

# PHOTOELECTRIC QUAD BEAM DETECTOR

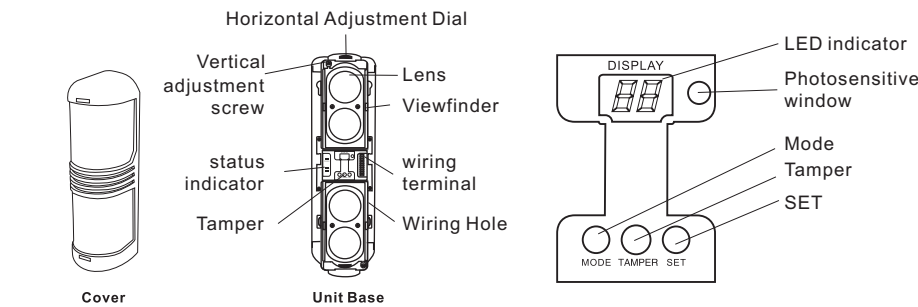
## Manual

ABF-50 (outdoor 50m Indoor150m) ABF-100 (outdoor 100m Indoor300m)  
ABF-150 (outdoor 150m Indoor450m) ABF-200 (outdoor 200m Indoor 600m)

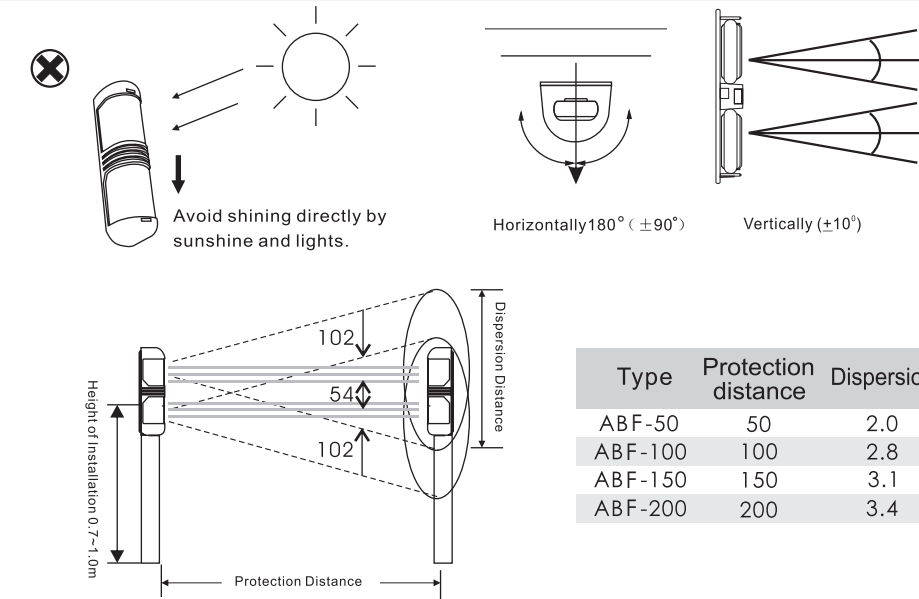
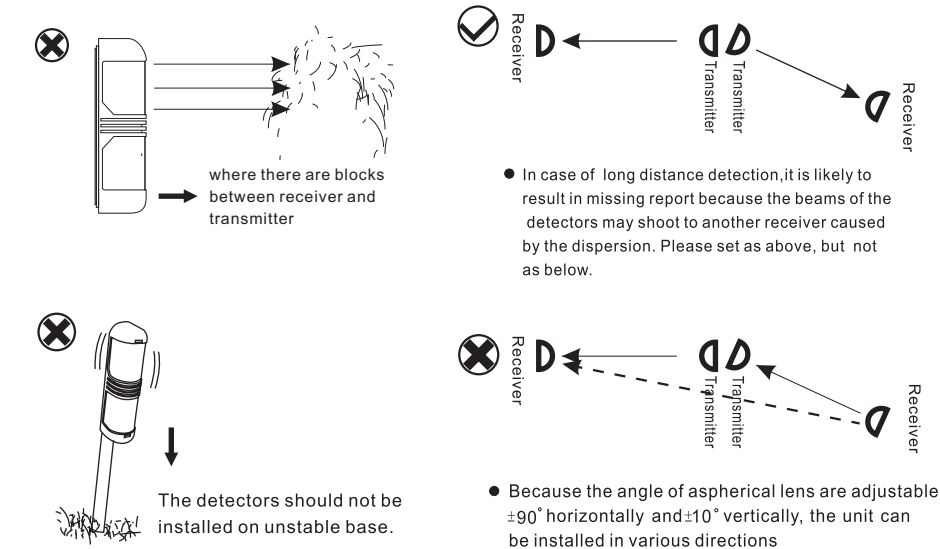
### 1 Technical Features

