Smart COD sensor
Specifications

Product model: SDW016

Version: V3.1

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Contents

Overview

SDW016 is an intelligent COD sensor based on the principle of deep ultraviolet (UVC) absorption method for the determination of organic matter in water and integrated variable optical path technology . It adopts RS485 communication interface and standard ModBus/RTU communication protocol.

The SDW016 intelligent COD sensor can quickly (seconds) measure water quality parameters such as COD , turbidity, and water temperature, and convert them into parameters such as BOD , TOC , and permanganate index to reflect changes in water quality in real time. Equipped with variable optical length technology, it can automatically change the range to adapt to the detection of water bodies with different concentrations. The variable optical path function combined with the optical path difference algorithm can eliminate the influence of window contamination and increase the accuracy and reliability of measurement.

Features

- Green and pollution-free: UVC absorption method for the determination of organic matter (COD) in water is a long-

term proven international general technology, no chemical reagents, no secondary pollution, direct immersion measurement.

- Accurate data: With the function of variable optical path, the optical path can be changed automatically without manual adjustment of the structure, thereby changing the range to adapt to water bodies with different concentrations; the variable optical path function combined with the optical path difference algorithm can eliminate the residual attachment of the cleaning brush, Interference caused by scratched and worn windows, etc. At the same time, it adopts mature cold light source UVC LED , which has small data drift, and UVC&VIS dual-wavelength technology can effectively eliminate the influence of turbidity and chromaticity.
- Maintenance-free: standard automatic cleaning brush can clean most window attachments. Self-cleaning brushes and variable optical path technology combine for true maintenance-free.
- Light source compensation: Highly integrated optical design, dual-wavelength beam coaxial output, simultaneous realization of beam sampling optical path and setting of light intensity monitoring sensor, real-time compensation for light

source intensity changes, effectively eliminating light source temperature drift, its own micro-defects and aging, etc. The effect of light intensity fluctuations.

- level monitoring: fast response, realizes second-level monitoring, and can quickly capture pollution events.
- Strong adaptability: corrosion-resistant shell, IP68 , can operate underwater for a long time.

Scope of application

It is suitable for environmental monitoring, drinking water, sewage, industrial monitoring, and can be installed in small monitoring stations, buoy stations, pipe networks, underground tube wells and other devices.

Technical Indicators

No.	Project	Parameter
1	Measurement parameters	COD , turbidity, water temperature
2	working principle	COD : dual-wavelength ultraviolet absorption method
		Turbidity: Light Scattering Method
		Water temperature: thermal resistance

3	Measuring range and resolution	COD : 0~200 mg/L equiv.KHP
		Turbidity: 0~200 NTU (0.1NTU)
		Water temperature: 0~50℃(0.1℃)
4	measurement accuracy	CODcr : ±5%FS
		Turbidity: ±3%FS
		Water temperature: ±0.5℃
6	range of working temperature	1-40℃ (underwater temperature)
7	Response time	Fastest 1s
8	maintenance-free technology	Automatic cleaning brush, optical path difference technology
9	water proof	IP68 , < 10m
10	size	D: 45mm , L: 253mm ,
11	Communication Interface	RS-485 , Modbus-RTU
12	Operating Voltage	DC 12V±10%
13	average power consumption	0.4W
14	Cleaning brush motor starts Maximum	1.6A (<1mS)

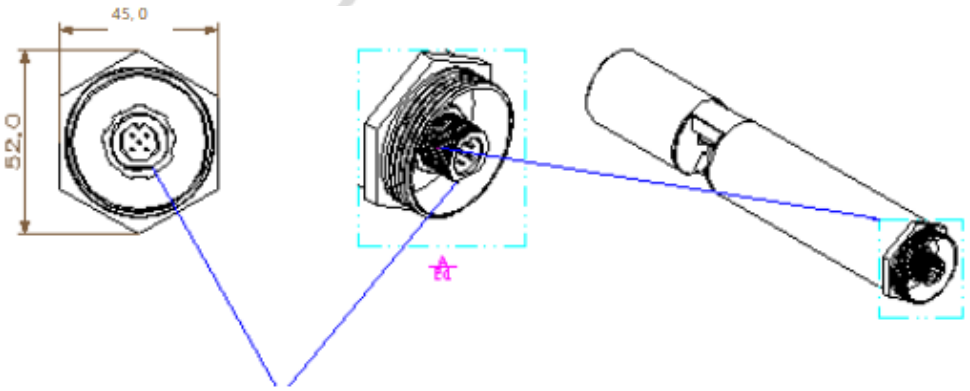
	instantaneous current	
15	life	3 years and above
16	warranty	1 year

