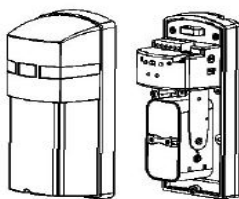


Double Beams FM Digital Active Infrared Sensor INSTRUCTION MANUAL

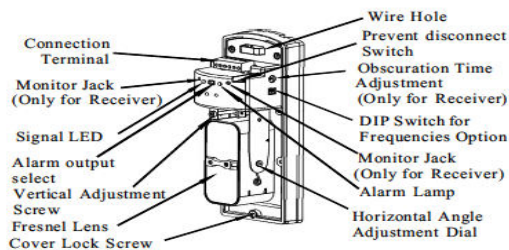
PRODUCTS DESIGN:



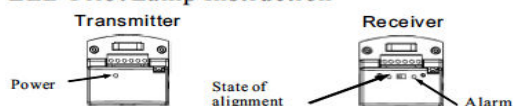
Products Model No.:

EL-PB100S (Outdoor, 100 meters)
EL-PB150S (Outdoor, 150 meters)

1 PARTS DESCRIPTION



2 LED Pilot Lamp Instruction



2.1. State of alignment pilot lamp
Green: Strong signal
Red: Medium signal
Off: Weak signal

2.2. Alarm
Red: Alarm
Off: No Alarm

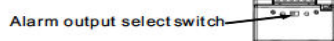
3 Monitor Jack



The best adjustment of optical axis can be achieved by reading the output voltage of the monitor jack.

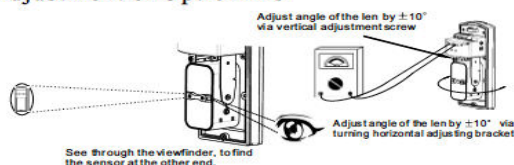
- 3.1. Insert the multimeter pins into the monitor jack (Pay attention to the polarity because of DC voltage).
- 3.2. Output signal voltage indicates infrared signal intensity that Receiver gets from Transmitter. The higher the voltage is, the stronger the signal is.
- 3.3. Try to adjust to the optimal angle when installing and aligning to get the highest signal, normally the voltage can exceed 0.88V.

4 OUTPUT SELECT



- 4.1. Turns the switch to the left:
When Alarm is activated, the output is NC (Normally Closed)
- 4.2. Turns the switch to the right:
When Alarm is activated, the output is NO (Normally Open)

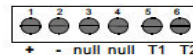
5 Adjustment of Optic Axis



Step:

1. Adjust angle of the Transmitter horizontally or vertically so that the sensor at the other end can be seen in center of the viewfinder.
2. Keep adjusting so that the Green Signal Status Light on receiver is on.
3. Go on to adjust for the optimal angle of Transmitter when the output signal voltage is at the maximum.
4. At last check if angle of the Receiver needs to be adjusted slightly to get a higher signal voltage.

6 Wiring Instruction



6.1. Wiring Instruction of Transmitter:

Terminals 1, 2: Power Input Terminals.

If the input current is Direct Current, the voltage needs to be DC10.5-28V

Wiring Terminal +: DC Power Positive Polarity Input Terminal

Wiring Terminal -: DC Power Negative Polarity Input Terminal

If the input current is Alternating Current, the voltage needs to be AC7.5-20V

Wiring Terminal +: AC Power Input Terminal

Wiring Terminal -: AC Power Input Terminal

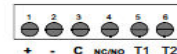
Terminals 3, 4: Null, no need to wire

Terminals 5, 6: Tamper Output Terminals

When cover is closed, T1-T2: NC (Normal Close)

When cover is open, T1-T2: NO (Normal Open)

6.2. Wiring Instruction of Receiver:



Terminals 1, 2: Power Input Terminals.

