METERS

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 ± 0.1 °C
Power supply	4 AA nickel-etal bybrid 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

Needle-Type Oxygen Microsensor NTH-PSt7

The glass fiber with its oxygen-sensitive tip (< 50 µm with tapered sensor tip TS, < 230 µm with flat-broken sensor tip TF) is protected inside a stainless steel needle and can be extended for measurements. As long as the sensor tip is retracted and sheltered inside this needle the microsensor can be pierced through septum rubber or any other harsh material. With its small tip size and fast response time (t_{90} < 3 s) this sensor is ideally suited for research and packaging applications, where micro-invasive and small sensors are needed.

- High spatial resolution (down to < 50 µm)
- High temporal resolution ($t_{90 < 3 sec.}$)
- No consumption of oxygen
- Signal independent of flow velocity
- Measures in liquids as well as in gas phase

TECHNICAL

Specifications*	Gaseous & Dissolved O_2	Dissolve O_2
Measurement range	0 – 100 % O_2 0 – 1000 hPa	0 – 45 mg/L 0 – 1400 µmol/L
Limit of detection	0.03 % oxygen	15 ppb
Resolution	± 0.01 % O_2 at 1 % O_2 ± 0.05 % O_2 at 20.9 % O_2	± 0.005 mg/L at 0.4mg/L ± 0.025 mg/L at 9.06 mg/L
Accuracy at + 20 °C	± 0.05 % O_2 or ± 3 % rel.	
Measurement temperature range	from 0 to + 50 °C	
Response time (t_{90})	< 3 sec. (gas)	< 10 sec. (liquid)
Properties		
Compatibility	Aqueous solutions, ethanol, methanol	
No cross-sensitivity	pH 1 – 14 CO_2, H_2S, SO_2 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_2O_2 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

Safe-Insert Accessory

The safe insert accessory can be attached to the Automated Micromanipulator. It is specifically designed for needle-type housed microsensors (NTHs). After the needle of an NTH is pierced through material or inside a sample the sensor tip can be safely extended in µm steps with the safe-insert function, without the risk of breaking the sensor fiber.

- Safe insertion of needle-type microsensors into semi-solids
- Expands the AM functionality

TECHNICAL

Specifications	
Dimensions	58 mm x 56 mm x 35 mm
Weight	50 g
Material	Aluminum
Features	Includes 2x mounting screws (M3) and 1x Allen key (size 2.0)

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 µm 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 µm reading accuracy, without risk of breaking the sensor fiber.

- Tilting mechanism
- Vibration-free micromanipulation in 3D
- Fine drive with µm 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 save 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 (∅ 12 mm)

GET IN CONTACT

Request more info

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Rent-a-meter

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