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# ATE series Wireless Temperature Sensor

## Installation Instruction V1.7

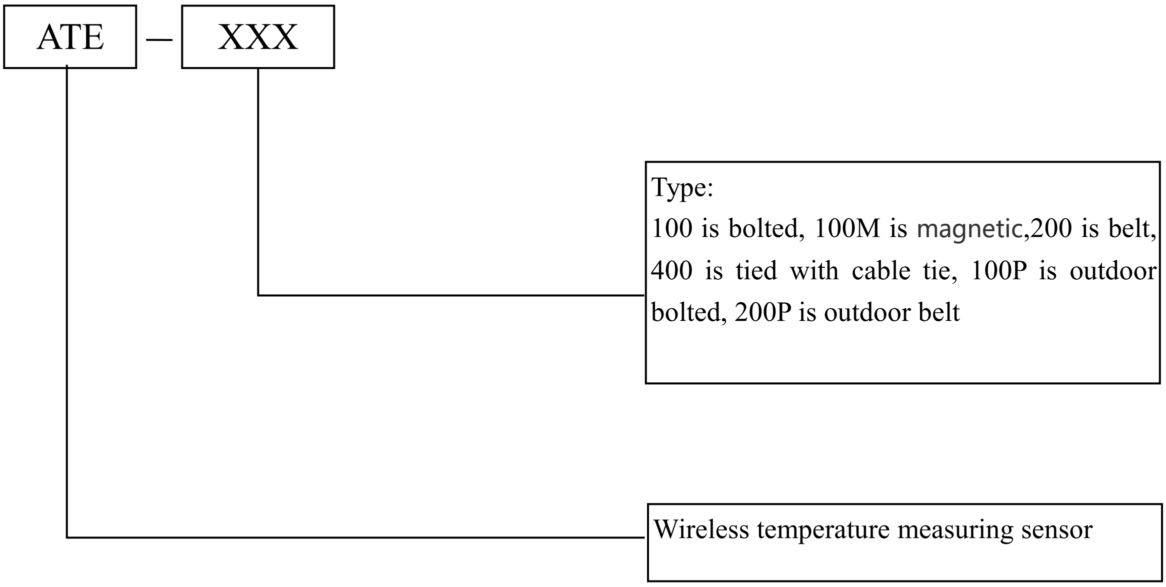
Acrel Co., Ltd.

# 1 Installation Guide

## 1.1 Product Introduction

ATE series wireless temperature measuring sensor has been developed in compliance with *Specification for Wireless Temperature Measuring equipment, NB/T 42086-2016*. It is suitable for 3-35kV indoor switchgears, including built-in switchgears, handcart switchgears, fixed switchgears and loop-net switchgears. It is also suitable for 0.4kV low-voltage switchgears such as fixed switchgears and drawer switchgears. The wireless temperature sensors can be installed at any heating point in switchgears, the device utilizes the wireless data transmission technology for real-time transmission of monitored temperature data. In addition, it can be transmitted to display device or remote intelligent monitoring system.

## 1.2 Type Introduction



Type:
100 is bolted, 100M is magnetic,200 is belt, 400 is tied with cable tie, 100P is outdoor bolted, 200P is outdoor belt

Wireless temperature measuring sensor

## 1.3 Technical Features

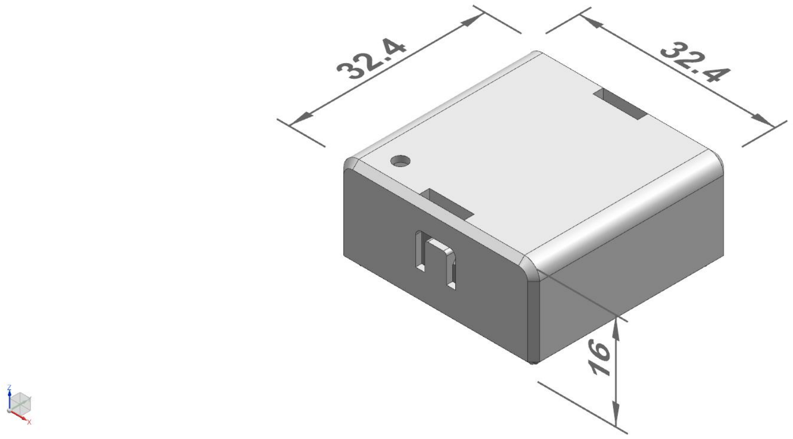
| **Items** | | **Features** |
|---|---|---|
| Environment | Temperature | -40℃~125℃ |
| | Humidity | ≤95% |
| | atmospheric pressure | 86kPa~106kPa |
| ATE100M/100/200 Active wireless temperature sensor | Wireless frequency | 470MHz |
| | Communication distance | 150m in open area |
| | Sampling frequency | 25s |
| | Transmitting frequency | 25s-5min |

