



Residual Chlorine Water Quality Sensor

(Model: MW-RCI101)

Manual

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MW-RCI101 residual chlorine water quality sensor

Profile

MW-RCI101 sensor is polarographic type residual chlorine water quality detection sensor. The remaining chlorine molecules in the solution to be measured reach the cathode surface of the electrode through the selective film of the sensor. Under the polarization of the cathode, the remaining chlorine molecules are reduced due to gets electrons and the anode are oxidized due to lose the electrons. At the same time, a current signal is generated, and the signal size is proportional to the concentration of residual chlorine. The concentration of residual chlorine can be determined by detecting the current signal magnitude in the electrode reaction process.



Fig1. Sensor image

Sensor characteristics

Low power consumption, high precision, linear output, analog signal output.

Main application

It is widely used in the monitoring of residual chlorine content in water works, medical wastewater treatment and swimming pools.

Technical indicators

Stable 1

Measure range	0~20 mg/L
Temperature range	0~60°C
Minimum graduation value	0.01 mg/L
Response time (T 90)	<90 s
Temperature compensation	without
Zero point output	<0.005 uA
Calibration method	Laboratory comparison method
Accuracy	±0.01 mg/L
Sensitivity	8-17.5nA/mg/L(HClO)
Interface	2 pcs of positive and negative cables

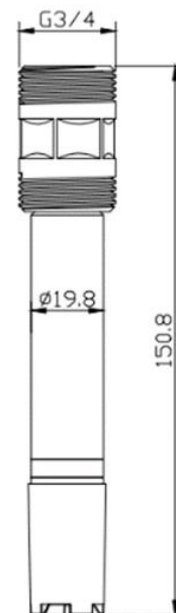


Fig2. Sensor structure diagram

Sensor characterization

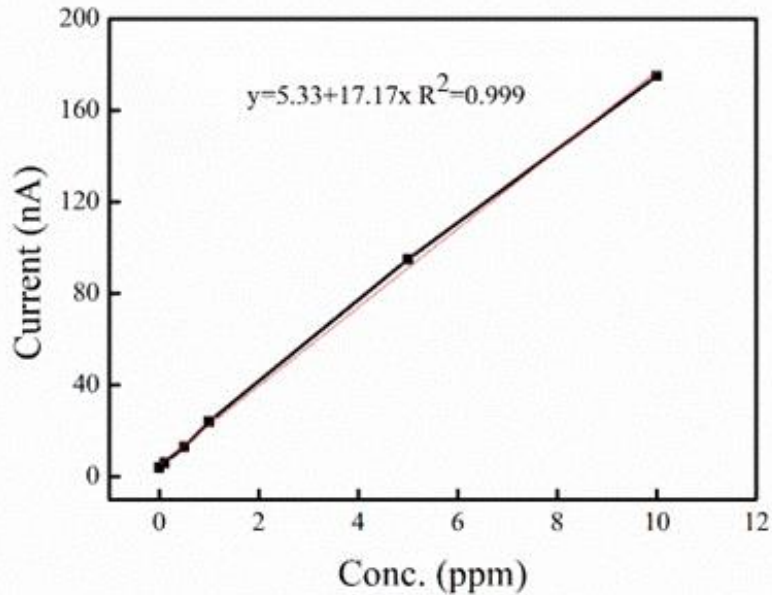


Fig3. Test of residual chlorine solutions with different concentrations

Method of use

1. Prepare standard residual chlorine solutions of 0mg/L, 5mg/L and 10mg /L for calibration. If low concentration residual chlorine solution is tested, only 0mg/L and 5mg/L are required. The preparation method is detailed in the product packaging;
2. Connect the sensor interface end to the corresponding position of the transmitter or instrument, and polarize the sensor. It needs more than 6h when use it for the first time or place it for a long time;
3. After the polarization is completed, place the sensor in the above standard liquid from low concentration to high concentration successively, and calibrate after the numerical stability;
4. After calibration, place the sensor test end in the liquid to be tested for testing;
5. The user can replace the electrolyte once every three months, and the actual use should be determined by the measured medium and electrode; In the process of use, you can use standard solution to verify the sensor test, to ensure the accuracy of the measurement results;
6. After the sensor is used or placed for a long time, the electrolyte should be removed and placed at room temperature.

Add electrolyte and replace membrane head

1. Disconnect the power supply, rotate the membrane head counterclockwise smoothly, and pour the residual electrolyte in the membrane head into the waste liquid pool;
2. Observe whether the surface of the electrode is clean, if no bright surface is shown, then use SiC2000, SiC3000, SiC4000 sandpaper to polish the electrode, and then clean it with water;
3. Tilt the membrane head and gently squeeze the electrolyte bottle downward to make the electrolyte slowly drop into the membrane head until it is full;

4. Rotate the membrane head clockwise slowly into the electrode until liquid beads flow out. At this time, repeat 3 to 5 times to drain the air completely and make the membrane close to the electrode cathode.

The electrode polarization

Polarization method: connect the electrode with the power supply, put the electrode into the solution containing chlorine, set the polarization voltage, and start polarization after the electricity.

The electrode needs polarization in the following cases:

1. When the electrode is used for the first time, the polarization is more than 6h;
2. Replace the membrane head or electrolyte, and polarize for more than 6h;
3. When the transmitter is powered off or the electrode is disconnected from the power line, the polarization time is as follows:

Stable 2

	Power off time T1 (min)	Minimum polarization time T2 (min)
1	$t1 \leq 5$	2 t1
2	$5 < t1 \leq 15$	4 t1
3	$15 < t1 \leq 30$	6 t1
4	$t1 > 30$	360

Line connection

Stable 3

Cable color	Lead definition
blue	positive electrode
Coffee	negative electrode
Network cable	Shielded wire (wire length of more than 10 meters needs to be connected)

Precautions

- Prohibit any sharp objects to contact the penetrating film of the sensor test end directly to avoid damage or pollution of the penetrating film affecting product performance;
- Sensor film head is vulnerable, once damaged will not be able to repair;
- If the sensor is used for the first time or placed for a long time, it shall be polarized for more than 6h in chlorine-containing solution;
- When used, the amount of electrolyte in the membrane head or the presence of bubbles will affect the measurement accuracy of the sensor;
- If there are pollutants at the sensor test end, it is necessary to clean in time, otherwise the accuracy of the sensor measurement will be affected;

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