
Wireless Capacitive Proximity Sensor

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Wireless Sensor Network Based on LoRa Technology



R718VA Data Sheet

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1. Introduction

R718VA is a wireless device to detect the level of toilet water and liquid hand soap. This device is connected to a non-contact capacitive sensor, which can be installed on the exterior of the container. Without direct contact, the sensor can detect the current level of water or liquid hand soap within the measurement range. The collected data could be transmitted to and displayed by other devices through the wireless network.

2. Features

- Non-contact capacitive sensor
- 2 ER14505 battery AA size (3.6V / section) in parallel
- Main body: IP65/IP67 (optional); sensor probe: IP67
- SX1276 wireless communication module
- Magnetic base
- LoRaWAN™ Class A compatible
- Frequency hopping spread spectrum technology
- Configure parameters and read data via third-party software platforms; set alarms via SMS 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 various types of batteries in different configurations.

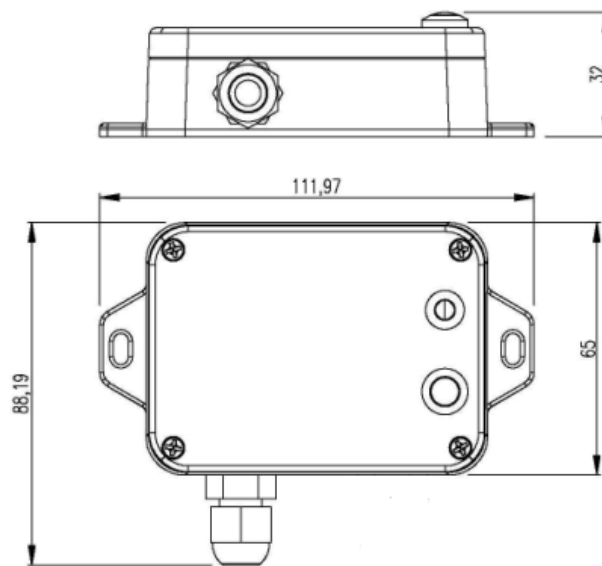
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3. Applications

- Flush toilet water level detection
- Liquid hand soap level detection
- Others

4. Dimensions

Main body: L:112mm * W: 88.19mm * H: 32mm



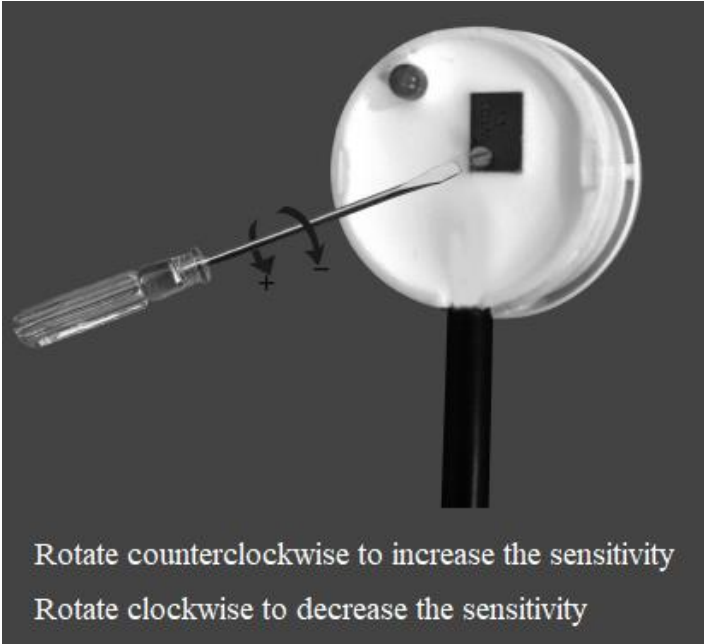
5. Electrical Specifications

Power Supply	2 ER14505 lithium batteries (3.6 V, 2400 mAh/section) in parallel
Battery Life	4.6 years (conditions: ambient temperature 25°C; report once every 15 minute; txpower=20dBm; LoRa spreading factor SF=10)
Standby Current	30uA
Wake-Up Current	6.3mA @3.3V
Low Battery Alarm	3.2V
RF Receiving Current	11mA @3.3V
RF Emission Current	120mA @3.3 V

