ClearWater SENSORS

Chemical Sensor Series

Precision submersible chemical sensors

Silicate sensor

Based on advanced lab-on-chip technology, this miniaturised microfluidic silicate sensor performs lab-grade measurements in all liquid water environments.

- **High performance** - Sensitive wet-chemical analysis
- **High-resolution data** - up to every 12 minutes (36 min. when calibrated)
- **User friendly** - Easily swappable reagents
- **Long endurance** - Over 1000 readings per reagent set
- **No drift** - Onboard calibration and standardisation
- **Environmentally friendly** - Contained onboard waste storage
- **Deep sea** - Deployable to 6000 m depth

Specifications

Temperature range:	0-35 °C	Sample volume:	0.6 mL	Applications: rivers/estuarine monitoring, aquaculture, ocean science, autonomous vehicles
Power consumption:	1.92 W	Max depth:	6000 m	
Range:	1.5 - 500 µM	Comms:	USB/serial	
Limit of Detection:	0.5 µM	Total height:	56 cm	

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Detailed Specifications

Analytical

Temperature range:	0 - 35 °C
Measurement range:	1.5 - 500 µM 0.042 - 14 mg/L-Si
Limit of Detection:	0.5 µM 0.014 mg/L-Si
Typical precision:	2%
Sample matrix:	Seawater or freshwater

Physical

Sample volume:	0.6 mL
Max depth:	6000 m
Filter pore size:	0.45 µm
Weight in air:	7.5 kg
Weight in water:	0.8 kg
Max. diameter:	16 cm
Total height:	56 cm

Electrical

Comms:	USB/serial
Supply voltage:	10—16 V
Average current draw:	160 mA
Max current draw:	300 mA
Average measurement power consumption:	1.92 W
Sleep current draw:	0.5 mA
Connector:	SubConn Micro-circular 8-way

Two available configurations

Cartridge configuration: The sensor consists of two parts - the sensor housing (bottom) and the reagent housing (top). Sample fluid is drawn in for analysis via a 0.45 µm pore-size filter. All chemical waste is stored onboard the reagent housing, which contains onboard calibration fluids.

Vehicle configuration: The sensor can be configured (on request) with individual fluid storage bags rather than a reagent housing. This configuration is suitable for underwater vehicles or other applications where the reagent housing does not easily fit. Custom integrations available on request.

Two deployment modes

Time-series mode: The sensor self-calibrates and measures on a user-defined schedule. Best suited for long-term fixed-location deployments.

Profiling mode: The sensor self-calibrates, then performs a series of measurements at its fastest possible rate - best suited for profiling applications on underwater vehicles or profilers.

	Time-series	Profiling
Measurement interval (minutes):	36	12
Measurements per reagent set:	1000	~3000
Energy per measurement (J)	3801.6	1267.2

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