Wireless Water Turbidity Sensor

Wireless Sensor Network Based on LoRa Technology

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Introduction

R72610 is a wireless communication device for turbidity detection. R72610 can detect the turbidity of the solution. The host body and the turbidity sensor communicate through RS485. The turbidity sensor can also detect the water temperature and transmit the detected data to other devices through the wireless network for display. It adopts wireless communication method that conforms to LoRa^{TM} protocol Standard.

Main Feature

- Adopt SX1276 wireless communication module
- Solar panel charging function
- A rechargeable battery box (Users can purchase and install rechargeable lithium batteries by self.)
- Water temperature detection
- Turbidity concentration detection
- Compatible with LoRaWAN^{TM} Class A
- Frequency hopping spread spectrum
- 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

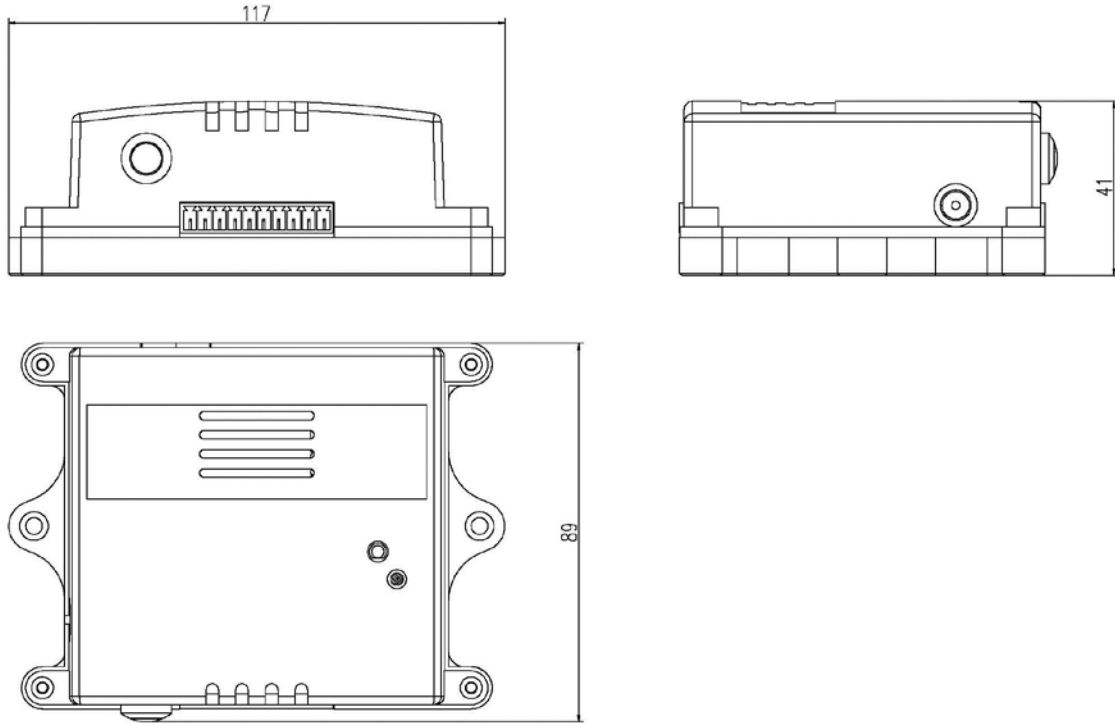 http://www.netvox.com.tw/electric/electric_calc.html

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

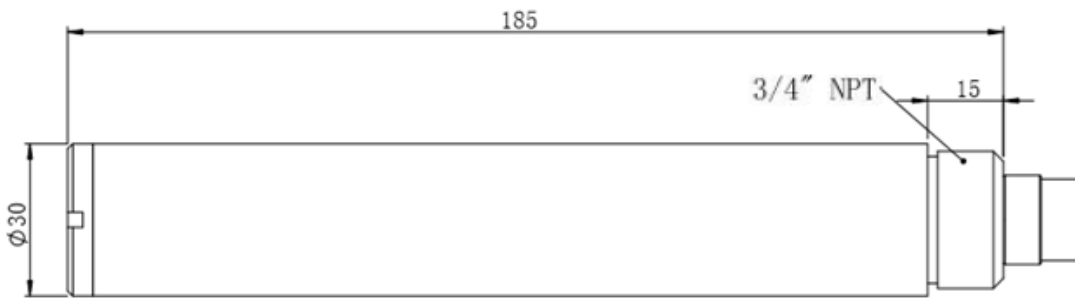## Application

- Smart home
- Smart farm
- Livestock breeding

Dimension

Unit:mm

Host Body

Unit:mm

Turbidity Sensor

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Electric

Power Supply	3 rechargeable lithium batteries in series (each section of rechargeable lithium battery 3.7V)
Operating Voltage Range	9.8V to12.6V
Low Voltage Warning	10.5V
Operating Current	<100mA (when sensor is operating)

Battery Electric

Solar Panel Specification	5W / 18VDC
Lithium Battery Specification	3 rechargeable lithium batteries in series (each section of rechargeable lithium battery 3.7V)
Lithium Battery Pack Charging Current	About 300mA (ensure sufficient sunshine intensity)
Lithium Battery Pack Charging Time	About 4 days to charge fully (Ensure sufficient sunshine intensity, the value is calculated with a rechargeable battery capacity being 3200mah)
The Time That the Lithium Battery Pack Can Be Used After Full Charged Once	About 770 hours (typical value, report the data once every 15 minutes, the value is calculated with a rechargeable battery capacity being 3200mah)

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Turbidity Sensor

Measurement Principle	Scattering light method
Measurement Range/Resolution	0~1000NTU/ 0.1NTU/ 0.1℃
Accuracy	±5% or ±3NTU(0~1000NTU) ±0.5℃
Calibration	Two Point Calibration
Temperature Compensation	Automatic temperature compensation (PT1000)
Operation Condition	0~50℃, <0.2MPa
Storage Temperature	-5°~65℃
Installation Method	Immersive installation, 3/4NPT pipe thread
Cable Length	5 meters, other lengths can be customized
Power Consumption	< 0.3W@12V
Sensor Protection Class	IP68
Service Life	1 year

* If the user needs a range of **0~100 NTU** / **0~20 NTU**, the user needs to purchase the sensor of this range.

Frequency

Frequency Range	863MHz-928MHz 470MHz-510MHz
TX Power	US915 20dbm AS923 16dbm AU915 20dbm CN470 19.15dbm EU868 16dbm KR920 14dbm IN865 20dbm
Receive Sensitivity	-136dBm (LoRa, Spreading Factor=12, Bit Rate=293bps) -121dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Built-in antenna

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Communication Distance	10km (visible linear obstacle-free transmission distance, actual transmission distance depending on the environment)
Data Transfer Rate	LoRa: 0.3kbps ~ 50kbps FSK: 1.2kbps ~ 300kbps
Modulation Method	LoRa/FSK (Note: choose one of them)
Supportable LoRaWAN Band	EU863-870, US902-928, AU915-928, KR920-923, AS923-1, AS923-2, AS923-3, IN865-867, CN470-510 (Note: The frequency band is optional and needs to be configured before shipment.)

Physical

Dimension	117mm*89mm*41mm
Operating Temperature Range	-20°C ~ 55°C
Operating Humidity Range	<90%RH (No condensation)
Storage Temperature Range	-40°C ~ 85°C