

HydroCycle-PO₄

In Situ Dissolved Phosphate

The HydroCycle-PO₄ is a wet chemical sensor engineered for environmental monitoring to enable valid, scientifically defensible results that lead to better management recommendations. A NIST traceable on-board standard, factory calibration, a 2.3 µg P/L detection limit, and an accurate calibration means you can trust the data, line-up grab sample records, and swap sensors with minimal offsets.

Autonomous, low-power operations and five month reagent stability enable extended deployments in remote locations. Over 1500 samples between servicing, up to four samples per hour and both SDI-12 and RS232 telemetry options allow for higher frequency phosphate data than before.

Applications

For continuous or real-time measurement of dissolved phosphate in:

- Lakes and reservoirs
- Streams, rivers, channels, or canals
- Estuaries

Ideal for monitoring for:

- Point and non-point source nutrient inputs



Features

- **Accurate**- Nanomolar resolution and scatter-insensitive optical cell
- **Robust** – Reagent lifespan of 5 months and greater than 90% uptime
- **Advanced Fluidics** – Data quality resistant to high oxygen levels
- **Onboard Quality Control** – Real time QC flags to speed up troubleshooting.

Optics

Path Length	5 cm
Wavelength Range	870 nm
Linearity	> 95% R ²

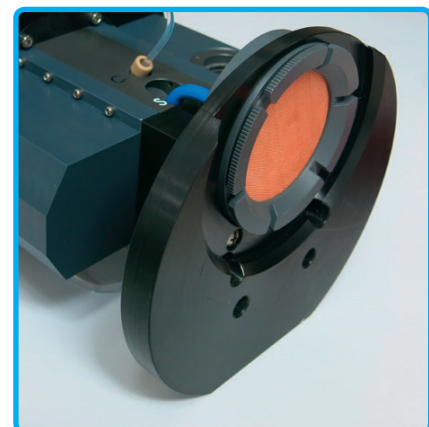
Electrical

Input (Main Port)	10.5 – 18 VDC
Current Draw (Operation)	3.0 A max
Current Draw (Operation)	115 mA avg
Communication Interface	RS-232/ SDI-12
Data Storage	1 GB CF Type II
Battery	No internal battery



Mechanical

Rated Depth	200 m
Weight in Air (w/reagents)	7.6 kg
Weight in Water	0.4 kg
Height (w/handle)	56 cm
Diameter	18 cm
Temperature (Operational)	0 - 35°C



- **Detection limit, three standard deviations of 18 MOhm water:** $\leq 0.075 \mu\text{m}$, $\leq 0.0023 \text{ mg/L PO}_4\text{-P}$
- **Quantification limit, ten standard deviations of 18 MOhm water:** $\leq 0.025 \mu\text{m}$, $\text{PO}_4\text{-P}$, $\leq 0.0077 \text{ mg/L PO}_4\text{-P}$
- **Standard deviation of standard solution of 2.6 μm :** $\leq 0.0015 \text{ mg/L PO}_4\text{-P}$
- **Range, nominal:** 0–10 μm , 0 – 0.3 mg/L $\text{PO}_4\text{-P}$ *A higher range is possible (0-40 μm , 0-1.2 mg/L $\text{PO}_4\text{-P}$), but is outside specifications.*
- **Sampling rate:** Standard operation: 15 min./sample Spiked operation: 35 min./sample
- **Filter pore size:** 5–10 μm (7.5 μm average)
- **Service and Warranty:** Factory service recommended every 12 -18 months. 1 year warranty.