Wireless PH Sensor

Wireless Sensor Network Based on LoRa Technology

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Introduction

RA0708 is a device for PH and water temperature detection. It can detect the PH and water temperature of the water environment.

## Main Characteristic

- Compatible with LoRaWAN^{TM} Class A
- PH value detection
- Water temperature detection
- Adopt SX1276 wireless communication module
- Frequency hopping spread spectrum technology
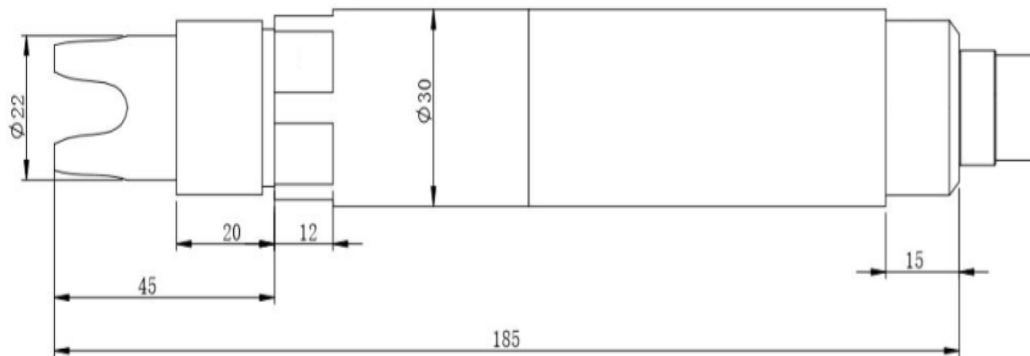- Applicable to the third-party platforms: Actility/ ThingPark/ TTN/ MyDevices/ Cayenn

Application Field

- PH detection
- Water temperature detection
- Other

Dimension
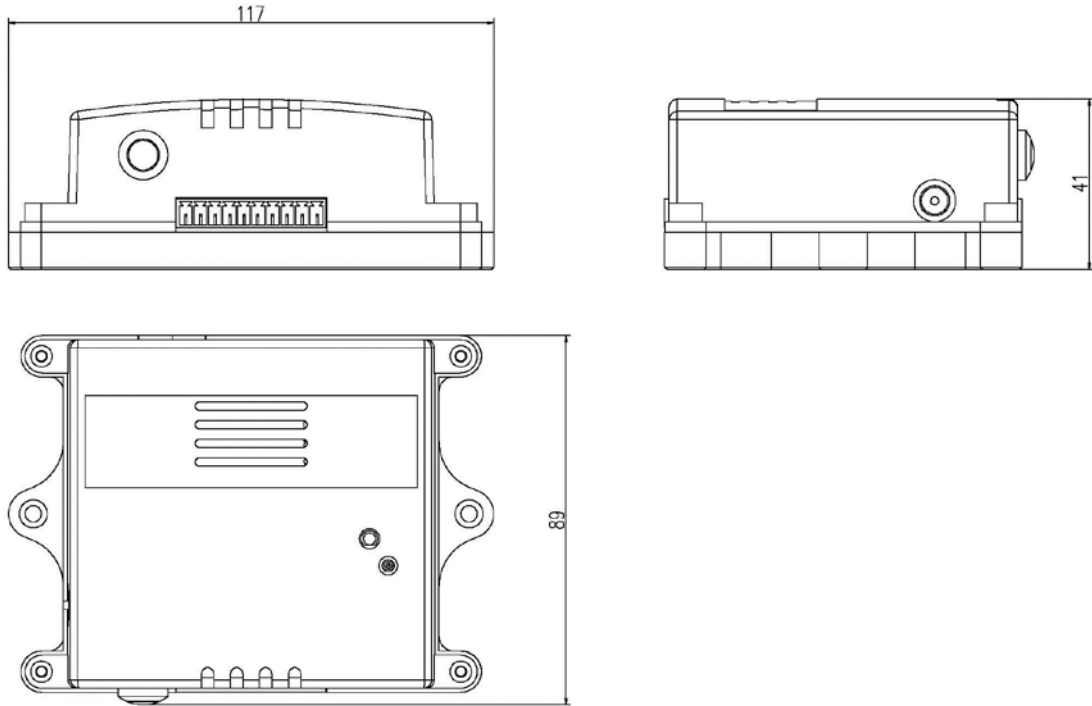
Host Body

PH Sensor

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Electric

Power Supply	DC12V/1A
Operating Current 1	40mA (no RF signal transmission)
Operating Current 2	80mA (with RF signal transmission)

PH Sensor Parameter

Operating Water Temperature Range	0 to 65°C
PH Value Range	0 to 14PH
PH Resolution	0.01 PH
PH Value Accuracy	-0.3PH to 0.3 PH
Usable Pressure Range	<0.2MPa
Temperature Compensation	Automatic Temperature Compensation (NTC)
Signal Output	RS485
Installation	Immersion mounting, 3/4 NPT thread
Cable length	5m, other lengths can be customized
Calibration method	Two-point calibration
Power Consumption	0.2W@12V
PH Sensor IP Grade	IP68
Service Life	1 year

*The bare 4 pin wiring terminal on PH sensor, please keep it dry.

