Wireless 3-axis Accelerometer Sensor

Wireless Sensor Network Based on LoRa Technology

R311FA1

Data Sheet

Wireless 3-axis Accelerometer Sensor

Introduction

When the device moves or vibrates beyond the set threshold, it immediately reports the current acceleration and velocity of the X, Y, and Z axes. The device is compatible with the LoRaWAN protocol and adopts SX1276 wireless communication module.

Main Characteristic

- 2 sections 3.0V CR2450 button batteries

- 3-axis Acceleration and Velocity Detection

- Adopt SX1276 wireless communication module

- The preset sampling frequency of vibration is 800Hz

- Compatible with LoRaWAN^{TM} Class A

- Frequency hopping spread spectrum

- Configuration parameters can be configured through third-party software platforms, data can be read and alarms can be set via SMS text and email (optional)

- Applicable to the 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

- Anti-theft System

- Industrial Equipment

- Security Field
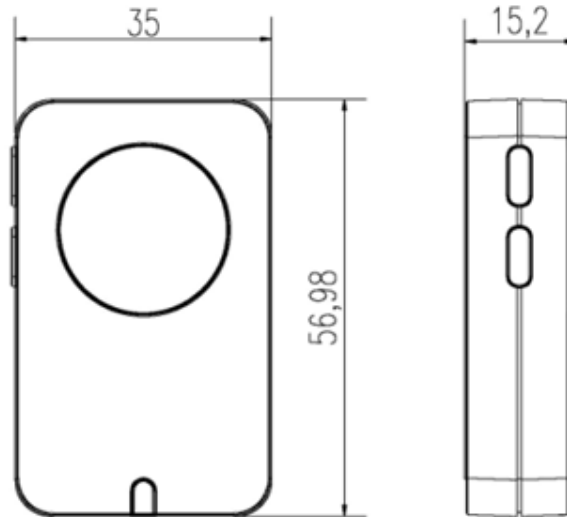
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Dimension

Figure 2 Dimensions of main engine shell(excluding external antenna)

Electric

Input Power	2 x 3.0V CR2450 button batteries
Operation Voltage Range	DC +2.4V to 3.0V
Low Battery Voltage Threshold	2.4V
Standby Current	40uA/ 3.0V
Emission Current (max)	120mA / 3.0V
Receiving Current (max)	11mA/ 3.0V
Battery Measurement Accuracy	± 0.1V

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Operation voltage range	1.8v to 3.6v
Operating Temperature Range	-40℃ to 85℃
ADC Maximum Resolution	13 Bits
Communication Method	SPI communication
Three-axis Acceleration Accuracy	±16g
Sampling Rate	800 Hz (default)

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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	-136dBm (LoRa, Spreading Factor=12, Bit Rate = 293bps) -121dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Build-in antenna
Communication Distance	10 km (visible linear obstacle-free transmission distance, actual transmission distance depending on the environment)
Data Transfer Rate	LoRaWan: 0.3kbps ~ 50kbps FSK: 1.2kbps ~ 300kbps
Modulation	LoRa / FSK (Note: choose one of them)
Supportable LoRaWAN Frequency	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	57 mm x 35 mm x 15.2 mm
Weight	48.9g
Environment Humidity	<90 %RH (No condensation)
Operating Temperature	-20°C to 55 °C
Storage Temperature	-40°C to 85 °C