| | | |
|---|---|---|
| | Power source | Battery |
| | Installation | Magnetic / bolted /Belt |
| | Range of temperature | -50℃~+125℃ |
| | Precision | ±1℃ |
| | Application | Joints in high or low voltage switchgears |
| | Battery life | ≥5 years |
| 400 Passive wireless temperature sensor | Wireless frequency | 470MHz |
| | Communication distance | 150m in open area |
| | Sampling frequency | 15s |
| | Transmission frequency | 15s |
| | Power source | CT-powered, starting current≥5A |
| | Installation | alloy chip fixing |
| | Sensor probe | alloy bottom |
| | Range of temperature | -50℃~125℃ |
| | Precision | ±1℃ |
| | Application | Joints in high or low voltage switchgears |
| ATE100P/200P Outdoor wireless temperature sensor | Wireless frequency | 470MHz |
| | Communication distance | 150m in open area |
| | Sampling frequency | 25s |
| | Transmitting frequency | 25s-5min |
| | Power source | Battery |
| | Installation | bolted /Belt |
| | Range of temperature | -50℃~+150℃ |
| | Precision | ±0.5℃ |
| | Application | Voltage switchgears |
| | Battery life | ≥5 years |
| | Protection level | IP68 |

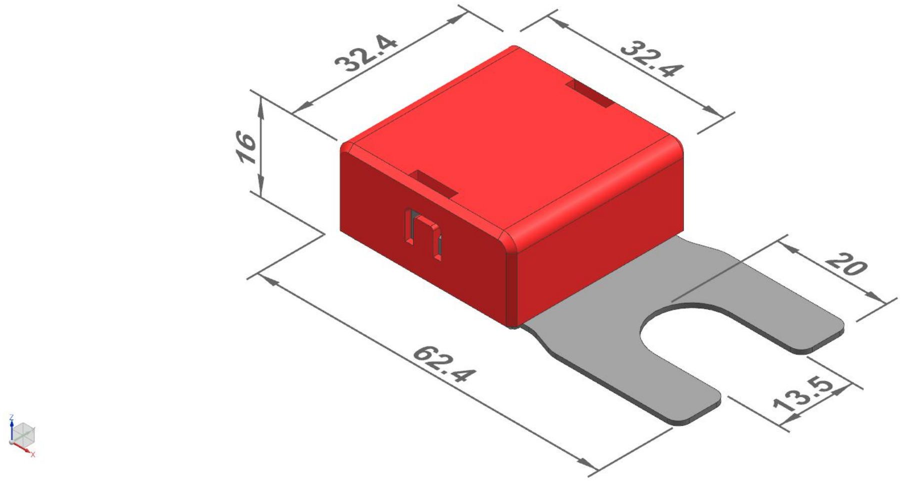
## 1.4 Product Installation

There are several types of wireless temperature sensors and mounting methods correspondingly, i.e. Magnetic , bolted , belt and alloy chip fixing.

