

PSS-332022

Optical Chlorophyll Sensor

Related Products

Product No.	Interf.	Descriptions
PSS-232011	RS485	Water Quality Residue 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 Fluorescence Principle, IP68, ASTM D888-09)
PSS-332012	RS485	Aquaculture ODO (Optical Fluorescence 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 Algae (Fresh Water, Fluorescence, Self Cleaning, Immersible,IP68)
PSS-332032	RS485	Blue Green Algae (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-332022 The portable chlorophyll digital sensor adopts advanced optical fluorescence technology and optical fiber structure. It has extremely low power consumption, very stable testing performance, and is small and light. Direct measurement and real-time control of the latest water quality state are simpler than traditional analysis methods. It can be used for the research, investigation and monitoring of rivers, lakes, ponds, marine surveys, aquaculture, drinking water sources, algae and phytoplankton.

Detection principle

Fluorescence analysis refers to the qualitative or quantitative analysis of fluorescence that can reflect the characteristics of certain substances when they are in the excited state after being irradiated by ultraviolet light and the excited molecules undergo a collision and emission de excitation process.

Product features

- ❖ Intelligent sensor detection item: chlorophyll
- ❖ 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
- ❖ Advanced fluorescence sensing technology
- ❖ Optical fiber structure can reduce the influence of stray light on measurement



Product parameters

Parameters	
Monitoring content	Chlorophyll
Detection principle	Fluorimetry
Measuring range	0~4,000ug/L or 0~100RFU
Accuracy	± 5% or 0.5ug/L whichever is greater
Resolution	0.01ug/L
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	10m underwater
Weight	1.5kg (probe part)
Size	Φ22mm*120mm (probe size length * diameter)
Power	
Power	5-12V DC

Sensor installation

- ❖ The sensor is recommended to be installed vertically with the electrode measuring light window facing downward. The sensor caused by water flow shall not impact the wall or other water conservancy facilities. If the water flow is very fast, please fix the sensor
- ❖ Considering the influence of water level, the sensor should be installed below 30cm of the lowest water level and ensure that the measuring window is more than 10cm from the bottom or obstacles
- ❖ The sensor shall be installed at the position without bubbles in the water, as far away from the aeration port as possible

Maintenance method

- ❖ Maintenance method:
 - 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;
 - External surface of the measuring window: clean the external surface of the sensor with tap water. For some stubborn dirt, traditional cleaner and soft cloth can be used for cleaning;

- 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;
- Check the cleaning brush: check whether the brush cover can effectively contact the light window, whether it rotates normally, and whether it is loose; If the window surface cannot be scratched due to severe wear, replace it; if the rotary brush is loose, retighten it;
- If it has been used continuously for 18 months, it is necessary to return to the factory to replace the dynamic sealing device.

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

- ❖ Weigh 0.100g rhodamine B (CAS: 81-88-9) solid, dissolve it in deionized water, and reach a constant volume of 1L to obtain 100mg/L rhodamine B solution;
- ❖ Dilute the solution in step 1 according to the required concentration. For example, 5ml of 100mg/L rhodamine B solution is weighed, dissolved in deionized water, and the constant volume is 1L to obtain 0.5mg/L rhodamine B solution.
- ❖ Rhodamine B solution 0.5mg/L - temperature - chlorophyll corresponding table

Temperature(°C)	30	28	26	24	22	20	18	16	14	12	10	8
Chlorophyll (ug/L)	265	280	290	300	317.6	328	345.6	363	372.8	380.4	392	400

Matters need attention

- ❖ Before operation, please disperse the cables to avoid winding, knotting, etc
- ❖ The probe contains sensitive optical and electronic components. Make sure that the probe is not subjected to severe mechanical impact. There are no parts requiring user maintenance inside the probe; Please do not touch the fluorescent film
- ❖ The self-cleaning chlorophyll sensor cleaning brush is equipped with a reducer motor inside. Under no circumstances can the cleaning brush be rotated by external force or be hindered from rotating. Large external force factors will cause damage to the reduction motor.

Application

It is widely used for the research, investigation and monitoring of rivers, lakes, ponds, marine surveys, aquaculture, drinking water sources, algae and phytoplankton.

Ordering Guide

- ❖ PSS-332022 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:
 - WxS7800-332022 WiFi Series Optical Chlorophyll Smart Sensor & RTU 2-in-1 Terminal
 - WxS8800-332022 LoRaWAN Series Optical Chlorophyll Smart Sensor & RTU 2-in-1 Terminal
 - WxS9800-332022 NB-IoT (China) Series Optical Chlorophyll Smart Sensor & RTU 2-in-1 Terminal
 - WxS9900-332022 NB-IoT (Global) Series Optical Chlorophyll Smart Sensor & RTU 2-in-1 Terminal
 - WxSC800-332022 LTE Cat1 Series Optical Chlorophyll Smart Sensor & RTU 2-in-1 Terminal
 - WxSC900-332022 LTE Cat1 w/GPS Series Optical Chlorophyll Smart Sensor & RTU 2-in-1 Terminal
 - WxSD800-332022 LTE Cat4 Series Optical Chlorophyll Smart Sensor & RTU 2-in-1 Terminal
 - CxS1800-332022 Ethernet (RJ45) Series Optical Chlorophyll Smart Sensor & RTU 2-in-1 Terminal