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# **Operation Instruction for ETS-BD-2G4 Wireless Temperature Sensor**

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## Record of Document Modification

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## Notes for Users

### Objective:

The manual provides operation instructions for the use & installation, debugging & configuration and operation of this (series of) product and it is provided to the user along with the purchased product.

Please read the instruction carefully before using the product to ensure that you can use the product safely and correctly. After reading, please keep this instruction properly for later use.

### How to use:

This instruction is mainly divided into six parts of product introduction, performance parameter, application method, maintenance, transportation & storage and service for orders.

### Applicable Users:

This instruction is applicable for the users who purchase this (series of) product of our company.

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# I. Product Introduction

## 1.1 Outline

Through direct contact with the measured target body, online monitoring the temperature of the measured position, and being combined with wireless communication, this (series of) product realizes wireless temperature sensing.

## 1.2 Main Features

- ◆ Temperature measurement, wireless transmission
- ◆ Diversified installation method

## 1.3 Dimension

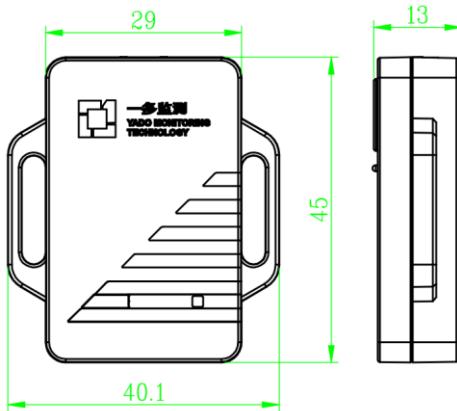
### External View



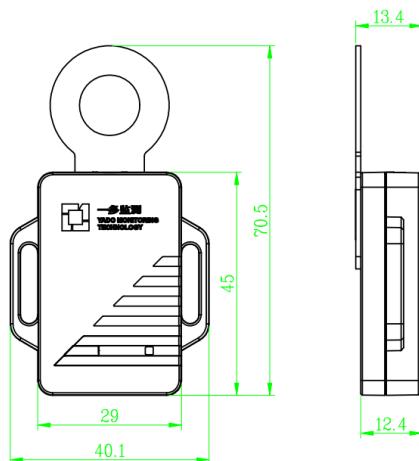
External view of product

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### Dimension figure



Dimension figure of product installed with strap (unit: mm)



Dimension figure of product installed with overlap-bracket (unit: mm)

### 1.4 Model Instruction

The product is divided into the following two models according to the difference in sensor location and measurement mode:

| Product model | Distance away from measured target | Model instruction  |
|---------------|------------------------------------|--|
| ETS-BD-2G4    | Close contact                      | Semiconductor-contact-type temperature measuring sensor, it's used for contact measurement of the temperature of the target object on the bottom, strap type |

|            |               |  |
|------------|---------------|--|
|            |               | installation is adopted  |
| ETS-BD-2G4 | Close contact | Semiconductor-contact-type temperature measuring sensor, it's used for contact measurement of the temperature of the target object on the bottom, overlap-bracket type installation is adopted |

## 1.5 Main Function

The sensor measures the temperature at a given frequency and transmits the data to the network convergence unit via a 2.4GHz wireless link.

The sensor uploads 2 items of data: temperature data— Indicates the temperature at measuring point of the monitoring equipment; Energy data — Indicates energy state of the sensor.

## II. Performance Parameter

### 2.1 Technical Index

| Applicable range                          |                 |
|---|-----------------|
| Voltage range of the measured object      | ≥35KV           |
| Temperature parameter                     |                 |
| Sensor type                               | Contact type    |
| Range of temperature measuring            | -50.0°C~150.0°C |
| Precision of temperature measuring        | ±2.0°C,±2%      |
| Resolution ratio of temperature measuring | 0.1°C           |
| Wireless parameter                        |                 |
| Wireless frequency                        | 2.4GHz          |
| Wireless power                            | 10dBm(max)      |
| Distance of wireless transmission         | Open field 100m |
| Power parameter                           |                 |

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|                             |                            |
|-----------------------------|----------------------------|
| Power source                | Disposable lithium battery |
| Service life of battery     | 10 years                   |
| Cycle of wireless uploading | 180 seconds                |

