eppendorf

Flexible from Head to Toe

SciVario® twin – One bioprocess controller for all your needs

Flexible from Head to Toe

A bioprocess controller that evolves together with you.
Planning a laboratory means investing a lot of money. Working with solutions that grow with you and adapt to your needs reduce additional capital expenses due to investments in a new bioprocess controller. In a fast-changing field like the modern biotechnology, working with a system that supports your needs now – and in the future – is indispensable.
The SciVario twin bioreactor control system for small and bench-scale bioreactors is customizable as well as easily upgradable after installation and therefore adaptable to changing requirements.
Experience an intuitive user-interface and innovative hardware and software which enables flexibility for process optimization and a readiness for the digital age.

Inclusive
> Parallel control of two bioreactors, in any combination of vessel type and size.
> Glass or single-use bioreactors with working volume range from 60 mL - 40 L.

Intuitive
> Experience efficient process setup with step-by-step guidance.
> A user-friendly touch screen with intuitive software.

Intelligent
> Cultivation of cells, stem cells, or microbes.
> Adapt your system with the modular bay-drawer system.

Application flexibility

> Universal bench-scale controller for research and development in cell culture and microbiology
> Universal control for mammalian, stem cell, insect, and microbial cultures
> Batch, fed-batch, and continuous processes
> Used in a variety of applications, including the production of monoclonal antibodies, exosomes, viral vectors, plasmids, and stem cells
> Parallel control of two bioreactors, in any combination of vessel type and size

Discover application examples of the SciVario twin – Download our application notes:

Glucose control using Raman spectroscopy in CHO cell culture **www.eppendorf.group/AN491**	*CHO cell culture for mAB production* **www.eppendorf.group/AN432**
AAV production in HEK293 cells **www.eppendorf.group/AN450**	*hiPSC aggregate expansion* **www.eppendorf.group/AN485**
Stem cell exosome production **www.eppendorf.group/AN435**	*E. coli fermentation* **www.eppendorf.group/AN433**

Flexible and Future Proof

Stay flexible, wherever your research focus will take you in the future.

With the knowledge and expertise of our modular systems, we have created a future proof solution, for your current, and future research. The SciVario twin ensures easy upgrades for hard- and software. The innovative bay-drawer concept provides the highest variability through standardized functional modules. The system can be initially delivered with custom configurations and easily upgraded with additional modules whenever needed to support the changing needs in R&D. This concept is the key technology to support you as a user to avoid additional capital investments into instruments to match future requirements. Our solution serves today's as well as future needs in one device.

Benefit from the bay-drawer concept
> Flexibly adapts to your needs.
> Highest customization through standardized functional modules
> Four bays for each cultivation unit can be equipped with different pumps, optical pH sensor connection or other upcoming modules.
> The customizable and flexible drawers support today's as well as future needs.

Flexible liquid addition
Two different pump drawers are available, to provide pH control, feeding or harvesting possibilities, freely configurable for any vessel size.

Non-invasive pH measurement

In combination with our BioBLU® Single-Use Bioreactors, the optical pH module provides non-invasive pH measurement possibilities to safely cultivate your cells.
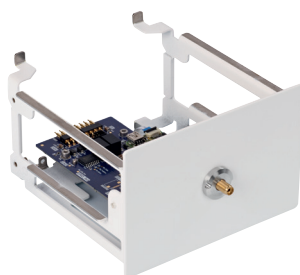
Drawer for optical pH measurement

Flexible and Future Proof

Choose from a wide selection of bioreactors

To allow for maximum flexibility in your research, the SciVario twin has a wide selection of vessels you can choose from. Whether you are performing a screening of different growth media or testing cell lines in a small volume, doing initial process development to determine the best process settings, or growing more cells in a larger vessel, this controller is the only one that you need. Bioreactors are available as single use as well as glass variants and range from 60 mL up to 40 L of working volume. The built-in TMFCs and pump modules can handle them all.

