

# **Wireless 2-Gang Temperature Sensor - PT1000 Needle Probe**

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Wireless Sensor Network Based on LoRa Technology



## **R718B221**

## **Data Sheet**

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**Introduction**

R718B221 is a device used to detect object temperature. It can connect PT1000 platinum thermistor and join the gateway to display the collected data in the gateway. It adopts SX1276 wireless communication module.

**Main Characteristic**

- Adopt SX1276 wireless communication module
  - Two-gang PT1000 platinum thermal resistance detection
  - Temperature range of -70 °C to 200°C
- Working temperature of rubber silicone wire: -50 °C to 200 °C
- 2 section of ER14505 lithium battery in parallel (AA size 3.6V / section)
  - IP rating: Main body IP65/ IP67 (optional), sensor IP67
  - The base is attached with a magnet that can be attached to a ferromagnetic material object
  - Compatible with LoRaWAN™ Class A
  - Frequency hopping spread spectrum technology
  - Configuration parameters can be configured through a third-party software platform , data can be read, and alerts can be set through SMS text and e-mail (optional)
  - Applicable to third-party platforms: Actility / ThingPark, TTN, MyDevices / Cayenne

Note: Battery life is determined by the sensor reporting frequency and other variables, please refer to [http://www.netvox.com.tw/electric/electric\\_calc.html](http://www.netvox.com.tw/electric/electric_calc.html)

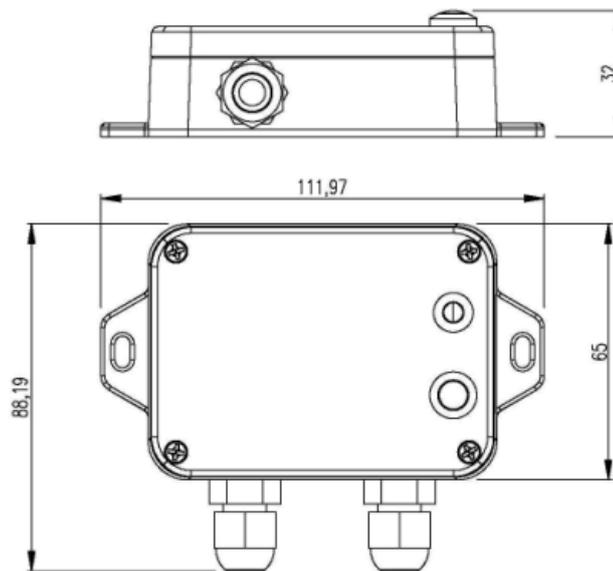
On this website, users can find battery life of various models in different configurations.

**Application**

- Temperature measuring device
- Thermodynamic system device
- Food industry

**Wireless 2-Gang Temperature Sensor - PT1000 Needle Probe**

**Dimension**



**Electric**

Input Power	2 x ER14505 lithium batteries (3.6V 2400mah/section)
Operating Voltage	DC 3.1V to 3.65V
Battery Life	5 years (Conditions: ambient temperature 25 °C, 15 min report once, TX power = 20dBm, LoRa spreading factor SF = 10)
Standby Current	28uA
Wakeup Current	9.94mA (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 will vary depending on the power supply voltage

**Wireless 2-Gang Temperature Sensor - PT1000 Needle Probe**
**Frequency**

Frequency Range	863MHz-928MHz 470MHz-510MHz
Power Output	US915 20dbm; AS923 16dbm; AU915 20dbm; CN470 19.15dbm; EU868 16dbm; KR920 14dbm; IN865 20dbm;
Receiving Sensitivity	-136 dBm (LoRa, Spreading Factor=12, Bit Rate = 293bps); -121 dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Built-in antenna
Communication Distance	Up to 10 km (visible linear obstacle-free transmission distance, actual transmission distance depends on the environment )
Data transfer Rate	0.3kbps ~ 50kbps (LoRaWAN) 1.2kbps ~ 300kbps (FSK)
Modulation System Mode	LoRa/ FSK (Note: choose one of them)
Supportable LoRaWAN Band	EU863-870,US902-928,AU915-928,KR920-923,AS923-1, AS923-2, AS923-3,IN865-867,CN470-510 (Note: optional, to be done in the factory configuration)

**PT1000 Platinum Thermal Resistance Specification**

PT1000 Temperature Range	-70°C to 200°C
Measurement Range & Accuracy	<b>The host body and PT1000 sensor are in the same temperature range:</b> Temperature range: 0°C ≤ t ≤ 55°C, Accuracy: ±0.8°C <b>The host body and PT1000 sensor are in the different temperature ranges:</b>

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	Temperature range T1: $0^{\circ}\text{C} \leq T1 \leq 55^{\circ}\text{C}$ (Host body) Temperature range T2: $-70^{\circ}\text{C} \leq T2 < 0^{\circ}\text{C}$ (Sensor) Accuracy: $\pm\{(0.15 + 0.002 *  T2 )+1\}^{\circ}\text{C}$  Temperature range T1: $0^{\circ}\text{C} \leq T1 \leq 55^{\circ}\text{C}$ (Host body) Temperature range T2: $55^{\circ}\text{C} < T2 \leq 200^{\circ}\text{C}$ (Sensor) Accuracy: $\pm\{(0.15 + 0.002 *  T2 )+0.6\}^{\circ}\text{C}$
Wire Length	2m (default)
Probe Dimension	5mm in diameter * 150mm in length, needle probe
Wiring	2 cores
Probe IP Rating	IP67
ROHS Standard	Meet ROHS standards

**Physical**

Host Body Dimension	L: 112 mm*W: 88.19 mm*H: 32 mm
Ambient Temperature Range	-20 °C to 55°C
Ambient Humidity Range	<90% RH (No condensation)

**R718B Series Type**

Model		Temperature Range	Probe Type	Probe IP Rating
R718B120	One-gang	-70° to 200°C	Round head type	IP67
R718B220	Two-gang		Needle type	
R718B121	One-gang			
R718B221	Two-gang			
R718B122	One-gang	-50° to 180°C	Absorption Probe	
R718B222	Two-gang			
R718B140	One-gang	-40° to 375°C	Round head type	IP50
R718B240	Two-gang		Needle type	
R718B141	One-gang			
R718B241	Two-gang			
R718B150	One-gang	-40° to 500°C	Round head type	
R718B250	Two-gang		Needle type	
R718B151	One-gang			