SPS-F-C Series Full Spectrum Sensor Datasheet

Product description

The SPS-F multi-parameter sensor adopts the measurement principle of UV-Vis absorption spectroscopy to monitor the "light pattern" information in the wavelength range of 200-800 nm online in real time, and realize multi-parameter measurement through AI algorithm, including: O_3, COD, TOC, DOC, BOD, TUR, TSS, nitrate, chroma, etc. SPS-F-C series full-spectrum adopts configurable measuring range design, measuring range 40 mm-150 mm continuous can be set. Support automatic window cleaning. Can be applied to a variety of water body water quality measurement, support in-situ installation, flow-through installation.

It is mainly used for real-time online monitoring of water quality in waterworks, water distribution network and secondary water supply, as well as for online monitoring of surface water and groundwater quality.

Application scenarios

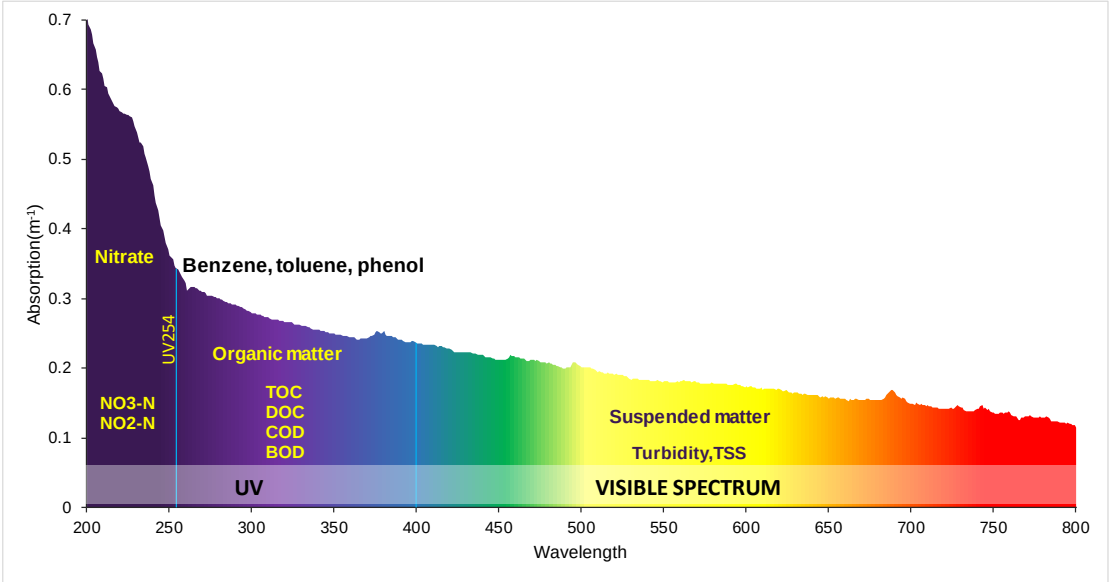
- Monitoring of water in and out of sewage treatment plant
- Water quality monitoring in the treatment process of the sewage treatment plant
- Water quality monitoring of urban pipe network
- Basin, surface water, groundwater monitoring
- Tap water and pipe network monitoring
- Industrial water monitoring

Features

- 200~800nm full spectrum measurement with more water samples spectral information
- Water pattern recognition, which identifies the type of water sample based on the water pattern (fingerprint).
- Optical in-situ measurement, no chemical reagent consumption, environmentally friendly
- Quick measurement, the shortest measurement cycle is 1 second
- The maintenance-free period is long, and the sensor has its own cleaning brush
- RS485 communication mode, can quickly connect to the meter
- IP68 protection grade, can be used in harsh environment
- Low power consumption, can be powered by battery, convenient for equipment deployment

Principle

Using spectral absorption method, the wavelength range is 200 nm-800 nm. According to the difference in the absorbance curves of different substances, the SPS-F-C full-spectrum sensor automatically compensates for the influence of organic matter/suspended matter.



Specifications

Sensor information					
Model No.	**Serial No.**	**Gap**	**Dimension /mm**	**Material**	**Weight /kg**
SPS-F-C	02-5x-xxxxx	40 mm~150 mm	φ66x 536	AISI 316L	4.0

Note: The “x” in the Serial No. represents a number (0~9).

