

AquapHOx-L Flexible Underwater Loggers

For Optical O₂, pH & Temperature Sensors



NEW TECHNOLOGY

- Stand-alone long-term logging
- Shallow water & down to 4000 m
- Exchangeable sensor heads
- New pH sensor technology
- Ultra-High Speed O₂ sensor
- New Ultra-Trace O₂ sensor
- Unprecedented flexibility

**Stand-alone
Long-term Logging**

INNOVATIVE UNDERWATER PLATFORM

PyroScience stands for innovative optical sensor technology: simple, compact & flexible sensor systems with expert customer support. The new all-in-one optical sensor platform AquapHOx is a cost-effective, flexible and easy-to-operate underwater optical sensor solution. It is available as long-term loggers and real-time data transmitters, and can be combined with a broad sensor portfolio for monitoring critical parameters and their dynamics in coastal ecosystems, open ocean and the deep sea.

AquapHOx Logger Devices

- Multi-Analyte Deep Sea Logger APOX-LX**
 Titanium housing (1.35 kg), down to 4000m
 1 port for O₂, pH and optical T sensors
 Maximum flexibility (heads, ranges & analytes)
- Shallow Water O₂ Logger APOX-L-O₂**
 POM housing (0.45 kg)
 Variety of O₂ sensor heads & ranges
- Shallow Water pH Logger APOX-L-PH**
 POM housing (0.45 kg)
 Several pH sensor heads & ranges



New Optical O₂ & pH Sensors

Broad portfolio of different O₂ & pH sensor types:



Full Range for O₂ monitoring
Ultra-Trace O₂ sensor
Ultra-High Speed sensor



Different ranges available
Dedicated sensors for pH total scale
Minimal influence of salinity

pH (total scale) _____

Ultra-Trace O₂ _____

(Ultra-) High Speed O₂ _____



General Device Specifications

Dimension	63 x 300 mm
Compatible Optical Sensors	Optical sensors with underwater connector (-SUB) from PyroScience
Sensor Formats	Sensor caps, flow-through cells and probes for O ₂ & pH, O ₂ micro- & minisensors, T minisensors
Data Storage	4 GB (ca. 40 million data points)
Battery	Rechargeable LiPo battery, 1250 mAh
Stand-alone Logging Time	ca. 6 months with 1 min logging interval
Max. Sample Rate	1 s
Temperature Sensor	Integrated for automatic T compensation of optical sensors

Maximum Flexibility



Many Applications with a new level of flexibility:

- Exchangeable sensor heads for various applications
- Sensor heads for different analytes (pH, O₂, T)
- Variety of sensor formats and measuring ranges



Multiple Applications

Sensor Caps for O₂ & pH

- Long-term deployments
- Water column profiling
- Flow-through systems
- In-situ incubations
- Monitoring

New Ultra-Trace O₂ sensors

- Oxygen Minimum Zones
- De-oxygenation events

Micro- & Minisensors:

- Profiling over surface structures & in sediments



O₂ Sensors: Full Range, (Ultra-)High Speed, Ultra-Trace

O ₂ Measuring Range	• 0 - 23 mg/L
Full Range/High Speed	• 0 - 720 µmol/L
O ₂ Measuring Range	• 0 - 0.09 mg/L
Ultra-Trace	• 0 - 2.7 µmol/L
Detection Limit	• 0.01 mg/L
Full Range/High Speed	• 0.3 µmol/L
Detection Limit	• 0.05 µg/L
Ultra-Trace	• 1.3 nmol/L
Response Time (t ₉₀)	• Ultra-High Speed: <0.3 s • High Speed: <0.8 s • Full range: <3 s • Ultra Trace: <10 s
Influence of Pressure	ca. 1% / 1000m
Salinity Range	0 to 50 PSU
Temperature Range	-2°C to 50°C

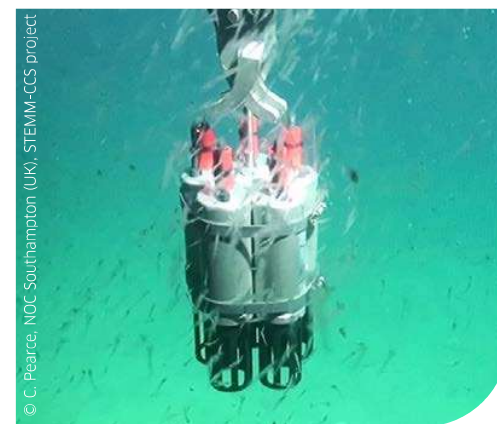
pH Sensors: different versions available

pH Ranges	• PK7: pH 6.0 - 8.0 • PK8: pH 7.0 - 9.0 • PK8T: total scale
Resolution	• PK7: 0.003 at pH 7 • PK8(T): 0.003 at pH 8
Precision	0.02
Response Time (t ₉₀)	<60 s
Salinity Range	10 to 40 PSU
Temperature Range	5°C to 40°C

Exemplary Applications



Measurement on the Great Barrier Reef



Deployment in the North Sea

CONTACT AND SERVICE

Please contact us for more information
concerning our

- New AquapHOx Technology
- AquapHOx Loggers & Transmitters
- Optical pH, O₂ & T sensors
- Sensor formats and ranges
- Lab & portable sensor systems
- OEM solutions



This project has received funding from the EU's
Horizon 2020 research & innovation programme SME-2
under grant agreement No.82964