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	-121dBm (FSK,Frequency deviation=5kHz, Bit Rate=1.2kbps) -136dBm (LoRa，Spreading Factor=12，Bit Rate=293bps)

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Antenna type	Built-in antenna
Communication Distance	10km (visible linear obstacle-free transmission distance, actual transmission distance depending on the environment)
Data Transfer Rate	0.3kbps～50kbps
Modulation	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)

Physical

Host Body Dimension	Host body：117mm*89mm*41mm
Ambient Temperature Range	-20°C to55°C
Ambient Humidity Range	< 90%RH (No condensation)
Storage Temperature Range	-40°C to 85°C

PH Sensor Installation
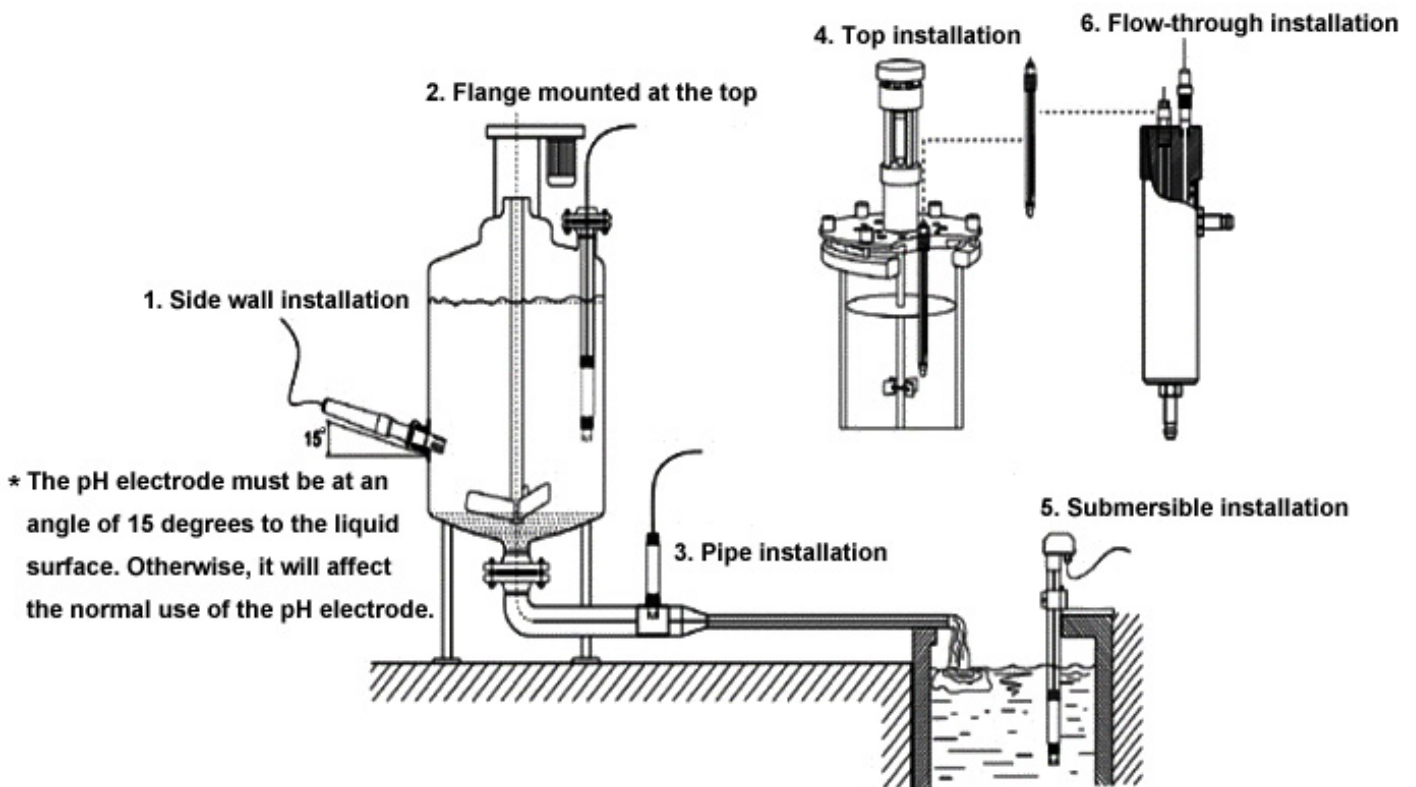
PH Sensor Maintenance

When measuring the pH sensor, it should be cleaned in distilled water (or deionized water), and the filter paper should be used to absorb moisture to prevent impurities from being introduced into the liquid to be tested. 1/3 of the sensor should be inserted into the solution to be tested.

The sensor should be washed when not in use, inserted into a protective sleeve with a 3.5 mol/L potassium chloride solution, or the sensor inserted into a container with a 3.5 mol/L potassium chloride solution.

If the liquid in the cover of the pH sensor dries out, you could replace the liquid with potassium chloride liquid or tap water. Please do not use purified water or deionized water.

Check if the terminal is dry. If it is stained, wipe it with absolute alcohol and dry it. Avoid long-term immersion in distilled water or protein solution and prevent contact with silicone grease. With a longer sensor, its glass film may become translucent or with deposits, which can be washed with dilute hydrochloric acid and rinsed with water. The sensor is used for a long time. When a measurement error occurs, it must be calibrated with the meter for calibration.

When the calibration and measurement cannot be performed while the sensor is being maintained and maintained in the above manner, the sensor has failed. Please replace the sensor.