



Dissolved Oxygen Water Quality Sensor

(Model: MW-O201)

Manual

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Zhengzhou Winsen Electronics Technology Co., Ltd

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MW-O201 dissolved oxygen water quality detection sensor

Profile

MW-O201 sensor is polarographic type dissolved oxygen water quality detection sensor. At a certain polarization potential, the dissolved oxygen in the water will pass through the oxygen permeable membrane and REDOX reaction will occur on the surface of the working electrode. The resulting current is proportional to the concentration of dissolved oxygen in the water, and the concentration of dissolved oxygen in the water is calculated by measuring the size of the current.



Fig1. Sensor image

Sensor characteristics

Quick response, good stability, high precision, long life and easy maintenance.

Main application

It is widely used in the detection of dissolved oxygen water quality in laboratory research, aquaculture, environmental protection and other fields.

Technical indicators

Stable 1

Measure range	0~20 mg/L
Temperature range	5~45℃
Minimum graduation value	0.01 mg/L
Response time (T 90)	<30 s
Temperature compensation	without
Zero point output (oxygen-free water)	<1 nA (2% Na ₂ SO ₃ , 20℃)
Pure water saturated oxygen output	40nA -48nA in saturated water at 20℃
Measurement error	≤ ±0.1 mg/L
Zero error	≤ 0.1 mg/L
Repeatability	≤ ±0.10 mg/L
stability	±0.03 mg/L
Sensitivity	4.5-5.5nA/mg/L(O ₂)
Interface	2 connection wires

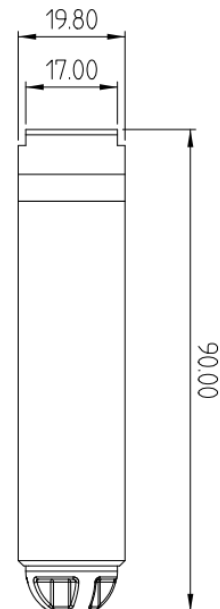


Fig2. Sensor structure diagram

Sensor characterization

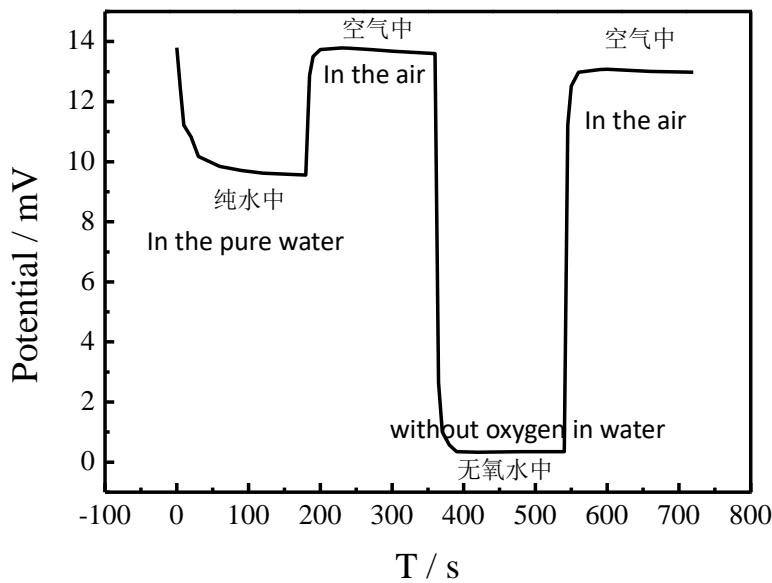


Fig3. Sensor sensitivity test curve (22°C)

Instructions

1. Polarization

Polarization is the process of cleaning the working electrode electrochemically. The electrodes undergo any operation that introduces interfering substances, such as changing the membrane head, changing the electrolyte, etc., and must be polarized. Put the sensor electrode into the solution to be tested, and the sensor socket end is connected to the transmitter, and connected to the power supply, and the polarization begins after the power is energized. When the electrode is first used or replaced with electrolyte and film head, the electrode should be polarized for more than 6h.

2. Replace the electrolyte/film head

Disconnect the power supply, slowly turn the film head counterclockwise, gently remove the film head, replace the electrolyte will need to pour out the residual electrolyte in the film head, add the new electrolyte. To replace the membrane head, add the new spare membrane head to the electrolyte and then install it clockwise. It should be noted that excessive electrolyte should be added to the membrane head. In the process of slow tightening, liquid droplets overflow, and then repeat loosening and tightening 3 times to discharge the bubbles in the cavity.

3. Maintenance and storage

- a: The electrode should be cleaned regularly with deionized water, and the damage of oxygen permeable film should be avoided when the electrode is disassembled and washed;
- b: Stop using and disassemble when the electrolyte dries up, there is dirt on the oxygen permeable membrane and there is lack of electrolyte or electrolyte pollution discharge cleaning film head;
- c: The electrolyte should be replaced every 3 months, and the membrane head should be replaced every 6 months, which can be adjusted according to the actual situation;

d: For long-term storage, the power supply should be cut off, the electrolyte emptied, the anode and cathode and the membrane head cleaned with deionized water, and the protective sleeve should be put on after drying. Store at room temperature in a dry place. After long-term storage, it is necessary to clean the electrode and replace the electrolyte and membrane head, and can be used after calibration.

Line connection**Stable 2**

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

- Sensor film head belongs to fragile products, should avoid contact with sharp objects in the process of use, so as not to scratch the oxygen permeable film.
- If there are bubbles in the membrane head electrolyte, the test results will be inaccurate, so when replacing the electrolyte, we should ensure that all the bubbles are discharged.
- If there is dirt or other substances attached to the oxygen permeable film, it should be cleaned in time to avoid interference to the test.
- After use, clean the sensor test end with deionized water in time to keep it clean.
- Keep a small amount of deionized water in the protective sleeve at the test end of the sensor.
- The cable connector of the sensor should be kept clean and dry, avoiding contact with acid, alkali, salt and other solutions.

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