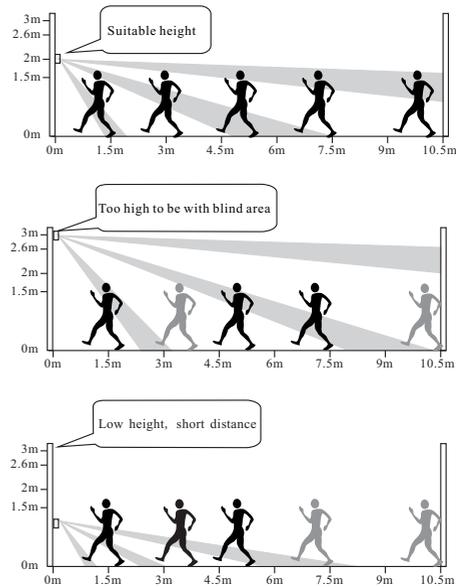


### On installation position



### On installation height

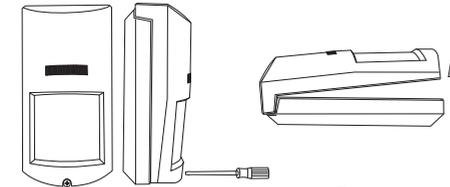
Recommended installation height is 1.8-2.4m



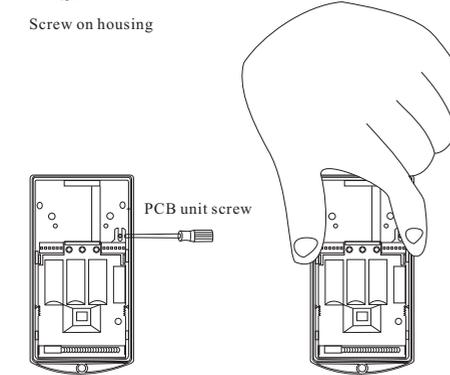
## 7. Installation & Bracket

### Wall mounting

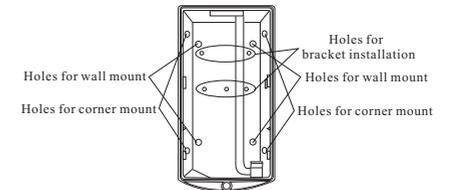
Use a cross-type screw driver to loose screw at bottom of housing and open covers as figure, and then move down PCB unit, then installation can be ready to start.



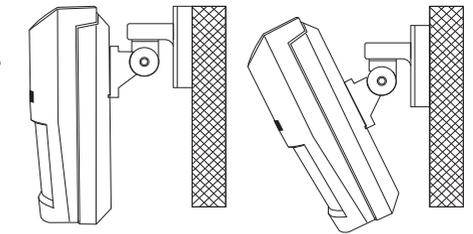
Screw on housing



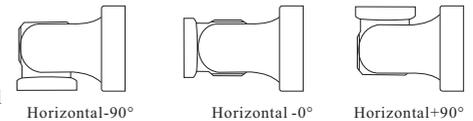
Loose PCB unit screw as figure, press down the buckles with 2 fingers, PCB unit can be taken down. Then detector can be installed according to actual needs.



