

# RTS-1C, Personal bioreactor

## DESCRIPTION

RTS-1C 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 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

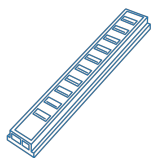
## CAT. NUMBER

|               |                                             |
|---------------|---------------------------------------------|
| BS-010160-A04 | 230VAC 50/60Hz Euro plug                    |
| BS-010160-A05 | 230VAC 50/60Hz UK plug                      |
| BS-010160-A03 | 230VAC 50/60Hz AU plug                      |
| BS-010160-A02 | 100VAC 50/60Hz US plug, 120VAC 60Hz US plug |
| BS-010160-AK  | IQ OQ document                              |
| BS-010160-BK  | PQ document                                 |

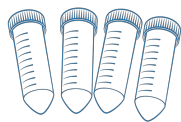
## SPECIFICATIONS

|                                                |                                                                                                                                                                                                                                                                   |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                          | 5–30 ml                                                                                                                                                                                                                                                           |
| Temperature setting range                      | +4°C ... +70°C                                                                                                                                                                                                                                                    |
| Temperature control range                      | 15°C below ambient ... +70°C                                                                                                                                                                                                                                      |
| Temperature stability                          | $\pm 0.1$ °C                                                                                                                                                                                                                                                      |
| Display                                        | LCD                                                                                                                                                                                                                                                               |
| Speed control range                            | 50–2,000 rpm                                                                                                                                                                                                                                                      |
| Max. number of units connected to the software | 12                                                                                                                                                                                                                                                                |
| 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 XP*/Vista/7/8/8.1/10, USB 2.0 port                                                                                                                                                                                          |
| Optimal PC requirements                        | Intel/AMD Processor, 3 GB RAM Windows XP*/Vista/7/8/8.1/10, USB 2.0 port <br/><br/>* not guaranteed because OS not supported by producer                                                                                                                          |
| Overall dimensions (W×D×H)                     | 130 × 212 × 200 mm                                                                                                                                                                                                                                                |
| Weight                                         | 2.2 kg                                                                                                                                                                                                                                                            |
| Input current/power consumption                | 12 V DC, 5 A / 60 W                                                                                                                                                                                                                                               |
| External power supply                          | Input AC 100–240 V 50/60 Hz, Output DC 12 V                                                                                                                                                                                                                       |

## ACCESSORIES

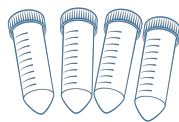


**USB 2.0 Hub 10 × ports**  
BS-010158-BK



**TubeSpin® Bioreactor 50 - 20**  
BS-010158-AK

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



**TubeSpin® Bioreactor 50 - 180**  
BS-010158-AK

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