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Anhui Ronds Science

Anhui Rond Science RH711 Wireless Vibration Temperature Sensor



Specifications

- **Executive Standard:** GB/T 3836.1-2021 GB/T 3836.4-2021 Q/RH081–2022
- **Version Number:** VER 1.1
- **Publication Date:** 2022.6
- **Manufacturer:** Anhui Ronds Science & Technology Incorporated Company

Product Information

Preface

This manual provides information on the use method and precautions of the Wireless Vibration Temperature Sensor. Users are advised to read it carefully before use.

Overview

Uses and Application Scope

The Wireless Vibration Temperature Sensor can monitor equipment vibration signals, transmit vibration data wirelessly, and has

intrinsically safe explosion-proof functions.

1.2 Functional Features

- Wireless transmission to save wiring work
- 2.4G frequency band for long-distance transmission
- Low power design for long-term monitoring
- Small size suitable for industrial sites
- Supports temperature measurement
- 1.3 Model Description
- **Model:** RW X06X
- **Operating Status Monitoring:** M-supported
- **Vibration Measuring Axial:** 506-one axial Vibration, 606-three axial Vibration

Application Environment Conditions

Working Environment Conditions:

- **Ambient temperature:** -40°C to +70°C
- **Average relative humidity:** 95%HR (+25°C)
- **Atmospheric pressure:** 70kPa-110kPa

Product Usage Instructions

Operating Voltage and Current

- **Operating Voltage:** Rated voltage 3.6V
- **Operating Current:** 50mA

Measurement Range and Error

Linearity: 2%

Signal Output Way

Safety Features

- **Explosion Proof Type:** Intrinsically safe
- **Explosion-Proof Sign:** Ex ia IIC T4 Ga

Executive standard:

- GB/T 3836.1-2021
- GB/T 3836.4-2021
- Q/RH081—2022
- **Version number:** VER 1.1
- **Publication date:** 2022.6

Preface

This manual describes the use method and precautions of the wireless Vibration Temperature sensor. Users must read it carefully before use. The wireless Vibration Temperature sensor implements the enterprise standard Q/RH081-2022 of Anhui Ronds Science & Technology Incorporated Company.

Warning:

- Read the operation manual before installation and use, and install and operate in strict accordance with the methods in the manual.
- Do not modify the circuit without authorization.
- The model, specification and electrical parameters of related short circuits and components shall not be modified during maintenance.
- It is forbidden to replace batteries in explosion-proof places, and batteries other than those specified in the specifications shall not be replaced.
- The product shell contains plastic material, which has the potential danger of electrostatic charge! Avoid friction during use! Please wipe with a damp cloth when cleaning.

Overview

1. Uses and Application Scope

The wireless Vibration Temperature sensor (hereinafter referred to as the sensor) can monitor the equipment vibration signal, and can monitor the vibration data for a long

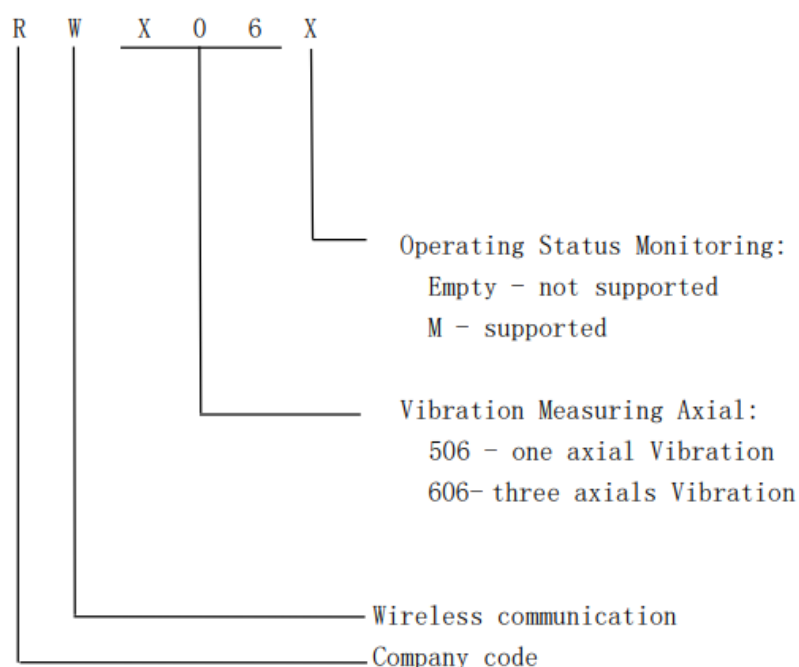
time and transmit it.

The sensor has intrinsically safe explosion-proof function and meets the standards of GB/T 3836.1-2021 Explosive Atmospheres Part 1: Equipment—General Requirements and GB/T 3836.4-2021 Explosive Atmospheres Part 4: Equipment Protected by Intrinsically safe “i”; The explosion-proof sign is Ex ia IIC T4 Ga, which can be installed in normal places and dangerous places in Zone 0 with IIA, IIB, IIC dangerous gases. The sensor communicates wirelessly.

