

## Specifications and properties comparison table for MINI and MICRO fiber optics sensors.

Specifications	Fibre optic sensor type	
	MINI	MICRO
Sensors	Flow through, dipping probe & sensor spots	
Use with	Flow through micro, fixed and/needle type & implantable	
Use with	Witrox 1, Witrox 4, Fibox 3, OXY-4 mini, OXY-10 mini	
Use with	Microx TX3, OXY-4 micro, OXY-10 micro	
Measurement range	0 – 100 % O <sub>2</sub> 0 – 475 % air saturation 0 – 1000 hPa 0 – 45 mg/L 0 – 1400 µmol	0 – 50 % O <sub>2</sub> 0 – 235 % air saturation 0 – 500 hPa 0 – 22.5 mg/L 0 – 700 µmol
Limit of detection	0.03 % oxygen 0.15 % air saturation 15 ppb	0.05 % oxygen 0.25 % air saturation 20 ppb
Resolution	± 0.01 % O <sub>2</sub> at 0.21 % O <sub>2</sub> ± 0.1 % O <sub>2</sub> at 20.9 % O <sub>2</sub> ± 0.1 hPa at 2 hPa ± 1 hPa at 207 hPa ± 0.14 µmol at 2.83 µmol ± 1.4 µmol at 283.1 µmol ± 0.0475 % air saturation at 1 % air saturation ± 0.475 % air saturation at 100 % air saturation	± 0.01 % O <sub>2</sub> at 0.21 % O <sub>2</sub> ± 0.09 % O <sub>2</sub> at 20.9 % O <sub>2</sub> ± 0.1 hPa at 2 hPa ± 0.87 hPa at 207 hPa ± 0.14 µmol at 2.83 µmol ± 1.3 µmol at 283 µmol ± 0.005 mg/L at 0.09 mg/L ± 0.04 mg/L at 9.06 mg/L ± 0.0475 % air saturation at 1 % air saturation ± 0.4275 % air saturation at 1 % air saturation
Accuracy	± 0.4 % O <sub>2</sub> at 20.9 % O <sub>2</sub> ± 0.05 % O <sub>2</sub> at 0.2 % O <sub>2</sub> ± 2 % air saturation at 100 % air saturation ± 0.25 % air saturation at 1 % air saturation	
Drift at 0 % oxygen (sampling interval 1 min)	< 0.03 % O <sub>2</sub> within 30 days < 0.15 % air saturation within 30 days	< 0.1 % O <sub>2</sub> within 30 days < 0.475 % air saturation within 30 days
Temperature operating range	0 – 50 °C	
Response time (t <sub>90</sub> )	< 6 sec. (gas) < 40 sec. (liquid)	
Response time TS* (t <sub>90</sub> )		< 1 sec. (gas) < 2 sec. (liquid)
Response time TF** (t <sub>90</sub> )		< 15 sec. (gas) < 30 sec. (liquid)
Precision	± 0.5 % air saturation ± 0.105 % O <sub>2</sub> ± 1.05 hPa ± 1.5 µmol ± 0.105 % O <sub>2</sub> ± 0.05 mg/L	
<b>Properties</b>	<b>MINI</b>	<b>MICRO</b>
Compatibility	Aqueous solutions, ethanol, methanol	
No cross-sensitivity with	pH 1 – 14 CO <sub>2</sub> , H <sub>2</sub> S, SO <sub>2</sub> Ionic species	
Cross-sensitivity to	Organic solvents, such as acetone, toluene, chloroform or methylene chloride Chlorine gas	
Sterilization procedures	Ethylene oxide (EtO) Steam sterilization Gamma irradiation	Ethylene oxide (EtO) Steam sterilization (implantable & TF** sensor)
Cleaning procedures	3 % H <sub>2</sub> O <sub>2</sub> Cleaning in place (CIP, 5 % NaOH, 90 °C, 194 °F) Acidic agents (HCl, H <sub>2</sub> SO <sub>4</sub> ), max. 4 – 5 %	3 % H <sub>2</sub> O <sub>2</sub> ethanol, soap solution
Calibration	Two-point calibration in oxygen-free environment (nitrogen, sodium sulfite) and air-saturated environment	
Storage Stability (dark room, 20 °C +/- 5 °C)	2 years	5 years

\*TS: tapered sensor tip with a diameter < 50 µm and no optical isolation

\*\*TF: flat-broken sensor tip with a diameter of 140 µm



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