

Phosphate sensor

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



High performance - Sensitive wet-chemical analysis



High-resolution data - every 10 minutes (29 minutes when calibrated)



User friendly - Easily swappable reagents



Long endurance - Up to 1000 measurements 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

Power consumption: 1.5 W

Range: 0.15 - 10 µM

Limit of Detection: 0.05 µM

Sample volume: 0.6 mL

Max depth: 6000 m

Comms: USB/serial

Total height: 56 cm

Applications: rivers/estuarine monitoring, aquaculture, ocean science, autonomous vehicles, wastewater monitoring

Detailed Specifications

Analytical

Temperature range:	0-35 °C
Measurement range:	0.15 -10 µM 0.005 - 0.31 mg/L-P
Limit of Detection:	0.05 µM 0.0016 mg/L-P
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:	120 mA
Max current draw:	300 mA
Average measurement power consumption:	1.5 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):	29	10
Measurements per reagent set:	1000	~3000
Energy per measurement (J)	2332.8	777.6