2. Functional Features

1. Wireless transmission. saves a lot of wiring work, such as signal, power supply, and network
2. Adopt transmission frequency of 2.4G free frequency band, with long transmission distance and strong anti-interference ability, which is convenient for industrial field use
3. Low power design. Able to monitor and transmit vibration data for a long time.
4. Small size. Suitable for installation in various industrial sites.
5. Support temperature measurement.

3. Model description



The current product models are as follows:

RW506:

Frequency response range: Z-axis direction 2-20000Hz (± 3 dB);

Analysis frequency: Z axis 1000Hz 10000Hz ,20000Hz;

Battery life: 5 years (estimated under the condition that the temperature is 25 °C (± 2

°C) and the conventional index is 30 minutes/time, the service life decreases under the conditions of extremely low temperature and extremely high temperature);

Temperature measurement range: -40°C 125°C;

RW506M:

RW506M has the same performance parameters as RW506W, and RW506M has a working condition monitoring function.

RW606:

Frequency response range: Z-axis direction 0.1-20000Hz ($\pm 3\text{dB}$), X & Y-axis direction 0.1-1000Hz ($\pm 3\text{dB}$);

Analysis frequency: Z axis 1000Hz, 10000Hz, 20000Hz; X & Y-axis direction 1000Hz;

Battery life: 5 years (estimated under the condition that the temperature is 25 °C (± 2 °C) and the conventional index is 30 minutes/time, the service life decreases under the conditions of extremely low temperature and extremely high temperature);

Temperature measurement range: -40°C 125°C;

RW606M:

RW606M has the same performance parameters as RW606, and RW606M has a working condition monitoring function.

4. Application Environment Conditions

1. Working Environment Conditions

1. **a)** Ambient temperature: -40°C +70°C;
2. **b)** Average relative humidity: $\leq 95\% \text{HR}$ (+25°C);
3. **c)** Atmospheric pressure: 70kPa 110kPa;
4. **d)** Occasions without ponding;
5. **e)** Zone 0 hazardous places with IIA, IIb and IIC hazardous gases, but without corrosive gases damaging insulation.

2. Bearable Storage and Transportation Conditions

1. **a)** High temperature: +85°C;
2. **b)** Low temperature: -40°C;
3. **c)** Average relative humidity: $\leq 95\% \text{HR}$ (+25°C);
4. **d)** Vibration: 50m/s²;
5. **e)** Impulse: 500m/s²

5. Safety Features

Explosion proof type: intrinsically safe, explosion-proof sign: Ex ia IIC T4 Ga

Working Principle and Structural Features

1. Operating Voltage and Current

1. **a) Operating voltage:** rated voltage 3.6V (battery is one of the following three models)
 1. EVE ER34615 Maximum open circuit voltage 3.9V;
 2. LISUN ER34615 Maximum open circuit voltage 3.9V;
2. **b) Operating current of the whole machine:** $\leq 50\text{mA}$

2. Measurement Range

vibration acceleration (Z-axis direction) measurement range:

$\pm 50\text{g}$; (g gravitational acceleration $g=9.8\text{m/s}^2$)

vibration acceleration (X & Y-axis direction) measurement range: $\pm 16\text{g}$ (g gravitational acceleration $g=9.8\text{m/s}^2$)

Resolution ratio is 0.01m/s^2 ;

Temperature measurement range: -40°C 125°C

3. Basic Error

Allowable basic error of vibration measurement: $\pm 3\text{dB}$;

4. Linearity

Linearity: 2%;

5. Signal Output Way

1. 2.4G (IEEE 802.15.4)Wireless communication:

1. Frequency: 2405MHz 2475MHz
2. Transmission distance: 300 meters line of sight.

2. BLE Wireless communication:

1. Frequency: 2402MHz 2480MHz
2. Transmission distance: 50 meters line of sight.

6. IP Grade:IP68 (1m, 40min)

Dimensions, Weight and Material

1. **Dimensions:** $\phi 45.5 \times 110.3\text{mm}$ (diameter \times Height, including mounting base);

2. **Weight:** About 320g (including mounting base);

3. **Upper cover material:** flame retardant PC;

Battery compartment material: flame retardant PA66 + 30% glass fiber + SUS304 (integrated injection molding);

Base and mounting base material: SUS316 stainless steel.

