Wireless Thermocouple Interface for J/K/T/E Type Thermocouple

R718CJ/CK/CT/CE

User Manual

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1. Introduction

R718C is Netvox ClassA type detection temperature equipment based on LoRaWAN open protocol. R718C can be connected to type K (R718CK), J type thermocouple (R718CJ) and other types of thermocouples according to requirements, compatible with LoRaWAN protocol.

R718CJ (nickel-chromium-copper-nickel thermocouple): the temperature measurement range is -210~1200°C. J-type thermocouple has good linearity, large thermoelectric potential, high sensitivity, good stability and uniformity, and can be used for vacuum. , oxidizing, reducing and inert atmosphere.

R718CK (nickel-chromium-nickel silicon thermocouple): the temperature measurement range is -50~1370 °C, with good linearity, large thermoelectric potential, high sensitivity, stability, can not be used directly at high temperature for sulfur, reduction, reduction, in an alternating atmosphere or in a vacuum. It is also not recommended for weak oxidizing atmospheres.

R718CT (copper-copper-nickel thermocouple): the temperature measurement range is -260~400 °C. When it is used in the temperature range of -200~0 °C, the stability is better.

R718CE (nickel-chromium-copper-nickel thermocouple): the temperature measurement range is 0~600°C, the thermoelectric potential of E-type thermocouple is large, and the sensitivity is the highest among all thermocouples. It should be used in low humidity environment.

LoRa Wireless Technology:
LoRa is a wireless communication technology dedicated to long distance and low power consumption. Compared with other communication methods, LoRa spread spectrum modulation method greatly increases to expand the communication distance. Widely used in long-distance, low-data wireless communications. For example, automatic meter reading, building automation equipment, wireless security systems, industrial monitoring. Main features include small size, low power consumption, transmission distance, anti-interference ability and so on.

LoRaWAN:
LoRaWAN uses LoRa technology to define end-to-end standard specifications to ensure interoperability between devices and gateways from different manufacturers.

2. Appearance

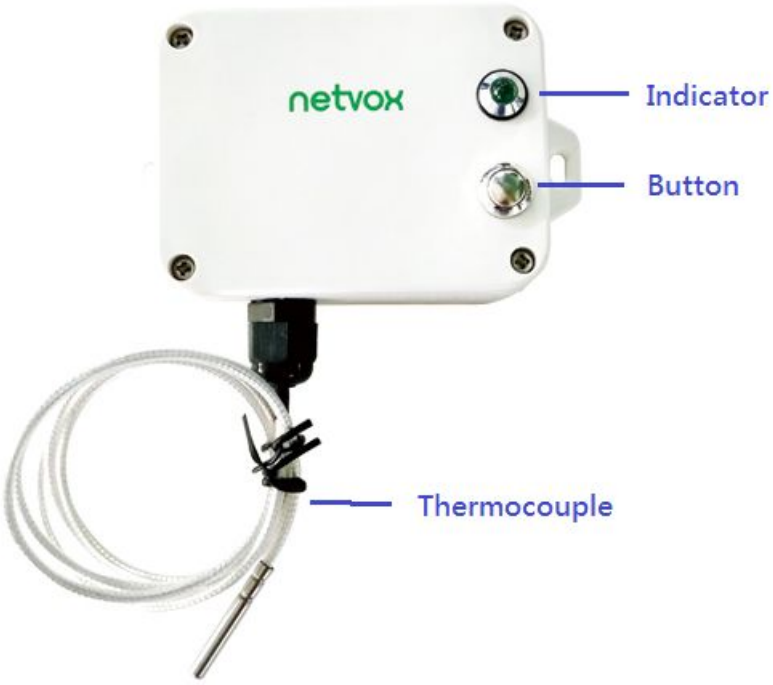

Fig.1 Appearance

3. Main Features

- Compatible with LoRa protocol.
- 2 x ER14505 AA lithium batteries（3.6V, 2400mah/section). Parallel power supply.
- Simple set up and installation.

