RTS-1C Personal Bioreactor

with cooling

Model	ES59803C
Dimensions (H x D x W):	200 x 212 x 130mm
Theoretically possible measurement range in OD850, at 10mL working volume*: Rod shaped bacteria	0-25 (0-45.6 OD600 equivalent**)
Theoretically possible measurement range in OD850, at 10mL working volume*: Yeast	0-50 (0-75 OD600 equivalent)
E.coli BL21 Factory calibration measurement range, in OD850: at 10-20mL volume	0-10 OD (0-19 OD600 equivalent)
E.coli BL21 Factory calibration measurement range, in OD850: at 20-30mL volume	0-8 OD (0-15.2 OD600 equivalent)
Measurement wavelength (λ):	850 ±15nm
Factory calibration measurement precision:	±0.3 OD 850
Mass transfer coefficient kLa:	Up to 350 ± 26 h-1 at 5mL
Light source:	LED (NIR Light diode)
Real time measurement:	1-60 minutes
Temperature setting range:	+25 to 70°C (increment 0.1°C)
Bottom control range point:	Ambient -15°C
Top control range point:	70°C
Temperature stability:	±0.1°C
Sample temperature accuracy:	20°C - 45°C ±2, <20°C: ±2 > 45°C ±3
Sample temperature heating/cooling rate:	0.7°C/min
Sample volume:	5-30mL
Speed control range:	50-2,000rpm (increment 10rpm)
Speed control precision:	±15rpm
Reverse spin time:	1-60 seconds (increment 1s)
Display:	LCD
Minimum PC requirements:	Intel/AMD Processor, 1 GB RAM, Windows XP***/Vista/7/8/8.1/10, 2.0 USB port
Optimal PC requirements:	Intel/AMD Processor, 3 GB RAM, Windows 7/8/8.1/10, 2.0 USB port
Power consumption:	60W (5A)
Input voltage:	12V dc
Nominal operating voltage:	120-230V (50/60Hz)
Weight:	2.2kg

* – Highest kLa (h-1) is achieved at 5 ml working volume which is optimal for aerobic cultivation
** – 850 to OD600 vary between strains and phases of growth
*** – Not guaranteed because OS not supported by producer

The RTS-1C is personal bioreactor with cooling is a personal bioreactor which provides "Reverse-Spin" type of agitation and logging of microbial growth in 50mL tubes in real time. Due to innovative mixing technology it is possible to measure optical density of the probe in real time. The RTS-1 is a compact device with a low profile and small footprint for personal application. Its temperature control allows use as an incubator. The ability to change parameters such as temperature, RPM and "Reverse-Spin" frequency, allows to achieve consistency and reproducibility of results. RTS-1 allows the ability to remotely monitor the process of cultivation while home or using a mobile phone.

Features:

- Innovative mixing due to reverse spinning of the sample around its own axis
- Store, display and analyze the data in real time
- Compact device with low profile and small footprint for personal application
- Active cooling and temperature profiling via software
- Temperature control allows use as an incubator, e.g. for cell growth
- Programmable Cycling/profiling of cultivation parameters such as temperature, RPM, "Reverse-Spin" frequency
- The ability to remotely monitor the process of cultivation while 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 simultaneously to 1 computer
- Remote monitoring option (requires internet connection)
- Cycling/Profiling options
- User calibration options for any microorganism

Applications:

- Bacterial cultivation with real time growth kinetics
- Strain screening
- Temperature stress and fluctuation experiments
- Media screening and optimization
- Synthetic and systems biology
- Inhibition and toxicity tests
- Strain quality control