



BIOJENIK ENGINEERING

Towards Bio engineering Technology & Solutions



Labscale Bioreactor / Fermenter

JENIK HYPERION Insitu Glass fermenter

BIOJENIK ENGINEERING

Your Trusted Partner in Bioprocess Engineering

Biojenik Engineering has been providing innovation
and reliable bioprocess engineering solution for
over 15 years

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INSITU GLASS FERMENTER

High Flexible Small bench system is suitable for research and Industry for both Microbial and cell culture applications. Ideal system for trouble-free operation. Well-equipped for batch, fed-batch & continuous. Flexible control system for customized function.



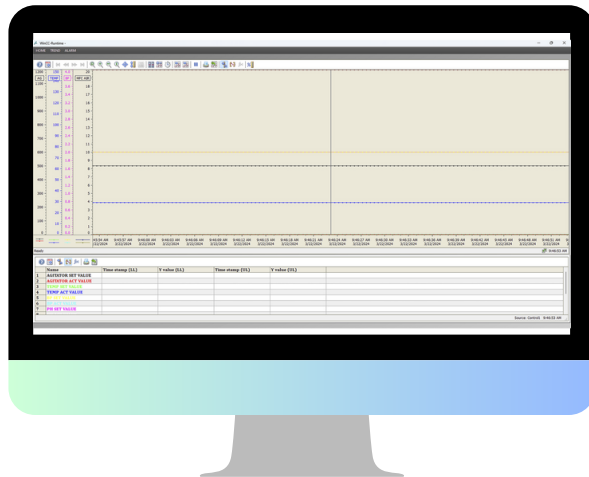
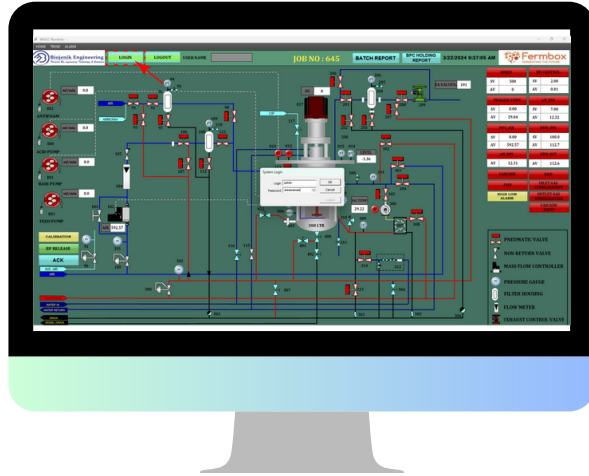
Salient Features



- **Flexible Usage**
Suited for various research and industrial needs.
- **Reliable Performance**
Operates smoothly without complications.
- **Versatile Cultivation**
Supports different cultivation methods.
- **Space Efficiency**
Compact design, perfect for small spaces.
- **Expandable**
Can be upgraded for multiple systems.
- **Customizable Control**
Tailor functions as needed.
- **Integration Ready**
Works seamlessly with other devices.
- **User-Friendly**
Easy-to-understand interface.
- **Efficient Data Management**
Handles data effectively.
- **Compliance Assurance**
Meets industry standards for regulation adherence.

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	Microbial
1	Vessel	In situ sterilizable single glass vessel or SS (on request) with necessary ports and plugs
2	Volume	Geometric Volume : 2.4 Lts, 3.7 Lts Working Volume : 2.4 Lts : 0.5 to 1.7 Lts 3.7 Lts : 0.7 to 2.5 Lts
3	Baffle Assembly	- Material: SS 316L 4 baffles attached with top lid or around the vessel wall
4	Top Driven	- Type: Direct lip seal/ magnetic drive - Motor: servo/DC Motor - Speed: 25 to 2500 rpm
5	Bottom Driven	- Type: Direct lip seal - Motor: servo/DC Motor - Speed: 25 to 2500 rpm
6	Impeller Options	- Ruston type for Radial flow mixing - Marine type Axial flow mixing (on request) - Pitch blade for Axial flow mixing (on request)
7	Heating/Cooling	- Electrical heating finger - Cooling finger
8	Perfusion / Rotor Filter	- Internal Perfusion Filter , External Perfusion (Available on Request) - Cell retention filter with pore size from 5µm to 20µm (smaller pore sizes available on request) - Fixed with shaft
9	Sampling System	- Sampling by back Pressure - Sampling system with a glass tube for hygienic sampling (Optional) - Includes dip tube

