

Multi-Sense Sensor

Wireless Sensor Network Based on LoRa Technology

R315 Series

Data Sheet

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Introduction

R315 series is a comprehensive detection device with temperature, humidity, illuminance, door magnetism, internal vibration, external vibration, emergency button, tilt, water leakage, glass break, seat occupancy, infrared detection, dry contact input, and Digital Output related functions. (Up to 8 types of sensors can be equipped in one device.)

The radio transmission of the series is based on LoRa long-distance technology. According to the required behavior and state, it can transmit information and data to the server, and can directly transmit and connect to the central system of the programmable alarm system. The sensors used are reliable and accurate, R315 series can detect multiple applications.

R315 series has the advantages of durability, beautiful appearance, multi-function integration, low power consumption and convenient installation and use.

Main Characteristic

- Adopt SX1262 wireless communication module
- 2 x 3.0V CR2450 button batteries in parallel
- Compatible with LoRaWAN™ Class A
- Frequency hopping spread spectrum (FHSS)
- Applicable to the third-party platforms: Actility/ThingPark, TTN, MyDevices/Cayenne
- Low power consumption and long battery life
- 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 the battery life of various models in different configurations.

Application

- Security system
- Villas
- Office
- Hotels and apartments
- Schools, shopping malls and supermarkets
- Others

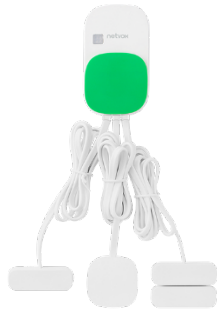
R315 Series Combinations

Model	Built-in Sensors						External Sensors						
	TH	Light	Vibration	PIR	Emergency Button	Tilt	Water Leak	Reed Switch	Dry contact IN	Digital OUT	Vibration	Glass break	Seat
R31511	V		V	V	V	V	V	V		V			
R31512	V		V	V	V	V	V	V				V	
R31513	V		V	V	V	V	V	V			V		
R31521	V	V	V	V		V	X2			V			
R31522	V	V	V	V		V	V	V		V			
R31523	V	V	V	V		V	V	V				V	
R31524	V	V	V	V		V	V	V			V		
R31527	V	V	V	V		V		X2				V	
R31531	V	V	V	V		V		V	V	V			
R31533	V		V	V	V	V	V		V	V			
R31535	V		V	V	V	V		V		V		V	
R31538	V		V	V	V	V		V	V	V			
R31545	V	V	V	V		V	V	V	V				
R31555	V		V	V	V	V		X2				V	
R31559	V		V	V	V	V	X2			V			
R31560	V	V	V	V		V		V		V			V
R31561	V	V	V	V		V		V		V		V	
R31570	V	V	V	V		V	V		V	V			
R31594	V		V	V	V	V	V	V	V				
R31597	V		V	V	V	V		V				X2	
R315101	V		V	V	V	V		V		V			V
R315102	V	V	V	V		V		V				X2	

