HTZSAFE HB-T001Q2

HTZSAFE Solar Wireless Outdoor Photoelectric 2 Beam Sensor User Manual

Model: HB-T001Q2

1. Introduction

The HTZSAFE HB-T001Q2 Solar Wireless Outdoor Photoelectric 2 Beam Sensor is designed to provide reliable outdoor perimeter detection. This device operates completely wirelessly, powered by integrated solar panels that charge lithium-ion batteries, eliminating the need for external wiring. It features an infrared detection range of up to 190 feet and a wireless transmission range of up to 1/4 mile to a compatible HTZSAFE receiver. Its IP66 waterproof design ensures robust performance in various weather conditions, including rain, fog, and snow, within a wide operating temperature range of -40°C to 70°C.

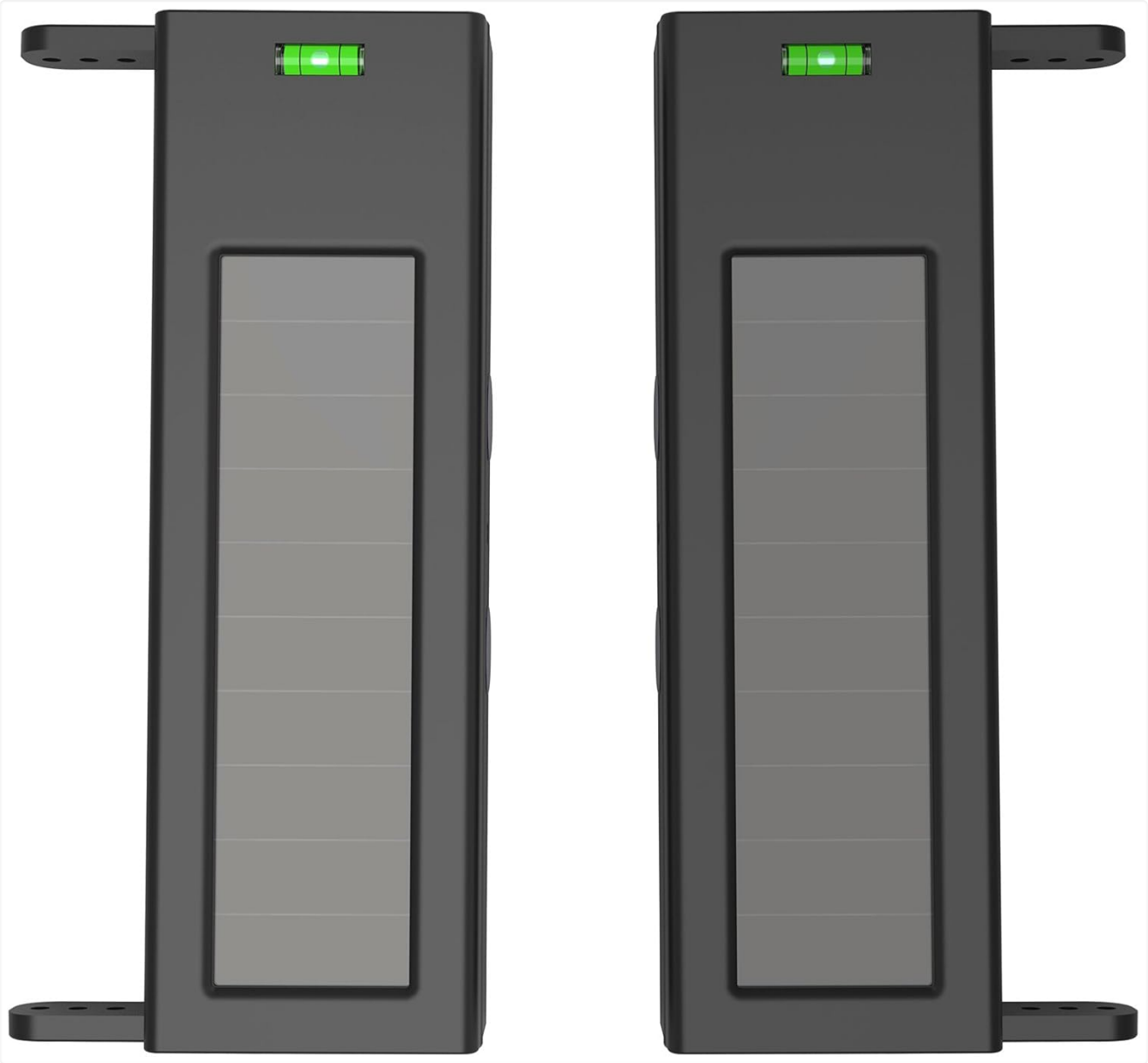

Figure 1: Front view of two HTZSAFE solar wireless photoelectric beam sensors. These units are designed for outdoor use and feature integrated solar panels for power.

2. Safety Information

- Read all instructions carefully before installation and operation.
- Ensure the sensors are mounted securely to prevent accidental falling, which could cause injury or damage.
- Do not attempt to open or modify the sensor units. This may void the warranty and expose you to electrical hazards.
- Keep the solar panels clean to ensure optimal charging performance.
- Dispose of batteries according to local regulations.
- Avoid pointing the infrared beams directly at human or animal eyes from close range.

3. Product Overview and Components

The HTZSAFE HB-T001Q2 sensor consists of two main units: a transmitter and a receiver. Both units are identical in appearance and function, each equipped with a solar panel for power generation and infrared beam emitters/detectors.

