

# Specifications

## Underwater Oxygen Sensors

---

### 1 OXYGEN SENSOR SPECIFICATIONS

**Only valid for 2-point calibrated sensors at 20°C, 1013mbar absolute pressure, using default measuring parameters/modes.** Specifications are valid for underwater oxygen cap probes (item no.: **OXCAP-SUB**, **OXCAPG-HS-SUB**, **OXCAPG-UHS-SUB**), underwater oxygen sensor spots (item no.: **OXSP5-SUB**) and underwater oxygen robust probes (item no.: **OXROB10-SUB**).

#### 1.1 Dissolved Oxygen: $\mu\text{mol/L}$ , $\text{mg/L} = \text{ppm}$

Oxygen dissolved in water can be expressed in % air saturation and in concentration units like  $\mu\text{mol/L}$ ,  $\text{mg/L}$  (ppm), and  $\text{mL/L}$ . For details on calculation of dissolved oxygen units from partial pressure readings (interpolation formula based on temperature, atmospheric pressure and salinity), please see the respective sensor/oxygen meter manuals.

Specifications		
Measuring Range	$\mu\text{mol/L}$	$\text{mg/L}$ (ppm)
Optimum	0-720 $\mu\text{mol/L}$	0-23 $\text{mg/L}$
Maximum (not specified)	0-1.4 $\text{mmol/L}$	0-44 $\text{mg/L}$
Accuracy *		
at 13.75 $\mu\text{mol/L}$ / 0.44 $\text{mg/L}$	$\pm 0.3 \mu\text{mol/L}$	$\pm 0.01 \text{mg/L}$
at 275 $\mu\text{mol/L}$ / 8.8 $\text{mg/L}$	$\pm 3 \mu\text{mol/L}$	$\pm 0.1 \text{mg/L}$
Resolution		
at 13.75 $\mu\text{mol/L}$ / 0.44 $\text{mg/L}$	$\pm 0.15 \mu\text{mol/L}$	$\pm 0.005 \text{mg/L}$
at 275 $\mu\text{mol/L}$ / 8.8 $\text{mg/L}$	$\pm 0.8 \mu\text{mol/L}$	$\pm 0.025 \text{mg/L}$
Detection Limit	0.3 $\mu\text{mol/L}$	0.01 $\text{mg/L}$

\* The absolute accuracy of the full range sensors depends on the calibration mode. For 1-point calibrated sensors these values increase due to a decreasing accuracy. More details on request.

## 1.2 General Characteristics

<b>Response Time (t90) in Water ‡</b>	<b>OXCAP-/OXSP5-/OXROB10-SUB</b> < 3s	<b>OXCAPG-HS-SUB</b> < 0.8s	<b>OXCAPG-UHS-SUB</b> < 0.3s
<b>Drift</b>	<b>OXCAP-/OXSP5-/OXROB10-SUB</b> < 1% in 3 months	<b>OXCAPG-HS-/OXCAPG-UHS-SUB</b> < 2% in 3 months	
<b>Minimum Lifetime</b>	<b>OXCAP-/OXSP5-/OXROB10-SUB</b> 2,000,000 data points	<b>OXCAPG-HS-/OXCAPG-UHS-SUB</b> <1,000,000 data points	
<b>Influence of Pressure</b>	ca. 1%/1000m		
<b>Temperature Range</b>	-2°C (28.4°F) to 40°C (104°F)		
<b>Calibration Modes</b>	1-point and 2-point calibration in water		
<b>Application Areas</b>	Laboratory, industry, research. <b>NOT</b> for medical or any safety-critical application. <b>NOT</b> for application in humans. <b>NOT</b> for application in food intended for human consumption.		

‡ Typical response times for 90% signal. Measured for the transition from air into a stirred solution of 3% Na<sub>2</sub>SO<sub>3</sub>

## 2 APPLICABILITY AND CROSS-SENSITIVITY

	Applicability	Cross-Sensitivity	NO Cross-Sensitivity
Water/Aqueous solutions	X		
Ethanol	short-term only		
Methanol	short-term only		
Isopropanol	short-term only		
Other organic solvents*		X	
Chlorine gas (Cl <sub>2</sub> ), NO <sub>2</sub> gas, bleach		X	
pH 1-14			X
CO <sub>2</sub>			X
CH <sub>4</sub>			X
H <sub>2</sub> S			X
Any ionic species			X

\* Includes liquid solvents and solvent vapors

## 3 CLEANING & STORAGE

<b>Cleaning</b>	3% H <sub>2</sub> O <sub>2</sub> , Soap solution, short-term Ethanol
<b>Storage</b>	> 3 years in darkness at room temperature

### Contact

**PyroScience GmbH**  
 Hubertusstraße 35  
 52064 Aachen  
 Deutschland

Tel.: +49 (0)241 5183 2210  
 Fax: +49 (0)241 5183 2299  
[info@pyroscience.com](mailto:info@pyroscience.com)  
[www.pyroscience.com](http://www.pyroscience.com)