

Programmable Fermentation System

Cleaver Scientific offers two types of bench top laboratory fermentation system.

The main type of system offered is designed for four different sizes of fermentation vessel -3,5,7 or 10 litres.

A smaller modular system is also available and is designed for flasks of up to 1.5 litres.

Included with each system is a built-in 15 step programmable software package, an integrated and user friendly control interface and a computer control option which offers real time recording and communication between the fermentation system and the attached computer.

These fermentation systems offer high performance and reproducibility with regularly achieved O.D. in excess of 80.

A validation package is available as an optional extra.

The controller can be set to keep the microbes in the various growth phases for maximum yield and accommodates Batch, Fed batch and Continuous fermentation as required. The pH probe allows automatic control of either acid or base input via the peristaltic pumps and the DO probe controls the aerator. Cleaver Scientific Fermentation Systems can be used for growing a wide variety of cell types: microbes, yeast and fungi, as well as mammalian, insect and plant cell lines.

Double jacket vessels are available for mammalian cell culture. A full maintenance package is available.

CSL-F1 Fermentation System

- CSL-F1-S-3L Fermentation System with a 3 Liter culture vessel
- CSL-F1-S-5L Fermentation System with a 5 Liter culture vessel
- CSL-F1-S-7L Fermentation System with a 7 Liter culture vessel
- CSL-F1-S-10L Fermentation System with a 10 Liter culture vessel
- CSL-F1-D Dual vessel-One controller Systems are available

CSL-FS Modular Small Scale Fermentation System

- CSL-FS-S Modular Small Scale Fermentation System Controller for One Vessel
- CSL-FS-D Modular Small Scale Fermentation System Controller for Dual Vessels



