

# Specifications

## OXYGEN SENSOR MINISPOTS

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### 1 SENSOR SPECIFICATIONS

**Only valid in water/gas (typ. air components) using default measuring parameters/modes!**

Specifications are valid for oxygen sensor minispots (item no.: **OXMWP-96R** and **OXMWP-96F**).

## 1.1 Dissolved Oxygen: % air saturation, $\mu\text{mol/L}$ , $\text{mg/L}$ , ppm, $\text{mL/L}$

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 oxygen sensor manual.

<b>Specifications</b>		
<b>Measuring Range</b>	<b>% air saturation (a.s.)</b>	<b>mg/L (ppm)</b>
Optimum	0-250% a.s.	0-44 mg/L
Maximum (not specified)	0-500% a.s.	0-88 mg/L
<b>Accuracy *</b>		
at 5% a.s./0.44 mg/L	$\pm 0.5\%$ a.s.	$\pm 0.05$ mg/L
at 95% a.s./8.8 mg/L	$\pm 3\%$ a.s.	$\pm 0.3$ mg/L
<b>Resolution</b>		
at 5% a.s./0.44 mg/L	0.05% a.s.	0.005 mg/L
at 95% a.s./8.8 mg/L	0.5% a.s.	0.05 mg/L
<b>Detection Limit *</b>	0.5% a.s.	0.05 mg/L
<b>Detection Limit for 2-point Manual Multi-Channel Calibration **</b>	0.1% a.s.	0.01 mg/L

\* Only valid for 1-point Manual Multi-Channel calibrated sensors. The absolute accuracy of oxygen sensor minispots depends on the calibration mode.

\*\* Due to contamination hazards the Manual Multi-Channel 2-point Calibration is not recommended.

## 1.2 Gas Phase: partial pressure pO<sub>2</sub> (hPa), volume percent pV (% O<sub>2</sub> gas)

For a calibrated sensor, the partial oxygen pressure pO<sub>2</sub> in units of hPa (equivalent to mbar) is the fundamental oxygen unit measured by the oxygen meter (in gas and water phase).

<b>Specifications</b>		
<b>Measuring Range</b> Optimum Maximum (not specified)	<b>% O<sub>2</sub> gas</b> 0-50% O <sub>2</sub> 0-100% O <sub>2</sub>	<b>hPa</b> 0-500 hPa 0-1000 hPa
<b>Accuracy *</b> at 1% O <sub>2</sub> /10 hPa at 20% O <sub>2</sub> /200 hPa	±0.1% O <sub>2</sub> ±0.6% O <sub>2</sub>	±1 hPa ±6 hPa
<b>Resolution</b> at 1% O <sub>2</sub> /10 hPa at 20% O <sub>2</sub> /200 hPa	0.01% O <sub>2</sub> 0.1% O <sub>2</sub>	0.1 hPa 1 hPa
<b>Detection Limit</b>	0.1% O <sub>2</sub>	1 hPa
<b>Detection Limit for 2-point Manual Multi-Channel Calibration **</b>	0.02% O <sub>2</sub>	0.2 hPa

\* Only valid for 1-point Manual Multi-Channel calibrated sensors. The absolute accuracy of oxygen sensor minispots depends on the calibration mode.

\*\* Due to contamination hazards the Manual Multi-Channel 2-point Calibration is not recommended.

## 1.3 General Characteristics

<b>Response Time (t90) in Water ‡</b>	<30 s
<b>Temperature Range</b>	specified: 20°C (68°F) to 40°C (104°F)
<b>Minimum Lifetime</b>	1 000 000 data points
<b>Drift ‡‡</b>	<0.5% O <sub>2</sub> /month <0.20 mg/L /month
<b>Calibration Modes</b>	2-point calibration, 1-point calibration, Multi-Channel Calibration and Batch Calibration
<b>Material of microplates (apart from sensing layer)</b>	untreated polystyrene
<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 a 90% signal change. Measured for the transition from air into a circulating solution of 3% Na<sub>2</sub>SO<sub>3</sub>.

‡‡ at 21% O<sub>2</sub>, 37°C, 1013 mbar ambient gas pressure, protected from direct sunlight, after an equilibration time at 37°C of minimum 1 day, with a measurement interval of 30 seconds.

## 2 APPLICABILITY AND CROSS-SENSITIVITY

	Applicability	Cross-Sensitivity	NO Cross-Sensitivity
Water/Aqueous solutions	X		
Gas Phase (typ. air components)	X		
Ethanol <sup>1</sup>	short-term only		
Methanol <sup>1</sup>	short-term only		
Isopropanol <sup>1</sup>	short-term only		
Other organic solvents <sup>2</sup>		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

<sup>1</sup> Only diluted and after conditioning – contact [info@pyroscience](mailto:info@pyroscience) for more information.

<sup>2</sup> Includes liquid solvents and solvent vapors.

### 3 CLEANING, STERILIZATION, STORAGE

<b>Cleaning</b>	3% H <sub>2</sub> O <sub>2</sub> , soap solution, short-term 70% ethanol
<b>Sterilization</b>	Short-term 70% ethanol, short-term 70% isopropanol, ethylene oxide (EtO, EO) sterilization (details on request), UV-sterilization (details on request)
<b>Storage</b>	1 years in darkness at room temperature

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