



BIOLECTOR XT

MICROBIOREACTOR

High-Throughput Bioprocess
Development



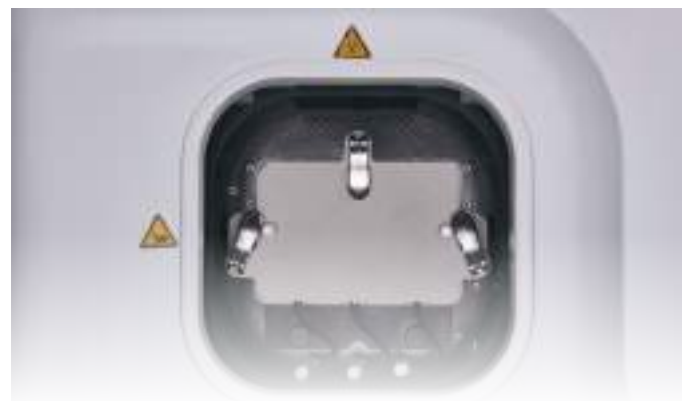
GET MO₂RE DATA. NOW.

With or without O₂

High-throughput bioprocessing that's fast, easy and fits in any lab.

48 / 32 PARALLEL MICROBIOREACTORS
ONLINE MONITORING
CONTINUOUS & FULLY FLEXIBLE FEEDING
ACTIVE pH CONTROL
ANAEROBIC FED-BATCH FERMENTATIONS
SCALABILITY, REPRODUCIBILITY
& AUTOMATION

The BioLector XT high-throughput microbioreactor enables real-time evaluation of biomass, fluorescence, pH, DO, and other key cultivation parameters for aerobes and anaerobes—to quickly provide deep insights into your bioprocess development.



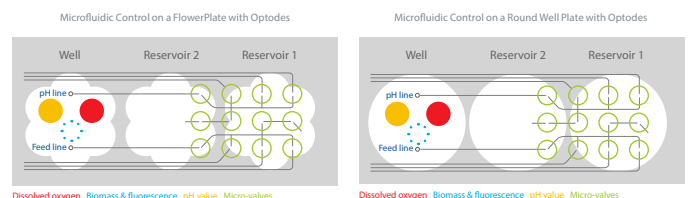
Optional Microfluidic Module helps BioLector XT microbioreactor do even MO₂RE

ALL THE BEST FEATURES OF THE BIOLECTOR PRO - AND MO₂RE.

Building on trusted BioLector Pro technology, the BioLector XT microbioreactor is based on a standard ANSI/SLAS (SBS) microtiter plate (MTP) format, and operates with online, pre-calibrated optical sensors.

Disposable 48 well MTPs enable online measurement of biomass, fluorescences, pH and DO, while patented microfluidic technology supports simultaneous pH control and feeding.

The optional microfluidic module eliminates manual liquid handling—no tubing/pipetting required, as everything is part of the gamma-radiated ready-to-use plate.



- Unleashes the full potential of the BioLector XT microbioreactor
- Complements online monitoring function with well-specific pH regulation and feeding
- Enables use of 2 reservoir wells per 4 cultivation wells—with either 2 pH-adjusting solutions, 2 feed solutions or 1 of each
- Liquids allotted in nanoliter-scale through microvalves

CHARACTERIZED
by ingenuity.

 **BECKMAN
COULTER**
Life Sciences

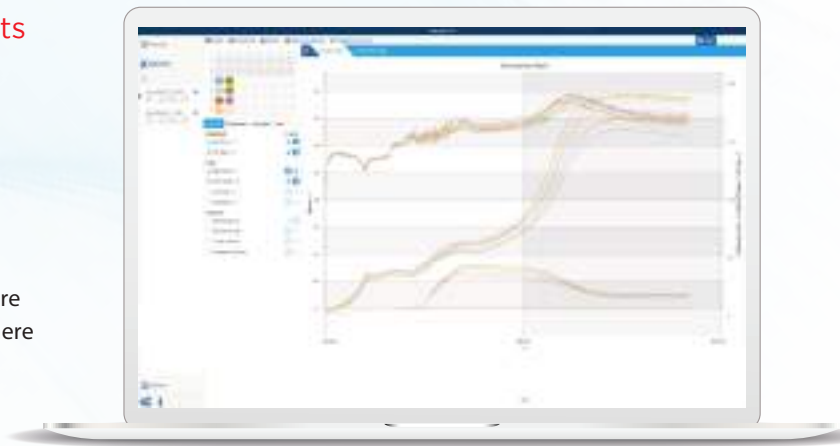
MO₂RE control & more data for deeper insights