If the input current is Direct Current, the voltage needs to be DC10.5-28V

Wiring Terminal +: DC Power Positive Polarity Input Terminal

Wiring Terminal -: DC Power Negative Polarity Input Terminal

If the input current is Alternating Current, the voltage needs to be AC7.5-20V

Wiring Terminal +: AC Power Input Terminal

Wiring Terminal -: AC Power Input Terminal

Terminals 3, 4: Alarm Output Terminals

Wiring Terminal C: COM

Wiring Terminal NC/NO: Alarm Output NC/NO Option

Alarm Output Option:

Selecting NC, NC output when alarm

Selecting NO, NO output when alarm

Terminals 5, 6: Tamper Output Terminals

When cover is closed, T1-T2: NC (Normal Close)

When cover is open, T1-T2: NO (Normal Open)

7 Obscuration Time Adjustment

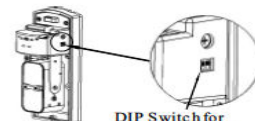
Obscuration Time Control:



- 7.1. Set the obscuration time by turning the time control from 1 to 5, which can adjust the obscuration time from 50ms to 700ms.
- 7.2. According to the intruder's moving speed, the obscuration time can be divided into about 5 ranges.
- 7.3. Obscuration time control 1 to 4, refer to the follow picture:

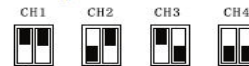
Scale 1	Scale 2	Scale 3	Scale 4
fast running at full Speed (about 6m/s)	walking with quick steps (about 1.2m/s)	normal walking (about 0.6m/s)	slow action (about 0.3m/s)

8 Frequencies Option



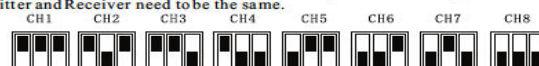
8.1. Four Frequency Band Detectors:

1. There are two DIP Switches on both Transmitter and Receiver, the switches of each end can be adjusted for four different frequencies for option: CH1, CH2, CH3, CH4, as below picture. When set frequencies, the frequencies of Transmitter and Receiver need to be the same.



8.2. Eight Frequency Band Detectors:

1. There are three DIP Switches on both Transmitter and Receiver, the switches of each end can be adjusted for eight different frequencies for option: CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, as below picture. When set frequencies, the frequencies of Transmitter and Receiver need to be the same.



9 SUGGESTIONS FOR INSTALLATION

9.1. Ensure the sensors line of sight is free from any false alarm sources such as bushes, trees, etc. (Pay attention to these as they may change seasonally.)

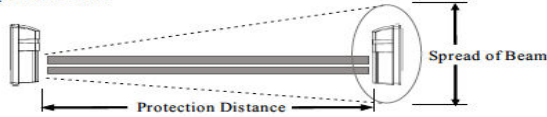


9.2. Ensure the sensors are mounted on a stable and firm fixing. (As follow picture 2)

9.3. Ensure strong sunlight or car headlights do not shine Directly on to the receiver. (Within $\pm 2^\circ$ from the optical Axis is not recommended.) (As follow picture 3)



9.4. Spread of Beam



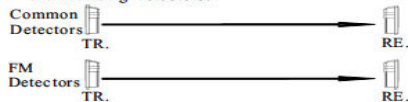
Model	Protection Distance	Spread of beam
EL-PB100S	100M	2.0M
EL-PB150S	150M	3.0M

9.5. Wiring Distance

Model	EL-PB100S / EL-PB150S
Wire Voltage	DC12V DC24V
Wire Diameter	0.3mm ² (Φ0.6)
0.5mm ² (Φ0.8)	200M 1000M
0.75mm ² (Φ1.0)	300M 1500M
1.25mm ² (Φ1.2)	400M 2000M
	700M 3500M

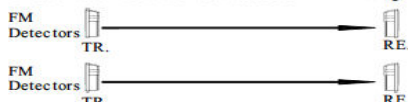
9.6. Stackable Installation:

9.6.1. Stackable Installation of Common Emitting Detectors and FM Emitting Detectors:



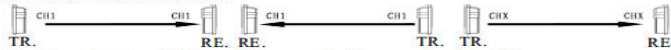
Remark: When Common Emitting Detectors and FM Emitting Detectors installed by stack, FM Detectors can use any frequency.

9.6.2. Stackable Installation of two sets of FM Emitting Detectors:



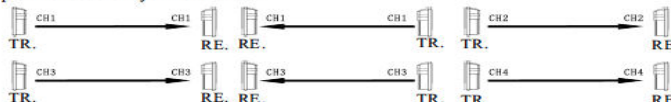
Remark: When two sets of FM Emitting Detectors installed by stack, the detectors can use any two different frequencies.

