Wireless Temperature and Humidity Sensor for Low Temperature Environment

Wireless Sensor Network Based on LoRa Technology

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Introduction

R718A01 is a wireless communication device for detecting ambient air temperature and humidity. R718A01 can detect the temperature and humidity of the air, with the function of temperature and humidity data buffer, and transmit the detected data to the gateway for display through the wireless network. It adopts SX1276 wireless communication module, which conforms to the LoRa protocol standard.

Main characteristic

- Adopt SX1276 wireless communication module

- Temperature and humidity detection

- 2 sections of ER14505 battery in parallel (AA size 3.6V / section)

- Capable to cache 50 records of temperature and humidity data

- Host protection level IP65

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

- Compatible with LoRaWANTM Class A

- Frequency hopping spread spectrum technology

- Configuration parameters can be configured through a third-party software platform

- 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.

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Dimension
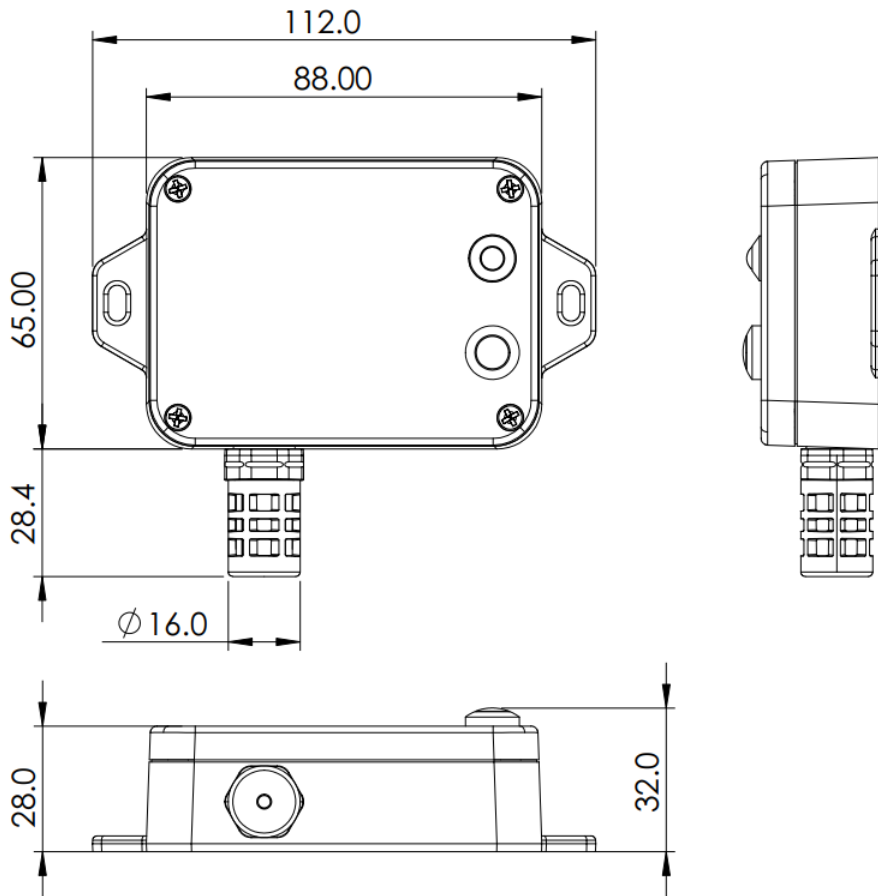
Electric

R718A01

Input Power	2 x ER14505 AA size lithium batteries (3.6V / 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	20uA
Wake-up Current	7.11mA (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

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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

Temperature Sensor

Temperature Detecting Range	-40℃ to 55℃
Temperature Accuracy	±0.5℃ @25℃
Humidity Detecting Range	0%RH to 100%RH
Humidity Accuracy	±3%RH @25℃

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)

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Physical

Host Body Dimension	L: 112 mm*W: 65 mm*H: 32 mm Sensor cover size: D: Ø16mm*L: 28.4mm
Weight	141g
Ambient Temperature Range	-40 °C to 55°C
Storage Temperature Range	-40 °C to 85°C
Ambient Humidity Range	<90% RH (no condensation)