

# MANUAL FOR DUAL-CURTAIN OUTDOOR PIR DETECTOR FOR BOUNDARY PROTECTION

## 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° 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 innocuous interference from family devices. This device mainly produce radio transmission power, improper installation may cause innocuous interference to TV or other radio devices. And also, there is no guaranty of innocuous 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**

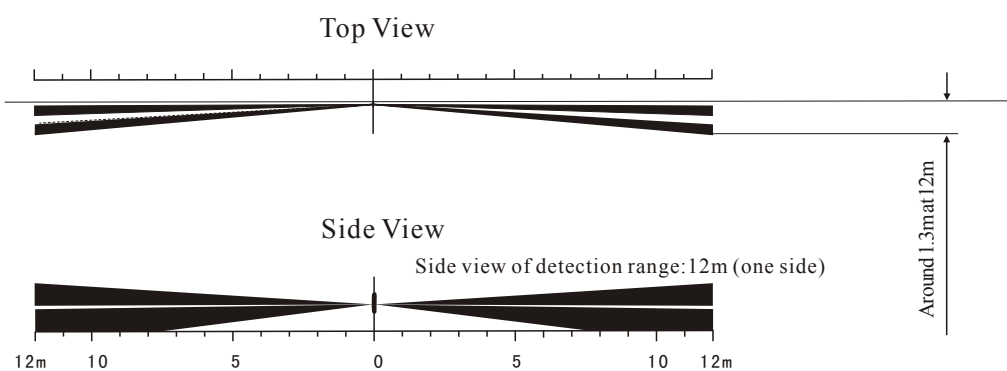
This is a remarkable digital outdoor curtain style PIR detector, which can avoid external interference from sunshine, UV, radio frequency and truck headlight. It is very effective to avoid interference from humidity, dust, insects and wind also. This detector adopts very advanced technology as below: direct analysis technology to intrusion PIR signal from digital high-speed micro-processor; automatic temperature compensation technology, direct adjustment to digital signal sensitivity; filtering technology to mixed rays from multi PIR channels etc.

At the same time, it is also with extra technology of anti-mask from active infrared light, which can protect its efficiency when detector is blocked intentionally. When alarm is triggered, built-in buzzer can send out alarm sound to frighten intruder. Its curtain style protection advantage can guarantee detector's stability when used in particular environment. And the IP-55 water proof can offer best protection when used both indoor and outdoor.

## 4. Characteristic Introduction

- Elegant and flexible appearance design
- Bi-direction temperature compensation technology
- Active infrared anti-mask
- 2 grades anti-mask sensitivities adjustable
- With frightening alarm audio
- 2 grades of alarm audio sensitivity adjustable
- Remote control to audio
- EDS/anti electric strike/anti mobile interference
- Seletable 3-grade detection range
- Curtain style detection range
- Multi-layer anti white light design
- IP-55 water-proof, anti-insect and dust proof design
- Advanced SMT technology
- Simple and convenient bracket installation
- Imported excellent ABS resin and anti-uv housing

