

JENIK HYPERION SS

High Flexible floor mounting labscale fermenter suitable for research and Industry for both Microbial and cell culture application. Ideal system for trouble free operation. Well equipped for batch, fed batch & continuous. Flexible control system for customized function.

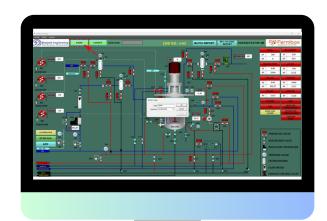


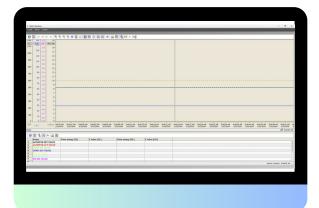












Biojenik Engineering SCADA Software

Biojenik Engineering's SCADA software is designed for real-time monitoring and control, offering a range of features to improve efficiency and ensure compliance.

- Software: Siemens WinCC.
- Simulation and Auto-Tuning: Generates random process values for simulation and auto-tuning.
- Third-Party Integration: Free OPC server for third-party device integration.
- **Remote Operation:** Webex-based remote operation/control of setpoints.
- Customized Interface: Personalize display to show Process, Profiles, Set Points, and Cascade.
- Batch Management: Manage batches and track them using tags.
- Access Control: Different access levels for enhanced security.
- **Dosage Tracking:** Monitor and record material consumption during production.
- Real-Time Data Recording: Automatic recording and trending of setpoints and measurement values.
- Data Export: Export data to Excel for analysis and reporting.
- Data Comparison: Compare and analyze data for improved decision-making.
- Event Alarms & History: Alerts for issues, historical data access, and ANSI-18.2 compliant alarm management.
- Audit Trail: Record-keeping compliant with 21 CFR Part 11 standards.
- **Lifetime Support:** One-time license with lifelong updates and support.

Benefits:

- Simplifies process monitoring and control.
- Increases efficiency by automating tasks and tracking.
- Ensures compliance with regulatory standards.
- Provides actionable insights with data comparison and analysis.



Technical Specification

S.No	Specifications	Details	
1	Vessel	In situ sterilizable single glass vessel or SS (on request) with necessary ports and plugs	
2	Total Volume	• 3Lts, 5Lts, 7Lts, 10Lts, 15Lts, 20Lts, 30Lts	
3	Working Volume	 3Lts: 2Lts 5Lts: 3.5Lts 7Lts: 5Lts 10Lts: 7.5Lts 15Lts: 10Lts 20Lts: 15Lts 30Lts: 25Lts 	
	Vessel Design Parameters		
4	Temperature Range	• 10 °C to 135 °C (Designed for 150 °C)	
5	Operating pressure	• 2.5 barg	
6	Design Pressure	Vessel: 4 bar / VacuumJacket: 5 bar/vacuum	
7	Vessel Geometry	• D:H-1:2.5 to 1:3	
8	Materials	 Wetted Parts: SS 316L. Non-wetted Parts: SS 304L. 	
9	Surface Finish	 Wetted Parts: Ra ≤ 0.4 μm, electro-polished internal Vessel Exterior: Polished to a matt finish, Ra ≤ 1.2 μm Top and Bottom Dish: Surface roughness Ra ≤ 0.8 μm 	

		Ports
10	Top Lid Ports	 (12mm x 10nos) - For Various dosing & measuring components. (19mm x 2nos) - For Exhaust Gas & Media feed. (30mm x 1nos) - Spray ball. (30mm x 1nos) - Light glass.
11	Vessel Light source	LED light with holder (Controlled by PLC).
12	Top Side Lateral Ports	 Sparger - 1port. Overlay - 1port.
13	Bottom Side lateral ports (25mm x 4 nos)	 Temperature sensor - 1port. pH sensor - 1port. DO sensor - 1port. Spare - 1port.
14	Bottom Dish Ports	DN 15 - Flush bottom valve/sampling - 1port.
15	Sample/Harvest	 Zero dead leg manual sampling /Harvest diaphragm Flush bottom valve with Sterilizable system (SIP)
		Temperature Loop
16	Sterilization Temperature	 Sterilization: Designed for full vessel sterilization under load conditions. Operating Temperature: 10 °C to 121 °C (Accuracy: ±0.3°C or better). Sterilization Method: Pressurized hot water circulation in jacket to ensure sterilization cycle without steam hammering. (or) Direct steam to the jacket for only Sterilization process.
17	Process Temperature	 Hot-chilled water circulate through the jacket for set point control. Heating system: Plate heat exchanger (Steam Heater), Inline jacket Electrical Heater (Optional), Combined PHE& Electrical Heater (Optional). Components: RTD Dual Pt 100 probe, 1 circulation pump, 1x PHE, Angle seat valves forcooling water and heating, pressure gauge, pressure relieve valve, drainvalve, and vent valve with outlet.

