# New Generation Photoelectric Beam Detector

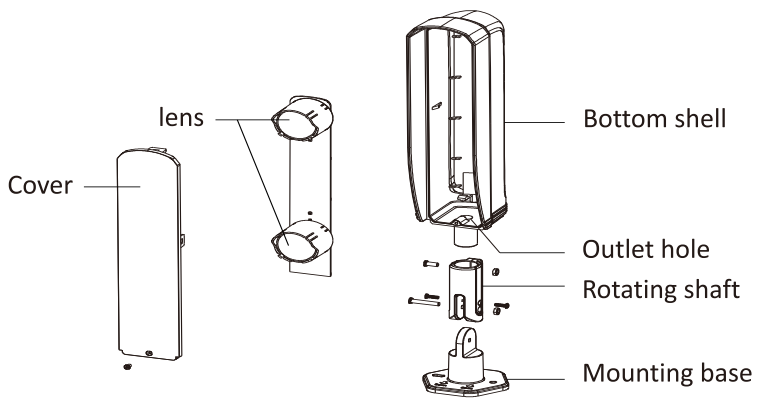
◆ Thanks for purchasing photoelectric dual beam detector, please read the user manual carefully before installation.

| | |
|---|---|
| **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

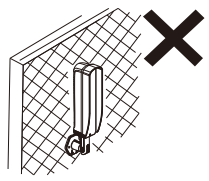
- Interruption time or walkspeed adjustable
- Self-contained mounting bracket for quick and easy installation
- Integrated tamper switch, turns on when cover is moved.
- Frequencies selectable for long distance and stacking installations
- Wide voltage power input: DC/AC 10-24V
- Waterproof grade: IP65
- Alignment angle horizontally (±360° ), vertically (±180°)
- Digital filtering, high environment adaptability to eliminate false alarms
- NO / NC relay outputs
- Specific mode indicator for simple and accurate optical correction
- The design of the brim extending outward makes the anti-sunlight interference ability stronger

## 2.Part Description

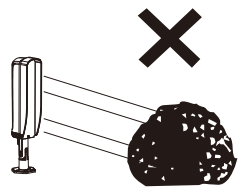



## 3.Installation Notes

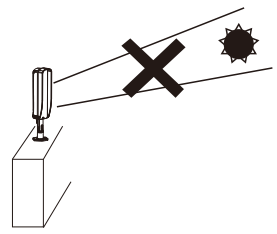
(1).Please avoid below situations to assure performance



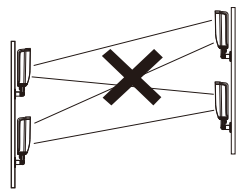
1. Do not install on an unsteady or moveable base



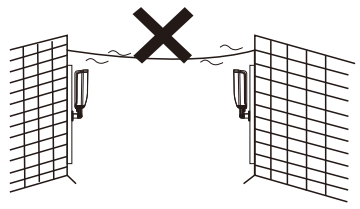
2. Do not install the unit where objects can block the beams like plants and laundry moving in the wind.



3. Prevent direct sunlight onto the receiver



4. Avoid cross talk. Use frequency select (stack installation only for the same model)



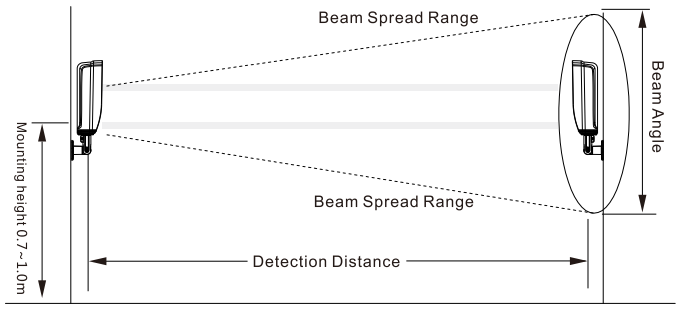
5. Avoid exposing wiring.

