TECNIC eLAB BIOREACTORS

eLAB Control Unit

Weight and dimensions	
Single	~ 35 kg
Twin	~ 50 kg
Single / Twin	437 x 850 x 500 mm
Hardware	
Housing	Stainless Steel, AISI 304 (SF4 according to ASME BPE)
Display	Capacitive Touch Screen, 15”, glass
Status indicator light	Green: OK Orange: warning Red: alarm
Software	
eSCADA Basic	Included
eSCADA Advanced	Optional
CFR21.11	Optional
Remote access	Optional
Documentation package	
GMP	Optional
Built-in peristaltic pumps (4x)	
3x fixed speed: 5 – 200 rpm	1x variable speed: 5 – 600 rpm
** External pumps optional (4x)*	
Addition bottles	Optional
Tubing	Optional
Process Control Sensors	
Temperature	Pt100: 10 – 60 ºC
Dissolved Oxygen	Optical sensor: 0 – 100 % (ODO Cap membrane as spare part)
pH Sensor	Glass, pre-pressurized reference system: 2 – 12 pH
Level/Foam	Hygienic. Sliding connection
Redox	Optional
Conductivity	Optional
Total Cell Density (TCD)	Optional
Viable Cell Density (VCD)	Optional
Biochemical parameters	Optional
pCO_2	Optional
Weight control	Optional
Digital/Analogic auxiliary input	Up to 4 4 – 20 mA / RS485 Modbus protocol
Motor	
Agitator	Magnetic agitation
Rotation Speed Motor	1 L: 0 – 2000 rpm; 2 L: 0 – 1800 rpm; 5 L: 0 – 1500 rpm;
Impellers	Microbial: 2x or 3x Rushton
**Customized impellers available*	Cell culture: 1x or 2x Marine
Temperature Module	
Single wall	Electrical heating (blanket) and cooling loop with external chiller
Double wall	Thermostat system with external chiller for cooling and electrical resistance for heating
Aeration Module	
Microbial	Three-gas mixing: Air, O_2, (N_2 optional) Three flow meters through sparger by MFCs Gas mix as aeration strategy: AIR and O_2 Up to 2 vvm volume flow for each gas
Cell Culture	Four-gas mixing: Air, O_2, CO_2, N_2 by MFCs Four flow meters through sparger and overlay Up to 1 vvm volume flow for each gas
Utilities	
Power supply	230 V (EU)
Gases	1 bar
Water	Water supply pressure from external chiller, 1 bar

C/ Ponent, Parc. 10 - 1,2,3
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TECNIC

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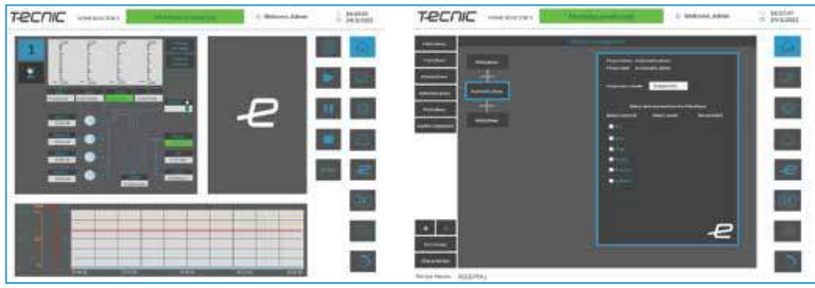
TECNIC's bioreactors are available with multiple configuration possibilities for microbial and cell culture applications. All the equipment is designed and manufactured in our facilities in Riudarenes (Girona), Spain.

Our bioreactors are available for laboratory, pilot and production applications, fitting in all processes from small scale to final product production.



eSCADA

Our software, built on the AVEVA (formerly Wonderware) System Platform architecture, is designed to facilitate the recording and control of all process parameters in an intuitive and easy-to-use way.

eSCADA is integrated into all of our equipment, which means that there is full interconnectivity between them. No external software is required to control any part of the process. The system can also be remotely controlled from an external PC or tablet.

eSCADA Basic is the standard software that runs the equipment, where the process can be controlled, visualized and graphed, as well as export results in an efficient way.

eSCADA Advanced (optional) is the upgraded version for process automation that allows recipes management and control loops. Both versions can include GMP and CFR 21 Part 11 modules.

pH

pH regulation is performed by a loop with acid and base pumps (CO_2 is also available for cell culture) based on a setpoint. Digital technology is used.

pO_2

pO_2 regulation is performed by cascade. Up to 4 actuators: air, oxygen, stirring and substrate. The user can select its order depending on the culture. Digital technology is used.

