

# RTS-1, Personal bioreactor

## DESCRIPTION

RTS-1 is personal bioreactor which utilize patented Reverse-Spin® technology that applies non-invasive, mechanically driven, low energy consumption, innovative type of agitation where cell suspension is mixed by the singleuse 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 near-infrared optical system it is possible to register cell growth kinetics non-invasively in real time.

- Reverse-Spin® mixing principle in 50 ml falcon tubes allows to achieve high  $k_a$  ( $h^{-1}$ ) up to 450 which is essential for efficient aerobic cultivation
- 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 10 units 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



## CAT. NUMBER

|               | Including TPP TubeSpin® Bioreactor vessels<br>50ml, 20pcs |
|---------------|-----------------------------------------------------------|
| BS-010158-A04 | 230VAC 50/60Hz Euro plug                                  |
| BS-010158-A05 | 230VAC 50/60Hz UK plug                                    |
| BS-010158-A03 | 230VAC 50/60Hz AU plug                                    |
| BS-010158-A02 | 100VAC 50/60Hz US plug, 120VAC 60Hz US plug               |

## SPECIFICATIONS

|                                                |                                                                                                                                                                                                                                                                   |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement range                              | 0–10 OD at 10–20 ml volume (0–19 OD $\lambda$ 600 nm equivalent)<br/>0–8 OD at 20–30 ml volume (0–15.2 OD $\lambda$ 600 nm equivalent)                                                                                                                            |
| Measurement precision                          | $\pm 0.3$ OD                                                                                                                                                                                                                                                      |
| Light source                                   | NIR Light diode                                                                                                                                                                                                                                                   |
| Measurement wavelength ( $\lambda$ )           | 850 nm                                                                                                                                                                                                                                                            |
| Measurement periodicity per hour               | 1–60                                                                                                                                                                                                                                                              |
| Cultural media volume                          | 10–30 ml                                                                                                                                                                                                                                                          |
| Temperature setting range                      | +25°C ... +70°C                                                                                                                                                                                                                                                   |
| Temperature control range                      | 5°C above ambient ... +70°C                                                                                                                                                                                                                                       |
| Temperature stability                          | $\pm 0.1^\circ\text{C}$                                                                                                                                                                                                                                           |
| Display                                        | LCD                                                                                                                                                                                                                                                               |
| Speed control range                            | 50–2,000 rpm                                                                                                                                                                                                                                                      |
| 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®)* <br/>* — it is also possible to use other manufacturer tubes of the same type, e.g. Corning® 50 ml Mini Bioreactor, but the device rotor must be modified. It is possible to request this modif. |
| Minimum PC requirements                        | Intel/AMD Processor, 1 GB RAM Windows 10/11, USB 2.0 port                                                                                                                                                                                                         |
| Optimal PC requirements                        | Intel/AMD Processor, 3 GB RAM Windows 10/11, USB 2.0 port                                                                                                                                                                                                         |
| Overall dimensions (W×D×H)                     | 130 × 212 × 200 mm                                                                                                                                                                                                                                                |
| Weight                                         | 1.7 kg                                                                                                                                                                                                                                                            |
| Input current/power consumption                | 12 V, 3.3 A / 40 W                                                                                                                                                                                                                                                |
| External power supply                          | Input AC 100–240 V, 50/60 Hz; Output DC 12 V                                                                                                                                                                                                                      |

## ACCESSORIES



USB 2.0 Hub 10 × ports  
BS-010158-BK



TubeSpin® Bioreactor 50 - 20  
BS-010158-AK

50 ml tubes with membrane  
filter TPP TubeSpin®  
Bioreactor 50, 20 pcs.



TubeSpin® Bioreactor 50 - 180  
BS-010158-CK

50 ml tubes with membrane  
filter TPP TubeSpin®  
Bioreactor 50, 180 pcs.