Interface description

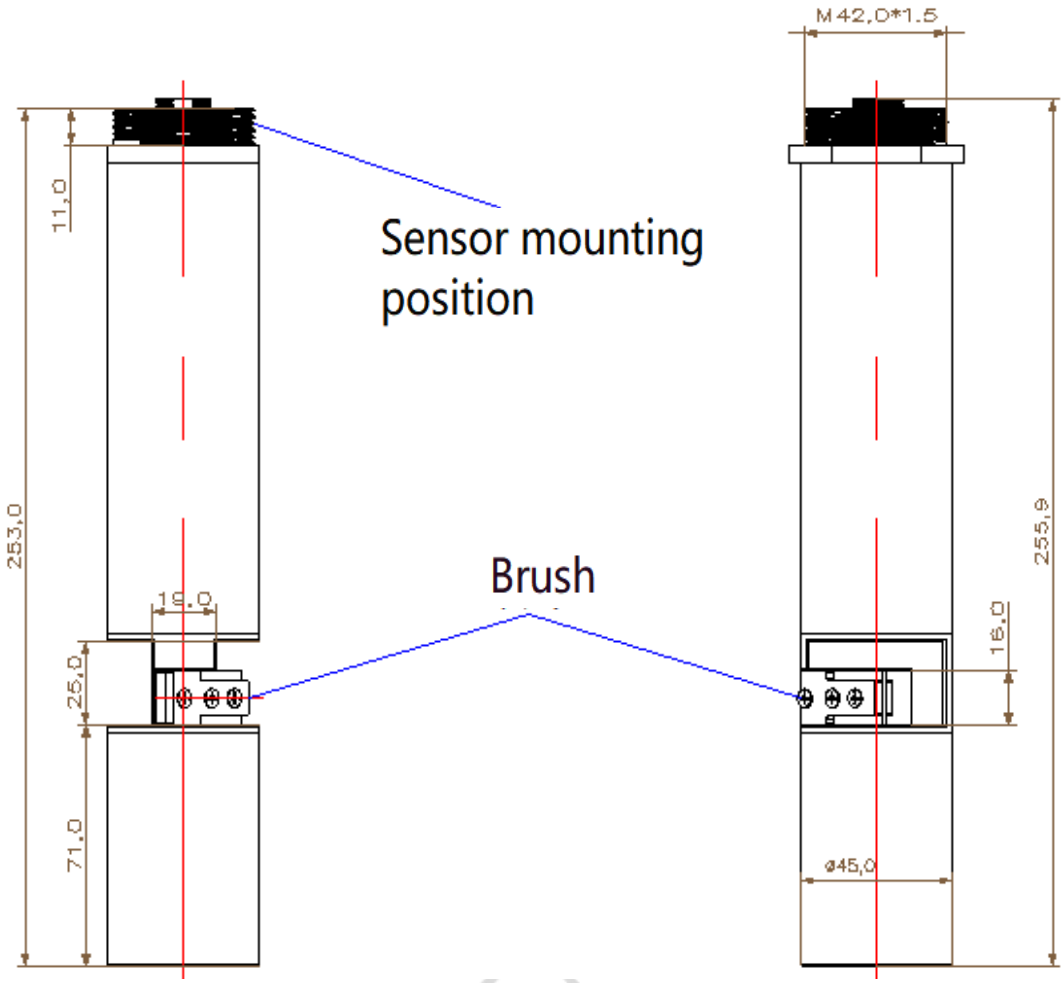
PIN	Color	Name	Remark
1	yellow	A+	A+ of RS485 communication , 485 standard level
2	blue	B-	B-, 485 standard level of RS485 communication
3	red	12V DC	12V DC power supply
4	black	GND	ground wire

