PHOTOELECTRIC

DUAL BEAMS DETECTOR

30m/60m/80m/100m/150m

Photoelectric Dual Beam Detector User Manual
30m/60m/80m/100m/150m

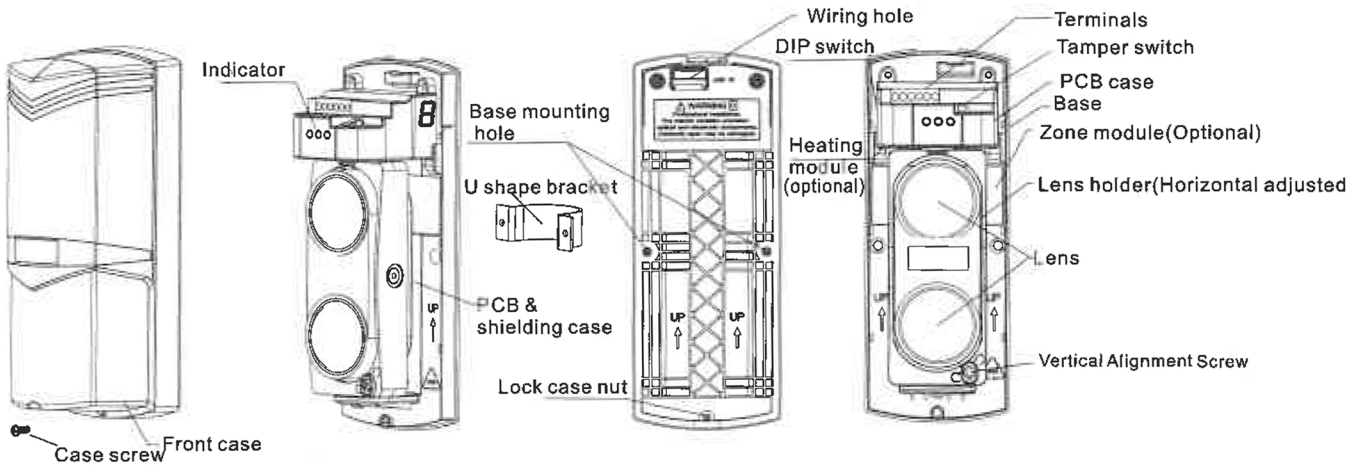
◆ Thanks for purchasing photoelectric dual beam detector, please read the user manual carefully before installation.

⚠ WARNING	Do not use the product for purposes other than the detection of moving objects such as people and vehicles. Do not use the product to activate a shutter etc. which may cause an accident.
	Do not touch the unit base or power terminals of the product with a wet hand (do not touch when the product is wet with rain etc.) It may cause electric shock.
	Never attempt to disassemble or repair the product. It may cause fire or damage to the devices.
	Do not exceed the voltage or current rating specified for any of the terminals during installation, doing so may cause damage to the devices.
⚠ CAUTION	Do not pour water over the product with a bucket, hose etc. The water may enter which may cause damage to the devices.
	Clean and check the product periodically for safe use. If any problem is found, do not attempt to use the product as it is and have the product repaired by a professional engineer or electrician.

1.Features

- 4 frequencies selectable for long distance and stacking installation.
- Interruption time adjustable, user can adjust it according to environment and scenes.
- Intelligent heating function, effectively eliminate ice and frost, adapt to harsh environment.
- Progressively infrared signal processing functions (comparable with AGC function) to ensure the item work in wind, frost, snow, fog, moisture, direct sunlight and other bad weather etc.
- Digital CPU control circuit, to control the transmitter and receiver.
- Optional assisting equipment for alignment infrared beam,improving the efficiency.
- Wide range voltage design, power supply between DC12V-24V, easy for centralized power supply.
- A variety of applications C relay outputs.
- Tamper switch, open if the cover is removed.
- Waterproof grade : IP65.
- Alignment angle horizontally ± 90 °, vertically ± 10 °.