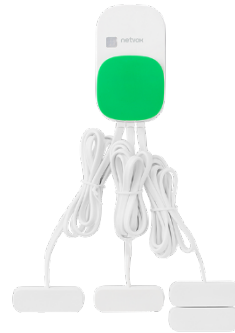
Appearance



R31511



R31512



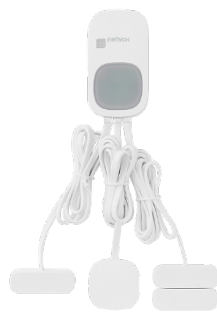
R31513



R31521



R31522



R31523



R31524



R31527



R31531



R31533



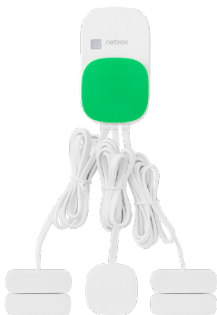
R31535



R31538



R31545



R31555



R31559



R31560



R31561



R31570



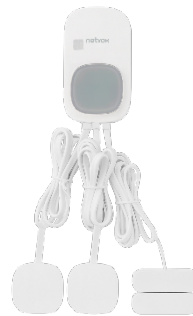
R31594



R31597

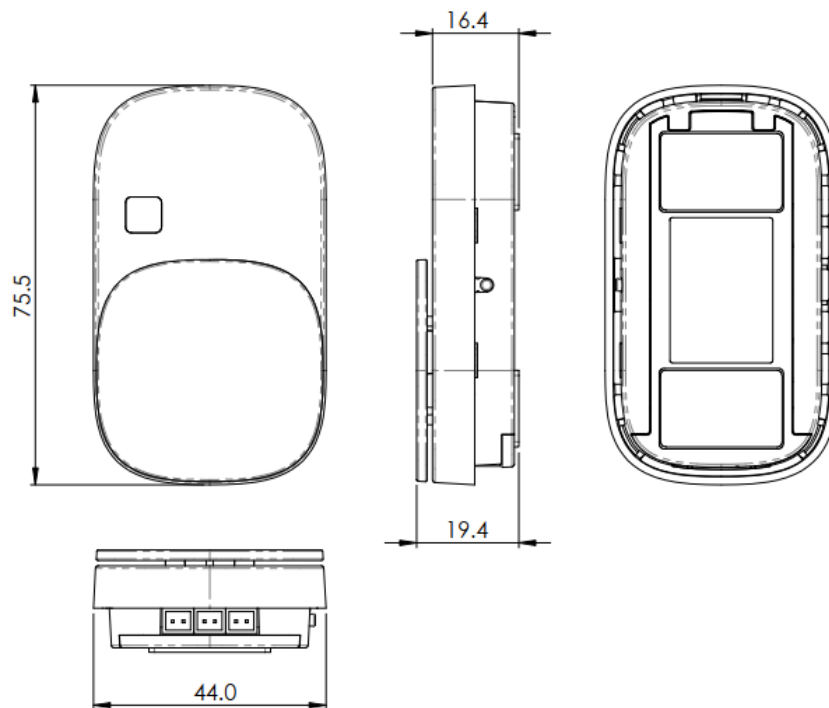


R315101



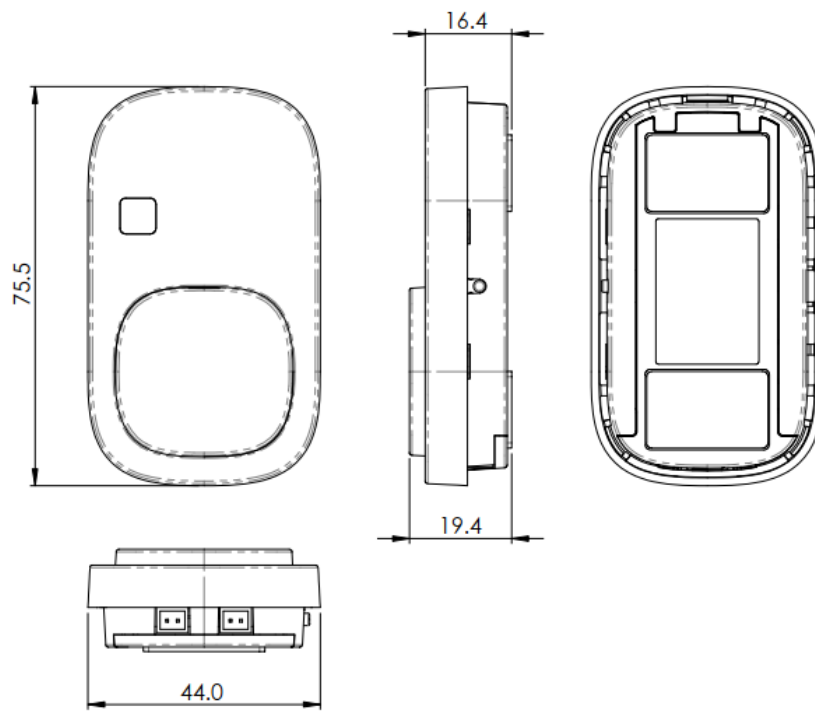