Basical parameters	
Measuring principle	Ultraviolet-visible spectrum measuring range 200 nm~800 nm
Automatic compensation cross sensitivities	Organic matter/solid particles/turbidity
Power requirements	DC+12 V to +24 V
Measurement period	10 to 65535 seconds
Operating temperature	0 to 50 °C
Pressure	5 bar (87 psi) maximum compared to air, 2 to 40 °C (35.6 to 104 °F)
Power consumption	<8 W
Cleaning method	Cleaning brush
IP rating	IP68
Sample flow rate	<3 m/s

Communication interface	
Hardware interface	RS485
Protocol	Modbus RTU
Wireless communication	WiFi/Bluetooth

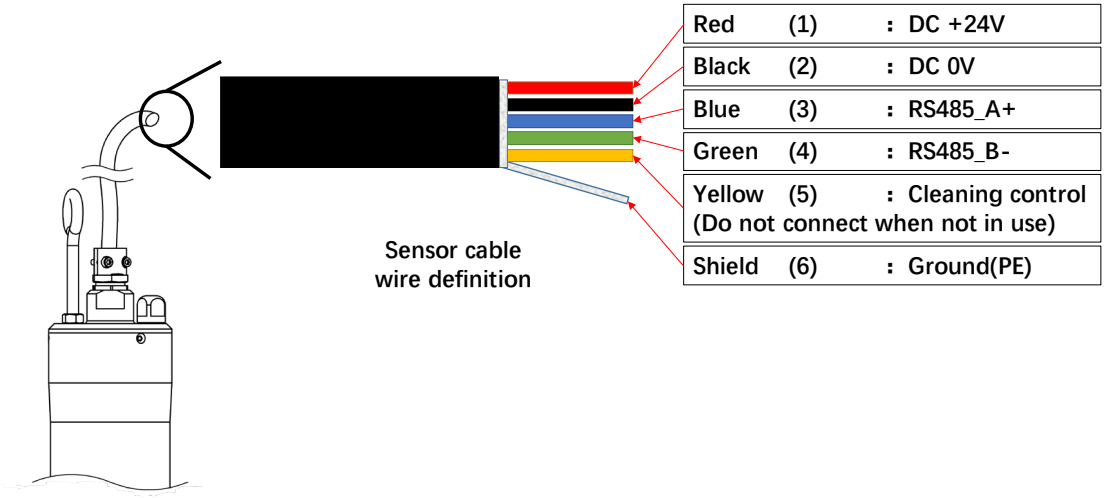
Parameter information				
Name	**Sensor**	**Range**	**Resolution**	**Accuracy (Standard solution)**
COD	80 mm (Typical)	0-15 mg/L	0.01 mg/L	±0.5 mg/L
	40 mm (Min)	0-50 mg/L	0.01 mg/L	±3% or ±1 mg/L
TUR	80 mm (Typical)	0-15 NTU	0.01 NTU	±1 NTU
	40 mm (Min)	0-50 NTU	0.01 NTU	±5% or ±1 NTU
NO3-N	80 mm (Typical)	0-0.5 mg/L	0.01 mg/L	±0.05 mg/L
	40 mm (Min)	0-2.5 mg/L	0.01 mg/L	±0.1 mg/L
O_3	100 mm (Typical)	0-0.5 mg/L	0.001 mg/L	±5% F.S.
	40 mm (Min)	0-1.5 mg/L	0.01 mg/L	±5% F.S.
TOC	80 mm (Typical)	0-6 mg/L	0.01 mg/L	±0.3 mg/L
	40 mm (Min)	0-10 mg/L	0.01 mg/L	±0.5 mg/L
Chroma	80 mm (Typical)	0-15 PCU	1 PCU	±10% F.S.
	40 mm (Min)	0-100 PCU	1 PCU	±10% F.S.
Temperature	SPS-F-C	0-60 °C	0.0625 °C	±1 °C
Note: The “x” in the Serial No. represents a number (0~9).				

