

# Dissolved Oxygen Sensor

**SBE 13Y**  

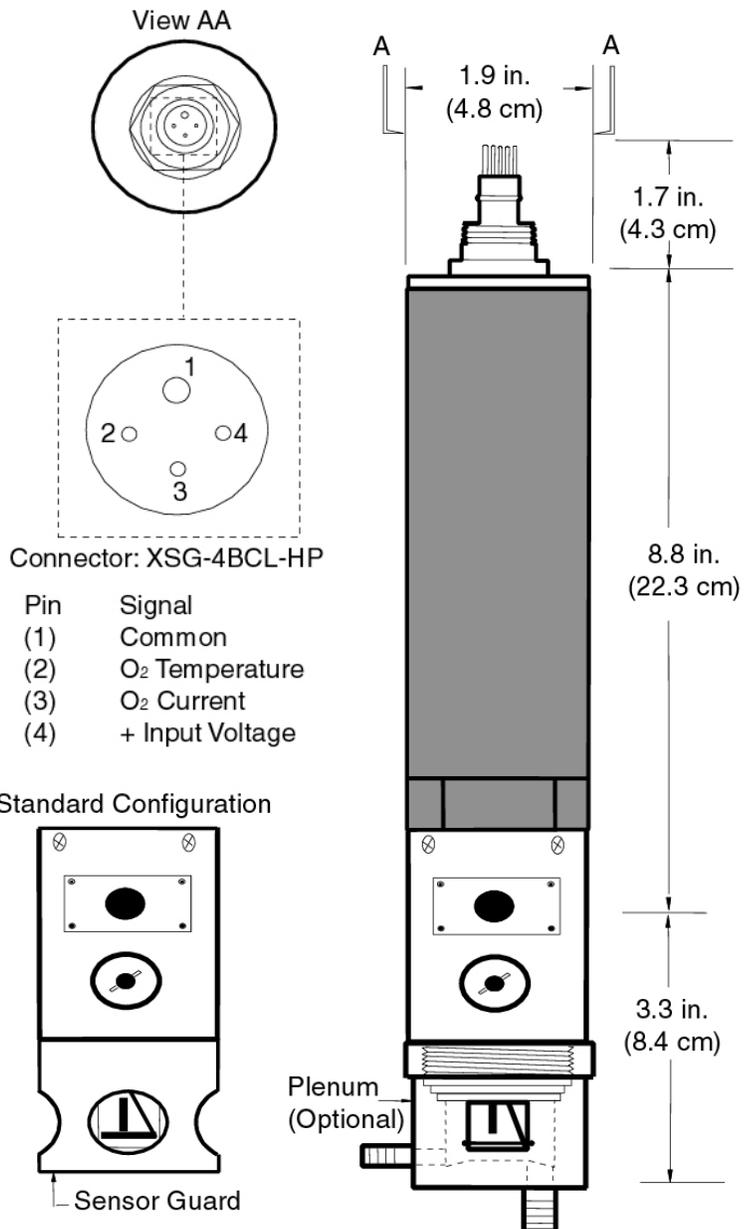

The **SBE 13Y** (Yellow Springs Instrument type) Dissolved Oxygen (DO) Sensor uses a polarographic type element with replaceable membranes (YSI 5739) to provide in-situ measurements at depths up to 2000 meters. The 5739 probe is replaceable.

The sensor is easy to install, service, and calibrate since the sensor element and associated interface electronics are a modular, self-contained package. The SBE 13Y design is electrically isolated and primarily intended as a "bolt-on" auxiliary sensor for Sea-Bird's SBE 9*plus* CTD Underwater Unit, but is also well suited to many custom instrumentation applications. A power and signal interface cable and mounting hardware are available separately.

The optional flow-through plenum improves data quality when the SBE 13Y is used with the SBE 9*plus* Underwater Unit, which pumps water over the sensor membrane to reduce errors caused by oxygen depletion during periods of slow or intermittent flushing (i.e., stopping for bottle samples). The pumped plenum configuration also reduces exposure to biofouling. The plenum is also useful when calibrating the sensor.

The SBE 13Y interface electronics outputs voltages proportional to membrane current (oxygen current) and to the sensor element's membrane temperature (oxygen temperature) used for internal temperature compensation. Computation of dissolved oxygen in engineering units is typically done using Sea-Bird's SEASOFT<sup>®</sup> software, which uses the equation described by Owens and Millard (1985, Journal of Physical Oceanography, v15 [5]) for computing dissolved oxygen.

Sea-Bird calibrates the sensor with a solution of air-saturated water and sodium sulfite. These calibration results are tabulated on a certificate furnished with each sensor.



## DISSOLVED OXYGEN SPECIFICATIONS

<b>Measurement Range</b>	0 - 15 ml/l
<b>Accuracy<sup>1</sup></b>	0.1 ml/l
<b>Resolution</b>	0.01 ml/l
<b>Time Response<sup>2</sup></b>	2 sec. at 25 °C 5 sec. at 0 °C

## ELECTRICAL/MECHANICAL

<b>Power required</b>	10-24 VDC, 25 ma
<b>Outputs</b>	O <sub>2</sub> current O <sub>2</sub> temp.
	0 to +5 V 0 to +5 V
<b>Materials</b>	Anodized aluminum, Plastic (acrylic)
<b>Depth</b>	2000 meters

<sup>1</sup> Stated accuracy is achievable with frequent field calibrations.

<sup>2</sup> Time to reach 63% of final value following a step change in oxygen concentration.