Product specification

(unit: MM)



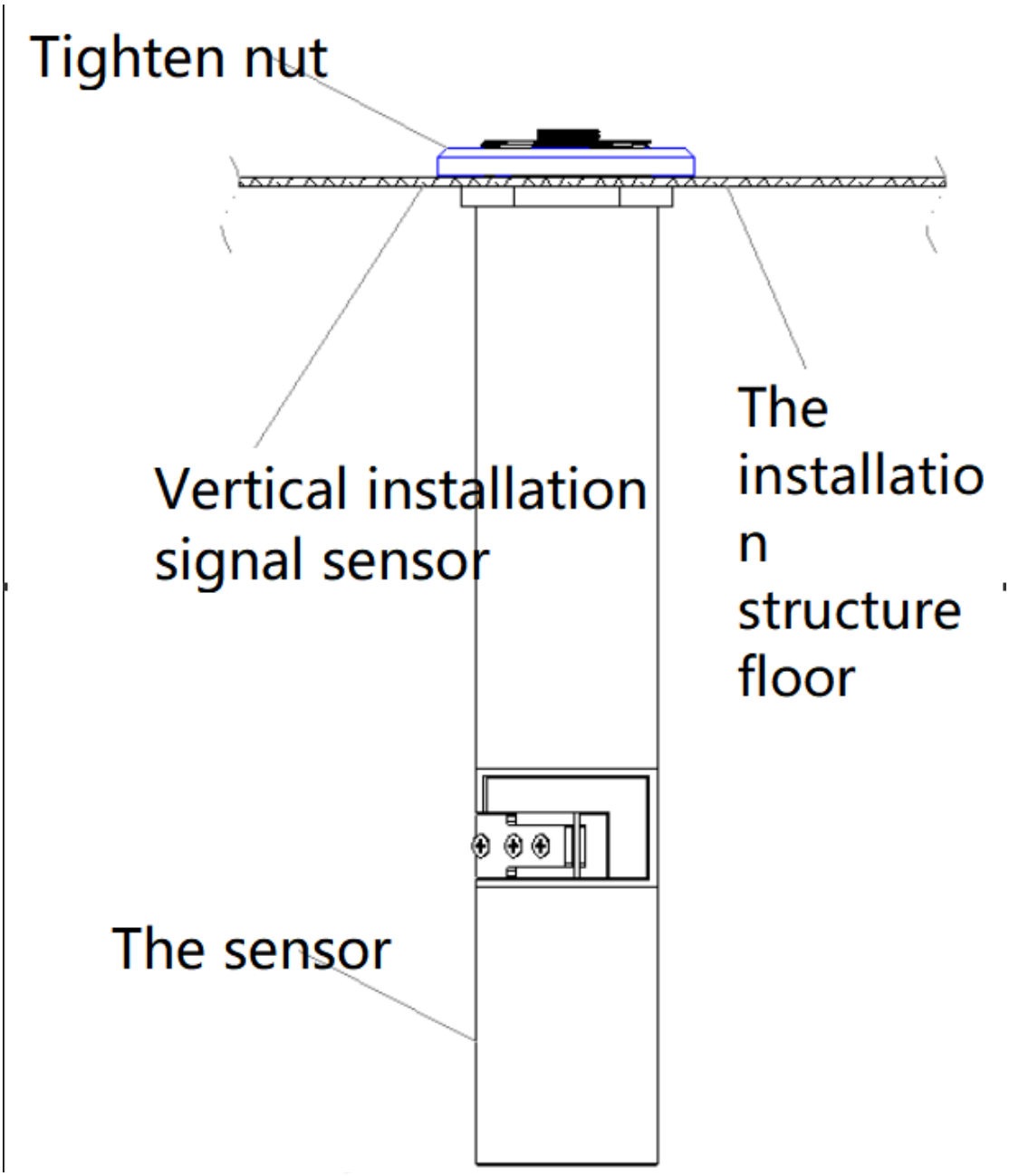
5 pin cable terminal interface



Installation mode

Method 1: Under normal relatively clean water quality environment (optimized installation)

