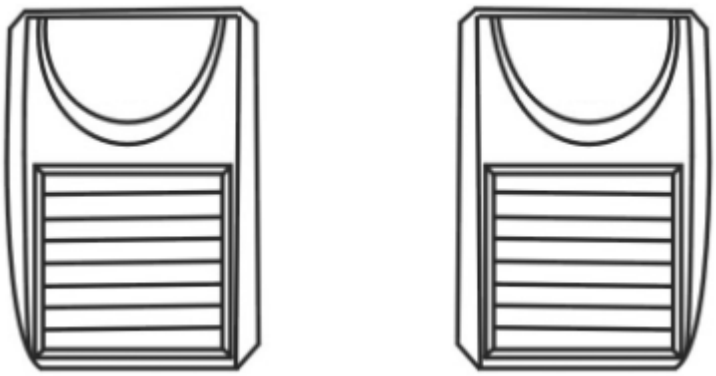
# User Manual for Solar-Powered Double-Beam Active Infrared Detectors

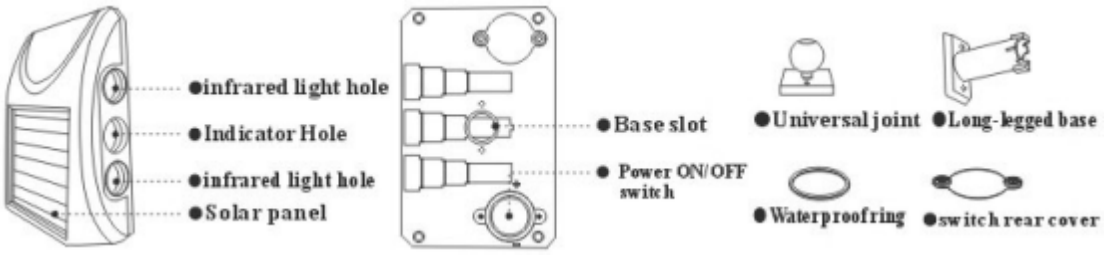


HB-T001 A2

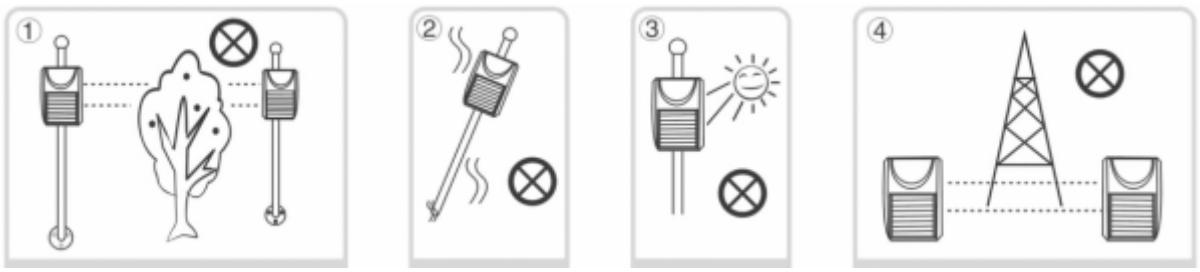
## I. Product Overview

The Solar-Powered Double-Beam Wireless Active Infrared Detector for Household Applications is a new-type hi-tech environmentally-friendly product and has obtained national patent. It applies the sun's UV rays to supply power and charge for itself, and adopts the wireless signal transmission device to tran smit alarm signals instead of power cable and signal line, which is widely applied in home, schools and office areas for burglary proof purpose.