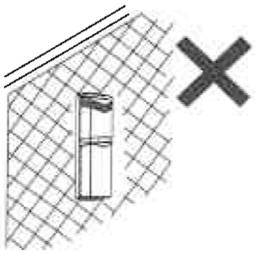
2.Part Description



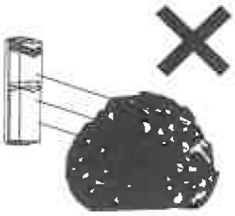
Front Case　　Base　　Body

3.Installation Notes

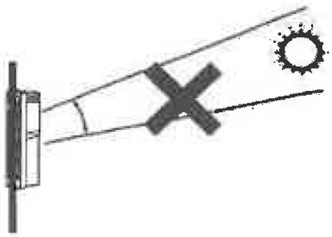
(1).Please avoid below situations to assure performance



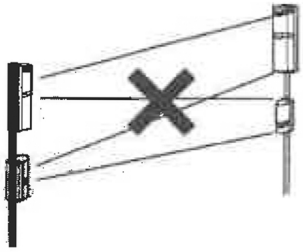
1.Do not install on the unsteady or not soiled surface



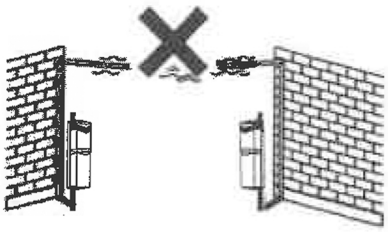
2.Do not install the unit where objects can block the beams like the plants and laundry can be moved by wind



3.Prevent direct sunlight or fluorescent object entering into internal receiver



4.Avoid any other detector interference (stack installation only for same model)



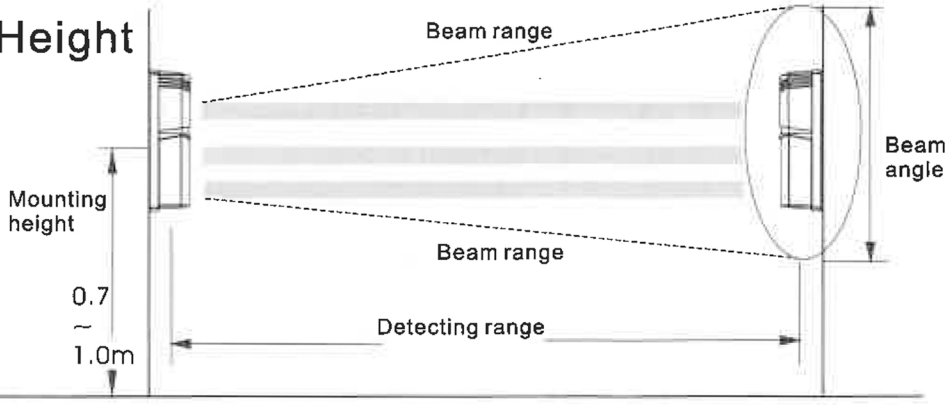
5.Avoid aerial wiring

(2).Normal installation

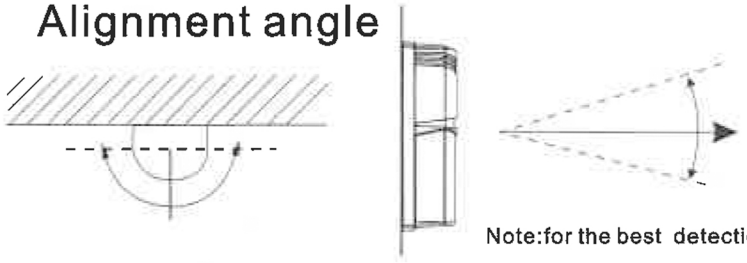
◆Detection distance

Model	Detection Distance	Beam Angle
30m	40m	1.2m
60m	60m	1.6m
80m	80m	1.8m
100m	100m	2.0m
150m	150m	2.4m