1. Up to 10 selectable frequencies to effectively eliminate the interference.
2. Unique testing mode, upper and lower beams can be individually adjusted; LED display for voltage, instruction, without the use of the voltmeter, making the testing and installation easily.
- 3.Unique AND/OR alarm mode optional: 4 beams or 2 beams alarm mold. Customer can use the best solution base on various environment.
4. 10 sensitivities adjustable, adapt to various places.
5. Auto environment adjustment to reduce false alarm
- 7.Sound and lighting alarm indication optional, environmental friendly as a totally green product.
8. Ultra-high-power infrared emission devices, power redundancy up to 90%. Professional lens and circuit design, more stable and reliable.

### 2 Parts Description



### 3 Setting Notice



### 4 Setting Method

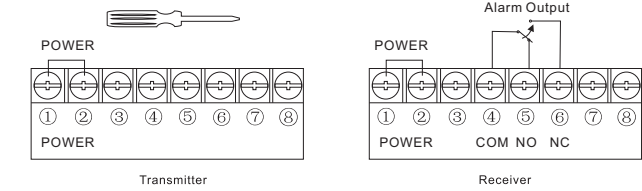
#### 1.1 On The Wall Mounting

- ① Loosen the screws on the top of the detector, and remove the cover.
- ② Carefully drill the wiring knockouts and pull wire through.
- ③ Fix the base unit firmly on the wall.

#### 1.2 Fixed Bracket Mounting

- ① Punch the wire hole on the bracket then pull out the wires.
- ② Remove the cover.
- ③ Fix the base unit on the bracket.

- 2. Connect wires to the terminals.



Note: TTL is used to count passing objects when connected to arithmometer.

#### The Wiring Distance

Diameter \ Voltage	DC13.8V	DC24V
0.5mm <sup>2</sup> (Φ0.8)	300m	300m
0.75mm <sup>2</sup> (Φ1.0)	400m	800m
1.25mm <sup>2</sup> (Φ1.2)	700m	1400m
2.0mm <sup>2</sup> (Φ1.6)	1000m	2000m

- 3. Fix the cover after beam interruption time is set .

### 5 Programming

#### General Description:

Function can be setted by two buttons(MODE,SET) with LED display, simply and easily for installer.

**MODE:** The key is used to set the parameter, one press one parameter, single cycle.

**SET:** The key is used to set the limit value under MODE's setting. one press one limit value, single cycle.

**Transmitter setting instruction:** 1.Sequence :Frequence-Testing mode-Detection mothod-LED switch  
2.Restore To Factory Defaults: Press "SET", hold for 3 seconds, Factory Defaults are[10,32,40,50]

**Receiver setting instruction:** 1.Sequence: Frequence-Sensitivity-Testing mode-Detection Method-LED switch -buzzer switch-Signal Intensity  
2.Restore To Factory Defaults: Press "SET", hold for 3 seconds, Factory Defaults are[10-25-32-40-50-60-0,0]

Parameter		The limit value										Instruction		Factory Default		
Transmitter	Frequence 1	0	1	2	3	4	5	6	7	8	9	0-9 are 10 selectable frequencies		10		
	Testing Mode 3	0	1	2								0 means only use upper two beams, 1 means only use lower two beams, 4 means use upper and lower four beams		32		
	Detection Method 4	0	1										0 means AND mode, 1 means OR mode		40	
	LED Switch 5	0	1										0 means LED on, 1 means LED off		50	
Receiver	Frequence 1	0	1	2	3	4	5	6	7	8	9	0-9 are 10 selectable frequencies		10		
	Sensitivity 2	0	1	2	3	4	5	6	7	8	9	0-9 are 10 selectable sensitivity		25		
	Testing Mode 3	0	1	2								0 means only use upper two beams, 1 means only use lower two beams, 4 means use upper and lower four beams		32		
	Detection Method 4	0	1										0 means AND mode, 1 means OR mode		40	
	LED Switch 5	0	1										0-9 are 10 selectable sensitivity		50	
	Buzzer Switch 6	0	1										0 means busszer function on, 1 means busszer function off		60	
	Signal Intensity		Two LEDs are used for displaying signal Intensity, For example: 1.5 mean received signal Intensity is 1.5V													