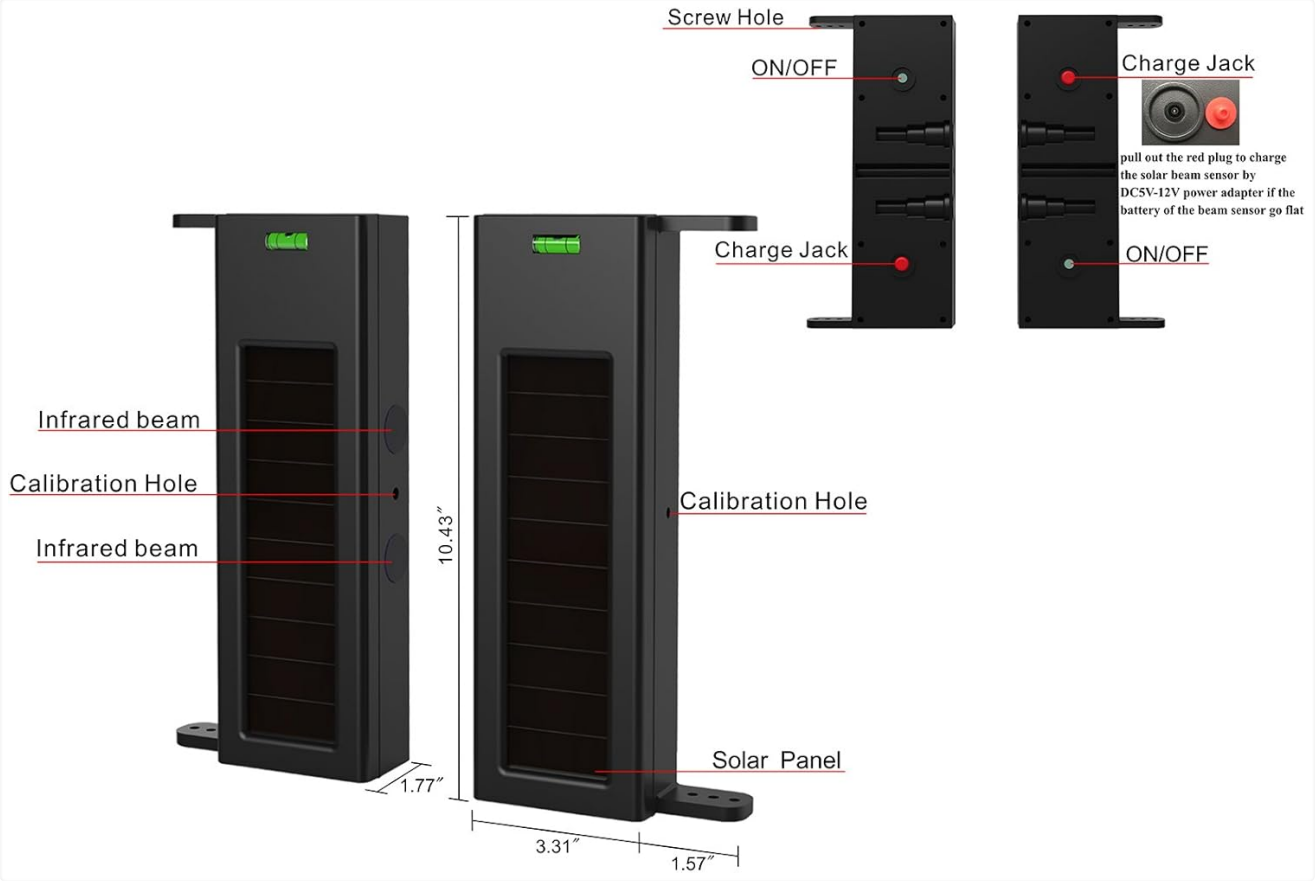

Figure 2: Detailed diagram illustrating the key components of the sensor, including the solar panel, infrared beams, calibration hole, ON/OFF switch, and charge jack. Dimensions are also provided.

- **Solar Panel:** Charges the internal lithium-ion battery.
- **Infrared Beam:** Emits and detects the invisible infrared light for motion sensing.
- **Calibration Hole:** Used for precise alignment of the transmitter and receiver units.
- **ON/OFF Switch:** Controls the power to the sensor unit.
- **Charge Jack:** Allows for optional DC5V-12V power adapter charging if solar charging is insufficient.
- **Screw Holes:** For mounting the sensor securely.

4. Setup and Installation

4.1 Initial Charging

The sensors are primarily solar-powered. For initial setup or if batteries are depleted, they can be charged via the DC5V-12V power adapter (not included). Connect the adapter to the charge jack (refer to Figure 2). Solar charging occurs automatically when exposed to natural light, even on cloudy days.

4.2 Mounting the Sensors

1. Choose a suitable location for both the transmitter and receiver units. They should be mounted facing each other, with a clear line of sight, up to 190 feet apart.
2. Ensure the solar panels are positioned to receive maximum sunlight exposure throughout the day for optimal charging.
3. Use the provided screw holes to securely mount each sensor to a stable surface, such as a wall or wooden post.
4. Maintain a consistent height for both units to facilitate proper beam alignment.

Figure 3: Example of sensor installation on wooden posts, demonstrating a typical outdoor application along a pathway.

4.3 Alignment and Calibration

Accurate alignment of the transmitter and receiver is critical for reliable operation and to minimize false alarms. The sensors are equipped with self-calibration tools (calibration holes) for easy alignment.

1. Turn on both sensor units using the ON/OFF switch.
2. Stand behind one sensor and look through its calibration hole towards the other sensor.
3. Adjust the angle of the sensor until the other unit is clearly visible through the hole. This indicates that the infrared beams are generally aligned.
4. Repeat this process for the second sensor, looking back towards the first.
5. Fine-tune the alignment until the indicator light (if present, or by testing detection) confirms a strong signal.

