Wireless Resistance Temperature Detector

Wireless Sensor Network Based on LoRa Technology

Fig. 1 R718B (PT1000) Appearance (subject to the actual object)

Wireless Resistance Temperature Detector

Introduction

P718B is connected to one-way PT1000 platinum thermal resistance and the collected data will be shown in other devices such as the third-party platform.

Operating principle

PT1000 platinum thermal resistance is connected to the detection input of max31865 chip for digital conversion. Max31865 chip communicates with the module through SPI.

Main characteristic

- Adopt SX1276 wireless communication module

- One-way PT1000 platinum thermal resistance detection

- Temperature range of -40 ℃ to 200℃

- 2 section of ER14505 lithium battery in parallel (AA SIZE 3.6V / section)

- Host protection level IP65/ IP67 (optional)

- The base is attached with a magnet that can be attached to a ferromagnetic material object

- Compatible with LoRaWAN^{TM} 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

- Low power consumption and long battery life

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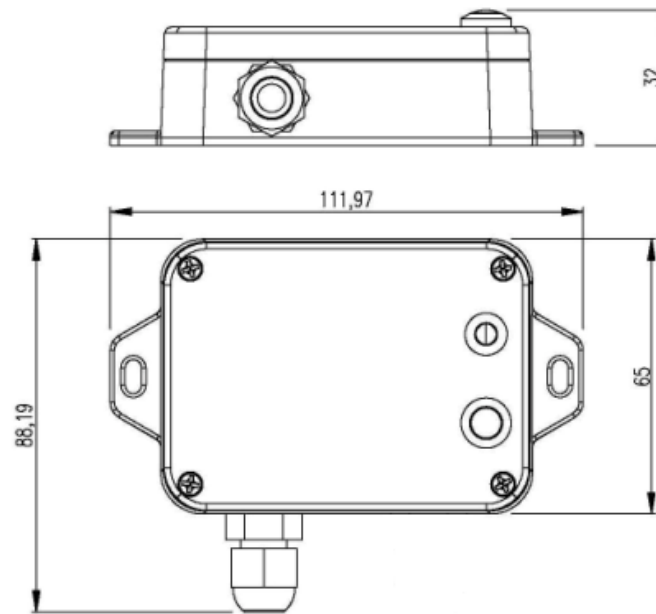
On this website, users can find battery life of various models in different configurations.

Application

- Temperature measuring device

- Thermodynamic system device

- Food industry

Dimension

Electric

R718B

Input Power	2 x ER14505 AA lithium batteries (3.6V 2400mah/section)
Operating Voltage	DC 3.1V~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	23uA
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

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	-136dBm (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 (LoRa) 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	-40°C to 200°C
Measurement Range &Accuracy (Theoretical Value)	**The external PT1000 temperature measurement range is -40 ≤ T2 ≤ 200℃** **The host body and PT1000 sensor are in the same temperature range:** Temperature range: 0°C ≤ t ≤ 55°C, Accuracy: ±0.5°C **The host body and PT1000 sensor are in the different temperature ranges:** Temperature range T1: 0°C≤T1≤55°C (Host body) Temperature range T2: -40°C≤ T2<0°C (Sensor) 　　　　　　　　Accuracy: ±{(0.15 + 0.002* |T2|)+1}°C Temperature range T1: 0°C≤T1≤55°C (Host body) Temperature range T2: 55°C<T2≤200°C (Sensor) 　　　　　　　　Accuracy: ±{(0.15 + 0.002* |T2|)+0.3}°C *t, T1, T2 refer to temperature
Lead Length	2m (default)
Probe Specifications	1: Probe diameter 5mm, needle probe 15cm (316 stainless steel) 2: Probe diameter 5mm, round head probe 30mm (316 stainless steel). 3: Probe diameter 5mm* length 100+60mm L-type probe (316 stainless steel) Choose one of the above probe specifications.
Wiring	4-wire system
Protection Level	IP67
ROHS Standard	Meet ROHS standards

Physical

Host Body Dimension	L: 112 mm*W: 88.19 mm*H: 32 mm
Host Body Weight	About 141g
Ambient Temperature Range	-20 °C to 55°C
Ambient Humidity Range	<90% RH (no condensation)