18	Agitator Type	Top & Bottom Mounting
19	Drive	Mechanical seal (Direct drive) Magnetic drive (Optional)
20	Motor	 Servomotor with shaft arrangement (Speed range: 50 to 1200 rpm). Tip speed 4 m/sec (on request upto 6 m/sec).
21	Impellers	 Ruston (Std) or equivalent, Marine, Pitch Blade, BT6 (etc., Optional). Height Adjustable in the shaft. Agitation Shaft: Rest-in shaft without guiding bearing.
22	Baffles	4 removable baffles, positioned at 1/10 of vessel diameter with approximately 1:100distance from the wall.
23	Aeration System	 Single Gas (Air) Two Gas Mixing (Air + O2) - (Optional) Four Gas Mixing (Air, N2, O2, CO2) - (Optional) Mixed gas combination based on customer request (Optional) All gas lines equipped with rotometer Gas line with MFC (Optional) Maximum Gas flow: 2vvm
24	Sparger	 Ring Sparger (Standard). Micro Sparger (Optional).
25	Aeration line components	 Pressure reducing valve, Pressure gauge, Check valve, Flow meter(Rotameter), and Sterile filter housing with absolute filter 0.2 µmm (Z typepush filter) - 2.5 inch.
26	Exhaust Air System	 Sterile filter with filter housing (SIP) - 2.5 inch (Z type push filter) Back Pressure Control Manual Auto control valve (Optional) MOC of Valve Diaphragm PTFE with EPDM (SIP)

27	Instrumentation and Control - Accordance with GAMP Compliance	 Instrumentation: PLC control with 10" HMI (Touch screen panel), SCADA with PC (Optional) Agitation Control: Alternating current motor with frequency converter, power unit, agitator speed setting, Control DDC through PLC system Temperature Control: Sterilizable Pt100 probe (dual RTD), measuring instrument with temperature range 0 - 150°C, Control DDC through PLC system. PT 100Temperature probe with Output 4 to 20mA pH and DO Control: PH control: PLC-based PID controller with a gel-filled pH probe (SIP) and probe housing (SS-316L). Measurement range: 0-14 pH. pH correction dosing pump, fixed-speed peristaltic pump (Max - 40 ml/min), and variable speed (optional) flow (0.1 to 40 ml/min). DO control: Polarographic Autoclavable Sensor with probe housing (SS-316L), optical DO sensor (optional), Cascade with RPM, MFC, back pressure control valve &Dosing system Optical Density (Turbidity): (Optional) Fiber Optic Measuring system based on the backscattered light principle. Measuring range: 0-250g/L suspended solids with various OPL.
28	Dosing System	 Fixed Speed Peristaltic Pump: 3 pumps (0.1 to 40 ml/min). Variable Speed Peristaltic Pump: 2 or more pumps (Optional). 12 mm Hyperdermic needle With septum arrangement. Sterile Valve Cross Assembly (SIP) - (Optional)
29	Tubing	ISO/ASME standard-silicon valve.
30	Diaphragm Valves	Product contact parts with diaphragm valve, non-contact parts with angle seat on/off or control valve, Flush Bottom valve EPDM with backed PTFE.
31	O-ring	Silicon/ EPDM/ Viton/ Septum - Silicon
32	Couplings	Connections: Flange/Union & TC or as required