#### Parameter setting instruction:

1. **Frequence:** Press button "MODE" to this parameter, the LED displays a number between 10-19, then, pressing "SET" once means plus "1", single cycle, it will show "10" again after "19", totally 10 selectable frequencies.
2. **Sensitivity:** Press button"MODE" to this parameter, The LED displays a number between 20-29,then, pressing "SET" once means plus "1",single cycle, it will show "20"again after "29", totally 10 sensitivity.
3. **Testing Mode:** Press button"MODE" to this parameter, the LED displays a number between 30-32, then, press "SET" once means plus"1", single cycle, it will show "30 " again after "32";

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- 4. Detection Method:** Press button “MODE” to this parameter, the LED displays a number of 40 or 41, then press “SET” to change number between 40 or 41. 40 means AND MODE, which four beams be prevented to alarm. 41 means OR MODE, which two beams( upper or lower) be prevented to alarm.
- 5. LED Switch:** Press button “MODE” to this parameter, the LED displays a number of 50 or 51, then, press “SET” to change number between 50 or 51. 50 means LED on. 51 means LED off.
- 6. Busszer Switch:** Press button “MODE” to this parameter, the LED displays a number of 60 or 61, then, press “SET” to change number between 60 or 61. 60 means busszer on. 61 means busszer off.
- 7. Signal Intensity:** Signal intensity presented by voltage, higher voltage means higher signal. Press button “MODE” to this parameter, the LED displays a number between 0.0-2.5, then, align beam according to voltage's changing, when the signal intensity is up to minimum requirement, the green LED would be lighting.

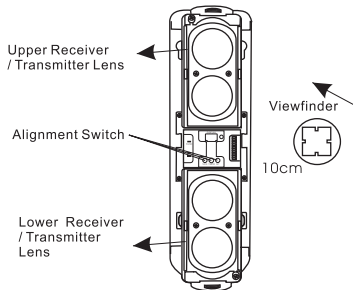


### Notes

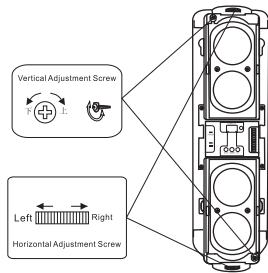
1. Transmitter and Receiver should be same with Detector method and Frequences. Testing mode should be setted as 32, otherwise it would not work.
2. The transmitter will send alarm signal once tamper be opened both in transmitter and receiver.
3. Once testing finished, strongly suggest switch off LED, Busszer for save energy purpose.
4. LED will be off if 15 seconds without programing, in this case, press MODE can switch on LED( for facilitating installer, LED will not switch off when shows voltage, so plz change the voltage display on LED once finishing testing.)

## 6 Beam Alignment

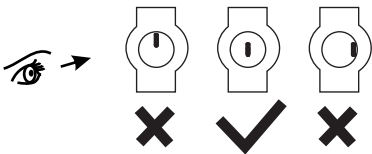
- (1) Remove the cover and apply power. Make sure power LED、L1、L2 on both in transmitter and receiver (Picture5、6)
- (2) Look into the viewfinder at a distance of 10CM, and adjust the Lens horizontally and vertically, so that the receiver or transmitter can be seen in the centre of the sight;



Picture 1

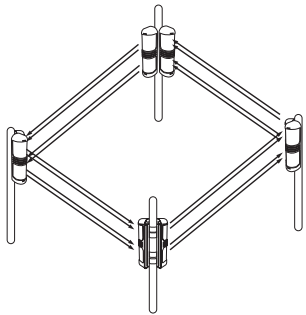


Picture 2

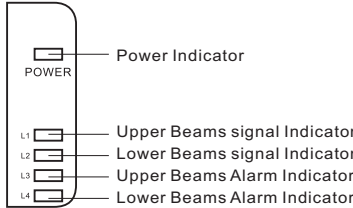


Picture 3

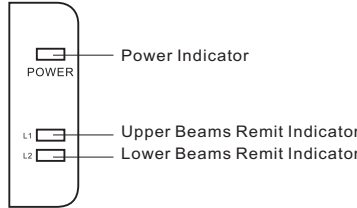
- (3) Program Detector method “AND”(40) or “OR”(41)、Frequency “10-19” same both in transmitter and receiver base on actual environment;
- (4) Program Testing mode to “30”, and program transmitter's LED display voltage status(x,x);
- (5) Upper beams alignment in transmitter and receiver: adjust upper beams screw, make transmitter's LED display maximum number of voltage, 1.5V as suggestion. After Alignment, green L4 will light;