4.Set up Instruction

4.1 Power on and Turn on / off

(1) Insert two 3.6V batteries to the battery holder of the device. The device is not yet powered. Press and hold the device button for 3 seconds and release; the green indicator flashes once to indicate that the device has been turned on and starts to search the network.
(2) Press and hold the button for 5 seconds; the green indicator light will continue to flash quickly. Release the button; the indicator will flash quickly for 20 times and the device will be powered off.

4.2 Join Into Lora Network

To join the device into LoRa network to communicate with LoRa gateway.
The network operation is as following:

After the device is turned on, it starts to actively search for the network. If it searches a network that can be joined, the green indicator light will stay on for 5 seconds to indicate that the network is successfully joined. Otherwise, the indicator light does not work.

4.3 Function Key

(1) Press and hold the function key for 3 seconds to turn on the device, and the green LED flashes once.
(2) Press and hold function key for 5 seconds to reset to factory setting. After restoring to factory setting successfully, the green indicator will flashes quickly 20 times.
(3) Press the function key once to turn on the device which is in the network and the green indicator flashed once and the device will send a data report.

4.4 Data Report

When the device is turned on, it will immediately send a version package and a data report of temperature/voltage. The transmission frequency of data report is once every hour.

ReportMaxTime： 3600s；
ReportMinTime： 3600s；
ReportChange: 0.1V;
TempChange： 1℃;

Data report configuration and sending period are as following:

Min Interval (Unit:second)	Max Interval (Unit:second)	Reportable Change	Current Change≥ Reportable Change	Current Change ＜ Reportable Change
Any number between 1~65535	Any number between 1~65535	Can not be 0.	Report per Min Interval	Report per Max Interval

5. Restore to Factory Setting

Operation method: press and hold the button for 5 seconds and the green LED flashes for 20 times, and the device will be turned off after the operation.

6. Sleeping Mode

The device is designed to enter sleeping mode for power-saving in some situations:

(A) While the device is in the network → the sleeping period is one hour. (During this period, if the reportchange is larger than setting value, it will wake up and send a data report).
(B) When it is not in the network → the device will enter sleeping mode and wake up every 15 seconds to search a network to join in the first two minutes. After two minutes, it will wake up every 15 minutes to request to join the network.

If it's at (B) status, to prevent this unwanted power consumption, we recommend that users remove the batteries to power off the device.

7. Low Voltage Alarming

The operating voltage threshold is 3.2V. If the voltage is lower than 3.2V, the device will send a low-power report to the Lora network.

8. Installation

This product comes with a waterproof function. When using it, you can attach the back side to the iron surface, or use screws to fix both ends to the wall.
Note: To install the battery, use a tool such as a screwdriver to open the battery cover.

9. Important Maintenance Instruction

Your device is a product of superior design and craftsmanship and should be used with care. The following suggestions will help you use the warranty service effectively.

- Keep the equipment dry. Rain, moisture, and various liquids or moisture may contain minerals that can corrode electronic circuits. In case the device is wet, please dry it completely.
- Do not use or store in dusty or dirty areas. This can damage its detachable parts and electronic components.
- Do not store in excessive heat. High temperatures can shorten the life of electronic devices, destroy batteries, and deform or melt some plastic parts.
- Do not store in a cold place. Otherwise, when the temperature rises to normal temperature, moisture will form inside, which will destroy the board.
- Do not throw, knock or shake the device. Rough handling of equipment can destroy internal circuit boards and delicate structures.
- Do not wash with strong chemicals, detergents or strong detergents.
- Do not apply with paint. Smudges can block debris in detachable parts and affect normal operation.
- Do not throw the battery into a fire to prevent the battery from exploding. Damaged batteries may also explode.

All of the above suggestions apply equally to your device, battery and accessories. If any device is not working properly.
Please take it to the nearest authorized service facility for repair.