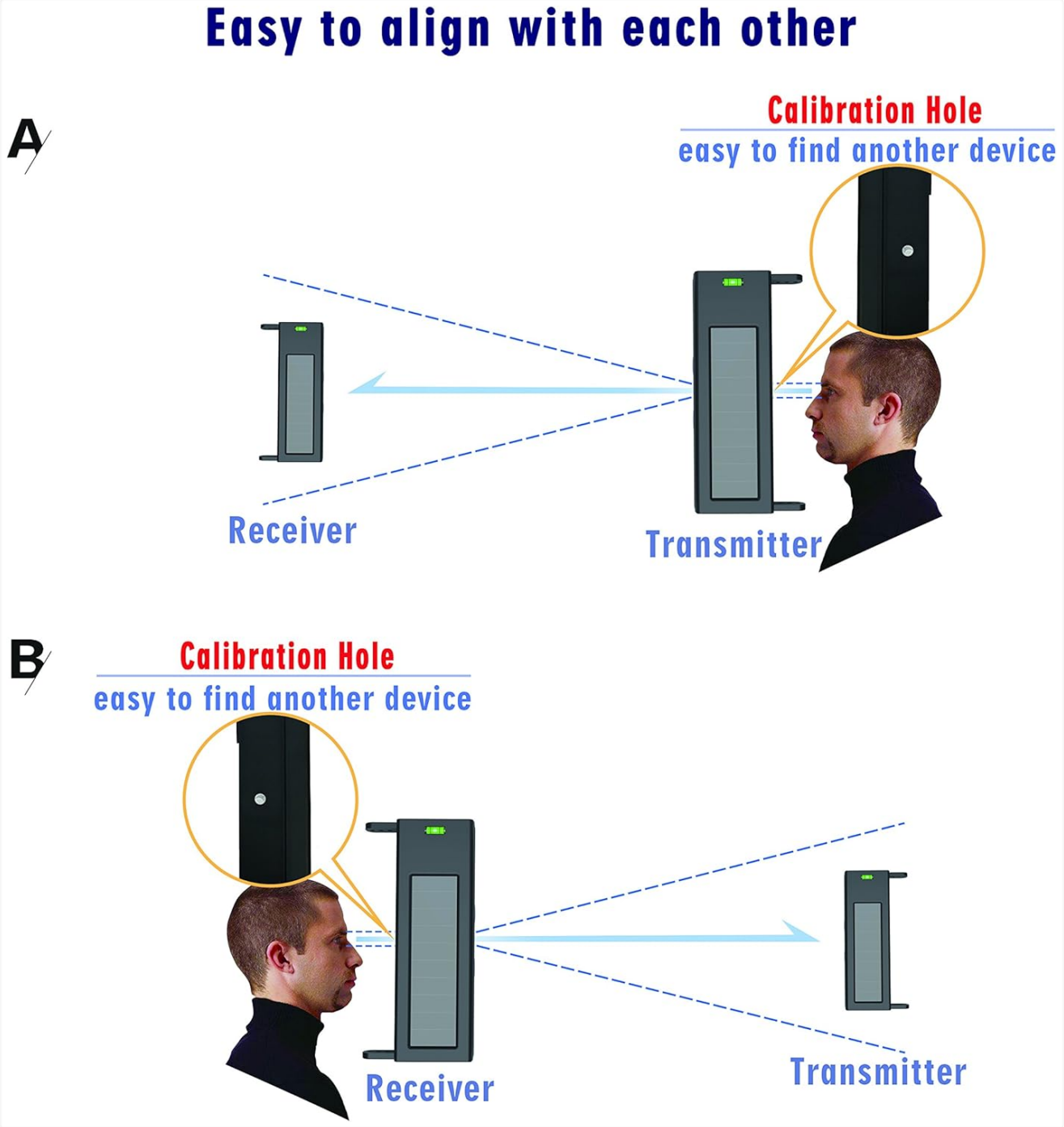

Figure 4: Visual guide for aligning the sensors using the calibration hole. This method helps ensure the infrared beams are properly directed between the transmitter and receiver.

4.4 Pairing with Receiver (if applicable)

If your system includes a separate HTZSAFE receiver, follow the instructions provided with your receiver to pair the beam sensors. Typically, this involves putting the receiver into pairing mode and then triggering the beam sensor.

5. Operating Instructions

5.1 Detection Principle

The HTZSAFE beam sensor operates by emitting and detecting two parallel infrared beams. When an object, such as a person or vehicle, breaks both infrared beams simultaneously, the sensor triggers an alarm signal. This dual-beam technology helps to reduce false alarms caused by small animals or falling leaves.

