



Microbial Glass Bioreactors

The microbial glass bioreactors are specially prepared for laboratory microbial experiments and such purposes, they're going to be of great assistance to you.

Features of Controlling Tower

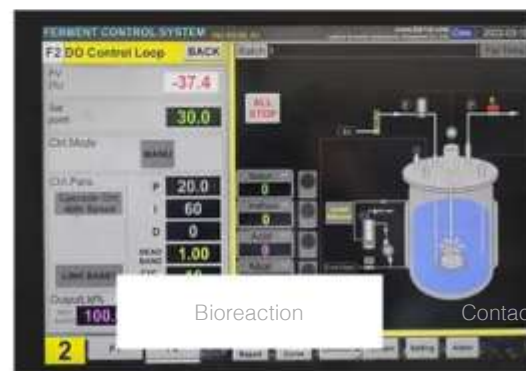


Multiple Control Function

- Associated control:** temperature, stirring speed, pH, dissolved oxygen, defoaming, airflow, tank pressure, feed amount and other direct parameters.
- Remote monitoring:** Suitable for smartphones, tablets, laptops and PC for instant remote monitoring. Software for data storage. 10 user defined Passwords
- Program files storage** (60000 program files)
- Fermentation Data Storage:** up to 100 fermentations in the fermentor data card. Data easily transferred via USB
- Step control:** Users can switch directly between manual control and step control and set at least 15-step control program for temperature, agitation, PH, DO and feeding.

Smart PID control

- Temperature, stirring speed, Ph, DO and other parameters in the tank can be controlled by subsection curve setting according to the process requirements.
- Temperature Control:** Adopt PID automatic control mode; SS316L jacket base for electric heating and cold water for cooling.
- Dissolved oxygen control:** equipped with DO electrode and shielded conductor, DO is associated with stirring motor speed, feeding,





peristaltic pump is controlled to add defoamer in proportion to time.

▪ **Feeding control:** Peristaltic pump switch control (manual, automatic, and off); accumulation volume control; coupled with other parameters (DO, pH, etc).

Service and sensor calibration control: separate screens with prompt steps. Switch on/off optional devices



Standard Glass Vessel



- Equipped with an easy-to detach condenser around the air outlet, for easy cleaning no effusion and no contaminating bacteria.
- Standard sensors port for precise measurement and control of temperature, pH, DO, Antifoam, feed, aeration and pressure.
- Top located brushless motor stirring for good sealing performance.
- SS air supply tube with orifice ring ..
- Standard with Rushton or pitched-blade; other types of impellers are available
- Configured one sampling port.
- Equipped with a filter to prevent contaminated air from getting to the system.
- Tempered high borosilicate glass 3.3 for vessel and SS316L for the heating plate.
- Perfectly suited for research and development, available in 1L, 2L, 3L, 5L, 7L and 10L.



Bottle holder for four bottles 100 ml or 3 bottles 250 ml or 2 bottles 500 ml

Head plate holder, head plate with openings for temperature, PH, DO or Redox, antifoam or level sensors.

Inoculation port – for bacteria /small/ and fungi /big/, sampling devices /5 ml or 20ml/, SS condenser, 2 SS holders

Upgrading Option List

- | | |
|---|---|
| <input checked="" type="checkbox"/> Gas mixing options: Air/O ₂ /CO ₂ /N ₂ | <input checked="" type="checkbox"/> Exhaust detection analysis |
| <input checked="" type="checkbox"/> Cleanliness detection | <input checked="" type="checkbox"/> Liquid level |
| <input checked="" type="checkbox"/> Online live cell detection | <input checked="" type="checkbox"/> Filling weighing system |
| <input checked="" type="checkbox"/> Automatic vessel pressure control | <input checked="" type="checkbox"/> Methanol and ethanol content online detection |
| <input checked="" type="checkbox"/> Top aeration | <input checked="" type="checkbox"/> Additional feed pump |
| <input checked="" type="checkbox"/> Thermal mass flow controller | <input checked="" type="checkbox"/> Variable speed |
| <input checked="" type="checkbox"/> CO ₂ detection | <input checked="" type="checkbox"/> Upper controller |
| <input checked="" type="checkbox"/> Redox | |



