Wireless Temperature and Humidity Sensor with Thermocouple Sensor - Type K

Wireless Sensor Network Based on LoRa Technology

R718CKAB Datasheet

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Introduction

The device connects a temperature/humidity sensor and K-Type thermocouple, which respectively detects temperature/humidity and the surface temperature of an object.

Features

- SX1276 wireless communication module
- 2 ER14505 batteries AA size in parallel
- IP50
- Magnetic base
- Thermocouple detection
- Compatible with LoRaWAN Class A device
- Frequency-hopping spread spectrum
- Support third-party platforms: Actility/ThingPark, TTN, MyDevices/Cayenne
- Low-power design for longer battery life

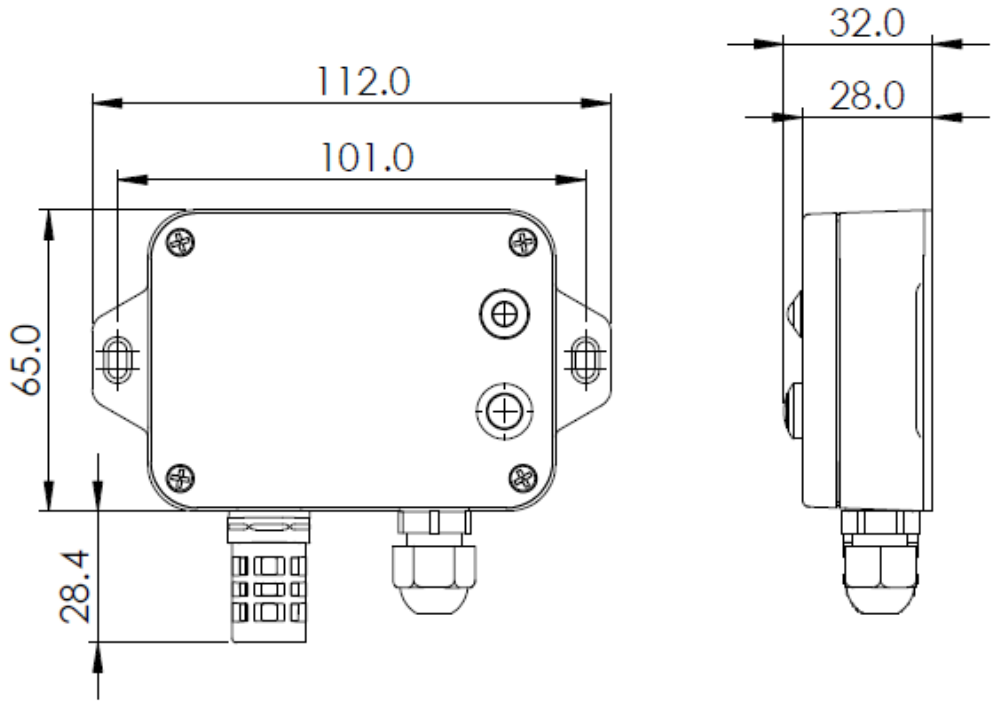
Note:

Please visit http://www.netvox.com.tw/electric/electric_calc.html for battery life calculation and other detailed information.

Applications

- Object Temperature Measuring
- Environment Temperature/Humidity Measuring
- Thermal System Equipment

Dimensions



Electrical Specifications

Input Power	2 ER14505 AA size lithium batteries (3.6V 2400mah for each one)
Operating Voltage	3.1V to 3.65V
Battery Life	4.8 years (under the conditions: ambient temperature 25°C; report every 15 mins; Txpower = 20dBm; LoRa spreading factor SF = 10)
Standby Current	33uA
Wakeup Current	Typical value: 7.33mA; Wakeup current: 0.8mA–20mA (without transmitting and receiving data)
Battery Low Voltage Threshold	3.2V
Battery Measurement Accuracy	±0.1V

Module-R100H

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

Note: Electrical specifications may vary depending on the power supply voltage.

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	10km (line of sight) Note: Actual communication range may vary due to the environment.
Data Transfer Rate	0.3kbps–50kbps (LoRaWAN); 1.2kbps–300kbps (FSK)
Modulation Method	LoRa/FSK (Note: One modulation method is required.)
Supportable LoRaWAN Frequency	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)

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Temperature/Humidity Sensor

Temperature Measurement Range	-20°C to 55°C
Temperature Measurement Accuracy	±0.8°C
Humidity Measurement Range	0%RH–100%RH
Humidity Measurement Accuracy	±4%RH

Type T Thermocouple

Measurement Accuracy	1. Temperature range of T-type thermocouple: -40°C to 375°C 2. **A. The host body and K-type thermocouple are in the same temperature range:** Temperature Range: 0°C ≤ t ≤ 55°C, Accuracy: ±1.5°C **B. The host body and K-type thermocouple are in different temperature ranges:** Temperature Range T1: 0°C ≤ T1 ≤ 55°C (Host body) Temperature Range T2: -40°C ≤ T2 < 0°C (Sensor) Accuracy: ±2°C Temperature Range T1: 0°C ≤ T1 ≤ 55°C (Host body) Temperature Range T2: 55°C < T2 ≤ 375°C (Sensor) Accuracy: ±2°C * t, T1, T2 refers to temperature
Thermocouple Wire Length	1m
Thermocouple Probe Dimension	Ø5mm x 30mm

Physical Properties

Dimensions	112mm (L) x 93.4mm (W) x 32mm (H)
Environment Temperature Range	-20℃ to 55℃
Environment Humidity Range	<90%RH (No condensation)
Storage Temperature	-40℃ to 85℃