		• Skid:	
33	Skid Arrangement	Stainless steel frame, support rack for mounting filters, pumps, and other components. Material: SS 304	
		Electrical and Wiring:	
		 Field Cabinet: Complete control power panel with all electrical components, PLC, electronic components, motor starters, relays, line switches, and emergency switches 	
		Process Control Hardware:	
		Hi-Speed Scanning, Expandable IOs, Hi-Speed communication via Ethernet, Fail-Safe module, SCADA communication via	
		Ethernet, Galvanic Isolation	
	System Dimensions		
34	Including Control Panel (maximum size)	Width: 1.5 meter Depth: 1.3 meter Height: 1.8 meter	
	(Design of Experiments (DoE) is a method of process parameters and interdependencies in bioprocess development.	
	Advanced Features (Optional)	 Automated transfer and execution of design/reciepes from previous module. 	
		 Option to change current reciepe in real-time manually at any time. 	
		 Logging of all events, controller actions, manual interventions and alarms. 	
35		Tabulated and configurable views of all critical process information.	
		Easy chart generation of bioreactor data and real time calculation of OUR/CER/etc.	
		Automated export of process data to data analytics module with linked DoE ID.	
		• External tiggers from the user to make reciepe decisions like feeding or next phase using measurements of biomass, quality, etc	
		Open end OPC connection enable to connect third part data device.	
	Utility Systems		
36	Circulating Chiller	2TR with minimum 50L storage tank, circulating pump capacity of 25LPM at 3 bar	
37	Oil-Free Air Compressor	Diaphragm type, 1HPwith 35L or 2HP with 50Ltsair storage, low noise and vibration-free	
		10kg/hr to 20KG/hr with necessary accessories, Heater & Pump Indications, Pressure Indication, Automatic Temperature &	
38	Electrical Steam Boiler	Pressure Cut off, Automatic Water Filling system, Digital Meter for Temperature, SS Fittings, Compact Design.	

Control Module

Speed Controller

- Type: Direct digital control system.
- Control: Cascades with DO controller via HMI on JENIK SCADA.

Temperature Controller

- Suitable for both SIP and process temperature by active the cooling/heating valve.
- Operate by JENIK SCADA measurement: 5°C to 70°C

pH Controller

- Sensor: Sterilizable gel-type pH probe.
- Control: Activates acid/base dosing pump.
- Range: 2 to 12 pH.

DO (Dissolved Oxygen) Controller

- Sensor: Polarographic or optical.
- Control: Final element pulsed valve or MFC cascaded with gas mixing station, agitator, and feed pump.
- Range: 0 to 100%.

CO2 Controller

- Sensor: Sterilizable CO2 probe with transmitter.
- Control: Cascades with pH and gas lines.
- Range: 0 to 1000 mbar.

Antifoam/Level Controller

- Sensor: Conduct-type, height-adjustable probe.
- Control: Activates antifoam correction agent pump; level control activates feed or harvest pump.

Optical Density / Turbidity Controller

- Sensor: Sterilizable OD measurement probe.
- Control: Activates dosing pump or valve.
- Range: 0 to 30 g/L, 0 to 4 CU, 5 to 4000 FTU.

Redox/ORP Controller

- Sensor: Sterilizable ORP probe.
- Control: Activates dosing pump or valve.
- Range: +400 to -400V.

JENIK SCADA

- Software: Customized process control interface for real-time monitoring.
- Functions: Profile, cascade, and manual operation; event logging for all parameters.
- Data Management: Online recording, data export to Excel, and customizable access levels.

Remote Monitoring

 Compatibility: Local HMI visualization from remote PC or Android mobile via web-based interface.

HMI / PC Hardware

- Type: Suitable PC or laptop with inbuilt Windows OS and runtime license for JENIK SCADA.
- Optional: Touchscreen inbuilt with control panel (on request).

Exit Gas Analyzer

- Exit Gas AO2 Measurement: 0 to 25%.
- CO2 Measurement: 0 to 100%.
- Optional: CH4, H2S, NH4, H2, CO2 available upon request.

Gravimetric Feed System

- Type: Load cell system with high accuracy (less than 0.01g).
- Control: Cascades with dosing pump, DO, and OD loops.

Ports and Needles

- For Vessel Sizes: 1.5 to 18 liters.
- Port Sizes: 4mm, 6mm, 12mm, 19mm; PG 13.5mm for sensors.

Impellers

- Types: Rushton, Marine, Pitch blade.
- Blade Configurations: Six blades, four blades, two blades.

Light Hood

- Material: Stainless steel with LED.
- Control: Adjustable intensity from 0 to 100% via SCADA.

Chiller

- Temperature Range: +5°C to ambient.
- Capacity: Supports operation of up to 16 fermenters, various capacities available.

Compressor

- Capacity: 10 LPM @ 2 bar, with 25-liter storage tank.
- Accessories: Pressure regulator, pressure gauge, moisture trap.
- Higher Capacity Available: Supports operation of up to 16 fermenters.

Our Valuable Clients

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