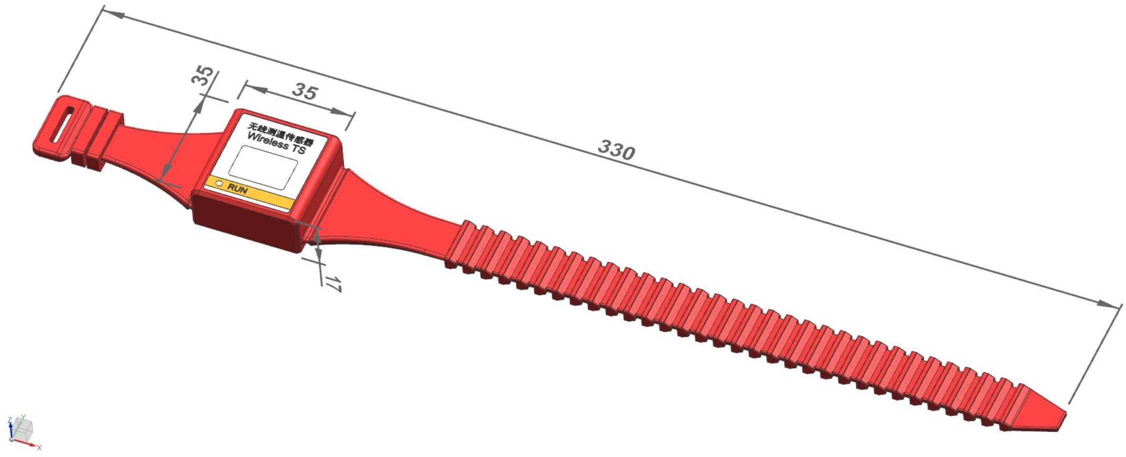
### 1.4.1 Shape Size



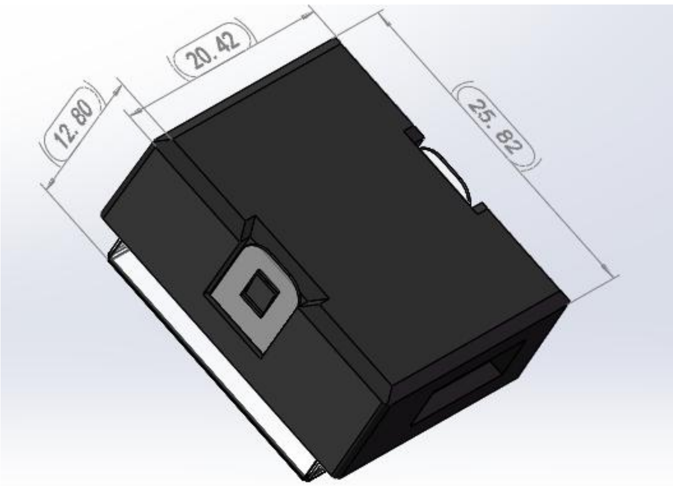
ATE100M


32.4
32.4
16
20
62.4
13.5

ATE100/ATE100P


35
35
330
17
无线测温传感器
Wireless TS
RUN

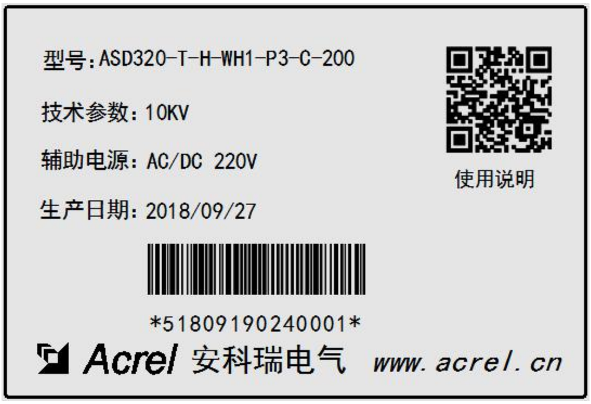
ATE200/ATE200P


20.42
12.80
25.82

ATE400

## 1.4.2 Label Instructions

### 1.4.2.1 ATE sensor with ASD/ARTM-Pn device


型号：ASD320-T-H-WH1-P3-C-200

技术参数：10KV

辅助电源：AC/DC 220V

生产日期：2018/09/27

使用说明

*51809190240001*

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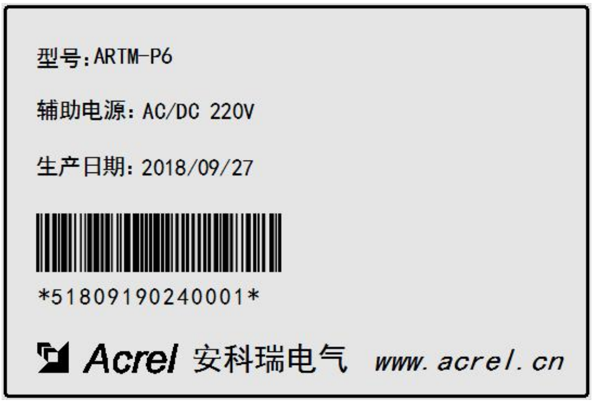
ASD320


