PreSens
PRECISION SENSING

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

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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

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SENSORS

Needle-Type Oxygen Microsensor NTH-PSt7

The glass fiber with its oxygen-sensitive tip ($< 50\,\mu m$ with tapered sensor tip TS, $< 230\,\mu m$ 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 $< 50\,\mu m$)
- 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

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TECHNICAL

Specifications*	Gaseous & Dissolved O_2	Dissolve O_2
Measurement range	$0 - 100\%\,O_2$ $0 - 1000\,hPa$	$0 - 45\,mg/L$ $0 - 1400\,\mu mol/L$
Limit of detection	0.03% oxygen	$15\,ppb$
Resolution	$\pm 0.01\%\,O_2$ at $1\%\,O_2$ $\pm 0.05\%\,O_2$ at $20.9\%\,O_2$	$\pm 0.005\,mg/L$ at $0.4\,mg/L$ $\pm 0.025\,mg/L$ at $9.06\,mg/L$
Accuracy at $+20\,°C$	$\pm 0.05\%\,O_2$ or $\pm 3\%$ 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 $230\,\mu m$ diameter

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ACCESSORIES

Automated Micromanipulator AM

The Automated Micromanipulator is specifically designed for profiling applications with the PreSens profiling microsensor (PM), and can also be operated with needle-type housed (NTH) and implantable (IMP) microsensors. With this system the microsensor can be moved vibration-free with μm reading accuracy and it enables exact localization of the sensor in the sample. Automated profiling can be performed along one dimension in μm resolution. The micromanipulator additionally comprises a tilting platform so the microsensor can be adjusted at an angled position. The associated user-friendly, and database-supported software PreSens Profiling Studio allows easy control of the AM and the respective oxygen or pH meter via USB. The AM is compatible with PreSens oxygen meters Microx 4, Microx 4 trace, Microx TX3, Microx TX3 trace (with PSt1 sensor type), and the pH meter pH-1 micro. The software offers multiple features from clear data organization and export, easy creation of profiling templates, to analysis functions.

- Fully automated system
- No electrical interference due to optical measurement
- Adaptable to any sample
- Software PreSens Profiling Studio included
- Easy USB connection
- Individual profile and step-zone definition
- Compact, with additional manual motor control

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TECHNICAL

Specifications	
Compatibility	Profiling (PM), Needle-type Housed (NTH) and Implantable (IMP) oxygen & pH microsensors
Dimensions	275 mm x 95 mm x 220 mm
Weight	2 kg
Travel range automated	x-axis: 75 mm
Travel range manual	x-axis: 37 mm, fine drive: 10 mm y-axis: 20 mm z-axis: 25 mm
Resolution	1 µm
Repeatability	< 2.5 µm
Mounting adapter	M6 screws, 13 mm length
Power supply	100 - 240 VAC, 50 - 60 Hz Use supplied power adapter (15 VDC, 2.1 mm center poisitve plug) only.
Digital interface	USB interface (cable included)
Control software	PreSens Profiling Studio (compatible with Windows 7, 8, 10 at 32 or 64 bit)

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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)

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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)

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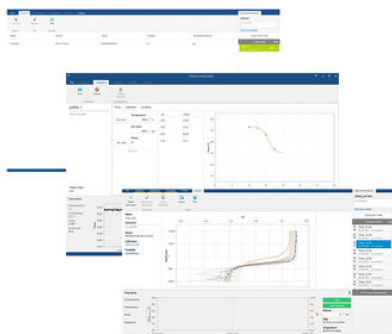
SOFTWARE

PreSens Profiling Studio

This software enables control of the Automated Micromanipulator and connected oxygen or pH meter. It is database supported and offers multiple features from clear data organization and export, easy creation of profiling templates, to analysis functions.

- Controls AM & connected meter
- Easy creation of profiling templates
- Database supported

TECHNICAL

Minimum System Requirements	
Operating system	Microsoft® Windows® 7, 8 and 10 (32 or 64 Bit)
Processor	2 GHz CPU
RAM	2 GB
Hard disk	500 MB free memory
USB	2x USB 2.0
Applications	.xlsx and .csv format reader software

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ACCESSORIES

Transport Case

This high-quality transport case can contain the AM as well as one Heavy Stand. With a pull-out handle and robust wheels the case enables safe and convenient travel or storage of your micromanipulator.

- Safely travel with our profiling equipment outdoors, aboard ships or planes
- Water-, dust- and light-tight
- Protective foam inlay for AM & HS parts
- Trolley format with pull-out handle & robust wheels

TECHNICAL

Specifications	
Dimensions (outer)	620 mm x 520 mm x 275 mm
Weight	10 kg
Material	TTX01® & Polypropylen
Features	Trolley format (pull-out handle & robust wheels), protective foam inlay for AM & HS parts, water- / dust- and light-tight (IP67), integrated address label & hand valve for pressure compensation

GET IN CONTACT

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- (>) **Request a quote**
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