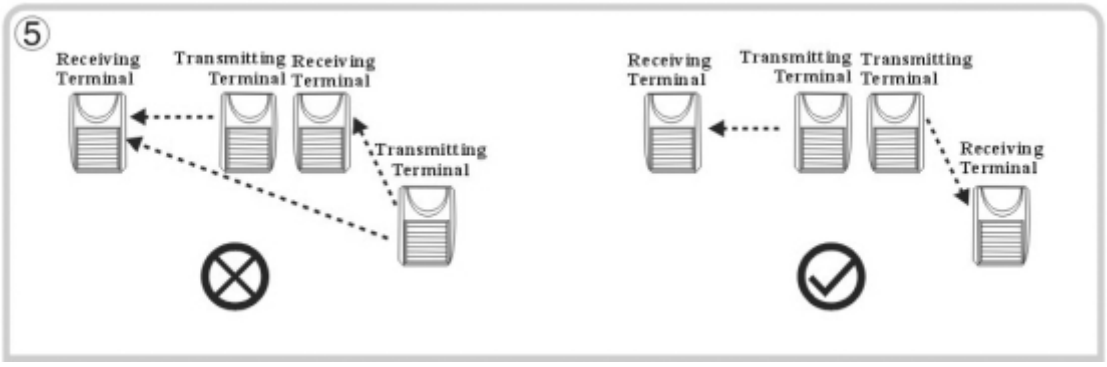
## II. Name of Parts




## III. Notes of Installation



**Note 1:** Make sure that there is no obstacle between the transmitting terminal and the receiving terminal.
**Note 2:** Never install the detector at an inclined angle.
**Note 3:** Keep the infrared light hole exposed to direct sunlight.
**Note 4:**The high-voltage tower and the signal tower may influence wireless transmission distance.




**Note 5:** Multiple detectors shall be installed for long-distance alarm in accordance with the installation instructions shown in the above-mentioned figure to avoid mutual interference among beams.

**Other Important Precautions**

①When installing the switch rear cover, do not forget to install The water proof ring to ensure excellent airtightness.

②Before installation, remove the plastic film on the solar panel of the active detector.

③The detector consumes a lot of power when transmitting alarm signals, so it shall not be installed in any areas near door access systems or areas where alarm is frequently triggered.

④ This product is a solar-powered wireless product, so it shall not be installed, tested or operated indoors or in any dark place with a sunlight intensity of less than 2200lux.

⑤Before first operating this product, please follow the technical guide provided by the supplier.

Special Statement: Any loss resulting from failure or damage caused by improper use or failure to observe precautions or instruction manual shall be borne by users.

# IV. Working Phenomena

**(1) Solar-Powered Double-Beam Active Infrared Detectors(HB-T001A2)**

①When the detector is powered on, the infrared light at the transmitting terminal <F> can shine upon the middle of the receiving terminal <S> and the infrared light at the receiving terminal <S> can shine upon the middle of the sending terminal <F>. Keep the transmitting terminal <F> aligned with the receiving terminal <S>.

②After the detector normally starts up, the infrared light at the transmitting terminal <F> and the infrared light at the receiving terminal <S>are on continuously for 30s and then goes out.

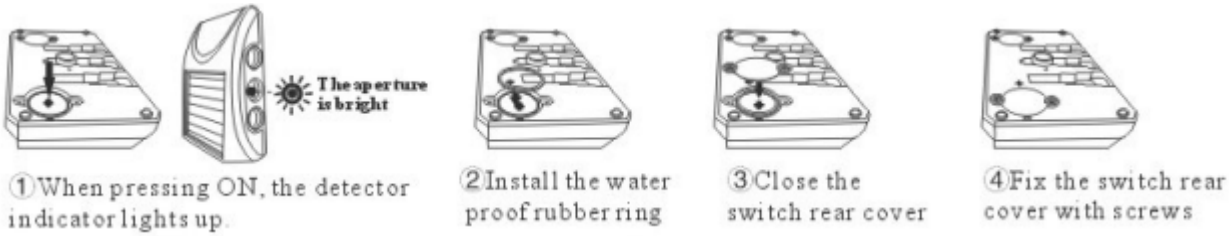
③When the transmitting terminal <F> is aligned with the receiving terminal <S>, in the first 20s, the infrared light at the transmitting terminal <F> and the infrared light the receiving terminal <S> are turned on two times every 10s, and after 10s, the infrared light at the receiving terminal <S>blinks for 5-10s and then goes out, which indicates the detector works normally.

④ When the infrared light holes of the detector are completely blocked up, the infrared light at the receiving terminal <S>blinks 3 times, and the detector transmits an alarm signal. The duration from the time when alarm light lights up to the time when the detector works normally again is 5-10 seconds.