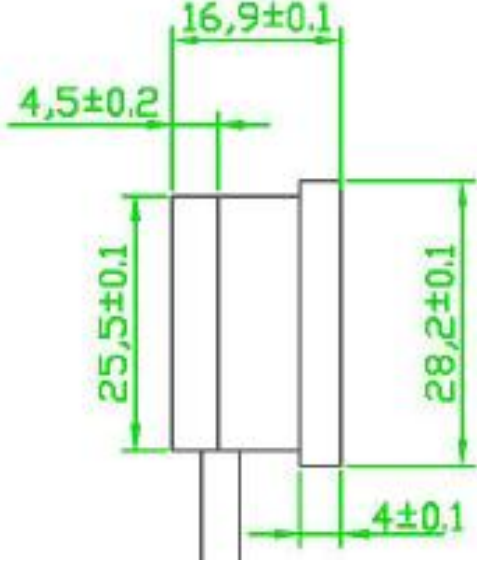
Note: Electrical specifications may vary due to the power supply voltage.

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6. Non-Contact Capacitive Sensor

Model	XKC-Y25-V
Power Supply	+5V
Working Temperature	-5°C to 100°C
Working Humidity	5% to 100%
Sensing Container (Non-Metal) Wall Thickness	≤20mm (glass, plastic, non-absorbent ceramic, acrylic, rubber, or other composite materials)
Material	ABS
Waterproof Level	IP67
*Sensitivity	The sensitivity of the non-contact capacitive sensor must be adjusted according to different liquids and the thickness of non-metallic containers.
Sensitivity Adjustment	<ol style="list-style-type: none"> 1. Open the back cover of the sensor head. 2. Adjust the sensitivity knob with a small screwdriver. 3. Rotate counterclockwise to increase the sensitivity. 4. Rotate clockwise to decrease the sensitivity.  <p>Rotate counterclockwise to increase the sensitivity Rotate clockwise to decrease the sensitivity</p> <p>Sensitivity from high to low: 12 circles in total</p>

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<p>Sensor Size</p>	
<p>Installation Method</p>	<p>Stick the probe with mucilage glue</p>

Note: **Sensitivity**

The distance between the liquid level and the sensor could influence the sensitivity. When the liquid level is below the sensor and can be detected, users should lower the sensitivity. On the other hand, when the liquid level is at the same level as the sensor but cannot be detected, users should raise the sensitivity.

Caution: 1. Avoid metal materials when installing probe to get accurate results

2. The liquid with high concentration may stick to the surface of the container and affect the results of detection. To get accurate results, please be cautious while installing.

7. Frequency

<p>Frequency Range</p>	<p>863MHz-928MHz 470MHz-510MHz</p>
<p>TX Power</p>	<p>US915 20dbm AS923 16dbm AU915 20dbm CN470 19.15dbm EU868 16dbm KR920 14dbm IN865 20dbm</p>

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Receiving Sensitivity	-136dBm (LoRa, Spreading Factor=12, Bit Rate = 293bps); -121 dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Built-in antenna
Communication Distance	10 km (The actual communication distance depends on the environment.)
Data Transfer Rate	0.3kbps to 50kbps (LoRa) 1.2kbps to 300kbps (FSK)
Modulation	LoRa / FSK (Note: Please choose one modulation method.)
Supportable LoRaWan Band	EU863-870, US902-928, AU915-928, KR920-923, AS923-1, AS923-2, AS923-3, IN865-867, CN470-510 (Note: optional, to be done in the factory configuration)

8. Physical Properties

Dimensions	L: 112 mm*W: 88.19 mm*H: 32 mm
Body weight	About 150g
Ambient temperature range	-20°C to 55°C
Ambient humidity range	<90% RH (no condense)
Storage temperature range	-40 °C to 85 °C