Glass bioreactors

Glass bioreactors for microbial applications:
covering a working volume range from 60 mL to 3.7 L

Glass bioreactors for cell culture applications:
covering a working volume range from 60 mL to 3.8 L

Find out more about at **www.eppendorf.group/glass-bioreactors**

BioBLU® Single-Use Bioreactors

How BioBLU Single-Use Bioreactors benefit you:
> **Scalability:** Working volume range 65 mL to 40 L
> **Risk mitigation:** Reduced contamination and cross-contamination risk
> **Productivity:** Reduced turn-around times; less cleaning effort
> **Flexibility:** Several bioreactor versions meet the different process needs of microbes and human and animal cells, including stem cells
> **Reduce capital investment:** by using your existing bioprocess controller

Find out more about at
www.eppendorf.group/single-use-bioreactors
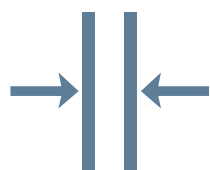
Flexible Design

A system that was designed to fulfill all your needs.

It does not matter with which organism you are working now, or in the future. The SciVario twin is our intelligent solution for your changing needs. The innovative bay-drawer system allows for the flexible adaption to your requirements. The integrated improved TMFCs and pumps allow the individual or parallel control of up to two bioreactors in a range of 60 mL up to 40 L. Cables for sensors and gas tubes are easily fixed in the cable guide to support efficient vessel connection and cleanup of your bench for an unobstructed workspace.

Intuitive:
Easily set-up your process with the integrated touch screen software.

User-friendly:
Fast and easy software updates and data export via the USB-port.

Intelligent:
Automated detection and recognition of plugged-in accessories.

Wide range:
Precise and reliable addition of small volumes up to 6.0 L/h.

Powerful:
Improved, intelligent heating connectors with increased power output.

Organized:
Storage system for accessories that can be placed on the controller.

Configurable:
Flexible arrangement of bay-drawers.

Flexible Design

A system that was designed to fulfill all your needs.

The design of the SciVario twin was done with efficiency in mind. Frequently used connectors on the front, such as the agitation motor, and temperature sensor. Connections to water and gasses as well as the sensor connections are on the back of the controller. With connections done during the installation, nothing to worry about in your daily research.
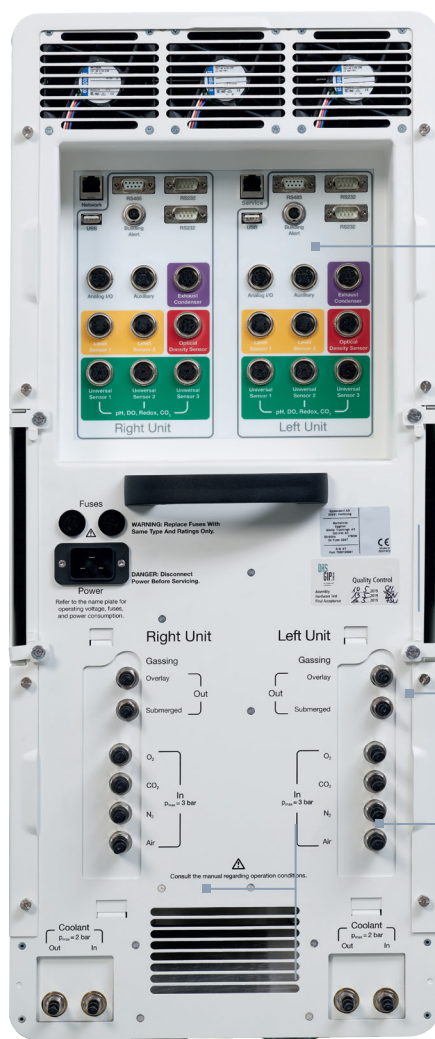
Tidy work place:
Cable guides for each side of the controller as well as the storage system help you to have a clean bench.

Universal:
Sensor connectors for digital and analog sensors with automated detection.

Connect:
Gas and water connections at the back, for each side of the controller. The water and gas installation kits make set-up easy and compact.

Precise:
Individual TMFC control of gases for submerged and overlay gassing.

Convenient:
Handle for moving the controller in combination with rolling balls under the controller make moving the controller for maintenance and cleaning easy.

Ease-of-Use

Designed by our user-experience specialists and confirmed by customer feedback.