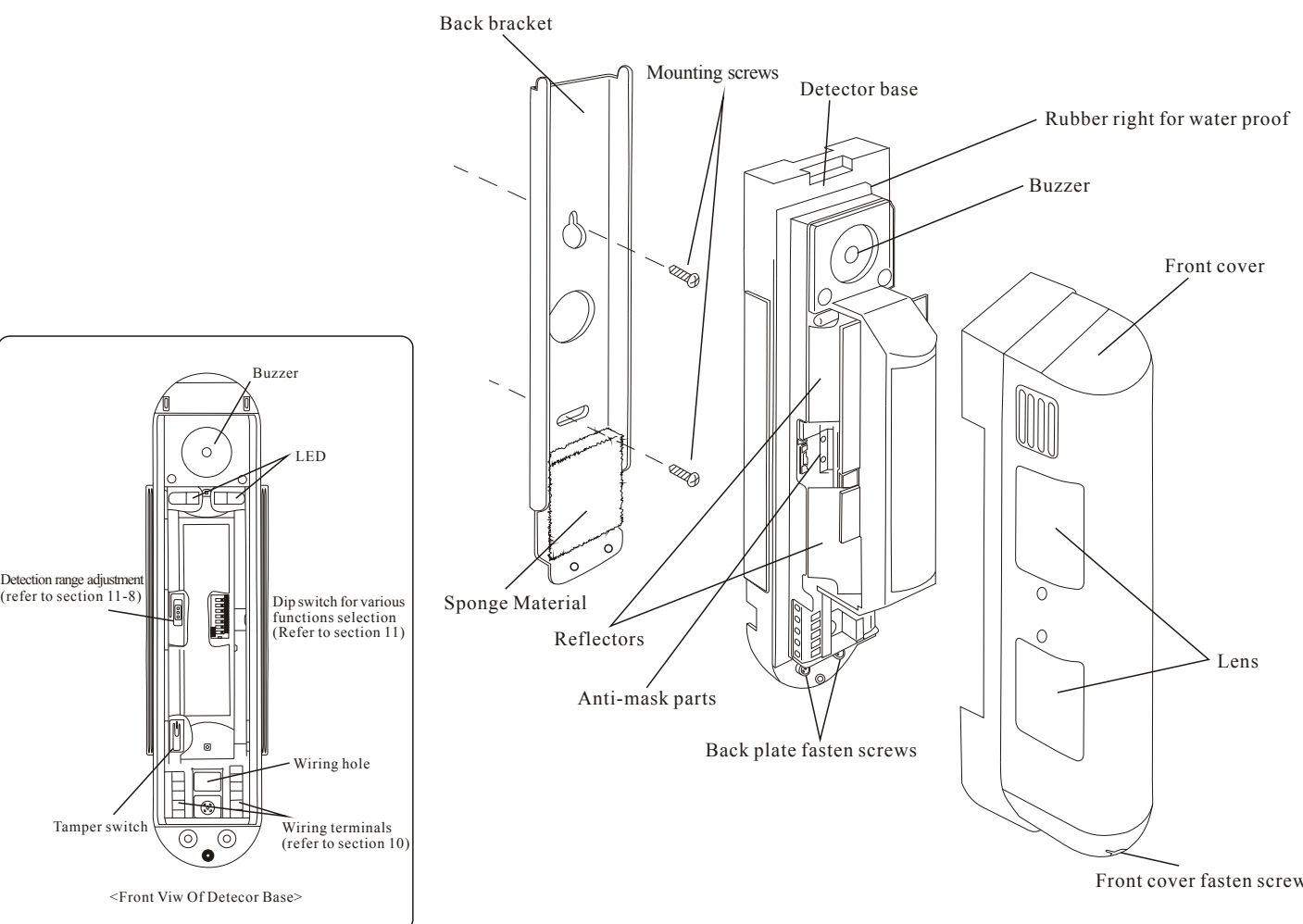
## 5. Detection Area



### IMPORTANT NOTE

This product detects temperature difference between the moving objects and the background temperature of detection area, so if the object doesn't move, detector can't detect it. Additionally, the temperature of object might affect detector's maximum detection range.

