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HABITAT photo cell

/// Data Sheet

The HABITAT photo cell control tower includes LED panels essential for transforming your HABITAT research bioreactor into a photobioreactor. It enables precise monitoring and control of various bioprocesses and, as a photobioreactor, it is ideal for applications involving photosynthetic organisms, such as algae cultivation.

Photobioreactors facilitate the growth of photosynthetic organisms by providing controlled light exposure and environmental conditions, crucial for processes like biofuel production and carbon dioxide sequestration.

The system includes two LED panels, the control unit with all connection options for the gas supply, liquid addition,

sensors and temperature control as well as a tablet for simple and clear operation of the bioreactor.

Control and monitoring
The intuitive software allows easy control and monitoring of the bioprocess and associated parameters via a 10.4-inch tablet. Users can select from batch, fed-batch, and perfusion/continuous operating modes, catering to various cell culture techniques. The innovative Chaotic Mixing function enables efficient and homogeneous mixing when required. The control software provides clear calibration management, real-time data visualization, and complete process documentation, ensuring compliance with FDA CFR Part 11 requirements (optional).

Gas supply
Precise and adjustable gassing is achieved through four individual built-in mass flow controllers for four each separate gas line (N2, O2, air and CO2), enabling flow rates of 0.01 – 2 L / min. tailored to cell growth requirements. By using the integrated and freely customizable cascade control system, each gas flow can be automatically adjusted by the software at any time according to the ambient conditions in order to maintain the target parameters.

Liquid supply
Four integrated Watson-Marlow pumps with adjustable direction and speed offer highest precision and versatility in pumping in and out acid, base, anti-foam agents and feeding solutions for mammalian cell culture media management.

Sensors
HABITAT Bioreactor comes equipped with latest technology sensors to precisely monitor and control critical bioprocess parameters. The following sensors are included in our standard sales vessel packages:
• pH
• DO (dissolved oxygen)
• temperature
• filling level
• foam
Optional sensors: CO2, Conductivity, Turbidity, Viable cell mass, Redox, Off-gas analysis and more.

PID temperature control
The integrated PID control ensures precise temperature regulation at all times, regardless of vessel type (single-wall or double-wall) or fill level. Single-wall glass vessels can be heated with a heating blanket, allowing for accurate temperature settings above room temperature. With the optional use of a cooling finger, it is also possible to achieve temperatures below room temperature. For double-wall vessels, in combination with an IKA thermostat, the temperature range can be freely adjusted between 5-80°C, independent of room conditions or heat generated by the culture itself.

All features at a glance
• compact, space-saving design, dimensions: 223 x 402 x 450 mm (WxDxH)
• latest technology sensors for better insights and more control
• large screen tablet for easy operation (10.4 inch)
• intuitive, easy-to-use control software that provides simple initial setup and intuitive user assistance throughout the

process
• four integrated Watson-Marlow pumps
• high precision motor speed control
• cross platform connectivity: USB, PC, RS232, OPC-UA, ethernet, external signal input, external pump, single-use unit, thermostat
• data storage
• four built-in mass flow controllers for gas supply: N2, O2, air, and CO2
• status LED display: direct error display by indicator light
Note: Only a control tower and the separately available vessel package make up a functional unit.

Scope of delivery
•HABITAT photo cell S099
•Tablet with software for bioreactor
•LED panel (2pcs)

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