METERS

O_2 OUR pH

SFR Shake Flask Reader

The SFR Shake Flask Reader monitors pH, oxygen and OUR in up to 9 Erlenmeyer flasks, cultivation tubes, or T-flasks simultaneously. It fits in nearly all standard shakers. Measurement data is transferred wirelessly via Bluetooth to your PC / notebook. The corresponding ready-to-use vessels contain pre-calibrated sensor spots. The system monitors non-invasively through the transparent bottom of the container. Different types and sizes of flasks and tubes are available. Plastic, disposable flasks contain pre-calibrated oxygen and pH sensors, while re-usable glass flasks are equipped with autoclavable oxygen sensors.

- Fast monitoring of up to 63 shake flasks in parallel
- For microbial and cell culture
- Pre-calibrated cultivation vessels are ready-to-use
- Compatible with standard shakers
- Glass & plastic flasks in different sizes available
- Non-invasive measurement
- Used in seed train & bioprocess development

TECHNICAL

Specifications	Oxygen	pH*
Measurement range	0 – 100 % O_2	5.5 – 8.0 pH
Response time (t_{90}) at 25 °C	< 60 sec.	< 60 sec.
Resolution	± 0.01 % O_2 at 0.21 % O_2 ± 0.1 % O_2 at 20.9 % O_2	± 0.01 pH at pH = 7**
Accuracy	± 0.05 % O_2 at 0.2 % O_2 ± 0.4 % O_2 at 20.9 % O_2	± 0.1 pH at pH = 7 with one-point-adjustment ± 0.2 pH at pH = 7 with pre-calibration
Drift	< 0.01 % O_2 per day (sampling interval of 1 min.)	< 0.01 pH per day (sampling interval of 1 min.)
Properties		
Temperature range	from + 5 °C to + 50 °C	
Compatibility	Aqueous solutions, ethanol (max. 10 % v/v), methanol (max. 10 % v/v), pH 2 - 4	
Cross-sensitivity	Typically no cross-sensitivity in culture media	Reduced to ionic strength (salinity); a high concentration of small fluorescent molecules in the visible range can interfere
	Sensor flasks are delivered irradiated	

* provided Sensor Flasks are used without further handling in physiological solutions
** at 100 rpm & in cell culture media

ACCESSORIES

(available for all SFS Sensor Flask sizes)

Clamps Universal SFS

These clamps are used with the SFR Shake Flask Reader and the SFR vario. They ensure that the sensors integrated in the SFS Sensor Flasks are aligned correctly with the reader optics. There are two additional holes in the base plate for the two knobs on the plastic SFS bottom, so the flask will snap into place. Furthermore, the clamp has a recess for the biomass optics of the SFR vario and a sideways arm that holds glass flasks with integrated sensors in the correct position above the optics.

- For glass and plastic flasks with integrated sensors
- For Sensor Flasks from 125 mL to 5000 mL volume

TECHNICAL

Specifications	
Dimensions / Weight	125 mL: ⌀ 70 mm, 45 g 250 mL: ⌀ 85 mm, 80 g 500 mL: ⌀ 100 mm, 125 g 1000 mL: ⌀ 130 mm, 225 g 2000 mL: ⌀ 165 mm, 335 g 3000 mL: ⌀ 230 mm, 700 g 5000 mL: ⌀ 230 mm, 700 g
Compatibility	SFR, SFRvario

SENSORS

(with & w/o baffles)

O_2 pH

Sensor Flask SFS

These single-use shake flasks made of polycarbonate have an oxygen and a pH sensor integrated at the bottom. The flasks are available in sizes from 125 mL to 5,000 mL volumes, with or without baffles. The sensors inside are irradiated and pre-calibrated, so the flasks are ready-to-use. The SFS can be read out with the SFR Shake Flask Reader or the SFR vario, for simultaneous online monitoring of oxygen, pH, OUR and (in case of the SFR vario) biomass. They are used with special clamps that align the integrated sensors with the reader optics.

- Online monitoring of O_2 & pH
- Contactless measurement
- Ready-to-use
- Pre-calibrated sensor
- For microbes & cell culture

TECHNICAL

Specifications	Oxygen	pH*
Measurement range	0 - 100 % O_2	HP5: 5.5 - 8.0 pH** LG1: 4.0 - 7.5 pH**
Resolution	± 0.01 % O_2 at 0.21 % O_2 ± 0.1 % O_2 at 20.9 % O_2	± 0.01 pH at pH = 7***
Accuracy	± 0.05 % O_2 at 0.2 % O_2 ± 0.4 % O_2 at 20.9 % O_2	± 0.1 pH at pH = 7 with one-point adjustment ± 0.2 pH at pH = 7 with pre-calibration
Drift	< 0.01 % O_2 per day (sampling interval of 1 min.)	< 0.01 pH per day (sampling interval of 1 min.)
Measurement temperature range	from + 5 to + 50 °C	
Response time (t_{90})***	at 25 °C: < 60 sec.	
Properties		
Compatibility	Aqueous solutions, ethanol (max. 10 % v/v), methanol (max. 10 % v/v), pH 2 - 10	
Cross-sensitivity	Typically no cross-sensitivity	Reduced to ionic strength (salinity); a high concentration of small fluorescent molecules in the visible range can interfere
Calibration	Pre-calibrated	
	Disposables are delivered irradiated.	

* provided Sensor Flasks are used without further handling in physiological solutions
**HP5 and LG1 sensors require different SFR versions
*** at 100 rpm & in cell culture media

GET IN CONTACT

- Request more info
- Request a quote
- Rent-a-meter

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