Standard Type Specification

Title	BR100-M1	BR10-M2
Controller	One console for one vessel	One console for two vessels
Display / Operation	Touch panel 10" / Touch screen	Touch panel 10" / Touch screen
USB	1 x RS485	2 x RS485
Vessel	1.3L / 2.2L / 3.5L / 6.5L / 8L / 13L	2 x 1.2L / 2.2L / 3.5L / 6.5L / 8L / 13L
Working volume	1L / 2L / 3L / 5L / 7L / 10L	2 x 1L / 2L / 3L / 5L / 7L / 10L
Stirring speed	5 - 1000 rpm	5 - 1000 rpm
Motor power (Kw)	0.18/0.4/0.4/0.4/0.4/0.75	0.18/0.4/0.4/0.4/0.4/0.75
Pressure	0.10Mpa (Max 0.15Mpa)	0.10Mpa (Max 0.15Mpa)
Material	SS316L & 3.3 high borosilicate glass	SS316L & 3.3 high borosilicate glass
Serilization	Autoclave	Autoclave
Gas inlet	Air/O ₂ , two rotameter	Air/O ₂ , four rotameter,
Feeding pumps	4 peristaltic pumps	8 peristaltic pumps
Peristic pump tube ID	0.5-0.8 mm	0.5-0.8 mm
Peristic pump flow rare	0.06 - 65/revolution	0.15-65/revolution
Sensors	PT100, DO, foam, pH	PT100, DO, foam, pH
Temperature	Eletrical heating plate with circulation +5°C above cooling water – 60°C	Eletrical heating plate with circulation +5°C above cooling water – 60°C
pH control	Range: 2 - 12 (±0.01), display: 0 - 14 (±0.01)	Range: 2 - 12 (±0.01), display: 0 - 14 (±0.01)
DO control	Range: 0 - 200% (±3%), international eletrode and shielded wire detection	Range: 0 - 200% (±3%), international eletrode and shielded wire detection
Defoam control	Automatic foam detection, automatically add defoamer in proportion to time	Automatic foam detection, automatically add defoamer in proportion to time
Agitation control	Servo motor, PID control, stepless speed regulation	Servo motor, PID control, stepless speed regulation
Areation airflow	2VVM	2VVM
Areation filter	0.2µm	0.2µm
Areation flowmeter	Air calibrated, 1.2bar 20°C	Air calibrated, 1.2bar 20°C
Areation flow rate	0.5SLPM, 1.0SLPM, 2.5SLPM, 5.0SLPM, 10SLPM, 25SLPM (customizable)	0.5SLPM, 1.0SLPM, 2.5SLPM, 5.0SLPM, 10SLPM, 25SLPM (customizable)



Upgrading Option List

Gas mixing options: Air/O ₂ /CO ₂ /N ₂	Air/O ₂ /CO ₂ /N ₂ module Manual control: 4 rotameter, 4 gauges, 4 manometers	Two Air/O ₂ /CO ₂ /N ₂ modules, each Manual control: 4 rotameter, 4 gauges, 4 manometers
Cooling option	Temperature range: 0-100°C, ±0.1°C External bath with coolant Flow rate: 6 l/min optional	Temperature range: 0-100°C, ±0.1°C External bath with coolant Flow rate: 6 l/min optional
Online live cell detection		
Automatic vessel pressure control	yes	yes
Top aeration	optional	optional
Thermal oxygen mass flow controller	optional	optional
CO ₂ / O ₂ detection	Self-calibrating IR Sensor CO ₂ Self-calibrating Electrochemical sensor O ₂ Integrated pump 200 – 1600 ml/min ±2000 mV, ± 1 mV	2 Self-calibrating IR Sensor CO ₂ 2 Self-calibrating Electrochemical sensor O ₂ 2 Integrated pump 200 – 1600 ml/min ±2000 mV, ± 1 mV
Redox	Autoclavable gel electrode	2 pc Autoclavable gel electrode
Liquid level	1 sensor	2 sensors
Air pump (compressor)	Oil free Flow: 15 LPM	Oil free Flow: 20 LPM
Methanol and ethanol content online	1 sensor ethanol 1 sensor methanol	2 sensors ethanol 2 sensors methanol
Additional feed pump	Optional peristaltic pump connected to Control Tower Flow 0 – 300 rpm	2 optional pumps Optional peristaltic pump connected to Control Tower Flow: 0 – 1000 MLPM
Variable speed	Flow: 0 – 1000 MLPM	Flow 0 – 300 rpm Flow: 0 – 1000 MLPM
Methane detection	Integrated off-gas analyzer	2 pc Integrated off-gas analyzer
Start up kit:	4 glass bottles 100 ml 1 glass bottle 500 ml 10 m silicone tube 5 mm 10 air filters autoclavable 20 connecting tubes SS 20 silicone clamps 1 manual burner	8 glass bottles 100 ml 2 glass bottle 500 ml 20 m silicone tube 5 mm 20 air filters autoclavable 40 connecting tubes SS 40 silicone clamps 1 manual burner