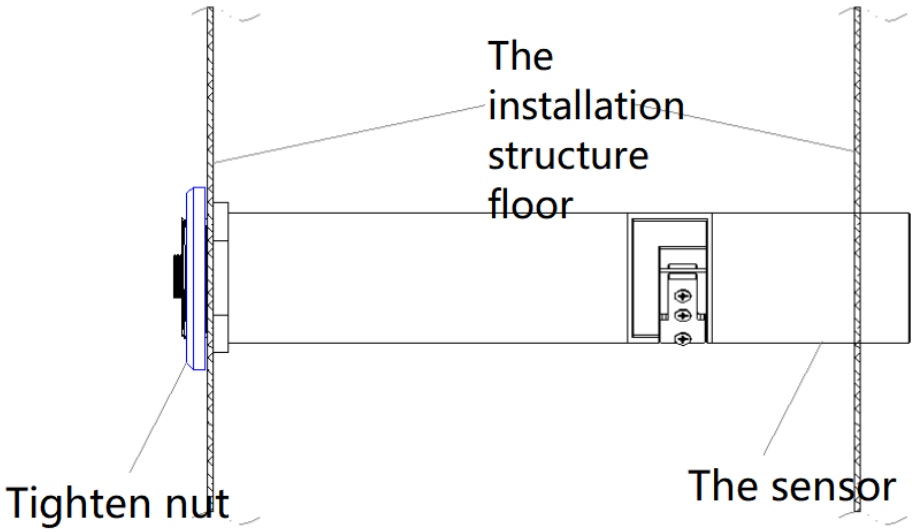
In a general environment, the installation method of the device is shown in the figure below:



Method 2: Under the relatively deteriorating water quality environment

Deterioration of water quality Horizontal installation (**the opening of the detection or cleaning area is vertically facing downwards**), avoiding the precipitation of substances in the

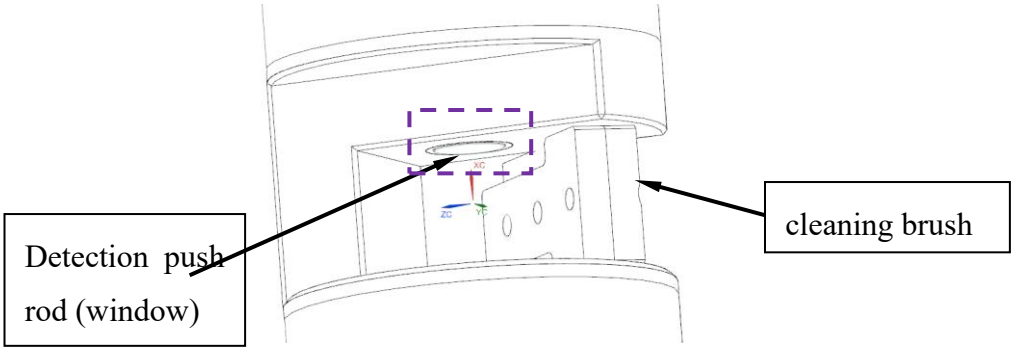
water on the lens, which is beneficial to prolong the service life of the lens and increase the effectiveness of brush cleaning.



