

# OpenBIO - Harmonia

Intelligence for your existing Bioreactor System



2018  
PHARMA  
INNOVATION  
AWARDS  
PHARMACEUTICAL MANUFACTURING

**Panacea  
Technologies Inc.**  
automating your world

Give your existing bioreactors: formulas and recipes, site wide control, and reporting/data analytics capabilities.

## Innovation at a Glance

- Compatibility with Sartorius, Eppendorf, ABEC, and Applikon with more vendors in beta testing.
- Operators can view, control, and interact with any fermenter from anywhere with a tablet, phone, or computer.
- View all of your fermenters from different manufacturers and different control systems through a common platform.
- Digital Communication platform extends component lifecycles and increases external data collection options.
- Remote notification and alarms inform staff of critical events, even when they are off-site.
- Can be used to control other equipment such as filtration, Chromatography, Buffer Prep, Media, Harvest, etc.

## Automate Your Process

- Automatic scheduled feeds.
- Automatic programmable transitions for setpoint changes allows for: automatic and timed DO, pH, and temperature algorithm and set point shifts.
- Recipe driven software with ability to run customizable recipe formulas on any Bioreactor.
- Copy formulas between Bioreactors.

The screenshot shows a software interface window titled 'Create New Batch' with a close button (X) in the top right corner. The window contains several dropdown menus and text input fields. The 'Equipment Type' dropdown is set to 'Harmonia Demo Units'. The 'Recipe Level' dropdown is set to 'Unit Procedure'. The 'Template' dropdown is set to 'UP - 3 Stage Growth'. The 'Recipe' dropdown is set to 'UP - EXP1234'. Below these are three text input fields for 'Identifier 1', 'Identifier 2', and 'Identifier 3', with 'Batch123' entered in the first. A section titled 'Select Available Units' contains a list of 11 bioreactors, with 'Bioreactor 1' through 'Bioreactor 7' highlighted in blue. At the bottom, there is a 'resize' button, a password field with a masked password '\*\*\*\*\*', and a 'Create New Batches' button.



The OpenBIO Harmonia platform from Panacea Technologies is designed to add intelligence to your existing fermenter control system, tie together multiple different systems from different vendors, and bring their functionality closer to our modern, award-winning OpenBIO platform. We managed to bring some of our users' most loved features such as a tablet-based interface, extensive recipe options, and a remote notification system to your existing fermenter control system. OpenBIO Harmonia will rejuvenate your existing bioreactors and give you the flexibility, scalability, and reliability you expect from modern laboratory and manufacturing systems.

Whether your current system is a single Bioreactor or a campus of several hundred, configuring more fermenters in Harmonia is straightforward and seamless.

This innovative platform is built with standard software and communication mechanisms layered on your existing system, avoiding any disruptions to your current operations while providing an easy on-ramp to more productive research and manufacturing groups with automatic operations capable of running additional batches and collecting more data.

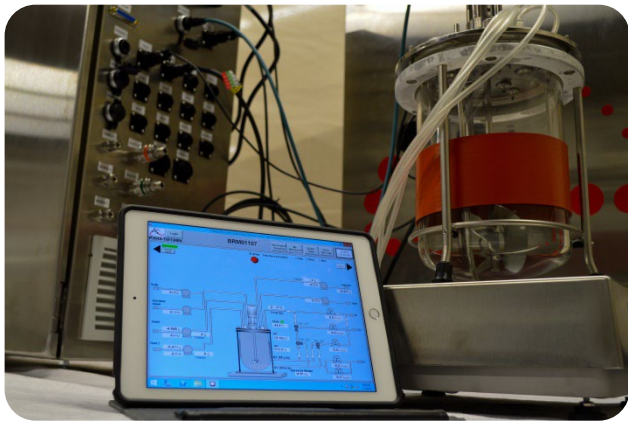
The OpenBIO Harmonia Formula Manager grants your process development team the ability to create any number of formulas linked to a master recipe from a universal interface. This makes running concurrent experiments with minor deviations as simple as the click of a button.

With turn-key delivery services and limitless system connectivity, OpenBIO Harmonia is positioned for immediate deployment into most laboratory and manufacturing settings. For unique situations, a design team is ready to begin the customization process to address your specific requirements.

Discover the Panacea difference with OpenBIO Harmonia.

**"An open platform for modern operations"**





Unlike traditional platforms with a limited number of Bioreactors per central control station, OpenBIO Harmonia utilizes tablets (Windows, Android, or iOS) for control and experiment interaction greatly increasing mobility for scientists and laboratory staff. Any fermenter can be viewed from every mobile control station. Scanning the unique QR code on each fermenter will grant access to that unit. The hybrid-cloud based architecture allows for remote experiment and batch notifications as well as secure remote access for scientists to make changes to critical batches remotely.

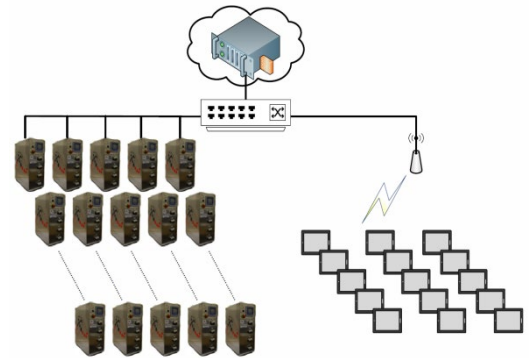
### Scalability and Security by Design

The OpenBIO Harmonia platform was designed to be deployed on either an existing virtualized infrastructure (hybrid cloud) or an entirely new infrastructure depending on individual requirements. This deployment method allows for seamless expansion of both the tablet interfaces and Bioreactor units. It has a standardized model to connect to fermenters from different vendors. It enables centralized recipe management, data collection, data storage and batch reports.

While wired interface methods are available, use of industrialized and secure wireless access points allows you to experience all the benefits of mobility without sacrificing security. The platform also allows for automatic disconnect of tablets when out of range of specific Bioreactor units or laboratory areas. Tablets can be monitored remotely for troubleshooting or quality purposes.

Every OpenBIO deployment comes standard with a one-year activation license of the Panacea Update Manager which will deploy critical vendor qualified Microsoft patches to ensure your systems stay up to date and secure without impacting performance from patch compatibility issues.

This platform can be expanded cost effectively and with ease while ensuring your data is accessible and secure while providing redundancy and fault tolerance. Whether your lab is static and unchanging or constantly growing, OpenBIO Harmonia is the clear choice.



### OpenBIO Harmonia Features

- Sequence Manager allows creation of different recipes to manipulate the process.
- Within the recipe, step transitions can be time based or process condition driven, such as temperature, pH, DO or any combination of these.
- Once a recipe is created it can be run on any fermenter.
- A Formula Manager allows recipe execution with different setpoints and values.
- Greatly reduce operator interactions by using recipes.
- Reduce data entry errors by using formulas and remote stations.
- Standardized batch reports and trends.
- Training and simulation station availability.
- Turnkey system deployment including validation available.
- Yearly support contracts available, if required.



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