The software combines simplicity with professional capabilities to satisfy beginners and experienced users. With the intuitive user-interface, setting up a process was never so easy. No complex user training is required, thanks to the guidance of the intelligent workflows, that assist you through your processes.
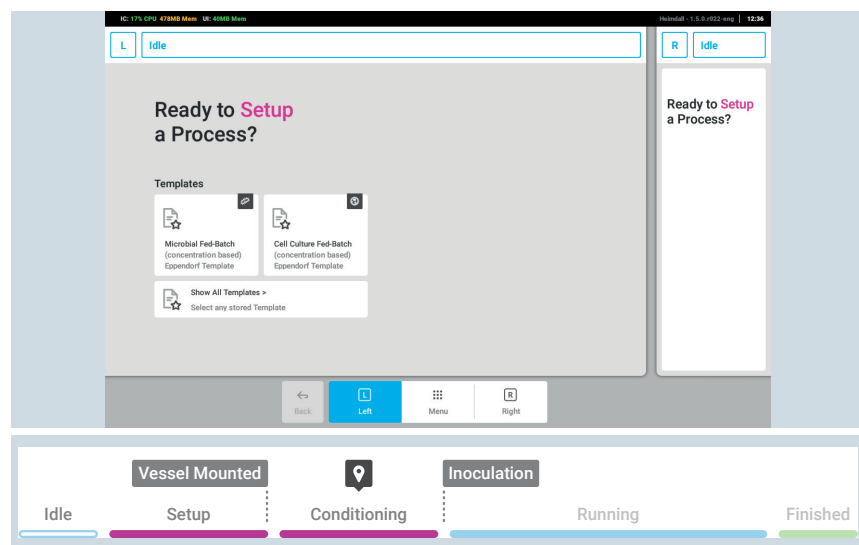

Never lose track of your process status

The interactive roadmap always keeps you updated and lets you know what step will come next.

> Start your process
> Select a vessel
> Configure the process
> Follow the guidance through each phase
> Perform calibrations
> Let your cells grow
> Finish and export data

Intuitive touch screen software

> The touch screen software focuses on user's daily work for monitoring and reproducible control of critical process parameters on one or both units in parallel.
> The touch screen is structured in several shells in order to present the current state of all running processes.
> Intelligent wizards ensure an easy and reproducible execution of error prone procedures like calibrations or setting up control logic.
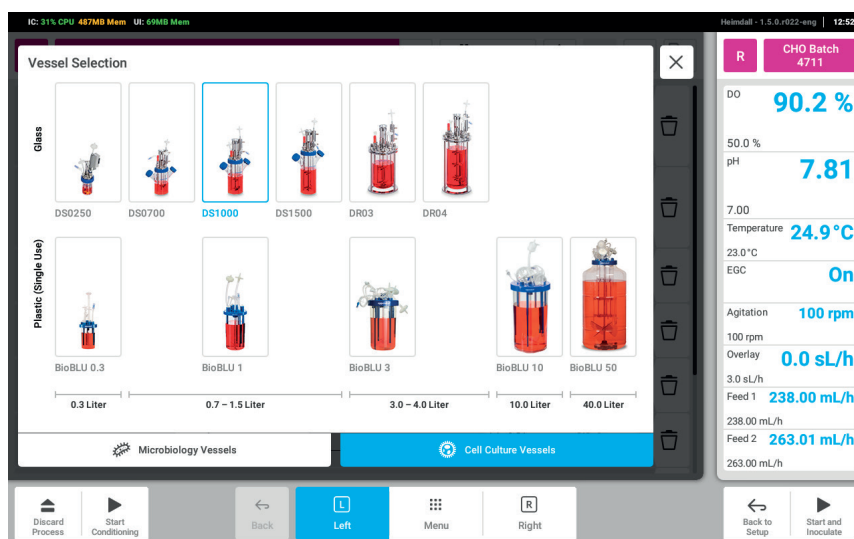
Ease-of-Use

Designed by our user-experience specialists and confirmed by customer feedback.

The software is engineered to streamline daily routines and eliminate uncertainty in setup and monitoring. With intelligent automation and a customizable interface, you can focus on your process—not on troubleshooting or configuration.