CSL-FS Modular System



CSL-FS-S series



CSLFU-02



CSLFU-01



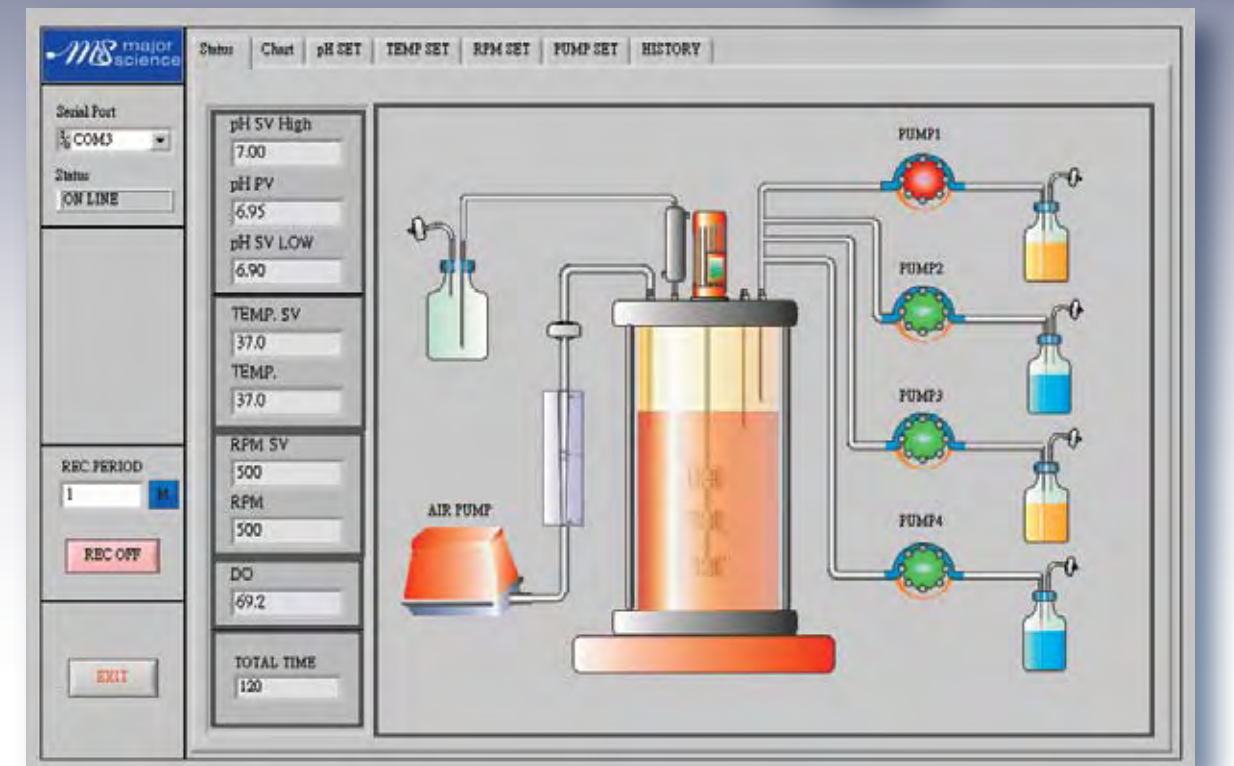
CSL-F1-S series

Product Description

CSL-F1 is a programmable fermentation system with a user friendly interface design. It is offered as a complete system including all the necessary accessories. It can be equipped with a single or a double jacketed culture vessel for different microbiological material. Its high reproductivity has been proven in many laboratories. There are two operational modes; manual mode and programmable mode. In addition Cascade and Acid-start operating conditions can be set by the controller. Another mode which can be set is for two vessels to be controlled by one controller, which maximizes space saving and economy.

Features

- 15 Step programmable software package
- High reproductivity performance
- Integrated design & user friendly control interface
- Fermentor controller or a computer can be used to control
- Real time recording
- Fully complete accessory package



Complete Package, including:

- Built-in Diaphragm Air Pump x 1 set
- Autoclavable pH probe x 1 ea
- Autoclavable DO probe x 1 ea
- Stainless Steel Condenser x 1 ea
- Sampling device x 1 ea
- Foam level sensor x 1 ea
- Two ports feed adaptor x 3 ea
- 250 ml glass bottle x 3 ea (includes 2 port Stainless Steel Connecting set)
- 500 ml glass bottle x 2 ea (includes Stainless Steel Connecting set)
- #16 (Inner diameter - 0.12") silicon tube – 25"
- 45 mm 0.25 u autoclavable disc filter x 10 ea
- Connecting Stainless Steel tube x 15 ea
- Data Acquisition Software (LabView Version) x 1 ea



Single Vessel Fermentation System

Cat. No. : CSL-F1-S series

Specification

Vessel working volume	3L	5L	7L	10L
Height / diameter	260/130mm	320/160 mm	360/180 mm	400/200 mm
Aeration	Single orifice sparger			
Inlet gas flow meter	Adjustable 5L/min		Adjustable 10L /min	
Outlet gas	Stainless steel condenser			
Mechanical seal	Single mechanical seal			
Driver	Removable top driver motor			
Agitation speed	0, 100~1,200 Rpm			
	15 step programmable controller			
Temperature controller	15 step programmable PID controller			
Cooling	Cooling coil on inner of vessel with control valve			
Heating	Bottom heating plate			
Temp probe	Pt 100 ; 0~90°C; ± 0.1°C			
pH probe	Autoclavable; pH 2~12 ± 0.01			
DO	Autoclavable, 0~100%			
Anti foam probe	316 stainless steel with insulated tube ; on/off controller			
Easy load pump	4 ea of easy load pump head ; Fifth pump for option			
	Pumps can be assigned and adjusted to more than five			
	Different functions via the keypad			
	15 step programmable feeding application			
Communication port	RS 485			
Other accessories	A. 250 ml media bottle x 4 ea			
	B. 500 ml media bottle x 1 ea			
	C. 1,000 ml media bottle x 1 ea			
	D. #16 silicon tube (25 ft/pk) x 2 ea			
	E. 2 ports of stainless steel stopper x 3 ea			
	F. Stainless steel stopper x 2 ea			
	G. Stainless steel feeding tube x 10 ea			

Ordering Information

CSL-F1-S-3L	Fermentation System with a 3 Litre culture vessel
CSL-F1-S-5L	Fermentation System with a 5 Litre culture vessel
CSL-F1-S-7L	Fermentation System with a 7 Litre culture vessel
CSL-F1-S-10L	Fermentation System with a 10 Litre culture vessel
CSL-F1-D	Dual vessel-One controller Systems are available

Modular Small Scale Fermentation System

Product Description

Ideally designed for smaller scale fermentations, CSL-FS is a modular system providing more flexibility. Different components can be assembled depending on the user requirements including tetra peristaltic pumps which are fully and individually controllable. Many of the accessories can be added as optional extras including pH and DO probes. The main feature of this system is that it offers an affordable alternative to traditional culture methods.