R315102

Dimension

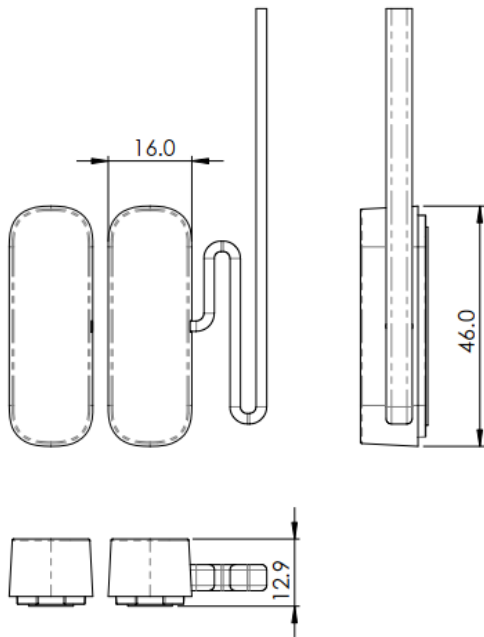


Main body- Include emergency button

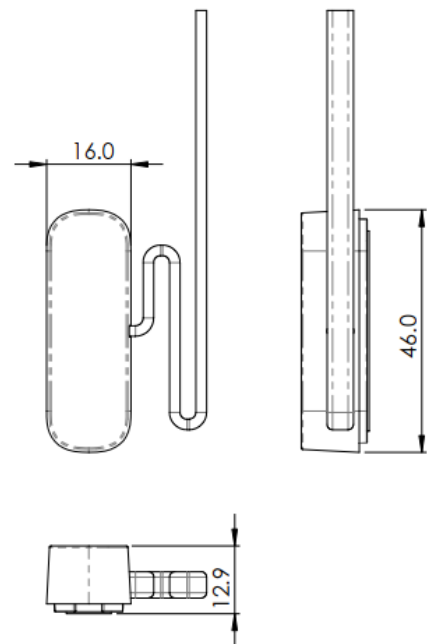
(75.5mm x 19.4mm x 44mm)



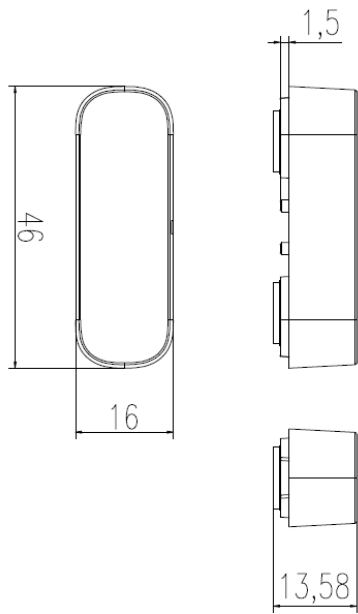
Main body- Include light sensor
(75.5mm x 19.4mm x 44mm)



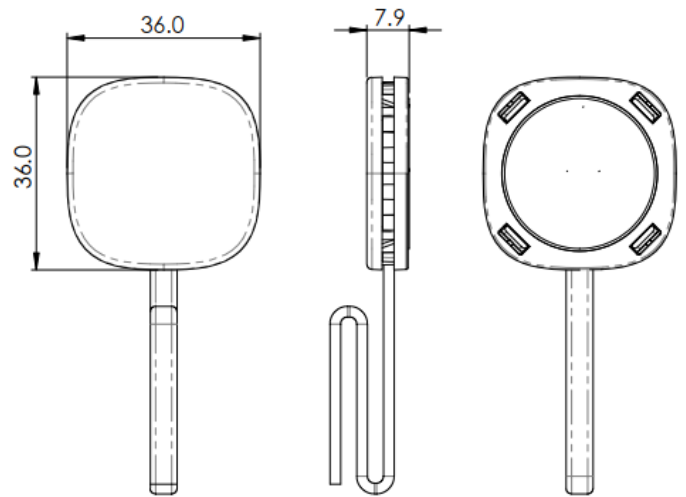
Reed Switch
(46mm x 16mm x 12.9mm)



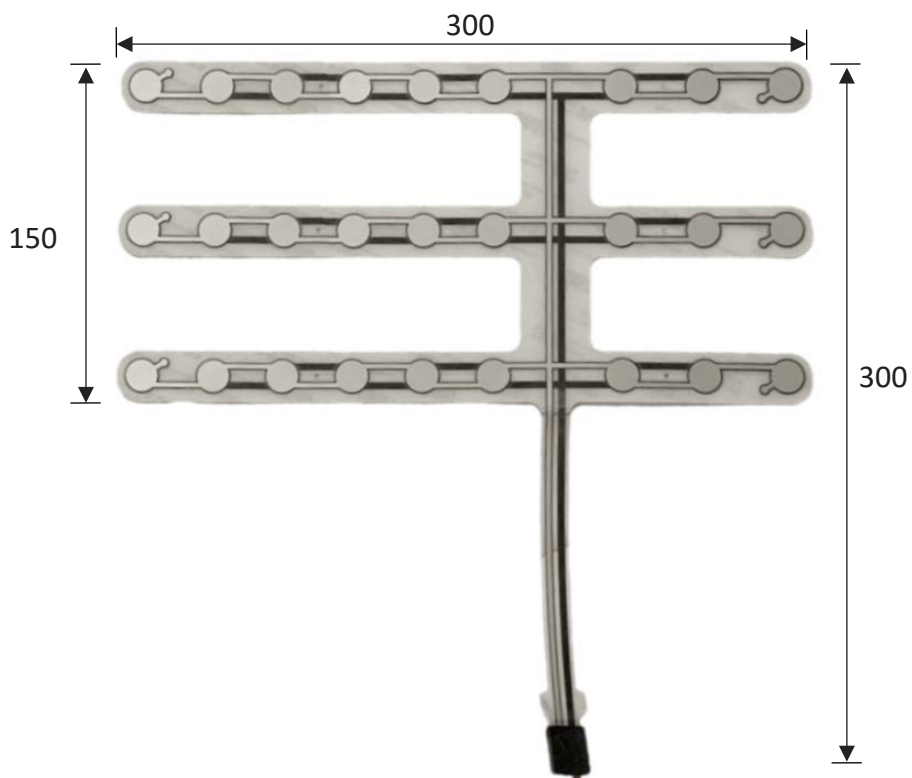
External Vibration Sensor
(46mm x 16mm x 12.9mm)



