

# **Wireless Thermocouple Sensor - Type T**

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Wireless Sensor Network Based on LoRa Technology



## **R718CT Data Sheet**

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## Wireless Thermocouple Sensor - Type T

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### Introduction

This equipment is used to detect temperature of the object and medium which thermocouple is contacted. It uses SX1276 wireless communication module.

Type T thermocouple (R718CT) will display the collected data in the gateway.

### Main Characteristic

- Apply SX1276 wireless communication module
- 2 ER14505 batteries AA Size in parallel (3.6V / section)
- Main body IP rating: IP65/ IP67, Probe: IP67
- The base is attached with a magnet that can be attached to a ferromagnetic material object
- Thermocouple detection
- LoRaWAN™ Class A compatible
- Frequency Hopping Spread Spectrum (FHSS)
- Available third-party platform: Actility/ThingPark, TTN, MyDevices/Cayenne
- Improved power management for longer battery life
- Battery Life:

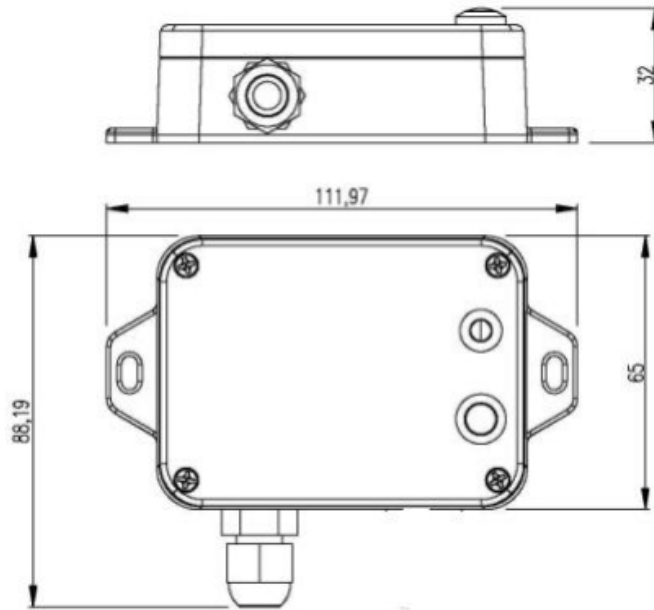
-Please refer to web: [http://www.netvox.com.tw/electric/electric\\_calc.html](http://www.netvox.com.tw/electric/electric_calc.html)

- At this website, users can find battery lifetime for varier models at different configurations

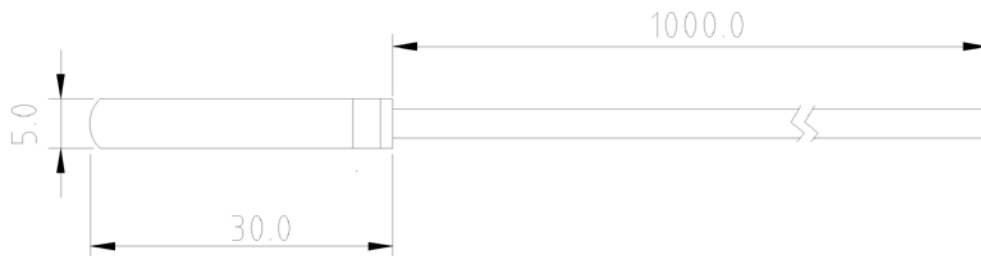
### Application

- Temperature Measuring
- Thermal system Equipment

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Main body



Probe

Unit: mm

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**Electric**

Input Power	2 x 3.6V ER14505 AA size lithium batteries (3.6V/section)
Operating Voltage	3.1V to 3.65V
Battery Life	4.8 years (Conditions: ambient temperature 25 °C, 15 min report once, txpower = 20dBm, LoRa spreading factor SF = 10)
Standby Current	34uA
Wakeup Current	7.33mA (Typical value) Wakeup current range 0.8mA-20 mA * When not transmitting /receiving LoRa data)
Low Battery Voltage Threshold	3.2V
Battery Measurement Accuracy	±0.1V

**Module-R100H**

Wake-up Current	0.8mA - 8mA @3.3V
RF Receiving Current (max)	11mA/3.3V
RF Transmitting Current (max)	120mA/3.3V

\* Specific electrical characteristics may vary depending on the power supply voltage

**Type T Thermocouple**

Measurement Range	-40°C to 125°C
Measurement Accuracy	<p>The basic error limit of the host body and thermocouple (theoretical value)</p> <p><b>The host body and T-type thermocouple are in the <u>same</u> temperature range:</b> Temperature Range: <math>0^{\circ}\text{C} \leq t \leq 55^{\circ}\text{C}</math>, Accuracy: <math>\pm 0.8^{\circ}\text{C}</math></p> <p><b>The host body and T-type thermocouple are in <u>different</u> temperature ranges:</b> Temperature Range T1: <math>0^{\circ}\text{C} \leq T1 \leq 55^{\circ}\text{C}</math> (Host body) Temperature Range T2: <math>-40^{\circ}\text{C} \leq T2 &lt; 0^{\circ}\text{C}</math> (Sensor) Accuracy: <math>\pm 2^{\circ}\text{C}</math></p>

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	Temperature Range T1: $0^{\circ}\text{C} \leq T1 \leq 55^{\circ}\text{C}$ (Host body) Temperature Range T2: $55^{\circ}\text{C} < T2 \leq 125^{\circ}\text{C}$ (Sensor) Accuracy: $\pm 1.5^{\circ}\text{C}$ * t, T1, T2 refers to temperature
Thermocouple Wire Length	1m

**Frequency**

Frequency Range	863MHz-928MHz 470MHz-510MHz
TX Power	US915 20dbm AS923 16dbm AU915 20dbm CN470 19.15dbm EU868 16dbm KR920 14dbm IN865 20dbm
Rx Sensitivity	-136dBm (LoRa, Spreading Factor=12, Bit Rate=293bps ) -121dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Build-in antenna
Communication Range	10 km (The actual transmission distance depends on the environment.)
Data Transfer Rate	0.3kbps~50kbps (LoRa) 1.2kbps~300kbps (FSK)
Modulation Method	LoRa/FSK (Note: choose one of them)
Available Frequency	EU863-870, US902-928, AU915-928, KR920-923, AS923-1, AS923-2, AS923-3, IN865-867, CN470-510 (Note: Configured before shipment)
Communication Range	Up to 10 km (The actual transmission distance depends on the environment.)

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**Physical**

Dimension	Main Body: L:112mm*W:88.19mm*H:32mm Probe: Ø5mm*30mm
Weight	About 186g
Environment Temperature Range	-20°C to 55°C
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40°C ~ 85°C