



Multi-Cultivator MC-1000

Multi-Cultivator MC-1000-OD is a cost-effective small scale cultivation device developed for cultivation of multiple samples of algae, bacteria or cyanobacteria. Multi-Cultivator MC-1000-OD consists of 8 cultivation vessels, where up to 85 ml of suspension can be maintained under controlled light, temperature and aeration conditions. The cultivation vessels are immersed in a temperature controlled water bath. All vessels can be bubbled with air or selected gas (optional) of different flow rate through a manually adjustable valve manifold. Each vessel is separately illuminated by an array of cool white LEDs (optionally warm white, red, or blue LEDs) that generate incident PPFD up to $1,000 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ (optionally up to $2,500 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$). The illumination is independently adjustable for each cultivation vessel in intensity, timing and modulation which allows to set unlimited number of user defined light protocols. The growth of cultivated organisms is automatically monitored by measuring of optical density at two wavelengths of 680 nm and 720 nm.

Turbidostatic version of Multi-Cultivator MC-1000-OD allows to control the biomass growth via OD680 or OD720 independently in each vessel. The pre-set optical density can be modified at a constant level or in a different range automatically depending on the conditions during the experiments.

Multi-Cultivator MC-1000-OD-MULTI is a multi-color instrument version, in which each cultivation slot is furnished with illumination of different color. Covered is the spectrum from 405 nm to 730 nm.

Multi-Cultivator MC-1000-OD-MIX is a mixed-color instrument version which allows to combine up to 4 different LED colors within each cultivation slot for definition of specific spectra.

APPLICATION

- Synchronous multi-well cultivations
- Laboratory applications requiring multiple experimental variants
- Different organisms testing and comparing
- Testing in diverse cultivation conditions
- Controlled cultivation and growth dynamics monitoring of up to 8 different organisms

KEY FEATURES

- Highly precise multi-well cultivation instrument for synchronous growth of algae, bacteria or cyanobacteria
- Flat, rectangular water reservoir nesting eight independently illuminated slots for cultivation in test vessels
- Autoclavable round-shaped glass test tubes
- LED technology illumination adjustable in intensity, timing and modulation
- Illumination for each test tube is independently controllable
- Temperature and light control via user defined protocols that support also diurnal regime or flashing light
- Manually controlled aeration gas is humidified and distributed into each test-tube
- Optical density reading
- Different multicolor version of the device (optional)
- Turbidostatic module (optional)

CONTROL SOFTWARE

- User defined protocol writing
- Real time data visualization and analyses in graphs
- Remote control of the experiment via internet

03 / Photobioreactors

▼ TECHNICAL SPECIFICATION

- **Number of Test Tube Slots:** 8
- **Test Tube Volume:** 100 ml (maximum recommended working volume of each test tube is 85 ml)
- **Volume of Water Reservoir:** 5 liters
- **Precision Controlled Temperature:**
from approximately 5 °C above ambient temperature up to 60 °C
15 °C–60 °C (optional; with Cooling Unit AC-625)
- **Heating System:** One 150 W cartridge heater
- **LED Lighting:**
Light intensity adjustable in the full range up to 1,000 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ (optionally up to 2,500 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$)
- **Standard single color version:** cool white illumination.
Optional: warm white, red, blue
- **Multi-color versions:** Single-color slots (405, 450, 470, 540, warm white, 590, 660, 730 nm)
- **Light Path:** 27 mm
- **Light Regime:** Static or dynamic
- **Online Measured Parameters:** Optical density, temperature
- **Optical Density Measurement:** Real time measurement of OD by two LEDs (720 nm, 680 nm) per a culture vessel; time intervals of OD measurements may be specified
- **Optical Path for OD Measurement:** 27 mm
- **Controlled Flow of Bubbled Air:** Manual via manifold valves
- **Controlled Composition of Bubbled Air:** Optional with purchase of Gas Mixing System GMS 150
- **BIOS:** Upgradeable firmware
- **Communication Port:** USB A-B
- **Material:** Glass, stainless steel, silicon gasket, polycarbonate
- **Dimension:** 80.5 × 35 × 21 cm
- **Weight:** 13 kg
- **Electrical:** 110–240 V AC

