



## METERS

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### 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. 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
- 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-etal 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	4 GB Memory (~ 10,000,000 data sets) Export via included software

## SENSORS

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### Implantable Oxygen Microsensor IMP-PSt7

This optical oxygen microsensor can be applied in various customized applications. The tiny probe has a tip size  $< 50 \mu\text{m}$  to  $230 \mu\text{m}$  while the outer diameter ranges from  $230 \mu\text{m}$  to  $900 \mu\text{m}$ . The microsensor tip is not mounted into any additional housing. The bare glass fiber tip can be mounted to your own housings, steel tubes and micro respirometer chambers etc. The small outer diameter even allows insertion into implantable Venflon-tubes. Moreover the microsensor can be deployed in sealed containers to measure the oxygen content directly. The IMP-PSt7 has a measurement range of 0 – 100 % oxygen, with a limit of detection of 0.03 %  $\text{O}_2$ .

- High spatial resolution ( $< 50 \mu\text{m}$ )
- High temporal resolution ( $t_{90} < 3 \text{ sec.}$ )
- Integration into customized housings and set-ups
- No consumption of oxygen
- Measurement in headspace & liquids

## TECHNICAL

Specifications*	Gaseous & Dissolved O <sub>2</sub>	Dissolve 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)
<b>Properties</b>		
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	Steam sterilization Ethylene oxide (EtO) Recalibration recommended	
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	24 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		

## ACCESSORIES



### Manual Micromanipulator MM33

The Manual Micromanipulator MM33 offers high resolution control when working with PreSens microsensors. The system allows moving the microsensor vibration-free in 3 axes with  $\mu\text{m}$  reading accuracy. The MM33 is equipped with a tilting platform - so mounted to the Heavy Stand it can be adjusted and used in any required position. It can additionally be equipped with the Safe-Insert accessory. This allows to insert the microsensor retracted in its steel needle securely 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.

- Tilting mechanism
- Vibration-free micromanipulation in 3D
- Fine drive with  $\mu\text{m}$  reading accuracy

## TECHNICAL

### Specifications

Compatibility	Needle-type Housed (NTH), Profiling (PM) and Implantable (IMP) oxygen & pH microsensors
Dimensions	160 mm x 90 mm x 190 mm
Weight	1000 g
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
Rotatability	360°
Material	Aluminum & steel

## ACCESSORIES



### Heavy Stand (HS)

The Heavy Stand (HS) ensures safe mounting and operation of the Automated Micromanipulator. The heavy base plate enables a most stable and vibration-free set-up. The HS comes with two square profile rails of different lengths, so the micromanipulator can be installed in different heights, and is adaptable to different samples. Additionally, two metal rods can be attached to the HS to install further measurement equipment, like VisiSens, cameras or lighting next to the AM. The HS can be balanced with its three adjusting feet and the spirit level integrated in the base plate if required.

- Adjustable micromanipulator height and orientation & can be balanced
- For AM & MM33
- Additional mounting rods for further equipment

## TECHNICAL

### Specifications

Dimensions (H x W x D)	Base plate: 60 mm x 400 mm x 600 mm Posts (H): 500 mm (long post) / 300 mm (short post)
Weight	14 kg
Mounting	M6 screws
Material	Aluminium & stainless steel (screws & mounting rods)
Features	3 x adjustable feet, 1 x circular level, 2 x mounting rods (Ø 12 mm)

## GET IN CONTACT

- [Request more info](#)
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PreSens Precision Sensing GmbH  
Am Biopark 11, D-93053 Regensburg  
Phone +49 941 942 72 100  
Fax +49 941 942 72 111  
[info@PreSens.de](mailto:info@PreSens.de)