

Wireless Tilt Sensor R313K Datasheet

Wireless Sensor Network Based on LoRa Technology



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Introduction

R313K is a tilt detection sensor. When the device (defaults to the vertical direction) has a tilt of 45 degrees or more in any direction, a tilt signal will be issued. The detected data is transmitted to other devices through the wireless network for display.

This device is compatible with LoRaWAN protocol and integrates a compliance LoRaWAN radio protocol chip module inside. The collected data will be displayed by gateway. Users can monitor all changes in the network by accessing the gateway through the cloud. It easily realizes remote control of the Internet of Things and achieves energy saving, emission reduction, and environmental protection.

The device is durable and ensures optimum use. It is a low power consumption device. Because of its small size, it can be installed anywhere and takes up very little space.

Note: The device needs to be installed vertically.

Main Characteristic

- 2 sections 3.0 V CR2450 battery
- Built-in tilt sensor
- Compatible with LoRaWAN protocol
- Adopt SX1276 wireless communication module
- Frequency hopping spread spectrum
- Configuring parameters and reading data via third-party software platforms, and set alarms via SMS text and email (optional)
- Applicable to third-party platforms: Actility/ThingPark, TTN, MyDevices/Cayenne
- Low power consumption and long battery life

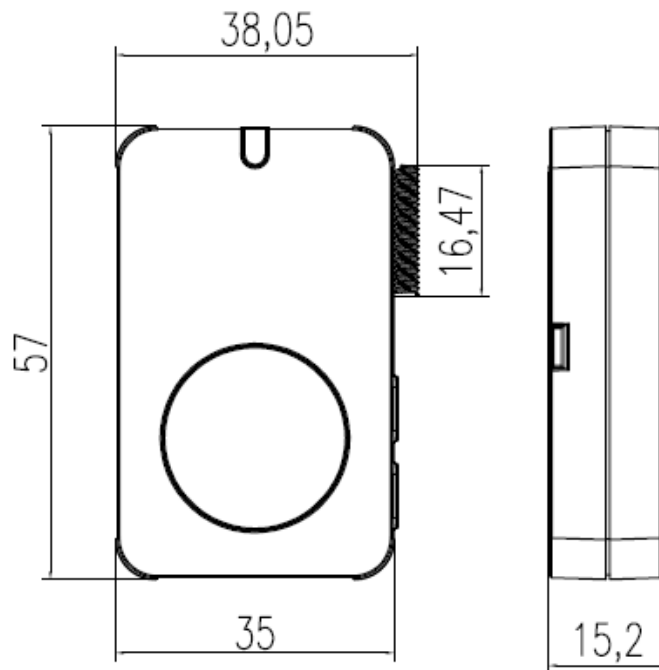
Note*: Battery life is determined by the sensor reporting frequency and other variables, please refer to http://www.netvox.com.tw/electric/electric_calc.html

On this website, users can find battery life of various models in different configurations.

Application

- Detect home electrical device falls and power protection
- Pillars, utility poles and other applications such as tilt sensing, angle detection, direction recognition, etc.

Dimension



Electric

Input Power	2 x 3.0V CR2450 battery
Work Voltage Range	DC +2.4 V to 3.0V
Standby Current	10uA
Emission Current (max)	120mA / 3.0V
Receiving Current (max)	11mA / 3.0V
Battery Measurement Accuracy	± 0.1V

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	External antenna
Communication Distance	Up to 10 km (visible linear obstacle-free transmission distance, actual transmission distance depending on the environment)
Data Transfer Rate	0.3kbps to 50k bps
Modulation Method	LoRa/FSK (Note: choose one of them)
Supportable LoRaWAN Frequency	EU863-870, US902-928, AU915-928, KR920-923, AS923, IN865-867,CN470-510 (Note: The frequency band is optional and needs to be configured before shipment)

Tilt Sensor

Contact Capacity	3-24VDC/ less than 10mA
Conversion Angle	45±5 degrees
Contact Resistance	Less than 10 ohms
Insulation Resistance	More than 100 megohms
Operating Temperature	-40°C to 85 °C
Installation Type	Suitable for PCB at vertical state

*Conversion angle = 45±5 degrees, error may be due to installation or other factors.

Please confirm whether it is applicable before use.

Physical

Dimension	57 mm x38.05 x 15.2 mm
Weight	48.9g
Operating Temperature	-20°C to 55 °C
Environment Humidity	<90 %RH (No condensation)
Storage Temperature	-40°C to 85 °C