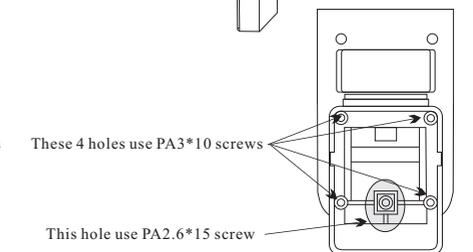
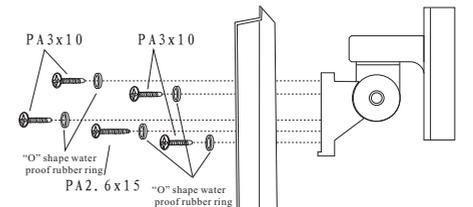
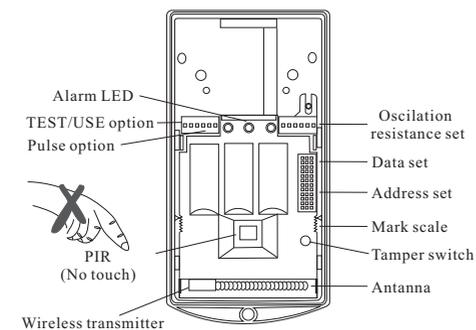
In order to get best signal coverage, detector must be installed at the height of 2.1m vertically. Make sure that there is no obstacle in front of detector, detection angle is wide. Make decision on which installation way according to actual needs, and then make a mark on needed holes on wall, drill 4 holes with 6mm diameter, insert relevant 4 rubber stoppers into the holes, then detector can be fasten onto the wall by screws.



Adopt bracket installation way, detector can get the best detection angle as bracket can be adjusted 180° horizontally and 30° vertically.

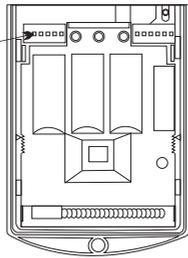
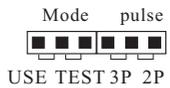


## 8. Internal parts



## 9. Different settings & walking test

TEST/USE mode switch

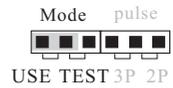


walking test

Set detector to TEST mode and turn on LED, close well the front cover and wait for LED OFF. Make horizontal movement in detection area and watch the PIR detection status on LED (when alarm is triggered LED will flash for 2 times continuously). This is to confirm that there is no blind angle for PIR in the protection spot. When intruder makes horizontal movement towards detector, sensitivity is the highest!

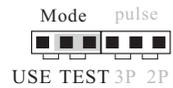
When detector is installed in different environments, please adjust PIR sensitivity and detection pulse properly. There are 2 grades for sensitivity: high and low. When pulse is set to 2, detector is with high sensitivity; when 3 pulse is set, detector is in low sensitivity. Normal settings is 2 pulse. Installer can turn off or turn on alarm LED according to actual needs after the test.

Strongly suggested: please select "USE" mode AND "LED OFF" set in order to keep battery working longer.



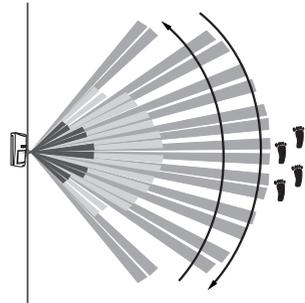
USE TEST 3P 2P  
USE mode (economical)

When jumper is set to USE mode, detector can be triggered for 4 minutes interval time for the purpose of battery energy save, this is recommended mode.



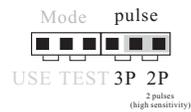
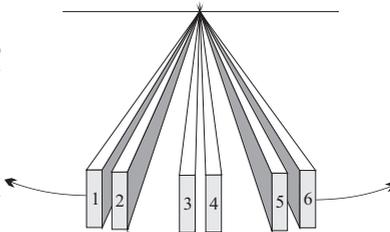
USE TEST 3P 2P  
TEST mode (costly status)

When jumper is set to TEST mode, detector can be triggered any time.



Setting on sensitivity pulse

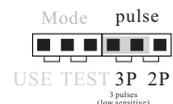
Signal process statement: this detector adopts direct analysis technology on digital signal, microchip will make analysis on frequency/range/polarity etc of detected signals and make comparison with frequent pets data in data base, after that, it will draw a real intrusion analysis and judgment. Here, pulse set is a general index for reference, it doesn't stand exact quantity of pulse during digital signal process.



