Galvanic Maintenance Free Dissolved Oxygen Sensor

MS DO 714 (Origin England)

FEATURE

- No Need of Changing Electrolyte & membrane
- Cost effective
- Built in Temperature Compensation
- Less Maintenance

DESCRIPTION

The unique sealed membrane allows ease of use of the Dissolved Oxygen sensor without the need for spare membranes and refilling solutions whilst still guaranteeing accurate results and long life.

What is Dissolved Oxygen (DO)?

Dissolved oxygen is a measure of the amount of gaseous oxygen contained in water. Healthy waters that can support life must contain Dissolved Oxygen (DO).

Why Monitor Dissolved Oxygen (DO)?

Measuring dissolved oxygen in water and treatment to maintain proper dissolved oxygen levels are crucial functions in a variety of water treatment applications. While dissolved oxygen is necessary to support life and treatment processes, it can also be detrimental, causing oxidation that damages equipment and compromises product. Dissolved oxygen (DO) affects :

- **Quality** – The DO concentration determines the quality of source water. Without enough DO, water turns foul and unhealthy affecting the quality of the environment, drinking water and other products.
- **Regulatory Compliance** – To comply with regulations, wastewater often needs to have certain concentrations of DO before it can be discharged into a stream, lake, river or waterway. Healthy water that can support life must contain dissolved oxygen.
- **Energy Consumption Cost** – Effectively monitoring DO can reduce costs by making processes more efficient.
- **Process Control** – DO levels are critical to control biological treatment of wastewater as well as the biofiltration phase of drinking water production.

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PRINCIPLE

This galvanic dissolved oxygen sensor operates as a battery generating a voltage. The resulting voltage is directly proportional to the dissolved oxygen concentration. The cell is constructed with a fine wire coil cathode wrapped around a lead anode. A salt solution fills the void between the anode and cathode. The sensor is contained by a cylindrical membrane held in close proximity to the wire coil.

Oxygen from the solution to be tested enters the cell by diffusion through the membrane and then across the thin electrolyte layer to the cathode. The oxygen is reduced at the cathode as shown in reaction 1.

1. $O_2 + 2H_2O + 4e^- \rightarrow 4OH^-$

The cathode is at such a negative potential that it reduces all the oxygen that diffuses to its surface. The lead anode is oxidized to give an overall reaction that produces lead hydroxide as shown in reaction 2.

2. $2Pb + 4OH^- \rightarrow 2Pb(OH)_2 + 4e^-$

The overall result of this reaction is the consumption of the lead anode as current flows, yielding a very sensitive electrode that can detect changes at the microvolt level.

TECHNICAL SPECIFICATION

Measuring Range	: 0 ~ 200% Saturation
Wetted Parts	: Derlin / PPS / Teflon
Temperature Range	: 0 ~ 50°C
Fill Solution	: Sodium Chloride
Max Operating Pressure	: 1 Bar
Flow Rate Required	: 60 cm to 1 meter / hour
Linearity	: This is a straight line
Output	: Zero mV in sodium sulphite solution, 35-55mV in air
Automatic Temp Compensation	: Bulit-in Pt100
Process Connection	: ¾” BSPM on Front and Rear End
Cable	: Standard Integral 5 Meter
Lifetime	: 2 Years under normal usage

APPLICATION

Water Treatment Plant (WTP)	Wastewater Treatment Plant (WWTP)
Effluent Treatment Plant (ETP)	Sewage Treatment Plant (STP)
RO Water Plant	Power Plant
Hydroponics	Chemical Industry
Textile Industry	Paper & Pulp
Beverages / Food Industry	Pharma Industry
Scrubber Application	Pigment Industry
Steel Industry	Aqua Culture

Note : Due to continuous improvement in product, specifications & looks may vary

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