

Wireless Accelerometer And Surface Temperature Sensor

Wireless Sensor Network Based on LoRa Technology



R718E Data Sheet

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Introduction

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

Operating Principle

The module communicates with the accelerometer ADXL345 through SPI communication. The NTC temperature detection adopts the method that is the resistors and voltage divider ADC sampling.

Main Characteristic

- Apply SX1276 wireless communication module
- 2 ER14505 battery AA size (3.6V / section) in parallel power supply
- Acceleration sensor detection
- The preset sampling frequency of vibration is 800Hz
- The base is attached with a magnet that can be attached to a ferromagnetic material object
- Protection level: Main body - IP65/IP67 (optional), Sensor-IP67
- Compatible with LoRaWAN™ Class A
- Frequency Hopping Spread Spectrum (FHSS)
- Improved power management for longer battery life
- Configuring parameters via third-party software platforms, and reading the data and setting alarms via SMS text and email (optional)
- Applicable to the third-party platforms: Actility/ ThingPark, TTN, MyDevices/Cayenne
- Battery Life*2:

Please refer to web: http://www.netvox.com.tw/electric/electric_calc.html

At this website, users can find battery lifetime for various models at different configurations.

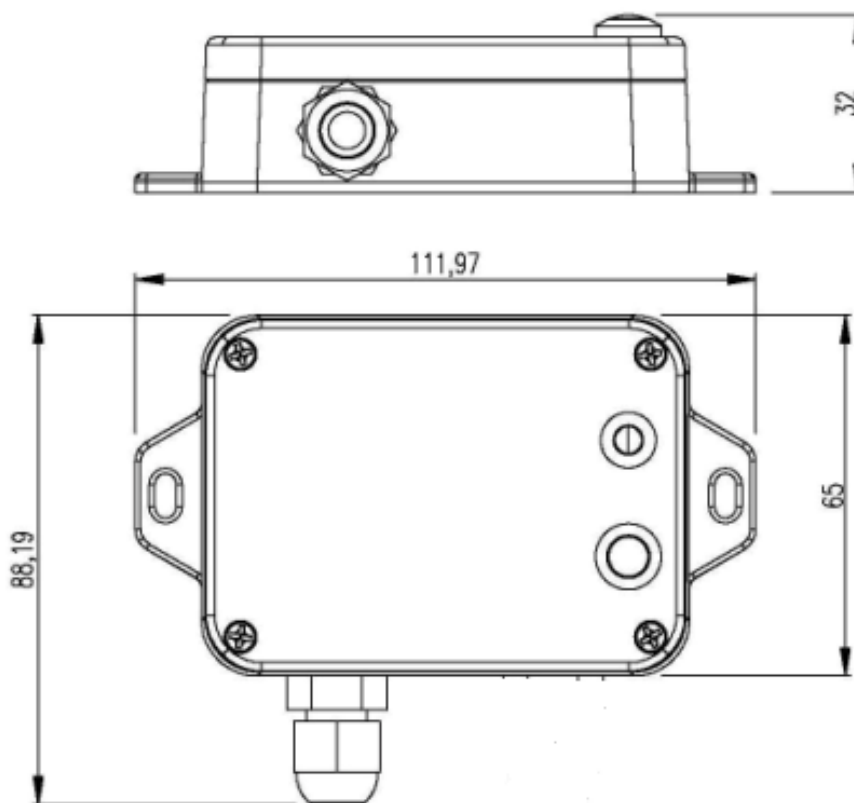
*1. Actual range may vary depending on environment.

*2. Battery life is determined by sensor reporting frequency and other variables

Wireless Accelerometer and Surface Temperature Sensor

Application

- Smart home
- Industrial equipment
- Temperature measurement system
- Other

Dimension

Wireless Accelerometer and Surface Temperature Sensor

Electric

Power Supply	2 ER14505 lithium batteries (3.6 V, 2400mAh / section) in parallel
Operating Voltage Range	3.1V - 3.65V
Battery Life	Battery life: 3.5 years (condition: Ambient temperature 25 °C, report once every 60mins, txpower = 20dBm, LoRa spreading factor SF = 10)
Standby Current	80uA
Wakeup Current	8.68mA (Typical value) Wakeup current range 0.8mA-20 mA (* When not transmitting /receiving LoRa data)
Battery Low Voltage Threshold	3.2V
Battery Accuracy	± 0.1V

Module - R100H

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

* Specific electrical characteristics may vary depending on the power supply voltage.

NTC Thermistor

Temperature Range	-40°C to 120°C
25 Degree Resistance Value	10k (Typical value)
B Value B25/50	3950k
Temperature Accuracy	NTC Thermistor basic error limit: -40°C to 120°C, ±3°C Measurement errors that the line may cause: ≤2°C

Three-axis Accelerometer

Operating Temperature Range	-40°C to 85°C
ADC Maximum Resolution	13 Bits
Communication Method	SPI communication
3-axis Acceleration Range	±16g

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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	0.3kbps ~ 50kbps (LoRa) 1.2kbps ~ 300kbps (FSK)
Modulation Method	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: The frequency band is optional and needs to be configured before shipment.)

Physical

Dimension	L: 112 mm *W: 88.19 mm *H: 32 mm
Host body Weight	About 141g
Environment Temperature Range	-20°C ~ 55°C
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature Range	-40°C ~ 85°C