USE TEST 3P 2P  
2 pulses (high sensitivity)

When jumper is set to 2P, detector is set to high sensitivity, alarm will be triggered when 2 pulses are detected

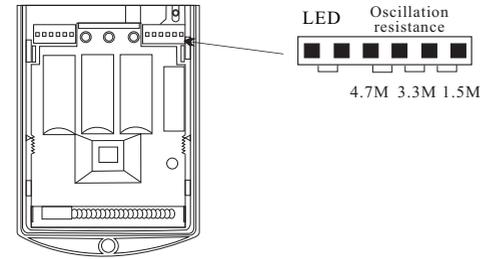
Fast detection on target



USE TEST 3P 2P  
3 pulses (low sensitive)

When jumper is set to 3P, detector is set to low sensitivity, alarm will be triggered when more than 3 pulses are detected.

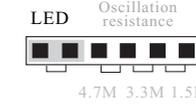
Excellent way to avoid false alarm



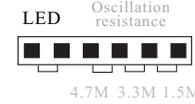
LED Oscillation resistance  
4.7M 3.3M 1.5M

Alarm LED control

When jumper is set to OFF mode, LED will not light even alarm is triggered, it is for the purpose of conceal and energy-save. (Recommended way)

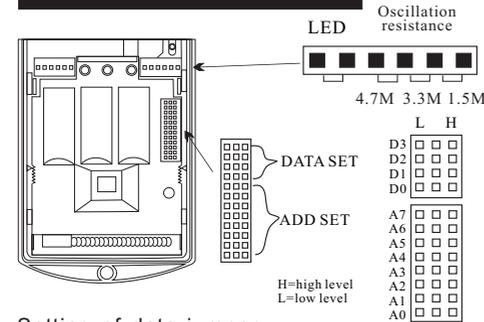


LED Oscillation resistance  
4.7M 3.3M 1.5M  
ON (LED ON)



LED Oscillation resistance  
4.7M 3.3M 1.5M  
OFF (LED OFF)

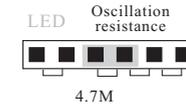
## 10. FROM WIRELESS TO WIRED



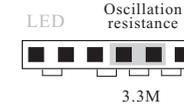
LED Oscillation resistance  
4.7M 3.3M 1.5M

L H  
DATA SET D3 D2 D1 D0  
ADD SET A7 A6 A5 A4 A3 A2 A1 A0  
H=high level  
L=low level

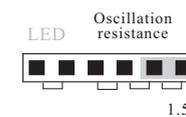
oscillation resistance setup



LED Oscillation resistance  
4.7M



LED Oscillation resistance  
3.3M



LED Oscillation resistance  
1.5M

Parameter corresponding with other control panels can be reached by setting of oscillation resistance on coding chips. Please refer to below figure, we have 3 modes: 4.7M/3.3M/1.5M

Setting of data jumper

Proper coding data for can be obtained by jumper setting on "DATA SET", then control panel can recognize the codes: D3/D2/D1/D0.

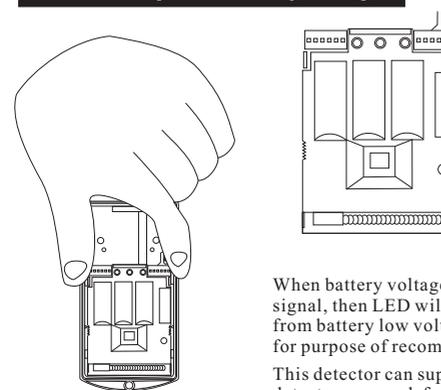
Setting of address codes

Different address ID can be obtained by setting on 8 jumpers on "ADD SET" for the purpose of recognition by control panel.

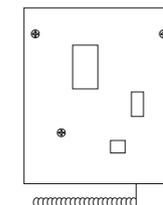


Note: some control panel doesn't allow data jumper to be empty, should be set to high or low level, if not, control panel can't distinguish the codes.

