ATO

Suspended Solids Sensor

User Manual

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Overview

Suspended Solids Sensor adopts imported components, advanced production technology, and surface mount technology. With an IP68 waterproof rating and seawater-resistant cable, the sensor can be directly immersed in water without a protective tube, ensuring long-term stable and reliable operation with high accuracy.

The probe uses a fluorescence tracing measurement method to collect weak fluorescence signals in water, compares them with internal calibration values, and calculates the suspended solids concentration. After linear processing, the output signal is stable and highly precise.

Features

1. High stability.
2. Compact size, low power consumption, and easy to carry.
3. Low cost with high performance.
4. Long service life, convenient use, and high reliability.
5. Up to four levels of isolation, resistant to field interference, IP68 protection.
6. High-quality low-noise electrode cable, supporting signal transmission over 20 meters.
7. Excellent repeatability.
8. Not affected by ambient light.

Applications

The sensor is widely used in continuous monitoring of suspended solids in industries such as chemical fertilizer, metallurgy, pharmaceuticals, biochemistry, food, aquaculture, and HVAC circulating water treatment.

Technical Specifications

Item	Specification
Measuring range	0.5–2000 mg/L
Accuracy	±2%
Resolution	0.1 mg/L
Stability	≤1 mg/L / 24h
Output signal	RS485 (Modbus-RTU, default address: 01)
Supply voltage	12–24V DC
Operating environment	0–60℃; humidity ≤ 85% RH
Power consumption	≤0.5W

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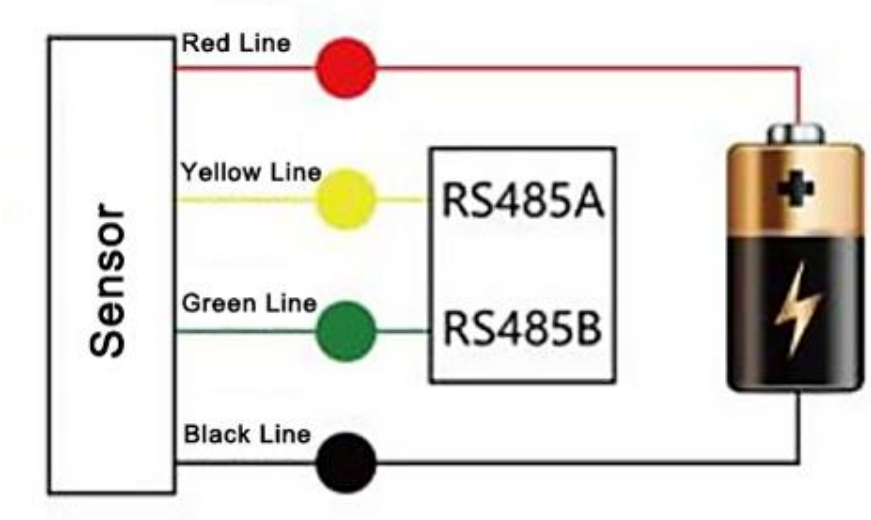
How To Use

The sensor can be connected to various devices with differential input, such as data acquisition cards, remote data modules, and other collection equipment.



Data Conversion Method

RS485 signal (default address 01):
Standard Modbus-RTU protocol, baud rate: 9600; parity: none; data bits: 8; stop bits: 1

1. Modify the address, for example: Change the address of sensor 1 to 2, and from master to slave.

Original Address	Function Code	Reserved 1	Reserved 2	Reserved 3	New Address	CRC16 Low	CRC16 High
0X01	0X06	0X00	0X50	0X00	0X02		

Note: If you forget the original address of the sensor, you can use the broadcast address 0XFE as a substitute. When using 0XFE, the host can only connect to one slave device.

2. Modify the slope, for example: Change the slope of the transmitter with address 1 to 1.200 (default is 1.000), Host → Slave

Original Address	Function Code	Address	Address	Data	Data	CRC16 Low	CRC16 High
0X01	0X06	0X00	0X53	0X04	0XB0		

If the transmitter receives correctly, the following data will be returned: Slave → Host

Original Address	Function Code	Data Length	Data	Data	CRC16 Low	CRC16 High
0X01	0X06	0X02	0X04	0XB0		

3. Modify the intercept value, for example: Change the intercept value of the transmitter with address 1 to 10 (default is 00), Host → Slave

Original Address	Function Code	Address	Address	Data	Data	CRC16 Low	CRC16 High
0X01	0X06	0X00	0X54	0X00	0X0A		

If the transmitter receives correctly, the following data will be returned: Slave → Host

Original Address	Function Code	Data Length	Data	Data	CRC16 Low	CRC16 High
0X01	0X06	0X02	0X00	0X0A		

4. Querying Data

Query the data (turbidity) of the sensor (with address 1), Host → Slave

Address	Function Code	Start Register Address High	Start Register Address Low	Register Length High	Register Length Low	CRC16 Low	CRC16 High
0X01	0X03	0X00	0X00	0X00	0X01		

If the transmitter receives correctly, the following data will be returned: Slave → Host

Address	Function Code	Data Length	Register 0 Data High	Register 0 Data Low	CRC16 Low	CRC16 High
0X01	0X03	0X02	0X1A	0X0A		

Note: The output value represents chemical concentration. Unit: ppb (ppm).

Data representation method: Convert the data into decimal and divide by 10. The resulting value indicates the chemical concentration: 666.6 ppb (ppm).

Precautions

1. To ensure accurate measurement of the electrode in the pipeline, avoid air bubbles in the measuring chamber that may cause inaccurate data.
2. Check whether the packaging is intact, and verify that the product model matches the selected model.
3. Do not connect the sensor while powered; complete the wiring, check for correctness, and then power on.
4. Do not arbitrarily modify or tamper with factory-soldered components or wires during use.
5. The sensor is a precision device. Do not disassemble it yourself. Avoid contact of sharp objects or corrosive liquids with the sensor surface to prevent product damage.