
# Disposables with Integrated Sensors

## Measuring oxygen and / or pH non-invasively

- Ready-to-use
- Pre-calibrated
- For microbes & cell culture

PreSens
PRECISION SENSING

# Disposables with Integrated Sensors

Disposables with integrated sensors are pre-calibrated and, therefore, ready-to-use. They monitor non-invasively through the transparent wall of the disposable.

## Shake Flasks with Integrated pH and Oxygen Sensors (SFS)

Shake flasks with integrated pH and oxygen sensors are available in different volumes. Pre-calibrated plastic flasks are offered with and without baffles. They are obtainable at sizes from 125 ml to 2000 ml. They are read out either by the SFR - Shake Flask Reader or by our transmitters in combination with the coaster for shake flasks - CFG. In addition, autoclavable glass flasks are available with integrated oxygen sensors.

## Spinner Flasks with Integrated Sensors (SPS)

Spinner flasks with integrated pH and oxygen sensors are available in volumes of 500, 1000 and 3000 ml. These are pre-calibrated plastic spinner flasks made of PC (polycarbonate). They are read out by our transmitters in combination with the adapter for round containments - ARC. Autoclavable glass spinner flasks are available with integrated oxygen sensors.

## Cell Culture Flasks with Integrated Sensors (CFS)

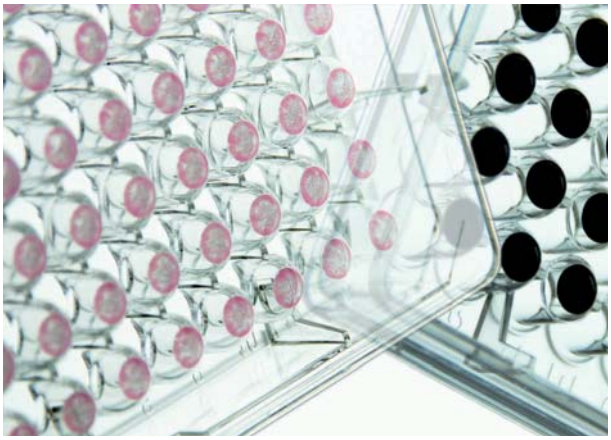
Cell culture flasks with integrated pH and oxygen sensors are available for different growth areas. They are pre-calibrated. The CFS are read out by our transmitter in combination with the CFG-adapter or our SFR Shake Flask Reader.

Sensor Probes

# Disposables with Integrated Sensors

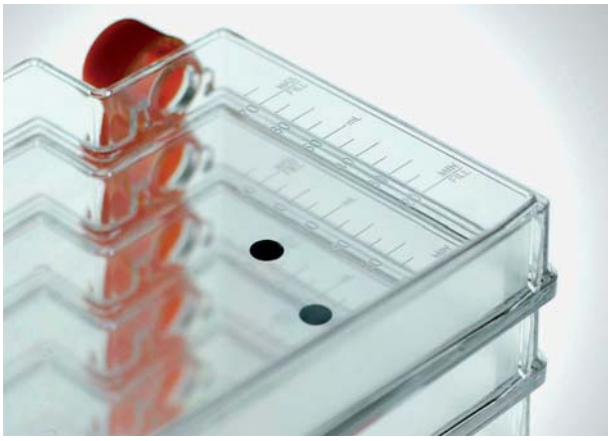
## 24- and 6-well SensorDishes

Pre-calibrated oxygen (OxoDish®) and pH (HydroDish®) sensors integrated in 24-well multidishes are read out with the SDR SensorDish® Reader. The SDR can be placed in an incubator. This makes this system the ideal tool for cell cultivation: the cells do not have to be taken out of the incubator for measurement. Application examples are optimization of cultivation parameters like media composition or time of media changes, as well as oxygen and pH monitoring in tissue engineering, toxicity tests and investigation of metabolism. Even small-scale fermentations are possible. The SensorDishes® are also available in the 6-well format.



## 96-well SensorPlates

Oxygen (OxoPlate) and pH (HydroPlate) sensors are incorporated at the bottom of the wells of 96-well microplates. They are read out with conventional fluorescence microplate readers from the bottom side (requirements: see technical data). Only a few wells per batch are used for calibration. The SensorPlates are available in the round or flat bottom format. Fields of application are enzyme and drug screening, detection of the respiration of cells, bacteria or yeast, or monitoring of dairy starter cultures.



