Photoelectric Dual Beam Detector User Manual
SF-60P SF-100P

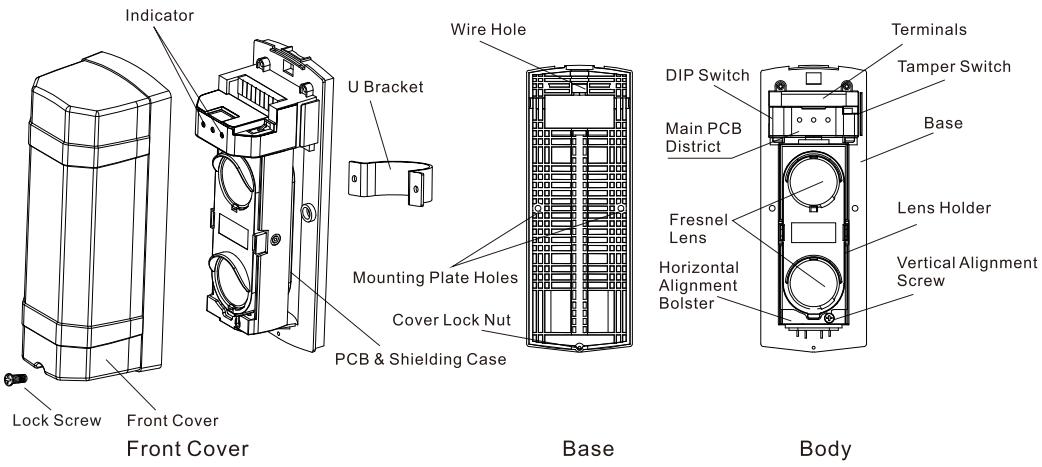
◆ Thanks for purchasing photoelectric dual beam detector, please read the user manual carefully before installation.

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

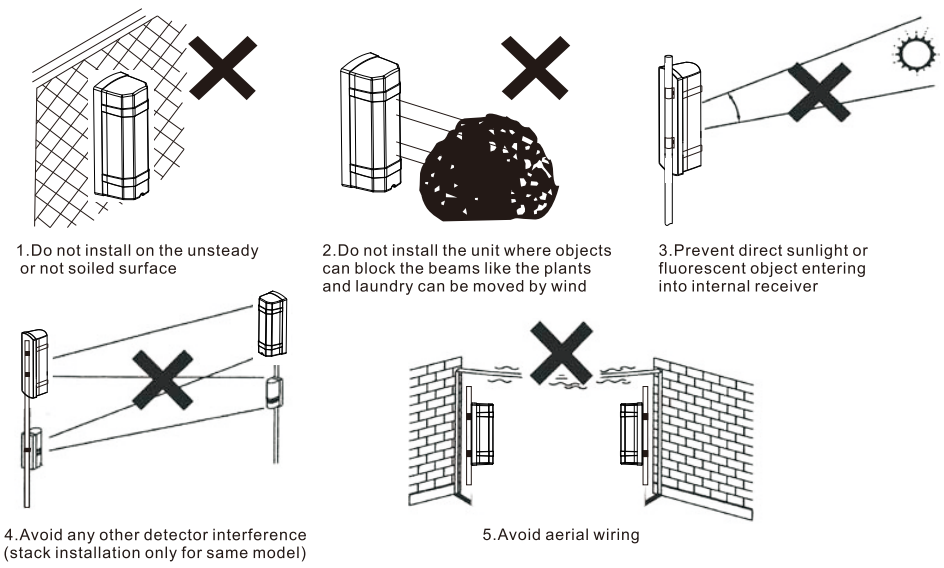
- 4 frequencies selectable for long distance and stacking installation.
- Double-precision digital display signal strength.
- Interruption time adjustable, user can adjust it according to environment and scenes.
- Intelligent heating function, effectively eliminate ice and frost, adapt to harsh environment.
- 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 AC / 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



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)