Note: the target reference is of black body BR400

## 2.2 Other index

| Product dimension                                      |  |
|--|--|
| Dimension (excluding the installation support)         | 45*40.1*12.4 ( L*W*Hmm )   |
| Weight of single product ( excluding the accessories ) | About 24g  |
| Condition of working environment                       |  |
| Recommended range of working temperature               | -40 - 85 °C  |
| Tolerable temperature                                  | 150 °C@3 hours   |
| Humidity range for working                             | 5-95%RH Relative humidity, non-condensation  |
| Storage condition                                      | Temperature range: -20 ~ 55 °C , relative humidity ≤ 85%RH, there's no corrosive gas |
| Protection level                                       | IP30 (used indoors)  |
| Installation method                                    | See details in 1.4 Model Instruction   |
| Service life of product                                | 10 years   |

## III. application method

### 3.1 principle of Application

During product application, the following basic principles shall be followed:

- (1) This (series of) product shall stay consistent with the wireless parameter of corresponding network convergence unit.
- (2) This (series of) product shall be controlled within the effective transmission

range of the corresponding network convergence unit.

### 3.2 Installation Instruction

#### 3.2.1 Installation Method

Two different installation methods are designed for the sensor to make it suitable for different application conditions, please refer to 1.4 Model Instruction for specific model and corresponding installation method.

1. Strap type: A silicone band is used to attach the sensor to the measured object, and the bottom thermal conductivity part is in close contact with the measured object.

2. Overlap-type bracket: The thermal conductivity at the bottom of the sensor is in close contact with the measured object, and the circular gasket for mounting bracket only needs to be fastened with bolts.

### 3.3 Application Method

#### 3.3.1 Transmission of Data Measuring

The sensor will measure temperature and related data at the given frequency and then transmit the data to the receiving device in a wireless way.

#### 3.3.2 Function of Keys and Indicator Light for Running

After one pressing on the key, there temperature data will be sent for once, meanwhile, the indicator light will flash for once.

## IV. Maintenance

- 4.1 This (series of) product is a kind of precise instrument. Therefore, strict attention shall be paid to avoid collisions, heavy strike, oil stains and strong magnetic fields;
- 4.2 This (series of) product shall be kept away from impact effects of drop strike and so on, or permanent breakdown may be caused;
- 4.2 When the battery of this (series of) product runs out of energy, the product can't work normally. If you need to replace the battery, please send the product back to the manufacturer for battery replacement; Replacing battery on your own without permission is prohibited; If the client choose to replace the battery on his own, our company will not guarantee the normal operation and service life of the equipment;
- 4.3 Do not disassemble the equipment randomly, so as to avoid damaging the inner electronic circuit.

## **V. Transportation & storage**

### **5.1 Requirement for Transportation**

The device shall not be subjected to severe shock during transportation and unpacking, and it shall be transported and stored in accordance with the stipulation of GB/T 15464 *General Technical Conditions for Instrument Packaging*.

### **5.2 Requirement for Storage**

During storage and custody, the product shall be placed on the bracket with the original packaging condition, the stack height shall not exceed five layers, the

storage place shall be clean, and its ambient temperature shall be -20 ~+55, the relative humidity shall not exceed 85%, and there shall be no harmful substances which is able to cause corrosion.

## VI. Service for Orders

### 6.1 Method of Placing Orders

While placing orders, please specify:

- ( 1 ) Confirm the installation method: Strap type, overlap-type bracket, it's strap type by default;
- ( 2 ) Confirm product model;
- ( 3 ) Working environment (if there is high temperature, strong magnet and explosive articles);
- ( 4 ) Requirement on other special function;
- ( 5 ) Place and time of goods supplying.

### 6.2 Customer Service

- ( 1 ) If the reason belongs to the ones within the company's responsibility scope, free warranty is available for three years, there will be lifelong maintenance;
- ( 2 ) For the problem of product, reply will be given within 24 hours, If there is any major technical problem, the company will send technicians to the site to solve the problem as soon as possible.

- ( 3 ) In the process of pre-sale, in-sale and after-sale, accurate and timely reply

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on the application, design and other related issues of the product will be given, and corresponding technical support will be provided.

## FCC Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.