型号：ARTM-P6

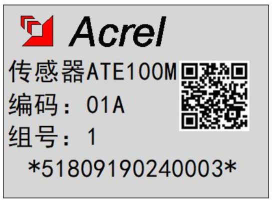
辅助电源：AC/DC 220V

生产日期：2018/09/27

*51809190240001*

Acrel 安科瑞电气 www.acrel.cn

ARTM-Pn


Acrel

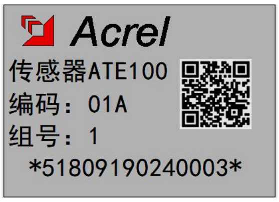
传感器ATE100M

编码：01A

组号：1

*51809190240003*

ATE100M


Acrel

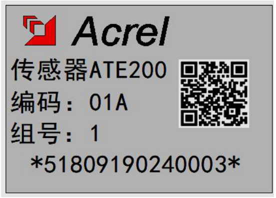
传感器ATE100

编码：01A

组号：1

*51809190240003*

ATE100


Acrel

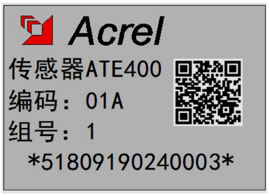
传感器ATE200

编码：01A

组号：1

*51809190240003*

ATE200


Acrel

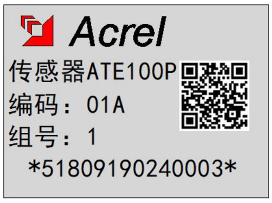
传感器ATE400

编码：01A

组号：1

*51809190240003*

ATE400


Acrel

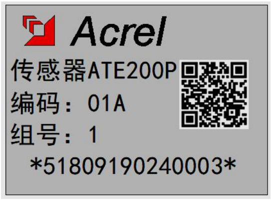
传感器ATE100P

编码：01A

组号：1

*51809190240003*

ATE100P


Acrel

传感器ATE200P

编码：01A

组号：1

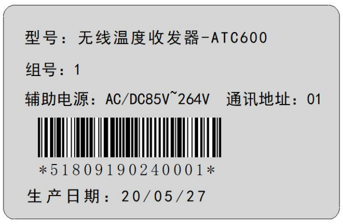
*51809190240003*

ATE200P

If the sensor is ATE100M/ATE100/ATE200/ATE400/ATE100P/ATE200P, the number behind “**组号：**” should be same as number underlined in “***51809190240001***”, the sequence of installation is base on the label, “**编码：1A**” is first one on the phase A, “**编码：1B**” is first one on the phase B， and so on.

**Notice: wireless temperature sensors and display device in the package have been matched before delivery. Do not use them with other display device or other wireless temperature sensors together. Please installing them with label on the sensor.**

### 1.4.2.2 ATE sensor with ATC600/ATC450-C coordinator


型号：无线温度收发器-ATC600

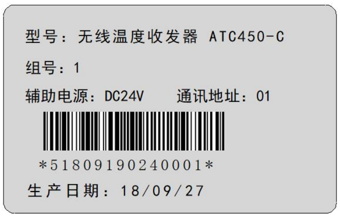
组号：1

辅助电源：AC/DC85V˜264V 通讯地址：01

*51809190240001*

生产日期：20/05/27

ATC600


型号：无线温度收发器 ATC450-C

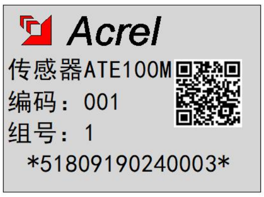
组号：1

辅助电源：DC24V 通讯地址：01

*51809190240001*

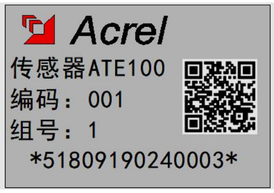
生产日期：18/09/27

ATC450-C



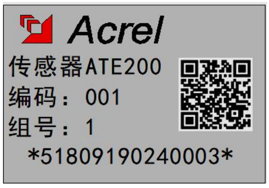
Acrel
传感器ATE100M
编码：001
组号：1
*51809190240003*

ATE100M



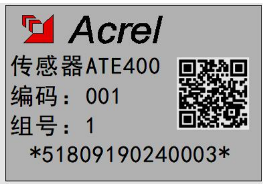
Acrel
传感器ATE100
编码：001
组号：1
*51809190240003*

ATE100



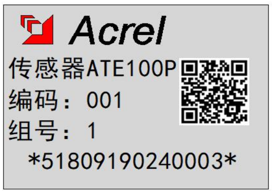
Acrel
传感器ATE200
编码：001
组号：1
*51809190240003*

ATE200



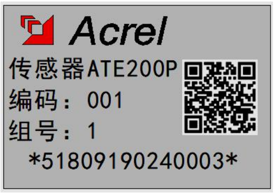
Acrel
传感器ATE400
编码：001
组号：1
*51809190240003*

ATE400



Acrel
传感器ATE100P
编码：001
组号：1
*51809190240003*

ATE100P



Acrel
传感器ATE200P
编码：001
组号：1
*51809190240003*

ATE200P

According to the above pictures, If the sensor is ATE100M/100/200/400/100P/200P, the group number of ATE must be same with the group number of ATC450-C/ATC600 and the installation order is base on the label. The code of each sensor is used to distingguish each sensor from same group. **“code: 001”** is recommended to be installed on the first temperature measuring point of the first cabinet, and then installed other sensors in this order.

