USER GUIDE FOR CDT-14A ORP SENSOR

This document is applied for the following products

SKU	CDT	HW Ver.	1.0	FW Ver.	1.0
Item Code	CDT-14A	ORP Sensor, 4-20mA RS485 Output, ABS, -1500mV-+1500mV			

1. Introductions

ORP sensor is simple and cost effective solution for a wide variety of waste water and process applications. This all-in-one sensor provides simultaneous measurement of ORP and temperature. The rugged Ryton body is designed for easy installation into on-line via the 3/4 inch tapered threaded connections provided on both ends of the sensor. The wide body sensors (26 mm diameter) hold four separate elements in one unbreakable Ryton body, large volume gelled electrolyte and the double junction reference system slows down depletion and poisoning extending the life time.

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2. Specification

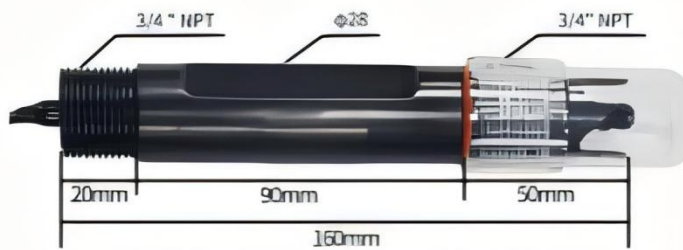| Item	Technical Specification
Measurement Principle	Electrochemical(platinum ring)
Range	-1500mV-+1500mV
Resolution	0.1mV
Accuracy	±0.5mV
Supply	7-30VDC
Response time	5s
Output	4-20mA & RS485 at the same time
Operating Environment	-10-+80℃(<0.6MPa)
Stability	≤1%/year
Maintenance	Every 1 months to clean the electrode ,every 6 months calibrated
Power consumption	<0.4W
Ingress Protection	IP68
Storage	10-60℃@20%-90%RH
Cable length	5m default,,customizable

3.Working Process

Oxidation-Reduction Potential (ORP) is used to reflect the macroscopic oxidation-reduction properties of all substances in an aqueous solution. The higher the REDOX potential, the stronger the oxidation. The lower the REDOX potential, the stronger the reducibility.
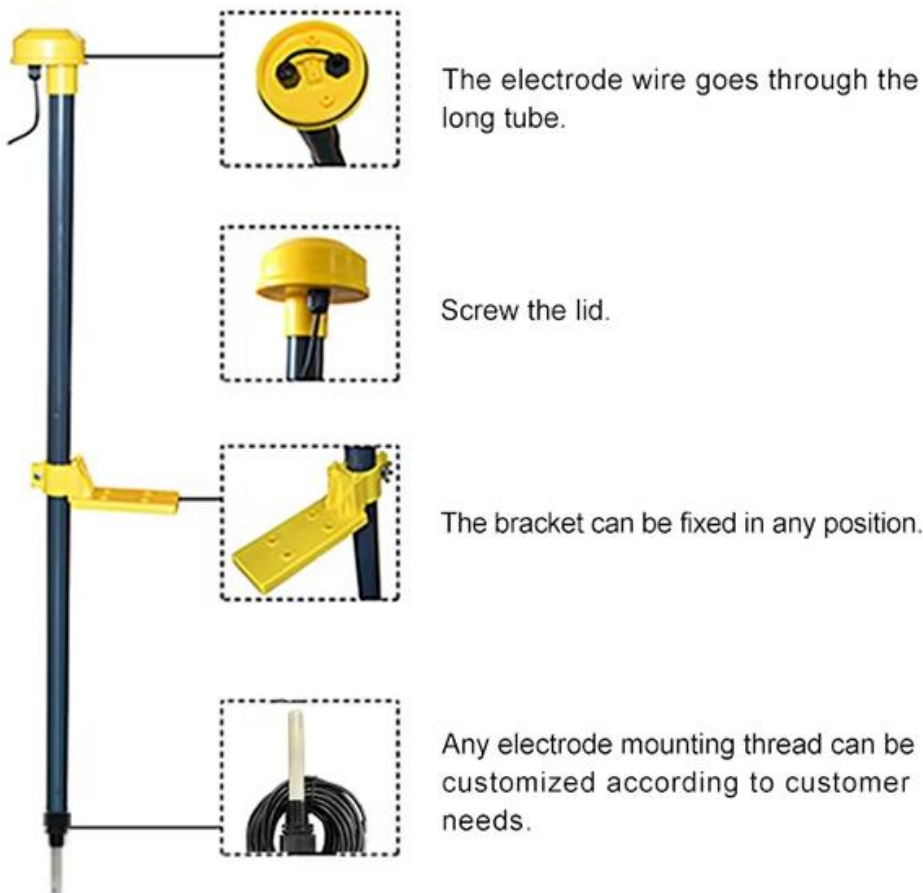
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4. Electrical Connections