Online Measurement

- Biomass concentration
- pH value
- Dissolved oxygen (DO)
- NAD(P)H and Riboflavins
- Fluorescent molecules (e.g., GFP, YFP, DsRed)
- Shaking speed
- Temperature
- O₂ in head space atmosphere
- CO₂ in head space atmosphere

Online Control

- pH value (well-specific)
- Feeding (well-specific)
- Shaking speed
- Temperature
- Gas flow
- O₂ in head space atmosphere
- CO₂ in head space atmosphere



Technical Specifications

System Part no.: M2P-G-BLXT

Operation conditions	
Plate format	48 or 32 reactor/16 reservoir wells
Volume	800 - 2400 µL (depending on microtiter plate type)
Temperature, minimum	On average operating - 8 °C below ambient temperature
Temperature, maximum	50 °C
pH control	Measurement range (see below)
Shaking conditions	3 mm shaker
Shaking frequencies	100 rpm - 1500 rpm

Technical data	
Dimensions (W×H×D)	795 mm × 541 mm × 514 mm BioLector XT microbioreactor 685 mm × 360 mm × 502 mm add. valve control unit
Weight	Approx. 58 kg BioLector XT microbioreactor, including MF module 61 kg Approx. 44 kg add. valve control unit (VCU)
Power source	100 - 240 VAC
Max. Output Power	400 W BioLector XT microbioreactor
Rated power VCU	120 W (EU/ROW) / 90 W (US/Canada)
Interface	Ethernet
Ambient conditions	15 - 25 °C, max. < 80 % rH (non-condensing)
Automation	BioLector XT microbioreactor can be integrated into robot liquid handling modules

*1 scattered light detection depends on shaking frequency, filling volume of cavity, microtiter plate type, particle size and particle shape of microorganism and media components.

*2 determined in triplicates; resolution is given when the span between the arithmetic averages of the values is larger than three times the larger standard deviation.

*3 100 % corresponding to the DO level reached while gassing with 100 % O₂ without O₂ consumption

Optical measurements

Filter configuration	up to 6 different filters
Preinstalled filters	Biomass, Riboflavin, pH and DO
Wavelengths	365 nm - 800 nm
MTP read time	-1.8 min/parameter/32 wells -2.7 min/parameter/48 wells depending on parameter measured and shaking frequency
Scattered light measurement*1	Resolution > 50 NTU, at densities higher than 500 NTU: 10 % of measured value
Examples: E. coli in FlowerPlate	(M2P-MTP-48-xxxx), 1-250 OD ₆₀₀ ² , (37 °C, 1000 µL, 800 rpm)
E. coli in Microfluid Plate	(M2P-MTP-MF32-xxxx), 2-250 OD ₆₀₀ ² , (37 °C, 1000 µL, 800 rpm)

Ranges, measurement and pH control

Calibration	Precalibrated plates
Measurement range pH	-5.0 - 7.5 or -4 - 6 (low pH module) with < 0.1 deviation Ranges are broader with less accuracy
Measurement range DO	0 - 100% oxygen saturation*3
pH control	By acid or/and base
Application mode	Disposable technology

Optional Modules Note: You can combine all optional modules in one device.

Part no.	Module Description	Application	Additional feature	Note
M2P-E-MFXT	Microfluidic module	Feeding and pH control	Active pH control according to online signals & continuous feeding of up to 2 solutions	Proprietary MTP with microvalves & microfluidic channels required
M2P-E-O2XT-100	O ₂ up-regulation module	Cultivation with O ₂ enriched air	Control of gas atmosphere: 21 - 100 % O ₂	
M2P-E-O2XT-25	O ₂ down-regulation module	Cultivation with O ₂ reduced air, microaerophilic conditions	Control of gas atmosphere: 1 - 21 % O ₂	Use only with N ₂
M2P-E-CO2XT-12	CO ₂ up-regulation module	Cultivation with CO ₂ controlled gas atmosphere	Control of gas atmosphere: 0 - 12 % CO ₂	
M2P-E-AN-300	Module for anaerobic cultivation	Strict anaerobic fermentation + low controlled gas flow	Gassing with pure N ₂	Operates with standard 48-well MTP & 32-well MTP in microfluidic mode (feeding)
M2P-E-OP-501-599	LED/Filter module	Measurement of additional fluorescences in BioLector XT microbioreactor	Measurement at additional wavelengths	Custom made filter modules available
M2P-E-OP-524	Low pH filter module	Cultivation of yeast, Lactobacillus sp., fungi & more	Low pH measurement, range 4 - 6 pH	Upgradable on-site
M2P-E-OP-9xx	Laptop for BioLector system	Laptop for data analysis	Data analysis and visualization on separate computer	

Not for use in diagnostic procedures.

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