(2).Normal installation

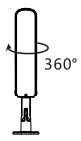
◆ Detection distance

| Model | Detection Distance | Beam Angle |
|---|---|---|
| ABO-i20 | 20m | 0.8m |
| ABO-i40 | 40m | 1.2m |
| ABT-i60 | 60m | 1.2m |
| ABT-i100 | 100m | 1.8m |
| ABT-i100P | 100m | 1.8m |

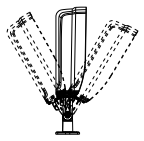
◆ Mounting height




◆ Adjusting angle




Horizontal 360° (±180° )

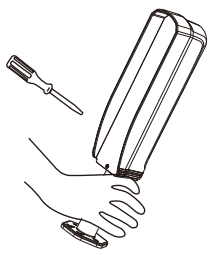


Vertical 180° (±90° )

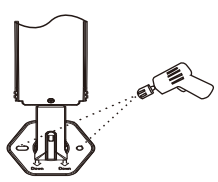
Notice: For best testing results, please avoid testing in 45°

## 4.Setting Method

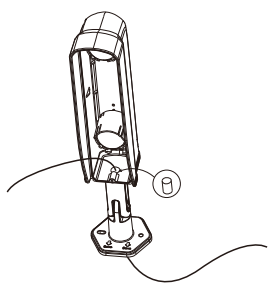
◆ Wall mounting



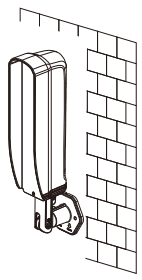
1. Loosen the screw and remove the cover



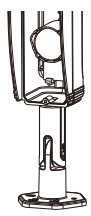
2.According to the size of the base mounting hole, make two mounting holes on the wall.



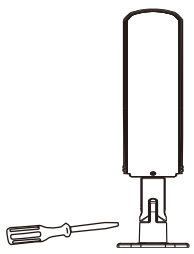
3.Threading: the reserved embedding thread is taken out from the base upwards, and the appropriate length is 10cm to prepare the wiring, and then the sponge plug is inserted into the hole.



4. Attach beam to the base



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

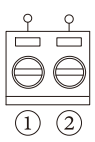


6. Review and reset the cover

## 5.Connectors

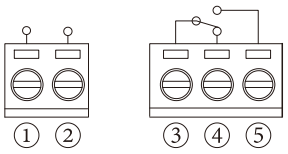
Warning Do not exceed the voltage or current rating specified for any of the terminals during installation.

Transmitter:




POWER
AC/DC10-24V

1 . Power input: DC/AC10-24V.



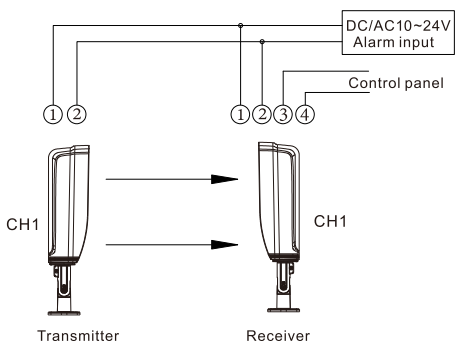

POWER
AC/DC10-24V

COM NC NO
ALARM

1 . Power input: DC/AC10-24V.
2. C relay (30VDC 1.0A max).

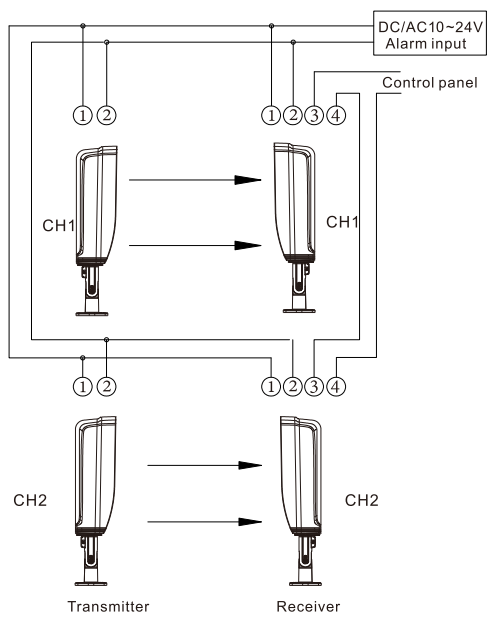
## 6.Connecting Wires

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




Transmitter Receiver

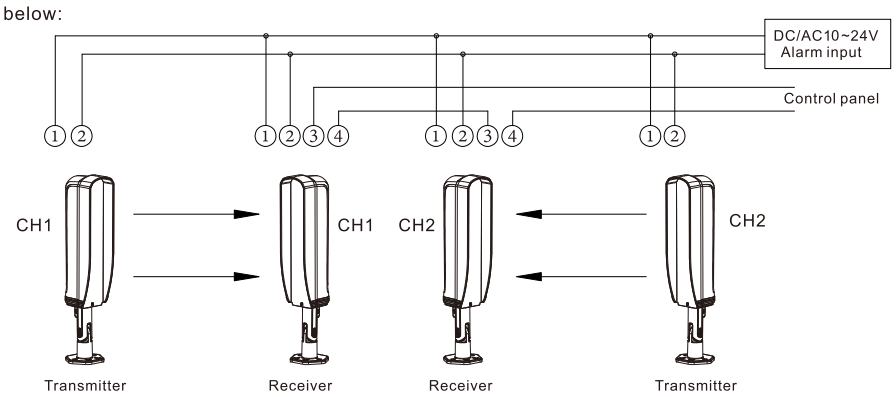
(2).Stacked connect: Control panel operating voltage DC12V,NC alarm output series connect