**Note:The detector shall be restarted after about 30s after power off. Restarting the detector within the discharge time may cause the detector not to be restarted normally.**

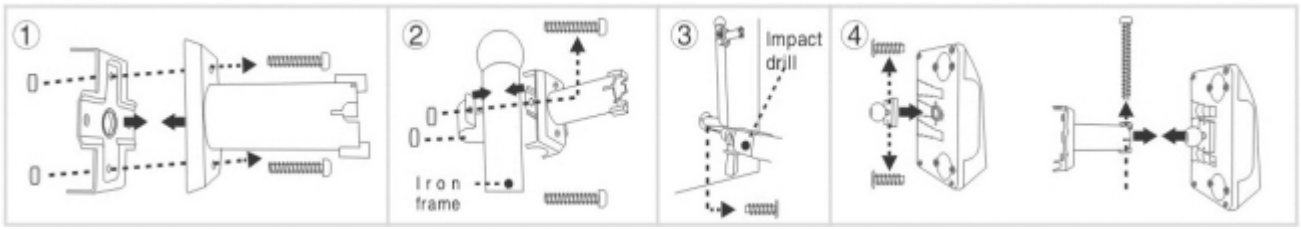
## V. Installation Procedures

### (1)Start-up Operation



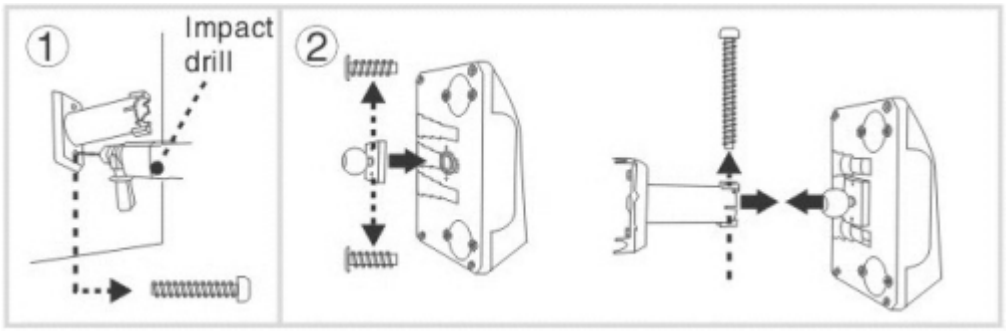

**(2) How to Install the Detector**

**Situation 1: Installation step of fixing iron frame on the wall**




① Fix cross iron base and the long-legged base with screws
② Fix the arc iron base and cross iron base in the iron frame
③ Fix the iron frame with expansion screws on the wall
④ Fix the long-legged base and detector

**Situation 2: Installation step of directly fixing the long-legged base on the wall**




① Fix the long-legged base with expansion screws on the wall
② Fix the long-legged base and detector

**【Note】 ① When install the iron frame, mark and punch at the screw hole position of the frame.**

**②When install the plastic long-legged base, mark and punch at the perforation position of**

**the plastic long-legged base.**

## VI. Installation & Calibration Precautions and Test Methods

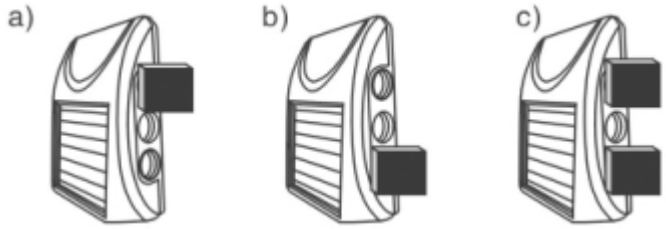
**Calibration Method**

①Make sure the detector is installed in the same horizontal and vertical plane.

②Rotate the universal joint to ensure both the transmitting terminal and the receiving terminal are in the same horizontal and vertical plane.

③Check if the indicators at the receiving terminal of the detector blink. If these indicators blink, that indicates the transmitting terminal is well aligned with the receiving terminal. If these indicators do not blink, adjust the height of the transmitting terminal and the receiving height until these indicators blink.

**Method of Calibration Detection**



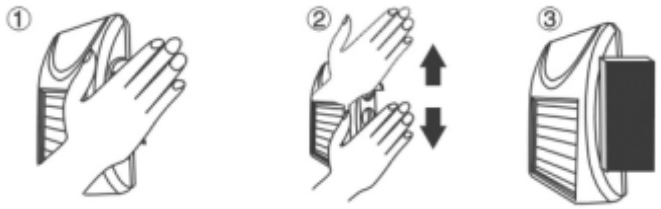

①Check whether the light of the detector twinkles and enters into working state.