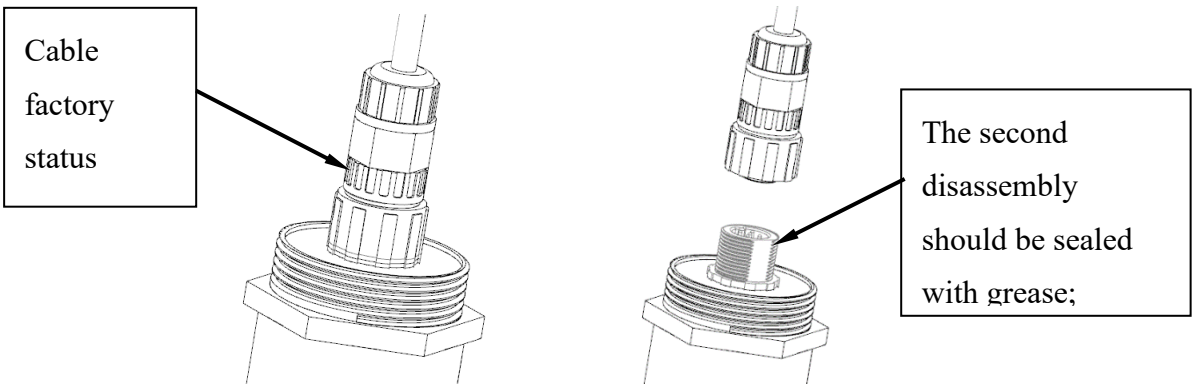
Level sensor installation

Installation Precautions:

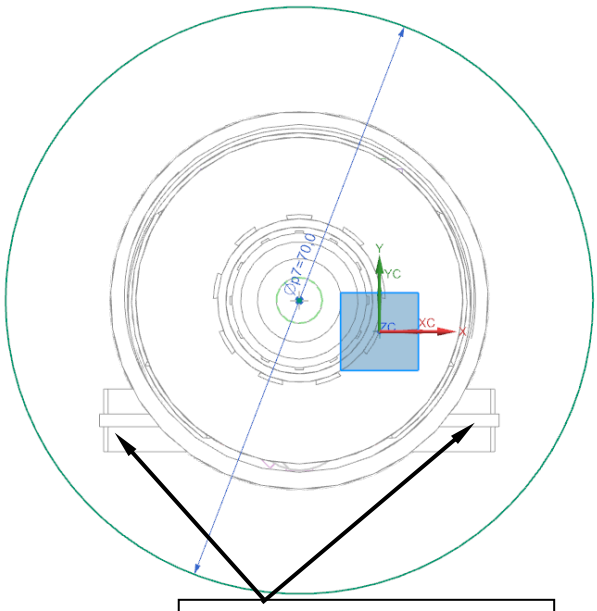
1. When the sensor is powered on, it is strictly forbidden to swing the brush manually, otherwise there will be a risk of collision between the push rod and the brush structure (**fatal risk, the sensor may be directly damaged after the impact, it cannot be used, and must be returned to the factory for repair**), and the detection window lens will burst. The optical path structure is directly damaged; when the power is off, try not to swing the brush at will, otherwise the structure will cause abnormalities in the mechanism or motor.



2. The sensor is factory-connected with wires, and the waterproof connector has been sealed and waterproofed at the factory. When disassembling for the second time, please use sealing fluorine-based grease for the second sealing treatment (**and apply an appropriate amount of sealing grease on the thread**) , otherwise, the sensor will Working underwater all the year round, there will be a risk of water seepage at the interface, which will affect the service life of the sensor, or cause the risk of corrosion of the link terminal.



3. Precautions for installation of protective equipment around the sensor. During installation, enough space should be reserved in the working area of the sensor. Otherwise, the function of the brush will fail, and the cleaning effect of the brush will decrease, which will accelerate the wear and aging of the lens of the window and cause equipment damage. The service life is affected; (the working area of the brush swings at an angle of 180 degrees, and peripheral equipment is strictly prohibited from interfering with the brush. It is recommended that the working area be a working area with a diameter of 70mm).



Boundary working state of brush swing;

Detailed list of equipment and accessories

NO.	Name	Quantity	Remark
1	the host	1	
2	5PIN wire	1	cable 3 meters (can be customized)
3	Vertical Panel Mounting Nuts	1	M42*1.5
4	User's manual	1	

Equipment scrapped

Waste electrical and electronic products should meet the national requirements for comprehensive utilization of resources, environmental protection, labor safety, and protection of human health. It is recommended that they be handed over to processors with qualifications for recycling electrical and electronic products.

Contact information

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