Mounting Height



Alignment angle



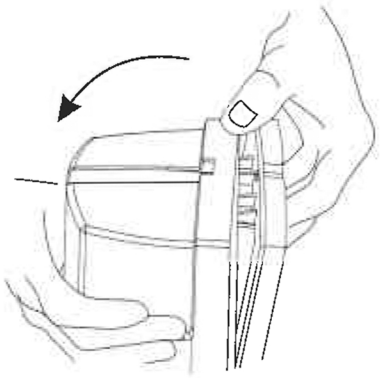
Horizontal 180° (±90°)

Vertical 20° (±10°)

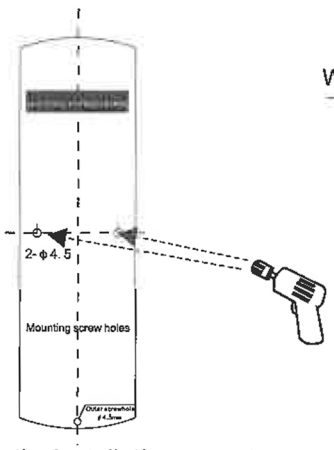
Note:for the best detection performance,please avoid detecting at 45°

4.Setting Method

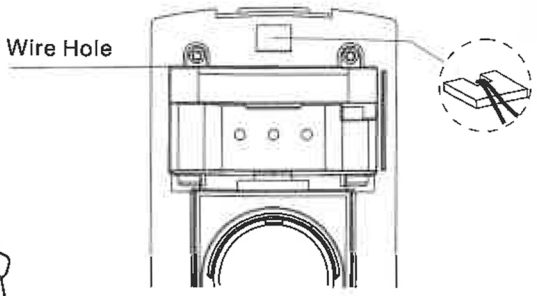
◆ Wall mounting



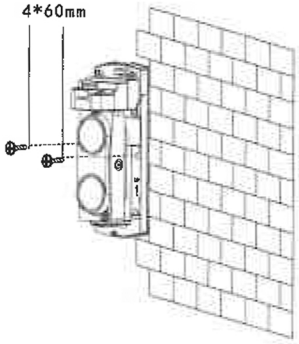
1. Loosen the screw and remove the cover



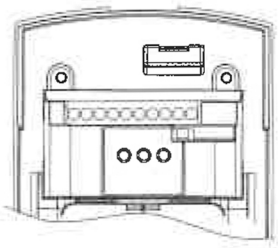
2.Attach the installation paper to the wall, mark the holes first and then make the guide holes.



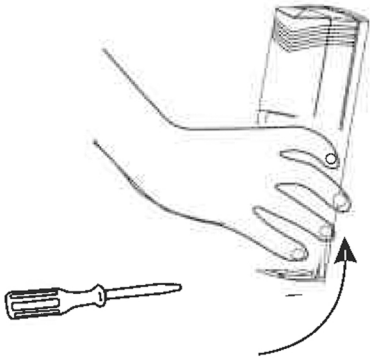
3.Wiring hole: Remove the foam plug, pull wire through, leave a 10cm-long wire for connection and reset the foam plug.



4. Drop into the two holes with the expansion pipes, fix them with screws.

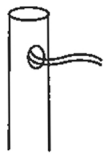


5. Connecting wires to the terminals (please refer to "beam alignment")



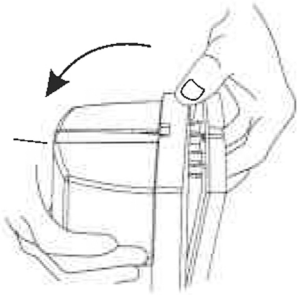
6. Review and reset the cover and tighten the screws.

