PSS-332012

Aquaculture ODO Sensor

Related Products

Product No.	Interf.	Descriptions
PSS-232011	RS485	Water Quality Residule Chlorine Sensor (IP68)
PSS-232021	RS485	Quad-electrode Salinity Sensor (IP68)
PSS-232031	RS485	Quad-electrode Conductivity Sensor (IP68)
PSS-232041	RS485	Water Quality Digital ORP Sensor (IP68)
PSS-232051	RS485	Water Quality NH4 Sensor (IP68)
PSS-232081	RS485	Water Quality Total Hardness Sensor(IP68)
PSS-234011	RS485	Water Quality Digital PH Sensor (IP68)
PSS-332011	RS485	Optical Dissolved Oxygen Sensor (Optical Fluorensce Principle, IP68, ASTM D888-09)
PSS-332012	RS485	Aquaculture ODO (Optical Fluorensce Principle,IP68)
PSS-332021	RS485	Optical Chlorophyll Sensor (Fluorescent，Self Cleaning， Immersible, IP68)
PSS-332022	RS485	Optical Chlorophyll Sensor (Fluorescent, Flow Cell/Immersible, IP68)
PSS-332031	RS485	Blue Green Algea (Fresh Water, Fluorescence, Self Cleaning, Immersible,IP68)
PSS-332032	RS485	Blue Green Algea (Fresh Water, Fluorescence, Flow cell/Immersible, IP68)
PSS-333011	RS485	Suspended Solid Sensor (Back Scattering Light,Self Cleaning,0-4,000mg/L, IP68)
PSS-333012	RS485	Suspended Solid Sensor (UV254,Self Cleaning,0-10,000mg/L, IP68)
PSS-334012	RS485	Oil-in-Water Sensor (UV Fluorescent,Cruide Oil , Self Cleaning, IP68)
PSS-334014	RS485	Oil-in-Water Sensor (UVFluorescent,Refined Oil, Self Cleaning, IP68)
PSS-334021	RS485	UV254 COD Sensor (Waster Water/Surface Water, IP68)
PSS-334022	RS485	UV254 COD Sensor (Industrial Waster Water, IP68)
PSS-334031	RS485	Optical Turbidity Sensor (Flow cell/Immersible, IP68)
PSS-334032	RS485	Optical Turbidity Sensor (Immersible,Self Cleaning,IP68)
PSS-334041	RS485	Water quality monitoring Colored soluble organic matter CDOM sensor -- ultraviolet - fluorescence method (input type, self-cleaning, IP68)
PSS-334051	RS485	Water color Sensor(Dual Wavelength UV254,immersible,Self Cleaning,IP68)
PSS-BUOY01	Large floating station (ocean version, including floating body, solar panel, battery and controller; without sensor)	
PSS-BUOY02	Small floating station (river version, including floating body, solar panel, battery and controller; without sensor)	

Product introduction

PSS-332012 Fluorescent dissolved oxygen sensor for aquaculture, specially tailored for the aquaculture market, uses independently developed fluorescent materials. No oxygen consumption, no flow rate restriction, no electrolyte required, no maintenance and calibration, strong anti-interference ability, and excellent stability. Built in temperature sensor, automatic temperature compensation.

Detection principle

Fluorescent dissolved oxygen sensor is based on the quenching principle of active fluorescence by specific substances in physics. The blue light from a light emitting diode (LED) shines on the fluorescent material on the inner surface of the fluorescent cap. The fluorescent material on the inner surface is excited and emits red light. By detecting the phase difference between the red light and the blue light and comparing it with the internal calibration value, the concentration of oxygen molecules is calculated. The output value is automatically compensated by temperature and pressure.

Product features

- ❖ Intelligent sensor detection item: dissolved oxygen - special for aquaculture
- ❖ Cable connection, can be put into use directly, and the installation is simple

- Fully waterproof and gas resistant for any harsh environment
- Strong lightning protection and anti-interference capability
- Adopt imported chips, components and new surface mounting production process to ensure stable and reliable operation of the instrument
- No membrane, no electrolyte, no interference, no frequent calibration
- No oxygen consumption, no flow limit
- Tailored for the breeding market, with ultra-high cost performance

Product parameters

Parameters	
Monitoring content	Dissolved oxygen for aquaculture
Detection principle	Fluorimetry
Measuring range	0 ～ 20mg/L or 0 ～ 200% saturation
Accuracy	±3%
Resolution	0.1mg/L or 1% saturation
Temperature range	0～50℃
Accuracy	±0.5℃
Resolution	0.1℃
Response time	<60s
Material	316L
Probe cable length	10m (default) customizable
Communication	
Output signal	RS485
Mechanical	
Work environment	0 ℃～ 50 ℃ (the part directly contacting the liquid level)
Degree of protection	IP68
The deepest depth	2m underwater
Weight	0.5kg (probe part)
Size	188.3*22mm (probe size length * diameter)
Power	
Power	5-12V DC

