Triple Photoelectric Detector

SFE50 / SFE100

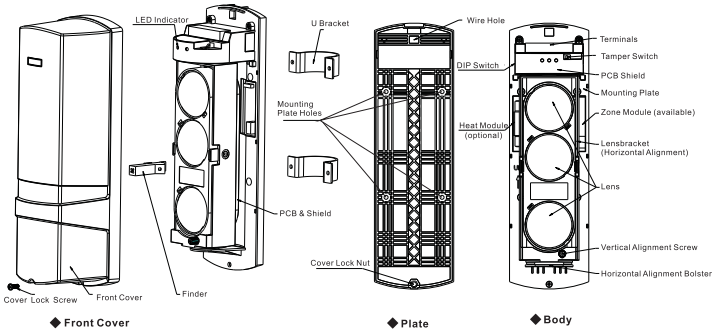
Thanks for purchasing triple photoelectric detector, please read the user manual carefully before installation.

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

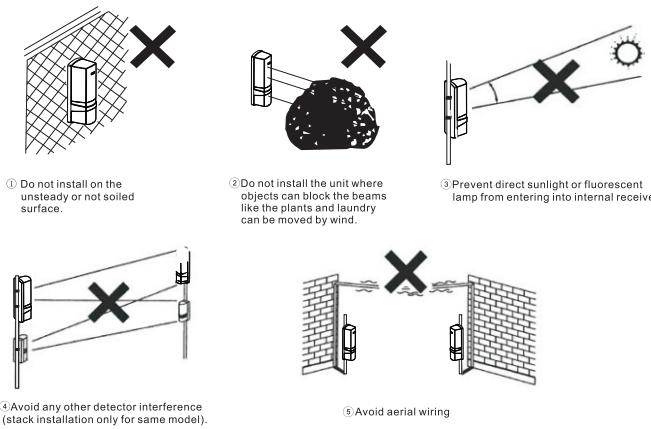
Interruption time adjustable
N.O/N.C Relay
Internal tamper function (stacking installation only for same model)
Frequencies selectable for long distance and stacking installation LED display signal grade for easy alignment
Wide voltage and energy-saving design
Digital communication function
Intelligent heater to avoid fog & ice freeze
IP65
Alignment angle horizontally ±90°, vertically ±10°

2.Parts 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 lamp from entering into internal receiver.

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

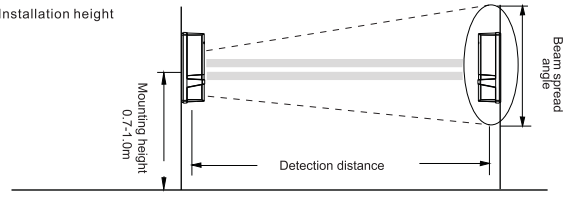
⑤ Avoid aerial wiring

2.Normally installation

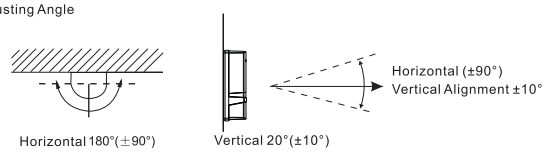
-Detect distance

Model	Outdoor Distance	Beam Angle
SFE50	50m	1.6m
SFE100	100m	2.0m

-Installation height

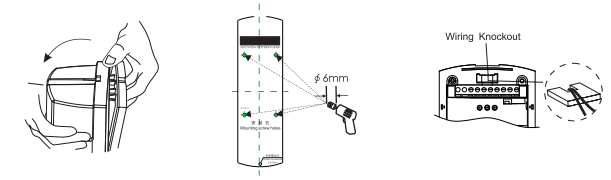


◆ Adjusting Angle

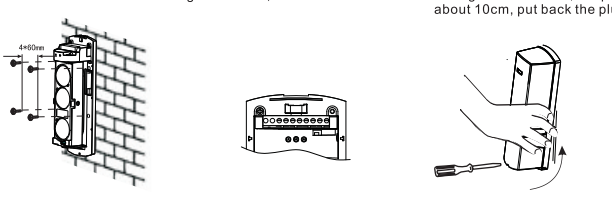


4.Installation Methods

-Wall installation

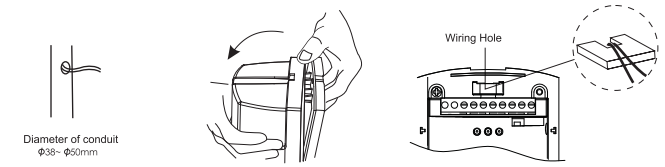


1. Release the screw to open the cover.
2. Stick the installation hole position fig on the wall, drill 4 holes.
3. Take off the plug connect the wire through the wire hole, keep the wire about 10cm, put back the plug.

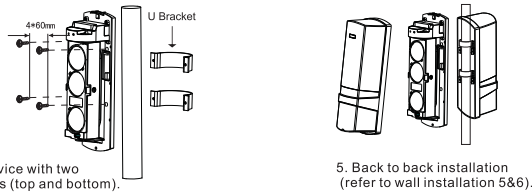


4. Fix to the rear cover with 4 slip rubber and screw.
5. Connect wire to the terminals and align the beams (refer point 7)
6. After checking optical alignment, lock the housing.