◆ Pole mounting

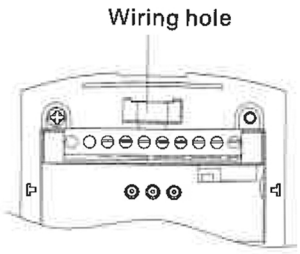


Bracket Outer Diameter
φ38~ φ50mm

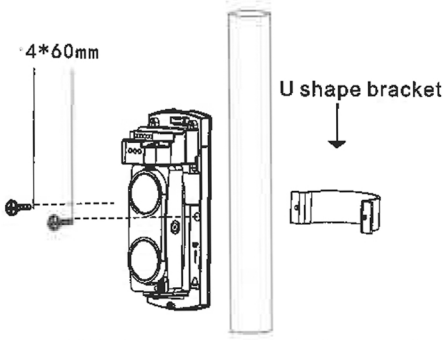
1.Break out the wire hole and pull out the wires.



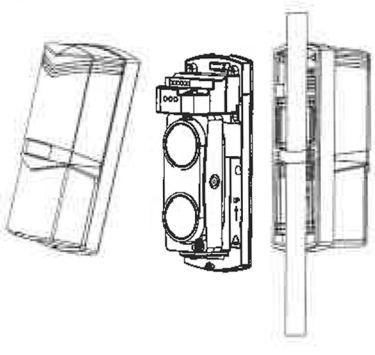
2.Remove the cover



3.Drop into the holes with expansion pipe, leave a 10cm-long wire for connection, then fix it with screws.



4.Fix 2 beams sensor to the stand

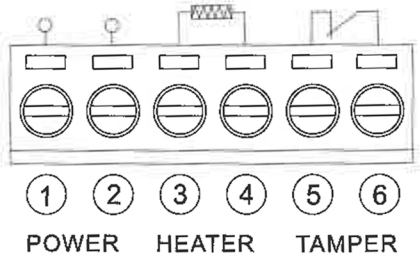


5. back to back installation

5.Connectors

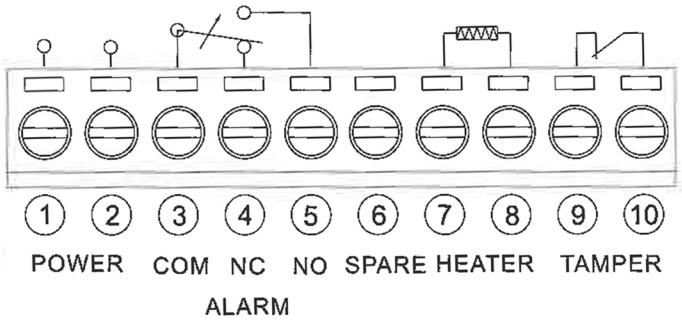
Warning When installation, don't connect the port with the voltage or current which is over the normal specification!

Transmitter terminals:



1.Power input DC 10V-24V
2.No heater in the package, please order if required.
3.The tamper switch is independent of other circuit, it would open if the cover was removed.

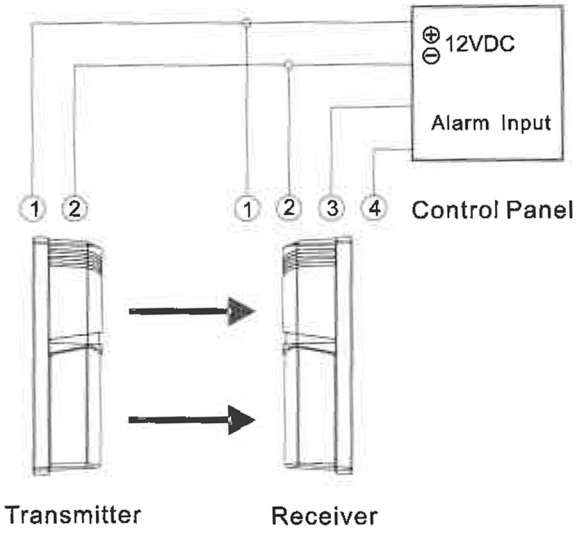
Receiver terminals:



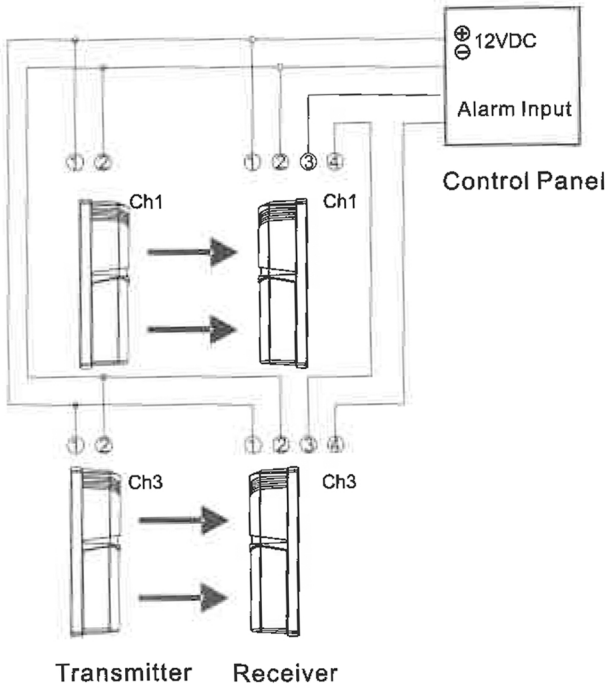
1.Power input DC 10V-24V
2.No heater in the package, please order if required.
3.The tamper switch is independent of other circuit, it would open if the cover was removed.
4.Relay contact 1C 30V DC 0.5A max

6.Connecting Wires

(1).Single connect: Control panel operating voltage DC12V, NC alarm output. Connecting to power supply parallel

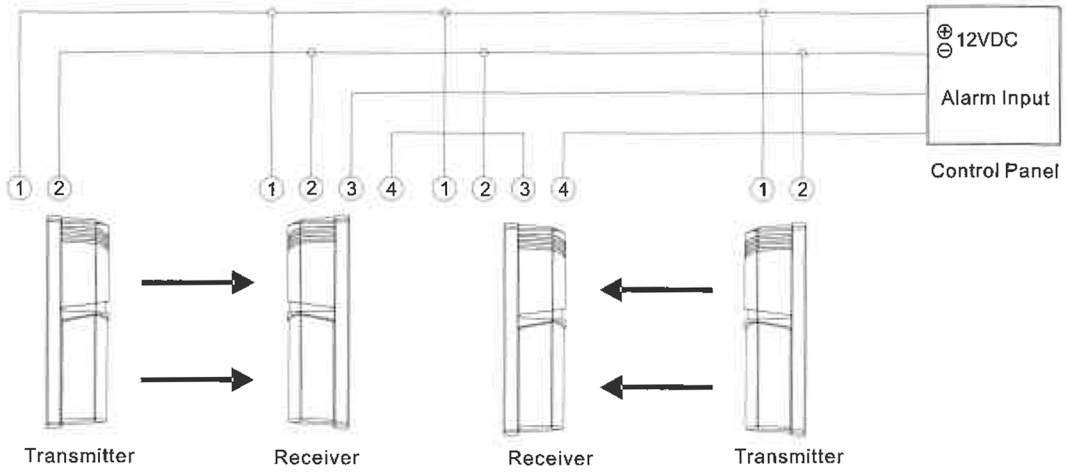


(2).Stacked connect: Control panel operating voltage DC12V,NC alarm output series connect



2 pairs install: the power of the transmitter and receiver are paralleled connection, using DC 12V by control panel,alarm output is NC

As below:



◆ Wiring distance between the power supply and the detector should not exceed the following table length.