Sensor installation

- The sensor is recommended to be installed vertically with the electrode facing downward
- Considering the basic principle of sensor optics, the distance between the electrode measuring end face and the bottom of the container/related device shall not be less than 5cm
- Considering the influence of water level, the sensor should be installed below 30cm of the lowest water level. It is also recommended that the installation depth should not exceed 2m, so as to facilitate later disassembly and maintenance
- The sensor shall be fixed to avoid the probe collision caused by water flow and other factors

Maintenance method

- Maintenance method:

- Different from the dissolved oxygen probe technology based on electrochemical principle, the fluorescent dissolved oxygen probe does not consume oxygen and does not need to be cleaned frequently (except when it is used in viscous liquid);
- Clean the outer surface of the sensor with tap water. If there is still debris left, wipe it with a wet soft cloth. For some stubborn dirt, add some household detergent in tap water to clean it;
- Cleaning of the outer surface of the fluorescent cap: remove the protective cover at the front end of the sensor, wash the dirt on the light window of the sensor with clean water, and finally cover the cover; If it is necessary to wipe, please use a soft cloth to wipe gently, and do not scratch hard, otherwise once the fluorescent film is scratched or scratched, the sensor will not work normally;
- Cleaning of the inner surface of the fluorescent cap: If water vapor or dust invades the inside of the fluorescent cap, the cleaning steps are as follows: (1) Take down the fluorescent cap (2) Rinse the inner surface of the fluorescent cap with tap water (3) For dirt containing fat and oil, clean it with warm water with household detergent (4) Rinse the inner surface of the fluorescent cap with deionized water (5) Wipe all surfaces gently with a clean lint free cloth, Put it in a dry place to let the water evaporate completely;
- Check the cable of the sensor: the cable shall not be tightened during normal operation, otherwise the wire inside the cable may break, causing the sensor to fail to work normally;
- Daily storage of fluorescent cap: when not in use, put it in the protective cover with a wet sponge, and regularly check and replenish water to keep the fluorescent film wet for a long time. If the head of the fluorescent cap of the sensor is dry for a long time, the measurement results will drift, and it is necessary to soak in water for 48 hours before continuing to work.
- Check whether the housing of the sensor is damaged due to corrosion or other reasons;
- It is recommended to replace the fluorescent cap once a year.

Calibration period

- It is recommended to check and calibrate the sensor once a month (or determine the calibration and maintenance cycle according to the requirements of the local competent department for measurement accuracy and the on-site water quality environment)
- Maintenance, the more frequent the correction, the more effective and accurate the test

Calibration solution method

- Preparation of zero point standard solution: prepare a beaker, pour 200mL of distilled water into the beaker, add anhydrous sodium sulfite, stir while adding, and wait until the anhydrous sodium sulfite is insoluble and solid crystals appear, then the standard solution is close to zero oxygen.
- 100% oxygen environment preparation: prepare a beaker, pour 200mL pure water (or distilled water) into the beaker, add the air pump, and fully expose the solution to air (at least 30 minutes) Note: if the site conditions do not allow it, the sensor can also be directly put into the air (the calibration accuracy will be biased).

Matters need attention

- Before operation, please disperse the cables to avoid winding, knotting, etc
- Prevent the inner surface of the fluorescent cap from being exposed to the sun
- Please do not touch the fluorescent film
- Avoid directly applying any mechanical stress (pressure, scratch, etc.) to the fluorescent film during use
- Note: Improper storage will lead to shortened probe life and inaccurate measurement

Application

It is widely used in laboratories, aquaculture, electric power, chemical industry, environmental protection, food, tap water, seawater and other scenes.

Ordering Guide

- PSS-332012 sensor is a sensor only, it needs to use with WxS terminals to combine to different product series; On the basis of the combination, multiple PSS sensors can be loaded through the Multiple Purpose Interface (MPI) of the intelligent IoT terminal.
- According to the specific scenario of use case, the enclosure and antenna of intelligent IoT terminal will be replaced to ensure the product quality and performance.
- PSS sensors can be integrated with the WxS terminal via the MPI interface to form different product series.
- Example of products are as follows:

  - WxS7800-332012 WiFi Series Aquaculture ODO Smart Sensor & RTU 2-in-1 Terminal
  - WxS8800-332012 LoRaWAN Series Aquaculture ODO Smart Sensor & RTU 2-in-1 Terminal
  - WxS9800-332012 NB-IoT (China) Series Aquaculture ODO Smart Sensor & RTU 2-in-1 Terminal
  - WxS9900-332012 NB-IoT (Global) Series Aquaculture ODO Smart Sensor & RTU 2-in-1 Terminal
  - WxSC800-332012 LTE Cat1 Series Aquaculture ODO Smart Sensor & RTU 2-in-1 Terminal
  - WxSC900-332012 LTE Cat1 w/GPS Series Aquaculture ODO Smart Sensor & RTU 2-in-1 Terminal
  - WxSD800-332012 LTE Cat4 Series Aquaculture ODO Smart Sensor & RTU 2-in-1 Terminal
  - CxS1800-332012 Ethernet (RJ45) Series Aquaculture ODO Smart Sensor & RTU 2-in-1 Terminal