-Pole installation



1. Drill a hole for wire and lead wire.
2. Remove the front cover.
3. Connect the wire through the wire hole, keep the wire about 10cm, put back the plug.

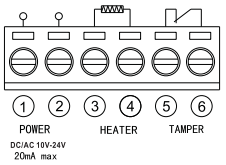


4. Fix the device with two U brackets (top and bottom).
5. Back to back installation (refer to wall installation 5&6).

5.Terminals Connection

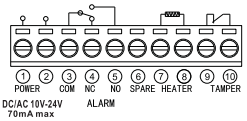
Warning Do not connect any exceed voltage or current of any terminals device during installation. It may cause fire or can be damaged.

Transmitter terminal diagram



1.Input DC/AC 10V-24V, best choice is 12V/DC.
2.Heater is optional.
3.Tamper switch (N.C) is independent of the circuit, anti-tamper trigger when cover is removed.

Receiver terminal diagram



1.Input DC/AC 10V-24V, best choice is 12V/DC.
2.Heater is optional.
3.Tamper switch (N.C) is independent of the circuit, anti-tamper trigger when cover is removed.
4.C RELAY (ACDC30V 0.5A max).

6. Wiring Figure

Figure 1: Single pair installation
Connect transmitter and receiver with 12V/DC to the control panel. Alarm output is N.C.

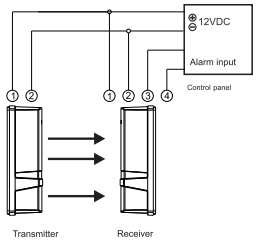


Figure 2: 2 pairs stacking installation
Connect transmitter and receiver paralleled with 12V DC to the control panel. Alarm output is N.C.

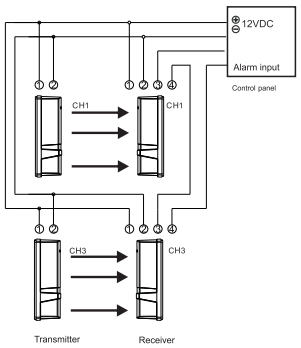
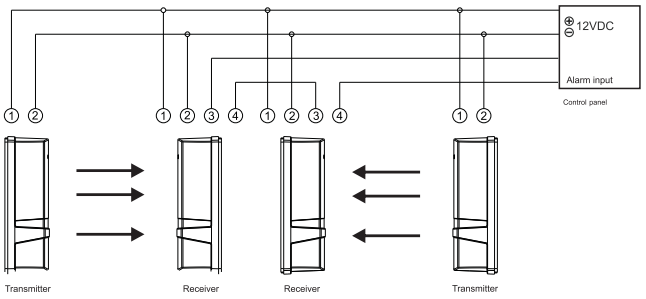


Figure 3: 2 pairs install in series
Connect power of transmitter and receiver in series with 12V DC on the control panel.
Alarm output is N.C. As below:



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

length / Voltage / Wire diameter	DC12V	DC24V
0.5mm²(diameter0.8)	100m	500m
0.75mm²(diameter1.0)	150m	750m
1.0mm²(diameter1.2)	200m	1000m
1.5mm²(diameter1.4)	250m	1250m

Warning

1.Power wires can't exceed the length in the list.
2.When connecting a plurality of detector, the required length for the column length divided by the corresponding number.
3.Do not exceed the voltage or current rating specified for any of the terminals during installation, it can cause fire or damage to the devices.

7. Optic axis adjustment-LED voltage display

LED display (on the right of receiver)

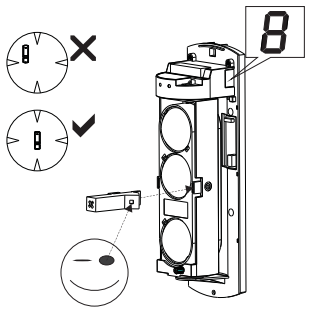
Sensitivity chart	
	0~4 REALIGN
	5~6 FAIR
	7~8 GOOD
	9 BEST

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

(2). Alignment the transmitter view finder, locate the receiver in the center sights by adjusting vertically and horizontally.

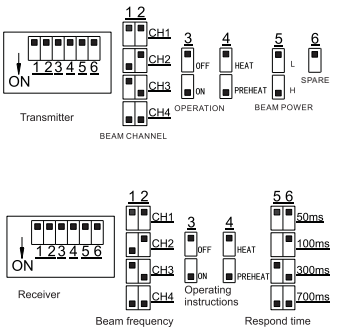
(3). Alignment the receiver view finder, locate the transmitter in the center sights by adjusting vertically and horizontally. The LED will display 0-9, 0 means no signal in the alarm situation, relay alarm output, alarm led light. Optic axis adjust correct, LED will show 9.

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



8. DIP Switch Explanations

DIP Switch show on the left side of the main PCB, as shown in Figure.



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

2). DIP switch OPERATION can be set to OFF to save energy after adjustment (The LED will be off always).