Diameter \ Length \ Voltage	DC12V	DC 24V
0.5mm² (Diameter 0.8)	100m	500m
0.75mm² (Diameter 1.0)	150m	750m
1.0mm² (Diameter 1.2)	200m	1000m
1.5mm² (Diameter 1.4)	250m	1250m

Warning

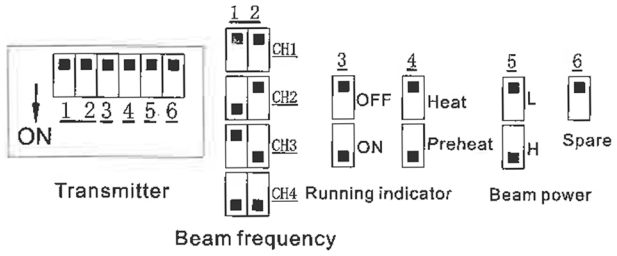
1.The power wire can't exceed the listed length.

2.When connecting multiple detectors, the required cable length is divided by the corresponding number of units listed.

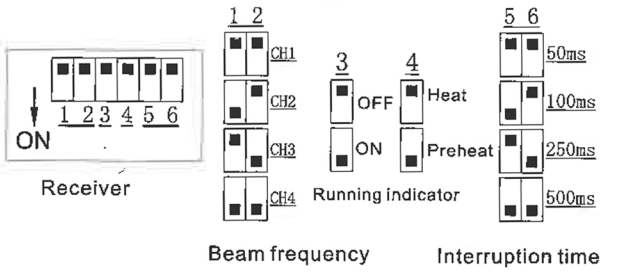
3.Don't connect the port with the voltage or current which is over the normal specification.

7.DIP Switch Explanations

DIP switch show on the left side of the main PCB, as shown in following figure.



(1)DIP switch 1 and 2 used for setting beam frequency, the position must be the same for transmitter and receiver.
(2)Transmitter running indicator, after debug, please set it as OFF to save energy.
(3)Preheat function used for testing heating function, the constant temperature control is higher than heating.If customer choose heater, please set it as heating position to save energy.
(4)The transmitter beam frequency has two grades: high and low,can be set according to alarm distance.



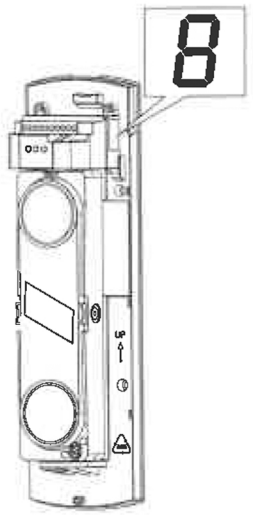
(1)DIP switch 1 and 2 used for setting beam frequency, the position must be the same for transmitter and receiver.
(2)Transmitter running indicator, after debug, please set it as OFF, and set digital tube as OFF to save energy.
(3)Preheat function used for testing heating function, the constant temperature control is higher than heating.
(4)Interruption time need to choose according to installation place.
(5)Each interruption time set as the maximum detectable time. Faster speed may be not detected. To birds,newspaper,leaves etc, they can interrupt beam occasionally,setting longer interruption time. After adjusting interruption time, verify is needed.

8.Optic Axis Adjustment

1.Adjust the same frequency of the receiver and transmitter. For example transmitter is CH1, receiver shall be CH1

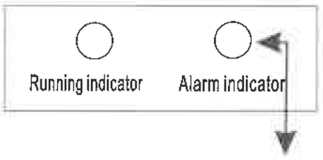
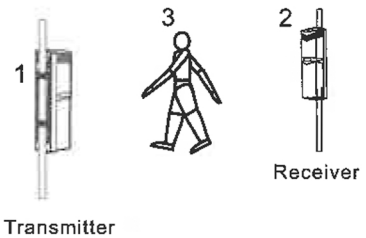
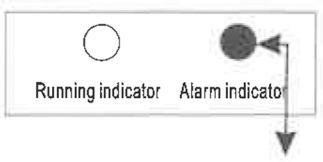
2.Aligning the transmitter and receiver by adjusting vertically and horizontally. LED will display 0~9 , 0~4 means no signal in the alarm situation, relay alarm output, alarm LED and the lower digital tube light. Optic axis adjust correct, LED will show 9.