Water Leak Sensor
 (46mm x 16mm x 13.58mm)



Glass Break Sensor
 (36mm x 36mm x 7.9mm)



Seat Occupancy Sensor
 (300mm x 300mm)

Electrical Characteristics

---Electric---

Power Supply	2* 3V CR2450 button batteries connected in parallel (The capacity of a single CR2450 battery is 620mah, subject to the actual shipment)
Operating Voltage Range	2.3V to 3V
Battery Low Voltage Alarm	2.4V
Battery Measurement Accuracy	± 0.1V

*The specific electrical characteristics will vary depending on the supply voltage

---Temperature and Humidity Sensor---

Temperature Measurement Range	-20°C to 55°C
Temperature Measurement Accuracy	±1°C
Humidity Measurement Range	0% RH to 100% RH
Humidity Measurement Accuracy	±7%RH

---PIR Sensor---

Sleep Current Value	10uA
Detectable Angle	80 ° horizontally and 90 ° vertically
Detectable Range	2.5m

---Tilt Sensor---

Conversion Angle	45±5 degrees
Contact Resistance	Less than 10 ohms
The Insulation Resistance	Greater than 100 megohms
Operating Temperature	-40°C to 85 °C
Installation Type	Suitable for PCB at vertical state

---Internal/External Vibration Sensor---

Model	Ball type omnidirectional signal trigger switch
Voltage	<6V
Current	2uA to 10mA
Insulation Resistance	>10M Ω

Trigger Rate	100% (amplitude > 1 mm, frequency > 20 Hz)
Trigger Frequency	>50Hz

---Reed Switch---

Minimum Insulation Resistance	10 ¹⁰ Ω
Maximum Contact Resistance	100m Ω
Maximum Switching Current	0.5A

---Glass Break Sensor---

Detection Mode	Piezoelectric buzzer
Power Supply	Self-generated voltage chip
Impedance	Normal (NC): 7Ω (max) Alarm (NO): 1MΩ (min)
Sensor Sensing Range	within 2.5M radius
Signal Sensing Time	1-3 seconds
Loop Voltage	15VDC (max)
Loop Current	25mA (max)
Applicable Glass Type	In theory, as long as any glass is impacted by high frequency, its vibration frequency and amplitude can be detected to a certain extent
Operating Temperature	-10 to 50 °C
Wire Length	100cm
Installation	The glass at the installation position must be wiped clean first, and then the double-sided adhesive tape on the back of the detector must be torn and fixed on the glass. The detector should be installed about 10 cm from the corner of the glass frame.

---Light Sensor---

Illumination Measurement Range	1 Lux to 3000 Lux
Illumination Measurement Accuracy	<15%

---Emergency Button---

Average Pressing Life	100,000 times
Contact Resistance	≤200mΩ

---Water Leak Sensor---

Rivet Material	Phosphor bronze
Rivet Surface Treatment	Nickel plated

---Seat Occupancy Sensor---

Pressure Measurement Range	The minimum value is 200-300g
Maximum Output Resistance	50 Ω
Substrate Pressure Resistance	2KV (DC)
Durability	At least 150,000 times
Dimension	300mm x 300mm x 0.65mm

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	-123 dBm (Frequency deviation=5kHz, Bit Rate=1.2kb/s)
Antenna Type	Spiral 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: 0.6kbps – 300kbps
Modulation	LoRa/FSK (Note: One modulation method is required.)
Supportable LoRaWAN Frequency	EU863-870, US902-928, AU915-928, KR920-923, AS923-1, AS923-2, AS923-3, IN865, CN470-510 (Note: The frequency band is optional and needs to be configured before shipment.)

Physical

Operating Temperature Range of R315 Host Body	-20°C to 55 °C
Operating Temperature Range of Glass Breaking Sensor	-10°C to 50°C
Environment Humidity Range	<90 %RH (No condensation)
Storage Temperature	-40°C to 85 °C

More Combinations

Please refer to this file:

<http://www.netvox.com.tw/download/R315combination.xlsx>