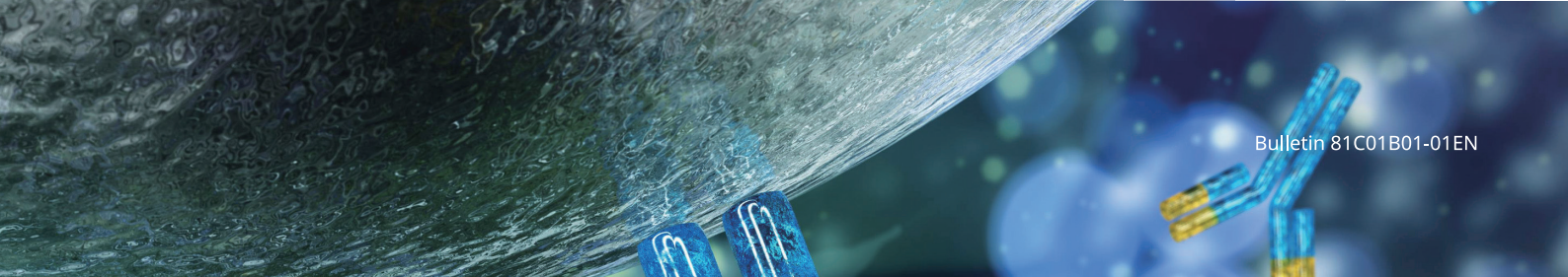
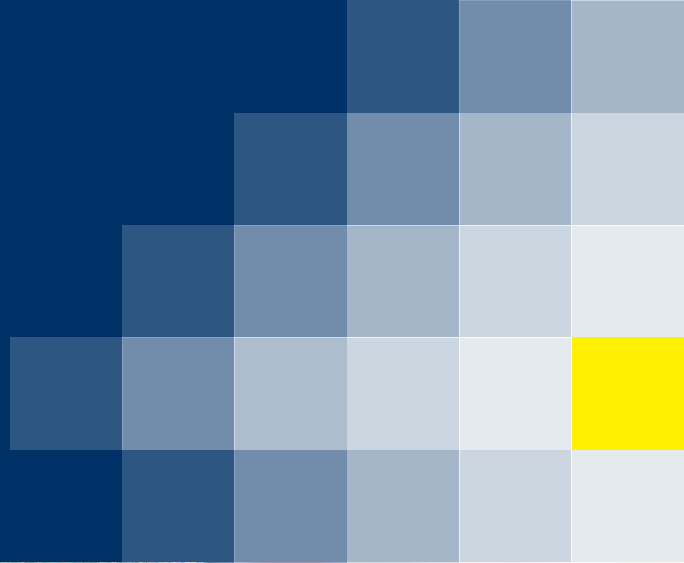


Solutions for Cell-Based Manufacturing

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

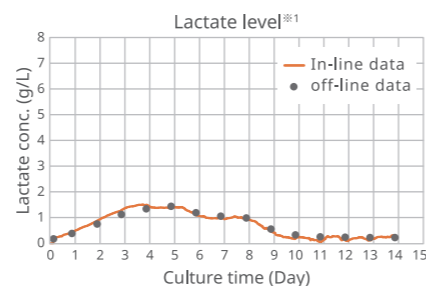
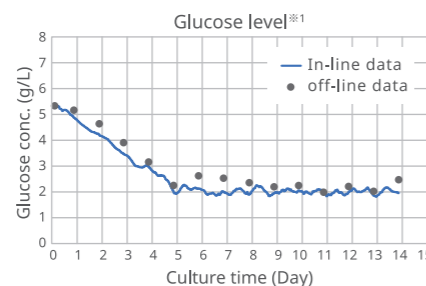
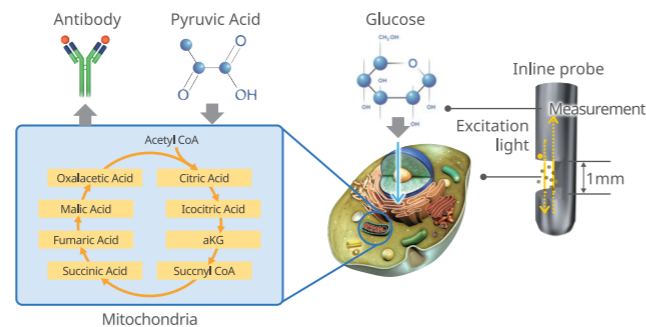
Measurement

