RK500-29 Residual Chlorine Sensor User Manual

Revision Time	Reviser	Current Version	Remarks
20250828	LI	V5.0	

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User Notice

Please read this manual carefully before use to ensure safe and optimal operation. Retain this manual for future reference.

Pre-Use Instructions

- Carefully review this manual and follow all operational and safety guidelines to prevent malfunctions and hazards.

Unpacking Inspection

- Upon receipt, carefully inspect the sensor device and accessories for any shipping damage.
- If damage is detected:
- Immediately notify the manufacturer and distributor.
- Retain all packaging materials for return or replacement processing.

Parts List

Item	Quantity	Remarks
Sensor	1	
Cable	1	The length depends on the order

1. Product Introduction

RK500-29 Residual Chlorine Sensor adopts the principle of constant pressure method, which can accurately detect the concentration of residual chlorine in water. It has a rapid response time (approximately 5s), and IP68 protection level, allowing it to be used underwater. This sensor is suitable for scenarios such as drinking water treatment plants, swimming pools, and food processing circulating water systems that require strict control of residual chlorine content. It can effectively monitor the disinfection effectiveness and ensure water quality safety.

2. Product Features

- Adopting constant pressure method, providing stable, precise, and long-lasting performance
- Simultaneously outputs Modbus485 and 4-20mA
- Internal signal isolation technology, featuring strong anti-interference capability
- Excellent repeatability and thermal stability
- IP68 waterproof standard
- Low drift, small size, fast response speed

3. Specifications

Item	Technical Specification
Range	0~2ppm ,0~5ppm(typ.) ,0-10ppm
Principle	Constant voltage method
Working Temperature	0-50℃
Accuracy	±5%FS
Resolution	0.01ppm
Power	7~28VDC
Power Consumption	<0.5W
Output	4-20mA&RS485(Modbus-RTU)
Drift	<0.01ppm/48h
Main Material	ABS
Protection Class	IP68
Pressure of Work	<0.5MPa
Velocity of Flow	>15cm^3/S (Need to maintain a constant flow rate)
Cable Length	5m(default) , customizable
Installation Thread	3/4" NPT

4. Electrical Connections

Connector(Cable)	Current	RS485
Red	V+	V+
Black	V-	V-
Yellow		RS485A
Green		RS485B
White	Signal+	

5. Output Types & Formulas

Current Type	$Cl_{res}=(I-4)/(20-4)*14$

I: Transmitter output current in mA;

6. Product Dimensions

Unit:mm

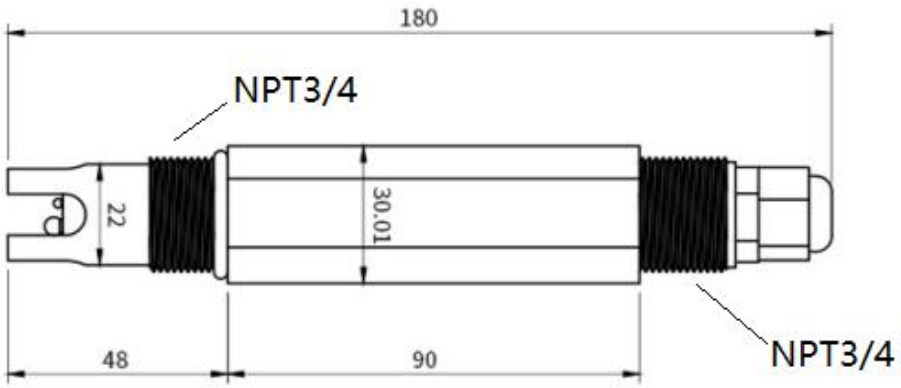

Figure 6.1
Dimension Specification

7. Communication Protocol(MODBUS-RTU)

Parameter	Value
Data Bits	8 bits
Check Bit	None
Stop Bit	1 bit
Baud Rate	9600 bps
Slave Address	0x11 (Factory Default)

7.1 Read Real-time Data

Client sends:

11 03 00 00 00 02 C69B

Return:

11 03 04 3F 68 F5 C3 613B

7.1.1 Description of Return Data Format

No.	Conception	Byte Number	Description	Remarks
1	Address block	1	Address(0x11)	0x11
2	Function code	1	Only read(0x03)	0x03
3	Number of bytes	1	0X04	4bytes
4	Data block	4	Value	0x3F68F5C3(0.91mg/L)
5	Check block	2		0x61 0x3B

7.2 Modify Slave Address(Address setting range: 01H to F7H)

Client sends:(Change slave address from 11H to 01H.)

Slave id	Function code	Address_H	Address_L	New id_H	New id_L	CRC_L	CRC_H
0x11	0x06	0x00	0x14	0x00	0x01	0x0A	0x9E

Response:

Slave id	Function code	Address_H	Address_L	New id_H	New id_L	CRC_L	CRC_H
0x11	0x06	0x00	0x14	0x00	0x01	0x0A	0x9E

Note: If you forget the original address, you should use the broadcast address(FEH) (ensure that no other devices on the bus at this time).

8. Installation Guidelines

- This type of installation is prone to fouling/deposit buildup during measurement and requires regular cleaning.
- Non-uniform measurement.
- Variations in insertion depth affect measurement values.
- The probe position must remain above sediment level.

8.1 Installation Method

Figure 8.1.1 Mounting Bracket(Length=1m)

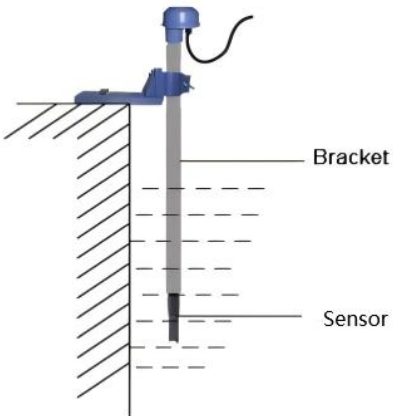

Figure 8.1.2 Probe Submersible Installation

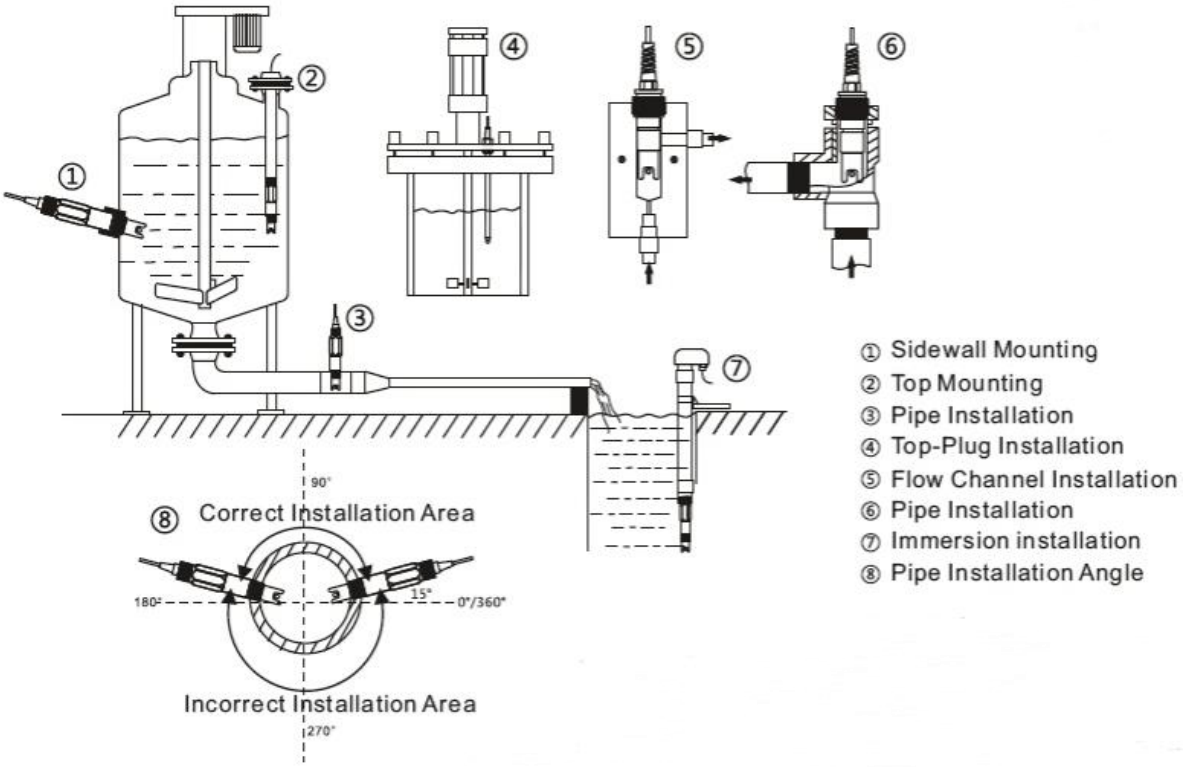

Figure 8.1.3 Typical Installation Method

9. Precautions

Package and Model Verification

- Ensure the packaging is intact and verify the sensor model and specifications match your purchased product.

Powered Wiring Prohibition

- Do not connect wires while powered. Only energize the sensor after confirming correct wiring.

Component Modification Restriction

- Do not alter factory-soldered components or pre-connected wires.

Precision Handling Requirement

The sensor is a precision device. Avoid:

- Unauthorized disassembly
- Structural components are strictly prohibited from being compressed under stress

Note: Unauthorized modifications void the warranty.

10. Troubleshooting

Incorrect Output Signals (Analog/RS232/RS485):

- Verify wiring correctness and secure connections.
- Check if the serial port is occupied or malfunctioning.
- Confirm serial port settings (baud rate, data/stop bits) match device requirements.

Persistent Issues:

- Contact the manufacturer if the above steps fail to resolve the problem.

11. Product Maintenance

Maintenance and Safety

- Regularly clean and inspect the sensor to maintain performance.
- Do not expose the sensor to extreme temperatures, moisture, or corrosive substances unless explicitly specified.
- Unauthorized disassembly, modification, or repairs may void the warranty and lead to malfunctions.

Troubleshooting Protocol

- In case of malfunction, refer to the troubleshooting section of this manual.
- Do not attempt unauthorized disassembly or repairs.
- Contact the manufacturer's after-sales department directly for technical support.

12. Warranty Terms

This product comes with a one-year warranty, starting from the date of delivery. Within twelve months, the Company shall be responsible for free repair or replacement of any failure caused by sensor quality issues (non-human damage). Fees will be charged for repairs or replacements after the warranty period expires.

CE Complies with applicable CE directives.

Manual subject to change without notice.

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