The Effect of Temperature and Pressure

Where possible the E8020 Galvanic Dissolved Oxygen Probe should be used with the QP459 Dissolved Oxygen Meter or any meter with temperature and pressure correction.

The % Dissolved Oxygen reading will decrease with decreasing pressure and increase as the pressure rises. The effect of temperature is similar. As the temperature increases Oxygen molecules will move faster and appear to be more concentrated than they are. This leads to an increase in the % Dissolved Oxygen reading whilst in reality the concentration has not changed.

Readings also decrease with increasing altitude as the pressure drops accordingly.

The QP459 Dissolved Oxygen Meter corrects for both atmospheric pressure and temperature and produces a consistent result corrected to what it would be at 1 Atmosphere and 25 Degrees Centigrade.

E8020 - Galvanic DO Probe

Overall Length	155mm
Body Diameter	12mm
Cap Diameter	16mm
Connector	BNC
Cable Length	1000 mm
mV Range	0 - 55
Compatible Meter	QP459/DO
Range	0 - 200% Saturation
Readability	± 0.1% Oxygen
Units	% Saturation or ppm Oxygen
Temperature Range	0 - 40°C

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EDT directION
ELECTROCHEMISTRY PRODUCTS

Excellence & Innovation in Electrochemistry

Instruction Manual

Galvanic Dissolved Oxygen Probe

A Galvanic Dissolved Oxygen (DO) Electrode for use with the QP459 Portable ION/Dissolved Oxygen Meter.

Galvanic Dissolved Oxygen Electrodes have a significant advantage over the traditional Polarographic (Clark) cells in that they are maintenance free and have a mV output enabling them to be used on pH meters with mV scales or direct reading meters such as the QP459 Dissolved Oxygen and Ion meter.

The E020 Galvanic electrode has Zinc Anode and Platinum Cathode with a large cell potential between them, meaning that one metal wants to give up electrons while the other wants to gain electrons. The resultant potential is strong enough to cause electrons to flow from the Anode to the Cathode.

The electrode has an inert gas permeable membrane allowing Oxygen to permeate into the cell and oxidise the anode forming a metal hydroxide. The degree of oxidation is directly proportional to the dissolved oxygen concentration.

This construction has many advantages including maintenance free operation with a non-replaceable rugged membrane.

Storage and Maintenance

Before use the electrode tip should be rinsed in deionized water (tap water is also OK) prior to calibration and measurement. It is particularly important after the Zero-point calibration.

After use rinse the probe with water and replace the protective cap. The cap is supplied with a KCl (Potassium Chloride solution). If this solution is lost, then storing it with water is satisfactory.

Expected Lifetime

Eventually build up of Metal oxide precipitate or sample exposure may block the permeable membrane leading to probe failure. This depends on the sample type and frequency of use. The probe does contain a power source which should last for 12-24 months.

Warranty

All probes produced by EDT directION limited have a 6-month warranty. This warranty is invalidated by any physical damage or inappropriate use e.g. measuring in non-aqueous samples.

EDT directION provide technical assistance and support on the website or by scanning the QR code in the manual to reach the site page.

Operation

The E8020 Galvanic Dissolved Oxygen electrode should be calibrated at both Zero % Oxygen and at 100% saturation.

The 0% Oxygen solution is a 5% Sodium Sulphite in deionized water. The second calibration point can be done by agitating the probe in air or by running the tip under a fast-flowing tap.

Once calibrated the probe should remain calibrated for several days. It is simple to check this by reading the air and checking that 100% is still displayed.

The saturation will however vary with Atmospheric pressure and temperature.

For more advice, application methods or further information on this product please go to www.edt.co.uk or contact is on info@edt.co.uk