Cat. No. :CSL-FS series

Ordering Information

CSL-FS-S	Modular Small Scale Fermentation System Controller for One Vessel
CSL-FS-D	Modular Small Scale Fermentation System Controller for Dual Vessels
Accessories	
CSL-FU-01	Dual peristaltic pump for Smarter Fermentation System
CSL-FU-02	Tetrad peristaltic pump for Smarter Fermentation System
CSL-VE-0.5L	Single Vessel System, 0.5L culture vessel and base unit
CSL-VE-1L	Single Vessel System, 1L culture vessel and base unit
CSL-VE-1.5L	Single Vessel System, 1.5L culture vessel and base unit
CSL-JV-0.5L	Single Jacketed Vessel System, 0.5L Jacket culture vessel and base unit
CSL-JV-1L	Single Jacketed Vessel System, 1L Jacket culture vessel and base unit
CSL-JV-1.5L	Single Jacketed Vessel System, 1.5L Jacket culture vessel and base unit

<p>Modular Small Scale Fermentation Controller : Single Controller</p>  <p>Dual Controller</p>	<p>A. Control a single vessel B. Large backlit LCD C. Temperature 1) Type: Pt100 2) Range: 0~90°C D. pH 1) Calibration Method: 2-point sample method (pH 4 & 7) 2) Range: 0~14 E. DO 1) Calibration Method: 2-point sample method (zero & HI CAL sample value) 2) Range: 0~100 F. Agitation 1) Type: Brushless motor 2) Range: 100~1200rpm G. Foam Level 1) Conductivity type 2) Range: 0~99 sec. H. Pump 1) To drive stepping peristaltic pump 2) Maxi. 8 pump for dual controller 3) Customer assigned pump application; for example for acid; base; anti-foam reagent and nutrient. I. Feed manual start feed nutrient</p> <p>A. Control two vessels B. All other parameters are as for the single controller</p>
<p>Stepping Peristaltic Pump 2 Pump Heads Peristaltic Pump</p> <p>4 Pump Heads Peristaltic Pump</p>	<p>A. Two fast tube load pump heads B. Two individual microprocessor digital controls and display C. Driving via accurate stepping motor D. Manual/Auto select function E. Forward and backward function</p> <p>A. Four fast tube load pump heads B. Four individual microprocessor digital controls and display C. Driving via accurate stepping motor D. Manual/Auto select function E. Forward and backward function</p>

<p>Vessel Single Vessel System</p> <p>Jacket Vessel</p>	<p>A. Working volume: 500ml, 1000ml or 1500ml B. Agitation: base magnetic stirring C. Temperature control: 1) The base unit contains a water circulating cooling and heating device. 2) Through stainless steel cooling and heating coil to control the vessel temperature, which is inside the vessel D. Working volume: 1 litre E. Aeration: 1) Sparging 2) 2 Baffles F. Stainless Steel Condenser G. Ports for pH; DO; Foam Level; Temperature; Sampling; Septum Stopper</p> <p>A. Temperature control: 1) The base unit contains a water circulating cooling and heating device. 2) The water jacket can be used to control vessel temperature B. All the other features are the same as for the single vessel</p>
<p>Accessories: pH Probe with cable DO probe with cable Foam level with cable Temperature probe with cable Septum Stopper Bottle Silicon tube Sterile connection of tubing 45 mm 0.2um Disc filter Diaphragm Air pump Data Logger</p>	<p>A. Sterilizable B. Length: 120mm</p> <p>A. Sterilizable B. Length: 110mm Length: 50mm</p> <p>A. Pt100 B. Length</p> <p>A. Diameter: 20mm for 1000ml vessel B. Diameter: 13mm for 500ml vessel 100ml; 250ml bottle with two ports cover CSU-S14 (I.D 1/16"); CSU-S16 (I.D. 1/8") Material: Stainless Steel</p> <p>A. Diameter: 45mm B. Port Size: 0.2um C. Hydrophobic filter D. Sterilizable</p> <p>A. Diaphragm type B. Flow Rate: 60 LPM</p> <p>A. Data Logger B. Software</p>