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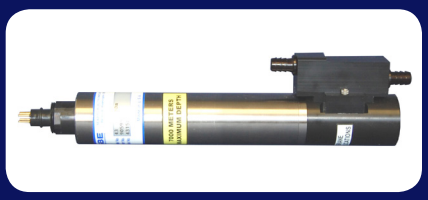
SBE 43
Dissolved Oxygen Sensor

The SBE 43 is an individually calibrated, high-accuracy oxygen sensor to assist in critical hypoxia and ocean stoichiometric oxygen chemistry research on a variety of profiling and moored platforms. Careful choices of materials, geometry, and sensor chemistry are combined with superior electronics and calibration methodology to yield significant gains in performance.

The SBE 43 is designed for use in a CTD's pumped flow path, providing optimal correlation with CTD measurements. Elapsed time between the CTD and associated oxygen measurement is easily quantified, and corrected for, in post-processing. The black plenum and plumbing's black tubing blocks light, reducing in-situ algal growth. Plumbing isolates the SBE 43 from continuous exposure to the external environment, allowing trapped water to go anoxic and minimizing electrolyte consumption between samples for moored deployments.



Features

- Voltage or frequency output.
- Fully and individually calibrated; calibration drift rates of less than 0.5% over 1000 hours of operation (*on* time).
- For use in CTD pumped flow path, optimizing correlation with CTD measurements.
- Oxygen measurement dramatically improved because of improved temperature response.
- Signal resolution increased by on-board temperature compensation.
- Continuous polarization eliminates stabilization wait-time after power-up.
- Hysteresis largely eliminated in upper ocean (1000 m) due to improved temperature response. Hysteresis at greater depths predicatable and correctable in post-processing.
- No degradation of signal or calibration when used for profiling in hydrogen sulfide environments.
- 600 or 7000 m housing.
- Five-year limited warranty (during warranty period, one sensor re-charge [electrolyte refill, membrane replacement, recalibration] performed free of charge).

Configuration Options

- SBE 43 voltage output sensor can be integrated with any Sea-Bird CTD that accepts 0-5 volt auxiliary sensor input. It is available with 600 m plastic or 7000 m titanium housing; XSG or wet-pluggable MCBH connector; 0.5-mil membrane (fast response, typically for profiling applications) or 1-mil membrane (slower response but more rugged for enhanced long-term stability, typically for moored applications).
- SBE 43F frequency output sensor can be integrated with SBE 52-MP or Glider Payload CTD, or used for OEM applications (requires OEM circuit board); it is available with 600 m plastic or 7000 m titanium housing. Another 43F version is used as an integral part in SBE 37-SIP-IDO MicroCATs.

Performance

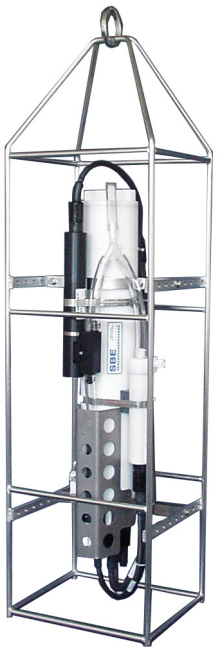
Measurement Range	120% of surface saturation in all natural waters (fresh and salt)
Initial Accuracy	± 2% of saturation
Typical Stability	0.5% per 1000 hours of deployed time (clean membrane)
Response Time Tau*	2 to 5 sec for 0.5-mil membrane, 8 to 20 sec for 1.0-mil membrane *Time to reach 63% of final value for a step change in oxygen; dependent on ambient water temperature and flow rate (see Application Note 64 for discussion)

Electrical

Input Power	6.5 - 24 VDC; 60 milliwatts (SBE 43) or 45 milliwatts (SBE 43F)
Output Signal	0 - 5 VDC (SBE 43), frequency (SBE 43F)

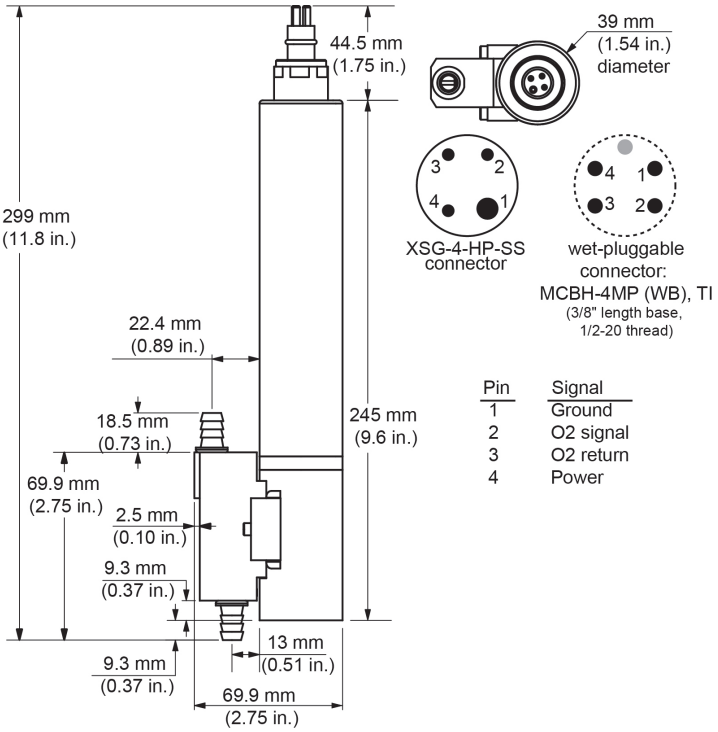
Mechanical

SBE 43 (voltage output)	600 m Plastic housing - 0.5 kg in air, 0.1 kg in water 7000 m Titanium housing - 0.7 kg in air, 0.4 kg in water
SBE 43F (frequency output)	600 m Plastic housing - 0.3 kg in air, 0.1 kg in water 7000 m Titanium housing - 0.4 kg in air, 0.2 kg in water



SBE 43 voltage output sensor integrated with SBE 19plus V2 CTD

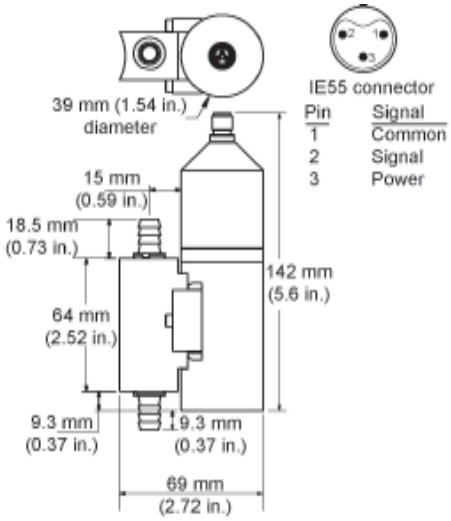
SBE 43 Voltage Output Sensor



Pin	Signal
1	Ground
2	O2 signal
3	O2 return
4	Power

SBE 43F Frequency Output Sensor

(for 52-MP, Glider Payload CTD, & OEM applications)



Pin	Signal
1	Common
2	Signal
3	Power

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