②Plug-hole: a) Plug the upper infrared rays aperture, and the detector does not alarm.

b) Plug the lower infrared rays aperture, and the detector does not alarm.

c) Plug the two infrared rays apertures, and the detector alarms.

**Alarm method**




①Infrared light holes are not completely blocked up(Fingers do not completely block up the infrared light holes at the sending terminal and the receiving terminal when keeping the transmitting terminal aligned with the receiving terminal).

②The detector does not alarm if the intruding object moves under free fall.

③The infrared light holes of the grating are completely blocked up for more than 1s by thick materials.

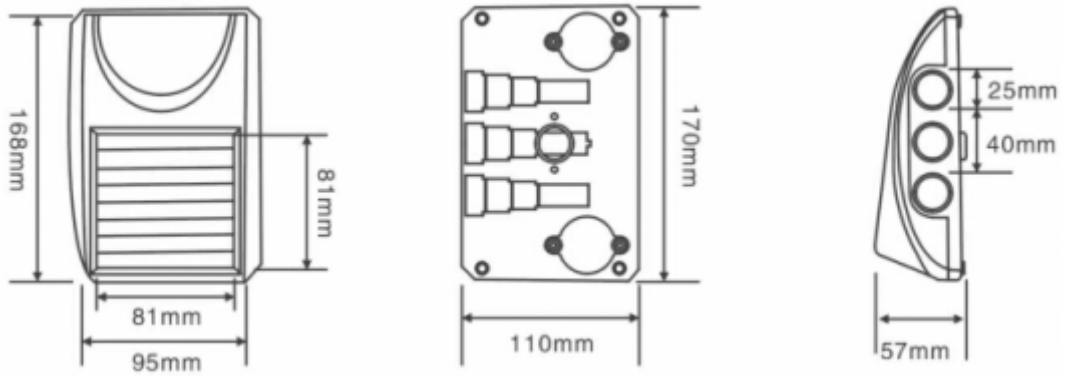
## VII. Check in Abnormal

| Failure Symptoms | Failure Reasons | Failure Recovery Methods |
|---|---|---|

| | | |
|---|---|---|
| **The detector alarm light lights up, but does not alarm** | ①The light holes of the detector are not completely blocked up. | Completely obstruct with thick things |
| | ②The host is unprotecte | Protect with remote controller and then start alarm |
| | ③The antenna of the host is not pulled out and the antenna distance exceeds the product specification | Pull out the antenna |
| | ④The detector does not automatically learn code with the host. | Keep the detector automatically learn code with the host |
| **The detector alarm light does not light up** | ①The detector has been not calibrated for a long time, and battery protection works. | Calibrate the detector with a calibrator |
| | ②The detector battery voltage gets low and automatically runs in battery protection mode. | Charge the detector in a sunny place. The battery protection voltage is 2.8V±0.1V. |
| | ③If the light is not bright but alarms, the indicator light is broken. | Return to the factory to repair |
| **The detector cannot enter into working state when power on.** | ①The switches at the sending terminal and the receiving terminal are not normally turned on. | Check the contact situation |
| | ②There is some difference among detector codes. | Check the code |
| | ③The voltage of the lithium battery is too low. | If the measured voltage is lower than 2.8V±0.1V, the detector shall be placed in a sunny place and then charged. |

## VIII. Technical Parameters

| Product Name / Technical Parameters / Technical Item | **HB-T001A2 Solar-Powered Double-Beam Active Infrared Detectors** |
|---|---|
| **Irradiation distance** | 10m |
| **Wireless transmitting distance** | 100m |
| **Wireless frequency** | FM 433MHz |
| **Maximum alarm times in 24 hours:** | ≤50 times |
| **Infrared light beam number** | Two beams |
| **Battery capacity** | Sending terminal: 500mA； receiving terminal: 500mA |
| **Working temperature** | -30℃～70℃ |

| | |
|---|---|
| **Working voltage** | 3.3V |
| **Power storage type** | LiFePO4 Battery |
| **Static working current** | Sending terminal≤0.4mA； receiving terminal≤0.4mA |
| **Infrared light frequency** | secondary modulation & encoding based on 38KHZ |
| **Infrared light wave-length** | 940nm±20nm |
| **Output current of solar panel** | Under the condition of 1600LX lighting ≥1mA (Note: Outdoor illumination in ordinary rainy or cloudy days is about 2000LX） |

## IX. Product Size