## 6. Parts Name



## 7. Installation Notes

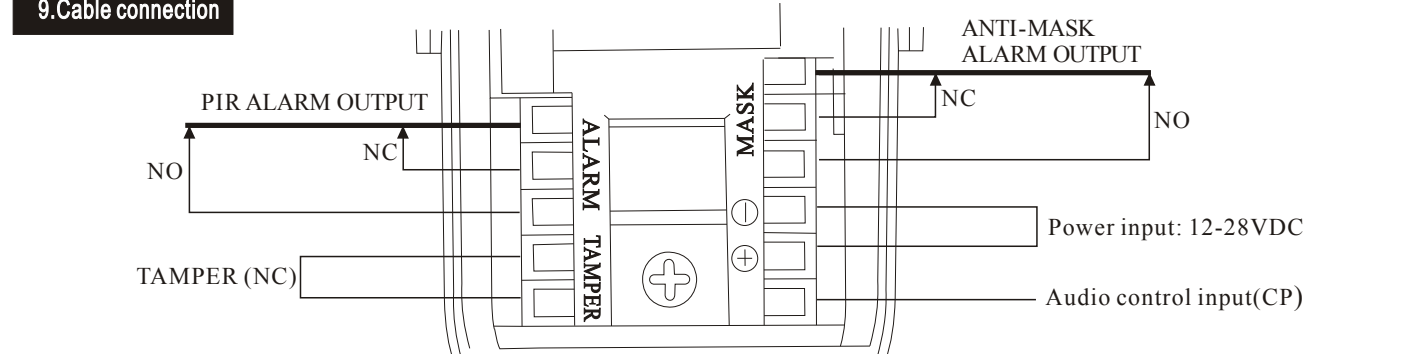
Please refer to following notes in order to get best product operation. If operation doesn't following these notes, detector might possibly malfunction or can't reach its best performance.

- 1** Installation height is 0.8-1.2m
- 2** Detector should be installed upright with its upper detection range parallel to the ground. If its installation is with some angle to the ground, its operational stability might be reduced.
- 3** Avoid its lower detection range facing reflective objects such as puddles, windows etc which might cause false alarm
- 4** Avoid detector aiming at moving objects such as swaying trees, bushes, flags etc. If can't avoid those moving objects, please make proper installation refer to trouble shooting figure
- 5** Make correct installation and make sure that detection range is parallel to wall surface
- 6** For proper trigger, please don't install detector too far away from wall surface
- 7** Don't install detector on instable base such as fence and trees
- 8** Install detector away from corrosive liquor or too much humidity
- 9** Correct installation

## 8. Installation

- 1** Loose front cover fasten screw and remove front cover. Don't touch lens surface
  - 2** Loose back bracket fasten screw. Don't touch reflectors.
  - 3** Hold the detector unit and slide metal bracket down can separate bracket and detector.
  - 4** Lead cable in through wiring hole and install bracket on wall upright with fastening screws(2 positions), make sure installation height is between 0.8-1.2m.
  - 5** Lead cable in through wiring hole on bracket to connection terminals, make sure cable is between sponge and bracket for the purpose of anti-dust and insects.
  - 6** Fasten detector base onto metal bracket and metal bracket onto wall by screws.
- Exposed wiring**
- Lead cable in through detector base and connect to terminals. And lead it out from the lower side of detector base, make sure that cable is between sponge and metal bracket for purpose of water proof, dust proof and anti insects.
- Breakout the pre-set knockouts for exposed wiring on two sides of front cover with a tong, and fasten front cover back to detector base after cable connection.

## 9. Cable connection



● Power cables should not be longer than below length:

	12VDC	24VDC
AWG22 (0.33mm <sup>2</sup> )	150m	500m
AWG20 (0.52mm <sup>2</sup> )	250m	760m
AWG18 (0.83mm <sup>2</sup> )	400m	1200m
AWG16 (1.31mm <sup>2</sup> )	600m	1800m

● Note: when more than 2 detectors are connected onto 1 cable, the permitted max length should be by dividing the listed max length by detector quantity installed.



### 10. Setting of functions

As this detector is very powerful in function, please make careful reading of this chapter and make proper setting according to actual environment in order that detector can perform its best function

**1 DIP-1 for audio volume selection**

When audio alarm function is activated, audio level can be adjusted by this switch. When switch is set to ON, volume is low, when it is set to OFF, volume is high.

**3 DIP-3 for selection of use/test modes**

This switch is used for select use mode or test mode during test. When set to ON, detector is in test mode, when set to OFF, detector is in use mode.

In TEST mode, when detector is triggered, audio sound is "DI..." for 2 seconds; in USE mode, when detector is triggered, audio sound is "BI BU" for 15 seconds.

**5 DIP-5 for ON/OFF of active infrared ray anti-mask.**

This switch is used for turn on or off of active infrared ray anti-mask. When set to ON, anti-mask is turn on; when set to OFF, anti-mask function is turn off.

