

## METERS

CO<sub>2</sub> °C

### CO<sub>2</sub>-1 SMA



This small CO<sub>2</sub> meter fits in any measurement set-up. CO<sub>2</sub>-1 SMA is compatible with dipping probes, flow-through cells and non-invasive CO<sub>2</sub> sensor spots of type CD1 (measurement range 1 - 25 % CO<sub>2</sub>). It has temperature compensation, so even in environments with changing temperatures precise CO<sub>2</sub> measurements can be performed. This USB-powered CO<sub>2</sub> meter is operated with the PreSens Measurement Studio 2 software, which enables simultaneous control of several devices and combination with PreSens O<sub>2</sub> and pH meters, so measurement networks can be set up. With numerous features and additional pressure compensation, the software makes the CO<sub>2</sub>-1 SMA applicable in many applications. Optionally, the CO<sub>2</sub>-1 SMA can be expanded with 4 - 20 mA analog output (via a converter box).

- For use with non-invasive sensors, dipping probes & flow-through cells
- Compact & lightweight (only 128 g)
- USB-powered
- Controlled by PreSens Measurement Studio 2
- Integrated temperature and pressure compensation
- Optional 4 - 20 mA analog output

## TECHNICAL

### Specifications

Carbon dioxide sensors	CD1 (optical SMA connector)
Temperature sensor	1 x Pt100 temperature connector (sensor not included)
Temperature performance	0 °C to + 50 °C, resolution ± 0.1 °C, accuracy ± 1.0 °C
Power supply	5 VDC (USB-2.0-Mini-B, cable included)
Temperature: operating/storage	0 °C to + 50 °C / - 10 °C to + 70 °C
Relative humidity	0 % to 80 % (non-condensing)
Dimensions	101 mm (with connectors) x 35 mm x 30 mm
Weight	128 g
Digital interface	USB interface cable to PC (cable included)

## ACCESSORIES

### Polymer Optical Fiber POF



A polymer optical fiber (POF) is needed to transfer excitation light to the sensor and the sensor response back to the meter. We offer different versions for different meters depending on their optical connector type. A POF enables non-invasive and non-destructive measurements to be made from the outside through the wall of a transparent or slightly colored container. The POF with SMA connector is compatible with meters of the Fibox, OXY-1 SMA, OXY-1 WM, OXY mini and pH-1 SMA series, as well as the CO<sub>2</sub>-1 SMA. The POF with ST connector is compatible with meters of the Microx 4 and OXY-1 ST series. Different standard lengths are offered, e. g. 2.5 m, and fibers with connectors on one or both ends are available, depending on your adapter or sensor application.

- Enables contactless measurement
- Versatile light guide
- Different lengths available

## TECHNICAL

Specifications	SMA	ST
Dimensions	Optical diameter: 2 mm Outer diameter (incl. black cladding): approx. 2.7 mm Min. bending radius: 40 mm	Optical diameter: 1 mm Outer diameter (incl. black cladding): 2.2 mm Min. bending radius: 17 mm
Connector type	SMA connectors on one or both ends available for use with SOA or ARC	ST connectors on one or both ends available for use with SOA or ARC-1 ST
Length of fiber	Available standard lengths 1.0, 2.5 and 5.0 m; for lengths of more than 5 m, please contact our service team	
Compatibility	All devices with SMA connector, e.g. Fibox, OXY-1 SMA, pH mini series, pCO <sub>2</sub> mini	All devices with ST connector, e.g. Microx 4 or OXY-1 ST series

## SENSORS

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**CO<sub>2</sub>**

### Single-Use CO<sub>2</sub> Flow-Through Cell FTC-SU-CD1-09NaCl-S

A miniaturized optical CO<sub>2</sub> sensor, immobilized on the distal end of a color-coded polycarbonate Luer adapter, is inserted in a polycarbonate T-cell with 1/8" lumen (0.3 mL volume). The sensor stick can be transferred under laminar flow to alternative FTCs e.g. with larger lumen, if they carry at least one Luer connector. The FTC-SU-CD1-09NaCl-S is ideally suited for measurements in media with physiological osmolality, e.g. in perfusion bioreactors for tissue engineering, or other culture monitoring applications. A polymer optical fiber connects the sensor inside the FTC to the CO<sub>2</sub> meter. The cell is delivered beta-irradiated (> 25 kGy) in physiological saline solution to prevent the sensor to dry. The FTC-SU-CD1-09NaCl-S is compatible to the CO<sub>2</sub>-1 SMA. In combination with the PreSens Measurement Studio 2 software multiparameter monitoring together with single-use oxygen and pH flow-through cells can be performed.

- Measurement range of 1 - 25 % CO<sub>2</sub>
- Ready-to-use
- Beta-irradiated
- Sensor stick compatible with other cells with Luer connector

## TECHNICAL

Specifications*	
Measurement range	1 – 25 % CO <sub>2</sub> at atmospheric pressure (1013.5 hPa) 10 - 250 hPa pCO <sub>2</sub> 8 – 190 mmHg pCO <sub>2</sub>
Resolution at 37 °C	±0.06 % at 2 % CO <sub>2</sub> , ±0.15 % at 5 % CO <sub>2</sub> ±0.5 mmHg at 15mmHg pCO <sub>2</sub> , ±0.12 mmHg at 38 mmHg pCO <sub>2</sub>
Accuracy	After multipoint-calibration and 1-point adjustment at 5 % CO <sub>2</sub> : ± 5 % of reading or 0.2 %; whichever is higher After sensor batch-calibration and 1-point adjustment at 5 % CO <sub>2</sub> : ± 10 % of reading or 0.3 %; whichever is higher**
Drift at 37 °C	< 0.3 % pCO <sub>2</sub> per day (4 sec. measurement interval at 5 % pCO <sub>2</sub> )
Measurement temperature range	From + 15 °C to + 45 °C
Response time (t <sub>90</sub> ) at 20 °C	< 6 min. for change from 5 % to 10 % (38 mmHg to 76 mmHg) pCO <sub>2</sub>
Properties	
Compatibility	Aqueous solutions, pH 4 - 9
Cross-sensitivity	Optical pCO <sub>2</sub> sensors display cross-sensitivity to osmolality; acidic or alkaline gases (e.g. acetic acid, ammonia)
Stability	Optical pCO <sub>2</sub> sensors do not stand: organic solvents, pH above 10 or below 4
Cleaning procedure	No cleaning; single-use product
Calibration	Pre-calibrated for 20 °C, 37 °C and physiological osmolality; re-calibration is possible, 1-point adjustment is advised for accurate measurements (at ≥ 2 % CO <sub>2</sub> {for optimal results ≥ 5 % CO <sub>2</sub> })
Storage stability	18 months provided the sensor is stored in the dark in its original package at room temperature
Irradiation	Beta-irradiated ≥ 25kGy
T-cell formats	1/8" Luer T-cell (delivered), inner diameter 4.1 mm, cell volume 0.3 mL Transfer of sensing element to alternative FTCs with Luer connector is possible

\*provided the FTC-SU-CD1-09NaCl-S is used without further handling in aqueous solutions with physiological osmolality

\*\* ± 3 % (abs.) around the CO<sub>2</sub> value of 1-point adjustment



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## GET IN CONTACT

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- [➤ Rent-a-meter](#)

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