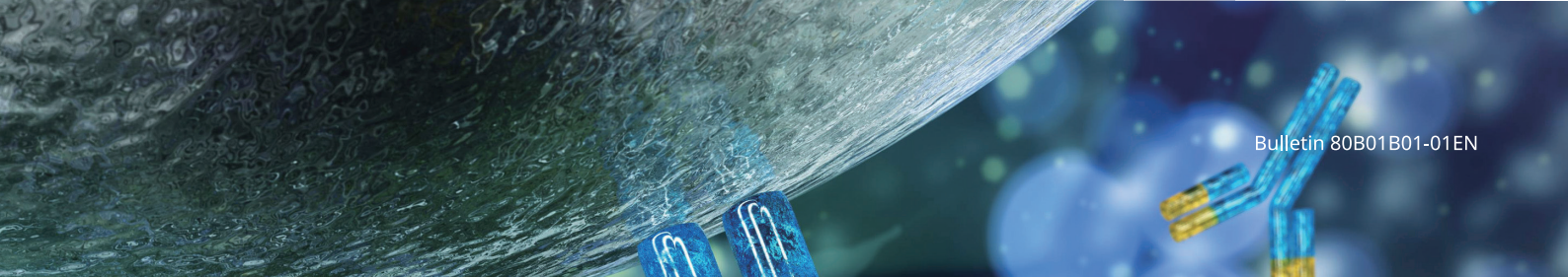
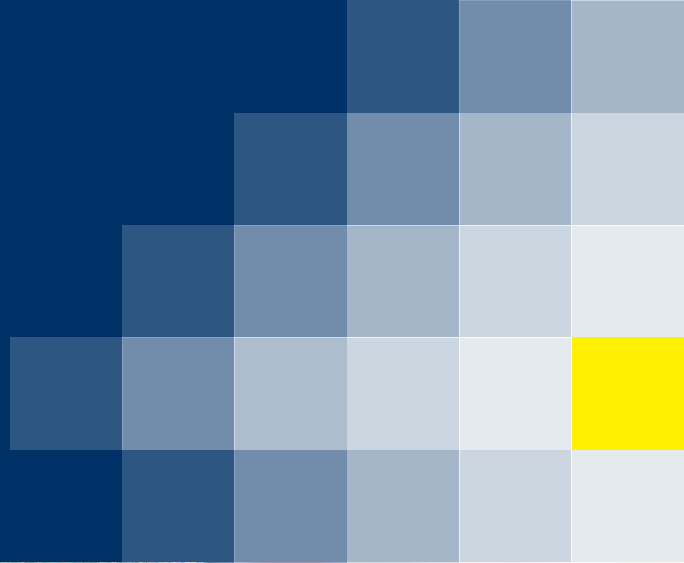


Solutions for Cell-Based Manufacturing

Advanced Control Bioreactor System

BR1000



Automation of animal cell culture with accurate real-time monitoring and advanced control

YOKOGAWA engineering solutions for cell culture

Monitor "cell health" in real time

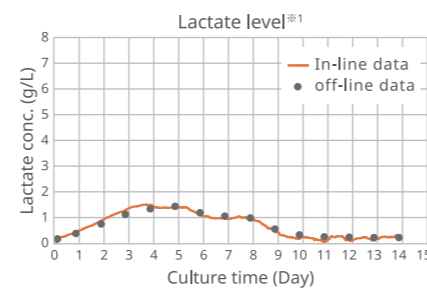
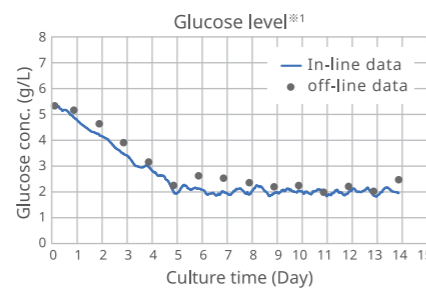
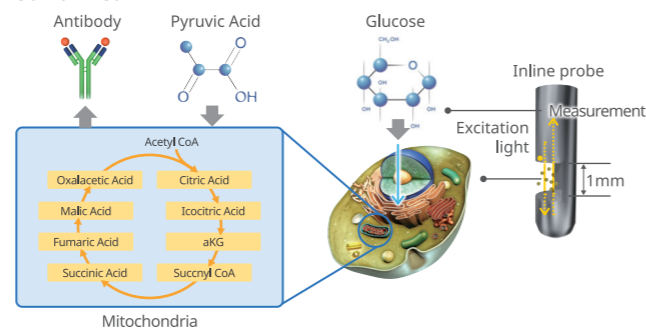
Measurement

Soft Sensor Technology

Accurate real-time monitoring of cell health

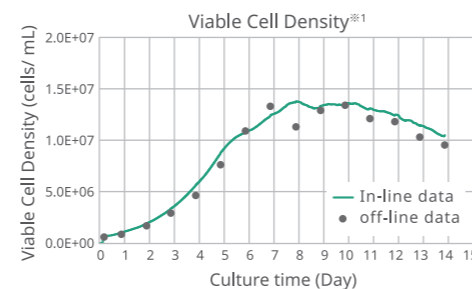
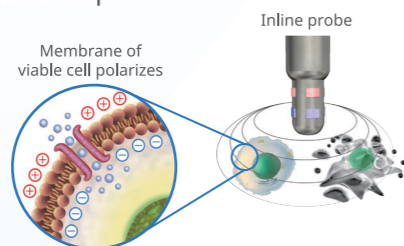
In-line sensor for measurement of glucose and lactate

Based on YOKOGAWA's unique data calibration models, the absorption spectrum of near-infrared light is interpreted to continuously resolve the concentrations of glucose and lactate with high accuracy in the culture medium in real time.



