

# Wireless Outdoor Water Level Sensor with a Solar Panel

Wireless Sensor Network Based on LoRa Technology



## R72611 Data Sheet

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## Wireless Outdoor Water Level Sensor with a Solar Panel

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### Introduction

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

### Features

- Overcharge, over-discharge, and overcurrent protection for rechargeable batteries
- Adopt SX1276 wireless communication module
- Liquid level 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

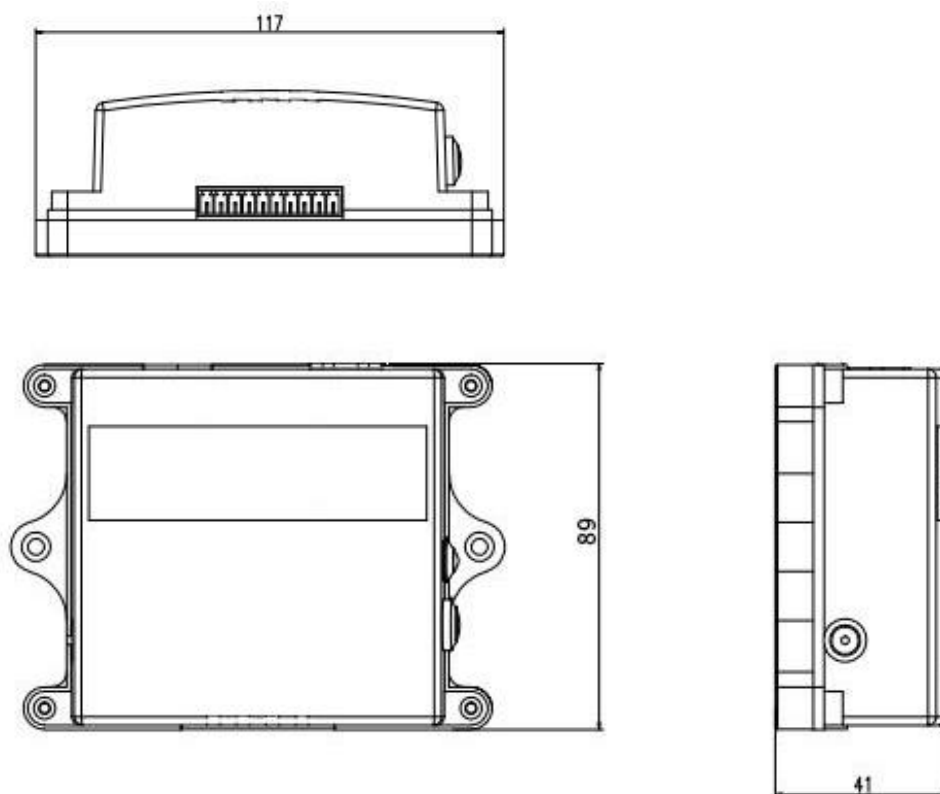
Note: Battery life is determined by the sensor reporting frequency and other variables, please refer to [http://www.netvox.com.tw/electric/electric\\_calc.html](http://www.netvox.com.tw/electric/electric_calc.html). On this website, users can find battery life of various models in different configurations.