°C

Temperature is regulated by a thermostat system with external chiller for cooling and electrical resistance for heating (heating blanket and cooling finger for single wall vessels are available).

● STD ○ OPT

BIOREACTORS CONFIGURATION *Other customized options available	eLAB RB-M-0001/2/5	eLAB RB-C-0001/2/5	ePILOT RB-M-0010/50	ePILOT RB-C-0010/50	ePROD RB-M-0100/2000	ePROD RB-C-0100/2000
1.VESSEL						
Single/Twin	● ○		● ○		● ○	
Glass	●		●		●	
Stainless Steel	○		○		○	
Single Use	○		○		○	
Working Volume (L)*	1-2-5		10-30-50		100-200-500-1000-2000	
Weight Control	○		○		○	
Single/Double Wall	● ○		●		●	
Lighting	○		○		○	
2.AGITATION						
Rushton Impeller	●		●		●	
Marine Impeller	●		●		●	
Customized	○		○		○	
Deflectors (4)	○	○	○	○	○	○
Magnetic Agitator	●		●		●	
3.ADDITION						
Fixed Speed (3x) (ml/min)	●	●	●	●	●	●
Variable Speed (1x) (ml/min)	Acid-Base-Foam ● Substrate / Media		Acid-Base-Foam ● Substrate / Media		Acid-Base-Foam ● Substrate / Media	
4.MEASUREMENT						
pH	●		●		●	
pO_2	●		●		●	
Temperature	●		●		●	
Level	○		○		○	
Foam	●		●		●	
Conductivity	○		○		○	
ORP [-1500 – 1500]mV	○		○		○	
Cell Density (OD, viability)	○		○		○	
Biochemical Parameters (glucose..)	○		○		○	
pCO_2 (10 – 1000) mbar	○		○		○	
5.GASSING						
Air Flow (lpm)	●	●	●	●	●	●
O_2 Flow (lpm)	●	●	●	●	●	●
N_2 Flow (lpm)	○	●	○	●	○	●
CO_2 Flow (lpm)		●		●		●
Gas Mix (%)	●	○	●	○	●	○
Gas Inlet	Sparger	Sparger / Overlay	Sparger	Sparger / Overlay	Sparger	Sparger / Overlay
6.SOFTWARE						
eSCADA Basic	●		●		●	
eSCADA Advanced	○		○		○	
CFR21.11	○		○		○	
7.DOCUMENTATION						
GMP	○		○		○	

15" Capacitive touch screen

Standard version: 4 peristaltic pumps

Twin version: 8 peristaltic pumps (Watson Marlow, 114DV; flows up to 510 mL/min; no maintenance; reversible direction)

pH, pO_2 and foam/level sensors by default

Light indicator for a quick status view

Magnetic agitation

Gas supply systems for sparger and overlay controlled by four flow meters: air, oxygen, nitrogen and carbon dioxide. Gases distinguish between cell culture, aerobic and anaerobic microbial

For anaerobic processes, air and oxygen must be changed for nitrogen

eLAB Vessel

Our benchtop bioreactors are made of borosilicate glass with working volumes of 1, 2 and 5 L. They are available in single or double wall

Optional Stainless Steel vessel for 2 and 5 L which may include Cleaning in Place (CIP) cycle module

Glass	Standard
Material	Vessel: Borosilicate Glass
	Wetted parts: Stainless Steel AISI 316L (SF1 according to ASME BPE)
	Other parts: Stainless Steel AISI 304L (SF4 according to ASME BPE)
Size (working volume)	1 L (0.35 – 1 L)
	2 L (0.6 – 2 L)
	5 L (0.8 – 5 L)
Dimensions (diameter x height)	1 L – 210 x 300 mm
With structure; without condenser	2 L – 235 x 400 mm
	5 L – 260 x 500 mm
Sterilization	Autoclave
Baffles	4x integrated baffles. Optional
Sparger	Ring sparger
	Microsparger optional
Stainless Steel 316L	Optional (2 or 5 L)
Cleaning-in-place (CIP)	Optional