**In case of any special situation, please contact the relevant engineers for communication.**

## 1.4.3 Installation Method

### 1.4.3.1 ATE100M Installation Method

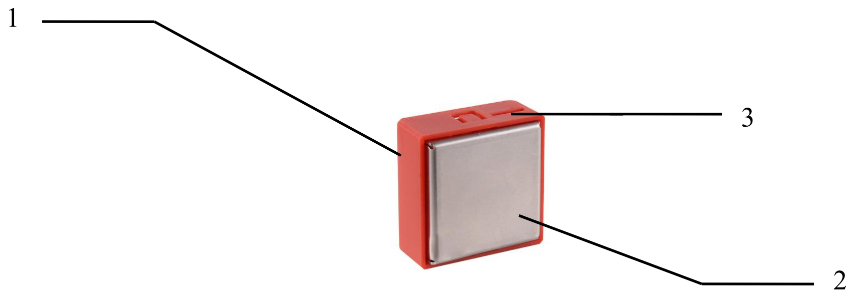
The magnetic wireless sensor ATE100M is suitable for iron electrical nodes or equipment surfaces.

Structure introduction of ATE100M:

1 —— The core of wireless temperature sensor ATE100M

2—— Thermo-sensitive part

3 —— battery switch



Adsorbed directly at the iron temperature measuring point, open the battery switch before installation, the power indicator flashes twice. The installation examples see images below.

### 1.4.3.2 ATE100 Installation Method

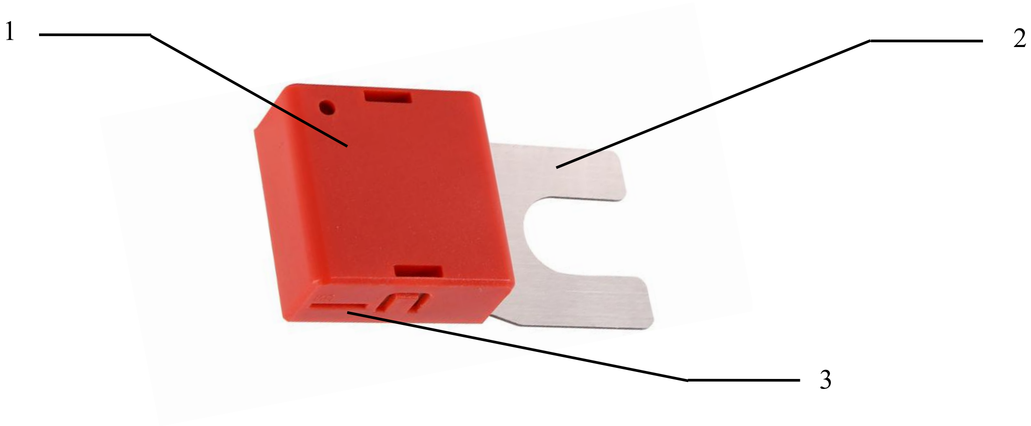
The bolted type wireless sensor ATE100 is suitable for use at joints between cable and bus bar and joints between cable and disconnector.

ATE100 structure introduction:

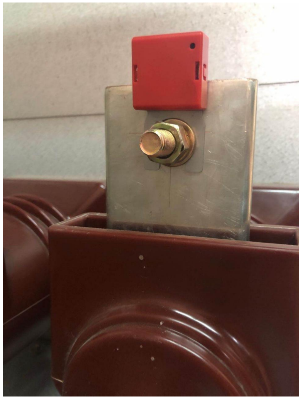
1 —— The core of wireless temperature sensor ATE100

2 —— Thermo-sensitive part

3 —— battery switch



Remove the screw from the joints, and fixing the sensor on the position with the hole on the alloy baseplate, then tighten the screw, open the battery switch before installation, the power indicator flashes twice. The installation examples see images below.



