Wireless Proximity Sensor

Wireless Network Based on LoRa Technology

R315LA Data Sheet

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Wireless Proximity Sensor

Introduction

R315LA is a proximity sensor that detects an object's presence or approach by measuring the distance between the sensor and the object. With a 62cm measurement range, it is suitable for short-range measurements, such as toilet paper detection. In addition, R315LA is small and light in weight. Without time-consuming and complicated installation methods, users can easily fix R315LA on a surface and get accurate measurement results.

Features

- Time of Flight (ToF) sensor
- IP30
- 2* 3V CR2450 coin cell batteries
- R109 module
- Compatible with LoRAWAN Class A
- Frequency hopping spread spectrum technology
- Configure parameters through third-party software platforms, read data, and set alarms via SMS text and email (optional)
- Applicable to third-party platforms: Actility / ThingPark, TTN, MyDevices / Cayenne
- Low power consumption and longer battery life

Note: Please visit http://www.netvox.com.tw/electric/electric_calc.html for more information about battery life.
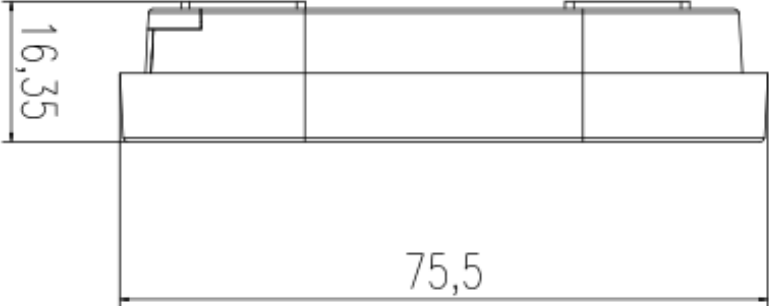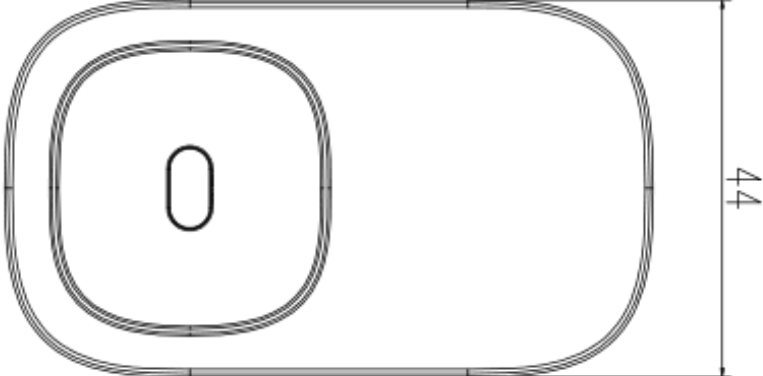
Applications

- Toilet paper detection
- Distance Measurement

Wireless Proximity Sensor

Dimensions

75.5mm x 44mm x 16.35mm

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Electrical Specifications

Power Supply	2* 3V CR2450 batteries connect in parallel Note: The capacity of one CR2450 battery is 620mAh.
Operating Voltage	2.6 to 3V
Battery Life	2 years Note: Battery lasts 2 years when the ambient temperature is 25°C, report interval = 60 minutes, TX power = 20dBm, and SF = 10.
Low Voltage Alarm	2.6V
Sleeping Current	15uA / 3V
Battery Measurement Accuracy	±0.1V

Note: The electrical specifications may vary due to the power supply voltage.

Proximity Sensor

Measurement Range	0 to 62cm Note: 　a. Ambient light, temperature, and voltage could affect the measurement range. 　b. Measurement range of 5 to 55cm (typical value) was obtained with paper and toilet paper detected in a typical indoor environment.
Current	1.7mA Note: Sampling: 10Hz; 　　　Reflection Rate: 17% when the object is 50mm away
FoV	25° (pyramid-shaped coverage)
Wavelength	850nm

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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
Rx Sensitivity	123 dBm (Frequency deviation = 5kHz, Bit Rate = 1.2kb/s)
Antenna Type	Helical antenna
Communication Range	10km (line of sight) Note: The actual transmission distance depends on the environment.
Data Transfer Rate	0.3kbp–50kbps (LoRa); 0.6kbps–300kbps (FSK)
Modulation	LoRa / FSK Note: One modulation method is required.
Available LoRaWAN Band	EU863-870, US902-928, AU915-928, KR920-923, AS923-1, AS923-2, AS923-3, IN865-867, CN470-510 Note: optional and need to be configured before shipment

Physical Properties

Dimensions	75.5mm x 44mm x 16.35mm
Operating Temperature	-20°C to 55°C
Ambient Humidity	<90%RH (no condensation)
Storage Temperature	-40°C to 85°C