

Wireless Water Level Sensor with a Solar Panel

Wireless Sensor Network Based on LoRa Technology



R72611

Data Sheet

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Introduction

The R72611 is a wireless communication device that detects the depth of a liquid.

The R72611 detects the depth of the liquid in the container. The main part and the sensor are connected via the RS485 interface. The detected data is transmitted to other devices through the wireless network. The wireless communication method conforms to the LoRa™ protocol standard.

Note: Different types of liquids have different requirements for the sensor, so it is necessary to select the sensor according to the type of liquid.

Main Characteristic

- Adopt SX1276 wireless communication module
- Depth of the liquid detection
- Solar panel charging function
- A rechargeable battery box (Users can purchase and install rechargeable lithium batteries by self.)
- 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

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

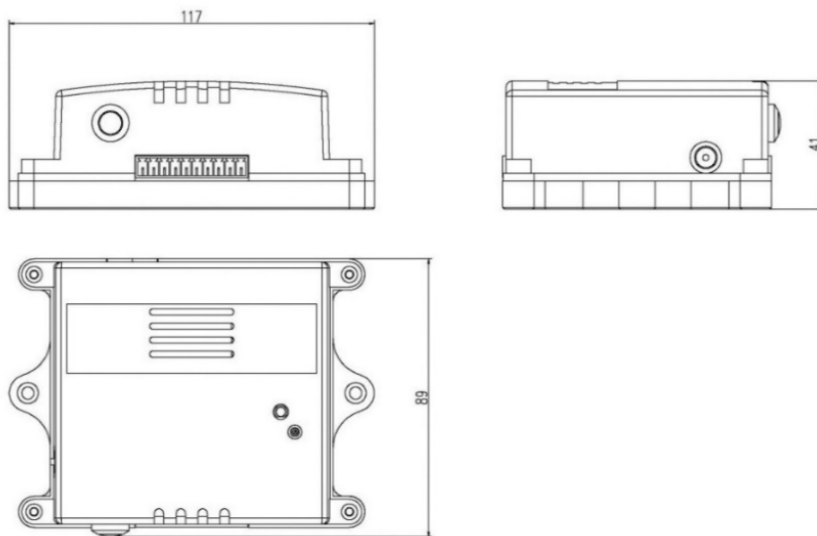
On this website, users can find battery life of various models in different configurations.

Application

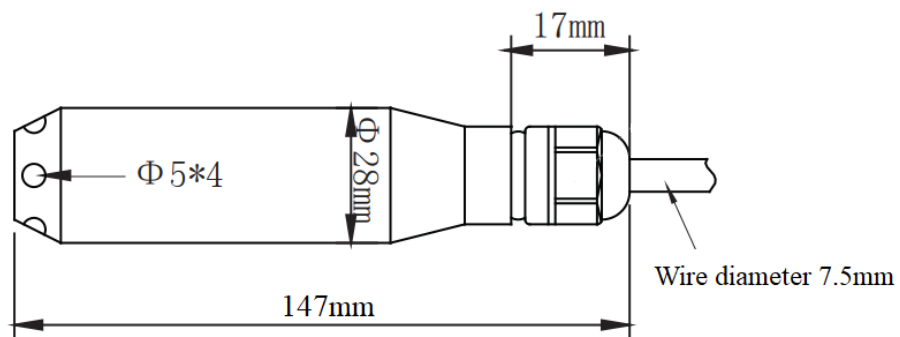
- Depth of the liquid detection
- Others

Wireless Water Level Sensor with a Solar Panel

Dimension



The Host Body



Liquid Level Sensor

Electric

Input Power	3 rechargeable lithium batteries in series
Operation Voltage Range	9.8V to 12.6V
Operating Current 1	15mA (Standby state)
Operating Current 2	60mA (Operating state)

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Battery Electrical Characteristics

Solar Panel Specifications	5W / 18VDC
Lithium Battery Specifications	3 Rechargeable lithium batteries in series (3.7V/ section)
Lithium Battery Pack Charging Current	300mA
Lithium Battery Pack Charging Time	About 4 days to charge fully (Ensure sufficient sunshine intensity)
The Time That the Lithium Battery Pack Can Be Used After Full Charged Once	About 1120 hours (Typical value, report the data once every 30 minutes, the value is calculated with a rechargeable battery capacity being 3500mAh)

Liquid Level Sensor

Measuring Range	10m
Measuring Line Length	12m
Accuracy Level	0.25%FS (Typical value)
Service Life	5-8 years
Communication Method	RS-485

*Others line length/range can be customized. Ex. line length: 20m, range: 18m

*The highest range is 50m. (The line length is recommended being at least 60m or more.

The user can choose the length according to the actual demand.)

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Frequency

TX Power	US915 20dbm; AS923 16dbm; AU915 20dbm; CN470 19.15dbm; EU868 16dbm; KR920 14dbm; IN865 20dbm;
Receiving Sensitivity	-136 dBm (LoRa, Spreading Factor=12, Bit Rate = 293bps) -121 dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Build-in antenna
Communication Distance	10 km (Visible linear obstacle-free transmission distance, actual transmission distance depending on the environment.)
Data Transfer Rate	0.3kbps ~ 50kbps (LoRa) 1.2kbps ~ 300kbps (FSK)
Modulation	LoRa / FSK (Note: choose one of them)
Supportable LoRaWAN Frequency	EU863-870, US902-928, AU915-928, KR920-923, AS923-1, AS923-2, AS923-3, IN865-867, CN470-510 (Note: Configured before shipment.)

Wireless Water Level Sensor with a Solar Panel

Physical

Dimension	Cover body: D220mm*H280mm, Solar panel size: 290mm*150mm*25mm Main Part Size: 117mm x 89mm x 41mm
Cover Life Time	The cover material is made of ABS material which can be used for 3 years outdoor.
Operating Temperature Range	-20°C to 55°C
Operating Humidity Range	< 90%RH (no condensation)
Storage Temperature range	-40°C to 85°C