Entry-level Fermentor Bioreactor, 4 - 13.4 liters

Easy-to-use, entry-level system, with built-in controls for operation as a microbial fermentor as well as mammalian/animal cell culture bioreactor. This versatility, coupled with its ability to control up to three independent reactors from a single control station, makes it ideally suited to use in R&D labs, universities, teaching facilities, testing labs, and more.

Applications: Microbes, yeast, insect, plant or mammalian cells, in batch, fed-batch and continuous culture.

Optional Item:

1. Oxygen Enrichment Device
2. One external pump
3. Fluorescent Lamp On/Off control - Included 4 sets of T5 Fluorescent Lamp and a external Timer on/off control (24hr).

SoftWare:

	Jacket vessel (Dish bottom)	Single wall with blanket	Single wall (Plain bottom)	Single wall (Dish bottom)	Air lifter
					
Mammalian Cell Culture	○	○	●	●	●
Aerobic Microorganism Culture	○	○	○	○	◘
Micro-aerobic Microorganism	○	○	○	○	●
Anaerobic Microorganism	○	○	○	○	●
To culture Fragile Cell	◘	◘	●	●	○
Photosynthesis Culture	●	●	◘	○	○
Plant Cell Culture	○	○	●	○	○
Insect Cell Culture	○	○	●	◘	●

○: Excellent ◘: Well **●: Not Recommended**

Field	Products
Medicine Products	Antibiotics; Hormones; Vaccine; Immune Modulators; Blood Proteins etc.,
Agriculture Products	Veterinary Medicine; Biotec Fertilizer; Microbial Insecticides etc.,
Food Additive Products	Amino Acids ; Vitamins ; Organic Acids etc.,
Chemical & Energy Products	Ethanol; Glycerol; Methane etc.,
For Environment Products	Digest Waste Microorganism
Other Product	Bioleaching Of Metals; Genetically Engineered Spiders; Silk Proteins
Biomass Products	Baker's Yeast; Mushrooms; Algae; Single-Cell Proteins etc.,
Enzyme	Amylases; Celluloses; Proteases; Microbial Rennin; Lipases; Glucose Isomerase; Penicillin Acylase; Cholesterol Oxidase etc.,
Metabolism Products	- Fermentation Products – Ethanol; Lacto Acid; Butanol; Acetone - Growth Factors –Amino Acid; Vitamins; Citric Acid etc., - Secondary Metabolites – Antibiotics; Alkaloids etc., - Gene Products: Insulin; Human Growth Hormone; Interferons; Interleukins; Blood-Clotting Factors; Serum Albumin; Hepatitis B Vaccine; Rabies Vaccine And Diarrhea Vaccine For Pigs; Monoclonal Antibodies etc.,

Thermostat system					
Vessel	Jacket vessel (Dish bottom)				
		3L	5L	7L	10L
	Total volume(Liter)	4	7	9.3	13.4
	Material	Borosilicate glass / 316L ss for headplate and all fittings			
Control unit	Control panel	10.4” Color Touch screen Interface			
	Communication port	Remote control through Ethernet(SCADA)			
	Storage Program	Up to 59,994 program for different kinds of condition			
	Data storage	Up to 10 data files			
	Data storage interface	USB port			
	Cabinet material	ABS front panel and iron painted housing			
	Dimension	Footprint: 400 x 500 mm (W x D) ; Height: 735 mm			
	Rated voltage	110V or 220V ; 50/60 Hz			
Aeration	Inlet Gas Flow-meter	1 – 10 LPM		2 – 20 LPM	
	Impeller	Two different type of impeller – a. 3 pcs of adjustable Rushton-type impeller b. 2 pcs of adjustable Pitched-blade impeller note: 1. Rushton-type impeller is for cell line that are not considered shear-sensitive 2. Pitched-blade impeller for shear-sensitive cell line 3. The standard system includes one type impeller. It is option for another type. It is available for customer-made impeller).			
	Sparger	Orifice ring			
	Baffle	Removable 316L stainless steel baffles			
Temperature	Control system	Thermostat system; Built-in heat exchanger (400 W heater/water circulation pump); Automatic cooling water valve			
	Range	5^{O}C above coolant up to 60^{O}C			
	Probe	Platinum RTD probe (Pt 100)			
	Control mode	Programmable 15 steps PID controller			
Agitation	Drive	Removable Top brushless motor			
	Speed Range	Two type of agitation motor: a. 30 – 1200 rpm is for general fermenter; b. 5 – 300 rpm is for shear-sensitive cell line (The standard system includes one type of agitation motor. It is option for another type.)			
	Control mode	Programmable 15 steps PID controller			
pH	Range	2-12 pH			
	Probe	Gel-filled electrode; Autoclavable			
	Control mode	PID			
DO	Range	0 – 200%			
	Probe	Polarographic DO sensor; Autoclavable			
	Control mode	PID; Cascade function to response to a. Stepping increasing or decreasing agitation speed b. Oxygen Enrichment Device (optional item) c. To start substrate feeding program.			
Foam	Probe	316L stainless steel protector with insulated Teflon tube; On/Off controller			
Peristaltic pump	Built-in 4 sets of pumps; One external pump (optional)				
	Precise Stepping motor; min. speed is 1 rpm				
	Speed range	0 – 100 rpm			
	Control mode	Programmable 15 steps feeding control; Pump can be assigned for Acid, Base, Antifoam and Substrate			
Exhaust	316L Stainless steel condenser				