## Customized Disposables

Integration of non-invasive sensors is available for almost any kind of transparent vessel. The experienced staff of PreSens offers integration in small and big series.

A wide variety of sensors is offered.
If your application is missing,
please contact us!

# Disposables with Integrated Sensors



| Specifications | SFS / SPS / CFS | |
|---|---|---|
| | Dissolved Oxygen | pH |
| Measurement range | 0 - 100 % $O_2$ | 5.5 - 8.5 pH |
| Resolution | ± 0.01 % $O_2$ at 0.21 % $O_2$ | ± 0.01 pH at pH = 7 |
| | ± 0.1 % $O_2$ at 20.9 % $O_2$ | |
| Accuracy | ± 0.4 % $O_2$ at 20.9 % $O_2$ | ± 0.05 pH at pH = 7 with one-point adjustment |
| | ± 0.05 % $O_2$ at 0.2 % $O_2$ | ± 0.1 pH at pH = 7 with pre-calibration |
| Drift | < 0.01 % $O_2$ per day (sampling interval of 1 min.) | < 0.005 pH per day (sampling interval of 1 min.) |
| Response time ($t_{90}$) at 25 °C | < 30 s | |
| Temperature range | from 5 °C to 50 °C | |
| Compatibility | aqueous solutions, ethanol, methanol (max. 10 % v/v), pH 2 - 10 | |
| Calibration | pre-calibrated | |
| | Disposables are delivered irradiated | |
| **Additional Information** | | |
| Equipment | Fibox 3, Oxy-4/10 mini, SFR | pH-1/4/10 mini, SFR |

| Specifications | 96-well OxoPlate | 96-well HydroPlate | 24/6-well OxoDish® | 24/6-well HydroDish® |
|---|---|---|---|---|
| | Dissolved Oxygen | pH | Dissolved Oxygen | pH |
| Measurement range | 0 - 30 % $O_2$ | pH 5.0 - 8.0 | 0 - 50 % $O_2$ | pH 6.0 - 8.5 |
| Resolution* | ± 0.2 % $O_2$ at 0.21 % $O_2$ | ± 0.01 pH at pH = 7 | ± 0.4 % $O_2$ at 20,9 % $O_2$ | ± 0.05 pH at pH = 7 |
| | ± 0.6 % $O_2$ at 20,9 % $O_2$ | | | |
| Accuracy* | ± 0.4 % $O_2$ at 0.21 % $O_2$ | ± 0.05 pH at pH = 7 | ± 1 % $O_2$ at 20,9 % $O_2$ | ± 0.2 pH at pH = 7 (Sensor batch calibration) |
| | ± 1.0 % $O_2$ at 20,9 % $O_2$ | | | ± 0.1 pH at pH = 7 (Sensor spot calibration) |
| Drift* | < 0.2 % air saturation per h (sampling interval 1 min.) | < 0.002 pH per h (sampling interval 1 min.) | < 0.2 % $O_2$ within one week (sampling interval 10 min.) | < 0.1 pH within one week (sampling interval 10 min.) |
| Response time ($t_{90}$) at 25 °C | < 30 s | | < 30 s | |
| Measurement temperature range | 15 - 45 °C | | 15 - 45 °C | |
| Formats | round and flat bottom | | 24/6 | |
| Maximum filling volume | 300 µl (round bottom) | | 3 ml (24-well) | |
| | 400 µl (flat bottom) | | 15 ml (6-well) | |
| Compatibility | aqueous solutions, ethanol, methanol (max. 10 % v/v), pH 2 - 10 | | | |
| Calibration | needs to be calibrated | | pre-calibrated | |
| | Disposables are delivered irradiated | | | |
| **Additional Information** | | | | |
| Equipment | Fluorescence Plate Reader (with bottom reading and dual mode) | | SensorDish® Reader SDR | |
| Indicator filters | 540 / 650 nm | 485 / 538 nm | | |
| Reference filters | 540 / 590 nm | 485 / 620 nm | | |

* in physiological solutions



Technical data can change without prior notice.

Bring to light what's inside. Ask our experts:

**PreSens** Precision Sensing GmbH
Josef-Engert-Str. 11
93053 Regensburg, Germany

Phone +49 941 94272100
Fax +49 941 94272111
info@PreSens.de

www.PreSens.de