

# Wireless Tilt Sensor R311K Datasheet

Wireless Sensor Network Based on LoRa Technology



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## Introduction

This device 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. This device is compatible with LoRaWAN protocol and integrates a compliance LoRaWAN radio protocol chip module inside. The data will be collected by gateways. Users can access gateways through cloud and is available to monitor all the changes in the network. It is easy to achieve true of IoT monitoring, to achieve energy saving, environmental protection functions. This device is durable and ensures optimum use and is a low power consumption device. Due to its small size, it can be installed anywhere and takes up extraordinarily little space.

Note: This equipment needs to be installed vertically.

## Main Characteristic

- 2 sections of 3.0 V CR2450 battery
- Built-in tilt sensor
- Compatible with LoRaWAN protocol
- Adopt Semtech SX1276 wireless communication module
- Support frequency hopping spread spectrum technology
- Through third-party software platforms, sensor settings can be configured, data can be read, and alerts can be set 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 .

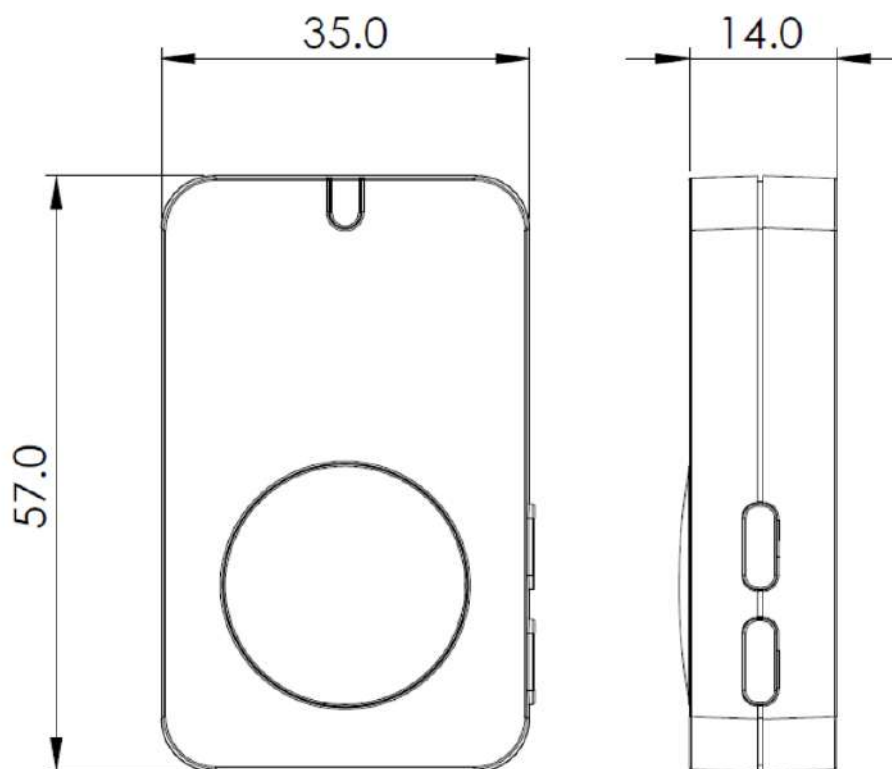
Please refer to [http://www.netvox.com.tw/electric/electric\\_calc.html](http://www.netvox.com.tw/electric/electric_calc.html).

On this website, users can find various types of batteries life time in different configurations.

## Application Scenario

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

## Dimensions



## Electrical Characteristics

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

## Frequency

Frequency Range	863MHz-928MHz 470MHz-510MHz
Power Output	US915 20dbm; AS923 16dbm; AU915 20dbm; CN470 19.15dbm; EU868 16dbm; KR920 14dbm; IN865 20dbm;
Receiving Sensitivity	-136dB(LoRa, Spreading Factor=12, Bit Rate = 293bps); -121 dBm(FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Built-in antenna
Communication Distance	Up to 10 km (insight obstacle-free transmission distance, actual transmission distance depends on the real environment)
Data Transfer Rate	0.3kbps to 50k bps
Modulation System Mode	LoRa/FSK (Note: available to choose one of them)
LoRaWAN Frequency Available	EU863-870 , US902-928 , AU915-928, KR920-923, AS923, CN470-510 (Note: The frequency band is optional and needs to be configured before shipment)

## Tilt Sensor Characteristics

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 Properties

Dimension	57 mm x 35 mm x 14 mm
Weight	48.9g
Operating Temperature	-20°C to 55 °C
Environment Humidity	<90 %RH (no condense)
Storage Temperature	-40°C to 85 °C