Installation and Operation Notices

1. Please read the operation manual carefully before using this product.
2. This product should be used and maintained by trained personnel or special personnel.
3. Avoid knocking, falling, being close to high high-temperature source for a long time and being used in high high-corrosion environment for a long time.
4. Install the sensor correctly to ensure the sensitivity of the sensor and the accuracy of the measured data.
5. It is not allowed to replace the original device or structure to avoid affecting the explosion-proof performance.
6. Only use the following brands of specified models of batteries:
 1. EVE ER34615, 3.6V 19Ah Lithium Thionyl Chloride (LiSOCI₂)
 2. LISUN ER34615, 3.6V 19Ah Lithium Thionyl Chloride (LiSOCI₂)
7. The upper cover of the product and the shell of the battery compartment are made of flame-retardant PA66 + 30% glass fiber + SUS304 (integrated injection molding), which has potential electrostatic hazards. Avoid friction during use! Please wipe with a damp cloth when cleaning.

Installation and Use

1. Production Date and Certificate Validity

1. **a)** Production date: see “product delivery inspection report” for details;
2. **b)** Certificate validity: see “explosion proof certificate” for details.

2. Installation Methods

Magnetic base + gluing, adapter base + screw hole, adapter base + welding Note: If the vibration amplitude of equipment is large, it is recommended to adopt the installation method of adapter + screw hole or adapter + welding.

3. Use Method

1. **a)** Configure by using the supporting dongle.
2. **b)** Set the same wireless band with ma atched gateway.
3. **c)** When replacing the battery, it must be carried out in strict accordance with the relevant requirements of “repair and maintenance” in Article 4.

Repair and Maintenance

Repair

1. Please read the manual carefully before use and follow the operating steps.
2. Do not change any parameters of the sensor circuit.
3. Only use the battery model described in Article 4.
4. Battery replacement shall be carried out in a safe place.

Maintenance

1. A designated person must be responsible for the daily maintenance of the sensor.
2. Maintenance personnel must carefully read and be familiar with the Wireless Vibration Temperature Sensor Manual and relevant circuit diagrams, and be familiar with the internal and external structure and circuit principle of the sensor.
3. The maintenance personnel should always check whether the sealing part of the sensor is compressed and whether the cover plate screws are fastened.

Common Fault Treatment

1. If the data cannot be uploaded, first check whether the battery is powered. If not, please replace the battery.
2. If the data is not uploaded in time, first check the wireless signal quality at the installation position to ensure that there is no shielding equipment around.

Transportation and Storage

1. Avoid violent vibration and impact when transporting and handling the sensor.
2. Strictly prohibited to put the sensor in the place directly dripping with water when store it.

Unpacking and Inspection

1. Pay attention to safety when unpacking to avoid damage to equipment or injury.
2. After unpacking, check whether the appearance of the equipment is damaged and whether the accessories are complete.

3. Accessories list

1. **a)** Instruction Manual 1 pcs
2. **b)** Sensor Sensor1 pcs
3. **c)** Product certificate 1 pcs
4. **d)** Packing list 1 pcs

Manufacturer: Anhui Ronds Science & Technology Incorporated Company

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FCC Statement

FCC ID 2AKW5-RONDS01

Please take note that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

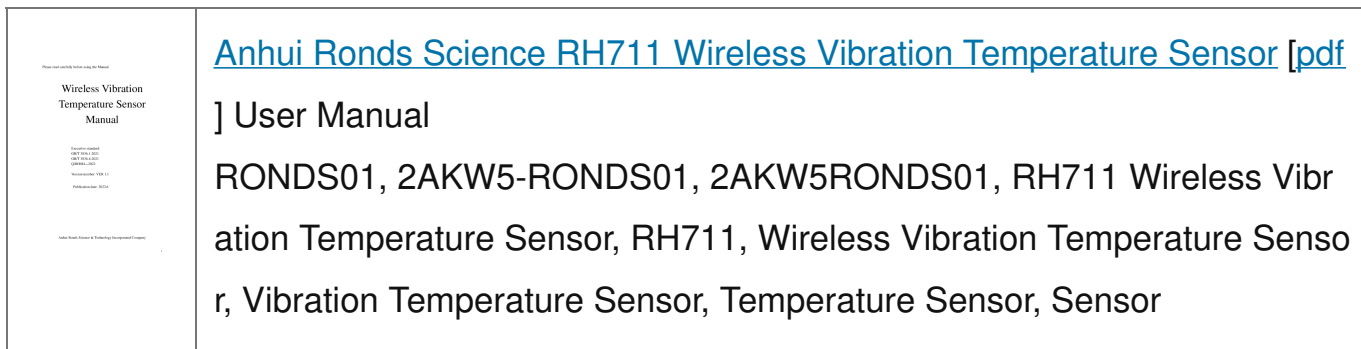
1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

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 & your body.

FAQ (Frequently Asked Questions)

- ▶ **What is the operating temperature range of the sensor?**
- ▶ **What is the wireless communication frequency used by the sensor?**
- ▶ **Can the sensor be installed in hazardous places?**

Documents / Resources



References

- User Manual

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◆ 2AKW5-RONDS01, 2AKW5RONDS01, Anhui Ronds Science, RH711, RH711 Wireless Vibration Temperature Sensor, RONDS01, Sensor, Temperature Sensor, Vibration Temperature Sensor, Wireless Vibration Temperature Sensor

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