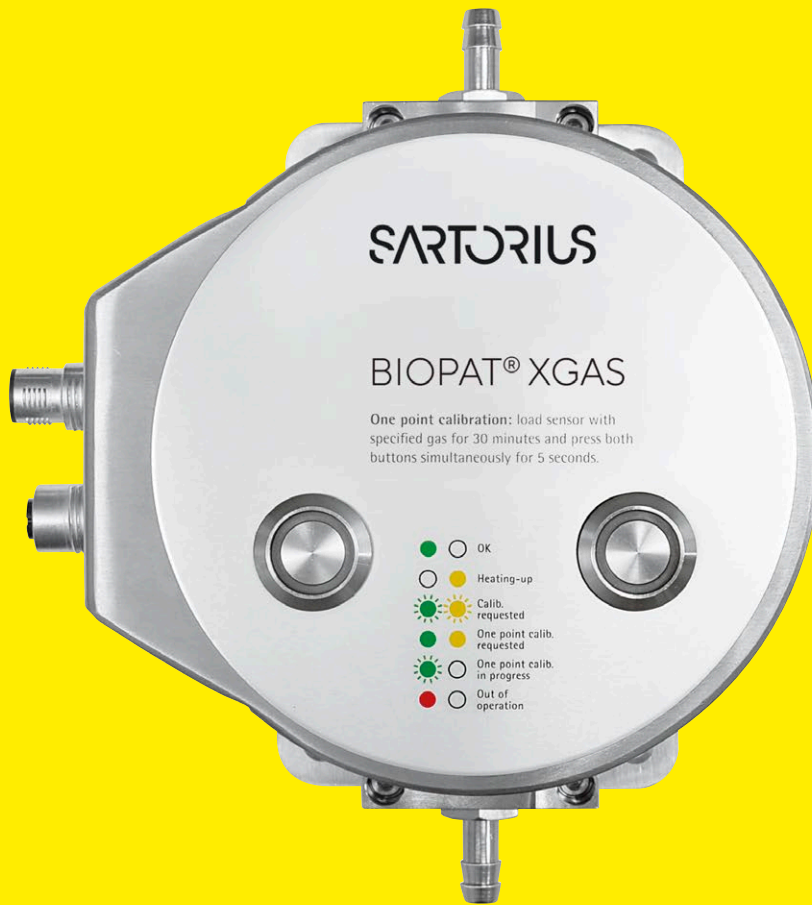


# SARTORIUS



## BioPAT® Xgas

### Online Off-Gas Analysis

#### Why BioPAT® Xgas is awesome

- Cell activity information
- CO<sub>2</sub> & O<sub>2</sub> exhaust measurement
- Automated control loops
- Early fault detection
- No extra heated exhaust venting



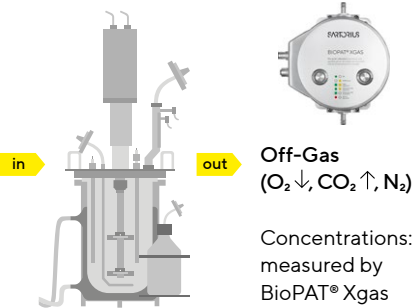
# BioPAT® Xgas – Online Off-Gas Analysis

As all living things use  $O_2$  and produce  $CO_2$  the total activity of your cells can be understood from how they are respiring. Therefore, using the combination of as Sartorius Stedim Biostat® bioreactor with mass flow controllers and integrated BioPAT® Xgas you can accurately measure the rate of  $O_2$  uptake (OUR),  $CO_2$  production rate (CPR) and calculate automatically the respiration coefficient (RQ) of your process.

These calculations are performed by Biobrain® Supervise which accounts for the dynamic parameter changes of your process conditions. The sensor itself automatically compensates for pressure and humidity so there is no need to have heated exhaust lines.

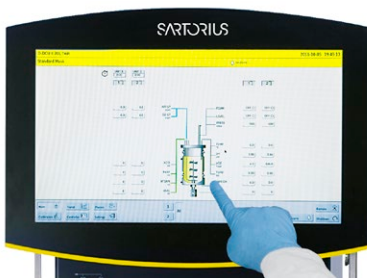
## Aeration ( $O_2$ , $CO_2$ , $N_2$ )

Known or natural gas constituent % Volume: determined by **Mass Flow Controllers (MFC)**



## Applicable Fermenters | Bioreactors

Fitted onto the exhaust line of the system after the sterile exhaust filter. Therefore, non-invasive and no risk of contamination of the system.



## BioPAT® DCU

- Direct Display of % $O_2$  | % $CO_2$  on the DCU display  
**Reduced cabling & multiscreen checking**
- Functional monitoring of dO probe  
**Indicates a potential fault in liquid phase probes**



## BioPAT® MFCS

Automatically produced Standard Outputs for process control

- Oxygen uptake rate (OUR)
- Carbon dioxide production rate (CPR | CER)
- Respiratory quotient (RQ)

## Unique Feature

No other off-gas analyzer offers this function: Automatic compensation for humidity & pressure variance yields higher precision.

The BioPAT® Xgas fermenter package offers you a powerful process development tool which can reduce your process optimization time by giving clearer online understanding of your cells metabolic activities. Further, with accumulative O<sub>2</sub> uptake or CO<sub>2</sub> production, automated control loops can be established using Biobrain® Supervise S88 recipes which guide your process on a tighter processing pathway giving higher consistency.

The BioPAT® Xgas capability of detecting small changes in the percentage of O<sub>2</sub> and CO<sub>2</sub> offer the ability to detect a fault in dissolved O<sub>2</sub> probes and analyze the efficiency of CO<sub>2</sub> stripping. As all of these items come integrated from Sartorius Stedim Biotech they are all tested and covered by our Extend® service coverage.

## Biostat® Range



Biostat® B



Biostat® B-DCU II



Biostat® C Plus (FL)



Biostat® D-DCU



Biostat STR®

## Configuration and Connectivity

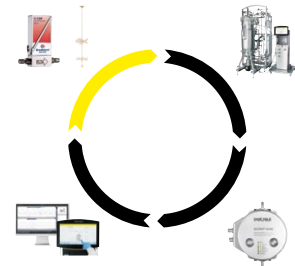
- Requires 2 analog external inputs on the control tower;
  - 1 for O<sub>2</sub>
  - 1 for CO<sub>2</sub>
  
- Sensor size 25 × 25 × 20 cm



## Biobrain® Supervise S88 Recipe

- Automatic event based control:
- Adding feeds | induction media
  - Harvest initiation
  - Gas mixing strategies

Metabolic Respiration Control




For complete technical details and to arrange a demonstration please contact your local Sartorius Stedim Account Manager.

**Germany**

Sartorius Stedim Biotech GmbH  
August-Spindler-Strasse 11  
37079 Goettingen  
Phone +49 551 308 0

**USA**

Sartorius Stedim North America Inc.  
565 Johnson Avenue  
Bohemia, NY 11716  
Toll-Free +1 800 368 7178

 For further contacts, visit  
[www.sartorius.com](http://www.sartorius.com)