3). DIP switch PREHEAT helps users to test the heating function of heater. If the user adopts 0the heater, please keep the DIP switch at HEAT position for energy saving.

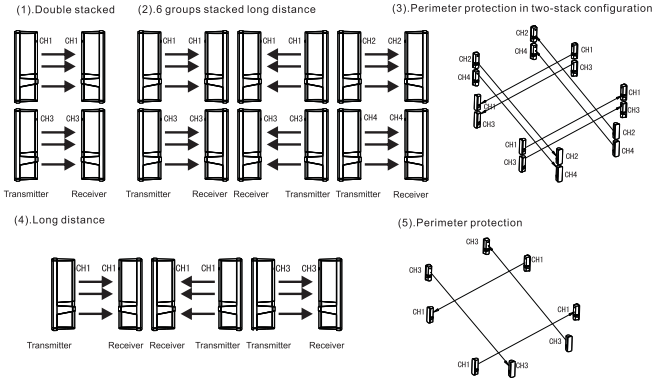
4). Choose the BEAM POWER L or H on transmitter as to real detecting range need.

5). INTERRUPTION TIME on receiver should be set according to installation environment. 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.

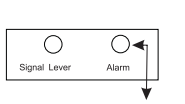
9. Channel beam frequency selector

The selectable beam frequencies can be used to avoid unwanted crosswalk that can occur when using multiple photobeams for long distance protection or beam stacking applications. To select between 4 separate beam frequencies, use the switch provided.

IMPORTANT: Make sure the receiver and transmitter that are facing each other are set to the same channel. More than double stacked application is not possible. Always switch the frequencies TWO channels apart when stacking units on top of one another. (See follow example) The upper unit is set on channel 1 while the lower is on channel 3, channels 2 and 4 could have also been used.

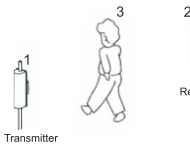


10. Walk test

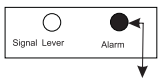


Alarm LED indicator

The alarm LED indicator should be OFF. If the LED indicator is ON even though the beams are not blocked, re-align the beams and check wiring.



After alignment, block the beams as below:
>>In front of transmitter
>>In front of receiver
>>In the middle of transmitter and receiver



Alarm LED is on

If the alarm LED indicator is ON when the beams are blocked, this means installation is successful.

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

11. Trouble shooting

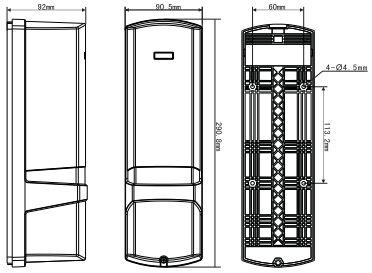
Indication	Reasons	Solution
LED off when power up	1.Operation DIP switch is at energy-saving (OFF) mode. 2.Power cables are not properly connected. Input power is not within the requirements and the power line is too long or short circuit.	Set operation DIP switch to ON.
All beams are blocked but no alarm output	1.The receiver may be affected by other beam transmitter or by a reflecting object. 2.Beams are not all blocked. 3.Interruption time is too long. 4.Alarm output wire false connection.	1.Remove other transmitters and reflecting object and then conduct to walk test. 2.Turn the interruption time to appropriate one. 3.Select the same frequency channels. 4.Check the receiver terminal and output wire circuit.
No beams blocked, LED is on, alarm triggered	1.Beams are not properly aligned. 2.The transmitter does not work. 3.There are objects that may block the beams. 4.Front cover is dirty or with ice or snow. 5.Frequencies setting are not correct.	1.Realign the beams. 2.Check if any block between transmitter and receiver. 3.Ensure the same frequencies of transmitter and receiver. 4.Clean the front cover. 5.Check the power supply, current and wires of transmitter.
False alarm	1.Bad wiring or corroded wires. 2.Moving blocking objects, such as birds, leaves. 3.Unstable installation base. 4.Bad alignment. 5.Transmitter power is set to L.	1.Check and change the wiring. 2.Change the installation position. 3.Stable the installation base. 4.Realign the beams. 5.Change the power of transmitter to H.

12. Specifications

Model		SFE50	SFE100
Range	Outdoor	50m	100m
	Indoor	150m	300m
Arrival distance (max)		300m	600m
Detection methods		Infrared beams by interrupted at the same time	
Interruption period		50ms, 100ms, 300ms, 700ms (4 steps)	
Beam frequency		4 channel	
Power input		10V-24V DC/AC (12VDC recommendable)	
Current		90mA max	
Alarm period		2 sec (±1) nominal	
Alarm output		From C-Solid State Switch (AC/DC 30V 0.5A Max)	
Tamper switch		Activates when cover removed	
Weatherproof		IP65	
Operating temperature		-25℃ ~ 55℃	
Environment humidity		95% max	
Alignment angle		Horizontal 180°(±90°), vertical 20°(±10°)	
Mounting		Indoor / outdoor, wall / pole	
Weight		1500g	
HEATER (additional purchase)	Voltage	12V	
	Current	200mA max	
	Temperature	+60℃	

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

13. Dimensions



*Note: Specifications and design are subject to change without prior notice.

S FIRE

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