### 1.4.3.3 ATE200 Installation Method

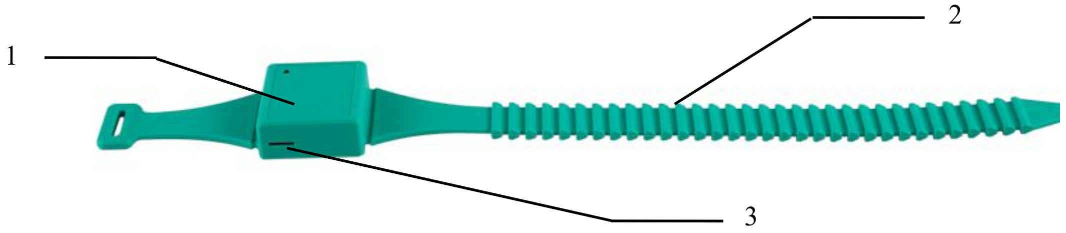
The strap-secured type called ATE200 is suitable for use at moving contacts and fixed contacts of breaker, cable joints and bus bar.

ATE200 structure introduction:

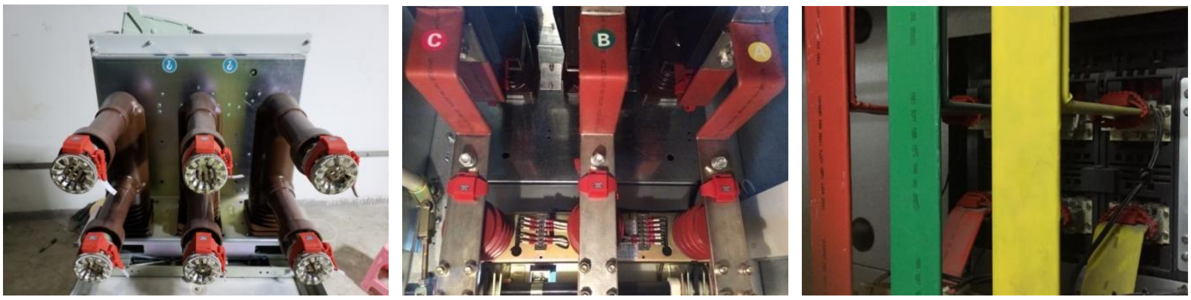
1 —— The core of wireless temperature sensor ATE200, temperature measuring probe is on the other side

2 —— strap and hasp

3 ——battery switch



Fixing the body of sensor on the position, then strapping it on the bus bar or breaker contact and frapping it through the hole on the strap, fixing the strap by hasp. Clipping the strap if it is too long when finished, if it is too short, contacting us for strap parts before installation. Open the battery switch before installation, the power indicator flashes twice.The installation examples see images below.



1.4.3.4 ATE400 Installation Method

The mini type called ATE400 is suitable for using at moving contacts, bus bars, cables and joints between bus bar and cable.

Mini type passive temperature sensor structure introduction:

1 —— The core of wireless temperature sensor ATE400

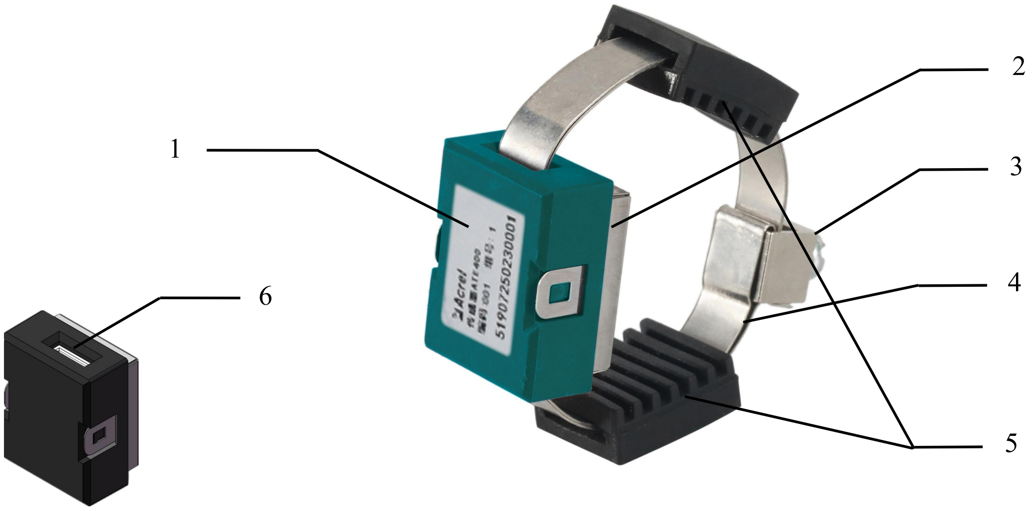
2 —— alloy bottom, touched with temperature probe