Transmitter Receiver

(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:




Transmitter Receiver Receiver Transmitter

◆ 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**

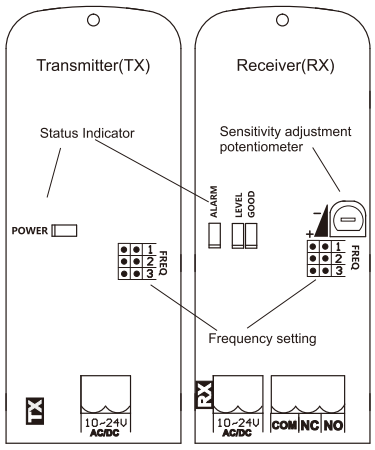
1.The power wire can't exceed the listed length.

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

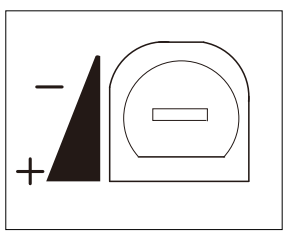
DIP switch show on the left side of the main PCB, as shown in following figure.




**1.Frequency setting:**
The frequency is 1, 2, 3 bands respectively. When setting the beam frequency, the emitter, the receiver jumper cap must be inserted in the same frequency band.(When two pairs or more pairs of pairs are mounted on the same line or on the same surface, it is recommended that the adjacent pairs of pairs are set to different frequencies to prevent mutual crosstalk.)

**2. Indicator status**
**Signal strength status:**
When there is no signal, the light does not light; the blue (LEVEL) indicator is set to off, slow flash, fast flash, and always bright. When the RX receives the infrared signal from scratch, the signal strength changes from weak to strong, and the blue (LEVEL) indicator indicates the infrared signal strength in the manner of the four levels of brightness.
The green (GOOD) indicator is set to four states: off, slow flashing, fast flashing, and always on. When the infrared signal reaches a certain intensity, the blue (LEVEL) indicator goes off, and the green (GOOD) indicator enters a slow flashing state, and the signal strength is stronger. The green (GOOD) indicator flashes faster until the signal strength is optimal and the green (GOOD) indicator is always on.
**Power indicator (POWER):** After power-on, the green indicator lights up.
(Note: After about 30 minutes, the indicator goes out, it does not affect the TX's transmitting function. After the power is turned back on, the indicator is turned on again)
**Alarm indicator (ALARM):** When the alarm is activated, the red indicator is on; when it is on, it is off.
(Note: When the alarm is normal, after about 30 minutes, the green indicator goes out, it does not affect the receiver receiving function. After the alarm, the light is turned on again)

**3. Sensitivity adjustment:**
Sensitivity is how long the infrared beam is blocked, which will trigger an alarm. Rotary potentiometer, the interruption time can be adjusted within the range of 40-1000ms.
This feature allows you to adjust the sensitivity of your device to suit your field environment. The beam cut-off time is adjusted based on the speed at which the detector detects the object.
**For cases where birds or newspapers may accidentally cut off the infrared beam, a longer cut-off time can be set;**
**After adjusting the cut-off time, please verify.**



**The sensitivity adjustment potentiometer sets the sensitivity level by adjusting the shading time:**

- Clockwise adjustment, masking time is reduced, sensitivity is increased;
- Counterclockwise adjustment increases the masking time and reduces sensitivity.