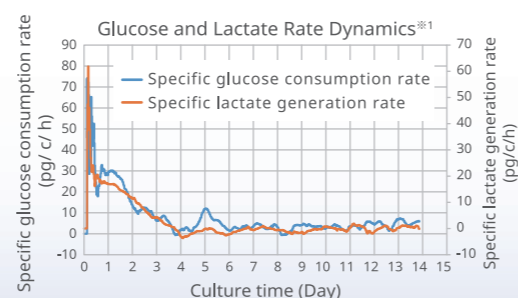
In-line sensor for viable cell density

Based on YOKOGAWA's unique data calibration models, electrical impedance measurements are interpreted to continuously measure the viable cell density with high accuracy in real time throughout the entire culture period.



Soft-sensor estimation of specific rates

The proprietary model predictive control algorithms process in-line sensor data for calculating specific rate trends in real-time.



*1 Data derived from YOKOGAWA cell culture laboratory

Control "cell health" through automation

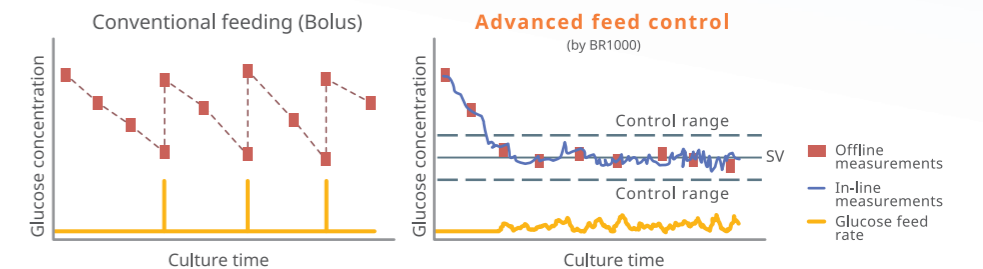
Control

Advanced Control

Bioreactor automation with advanced control

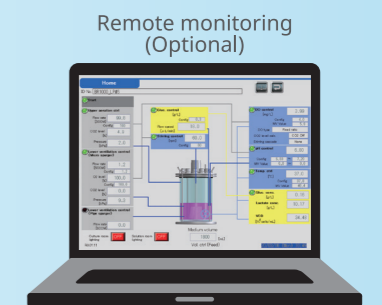
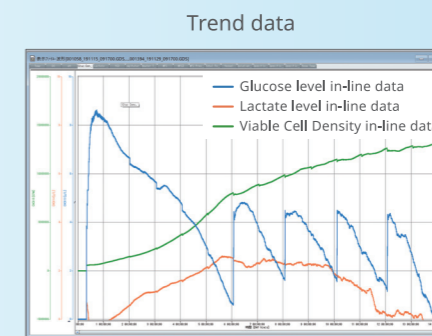
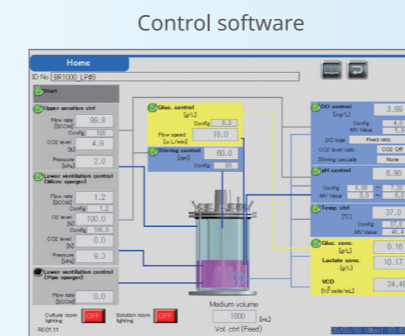
Automatically maintain a stable glucose concentration

Advanced control algorithms designed specifically for animal cell culture allow automated feeding of glucose within a prescribed control range.



System features

- Basic control of physical parameters such as pH, temperature, DO
- A single integrated system of near-infrared sensor, viable cell density sensor, feed delivery & control and data logger



Comprehensive and easy control of all functions

Automated cell culture for multiple applications

Replicability, stable parameter control, etc.

Trusted performance and support

Calibration tools assure data accuracy for your application, Yokogawa support

Remote monitoring capability (optional)

Remote (real-time) monitoring through remote operation software and internet environment

Product specifications

Model number	BR1000
Working volume	1-5L
Liquid delivery pump	Number of channels: 4/6
Stirrer control	Control range: 4-200rpm
Temperature control	Control range: 34-40°C
pH control	Control range: 6.5-7.5
Dissolved oxygen control	Control range: 1-5 mg/L
In-line measurement of glucose concentration	Measurement range: 0-10.0 g/L
In-line measurement of lactate concentration	Measurement range: 0-10.0 g/L
In-line measurement of viable cell density	Measurement range: 1×10^5 - 1×10^8 cells/mL
Other standard functions	Culture vessel (cell culture medium) weight monitor, Feed bottle weight monitor, Automation control disengagement button
User interface	Touch panel monitor
Log data file format	Custom file record format (GM10) (*.GSD *.GEV)
Classification of laser product	Class 1 Laser Product (IEC 60825-1: 2007/2014)
Operating environment	20 to 26°C, 20 to 80%RH without condensation, Altitude \leq 1000m
Power supply	Single phase 100/115/200/230VAC, 50/60Hz, Rated power: 500 W
External dimensions	400 (W) x 750(D) x 1650(H)mm
Weight	175kg



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