

RTS-8, Multi-channel Bioreactor with non-invasive real time biomass, pH and pO₂ measurement

DESCRIPTION

RTS-8 is a personal bioreactor that utilizes patented Reverse-Spin® technology that applies non-invasive, mechanically driven, low energy consumption, innovative type of agitation where cell suspension is mixed by the single-use falcon bioreactor tube rotation around its axis with a change of direction of rotation motion resulting in highly efficient mixing and oxygenation for aerobic cultivation. Combined with a nearinfrared optical system it is possible to register cell growth kinetics non-invasively in real time.

FEATURES

- Parallel cultivation enables to save time and resources for bioprocess optimization
- Individually controlled bioreactor accelerates optimization process
- Possibility to cultivate microaerophilic and obligate anaerobic microorganisms (not strict anaerobic conditions)
- Reverse-Spin® mixing principle enables non-invasive biomass measurement in real time
- Near-infrared optical system makes it possible to register cell growth kinetics
- Free of charge software for storage, demonstration and analysis of data in real time
- Compact design with low profile and small footprint for personal application
- Temperature control for bioprocess applications
- Active cooling for rapid temperature control, e.g. for temperature fluctuation experiments
- Task profiling for process automatization
- Cloud data storage to remotely monitor the process of cultivation while at home or using a mobile phone



SOFTWARE FEATURES

- Real-Time cell growth logging
- 3D graphical representation of OD or growth rate over time over unit
- Pause option
- Save/Load option
- Report option: PDF and Excel
- Connect up to 12 units (recommended) simultaneously to 1 computer
- Remote monitoring option (requires internet connection)
- Cycling/Profiling options
- User manual calibration possibility for most cells

TYPICAL APPLICATIONS

- Fermentation real time growth kinetics
- Clone candidate screening
- Protein expression
- Temperature stress and fluctuation experiments
- Media screening and optimization
- Growth characterization
- Inhibition and toxicity tests
- Strain quality control

SPECIFICATIONS

Measurement range	0-100 OD600
Measurement wavelength (λ)	850 $\pm$ 15 nm
Light source	Laser
Measurement periodicity per hour	1-60
Temperature setting range	+15°C ... +60°C
Top control range point	60°C
Sample volume	3–50 ml
Speed control range	50–2,700 rpm
Max. number of units connected to the software	12
Display	LCD
Minimum PC requirements	Intel/AMD Processor, 1 GB RAM, Windows XP*/Vista/7/8/8.1, 2.0 USB port
Optimal PC requirements	Intel/AMD Processor, 3 GB RAM Windows XP*/Vista/7/8/8.1/10, USB 2.0 port * not guaranteed because OS not supported by producer
Dimensions (W×D×H)	330 × 580 × 320 mm
Weight	27 kg
Internal power supply	Input AC 100–240 V 50/60 Hz; Output DC 12 V
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O2 sensor	+
Range	0-100%
Accuracy	$\pm$ 0.01% O2 at 0.21%, $\pm$ 0.1% O2 at 20.9%
Drift	< 0.015% O2 per Day
Temperature range	up to 40°C
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pH sensor	+
Range	pH 4.0 - pH 8.5
Accuracy	$\pm$ 0.05 pH at pH 7 with one-point calibration, $\pm$ 0.10 pH at pH 7 with precalibration
Drift	< 0.005 pH per day
Temperature range	up to 40°C