WARD'S DataHub
The Power of Twelve
The Convenience of One

Dissolved Oxygen Electrode Quick Help Guide

Specifications

Concentration Range:	0 to 20 mg/L
Temperature Range:	0 to 60°C
Response Time:	98% of full response in 90 seconds at 25°C
Accuracy:	±0.2 mg/L
Pressure:	0-50 PSI
Flow condition:	0.3 mL/s
Output:	4uA ±1.5 uA in air saturated DI water at 25C; and =< 0.15 uA in NO Oxygen at 25C.
Minimum Sample Size:	3 mL in a 50 mL beaker
Size:	Electrode length—150 mm Body Diameter—12 mm Cap Diameter—16 mm Cable Length—3'

Contents

Galvanic Dissolved Oxygen Electrode (D0G1)	1 ea.
Membrane Module	2 ea.
DO Electrolyte for Galvanic Electrodes	1 oz.
Calibration Bottle (630027)	1 ea.
Instruction Manual	1ea.

Required Equipment

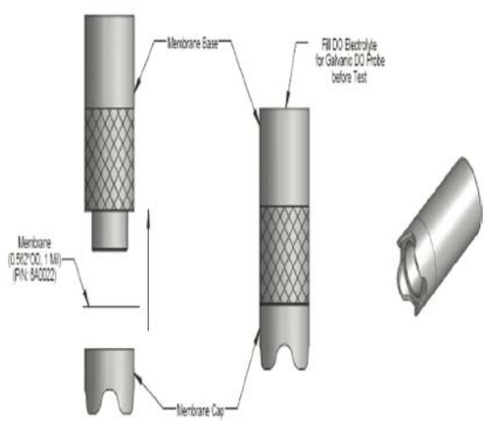
- Data logger with DO2 input
- Wash bottle with distilled or deionized water
- Several clean beakers

Required Solutions

- Deionized (Dl) water saturated with oxygen
- Oxygen free Dl water (prepare yourself by adding sodium sulfite to DI water until saturated)
- DO Electrolyte for Galvanic DO Probes

Electrode Preparation

1. Unscrew Membrane Module, which is at the bottom of the electrode.
2. Rinse the Membrane Module with Dl water, blot dry.
3. Fill Membrane Module with DO Electrolyte solution for Galvanic DO Probes. It should be completely filled.
4. Rinse the internal anode/cathode element with Dl water, blot dry.
5. Screw the Membrane Module filled in Step 3. Finger-tighten until snug. Excess electrolyte solution should spill out. Do not over tighten. Rinse the assembled electrode with Dl water.



MEMBRANE CAP ASSEMBLY with REPLACEABLE MEMBRANE

Checking Electrode Operation and Calibration

1. Connect electrode to the data logger.
2. a) Place 100 ml DI water into a 150 mL beaker. Bubble air through the water while stirring for 20 minutes. This will saturate the water with air/oxygen and create a 100% DO calibration standard. To prevent air entrapment (from the bubbles) on the DO electrode membrane surface use an electrode holder that keeps the electrode at a 20° angle.

   b) Alternatively, place a small amount of Dl water in the provided calibration bottle. Insert the DO electrode into the cap of the bottle. Place cap on calibration bottle and tighten. Allow the electrode to sit in the calibration bottle for 20 minutes. The air in the bottle will be saturated with water creating a 100% DO calibration standard.

   Use either 2a or 2b and the meter calibration procedure to obtain a reading for 100% saturated oxygen.

To calibrate the reading for 100% saturated oxygen - press and hold the data logger DO2 key for 3 seconds till you hear a beep sound. The data logger should show 8.25 mg/l which represent saturated oxygen in room temperature.

If the data logger allows for a 2-point calibration procedure using a ZERO standard (oxygen-free water), use one of the following to create this standard:

3. a) Place 100 mL Dl water into a 150 mL beaker. Bubble nitrogen through the water while stirring for 20 minutes. This will remove the oxygen from the water and create a ZERO standard.

   b) Alternatively, place 100 mL Dl water into a 150 mL beaker. Saturate the water with sodium sulfite. This will remove the oxygen from the water and create a ZERO standard.

Use either 3a or 3b and the data logger will show the reading for the ZERO standard (oxygen-free water).

Troubleshooting

If the electrode reading is not at (or very close to) zero in oxygen-free Dl water, then polish the tip (cathode) of the electrode. If the electrode readings are not within the normal ranges given above, or the electrode reading drifts, inspect the Membrane Module. If it is visibly torn, punctured, or fouled, replace the Membrane Module. Then follow the Electrode Preparation procedure.

If the electrode response is still outside the normal range after this procedure, please contact the manufacturer's technical service department.

Reading a Sample with the Electrode

Various procedures may be used to determine the dissolved oxygen concentration of a sample. These procedures might require the electrode to be installed in a special fitting for BOD bottle measurements, or suspended in the sample by hand or electrode holder for other laboratory or field measurements.

Some considerations to get accurate measurements with your DO electrode include:

- DO measurements are very dependent on barometric pressure, temperature and salinity factors. If your meter allows for inputs on these factors, make sure you use them correctly and accurately.
- Stirring, when feasible, will increase accuracy since this electrode is consumptive of DO in your sample. Use a stir bar at slow to moderate speed and use as large of a sample as possible.
- Replace the DO electrolyte and calibrate the DO electrode when your measurements seem to be drifting, or inaccurate. Use one of the calibration solutions mentioned in “Checking Electrode Operation and Calibration” section to check electrode results.
- Replace the Membrane Module if it becomes fouled by the sample, or if it gets torn or punctured.
- Follow the Electrode Storage procedure to get the best life from your Do electrode.

Electrode Storage

Short Term (over night or the weekend):

The assembled electrode should be stored in Dl water to prevent electrolyte evaporation. It is preferable to disconnect the galvanic DO electrode from the data logger at all times when not in use. The galvanic DO electrode (UNKLIKE polarographic DO electrodes) does not require any polarization or startup time.

Long Term:

Completely disassemble the electrode. Rinse the anode/ cathode element and Membrane Module with Dl water. Blot dry all of the parts. The Membrane Module may be placed on the electrode but it should be stored WITHOUT electrolyte to prevent the galvanic depletion of the electrode’s anode. Store all parts securely in the original box. Follow the procedures in "Electrode Preparation" and "Checking Electrode Operation and Calibration" before using the electrode again.