SEA-BIRD SCIENTIFIC

sea-birdscientific.com
info@sea-birdscientific.com

Deep SeapHOx™

Ocean CT(D)-pH-DO Sensor

The Sea-Bird Scientific Deep SeapHOx™ combines the Satlantic Deep SeaFET ™pH sensor with the Sea-Bird Electronics SBE 37-SMP-ODO MicroCAT CTD+DO sensor. The Deep SeaFET adapts the MBARI/SIO/Honeywell Deep-Sea DuraFET technology to measure pH in a deep moored package. The Deep-Sea DuraFET technology was developed by Ken Johnson at MBARI and Todd Martz at SIO. The Deep SeapHOx™ allows for the integrated data collection of pH with the critical oceanographic and biological measurement of temperature, salinity, and oxygen. The integrated package also allows the SeaFET™ to take advantage of the SBE 37's pumped flow path and anti-fouling technology, extending deployment durations in some cases.

Features

- Moored pH, Conductivity, Temperature, Pressure and Optical Dissolved Oxygen, at user-programmable 5-minute to 24-hour intervals.
- Integral pump.
- RS-232 or USB interface.
- Internal memory and batteries (can be powered externally).*
- Expendable anti-foulant devices, unique flow path, and pumping regimen for biofouling protection.
- SeaFETCom© Windows software package (setup, data upload, and data processing).
- Field-proven MicroCAT family, with more than 10,000 instruments deployed.
- Maximum depth 2000 m.

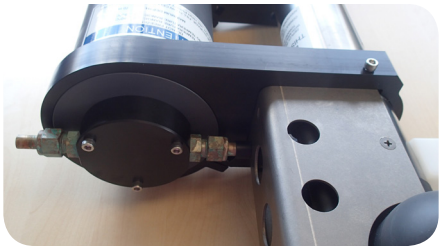
* The instrument MUST carry internal batteries; external power may extend the deployment duration depending on the sampling regime.

Components

- pH sensor is an ion selective field effect transistor type adapted for high pressure operation.
- Unique internal-field conductivity cell permits use of expendable anti-foulant devices, for long-term bio-fouling protection.
- Aged and pressure-protected thermistor has a long history of exceptional accuracy and stability.
- Strain-gauge pressure sensor with temperature compensation is available in 6 ranges.
- Oxygen sensor is field-proven, individually calibrated SBE 63 Optical Dissolved Oxygen sensor.
- Pump runs for each sample, providing improved pH, conductivity, and oxygen response, bio-fouling protection, and correlation of CTD and oxygen measurements.

Options

- RS-232 or USB interface
- Wire mounting clamp and guide or brackets for mounting to a flat surface



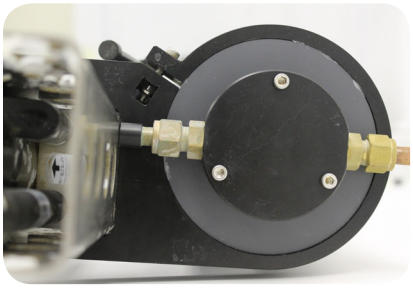
SeaFET connected to MicroCAT pumped flow path exhaust port

Measurement

Conductivity	0 to 7 S/m (0 to 70 mS/cm)
Temperature	-5 to 45 °C
Pressure	0 to 20 / 100 / 350 / 600 / 1000 / 2000 m (meters of deployment depth capability)
Dissolved Oxygen	120% of surface saturation in all natural waters (fresh and salt)
pH	6.5 - 9.0 pH

Initial Accuracy

Conductivity	± 0.0003 S/m (0.003 mS/cm)
Temperature	± 0.002 °C (-5 to to 35 °C); ± 0.01 °C (35 °C to 45 °C)
Pressure	± 0.1% of full scale range
Dissolved Oxygen	larger of ± 3 µmol/kg (0.07 ml/L, 0.1 mg/L) or ± 2%
pH	0.02 pH



Typical Stability

Conductivity	0.0003 S/m (0.003 mS/cm) per month
Temperature	0.0002 °C per month
Pressure	0.05% of full scale range per year
Dissolved Oxygen	sample-based drift < 1 µmol/kg/100,000 samples (20 °C)
pH	0.003 pH/month

Resolution

Conductivity	0.00001 S/m (0.0001 mS/cm)
Temperature	0.0001 °C
Pressure	0.002% of full scale range
Dissolved Oxygen	0.2 µmol/kg
pH	0.004 pH

Memory Capacity	4 GB
System Depth Rating	2000 m
System Dimensions	55.88 cm x 28.25 cm x 12.90 cm (Height does not include 3.56 cm end cap) 22” x 11.12” x 5.08” (Height does not include 1.4” end cap)

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Sea-Bird Electronics
sales@seabird.com
+1 425-643-9866
www.seabird.com