

# OxyGuard Sea Profile 505

*Dissolved Oxygen probe with built-in transmitter for Profiling Measurements in the Environment*

## General Information

The OxyGuard Sea Profile 505, a version of OxyGuard's DO Profile probe, incorporates a 3-wire transmitter with galvanic isolation. Like the DO Profile it has a very fast response time and a short temperature equilibrium time and is designed specially for profiling measurements in ponds, lakes and the sea. It is (unlike other types of dissolved oxygen probe) NOT sensitive to hydrogen sulphide! The transmitter has a nominal output of 0-5 V. The Sea Profile 505 is also available with a built-in temperature sensor, also with transmitter and 0-5 V output.

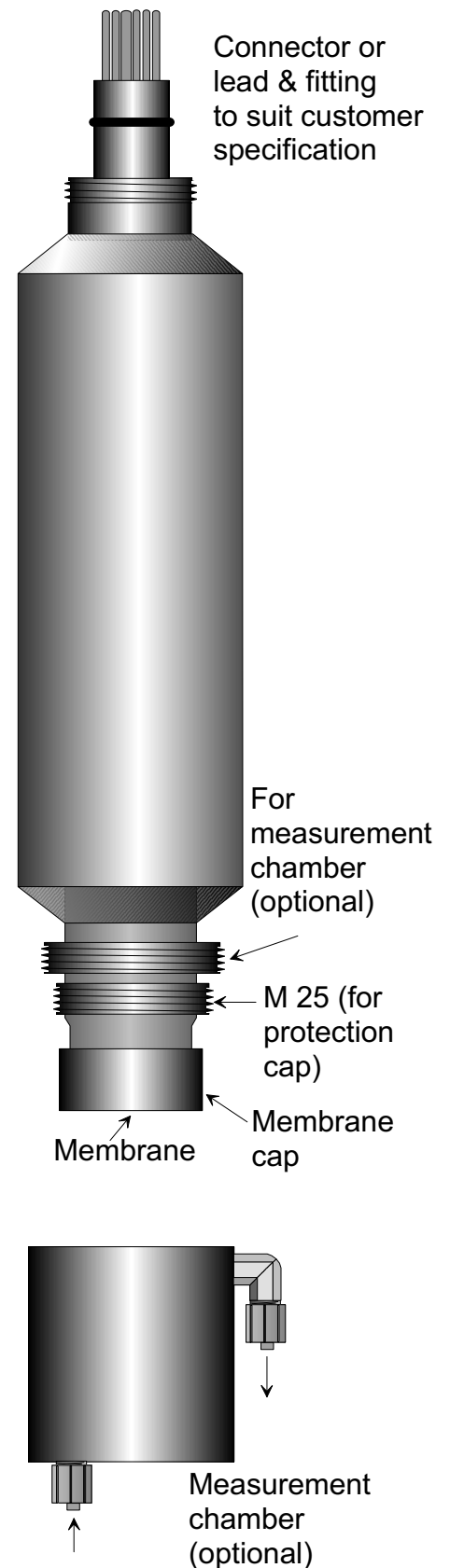
The measurement process in standard dissolved oxygen probes is such that the whole probe must attain temperature equilibrium with the surroundings before correct measurements are obtained. The OxyGuard Sea Profile 505 overcomes this problem - it measures correctly immediately thanks to its innovative and technologically advanced design!

The Sea Profile 505 also has a true zero, built-in temperature compensation and a rugged membrane. The probe does not need a zero calibration; when there is no oxygen present at the membrane the probe has an output corresponding to less than 1% saturation. The electronics of the transmitter is designed so that it does not contribute any zero error. The probe's electrolyte is not altered or consumed by the measurement process, so that the only factor to be calibrated for is the change in the permeability of the membrane due to the inevitable effects of deposits and ageing. The membrane is tough and can be wiped clean with a soft cloth or paper as needed.

The output signal is directly proportional to the oxygen partial pressure sensed, i.e. is compensated for the temperature characteristics of the membrane. The 0-5V output of the Sea Profile 505 corresponds to approximately 0-200% saturation. Renovation is a simple and easy process that is described later in this document. This should be performed when the electronics connected to the probe no longer can be adjusted to calibrate.

The Sea Profile 505 can be supplied fitted with a measurement chamber. This is, however, only advantageous for near-static measurements where water flow past the membrane is less than 2 cm/sec. This is because this probe does not require zero calibration or calibration in calibration fluid but is calibrated in the air, and also only consumes a small amount of oxygen for its measurement. The measurement chamber can be supplied to customer specification.

The probe is supplied fitted with a connector or lead to suit customer specification.



# Technical Information

## Probe Care

The OxyGuard Profile 505 will give you many years of trouble-free service if you treat it with a little care. The membrane should be kept clean, and the wooden insert must not be allowed to dry out. Check that the sponge in the protection cap is wet every time you use the probe, and if you store it for any length of time check that the sponge is wet at regular intervals. Calibrate the probe as needed - once a day should be more than enough. Renovate the probe if you cannot calibrate to the correct value.

## Probe Calibration

The Probe should be calibrated in water-saturated air, or in air-saturated water. We recommend the following procedure:

- 1) Unscrew the protection cap and remove the sponge.
- 2) Wipe the membrane - it should be clean and dry.
- 3) Put a few drops of water into the protection cap and lightly screw it in place.
- 4) Adjust the electronics connected to give the calibration value corresponding to 100% sat..

## Probe Renovation

- 1) Clean the outside of the probe. Unscrew the membrane cap, discard the used membrane and O-ring. Clean and dry the cap.
- 2) Soak the probe end in electrolyte - how long depends on how long ago it was last soaked.
- 3) Inspect the cathode face. If the wooden insert has lifted above the cathode or edge wet the grade 300 wet-or-dry emery paper delivered with the probe with electrolyte and use it to smooth the insert down until no edges can be felt.
- 4) Put a new O-ring in place in the bottom of the cap and place a new membrane above it. It is very important that the membrane is placed concentrically in the bottom of the cap above the O-ring.
- 5) Dip the cathode face in electrolyte.
- 6) Hold the probe with the cathode face up and gently screw the cap with O-ring and membrane onto it. Tighten the cap firmly. The membrane should not wrinkle, if it does discard it and start again with a new membrane.
- 7) Renovation is complete. Calibrate the probe. Remember to store with the protector fitted. The sponge in the protector must be kept moist at all times.

## Specifications

Output Signal:	Nominal 0-5 V = 0-200% saturation Temperature: 0-5 V = 0-50°C (if fitted)
Response Time:	Oxygen: 90% within 10 sec. for a 100% step change, same temp. Temperature compensation: approx. 10 sec. per 10°C
Temperature Compensation:	Built into probe.
Connections:	To customer specification.
Accuracy (oxygen):	+/- 1% of measured value.
Accuracy (temp. comp.):	+/- 2% of measured value between 5 and 25°C

## Ordering Information

D041S: OxyGuard Sea Profile 505 probe for % sat measurements.  
D041ST: OxyGuard Sea Profile 505 probe for % sat and temperature measurements.  
D04XE250: 250 ml electrolyte; D04XM: 25 membranes.

