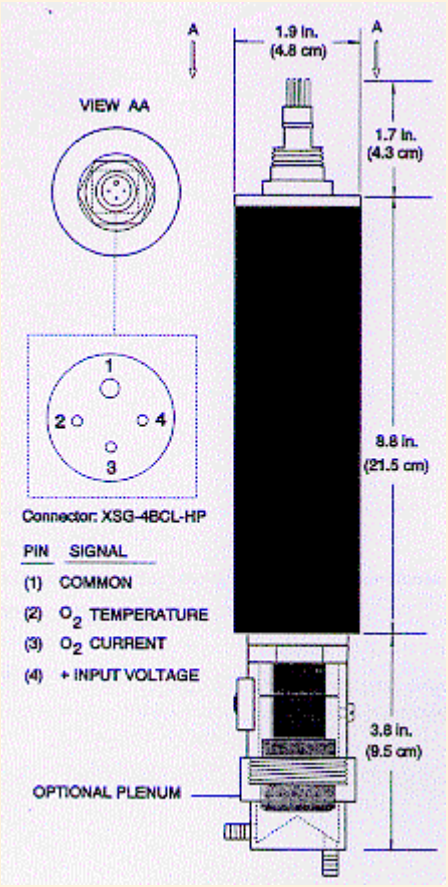
Dissolved Oxygen Sensor
SBE 13 (Obsolete -- For Reference Only)

See the SBE 43 Dissolved Oxygen Sensor in place of the SBE 13.

The SBE 13 Dissolved Oxygen (DO) Sensor is available in two models:

- The **SBE 13Y** uses a *YSI* polarographic element with replaceable membranes (YSI 5739) to provide in-situ measurements at depths up to 2000 meters (6,560 ft). The 5739 probe is replaceable.
- The **SBE 13B** uses a *Beckman* polarographic element to provide in-situ measurements at depths up to 10500 meters (34,400 ft). The sensor's sealed-electrolyte membrane cartridge 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 13 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 13 is used with the SBE 9 Underwater Unit. Pumping water over the sensor membrane reduces 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. Since the SBE 13 is plumbed in-line between the pump and the CTD's conductivity cell, anti-foul cylinders (available separately) installed on the cell intake further protect the sensor. The plenum is also useful when calibrating the sensor.

The SBE 13 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 with Sea-Bird's SEASOFT© 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.

SPECIFICATIONS

Measurement Range: 0 - 15 ml/l

Accuracy[1]: 0.1 ml/l

Resolution: 0.01 ml/l

Time Response[2]:

- 2 seconds at 25 °C
- 5 seconds at 0 °C

Power required: 10-24 VDC, 25 mA

Outputs:

- O2 current: 0 to +5 V
- O2 temperature: 0 to +5 V

Depth and Housing Materials:

- **SBE 13Y** -- 2000 meters (6,500 ft), anodized aluminum
- **SBE 13B** --
  6800 meters (22,300 ft), anodized aluminum
  10500 meters (34,400 ft) titanium

[1] Stated accuracy is achievable with frequent field calibrations.
[2] Time to reach 63% of final value following a step change in oxygen concentration.

ADDITIONAL INFORMATION / LINKS:

Sales Information -- options, accessories, cables, mount kits, spares, etc.

- Cables
- Mount kits

Links to Other Instruments of Interest

- SBE 43 Dissolved Oxygen Sensor
- SBE 23 Dissolved Oxygen Sensor -- obsolete, for reference only

Specifications are subject to change without notice.

Last modified: 06-Jun-2011

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