10	Aeration	• Straight Tube: Submerged aeration for efficient dispersion of bubbles • Ring Sparger: Submerged aeration for superior dispersion of bubbles • Sintered Sparger: Submerged fine efficient low gas flow • Filter: Absolute disposable filter (0.2µm)
11	Gas Control	• Four Gas combined with 1 x MFC, • Individual Gas with MFC, • Individual Gas with Pulsed Valve
12	Gas Supply Module	• Single Gas (Air). • Two Gas Mixing (Air + O2) - (Optional). • Four Gas Mixing (Air, N2, O2, CO2) - (Optional). • 4 Gas Mixing Station & 2 Gas overlay
13	Gas Line Accessories	• Gas pressure control valve • Check valve • Pressure gauges • Flowmeters • Hypodermic needle • Sterile needle (replaces hypodermic needle)
14	Gas Ranges	• Air: 2 vvm • O2: 0.5 vvm • N2: 1 vvm • CO2: 0.1 vvm • Various ranges selectable as per process requirements
15	Gas Exhaust	• SS filter for 0.2µ • Gas condenser: Water-cooled with manual pressure control valve
16	Feeding System	• Standard: 4 x fixed speed pumps, 1 x variable speed pump, Additional (on request) • Flow: silicone tube inner diameter(ID): 1mm to 3.2mm- 0.004mL/min to 40 mL/min • Speed range : 0.1 to 100 RPM

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 / Circulating water.
- Operate by JENIK SCADA measurement: 5°C to 70°C
- Accuracy : $\pm 1^\circ\text{C}$

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
- Optical (Optional)
- 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 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 (PC Interface)

- Suitable PC or laptop with inbuilt Windows OS and runtime license for 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.

HMI Touchscreen Panel

- PLC control with 10" & 12" HMI (Touch screen panel), SCADA with PC (Optional)

Remote Monitoring

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

Exit Gas Analyzer

- O2 Measurement: 0 to 20%.
- CO2 Measurement: 0 to 20%.
- Optional: CH4, H2S, NH4, H2, CO2 available upon request.
- Integrate the data with SCADA software (Optional)

Gravimetric Feed System

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

Accessories

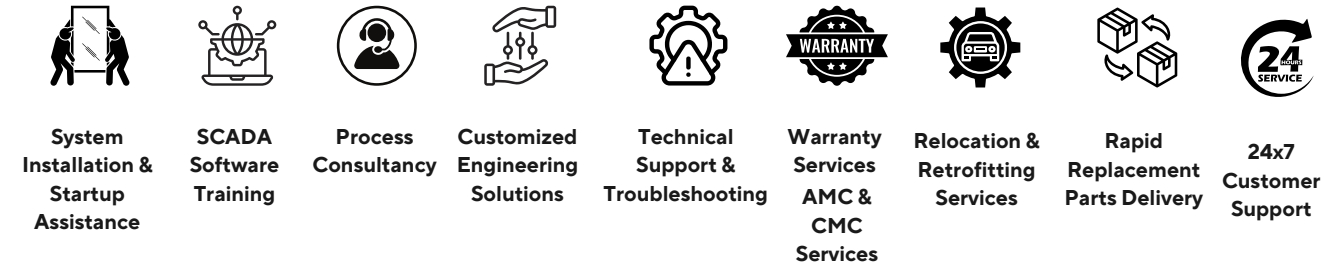
- Chiller Water / Hot water Circulator
- Air Compressor
- Steam Generator
- Autoclave

Our Valuable Clients



Biojenik Engineering Services

We offer a comprehensive range of services to ensure the smooth operation and longevity of your systems:



Our Certifications



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