

SBE 63 Optical Dissolved Oxygen Sensor

The SBE 63 is an individually calibrated, high-accuracy, optical oxygen sensor to assist in critical hypoxia and ocean stoichiometric oxygen chemistry research on a variety of moored and float-based platforms. Careful choices of materials and geometry are combined with superior electronics and calibration methodology to yield significant gains in performance.

The SBE 63 is designed for use in a CTD's pumped flow path, providing optimal correlation with CTD measurements. The elapsed time between the CTD and associated oxygen measurement is easily quantified, and corrected for, in post-processing. The plumbing's black tubing blocks light, reducing in-situ algal growth.



Features

- 1 Hz sampling speed, RS-232 output.
- Each sensor fully and individually calibrated (valid for 0 - 450 $\mu\text{mol/kg}$ oxygen, 0 - 30 $^{\circ}\text{C}$, 0 - 35 psu, 0 - 2000 dbars).
- For use in CTD pumped flow path, optimizing correlation with CTD measurements.
- 600 or 7000 m housing.
- Configurations:
 - With optional sensor mount for use on CTD RS-232 auxiliary sensor channel, or
 - Integrated with SBE 37 MicroCAT CTD, Sea-Bird Navis float CTD, or SBE 41 Argo float CTD.
- Five-year limited warranty.

Calibration

Each SBE 63 is calibrated individually in a temperature-controlled bath. Bath temperatures are varied at each of 4 oxygen values, providing a comprehensive 24-point calibration. Two reference sensors in each bath are standardized against Winkler titrations. Response time tests are conducted on each sensor, using gas. Salinity and pressure impacts on sensor response are each checked at two separate points.



Configuration Options

- Optional sensor mount interfaces to the RS-232 auxiliary sensor connector of the SBE 16plus V2, 16plus-IM V2, or 19plus V2 SeaCAT CTD. Configuration choices include SBE 63 with 600 or 7000 m housing; SBE 63 sensor mount rated to 5000 or 7000 m with XSG or wet-pluggable MCBH connector.
- SBE 63 with a 600 or 7000 m housing is integrated into an SBE 37 MicroCAT (IMP-ODO or SMP-ODO).
- On a Sea-Bird Navis float CTD or SBE 41 Argo float CTD, the SBE 63 with 7000 m housing is physically integrated with the CTD. Electronic operation of the SBE 63 requires an RS-232 interface in the Argo float controller.

Performance

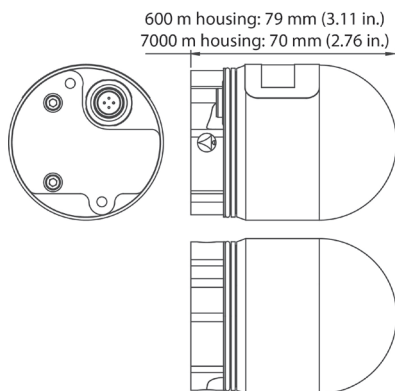
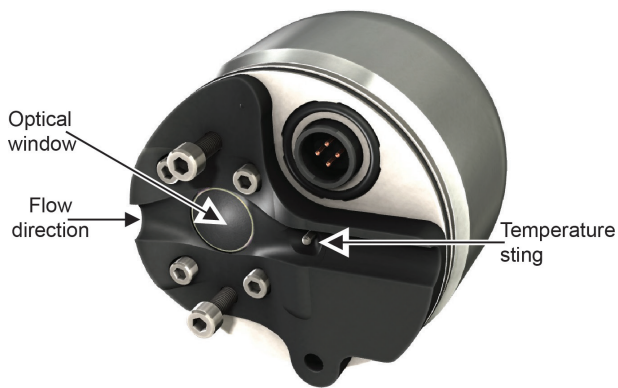
Measurement Range	120% of surface saturation in all natural waters (fresh and salt)
Initial Accuracy	larger of $\pm 3 \mu\text{mol/kg}$ (equivalent to 0.07 mL/L or 0.1 mg/L) or $\pm 2\%$
Sample-Based Drift	$< 1 \mu\text{mol/kg}/100,000$ samples (20 °C)
Resolution	0.2 $\mu\text{mol/kg}$
Response Time	(τ , 63% response): < 6 sec (20 °C)
Sampling Speed	1 Hz (1 sample/sec)

Electrical

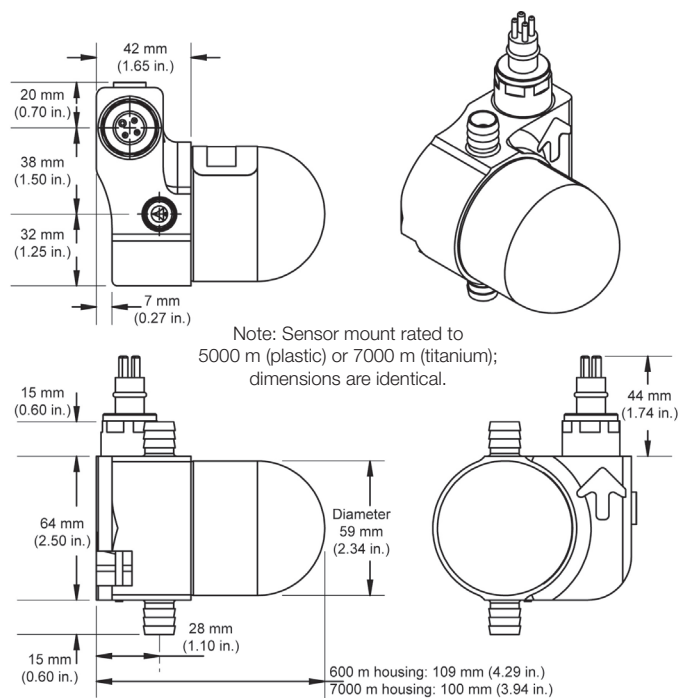
Input Power	6 - 24 VDC; 35 mA (0.08 J/sample)
Output Signal	RS-232, 600-115,200 baud (user-selectable), 8 data bits, no parity, 1 stop

Mechanical

SBE 63 sensor (weight in air)	600 m Plastic housing - 245 g 7000 m Titanium housing - 270 g
Optional sensor mount for SeaCAT (weight in air)	5000 m Plastic mount - 190 g 7000 m Titanium mount - 545 g



**SBE 63 sensor for integration with
SBE 37 ODO MicroCAT, or
SBE 41 CTD for Navis and other Argo floats**



**SBE 63 sensor installed in
sensor mount for use with
RS-232 auxiliary sensor channel on CTD**

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