### Applications

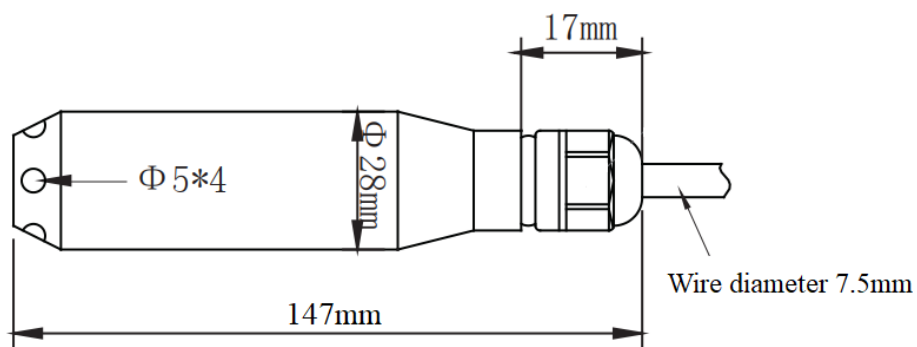
- Liquid level detection
- Others

## Wireless Outdoor Water Level Sensor with a Solar Panel

### Dimensions

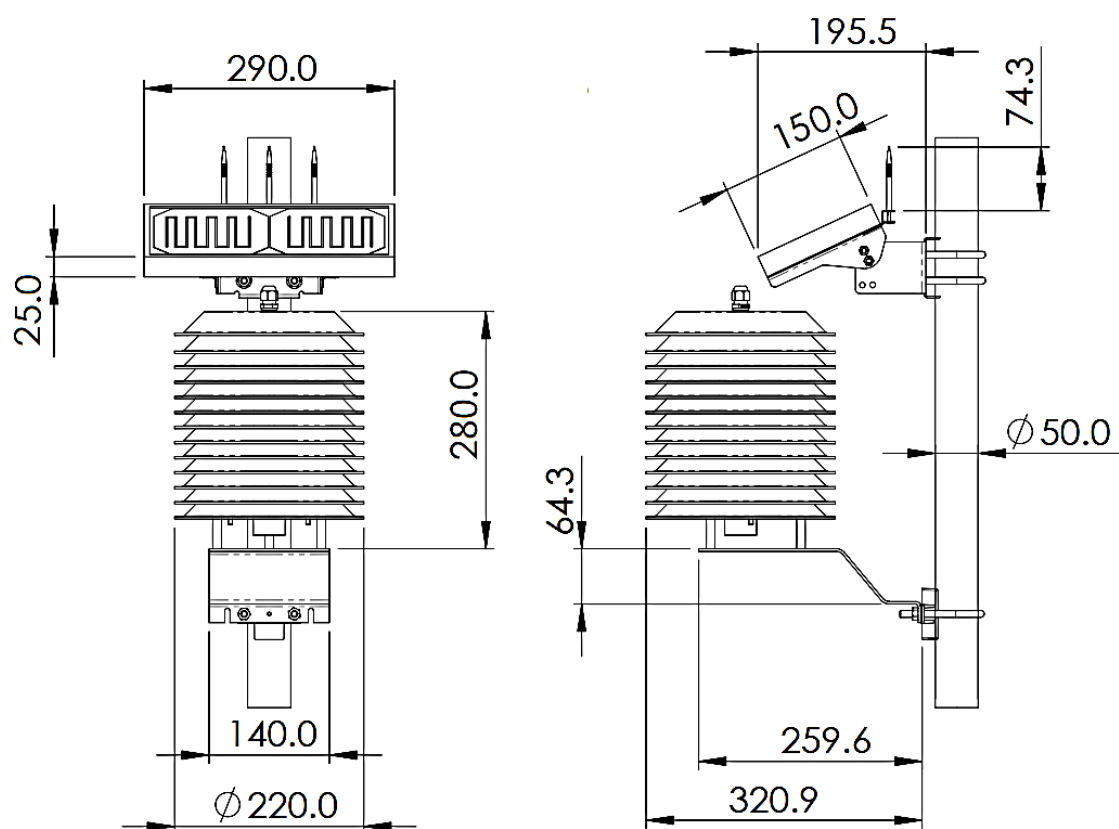


▲ Main Body: 117mm x 89mm x 41mm



▲ Liquid Level Sensor

# Wireless Outdoor Water Level Sensor with a Solar Panel



▲ Cover: 220mm (D) x 280mm (H)

Solar panel: 290mm x 150mm x 25mm

## Wireless Outdoor Water Level Sensor with a Solar Panel

### Electrical Specifications

Power Supply	3* 3.7V rechargeable lithium batteries in series
Operation Voltage Range	9.8V to 12.6V
Low Voltage Alarm	10.5V
Operating Current	<100mA

### Battery

Solar Panel Specifications	5W / 18VDC
Lithium Battery Specifications	3* 3.7V rechargeable lithium batteries in series
Lithium Battery Charging Current	300mA
Lithium Battery Charging Time	About 4 days to fully charge Note: The data is calculated when the battery is charged with sufficient sunlight.
Operation Time after Fully Charged	About 777 hours (typical value) Under the conditions: a. the battery capacity is 3200mAh; b. the data are reported every 30 minutes

### Liquid Level Sensor

Measuring Range	10m
Measuring Cable Length	12m
Accuracy Level	0.25%FS (typical value)
Lifespan	5 to 8 years
Communication Method	RS-485

Note: a. Other line cable / range can be customized. Ex. line length: 20m, range: 18m

b. The highest measuring range is 50m. The line length is recommended to be at least 60m or more. The user can choose the cable length according to the need.

## Wireless Outdoor Water Level Sensor with a Solar Panel

### 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	-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 (line of sight) Note: The actual transmission distance depends on the environment.
Data Transfer Rate	0.3kbps – 50kbps (LoRa) 1.2kbps – 300kbps (FSK)
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, IN865-867, CN470-510 Note: Optional, configured before shipment

## Wireless Outdoor Water Level Sensor with a Solar Panel

### Physical Properties

Dimensions	Cover: 220mm (D) x 280mm (H) Solar panel: 290mm x 150mm x 25mm Main body: 117mm x 89mm x 41mm
Cover Lifespan	The cover material is made of ABS which can be used for 3 years outdoors.
Operating Temperature Range	-20°C to +55°C
Operating Humidity Range	< 90%RH (no condensation)
Storage Temperature range	-40°C to +85°C