3.After finish the vertical and horizontal adjustment, please conduct working test to ensure the device work normal



Signal strength	0~4 Realign 5~6 General 7~8 Good 9 Excellent

9.Walk Test

	Please make sure the alarm LED indicator and the decimal point LED OFF .If they are ON even though the beams are not blocked, please re-align the beams and checking wiring.
	After alignment, block the beams as below: 1.In front of transmitter 2.In front of receiver 3.In the middle of transmitter and receiver
	If the alarm LED indicator and the decimal point LED are ON when the beams are blocked, means installation is successful.

Note: If the alarm LED indicator is OFF even though the beams are completely blocked, refer to the "Trouble Shooting".

10.Troubleshooting

Symptom	Possible Cause	Remedy
Power on, but indicator LED does not light (off)	1.Power cable without voltage 2.Broken circuit or short circuit 3.Polarity is incorrect 4.Beyond specified voltage 5.Power cable exceeds the specified length	1.Check power adapter, circuit and voltage polarity 2.Change adapter or power cable
When beam is blocked, alarm LED does not light and alarm	1.There are reflectors or other transmitters impacting receiver 2.2 beams are not all blocked 3.Setting too long interruption time 4.Alarm output cable is fixed incorrectly	1.Remove reflectors or close other transmitters, adjust receiver 2.Ensure 2 beams all blocked 3.Reduce interruption time 4.Check receiver terminal and output cable
When beam is not blocked, alarm LED lights and alarm	1.Beam is out of alignment optical axis does not overlap 2.There are objects between receiver and transmitter 3.Frequency is incorrect 4.The cover is dirty or capped by snow, frost and ice 5.Transmitter dose not output 6.Model switch status is incorrect	1.Adjust optical axis 2.Check objects between receiver and transmitter 3.Ensure the frequency of receiver and transmitter same 4.Clean cover and use heater 5.Check the power, current and cable of transmitter 6.Check model switch setting
False alarm	1.Bad wiring and fluctuate power voltage 2.Movable blocks, like bird, paper, leaves 3.The installation base is unstable 4.Out of alignment 5.Infrared beam deviate optic axis	1.Check power, current and wiring 2.Change the installation location 3.Strengthen installation base 4.Adjust optical axis 5.Adjust the single optical axis

11.Specifications

Model		30	60	80	100	150
Detection distance	Outdoor	30m	60m	80m	100m	150m
	Indoor	90m	180m	240m	300m	300m
Detection method		Simultaneous interruption of 2 infrared beams				
Interruption time		50ms,100ms,250ms,500ms(adjustable)				
Frequencies		4 different frequencies (selectable)				
Power and voltage		DC 10V-24V				
Current consumption		70mA max	75mA max	80mA max	85mA max	90mA max
Alarm cycle		2s, 50ms optional				
Alarm output		1C. relay output (DC30V, 0.5A max)				
Tamper		NC. works when cover is removed				
IP rating		IP65				
Operating temperature		-25℃~55℃				
Humidity		95% max				
Correction angle		Horizontal 180°(±90°), Vertical 20°(±10°)				
Install location		Indoor/Outdoor ,Wall/Pole				
Weight		900g				
Attachment	U bracket	2pcs, 70.4*37.5*21.5mm, δ=1.5mm, stainless steel				
	Pole mounting srew	4pcs , PM4*30mm				
	Wall mounting screw	4pcs , PM4*25mm				
	Expansion pipe	4pcs, Φ7*27mm, green				
	Installation paper	2pcs, W85*H220mm				
Heaters (additional purchase)	Voltage	10V-24V DC				
	Current	300mA max				
	Temperature	+60℃				

Note: When environment temperature lower than -20℃, please use heaters to ensure normal working. Heater is non-polarized.

12.Dimensions