

Bioreactor RTS-1

Description

The RTS-1 is a small bioreactor for „reverse spinning“ shaking that measures microbial growth in 50 ml tubes in real time.

RTS-1 uses a unique and patented Reverse-Spin®. This method is a non-invasive, mechanically generated, innovative way of mixing samples with low energy consumption.

With the reverse spin method, the cell suspension is mixed by rotating the Falcon tube around its own axis, with a change in the direction of rotation.

This procedure leads to highly efficient mixing and oxygen supply for aerobic cultivation. In combination with an optical near-infrared system, it is possible to record the kinetics of cell growth non-invasively in real time.

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

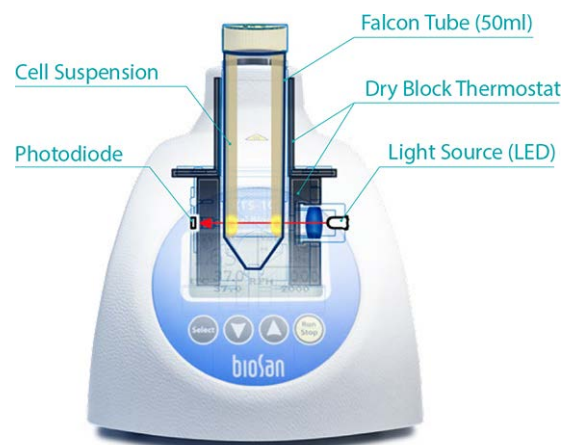
Software Features

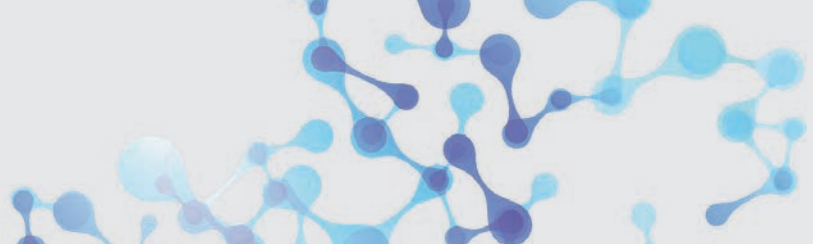
- Real-Time cell growth logging
- 3D graphical representation of OD or growth rate over time over unit
- Pause option
- Save/Load option
- Report option: PDF and Excel
- Connect up to 10 units simultaneously to 1 computer
- Remote monitoring option (requires internet connection)
- Cycling/Profiling options
- User manual calibration possibility for most cells



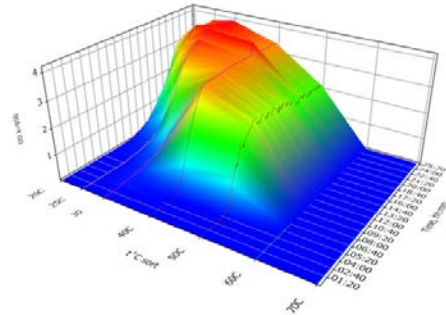
Specifications

- Innovative mixing thanks to rotation of the sample in the opposite direction around its own axis
- Reverse-Spin® mixing principle enables non-invasive biomass measurement in real time
- Software: display of data in real time, analysis and storage of data
- Temperature control allows the RTS-1 to be used as an incubator, e.g. for cell growth
- The possibility of changing certain parameters, such as temperature, revolutions/minute and spinning time in one direction,
- Enables constant and repeatable results to be achieved
- Cycle/analyze cultivation parameters such as temperature, agitation parameters - such as temperature, agitation, change of rotation direction - after reaching a certain time or certain OD values
- Possibility of remote monitoring of the cultivation process





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Technical Data

Model	RTS-1	RTS-1C mit Kühlfunktion
Measurement range	0–10 OD at 10–20ml volume (0–19 OD λ600 nm equivalent) 0–8 OD at 20–30ml volume (0–15.2 OD λ600 nm equivalent)	
Measurement precision	±0,3 OD	
Light source	NIR Light diode	
Measurement wavelength (λ)	850 nm	
Measurement periodicity per hour	1 – 60	
Cultural media volume	10 – 30 ml	
Temperature setting range	+25°C bis +70°C	+4°C bis +70°C
Temperature control range	5°C über Umgebungstemperatur bis 70°C	
Temperature stability	±0,1°C	
Display	LCD	
Speed control range	50 – 2000 U/min	
Max. number of units connected to the software	10	
Type of tube for aerobic cultivation	50 ml tube with membrane filter (TubeSpin® Bioreactor 50, TPP®)*	
Type of tube for anaerobic cultivation	50 ml tube with membrane filter (TubeSpin® Bioreactor 50, TPP®)* *it is also possible to use other manufacturer tubes of the same type, e.g. Corning® 50ml Mini Bioreactor, but the device rotor must be modified. It is possible to request this modif.	
Minimum PC requirements	Intel/AMD Prozessor, 1 GB RAM Windows Vista/7/8/8.1/10, USB 2.0	
Optimal PC requirements	Intel/AMD Prozessor, 3 GB RAM Windows Vista/7/8/8.1/10, USB 2.0	
Overall dimensions (W × D × H)	130 x 212 x 200 mm	
Weight	1.7 kg	2.2 kg
Input current/power consumption	12 V DC, 3,3 A / 40 W	12 V DC, 5 A / 60 W
External power supply	Eingang AC 100–240 V 50/60 Hz, Ausgang DC 12 V	

LG_071_E 12/2023 Subject to technical changes and errors.