

# **Wireless Flush Toilet /Washing Liquid Bottle/Toilet Paper Detection Sensor R718VB Data Sheet**

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Wireless Sensor Network Based on LoRa Technology



R718VB (subject to real object)

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## History

<b>Version</b>	<b>Date</b>	<b>Note</b>
0.1	2019-11-12	Initial Release

### Notes:

Hardware Version  
61R718A6801V0.2

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**Wireless Flush Toilet /Washing Liquid Bottle/Toilet Paper  
Detection Sensor**

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### Product introduction

R718VB can detect the toilet water level, hand sanitizer level, presence or absence of toilet paper, it may also be applied to non-metallic pipes (pipe diameter  $D \geq 11\text{MM}$ ) liquid level detector. This device is connected with a non-contact capacitive sensor which can be mounted to the exterior of the container, without direct contact with the object to be detected, which may detect the current position of liquid level, or the presence or absence of liquid soap, toilet paper; the detected data is transmitted to other devices through the wireless network. It uses the SX1276 wireless communication module .

### Main characteristics

- Adopt SX1276 wireless communication module
- 2 ER14505 battery AA SIZE (3.6V / section) parallel power supply
- Non-contact capacitive sensor
- The main protection level of the equipment is IP65/IP67 (optional), and the protection level of the sensor probe is IP65
- The base is equipped with a magnet that can be attached to the iron object
- Compatible with LoRaWAN™ Class A
- Frequency hopping spread spectrum technology
- Configuration parameters can be configured through third-party software platforms
- 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 battery life time in different configurations.

### Application scenario

- Flush toilet water level detection
- Hand sanitizer level detection
- Toilet paper presence or absence
- Non-metallic pipe (pipe outer diameter  $D \geq 11\text{mm}$ ) liquid level detection
- Other