9.6.3. Example of single-layer installation:

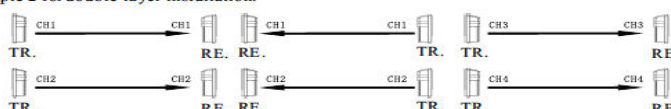


Remark: For above sketches, CHX stands for any other frequency besides CH1

9.6.4. Example 1 for double-layer installation:

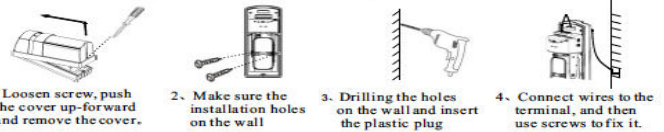


Example 2 for double-layer installation:

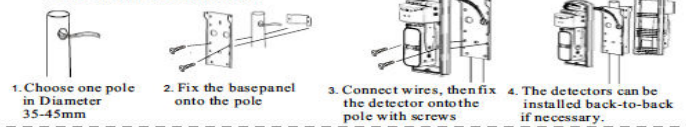


10 INSTALLATION INSTRUCTION

• Wall-Mounted Installation (No need base panel)



• Pole-Mounted Installation:



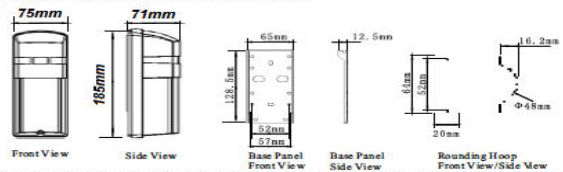
11 TROUBLE SHOOTING GUIDE

Trouble	Possible Reasons	Solutions
Power Indicating lamp of Transmitter does not light	Improper voltage of power supply, open circuit or short circuit	Check power supply and wiring
All indicating lamps of Receiver do not light	Improper voltage, open circuit or short circuit	Check power supply and wiring
Beam signal received is too weak	Optical axis of Transmitter and Receiver is not corresponding	Readjust the optic axis of Transmitter and Receiver
Alarm LED lamp of Receiver always keep lighting	Shading objects between Transmitter and Receiver	Check and remove the shading objects
Although alarm lamp lights when the beams are intercepted, alarm does not ring	Dirty cover or dirty reflection mirror of the Transmitter and/or Receiver	Clean the cover or optic with soft cloth
Intermittent Alarm Output	Disconnecting wiring or wrong wiring	Check wiring
	Wrong connection with terminals	Check if the screws are firmly locked
	Fluctuant power supply or voltage	Check power supply and voltage
	Improper wiring connection	Check the wiring and terminals
	There are moving obstacles between Transmitter and Receiver	Check if there are shaking branches or moving animals
	Improper optic axis adjustment	Readjust the optic axis
	Unstable installation of the sensor unit or the ground is soft	Fix the Transmitter and Receiver steadily
The output terminal does not alarm when the beams are intercepted	Two beams are not intercepted simultaneously	Intercept both of the two beams at the same time
	The obscuration time was set too long	Please refer No.7 "Obscuration Time Adjustment" of this instruction manual
	Beams of other transmitter emit to the Receiver	Check if there is any reflector or any other transmitter

12 SPECIFICATIONS

MODEL	EL-PB100S	EL-PB150S
Protection range (outdoor)	100M	150M
Infrared beam	2-Beam (4 frequencies band or 8 frequencies band)	
Light source	Infrared LED	
Detection system	2-beam simultaneous cut-off detection	
Interruption Period	50~700 msec (Selectable)	
Power Input	DC 10.5V~28V, AC 7.5V~20V	
Power consumption	39mA	40mA
Operation Temperature	-25°C~+55°C (-13°F~+131°F)	
Tamper output	Normally closed voltage free contacts 100mA.	
Alarm output	Relay contact: DC 30V, 3A max	
Optical axis horizontal adjust	$\pm 90^\circ$	
Optical axis vertical adjust	$\pm 10^\circ$	
Protection	IP 55	
Weight	860g (Transmitter and Receiver)	

13 OUTLINE DIMENSIONS



9.6.5. Actual Perimeter Installation:

