



S18-A Residual Chlorine Sensor Manual Instruction





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1. Specification

Table 1 S18-A Residual Chlorine Sensor

Specification	Details
Size	Φ25mm*135mm (length)
Weight	0.15KG
Main Material	POM
	O ring: viton ring+ rubber ring
	Cable: PVC
Waterproof Rate	IP68
Measuring Range	0-2 or 0-20mg/L
Measuring Accuracy	2%
Data Output	RS 485, Modbus
Power	DC 9~30V, current < 30mA
Storage Temperature	0~50℃
Working Temperature	0~50℃
Pressure Range	≤1bar
Installation way	Immersed
Calibration Way	One point or two point calibration
Cable Length	5m standard cable, other length can be optional;
Guarantee Period	12 months, membrane cap needs to change per 3-6 months.



2. Brief Introduction

2.1 Product Information

S18-A online residual chlorine oxygen sensor adopts polarographic residual chlorine electrode, measuring residual chlorine concentration after automatic temperature compensation with RS485, current 4-20mA or voltage 0-5V output. It can be widely used in water pipe network, water purification plant, hospital, swimming pool and other application places.

Characteristics:

- Automatic temperature compensation;
- RS485 output, standard Mod-bus protocol;
- Fast measurement speed, real on-time measuring;
- No secondary pollution, no need for chemical reagents;
- Low maintenance cost, only need to replace the membrane cap, electrolyte and other few low-cost accessories;

2.2 Safety Information

Please read this manual instruction first before open or installation or use the sensor.

Upon receipt of the instrument, pls carefully open the package and inspect the instrument and accessories for any damaged caused by transport. If any damaged is found, please inform the manufacturer and distributor immediately and keep the package for disposal.

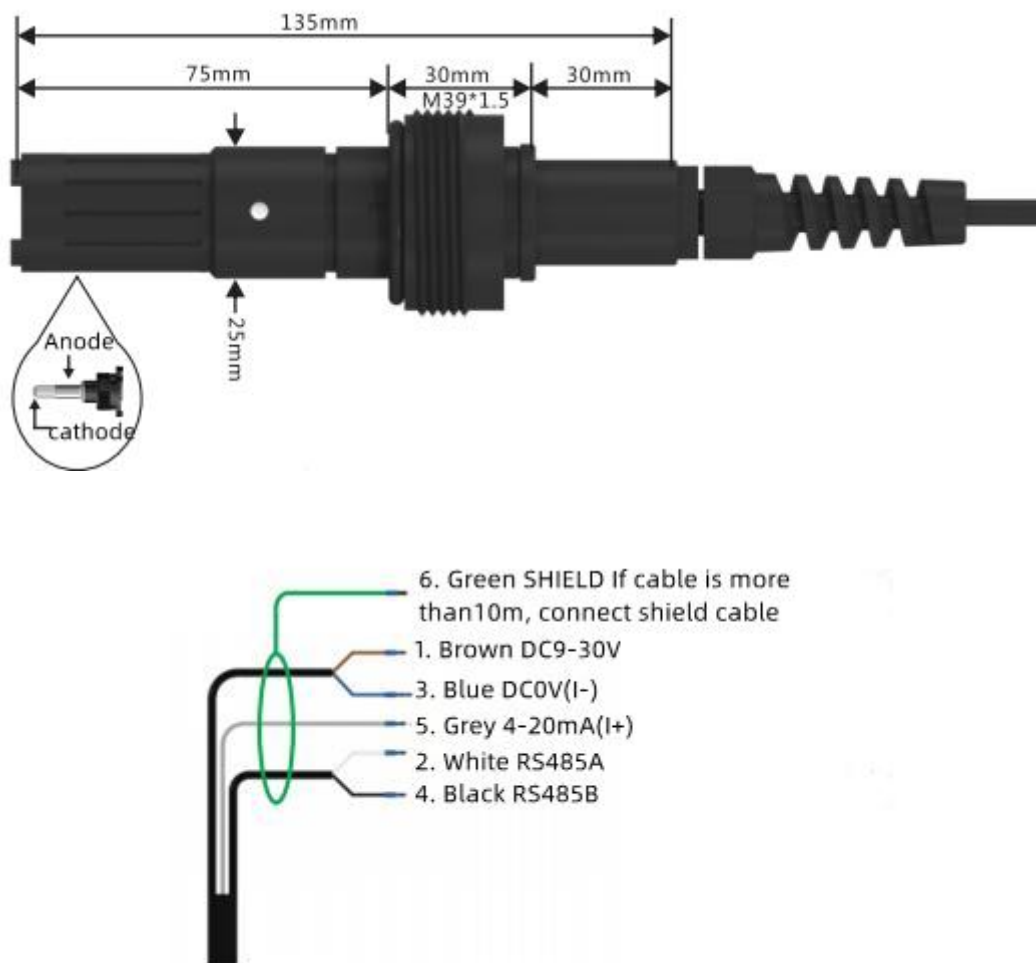
When the instrument breaks down, please contact the after-sales department of the manufacturer directly.

Do not disassemble by yourself.



3. Connection and Installation

3.1 Sensors Connection



Picture 3.1 Residual Chlorine sensor cable

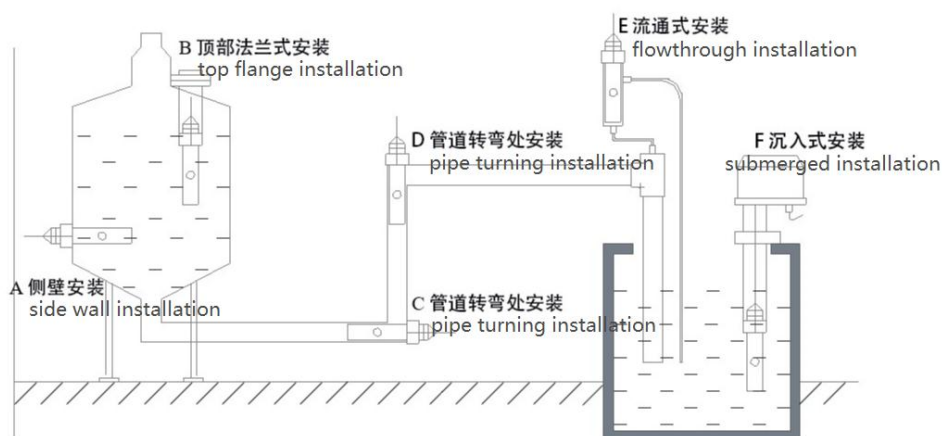
1. Brown-- Power(DC9-30V)	2. White-485A
3. Blue-DC0V(I-)	4. Black-485B
5. Grey-4-20mA (I+)	6. Green-Shield



Notice: Sensors can be only installed in safety places.

3.2 Installation Methods

When install the sensor, it is necessary to carefully select the installation site and evaluate the installation method, so as not to cause distortion of the measurement data.



Picture 3.2 Regular Installation ways

Common Attentions

- 1) When the sensor is used for the first time, it should be polarized for at least 6 hours. To change the membrane cap or electrolyte, polarize for 6 hours;
- 2) Sensor electrode should be installed in the pipeline with a stable flow rate (15-30L/h) and not easy to produce bubbles, can be installed in the way of side-flow, so as to avoid inaccurate measurement;
- 3) Please keep the measuring part of the electrode clean during installation. DO not touch the surface directly with your hands or unclean objects. Once touched by oil, grease and glue objects, accurate value cannot be measured for a long time.
- 4) Sensor electrode is a precision measuring part. Any strong acid and alkali cleaning, soaking and mechanical scraping should be avoided, all these operations will lead to changes in the electrode constant and affect the measuring accuracy of the sensor.
- 5) Measurement signal is weak electrical signal, the cable should not be connected with the power or control line to avoid interference to the measurement;
- 6) The cable is a special, if need to be extended, please make an agreement with the manufacturer in advance to avoid any error measurement.



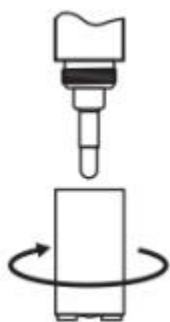
4. Maintenance and Serving

In order to obtain the best measurement results, the sensors need to be maintained regularly. The maintenance mainly includes the cleaning of the sensor, checking whether the sensor is damaged and regular calculation. You can also check the relevant status of the sensors during the maintenance and testing.

4.1 Sensor Maintenance

1. The electrode should be cleaned regularly. Do not destroy the sensitive film when disassembling or washing the electrode. Do not wipe the sensitive film on the electrode with filter paper or sandpaper.
 2. The electrode should be stopped and disassembled to clean the sensitive film or replace the electrode when the sensitive film scale, blockage, internal reference liquid, external reference liquid dry pollution.
 3. The electrode can be used only after calibration when cleaning the electrode and sensitive film or long term storage.
 4. The cable connector must be kept clean and free from moisture or water;
 5. When the new water or electrode is not needed for short term storage, the electrode should be removed, cleaned and put on a protective sleeve containing soaking solution for preservation; If the electrode is not used for a long term, the electrode should be removed, cleaned and put on a protective sleeve containing soaking solution, store it in a dry place at room temperature.
 6. Replace the membrane cap and add the electrolyte;
- Membrane cap and electrolyte belong to the consumable goods, generally every three months to replace the electrolyte and six months to replace the membrane cap (the actual replaced times depends on the specific situation of the testing)

Replaced methods are as below:



1. Turn off the power supply, remove the membrane cap by counterclockwise rotation, and pour out the solution in the membrane.



2. The membrane cap is tilted, and the electrolyte bottle is vertically pressed down on the electrolyte bottle, filling the membrane cap with electrolyte.



3. Rotate the membrane cap clockwise into the inner core until liquid beads flow out, and repeat the rotation for 3 times.



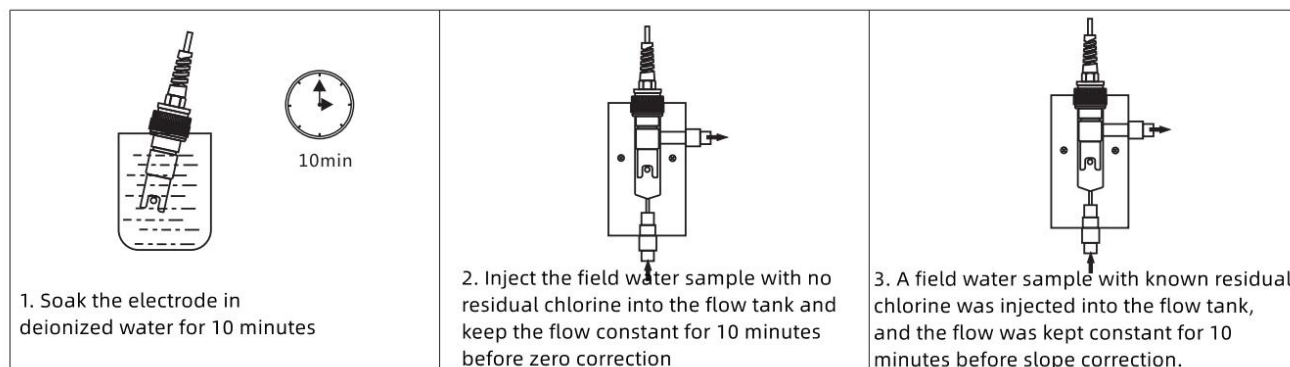
4.2 Sensor Calibration

4.2.1 Electrode Activation

- (1) The electrode should be activated in 3MKCL solution.
- (2) The dry discharge electrode can only be used only after activation.

4.2.2 Electrode Calibration

- (1) It is recommended that users calibrate before using;
- (2) Laboratory contrast method is recommended for calibration;
- (3) Electrodes should be calibrated in actual water samples;
- (4) It is recommended that users calibrate once every 1 to 2 months;
- (5) Calibration steps are shown as follows:



5. Fault Analysis and Troubleshooting

1) Measurement data is unstable and pulsating

Answer: check the surroundings for electromagnetic interference, and take care to stay away or to be better shielded.

2) Sensor communication is not working

Answer: check and make sure cables are plugged in and reconnected;

3) After calibration, the test is still inaccurate

Answer: check if the standard solution is contaminated, if so, replace the standard solution and re-calibrate;

4) Measured value is too high or too low

Answer: Check that the sensor is obscured by contaminates or not;



Appendix I Product List

Sensors	Principle	Range	Accuracy	Resolution	Picture
pH S14-A	Electro chemistry	0.00~14.00	±0.1	0.01	
Turbidity S16-A	Scattered light	0.01~4000NTU;	0~10NTU: ±0.1NTU 10~100NTU: reading value±2% or±0.1NTU take the bigger one 100~4000NTU: reading value±5%	0-10NTU: 0.01NTU; 10-100NTU: 0.1NTU; 100-4000NTU: 1NTU	
Turbidity SL61-A	Scattered light	0~10NTU	±0.1NTU	0.01NTU	
Conductivity S16-A	Four electrode conductance cell	0-200mS/cm	0 -100 mS/cm: ±0.5%; 100-200 mS/cm: ±1%	1μS/cm-100μS/cm (according to the range)	
NH4+ S200-C	Ion electrode	0~1000mg/L (0~10mg/L, 0~100 mg/L for optional)	±3% standard solution	0.01mg/L	
TSS S20-A	Scattered light	0.01~5000mg/L	0~10mg/L: ±0.1 mg/L 10~100 mg/L: reading value ±2% or ±0.1 mg/L 100~5000 mg/L: reading value±5%	0.01 mg/L	
Chlorophyll S19-A	fluorescence	0~400ug/L or 0~100RFU	Degree of linearity: R ² >0.999	0.01ug/L	
Blue-green algae S21-A	fluorescence	0~100ug/L or 0~100RFU	Degree of linearity: R ² >0.999	0.01ug/L	
COD S33-B	Non-spectral UV absorption	0.1~200mg/L (equiv. KHP)	±2% or 0.5 mg/L take the bigger one(equiv. KHP)	0.1mg/L (equiv. KHP)	



ORP S15-A	Electro chemistry	-1999~+1999m V	±20mV standard solution	0.1mV	
DO S12-A	fluorescence	0-200% saturability 0-20mg/L	<±3%	0.001mg/L-0.01 mg/L(according to the range)	
Salinity S25-A	Four electrode conductance cell	Temp: 0~50℃ EC: 0~200mS/cm; salinity: 0~70ppt; total dissolved solids: 0~100g/L (the value is calculated from the conductivity, the default value is 0.65)	Temp: ±0.2℃; conductivity: 0~100 mS/cm, ±1%; 100-200 mS/cm, ±2%; salinity: ±1%	Temp: 0.1℃; conductivity: 1μS/cm-100μS/c m(according to the rang); Salinity: 0.1ppt	
Residual chlorine S18-A	Electro chemistry	0~2ppm 0~20ppm	0.01	±0.01mg/L	
Multi-sen sor S600-C	(Standard): Temp, EC, pH, ORP, Turbidity, DO. Optional: Depth, Chlorophyll, BGA, NH4+, NO3- K+, TSS, Salinity.	The same with above	The same with above	The same with above	