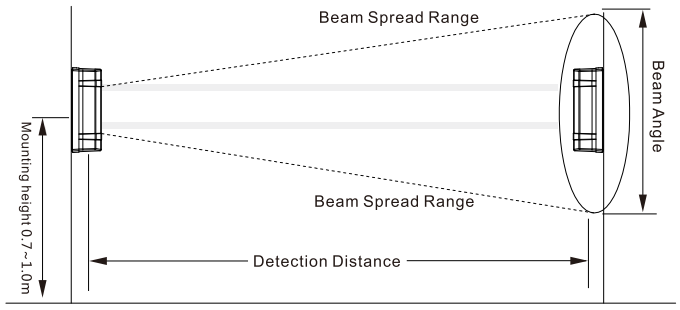
5.Avoid aerial wiring

(2).Normal installation

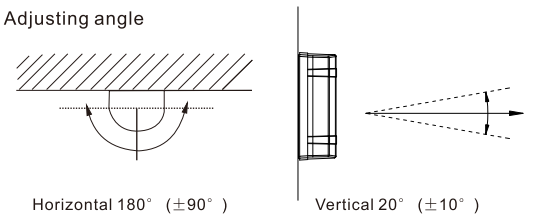
◆ Detection distance

Model	Detection Distance	Beam Angle
SF-60P	60m	1.2m
SF-100P	100m	3.0m

◆ Mounting height



◆ Adjusting angle



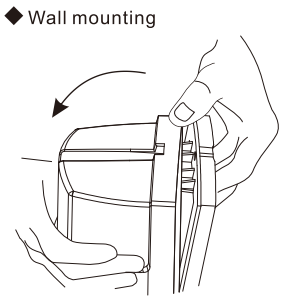
Horizontal 180° (±90°)

Vertical 20° (±10°)

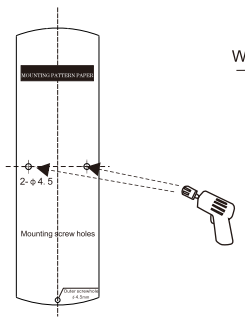
Notice: For best testing results, please avoid testing in 45°

4.Setting Method

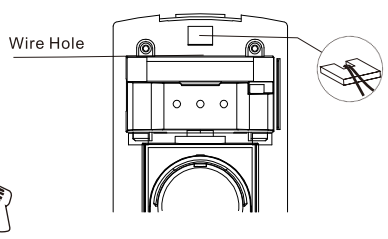
◆ Wall mounting



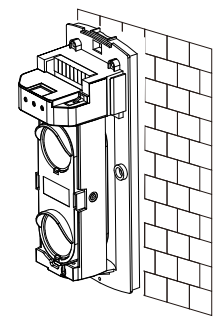
1. Loosen the screw and remove the cover



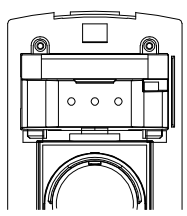
2.Attach the installation paper to the wall, mark the holes first and then make the guide holes.



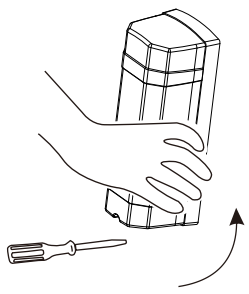
3.Wiring hole: Remove the foam plug, pull wire through, leave a 10cm-long wire for connection and reset the foam plug.



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”)

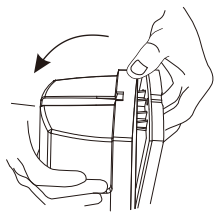


6. Review and reset the cover and tighten the screws.

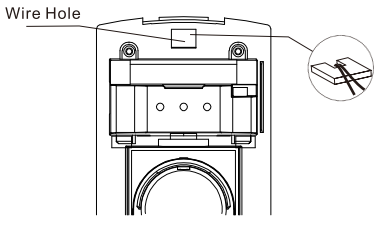
◆ Pole mounting

Bracket Outer Diameter
ϕ38~ ϕ50mm

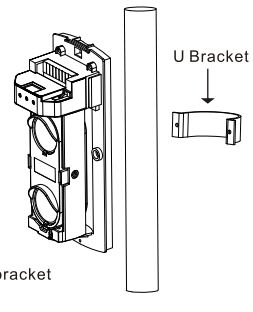
1.Break out the wire hole and pull out the wires.



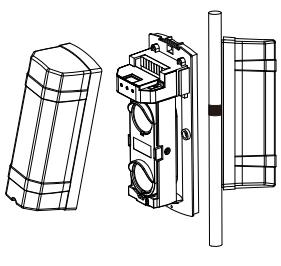
2.Remove the cover



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



4.Fix the body on the bracket

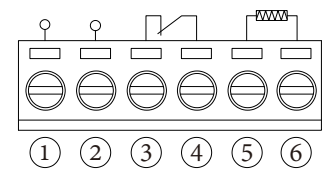


5.Back to back installation diagram, others please refer to the step 5 &6 of the wall mounting method.

5.Connectors

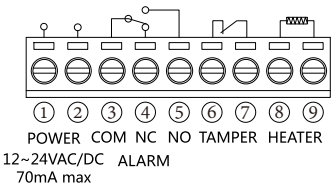
Warning When installation, don't connect the port with the voltage or current which is over the normal specification!

Transmitter:



1.Power voltage input: DC/AC12-24V
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.

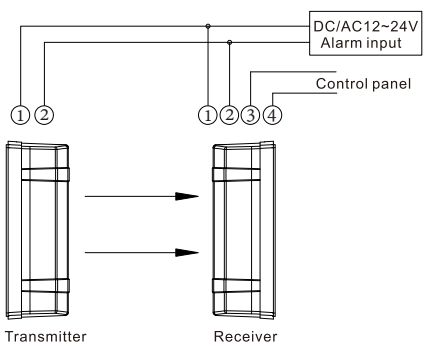
Receiver:



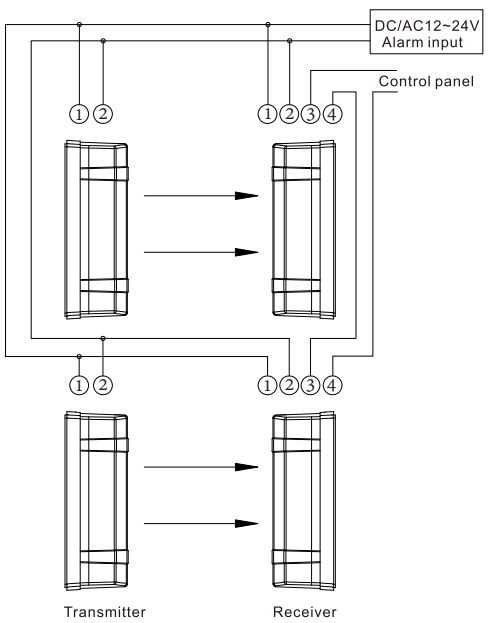
1.Power voltage input: DC/AC12V-24V.
2.No heater in the package, please order if required.
3.The tamper switch is independent of other circuit, it would open if the cover was removed.
4.Relay connection point 1C 30VDC 1.0A max.

6.Connecting Wires

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

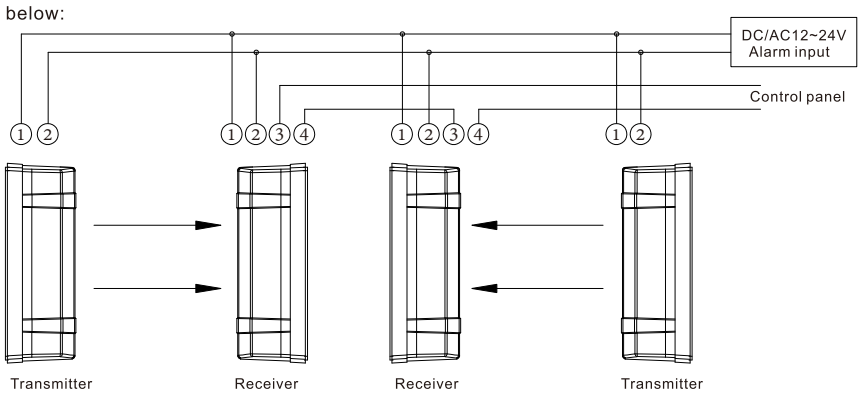


(2).Stacked connect: Control panel operating voltage DC12V,NC alarm output series connect



(3).2 pairs install in series: Connect power of transmitter and receiver in series with 12V DC on power supply. Alarm output is N.C.

As below:



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

Wire diameter \ Voltage / Length	DC12V	DC24V
0.5mm² (Φ0.8)	400m	2000m
0.75mm² (Φ1.0)	600m	3000m
1.0mm² (Φ1.2)	800m	4000m
1.5mm² (Φ1.4)	1000m	5000m

Warning

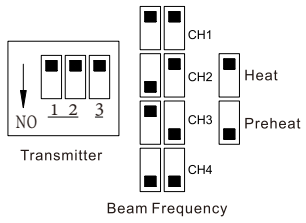
1.The power wire can't exceed the listed length.

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.

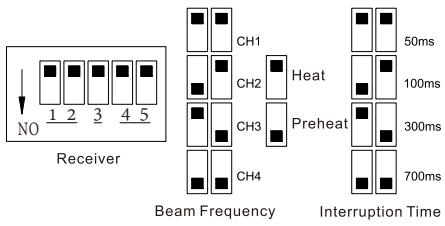
7.DIP Switch Explanations

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



1.DIP switch 1&2 position should be the same on transmitter and receiver.

2.DIP switch PREHEAT helps users to test the heating function of heater. If the user adopts the heater, please keep the DIP switch at HEAT position for energy saving.



1.DIP switch 1&2 position should be the same on transmitter and receiver.

2.DIP switch PREHEAT helps users to test the heating function of heater. If the user adopts the heater, please keep the DIP switch at HEAT position for energy saving.

3.DIP switch 4&5 on the receiver helps setting interruption time, it should be set according to installation environment.

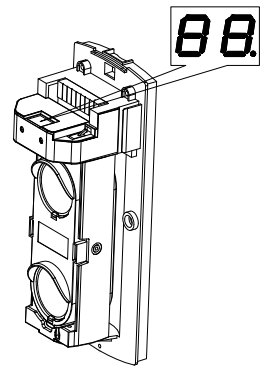
4.The setting time is the max interruption time, if the moving speed is faster than it, the object cannot be detected. For birds, leaves, newspaper that may block the beams, please set a longer interruption time. Do test after setting.

8.Optic Axis Adjustment

1.Adjust the same frequency of the receiver and transmitter. For example transmitter is CH1, the receiver also need CH1.

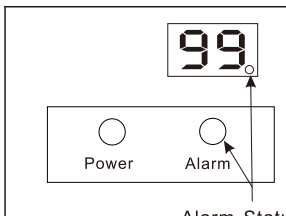
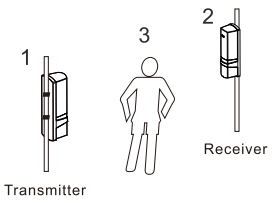
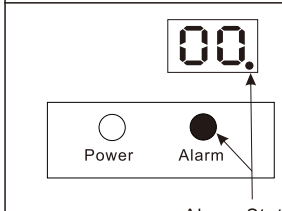
2.Aligning the transmitter and receiver by adjusting vertically and horizontally. LED will display 00 ~99,00~20 means no signal in the alarm situation, relay alarm output, alarm LED and the lower digital tube light. Optic axis adjust correct, LED will show 99.

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



Signal strength	00~40 Realign 41~70 Fair 71~90 Good 91~99 Best

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		SF-60P	SF-100P
Detection distance	Outdoor	60m	100m
	Indoor	180m	300m
Detection distance(max)		350m	600m
Detection method		Simultaneous interruption of 2 infrared beams	
Interruption time		50ms,100ms,300ms,700ms(adjustable)	
Frequencies		4 different frequencies (selectable)	
Power and voltage		DC/AC12V-24V	
Current consumption		75mA max	90mA max
Alarm cycle		≥1.5s	
Alarm output		1C. relay output (AC/DC30V, 1.0A 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		1000g	
Attachment	U bracket	2pcs, 70.4*37.5*21.5mm, δ=1.5mm, stainless steel	
	Pole mounting srew	4个，PM4*30mm	
	Wall mounting screw	4个，PM4*25mm	
	Expansion pipe	4pcs, Φ7*27mm, green	
	Installation paper	2pcs, W85*H220mm	
Heaters (additional purchase)	Voltage	12V-24V DC/AC	
	Current	200mA max	
	Temperature	+60℃	

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

12.Dimensions