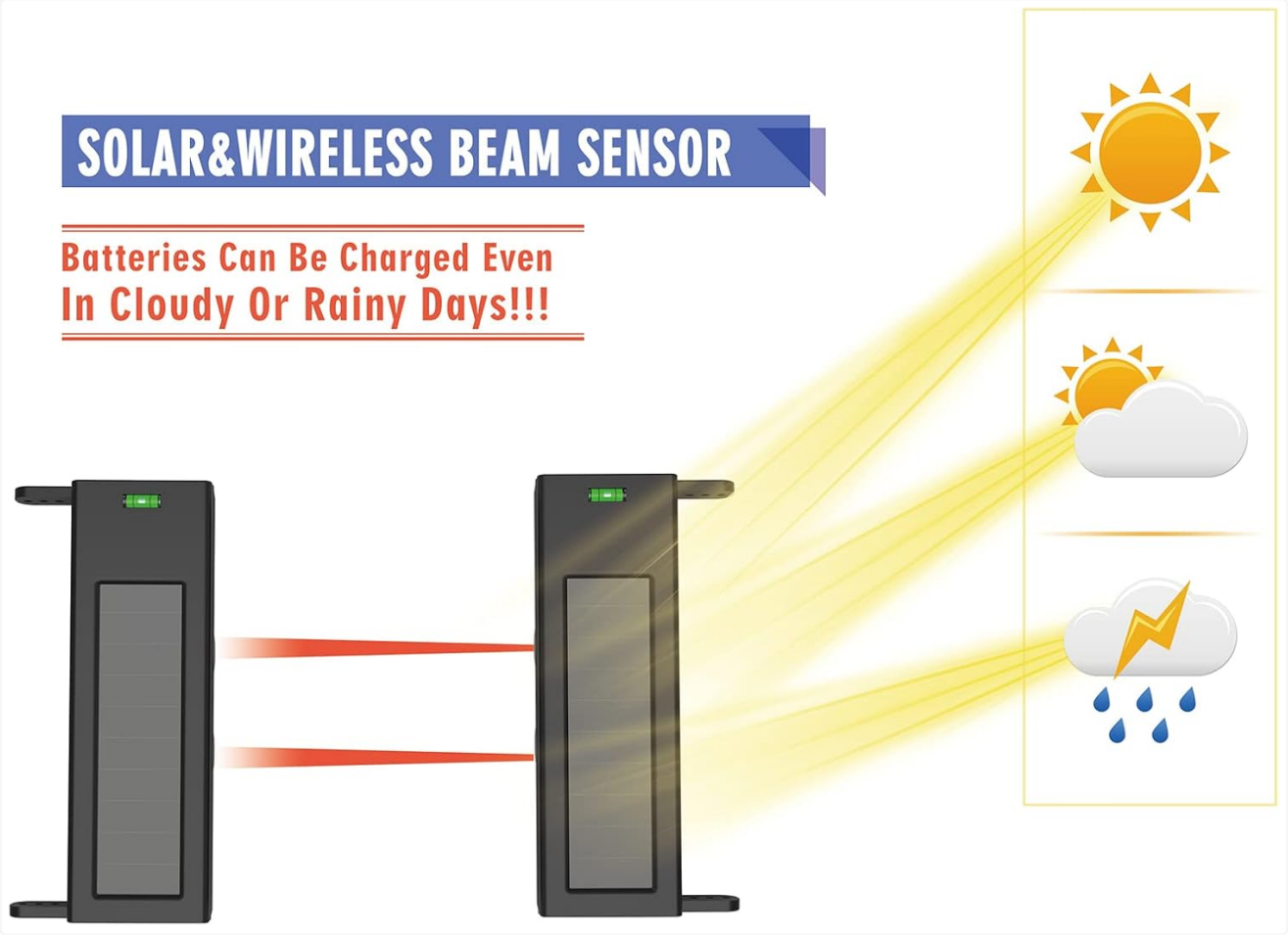

Figure 5: Illustration of the infrared beam detection mechanism and how the solar panel charges the battery even under cloudy or rainy conditions.