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**Dimensions**

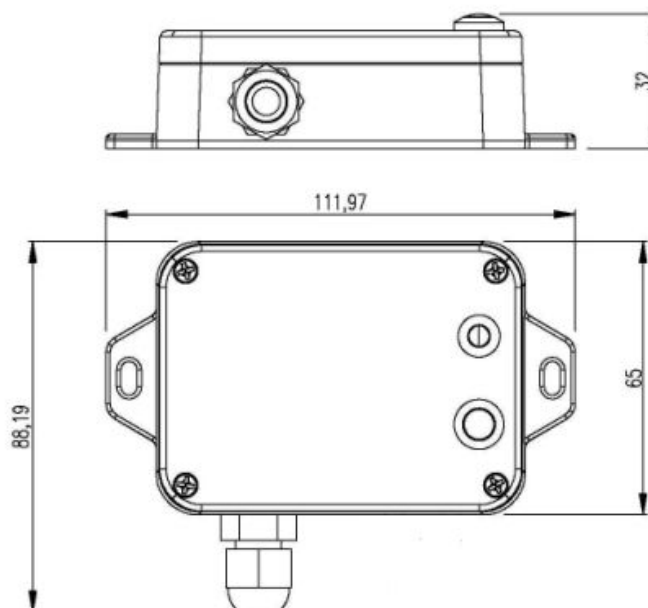


Figure 1 main unit housing size

Main unit case size: 112 mm x 88.19 mm x 32 mm

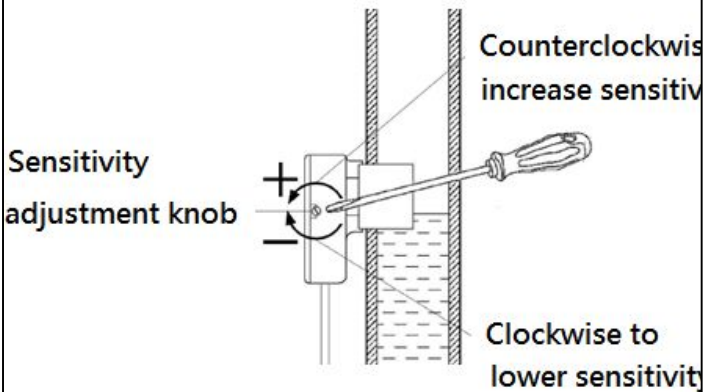
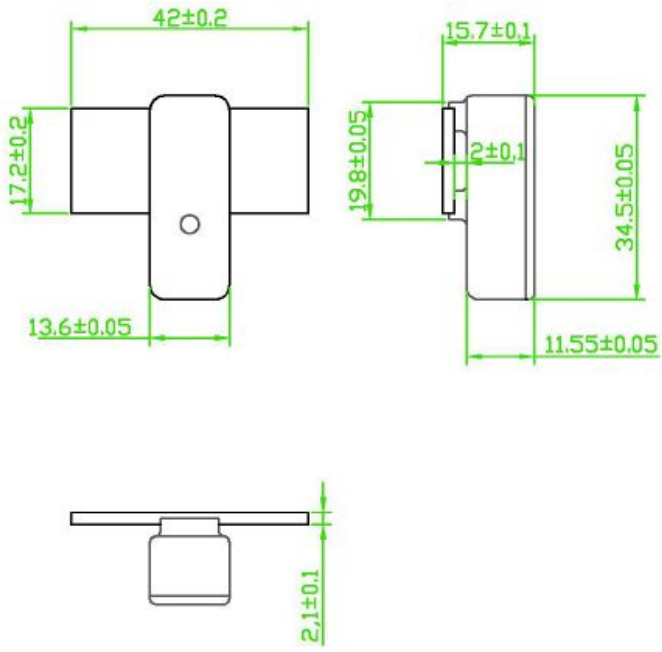
**Electrical characteristics**

Power supply	2 ER14505 lithium batteries (3.6V, 2400 mAh / section) in parallel
Battery life	Battery life are 3.5 years (condition: ambient temperature 25°C, report once every 15 minutes, txpower = 20 dBm, LoRa spreading factor SF = 10 )
Standby current	About 30 uA
Wake-up current	6.3mA @3.3V
Low battery alarm	3.2V
RF receiving current	11 mA @3.3V
RF emission current	12 0mA @3 .3 V

\* Specific electrical characteristics will vary depending on the power supply voltage

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**Non-contact capacitive sensor device**

model	XKC-Y26-V
Power supply	+ 5 V
Working temperature	-5~105 °C
Working humidity	5%~100%
Induction container (non-metal) wall thickness	≤20mm (glass, plastic, non-absorbent ceramic, acrylic, rubber, etc. or composite materials thereof)
Applicable pipe diameter range	≥11mm
Material	ABS
Waterproof level	IP65
Sensitivity	The sensitivity of the non-contact capacitive sensor must be adjusted in the field according to different liquids or objects and the thickness of non-metallic containers.
Sensitivity adjustment	Sensitivity from high to low 12 cycles in total. 
Sensor size	

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Installation method	Stick the probe with double-sided tape When used in pipeline liquid level detection, users can also use nylon cable ties and pipes to tighten
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**\*Sensitivity**

The height of the sensed liquid level or the distance between the toilet paper and the sensor is related to the sensitivity of the sensor; the higher the sensitivity, the lower the level of the induced liquid is detected, or the greater distance between the toilet paper and the sensor (up to approximately 2 cm) is detected.

During installation, when the liquid level below the sensor installation position is not detected, the sensitivity can be adjusted to be higher to detect the wanted liquid level height; when there is paper in the sanitary carton that is not detected by the sensor, the sensitivity can be adjusted to be greater.

Note:

1. Avoid metal materials at the probe mounting site so as not to affect the detection.
2. The liquid with higher concentration will appear on the wall which will affect the detection.

When applied to hand sanitizer, in order to avoid the impact of the wall, users should pay attention to the decision of installation location.

**Radio frequency characteristics**

Frequency range	863MHz-928MHz 470MHz-510MHz
Power output	19 dBm ±1dBm
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	Up to 10 km, the actual transmission distance depends on the real environment.
Data transfer rate	0.3kbps to 50k bps
Modulation system mode	LoRa/FSK (Note: Choose one of them)
Supportable LoRaWAN band	EU863-870, US902-928, AU915-928, KR920-923, AS923, CN470-510 (Note: The frequency band is optional and needs to be configured before shipment)

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**Physical characteristics**

Size	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 ~ 85°C