

## METERS

O<sub>2</sub> °C

### Microx 4



The Microx 4 is a completely stand-alone, portable fiber optic oxygen meter. It can be used with non-invasive sensors & probes (1 mm fiber), and oxygen microsensors (200 µm fiber) in different designs. This oxygen meter is compatible with the wide range of sensors type PSt7 (detection limit 15 ppb, 0 – 100 % oxygen). With its integrated barcode reader the Microx 4 can easily recognize and assign calibration data to sensors in just one scan. The implemented sensor management system allows storing data of up to 100 sensors. Microx 4 has 16 GB internal memory which allows prolonged computer-independent operation. It is delivered with the PreSens Datamanager software: sensor, user and measurement data is easily transferred between the PC and the oxygen meter. The data management and easy data export will facilitate and speed up your analysis.

- For use with non-invasive sensors, probes & microsensors
- Straightforward measurement due to unique sensor ID
- Simple calibration via barcode scan
- 16 GB internal memory
- Compensation of temperature, pressure and salinity
- Energy management for long term measurements
- Optional database supported software offers simultaneous control of multiple devices

## TECHNICAL

Specifications	
Oxygen sensor	PSt7 (optical ST connector)
Temperature sensor	Pt100 temperature connector (sensor not included)
Temperature performance	from 0 °C to + 50 °C, Resolution $\pm 0.1$ °C
Power supply	4 AA nickel-metal hybrid cells (min. 2,200 mAh) Use only AC Adapter (5 VDC / min. 1 A) supplied for recharging
Max. battery operating time	16 hrs. (3 sec. interval measurement, Default LED intensity, Display backlight OFF, at room temperature)
Temperature: operating / storage	from 0 °C to + 50 °C / from - 20 °C to + 70 °C
Relative humidity	up to 80 % (non condensing)
Dimensions	37 mm x 180 mm x 119 mm
Weight	0.65 kg (w/o batteries & protection kit) 0.78 kg (with batteries & protection kit)
Digital interface	USB Interface (cable included)
Display	3,5 " color TFT, 320 x 240 pixel
Internal memory	16 GB Memory (~ 40,000,000 data sets) Export via included software

## SENSORS

$O_2$

### Profiling Oxygen Microsensor PM-PSt7



The PM-PSt7 is one of the most robust oxygen microsensor PreSens offers – with a firmer fiber construction and a splash-proof metal housing. It is specifically designed for profiling applications and should be used whenever minimal invasive measurements need to be performed in semi-solid samples, e. g. in sediments, microbial mats or biofilms. The PM-PSt7 is compatible with the Microx 4 and OXY-1 / -4 ST series oxygen meters and has a measurement range of 0 – 100 % oxygen, with a detection limit of 0.03 % oxygen. Together with the Automated Micromanipulator and the software PreSens Profiling Studio boundary layers and gradients can be followed online, while the sensor is automatically moved inside the sample.

- High spatial resolution ( $< 50 \mu m$ )
- High temporal resolution ( $t_{90} < 3 \text{ sec.}$ )
- Penetration probe for insertion into semi-solids
- Mechanical interlock for precise vertical localization inside the sample
- Splash-proof metal housing
- No electrical interference due to optical measurements

## TECHNICAL

Specifications*	Gaseous & Dissolved O <sub>2</sub>	Dissolved O <sub>2</sub>
Measurement range	0 – 100 % O <sub>2</sub> 0 – 1000 hPa	0 – 45 mg/L 0 – 1400 µmol/L
Limit of detection	0.03 % oxygen	15 ppb
Resolution	± 0.01 % O <sub>2</sub> at 1 % O <sub>2</sub> ± 0.05 % O <sub>2</sub> at 20.9 % O <sub>2</sub>	± 0.005 mg/L at 0.4mg/L ± 0.025 mg/L at 9.06 mg/L
Accuracy at + 20 °C**	± 0.05 % O <sub>2</sub> or ± 3 % rel.	
Measurement temperature range	from 0 to + 50 °C	
Response time {t <sub>90</sub> }	< 3 sec. {gas}	< 10 sec. {liquid}
Properties		
Compatibility	Aqueous solutions, ethanol, methanol	
No cross-sensitivity	pH 1 – 14 CO <sub>2</sub> , H <sub>2</sub> S, SO <sub>2</sub> Ionic species	
Cross-sensitivity	Organic solvents, such as acetone, toluene, chloroform or methylene chloride Chlorine gas	
Sterilization procedure	Ethylene oxide {EtO}	
Cleaning procedure	3 % H <sub>2</sub> O <sub>2</sub> Ethanol Soap solution	
Calibration	Two-point calibration with oxygen-free environment {nitrogen, sodium sulfite} and air-saturated environment	
Storage stability	60 months provided the sensor material is stored in the dark at room temperature	
*data for microsensor TF = flat-broken sensor tip with 230 µm diameter		
**after two-point calibration as described in the manual		

## ACCESSORIES



[microsensor not included]

### Manual Micromanipulator MM

The Manual Micromanipulator MM is specifically designed for PreSens needle-type microsensors (NTH). The system allows moving the microsensor vibration-free in 3 axes with  $\mu\text{m}$  reading accuracy. A solid base plate ensures a stable set-up of the micromanipulator and enables safely tilting the whole system up to  $90^\circ$  - so you can use it in any required position. With the safe-insert function the microsensor retracted in its steel needle can be securely inserted into your area of interest. The sensor tip can then be extended delicately and safely with  $\mu\text{m}$  reading accuracy, without risk of breaking the sensor fiber.

- Safe-insert function for retractable microsensors
- $90^\circ$  tilting mechanism
- Specifically designed for PreSens microsensors
- Vibration-free micromanipulation in 3D
- Fine drive with  $\mu\text{m}$  reading accuracy
- Solid base plate for most stable set-up

## TECHNICAL

Specifications	
Compatibility	Needle-type Housed (NTH), Profiling (PM) and Implantable (IMP) oxygen & pH microsensors
Dimensions	230 mm x 130 mm x 200 mm
Weight	Weight w/o base plate: 1,1 kg Weight with base plate: 3 kg
Travel range	x-axis: 37 mm, fine drive: 10 mm y-axis: 20 mm z-axis: 25 mm
Reading accuracy	Coarse adjustment: 0.1 mm Fine adjustment: 0.01 mm
Coarse positioning	x-axis: 70 mm
Rotability	$360^\circ$
Material	Aluminum & steel



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## GET IN CONTACT

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 **Rent-a-meter**

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