3 —— metal hasp, for fixing alloy chip

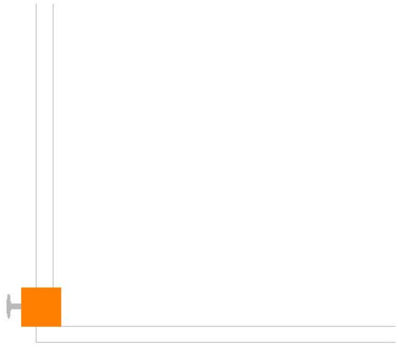
4 —— alloy chip, for CT-powered

5 ——silicone gasket, used to support the alloy chip

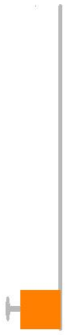
6 ——alloy chip hole, used to install the alloy chip



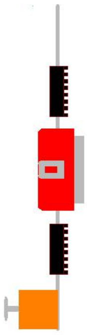
Firstly, take 2 pieces of alloy chips through the mounting hole of metal hasp, meanwhile fold the alloy chips and fix the metal hasp in the middle of alloy chips. Secondly, take the folded alloy chips through one silicone gasket, the core of ATE400 and another silicone gasket in turn.Thirdly, circle the whole alloy chips around the mounting position and tension the alloy chips, then tighten the screw on the metal hasp. Finally, subtract the excess alloy chips. The complete installation process is shown in Figures 1 to 4.



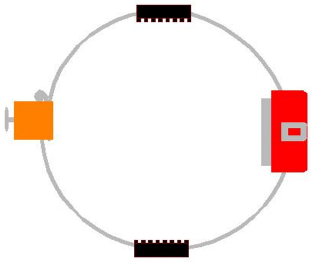
①



②

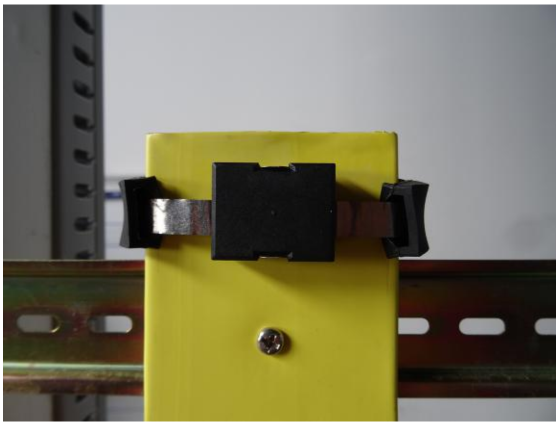


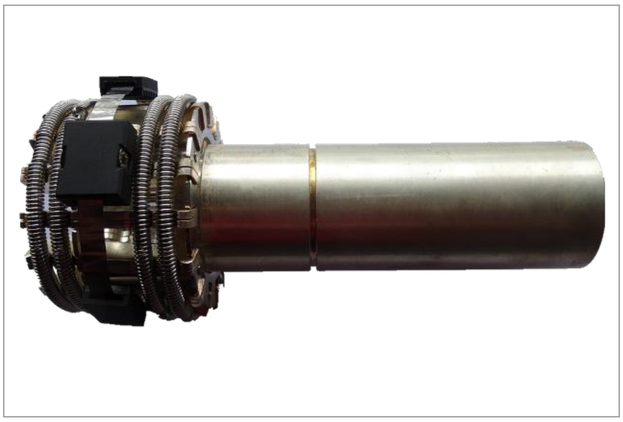
③



④

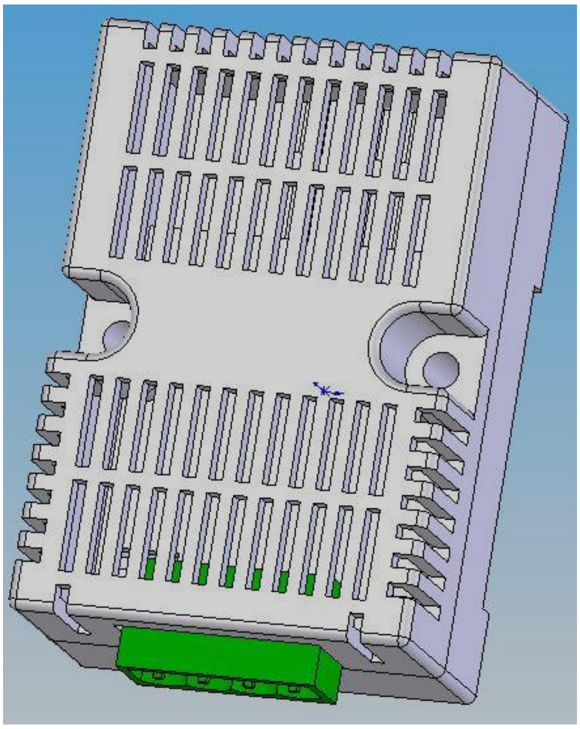
The wireless temperature sensor called ATE400 installation examples, see images below.