Product guarantee	
Certification	CE/RoHS
Warranty	One year

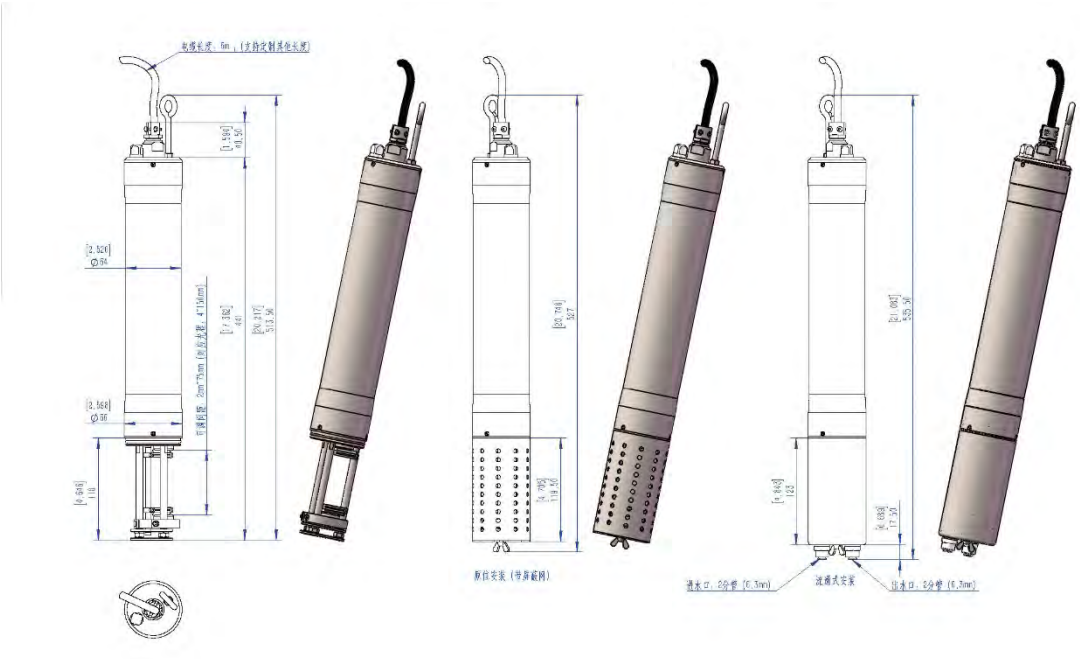
In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual. The manufacturer reserves the right to make changes in this manual and the products it describes at any time, without notice or obligation.

Interface definition

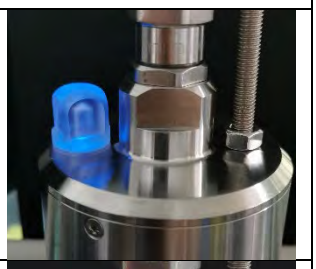
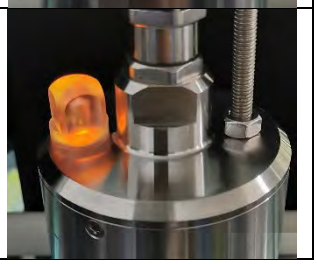
The electrical connection of SPS-F-C series sensor adopts 5-wire + shielding interface design, anti-corrosion cable, standard 6m (wire length can be customized).



Dimensions



Sensor status

LED status (Flashing frequency: flashing for 0.5s, off for 0.5s)			illustrate	Indicator picture
Red LED	**Green LED**	**Blue LED**		
×	×	×	Lights off The sensor is not connected or faulty	
×	×	√	**Blue light** Measurement is normal Network connected	
×	√	×	**Green light** Measurement is normal The network is not connected	
√	×	×	**Red light** Measurement abnormal The network is not connected	
√	√	×	**Orange light** Measurement abnormal Network connected	

APP usage information

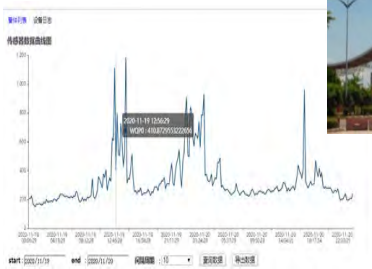
SPS-F-C series full-spectrum water quality sensor supports on-site use of mobile phone SPS-App to connect the sensor through Bluetooth for parameter reading and debugging. Please refer to the "SPS-App User Manual" for specific usage. For more information go to:http://wqs.googolcjit.com:510/firmware/wqs-app/bin/WQS-App.apk to download the mobile client. Or use your browser to scan the QR code below to download.

Applications

Industrial Wastewater Monitoring

Pain points

- High cost of operation and maintenance of chemical online equipment
- Excessive pollutant discharge
- Processing costs remain high



Solution

- Real-time monitoring of water outlet or water inlet

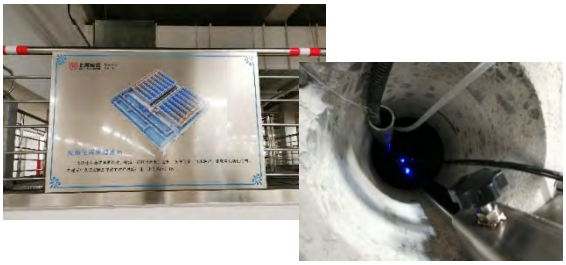
Sewage treatment process monitoring

Pain points

- Unknown status of biochemical operating system
- Abnormalities cannot be handled in time
- High cost of operation and maintenance of chemical online equipment
- Equipment operation energy consumption and chemical consumption cost are high and uncontrollable

Solution

- Real-time monitoring of the whole process
- Optical sensor online monitoring, low operating cost and easy to use
- Add intelligent control system to make aeration and dosing precise and controllable



Sewage network monitoring

Pain points

- High-concentration sewage enters the sewage treatment system and cannot be treated in time, causing impact on the system

Solution

- Real-time monitoring of pipeline network and pre-pumping station