## 10.Troubleshooting

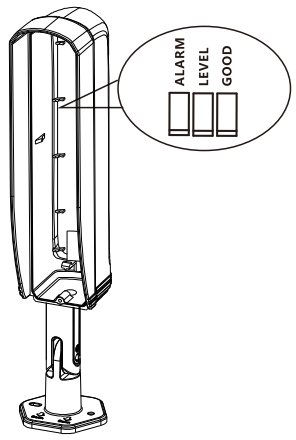
| Symptom | Possible cause | Remedy |
|---|---|---|
| Power on, but power LED off | 1. No voltage on power cable;<br>2. Broken circuit or short circuit;<br>3. Beyond specified voltage;<br>4. Power cable exceeds the specified length | 1. Check PSU, voltage, cables and connectors |
| When beam is blocked, the alarm LED does not indicate, nor does the alarm relay switch | 1. There is reflection or cross-talk from other transmitters<br>2. Walk speed set too long<br>3. Alarm output cable is shorted or damaged | 1. Change beam path or change TX/RX frequency channel<br>2. Ensure 2 beams all blocked<br>3. Change walk-speed setting<br>4. Check RX terminal and output cable |
| When beam is not blocked, alarm LED indicates activation | 1. Beam is out of alignment; optical axis does not overlap<br>2. There are objects between TX and RX<br>3. Frequency is incorrect<br>4. The cover is dirty or capped by snow, frost and ice<br>5. TX is faulty or OFF | 1. Adjust optical axis<br>2. Check objects between TX and RX<br>3. Ensure the frequency of TX and RX is the same<br>4. Clean cover or user heater<br>5. Check the voltage or wiring of TX |
| False alarm | 1. Bad wiring and fluctuant power voltage<br>2. Randomly blocked, like birds, paper or leaves<br>3. The beams base is unstable<br>4. Out of alignment | 1. Check power, current and wiring<br>2. Change installation location<br>3. Strengthen installation base<br>4. Re-align |

## 8.Optical Axis Correction

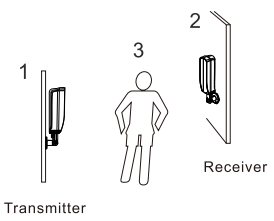
1. Set the infrared beam frequency, the TX frequency must be consistent, such as the TX frequency jumper cap inserted in the band 1, the RX's jumper cap must also be inserted in the band 1.

2. Adjust the shaft so that the TX and RX are aligned as much as possible.

3. Rotate the TX and RX shafts to correct the direction of the infrared beam. When the signal intensity blue **(LEVEL)** indicator changes from slow flash to fast flash, it indicates that the optical axis alignment accuracy is higher. Until the light is normal on. Continue to adjust, the blue indicator is off, and the green **(GOOD)** indicator changes from slow flash to fast flash until the green light is on, which means the signal strength is optimal.




## 9.Walk Test

| | |
|---|---|
|  Alarm Status | Please make sure that the alarm light is off. If the infrared beam is not blocked, the red alarm indicator will still light up. Please perform optical correction again. |
|  | Please do the test at the 3 following positions<br>1. At the transmitter side<br>2. At the receiver side<br>3. In the middle |
|  Alarm Status | Alarm indicator turns on when beam is interrupted, test finished successfully. |

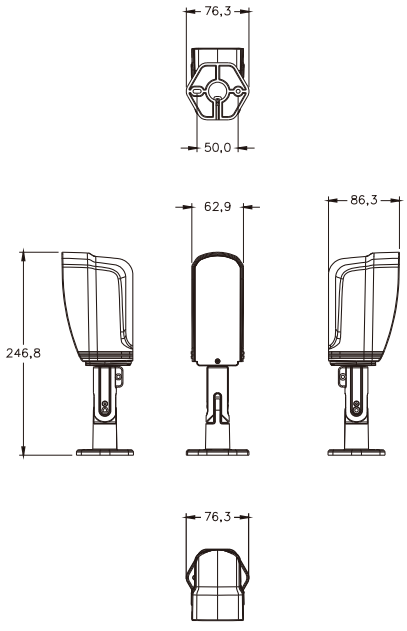
Note: If the alarm LED indicator is OFF even though the beams are completely blocked, refer to the “Trouble Shooting”.

## 11.Specifications

| Model | | ABO-i20 | ABO-i40 | ABT-i60 | ABT-i100 | ABT-i100P |
|---|---|---|---|---|---|---|
| Detection distance | Outdoor | 20m | 40m | 60m | 100m | 100m |
| | Indoor | 60m | 120m | 180m | 300m | 300m |
| Detection distance(max) | | 120m | 250m | 350m | 600m | 600m |
| Detection method | | Simultaneous interruption of infrared beams | | | | |
| Interruption time | | 40ms~1000ms(adjustable) | | | | |
| Frequencies | | 3different frequencies (selectable) | | | | |
| Power and voltage | | DC/AC10V-24V | | | | |
| Current consumption | | 70mA max | | | | |
| Alarm cycle | | ≥1.5s | | | | |
| Alarm output | | 1C. relay output (AC/DC30V, 1.0A max) | | | | |
| 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 | | 650g | | 950g | | |
| Attachment | Wall mounting screw | 4pcs , PM4*25mm | | | | |
| | Expansion pipe | 4pcs, Φ7*27mm, green | | | | |

## 12.Dimensions

### AB0-i series




### ABT-i series