Automated analyser for online microbiological monitoring of water

BactoSense® SMART is a cutting-edge flow cytometer, adapted for rapid and automated microbiological analysis, answering advanced data analysis and electronic recording needs in industrial environments. With its innovative cartridge system designed for safety, convenience and sustainability, it provides results within 20 minutes. Get unmatched, high-content data in real-time for precise water quality control, enabling superior decision-making and operational efficiency. With BactoSense SMART, you can avoid down time and disruptions as you are in control of your process and in compliance with the strictest standards.
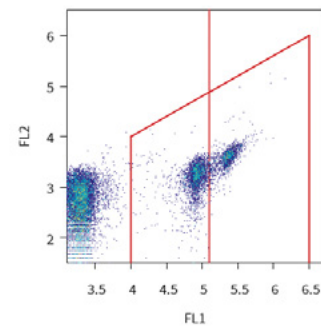
Measurement

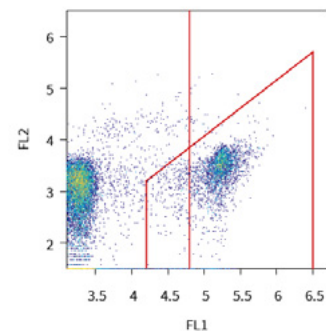|	
Measuring principle	Flow cytometry
Detection range	0–5,000,000 cells/mL
Quantification range	Total Cells: 1,000–2,000,000 cells/mL Intact Cells: 100–2,000,000 cells/mL Active Cells: 100–2,000,000 cells/mL
Laser type and wavelength	Laser diode 488 nm
Fluorescence	530/50 nm FL1, 715 LP nm FL2
Result parameters	TCC/mL, ICC/mL, ACC/mL, LNAC/mL, HNAC/mL, HNAP (%) Advanced configurable gating set
Automatic measuring interval	From every 30 minutes to every 6 hours

Sampling

Sampling type	Online or manual
Online sampling device	Flow through device: 200–400 mL/min (0.05–0.10 gal/min) Pressure in device: max. 0.5 bar (7.3 psi) Measured volume: 90 µL
Manual sampling device	Sample container: 5-mL screw-cap tube Sample volume: 2–5 mL Measured volume: 90 µL
Sample conditions	Temperature: 5–40 °C (41–104 °F) Turbidity: 0–10 FTU, 0–10 FNU Conductivity: 0–100,000 µS/cm at 20 °C (68 °F) pH-value: 5–12 Chlorine: max. 3 mg/L Iron: max. 200 µg/L Manganese: max. 50 µg/L

General

Operating environment	Indoor use
Operating altitude	Max. 2000 m (6,600 feet) above sea level
Operating temperature	5–30 °C (41–86 °F)
Operating humidity	10–90 % RH
Storage temperature	10–30 °C (50–86 °F)
Storage humidity	10–70 % RH
Protection classes	BactoSense: IP65, Power supply: IP67

Dotplots showing TCC

Dotplots showing ICC

Online sampling device

Manual sampling device

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Physical

Dimension (W x D x H)	361 x 270 x 424 mm (14.2 x 10.6 x 16.7")
Weight	14.3 kg with cartridge (31.5 lbs), 11.1 kg without cartridge (24.5 lbs)
Power supply dimension (W x D x H)	230 x 80 x 65 mm (9.0 x 3.1 x 2.6")
Power supply weight	0.9 kg (2.0 lbs)

Electrical

Power supply	Power supply unit: 100–240 VAC ±10 %, 50/60 Hz, 1.4 A BactoSense: 18–24 VDC, 60 W
Power consumption	Average consumption: 20 W, peak consumption: 60 W
Recovery after power interruption	Configurable auto-restart

Interfaces, connectivity and remote access

USB	2 x USB 3.1, 5 V 1 A per port
Ethernet	1 x RJ45 Gigabit Ethernet
Ethernet protocols	Web interface, Remote desktop (VNC), Modbus TCP (optional), HTTP / HTTPS, FTP
Digital inputs	4 x digital inputs
Analogue and digital outputs	2 x analogue outputs, 4 x digital outputs
Display	WVGA, 7.0" capacitive touchscreen
Mobile connectivity	BactoLink connectivity module (optional)
Advanced data analysis	FCS 3.1 file export
Data storage capacity	128 GB

Electronic records

Audit trail	Full operation log
Role-based access control (RBAC)	Management of individual users and roles

Cartridge

Capacity	Up to 1,000 measurements, depending on the cartridge
Validity	Up to 9 months, depending on the cartridge
Storage temperature	15–25 °C (59–77 °F), ideally at 15 °C (59 °F)
Storage humidity	20–60 % RH

Maintenance

Preventive maintenance	After 3 cartridges, at least yearly
Calibration	Factory calibration only

Compliance

The product has been tested and fulfills the requirements of all applicable standards of the CENELEC countries, US, Canada and Japan.

Accessories and Consumables

Cartridge refills, BactoLink mobile connectivity module, IO-Box, Cleaning kit, Validation kit, Transport case

BactoLink mobile connectivity module

IO Box

Cartridge

Cleaning kit

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