

# FermWorks™

## Streamlining Cell Culture and Fermentation for Biopharmaceutical Laboratories

Are you still collecting readings from biocontrollers, cell analyzers, 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 & EXPENSE... SHORTEN 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 effect 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 - share configurations
- Use templates to create repeatable experiments
- Overlay experiments for direct comparison
- Store configuration data centrally and securely
- View or modify configurations from any station
- Automate processes, improve efficiency, reduce error
- Quantify, record, recall, and compare results
- Link disparate laboratory processes

### 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.



### COLLECT, MANAGE & SECURE PROCESS DATA

FermWorks monitors and controls on-line instruments – collecting, recording, viewing, combining, and analyzing data. FermWorks excels at capture and presentation of offline data (values collected occasionally, rather than continuously). Data for any offline value can be entered and reviewed, and our drivers for cell and process analyzers support storing their results in offline format as well. Offline data are seamlessly integrated with other process data for displays, reports, analysis, and control.

- Set scan-rates and archiving schedules
- Record data with timestamps
- Record off-line data with sample and entry timestamps
- Analyze data & 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 with automatic log-off

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## SUPPORTED INSTRUMENTS, PROTOCOLS & COMMUNICATION METHODS

FermWorks communicates with most of the instruments commonly found in Process Development laboratories, including:

- Sartorius/Braun family of DCU and BioStat controllers
- Applikon 1010, 1030, EZ-Control, and i-Control
- New Brunswick Scientific BioFlo systems
- YSI 2700 select biochemistry analyzers
- Bayer Rapidlab 248 BGA analyzers
- Innovatis Cedex cell analyzers
- Nova BioMedical BioProfile analyzers
- SciPro, MasterFlex, and Watson-Marlow pumps
- VG Prima dB mass spectrometer
- Ohaus, Sartorius, and Mettler Toledo balances
- National Instruments data acquisition devices
- Allen-Bradley and other industrial PLCs
- RS232, RS485, TCP/IP, and OPC



Jova Solutions can provide custom drivers for other instruments.

## 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, PLCs
- Run standard or custom control strategies in software
- Run continuous or batch processes
- Define sequences of control actions as recipes
- Specify initialization and clean-up recipes for experiments

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

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For more information about FermWorks, please visit [www.fermworks.com](http://www.fermworks.com)

To arrange a demonstration, please contact us at [info@jovasolutions.com](mailto:info@jovasolutions.com)

To find out more about Jova Solutions, our products and services, please visit our website at [www.jovasolutions.com](http://www.jovasolutions.com)

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