Automatic recognition of accessories
> Automatic recognition of agitation motor, sensors, and more and check of suitability for the selected vessel type
> Wrong connected components are clearly marked on the touch screen with comment on correct agitation motor or sensor.
> Providing peace of mind to the user that everything is set-up correctly before starting the process, minimizing the risk of experimental failures
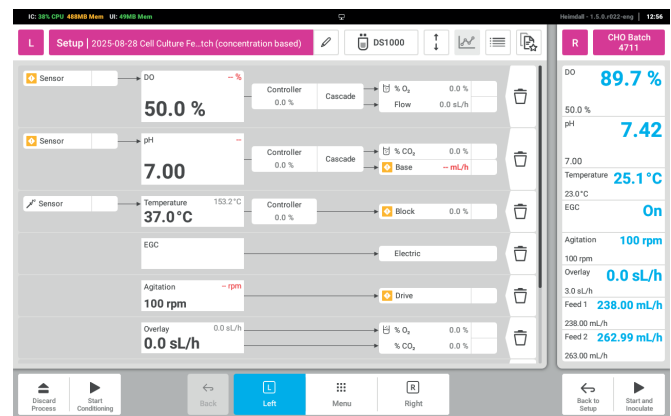
Clear parameter overview
> The parameter overview of each side of the SciVario twin shows what the process value, setpoint, and output % are, clearly readable for process status at a glance
> Adaptation of the overview is easy: add parameters that are required or remove parameters that are not used
> The sorting order of the parameters can be adapted as well, all to make it easy for the user.
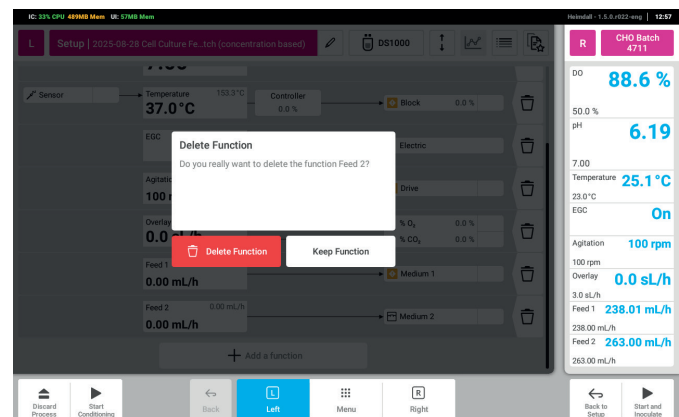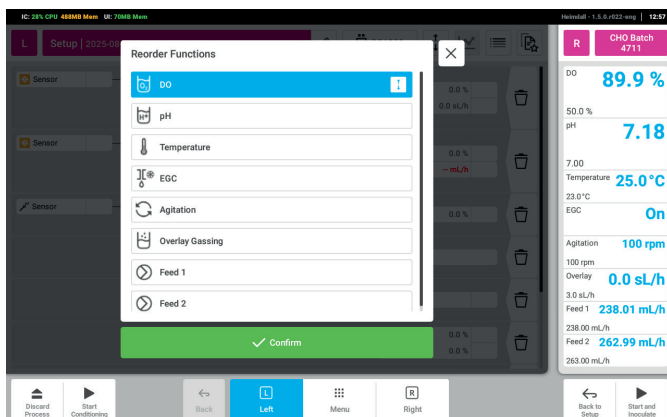
Open Communication

Bioreactor systems and software solutions – Orchestrated for bioprocess control, automation, and analysis

The SciVario twin fits seamlessly into our upstream bioprocess portfolio of bioreactor systems, control software, data analysis tools, and automation solutions. The products work in harmony to provide a complete upstream bioprocessing solution, enabling controlled cell cultivation, process automation for increased efficiency, and reduced manual labor. Additionally, our solutions help generating and best using valuable bioprocess data, empowering you to develop better processes faster.

Reduce complexity
DASware® control serves as the central software solution, thereby eliminating the need to learn multiple tools.

Integrate your devices
DASware control and the Eppendorf bioprocess control systems facilitate the full integration of lab devices such as the Bioprocess Autosampler and third-party sensors.

Simplify data sharing
Easily share your bioprocess data with your team and collaboration partners enabled by DASware control and BioNsight® cloud software.

Improve data analysis
Contextualize data across devices, runs, and sites with BioNsight cloud software.
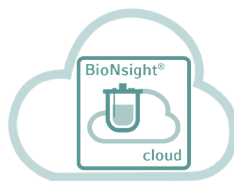
Expand the SciVario twin functionality with the Eppendorf bioprocess software solutions

Visit our eshop to find more information about our bioprocess software solutions:

www.eppendorf.group/bioprocess-software

Automate 24/7 sampling with the Bioprocess Autosampler

Find more information about connecting the SciVario twin with the Bioprocess Autosampler:

www.eppendorf.group/bpautosampler

Open Communication

Advanced process monitoring, control, and analysis

The integration with DASware control SCADA software offers advanced functionality, like the execution of feed profiles and scripts, process automation, and the integration of 3rd party sensors. The connection to BioNsight cloud software enables remote monitoring and advanced data analysis.

