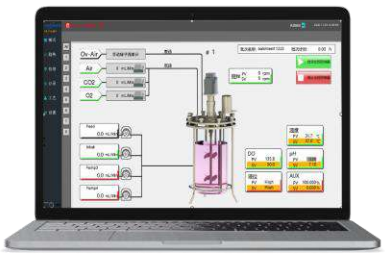
DuoBioX® Explore Multi-Parallel Benchtop Glass Bioreactor



Explore Parallel Bioreactor

Duoning Explore is mammalian and microbial cell culture bioreactor system with leading design, excellent performance, complete functions and easy operation. Users only need one computer to control 1 to 8 glass tanks to run independently or in parallel. In this way, it can greatly speed up the process development progress. The Explore system is best choice for the process development study of cell culture in the biopharmaceutical industry.

Concept of design

The Explore system fully meets the requirements of bioreactor technology for biopharmaceuticals applications. The process software uses a concise design language which is easy-to-operate. The complete set of electrical components of the controller are from industry leading suppliers and highly integrated with small footprint, saving your precious benchtop space.

Material of construction

The stainless steel parts of the tank in contact with the liquid are made of SUS316L stainless steel, and the inert surface is easy to clean due to electrolytic polishing. The glass body of the tank is made of high quality tempered borosilicate glass, and the sealing material is made of EPDM or silica gel that meets the requirements of FDA. The non-liquid contact part is made of high quality SUS304 stainless steel.

Hardware

Integrate a full set of hardware from industry leading suppliers, ensures stable and reliable system performance:

- Germen SIEMENS S-1200 series PLC
- Swiss METTLER TOLEDO pH gel sensor
- Swiss HAMILTON DO optical sensor
- Watson-Marlow variable speed peristaltic pump
- Japan Panasonic AC servo motor
- Japanese SMC solenoid valve
- US Dwyer rotameter
- US ALICAT mass flow meter

Advantages

- Multiple tank specification options, including 500 mL, 3 L, 7 L and 15 L.
- Satellite design provides great flexibility for system expansion, quickly realize multi-connection or parallel control of 1 to 8 tanks, Explore system can easily realize parameter setting, process program calling, data backup, and can compare and analyze the trend of different batches under the same interface.
- Powerful software functions can realize full control based on feedback, time, conditions and script recipes, which can meet the strict process requirements.
- The operating system developed based on the WinCC industrial-grade architecture meets the requirements of GMP and 21 CFR Part 11, and can be used in pharmaceutical and medical industries.
- Complete network communication interface, docking with SCADA to realize data collection and remote monitoring.
- In addition to basic DO, pH, temperature, liquid level, stirring control unit, the system can provide up to three gas supply channels, including overlay gas supply, macro-sparge bottom gas supply and micro-sparge bottom gas supply, allowing users to design flexible air supply strategy, and easily support high-density perfusion cell culture process; the optimized exhaust gas cooling device can effectively prevent clogging, and is compatible with fermentation/high-density cell culture.
- The controller is designed with 2 additional input ports, which can be connected to sensors, such as sensors of cell density, CO_2 and weighing, and additional signals can be integrated in control loop.

Model	Explore 500 mL	Explore 3 L	Explore 7 L	Explore 15 L
Function	Mammalian cell culture (compatible with microorganisms), control up to 8 units			
Vessel				
Working volume	400 mL	2 L	5 L	10 L
Total volume	500 mL	3.1 L	6.8 L	15 L
Min working volume	100 mL	0.6 L	1.5 L	3.2 L
Aspect ratio	2:1	1.9:1	2.2:1	2.0:1
Np	1.5			
Blade	3 pitched blades 45°			
Blade diameter	35 mm	45 mm	60 mm	75 mm
Gas supply tube ID	4 mm	6 mm	8 mm	8 mm
Macro-sparge Size	0.5 mm	1 mm		
Macro-Sparger holes	3	7	7	7
Micro-sparge size	NA	5 μm for optional		
Controller				
pH sensor	Inpro3100i/SG/ 120	Inpro3100i/SG/ 225	Inpro3100i/SG/ 325	Inpro3100i/SG/ 325
DO sensor	112/120 optical H2	112/225 optical H2	142/325 optical H2	142/325 optical H2
CO_2 sensor	Optional			
Overlay	Rotor flow meter （MFC for optional）			
MFC-Air	0~0.1 L	0~0.5 L	0~1 L	0~2 L
MFC-O_2	0~0.1 L	0~0.5 L	0~1 L	0~2 L
MFC-CO_2	0~0.1 L	0~0.1 L	0~0.5 L	0~1 L
MFC-N_2	Optional			
MFC-O_2 micro sparge	0~0.1 for optional		0~0.5 for optional	0~1 for optional
Peristaltic pump	4xWaston Malow 114Dvariable speed pump			
Temperature control	Electric heating base 100w Cold water solenoid valve			
Exhaust gas cooling	NA	Semiconductor or water cooling		
Weighting	Optional			
Control software				
21 CFR Part 11	Yes			
Data record	Yes			
User authorization	4 levels			
Utilities requirements				
Gas source	Air, O_2, CO_2, N_2(Optional)			
Gas source pressure	0.2-0.3 MPa			
Control cabinet power supply	220 v 50 Hz			
Power socket	10A three-hole			
Cabinet dimension	Length*width*height 554*188*404 mm			
Vessel external dimensions	Height*diameter 357*100 mm	Height*diameter 430*210 mm	Height*diameter 510*250 mm	Height*diameter 690*280 mm
Height without exhaust condenser	357	410	520	620
Cabinet net weight	25 kg			
Vessel net weight	2 kg	8 kg	11 kg	15 kg

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