Active infrared ray anti-mask function: in order to avoid malfunction when detector PIR is blocked intentionally, anti-mask function is adopted on two sides of detector in order to increase its protection ability, anti-mask distance is around 15-40cm according to actual blockers.

**6 DIP-6 for sensitivity control of anti-mask.**

This switch is used for control of anti-mask sensitivity. When it is set to ON, anti-mask is in low sensitivity, when it is set to OFF, anti-mask is in high sensitivity.

**7 DIP-7 for LED on/off control**

This switch is to select turn on or off of alarm LED. When set to ON, LED is turn on, when set to OFF, LED is turn off.

< Voltage type >

In case there is programmable (PGM) output terminal from control panel. (high or low)

In case there is negative type output or relay output from control panel (NO or NC)

**2 DIP-2 audio alarm ON/OFF**

Audio alarm can be turn on or off by this switch, when switch is set to ON, audio alarm is turn on; when switch is set to OFF, audio alarm is turn off.

Audio sound can be "DI..." for 2 seconds or "Bi-Bu" for 15 seconds, actual status is related with setting of DIP-3.

NOTE: After connected with power, detector will send out "DI DI DI" for 3 times and then turn to warm-up status, this "DI DI DI" sound can't be switched off.

**4 DIP-4 for audio alarm function control**

When DIP-3 is in USE mode, detector's audio alarm can be turned ON or OFF remotely by status of DIP-4 and high/low level control signal from CP terminal.

Detector alarm audio	DIP3	DIP4	CP terminal control voltage	detector mode
Bi-Bu	OFF	ON	5-18VDC	USE mode
No sound USE mode	OFF	ON	0-1VDC	USE mode
Bi-Bu	OFF	OFF	0-1VDC	USE mode
No sound USE mode	OFF	OFF	5-18VDC	USE mode

When both upper and lower detection ranges are blocked at the same time, audio alarm sound will send out "BI BU" sound for around 15 seconds (around 70db) to intruder. This function can be controlled by PROGRAMMABLE control panel remote output, please refer to following figure on its cable connection statement:

<Wiring figure for audio alarm function only when alarm control panel is armed>

< Non voltage type >

In case there is no negative type output from control panel

In case there is negative type output or relay output from control panel (NO or NC)

**8 Detection distance control**

Operator can get needed detection distance by control of 3-grade switch, among which "FAR" grade means 8-12m; "MID" is 4-8m while "SHORT" is 2-4m.

- "FAR" grade: detection distance is 8-12m
- "MID" grade: detection distance is 4-8m
- "SHORT" grade: detection distance is 2-4m.

**9 Low voltage test**

When power supply is lower than 11VDC, detector will send out BI-BI sound continuously to remind installer after warm up, and it will inhibit all other functions. Then please increase voltage (over 12VDC) or change a new power supply, otherwise, detector can't function well.

**11. Anti-mask setup**

In order to avoid ambitious block of infrared channels by intruder before actual intrusion during normal operation, we add extra IR anti-mask function into this detector. With this technology, blockers with 10-40 cm on two sides of detector can be detected and anti-mask alarm output can be triggered. (Actual range will be depend on material of blocker)

When blocker appears in effective detection distance, anti-mask alarm signal will be sent out quickly, then red LED on 2 sides will flash for several times, if blocker stays there, led will flash for 10 times and relay will keep clicking for 5 seconds and then return to normal status; 1 minute later, led will flash for 10 times again and relay clicks for 5 seconds and buzzer will send out "BI BU, BI BU" sound for 5 seconds till blocker disappear. Set up of IR anti-mask on and off please refer to statement of 10-5. Set up of IR anti-mask sensitivity please refer to statement of 10-6.