Advanced process monitoring, control, and data logging with DASware® control 6

DASware control 6 is a bioprocess SCADA software for process monitoring and control.
> Configurable views and user-defined functions
> Each function can be individually controlled by the SCADA software or the device
> Execute scripts and add automation to your process
> The control mode is visualized on the process screen for each setpoint tile
> Individually decide, if all or just selected functions are controlled by the device or DASware control 6

 Find out more at www.eppendorf.group/dasware-control

Your data, always available with BioNsight® cloud

BioNsight cloud is a cloud-based software solution for bioprocess monitoring and analysis. It is fully integrated into the Eppendorf bioprocess control software DASware control 6 and enables you to consolidate your bioprocess data in one central location for easy access and effective analysis.
> Remotely monitor whether your runs are performing as expected
> See deviations or expected behavior compared to past runs
> Collaborate on data from multiple devices with colleagues across labs and countries.
> Contextualize for easy and meaningful comparisons.
> Add data from external devices for deeper insights into your cultivation.
> Based on state-of-the-art technology (Microsoft® Azure).

 Find out more at www.eppendorf.group/bioNsight

Scientists are often unable to unlock the value of their data due to access and analytical constraints. The partnership of BioNsight cloud and DataHowLab offers a transformative path to data-driven, digital process development.

 Find out more at **www.datahow.ch/products/datahowlab/**

Native integration of BioNsight® cloud and DataHowLab

Use data efficiently: Easily send all your data from DASware control to DataHowLab via BioNsight cloud	✓
Save time: Data from BioNsight cloud is pre-formatted. No need for manual processing for use with DataHowLab	✓
Gain convenience: Single sign-on (SSO) to log in to DataHowLab with your BioNsight cloud user data	✓

Technical Data

SciVario twin Specifications

Control Station

Dimensions (W x D x H)	306 x 340 x 750 mm
Net weight	41.6 kg
Touchscreen diagonal size	308 mm / 12.1 inch
Communication	3 x USB 2.0 (software updates, serial communication) data export/import
	2 x Ethernet (RJ45, 100 Mbit/s)
	4 x RS232 (D-SUB9 male connector) per unit
	2 x RS485 (D-SUB9 female connector) per unit
	6 x universal connector (AK9, VP8, Type82)
	Analog I/O, 3x input and 3x output for integration of sensors, external pumps, and more (connection through 4-20 mA or 0-10V signals).

Utility

Electrical	100 - 240 VAC, 50/60 Hz
Water	max. 2.0 bar
Gas supply (Air, O_2, N_2, CO_2)	max. 3.0 bar

Agitation

	FI30 drive	MD30 drive	MD40 drive	TB200	TB200 high viscosity
Direct/magnetic drive					
Range	20 – 2500 rpm	25 – 1250 rpm	60 – 1600 rpm	25 – 1900 rpm	25 – 1900 rpm

Temperature

For 60 mL to 250 mL vessels	Temperature control block (5 K above coolant – 80 °C)
For 0.7 - 1.8 L vessels	Temperature control block or heat blanket with cooling finger (5 K above coolant – 70°C)
For 2.7 - 3.8 L vessels	Heat blanket with cooling finger
For 10 and 40 L vessels	Heat blanket only

Gas supply

Submerged	Parallel mixing, 14x TMFCs (7x per unit), 0.1 – 1200 sL/h, air and O_2 wide range, N_2 and CO_2 low range
Overlay	Sequential mixing, 0.1 – 12 sL/h
Exhaust	Peltier/liquid cooled

Sensors	Communication	Control range
pH	analog, digital (ARC, ISM®)	0 – 14 [pH]
pH-optical	non-invasive, PreSens® spots	5.5 – 8.5 [pH]
DO	analog, digital (ARC, ISM®)	0 – 500 %DO

Functional Modules/Drawers

Pumps for acid, base, antifoam, and 2 feeds	Variable Speed	
Small pump	± 0.033 – 100 rpm / 0.01 – 500 mL/h (depending on tubing)	depending on the configuration
Big pump	± 3.5 – 52 rpm / 415 – 6000 mL/h (depending on tubing)	depending on the configuration

Specifications subject to change.

Get in Touch

Visit our eshop to find more product information or inquire a product: **www.eppendorf.group/scivario-system**

www.eppendorf.com