5.2 Wireless Transmission

Upon detection, the sensor wirelessly transmits an alarm signal to a compatible HTZSAFE receiver. The wireless transmission range can extend up to 1/4 mile (approximately 1320 feet) in open areas. Actual range may vary based on terrain, obstacles, and environmental interference.

5.3 False Alarm Reduction

The sensor incorporates several technologies to minimize false alarms:

- **Dual Infrared Beams:** Requires both beams to be broken simultaneously, reducing triggers from small objects.
- **Infrared Penetrating Power:** Designed to reduce false alarms during adverse weather conditions like rain, fog, or snow.
- **Infrared Analysis Technology:** Helps differentiate between actual intrusions and interference from natural light sources, such as direct sunlight.

6. Maintenance

- **Cleaning:** Regularly clean the solar panels and the infrared lenses with a soft, damp cloth to ensure optimal performance and charging efficiency. Avoid abrasive cleaners.
- **Battery Health:** The internal lithium-ion batteries are designed for long-term use and are continuously charged by the solar panel. If the sensors are installed in an area with very limited sunlight for extended periods, consider using the DC5V-12V power adapter to fully charge the batteries periodically.
- **Environmental Checks:** Periodically inspect the mounting hardware to ensure the sensors remain securely

fixed and properly aligned, especially after severe weather.

- **Obstruction Removal:** Keep the area between the two sensors clear of any growing vegetation or new obstructions that could block the infrared beams.

7. Troubleshooting

Problem	Possible Cause	Solution
No detection or intermittent detection	◦ Misalignment of sensors. ◦ Obstruction between sensors. ◦ Low battery charge. ◦ Sensor turned off.	◦ Re-align sensors using the calibration hole (refer to Section 4.3). ◦ Clear any obstacles (vegetation, debris) blocking the beam path. ◦ Ensure solar panels are clean and receiving adequate sunlight. If necessary, charge via DC adapter. ◦ Verify both sensors are switched ON.
Frequent false alarms	◦ Poor alignment. ◦ Small animals or objects triggering only one beam (less likely due to dual beam). ◦ Strong light interference (e.g., direct sunlight into sensor lens).	◦ Perform precise re-alignment. ◦ Ensure sensors are mounted at an appropriate height to avoid small animal triggers. ◦ Adjust sensor angle slightly to minimize direct sunlight interference if possible.
Sensor not powering on	◦ Battery completely depleted. ◦ ON/OFF switch in OFF position.	◦ Charge the sensor using the DC5V-12V power adapter for several hours. ◦ Ensure the ON/OFF switch is in the ON position.

8. Specifications

Brand	HTZSAFE
Model Number	HB-T001Q2
Power Source	Solar Powered (Lithium-Ion Battery)
Infrared Detection Range	Up to 190 Feet
Wireless Transmission Range	Up to 1/4 Mile (approx. 1320 feet)
Waterproof Rating	IP66
Operating Temperature	-40°C to 70°C (-40°F to 158°F)
Mounting Type	Wall Mount
Item Weight	4.09 pounds (per unit, approximate)
Package Dimensions	15.04 x 11.57 x 2.6 inches
UPC	605244294781

9. Warranty and Support

9.1 Warranty Information

HTZSAFE products are designed for durability and reliability. For specific warranty terms and conditions, please refer to the documentation included with your purchase or visit the official HTZSAFE website. Keep your proof of purchase for warranty claims.

9.2 Customer Support

If you encounter any issues or have questions regarding the installation, operation, or maintenance of your HTZSAFE Solar Wireless Outdoor Photoelectric 2 Beam Sensor, please contact HTZSAFE customer support.

Online Support: Visit the official HTZSAFE website for FAQs, troubleshooting guides, and contact forms.

Email: Refer to your product packaging or the HTZSAFE website for the most current support email address.