Soft Sensor Technology

Accurate real-time monitoring of cell health

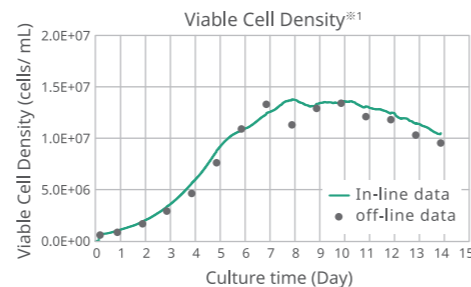
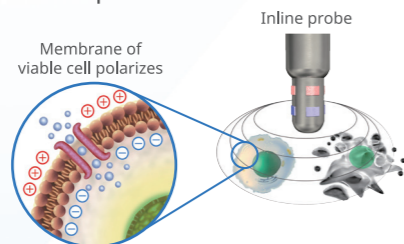
In-line sensor for measurement of glucose and lactate

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.



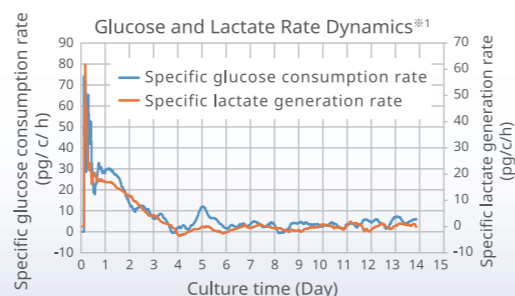
In-line sensor for viable cell density

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

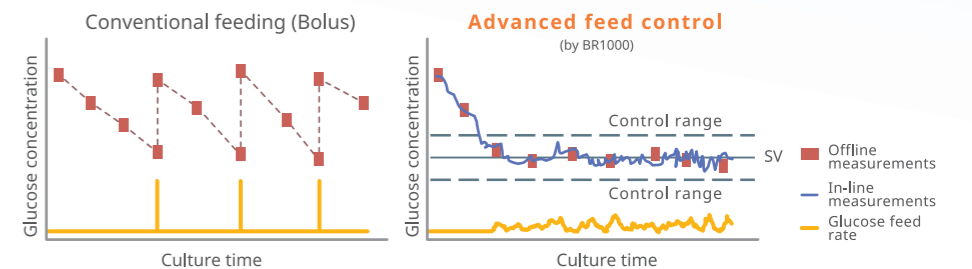
Control

Advanced Control

Bioreactor automation with advanced control

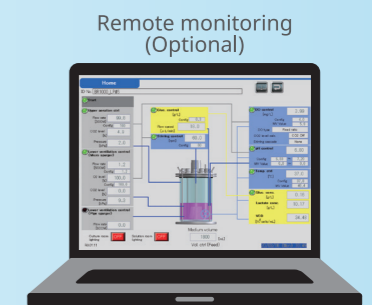
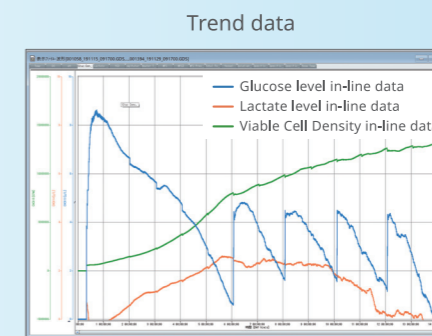
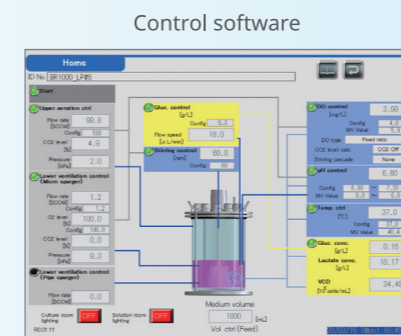
Automatically maintain a stable glucose concentration

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 specification

| | |
|--|--|
| Model number | BR1000 |
| Temperature control | Control range: 34°C-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 | Measuring range: $1 \times 10^5 \sim 1 \times 10^8$ cells/mL |
| Other standard functions | External supply gas pressure monitor, 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) (*.GDS *.GSD *.GEV *.GSE, etc.) Output provided in text format |
| Operating environment | 20 to 26°C 20 to 80%RH without condensation Altitude ≤ 1000 m |
| Power consumption of power supply unit | Haploid 100/115/200/230VAC, 50/60Hz, Rated power: 500 W |
| External dimension | 400 (W) x 750(D) x 1650(H) |



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For inquiries