USER GUIDE FOR CDT-12A DO SENSOR

This document is applied for the following products

SKU	CDT	HW Ver.	1.0	FW Ver.	1.0
Item Code	CDT-12A	DO Sensor, 4-20mA RS485 Output, ABS, 0-20mg/L ±0.5%FS			

1. Introductions

CDT-12A Dissolved Oxygen(DO) Sensor design based on the principle of fluorescence and high performance through oxygen membrane, with short response time, measurement accuracy, stable performance, etc.It can be widely used in chemical fertilizer, metallurgy, environmental protection water treatment engineering, pharmaceutical, biochemical, food, aquaculture and water such as continuous monitoring of dissolved oxygen in the solution.

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2. Specification

Item	Technical Specification	
	DO	Temperature
Range	0-20mg/L(ppm)	0-60℃
Accuracy	±0.5%FS	±0.5℃
Resolution	0.01mg/L	0.1℃
Supply	12VDC,24VDC	
Temperature compensation	0-60℃	
Output	RS485 4-20mA	
Measuring principle	Fluorescence	
Maintenance	Every 1year to replace fluorescent cap	
Response time	<60s	
Pressure Resistance	0.3MPa	
Power consumption	<0.4W	
Operating Temperature	0-+45℃	
Cable length	5m default, other length customizable	
Ingress Protection	IP68	
Weight(probe)	0.7kg	

3.Working Process

Based on fluorescence quenching principle. Blue light shines on the fluorescent substance to excite the fluorescent substance and emit red light, because oxygen molecules can carry away energy (quenching effect), so the time and intensity of the excited red light is inversely proportional to the concentration of oxygen molecules. By measuring the phase difference between the excitation red light and the reference light, and comparing with the internal calibration value, the concentration of oxygen molecules can be calculated, and then the final value is automatically compensated by temperature and air pressure.
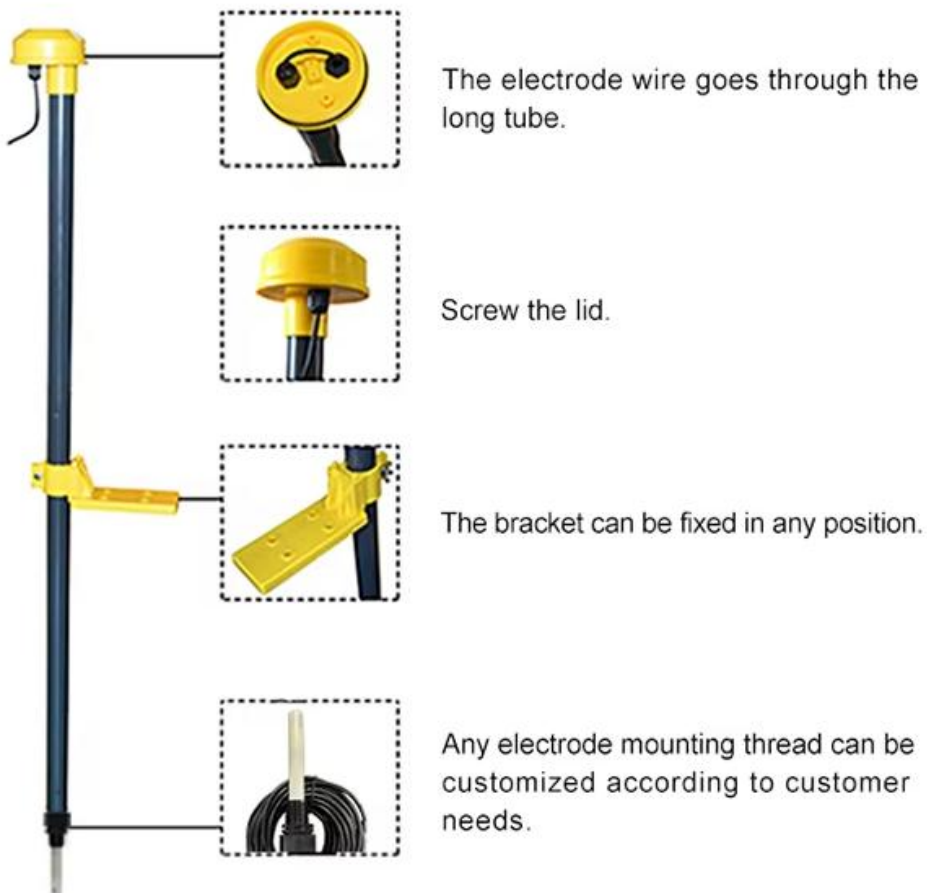
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4. Electrical Connections

Connector（cable）	RS485
Brown	V+
Black	V-
Yellow	RS485A
Blue	RS485B

5. Dimensions

6. Installation

The electrode wire goes through the long tube.

Screw the lid.

The bracket can be fixed in any position.

Any electrode mounting thread can be customized according to customer needs.

7. Communication Protocol（MODBUS）

Transmission mode: MODBUS-RTU,**Baud rate:** 9600bps,**Data bits:**8,**Stop bit:**1,**Check bit:**no

Slave address:the factory default is 01H (set according to the need,00H to FFH)

7.1 The 03H Function Code Example: Read The DO Value

Host Scan Order(slave address:0x0A)
01 <u>03 00 01</u> 00 01 D5 CA

Slave Response
01 <u>03 02</u> 00 AF DB BF

Temp.:(00AF)H=175=175*0.1=17.5℃

01 <u>03 00 02</u> 00 01 25 CA

Slave Response
01 <u>03 02</u> 00 BD 78 35

Temp.:(00BD =)H=189=189*0.01=1.89mg/L

Note:
11. All underlined is fixed bit;

12. The last two bytes is CRC check command.

Note: This product has been tested and complies with European CE requirements for EMC directive.

8. Troubleshooting

If some error occurs, such as no output or unreliable. Please disconnect the sensor first, then check if the sensor installation and connection is correct with the instruction manual.

If still not successful, please contact our company.

9. Support contacts:

Complies with applicable CE directives.

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