Picture 4 Closed Installation Mode



Picture 5 Receiver Indicator



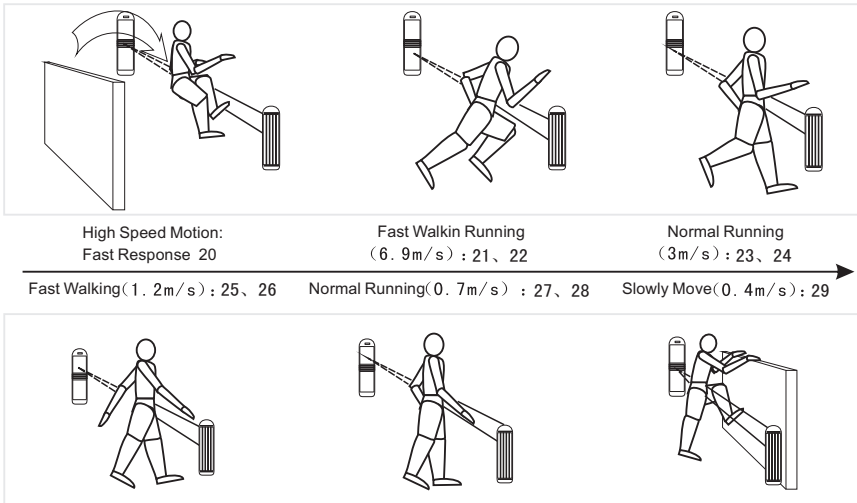
Picture 6 Transmitter Indicator

- (6) Program Testing mode to “31”, and program receiver's LED display voltage status(x,x);
- (7) Lower beams alignment in transmitter and receiver: adjust lower beams screw, make receiver's LED display maximum number of voltage, 1.5V as suggestion. After Alignment, green L3 will light;
- (8) Program Testing mode to “32” both in transmitter and receiver, and program receiver's LED display voltage status(x,x). LED display should >1.5v, if lower than 1.5v, then repeat (4) to (7), until it display 1.5v;
- (9) After full alignment, green L3、L4 should be light, red L1、L2 should be off, busszer stopping work;
- (10) Base on actual environment, program suitable sensitivity according to Item 7;
- (11) Cover the base to test again;
- (12) Switch off LED、busszer after testing to save energy.

## 7 Beam Interruption Adjustment



Please refer to the above figure to adjust interruption time. Generally, the interruption time should be less than the real blocking time.



## 8 Trouble shooting

Symptom	Possible Cause	Remedy
Power light doesn't light	Improper voltage supplied.	Check the power supply and wiring.
Alarm LED dose not light, even when beams are blocked	1. Beams reflected to the receiver by the other objects. 2. 4 beams are not blocked simultaneously. 3. Interruption time is too short.	1. Remove the reflecting object or change Lens direction. 2. Block 4 beams simultaneously. 3. Prolong the interruption time.
When the beams are blocked, the receiver LED is ON , but not alarm	1. Wring is short circuit. 2. Wiring point is not good.	Checking wiring and connection spot.

Symptom	Possible Cause	Remedy
The alarm LED indicator of the receiver is always on	1. Lens is not properly adjusted. 2. There are blocks between the transmitter and receiver. 3. The detector covers are dirty.	1. Adjust the Lens directions. 2. Remove the blocks. 3. Polish the cover with soft cloth.
Intermittent alarm	1. Bad wiring. 2. supplied voltage wrong 3. Movable blocks between the transmitter and the receiver. 4. The installation base is unstable. 5. Improper Lens direction. 6. Block time is too short 7. The interruption time is too short. 8. Detection method are diffievent 9. Frequence are diffievent	1. Check wiring. 2. Check the power supply. 3. Remove the blocks or relocate. 4. Fix the mounting. 5. Adjust the Lens direction. 6. Reinstall 7. Adjust interruption time or change installing position. 8. program transmitter and receiver's detection method same 9. Program transmitter and receiver's frequence same

## 9 Specification

Type	ABF-50	ABF-100	ABF-150	ABF-200
Protection (Outdoor) Distance (Indoor)	50m 150m	100m 300m	150m 450m	200m 600m
Number of beam	4			
Detection Method	4/2 beams blocked			
Beam Characteristics	Pulsed infrared			
Interruption period	35-700msec selectable			
Alarm Output	Form C Relay(DC30V/0.5A MAX)			
Power Input	DC10.5-28V; AC9-24V			
Current Consumption	130mA	140mA	150mA	160mA
Operating Temperature	-25℃~+55℃			
Size	Refer to Itam 10			
Temper Switch	NC opens when cover is removed			
Alignment Angle	180° (±90°) Horizontal, 20° (±10°) Vertical			
Heater	heater cover			
Environment Humidity	95% Max			
Mounting	Wall or Pole			
Weight	3.1Kg(Transmitter and Receiver)			
Appearance	PC Resin(Black)			

## 10 Installation Bracket and Detectors Dimension

