Wireless Vibration Sensor
Spring Type

Wireless Sensor Network Based on LoRa Technology

R311DB
Data sheet

Introduction

When the vibration sensor moves or vibrates, the R311DB can detect vibrations or moving signals and transmit the detected data to other devices through the wireless network.

The SX1276 wireless communication module is used.

Main Characteristic

- 2 sections 3.0V CR2450 button batteries in parallel
- Compatible with LoRaWAN protocol
- Adopt SX1276 wireless communication module
- Spring type vibration detection
- 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
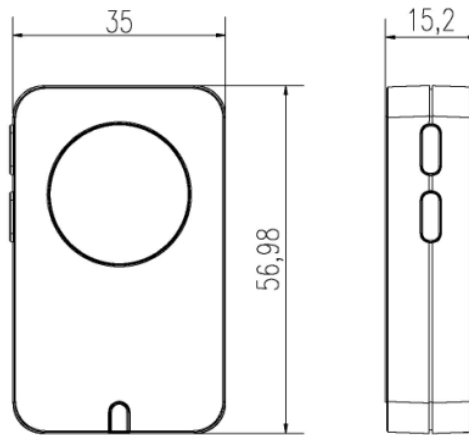
On this website, users can find battery life of various models in different configurations.

Application

- Vibration detecting
- Object to be detected vibration or movement

Dimension

Electric

Input Power	2 x 3.0V CR2450 button batteries in parallel (The capacity of each CR2450 battery is 620mah.)
Work Voltage Range	DC 2. 4 V to 3.0V
Low Voltage Warning	2.4V
Stand by Current	11uA / 3.0V
Emission Current (max)	120mA / 3.0V
Receiving Current (max)	11mA/ 3.0V
Battery Measurement Accuracy	± 0.1V

Vibration Sensor

Sensor Type	Spring type non-directional vibration induction trigger switch
Life span	200,000 cycles
Vibration Sensor Working Principle	When it is at rest, it is in the open state OFF state. When the external force is touched to reach the corresponding vibration force, or when the moving speed reaches the appropriate centrifugal force, the conductive pin will instantly reach the ON state. When the external force disappears, the switch returns to the OFF state.

Wireless Vibration Sensor, Spring Type

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	Built-in antenna
Communication Distance	10 km (visible linear obstacle-free transmission distance, actual transmission distance depending 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 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	About 45 g
Environment Humidity	< 90 %RH (No condensation)
Operating Temperature	-20°C to 55 °C
Storage Temperature	-40°C to 85 °C