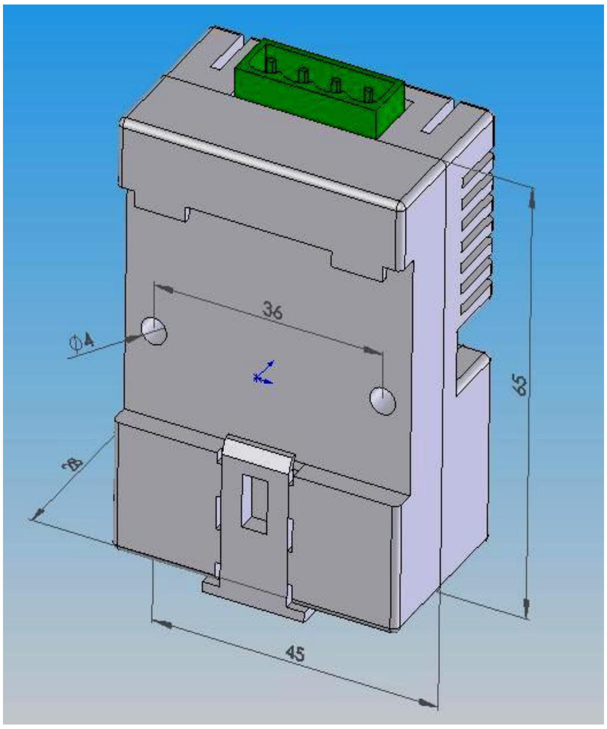




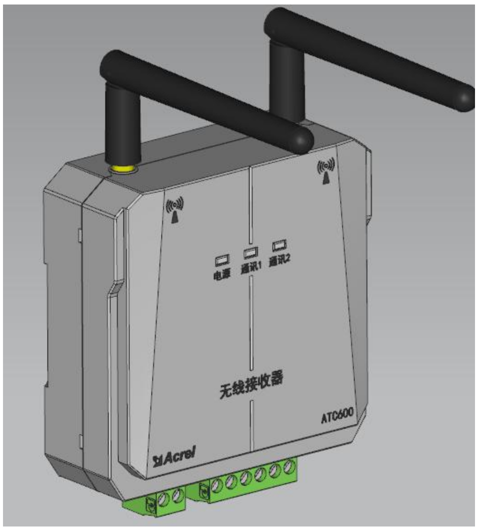
### 1.4.4 Wireless Temperature Coordinator

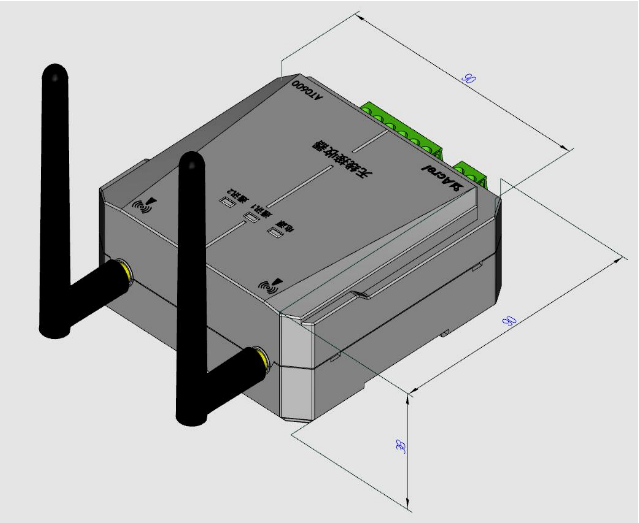
The wireless temperature coordinator connected with ATE series wireless temperature sensor ATC450-C which can be mounted on rail (DIN35mm) or bolted directly.




Φ4
36
38
65
45

The wireless temperature coordinator connected with ATE series wireless temperature sensor ATC600 which can be mounted on rail (DIN35mm).


电源
通讯1
通讯2
无线接收器
ATC600
Acrel



# Appendix

## Precautions

1） Please select the most suitable wireless temperature measurement product according to the installation location and requirements.

2）For the installation of all sensors, please strictly follow the instructions in the manual. If there is insufficient accessories due to installation errors, the customer shall bear the responsibility.

3） Before placing an order for wireless temperature measurement products, you need to have a detailed configuration plan, and fill in the **Acrel Wireless Temperature Measurement Confirmation Form** ! Then submit the plan and form to the back office.