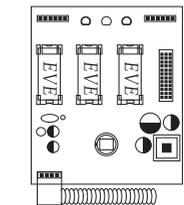
## 11. Low voltage and battery change



1. Move down PCB unit as figure



2. Loose down 3 screws as figure



3. Batteries can be changed now

When battery voltage is lower than 2.85V, detector will send out low voltage alarm signal, then LED will flash for 5 times continuously. If detector gets continuous signal from battery low voltage, it will send alarm signal to control panel every 60 minutes for purpose of recommendation to user on battery change.

This detector can support 3 of 1/2 AA batteries, if 3 of batteries are used together, detector can work for more than 24 months in USE mode.



Note: if 2 or 3 batteries have been working together, when need to change batteries, please change them in all and try to avoid mixed operation between new and old batteries.

## 12. Vertical adjustment

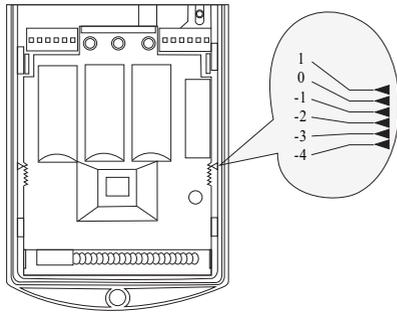
Detector can get its best detection by setting of PCB vertical height, strongly suggest installer should make optimum setting to PCB vertical height according to actual environment.

Mark -1: when PCB is set to this position, detector is with best pet immunity.

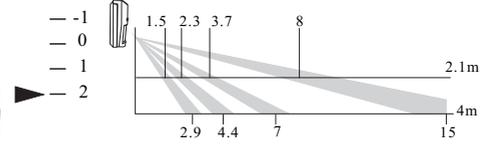
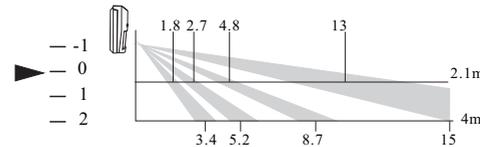
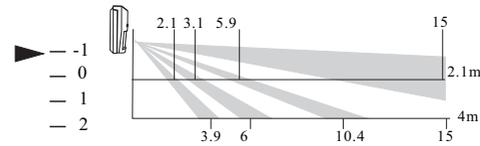
Mark 0: when PCB is set to this position, detector is at most standard status.

Mark 1: when PCB is set to this position, detector can avoid ambitious crawl intrusion; mean while, pet immunity function will be lowered.

Mark 2,3,4: when installation height is over 2.4m, in order to get best cover range, please move PCB unit to mark 4 position and make actual walking test to confirm actual detection range till complete protection requirements are reached.



Effect chart on wide angle lens adjustment



**Note:** if multi-directional bracket is used, detection range will be different from description above.

## 13. Pet immunity



Pet immunity is a high index for judgment of PIR detector function, we adopt 2 methods on pet immunity process at the same time:

1. Physical method: special process of Fresnel lens detection area to lower false alarm rate caused by small animals
2. Software analysis method: analysis on technical data on detector signal and make comparison with data base in the microchip in detector, then draw a conclusion on moving object to verify it is human being or pets.

From above we can know that function of pet immunity is relevant, this relativity includes 2 parts: firstly, pet immunity is relevant, but its false alarm rate is greatly lowered comparing detectors without pet immunity function, at the same time, there is limitation on pets' quantity and size. Secondly, installation is very important to pet immunity, it is with some requirements, not a random installation can reach a good result, so please read details in the manual before installation.



Note: we can omit those animals below 1m or 25kg on ground, but as pets approaching detector, its moving frequency will change, and pet immune function will be weakened, so a reasonable position is strongly suggested to be selected to avoid pets' approaching.