IR anti-mask module

Blocker

Detection distance is around 10-40cm

Blocker

Detection distance is around 10-40cm

During this status, alarm will be triggered when anti-mask can be detected

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● Reflective rate of normal material:

Material	Reflective rate	Material	Reflective rate
White drawing paper	90%	Non-transparent black plastic	14%
Newspaper	55%	Black plastic	4%
Napkin	47%	Black cloth	3%
Clean pine	70%	Light metal surface	150%
Clean thick wood board	20%	Non-polish white metal surface	130%
Transparent plastic cup	40%	Stainless steel	200%
Semi-transparent plastic bottle	62%	Package carton, hard paperboard	68%
Non-transparent white plastic	87%	Palm	75%

**12. Walking test**

Make cable connection and installation according to actual requirement, set DIP-7 to ON position at least (For other setup, please refer to section 11). After power connection, detector will send out 3 "DI DI DI" sounds and then LED will flash and detector enter warm-up status. Walking test can start after warm-up.

Walking test should be performed in the protected area, when PIR is triggered, LED will flash for more than 2 seconds and relay will keep functioning for more than 2 seconds.

If audio alarm function is turn on, when detector is triggered, there might be "BI BU, BI BU" or "DI DI DI" sound according to different setting.

- The following intrusions can trigger correct alarm

- Intrusion from right side of detector can trigger alarm
- Intrusion from left side of detector can trigger alarm
- Intrusion from both sides of detector at the same time can trigger alarm

- The following intrusions will not trigger detector

- The upper sensor doesn't detect human body, will not trigger alarm
- The lower sensor doesn't detect human body, will not trigger alarm
- Intrusion from detector blind area, will not trigger alarm

- Walking test should be performed at least 1 time each year

When both upper and lower detection range are blocked at the same time, if LED and buzzer are both not triggered; or when there is no intrusion in detection range but LED and buzzer are always triggered, please read section 14 for trouble shooting.

**13. Technical parameter and dimensions**

Detection way	Passive Infrared
Coverage range	24m(12m each side)
Detection zones	4 zones (2 zones each side)
Sensitivity	0.6m/s during 16
Detectable speed	0.3-2.0s
Input power	12-28VDC
Power consumption	80mA (max)
Alarm period	2.0±1.0s
Relay output	No&NC max
Tamper switch	NC opens when front cover removed
Range detection mode	On/off
Warm up period	around 45 secs (LED blinks)
Audio alarm volume	around 70db at 1m
Alarm led	Blinks during warm up and alarm period
Operation temperature	-20! - 60!
Environment humidity	95% max
Anti RF interference	no alarm below 20v/m
Installation	Wall (indoor/outdoor)
Installation height	0.8-1.2m
Weight	395g
IP grade	Ip55
Accessories	Installation screws (4*20)*2

Dimensions: 70, 239, 55, Location hole: 98

inches (mm)

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

**14. TROUBLE SHOOTING**

No activation

- Does LED light?
  - NO: Is the LED switch set [ON]?
    - YES: Check if the power voltage is between 12 to 28VDC.
      - YES: Call technical support.
      - NO: Remove wires from power supply output terminals. Does the power now satisfy the requirements?
        - YES: The power supply may be faulty, repair is required, or call power supply manufacturer.
        - NO: Wait for 45 seconds after power on.
          - Power cables may be too long for the gauge being used. This will cause the voltage to drop. Use heavier cable or use additional power supplies closer to the farthest units. If you are unsure of the proper wire gauge, call technical support.
          - The power line is short circuited or grounded. Repair as required.
      - NO: Set the switch [ON]. (See section 10-7)
      - NO: Correct Wiring.
      - NO: Call technical support.
    - YES: Is the alarm output of the it wired properly?
      - NO: Correct Wiring.
      - NO: Call technical support.
      - YES: Is there a possibility that the warm-up period is not finished. Check if it passes more than 45 seconds after power is on.
        - NO: Wait for 45 seconds after power on.
        - YES: Call technical support.
- LED blinks continuously
- No buzzer sounds
- Makes alarms even when there is on moving object in the area
- No detection occasionally
- No detection from anti-mask
- False alarm from anti-mask
- Buzzer will send out BI-BI sound continuously after warm up