Wireless Accelerometer and Surface Temperature Sensor

Wireless Sensor Network Based on LoRa Technology

R718EC
Data Sheet

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Wireless Accelerometer and Surface Temperature Sensor

Introduction

It can detect the movement or vibration of the device and send the signal to the gateway for processing. Otherwise, it is connected to an external NTC thermistor which can detect the surface temperature of the measured object. It adopts the SX1276 wireless communication module.

Features

- SX1276 wireless communication module
- 2 ER14505 battery AA size in parallel power supply (3.6V / section)
- Acceleration sensor detection
- Magnetic base
- Protection level: main body IP65 / IP67 (optional), external NTC thermistor: IP67
- Compatible with LoRaWAN™ Class A
- Frequency Hopping Spread Spectrum (FHSS)
- Configuring parameters via third-party software platforms, Reading the data, and setting alarms via SMS text and email (optional)
- Applicable to the third-party platforms: Actility/ ThingPark, TTN, MyDevices/Cayenne
- Improved power management for longer battery life

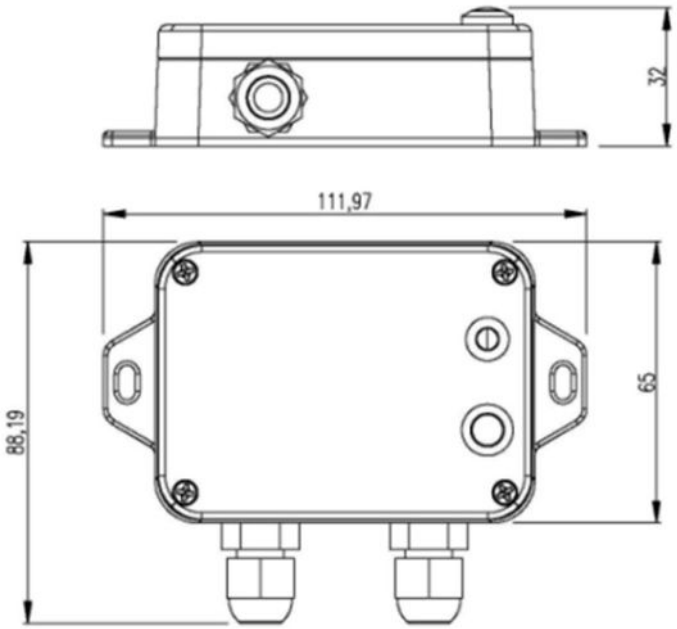
Note: Please refer to the web: http://www.netvox.com.tw/electric/electric_calc.html. On this website, users can find battery lifetime for various models at different configurations.

Applications

- Industrial device
- Temperature measurement system
- Other

Dimensions

Main body: 112mm (L) x 88.19mm (W) x 32mm (H)



Electrical Specifications

Power Supply	2 ER14505 lithium batteries (3.6V, 2400mAh / section) in parallel
Operating Voltage Range	3.1V – 3.65V
Battery Life	3.5 years (when ambient temperature: 25 °C, report interval: 60min, TX power: 20dBm, LoRa spreading factor SF: 10)
Standby Current	80 uA
Wakeup Current	8.68mA (Typical value) Range: 0.8mA – 20 mA (when not transmitting /receiving LoRa
Battery Low Voltage Threshold	3.2V
Battery Measurement Accuracy	± 0.1V

R100H Module

Wakeup Current	0.8mA – 8mA @ 3.3V
RF Receiving Current	11mA @ 3.3V
RF Emission Current	120mA @ 3.3V

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

NTC Thermistor

Measurement Range	-40℃ – 120℃
25 Degree Resistance Value	10k (Typical value)
B Value B25/50	3950k
Accuracy	±3

Three-Axis Accelerometer

Operating Temperature Range	-40℃– 85℃
ADC Maximum Resolution	13 Bits
Communication Method	SPI communication
Measurement Range	±16g
Vibration Frequency Detection	1kHz (Max)
Cross-Axis Sensitivity	±1%
Output Data Rate	3200hz
Noise	6mg
Accuracy	<9%

Frequency

Frequency Range	863MHz – 928MHz 470MHz – 510MHz
TX Power	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	10 km (The actual transmission distance depends on the environment.)
Data Transfer Rate	LoRa: 0.3kbps – 50kbps FSK: 1.2kbps – 300kbps
Modulation Method	LoRa/FSK (Note: One modulation method is required.)
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 configured before shipment)

Physical

Dimensions	112 mm (L) x 88.19 mm (W) x 32 mm (H)
Main body Weight	About 141g
Environment Temperature Range	-20℃ – 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature Range	-40℃ – 85℃