Connector（cable）	Current/ Voltage	RS485
Red	V+	V+
Black	V-	V-
Yellow	Signal out	RS485A
Green	/	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 TheORP Value

Host Scan Order(slave address:0x03)

01 <u>03 00 00 00 01</u> 84 0A
Slave Response

01 <u>03 02</u> FC 88 F9 22
ORP:(FC 88)H=(64648)D=64648 >>64648-65536=-888mV

7.2 The 06H Function Code Example: Modify the slave address

Host Scan Order (Changed the 01H to 02H):
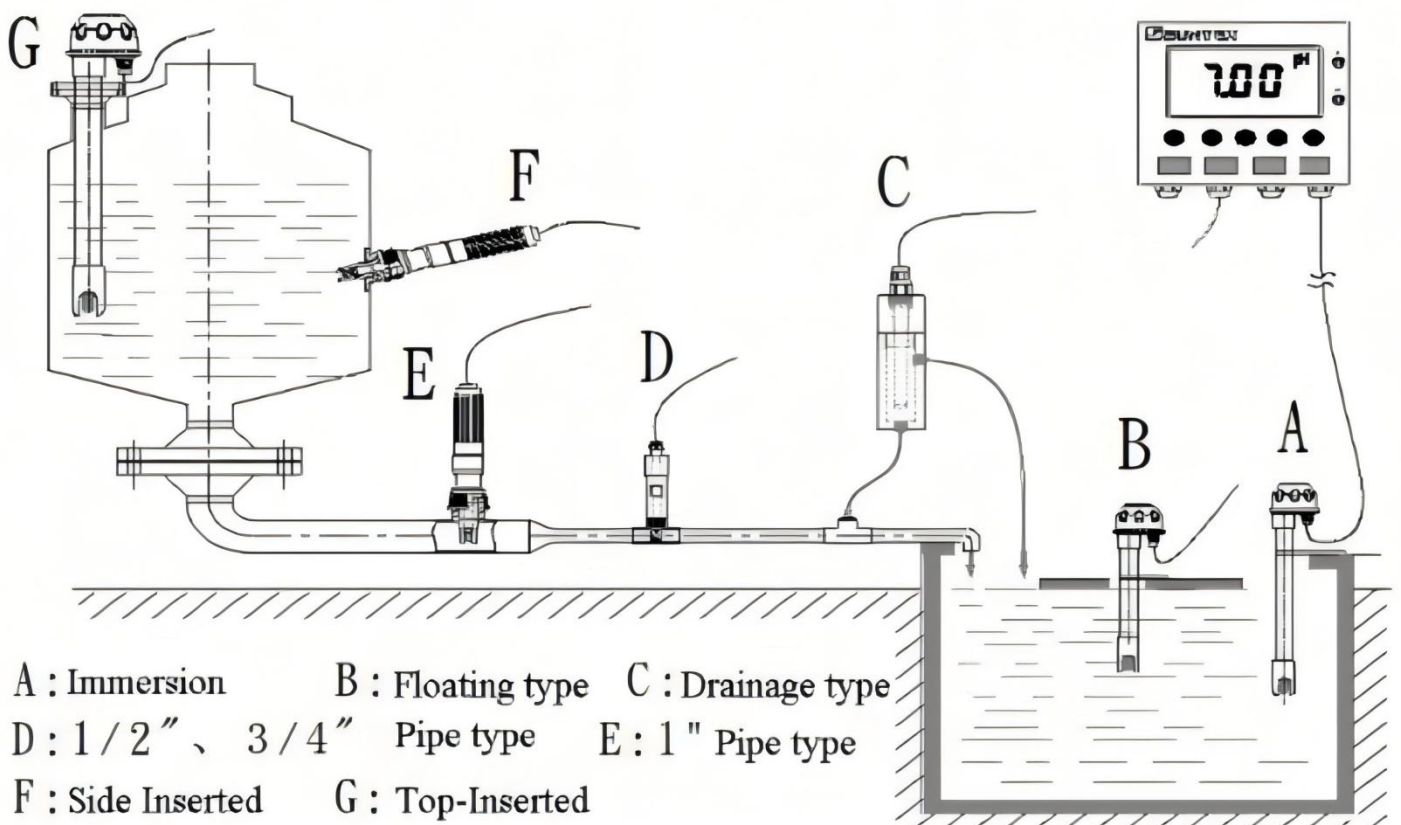
01 <u>06 00 30 </u>00 02 00804

Slave Response:

01 <u>06 00 30 </u>00 02 00804

Note:
1. All underlined is fixed bit;

2. The last two bytes is CRC check command.

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

A : Immersion   B : Floating type   C : Drainage type
D : 1/2″、 3/4″ Pipe type   E : 1″ Pipe type
F : Side Inserted   G : Top-Inserted

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: