

# AquapHOx-L Flexible Underwater Loggers

For Optical O<sub>2</sub>, pH & Temperature Sensors

O<sub>2</sub>

pH

T



## NEW TECHNOLOGY

- Stand-alone long-term logging
- Shallow water & down to 4000 m
- Exchangeable sensor heads
- New pH sensor technology
- Ultra-High Speed O<sub>2</sub> sensor
- New Ultra-Trace O<sub>2</sub> 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 APHOX-LX**  
 Titanium housing (1.35 kg), down to 4000m  
 1 port for O<sub>2</sub>, pH and optical T sensors  
 Maximum flexibility (heads, ranges & analytes)
- Shallow Water O<sub>2</sub> Logger APHOX-L-O<sub>2</sub>**  
 POM housing (0.45 kg)  
 Variety of O<sub>2</sub> sensor heads & ranges
- Shallow Water pH Logger APHOX-L-PH**  
 POM housing (0.45 kg)  
 Several pH sensor heads & ranges



### New Optical O<sub>2</sub> & pH Sensors

Broad portfolio of different O<sub>2</sub> & pH sensor types:

- O<sub>2</sub>**
  - Full Range for O<sub>2</sub> monitoring
  - Ultra-Trace O<sub>2</sub> sensor
  - Ultra-High Speed sensor
- pH**
  - Different ranges available
  - Dedicated sensors for pH total scale
  - Minimal influence of salinity



### 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 <sub>2</sub> & pH, O <sub>2</sub> 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, O<sub>2</sub>, T)
- Variety of sensor formats and measuring ranges



## Multiple Applications

### Sensor Caps for O<sub>2</sub> & pH

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

### New Ultra-Trace O<sub>2</sub> sensors

- Oxygen Minimum Zones
- De-oxygenation events

### Micro- & Minisensors:

- Profiling over surface structures & in sediments



### O<sub>2</sub> Sensors: Full Range, (Ultra-)High Speed, Ultra-Trace

O <sub>2</sub> Measuring Range	• 0 - 23 mg/L
Full Range/High Speed	• 0 - 720 µmol/L
O <sub>2</sub> 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 <sub>90</sub> )	• 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

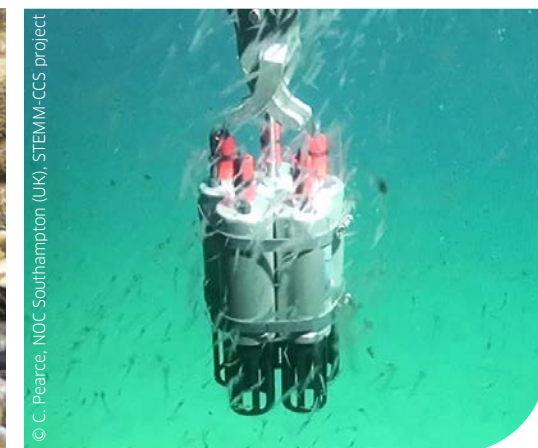
### pH Sensors: different versions available

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 <sub>90</sub> )	<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, O<sub>2</sub> & 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