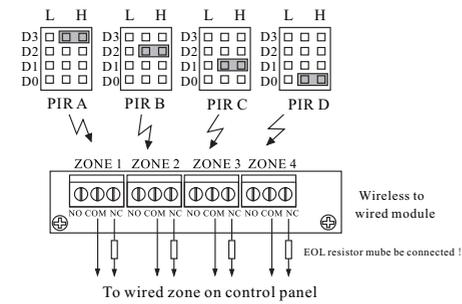
Note: when pet immunity function is required while multi-directional bracket is used, detector should be vertical to wall, no leaning. And bracket adjustment is allowed in horizontal direction, detector should be installed vertically to ground!

## 14. Wireless to wired device

### BRIEF INTRODUCTION

This control unit is compatible with wireless remote control and wireless detector with various kinds of micro chips or multiple codes, and protocols can be 2262/2260/1527/2240. How can wireless detectors be connected to wired control panel?

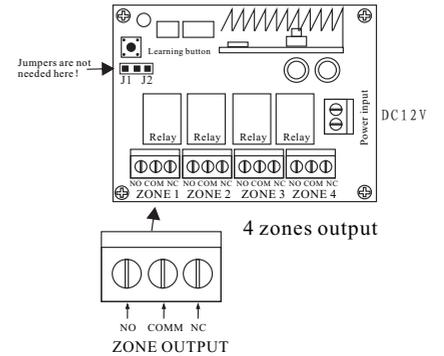
This intelligent wireless receiver with 4 channels is with 4 relays and can control the open/close conversion of switch and various kinds of special control procedures. This unit is with the characteristics of stable performance, small size and high receiving sensitivity etc, can be used in intrusion alarm to reach the conversion from wired to wireless system.



### Main specifications

Power: DC 12V  
Power consumption: 6mA  
Receiving sensitivity: over 105dBm  
Frequency: 315M/433M for option  
Output capacity: 1A  
Size: 72mm\*52mm\*26mm  
Study/delete way and steps

1. Press down "STUDY" key, the indicator will turn on, then leave go off, trigger detector and LED gives 2 flashes and turn off, study is successful.
2. Delete: keep pressing down the STUDY (the black knob) key for 8 seconds, indication will turn off then all messages are deleted successfully.



## 15. Common trouble and solutions

Trouble	Possible reasons	Solution
Power LED doesn't light	1. Battery low voltage (below 3.2V) 2. Poor contact between battery clip and battery 3. Reversed battery installation 4. Don't switch on LED control 5. May in USE mode	1. Check battery voltage and change new battery 2. Re-install battery or polish contact 3. Make correct installation 4. Turn on LED during test 5. Select TEST mode
Detection distance less than 12m	1. Improper installation height 2. Improper installation angle 3. PCB not in best position	1. Re-adjust installation height (1.8-2.4m) 2. Adjust installation angle 3. Adjust PCB unit vertical position
Short battery life	1. Poor battery quality 2. Detector not in USE mode 3. Alarm LED not turn off	1. Change high quality battery (Use factory battery or brand-named battery) 2. Set jumper to USE mode 3. Turn off alarm LED to save energy
Not compatible with control panel	1. Different protocol 2. Improper resistance 3. Wrong data set 4. Some address jumpers can't be empty	1. Select proper codes and protocol 2. Select proper resistance 3. Select proper data set 4. Set address pin to H or L
Short wireless distance	Control panel can't receive alarm signal from detector after alarm is triggered.	1. Change detector position 2. Pull out antenna on control panel to longest position 3. Select high sensitivity control panel 4. Add a repeater 5. Environment is not suitable for wireless control panel installation
False alarm	1. Periodical alarm, 1 alarm each 60 minutes 2. Tamper switch alarm 3. Strong interference nearby 4. Pets' height and weight more than detection limitation 5. Sunspot activity period 6. Operation temperature over limitation 7. Water goes into detector 8. Strong environment interference	1. Low battery voltage, change it 2. Reset tamper switch 3. Keep detector away from strong interference 4. Pay attention to big animal's intrusion 5. No need to handle, it will resume after sunspot passes 6. Operation in recommended environment 7. Pay attention to water proof, add O shape water proof rubber ring 8. Set sensitivity to 3P