

FERMWORKS™ 2.2

Streamlining Cell Culture & Fermentation at Biopharmaceutical Laboratories

Are you still collecting readings from biocontrollers, mass spectrometers, microscopes, and other instruments; noting them on a clipboard; then entering the readings into a spreadsheet? Do you then analyze the data and adjust each instrument or controller manually?



There is a better way to use your time and brainpower! Join the scientists and researchers at leading firms such as: Genentech, BioMarin, and Bayer, who have discovered the future: FermWorks. FermWorks is the comprehensive distributed software solution that automates process control and data management of ALL the disparate instruments and subsystems in your lab.

Developed with the assistance of scientists working in cell culture and fermentation labs, FermWorks delivers an intuitive, automated approach for data collection, integration, analysis, and real-time process control. FermWorks saves valuable time and increases development efficiency while delivering higher quality products and better yields. FermWorks accelerates experiments and the commercialization of new biotherapeutics.

Reduce Development Time and Expense... Accelerate Time-to-Market

FermWorks is a distributed system with all of its functionality available at any station on the network. All authorized users can locally or remotely monitor processes, enter new control strategies, configure new reports, and respond to alarms. Experiments can span multiple bioreactors and stations. Information gathered from one part of the system can be used to affect control in another part of the system.

With FermWorks, you can define templates for process data settings, recipes, and experiments for future use. These templates can then be reused or reconfigured to meet any new requirements, significantly shortening the time it takes to set up new experiments.

- Avoid duplication of effort by sharing configurations
- Use templates to create repeatable experiments
- Compare experiments side-by-side
- Store configuration data centrally and securely
- View or modify configurations from any station
- Automate processes to improve efficiency and reduce error
- Quantify, record, recall, and compare results
- Link disparate laboratory processes

Collect, Manage, and Secure Process Data

FermWorks monitors and controls on-line instruments - collecting, recording, viewing, combining, and analyzing data from ALL "open" instruments. FermWorks also supports manual entry of "off-line" data with a record of when and by whom it was collected and entered. Off-line data is seamlessly integrated with other process data for displays, reports, analysis, and feedback control.

- Set scan-rates and archiving schedules
- Record data with timestamps
- Record off-line data with sample and entry timestamps
- Analyze data and calculate results, such as OUR and flow totals
- Integrate acquired, off-line, and calculated data for display and automated real-time feedback control
- Export data for further analysis, graphing, or reports
- Share data via OPC
- Interface to LIMS
- Track modifications by time and user
- Require signatures for access and security
- Protect unattended stations by automatically logging off

FERMWORKS™ 2.2

Automated Process Control

FermWorks delivers unprecedented flexibility to let you tailor the system to your particular needs. Control methods and strategies, recipes, and experiments are all configurable. Proprietary calculations and control strategies designed outside of FermWorks can be used as integral parts of the system. FermWorks automatically adjusts instruments based on your controller configurations.

- Cooperate with hardware controllers
- Run standard or custom control strategies in software
- Run continuous or batch controls
- Define sequences of control actions as recipes
- Specify initialization and clean-up recipes for experiments

Alarms

FermWorks offers four-level alarm condition monitoring. Process limits that trigger alarms are fully configurable. Any alarm-triggering event is recorded in an event log, along with the user who responded to the alarm, and when the alarm was cleared.

- Define alarm triggers throughout the system
- Monitor, display, and record alarm states
- E-mail alarm notifications
- Respond from any station
- Include alarm information in reports
- Export for analysis

Analyze and Interpret Results

FermWorks offers several powerful tools to help you analyze your data. Acquired, calculated, and offline values may be overlaid in graphs for easy comparison. Trends displays can compare live and historic data. Shortcuts can be used to retrieve data by experiment or time range. Notes about any part of the process can be entered in the Electronic Notebook. Reports, both standard and customized for your company, can be displayed and exported.

Supported Instruments

FermWorks controls most of the instruments commonly found in biological reaction laboratories, including:

- B. Braun Biostat, DCU, and Micro DCU
- Applikon 1010 and Multi-drop 1030 installations
- New Brunswick BioFlo family
- Hamilton Sundstrand MGA 1200 EC gas analyzer
- SciPro, MasterFlex, and Watson-Marlow pumps
- Innova Gas Analyzer
- VG Prima Mass Spectrometer
- Mettler Toledo Balances
- National Instruments Devices
- Allen-Bradley and other PLC



Jova Solutions can provide custom drivers for other “open” instruments.

Jova Solutions, based in San Francisco, has been developing software for biopharmaceutical process development and the electronics manufacturing industry since 2000. Please contact us for additional information.

Jova Solutions
965 Mission Street, Suite 600
San Francisco, California 94103
415 • 348 • 1400

For more information about FermWorks, please visit www.fermworks.com
To arrange a demonstration, please contact us at info@jovasolutions.com

To find out more about Jova Solutions, our products and services, please visit our website at www.jovasolutions.com