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Технические характеристики на контроллеры, системы управления биопроцессами Applikon my-Control, Livit Flex, Applikon Motor Controller, Applikon in-Control, Applikon ez2-Control компании GETINGE

Applikon ez2-Control

The ez2-Control is there to simplify your bioprocess. Its multiple software innovations make it easy to control your bioreactor. The web-interface for the ez2-Control provides a clear overview of the parameters of your bioprocess, putting the attention right where it’s needed.

Easy to control your bioreactor

- Up to 6 Mass Flow Controllers
- Less maintenance due to brushless motor
- Powerful software features to simplify and optimize bioprocesses

Advanced user management enables you to create up to 21 users on 3 authorization levels. Back-ups, copies and predefined settings of configurations can simply be shared via USB. Extra flexibility is brought by additional analog and digital inputs / outputs.

The brushless motor requires virtually no maintenance, which saves you costs in the long term. It contains only one cable for the

Full control

Easily set, control and adapt your parameters, including pH, temperature, dissolved oxygen, agitation, foam, and level to optimize the bioprocess. It has total gas flow control to reduce shear stress for cell cultivations.

It is based on the same familiar Getinge Applikon control platform as the other controllers.

Advanced control strategies

The ez2-Control comes with selectable autotuning adaptive PID control for accurate control when process conditions change during the culture.

It has extended liquid additions options via (up to) 4 variable speed pumps. And it comes with enhanced gas addition strategies via (up to) 6 mass flow controllers.

Easy operation

The built-in web server allows the ez2-Control to be operated by any computer with a web browser: Microsoft Edge, Mozilla Firefox, Apple Safari or Google Chrome. Wireless devices like iPad, iPhone or Android tablets or phones can also be used to operate an ez2-Control.
Via the built-in web server enhanced parallel processing is accessible which allows the user to control multiple bioreactors in parallel.

The remote desktop support gives you access whenever and where ever you want.

The Applikon ez2-Control is ideal for the following applications:

- Microbial and cell cultures
- Batch, Fed-Batch, Perfusion, and Continuous cultivation
- Autoclavable bioreactors up to 20 liter volume
- Single-use bioreactors
- Steam-in-place bioreactors

Sensors	
pH Sensor	Traditional electrochemical or Single-use Measurement range: 0-14 pH, accuracy 0,01 pH
DO sensor	Traditional Polarographic, LumiSens or Single-use Measurement Range: 0-100% saturation, accuracy 0,1%
Redox	Traditional electrochemical Range 2000 mV, accuracy +/- 1 mV, resolution 1 mV
Temperature	Pt-100 Measurement Range: 0-150 °C accuracy 0,1°C
Foam/level	Resistive based measurement
Weight	Balances
Optional	Biomass (Capacitance or optical density), offgas measurements, pressure
Additional I/O	Up to 8 Analog in and 4 Analog out Up to 8 Digital In and 8 Digital out
Actuators	
Gas	Up to 6 MFC’s with solenoid valves or Up to 4 rotameters with solenoid valves
Liquids	Up to 3 internal fixed speed pumps Up to 4 external variable speed pumps
Stirring	0-2000 rpm with feedback, accuracy 0,1% FS
Temperature	Heating blanket or internal Thermocircuilator Cooling with cold water water valve
Control	
Control hardware platform	Applikon proprietary
Control software platform	Applikon Firmware
Certifications	CE certified, GAMP compliant
21 CFR part 11 compatible	Yes
Communication & SCADA	Lucullus PIMS, DeltaV
	Applikon OPC server available

Applikon in-Control

The in-Control is a process controller for laboratory scale bioreactors, offering high level control on a small footprint. This modular system allows you to create the most optimal set-up as you can add any extra inputs or outputs. You are in control.

Simply Powerful

- Increased flexibility by extra inputs and outputs
- Easy operation through touch screen interface and through web browsers
- Enhanced gas addition strategies via Mass Flow Controllers
- Reduce footprint by small size controller
- Replacement of ADI biocontrollers

The in-Control can be used to increase the capabilities of your bioreactor system with a minimal investment and no downtime for your process. The controller can be used for both cell culture and microbial cultures.

Full control

Easily set, control and adapt your parameters, including pH, temperature, dissolved oxygen, agitation, foam, and level to optimize the bioprocess. It has an USB connection for optional biomass or fluorophor pH and DO sensors and balances.

It is based on the same familiar Getinge Applikon control platform as the other controllers.

Adaptive PID

The in-Control comes with selectable autotuning adaptive PID control for accurate control when process conditions change during the culture.

Easy operation

The in-Control has an intuitive touch screen interface for easy operation. It has ethernet communication to SCADA and is applicable through various web browsers and devices, like Windows PC, Apple PC, Linux PC, iPhone, iPad, Android tablet, Android phone.

Specifications

Sensors	
pH Sensor	Traditional electrochemical or Single-use
DO sensor	Traditional Polarographic, Optical LumiSens or Single-use
Redox	Traditional electrochemical
Temperature	Pt-100, measurement Range: 0-150 °C accuracy 0,1°C

Optional	Biomass (Capacitance or optical density) or Offgas measurements
Additional I/O	Up to 4 Analog in and 4 Analog out, up to 8 Digital out
Actuators (optional)	
Gas	External gas box, options for 4 MFC's or 4 Rotameters
Liquids	Using powerbox up to 8 digital outs for switchable pumps, up to 4 external variable speed pumps
Stirring	0-2000 rpm
Temperature	Heating blanket or cooling with cold water water valve
Control	
Control Hardware and Software platform	Applikon proprietary and Applikon Firmware
Certifications	CE certified, GAMP compliant
21 CFR part 11 compatible	Yes
Communication & SCADA	Lucullus PIMS, DeltaV
	Applikon OPC server available

The Applikon in-Control is ideal for the following applications:

- Batch, Fed-Batch, Perfusion and Continuous cultivation
- Microbial and cell culture on lab-scale (up to 7 liter volume)

Applikon Motor Controller

The Motor Controller is a robust and user-friendly device that allows for easy and stable mixing. The Motor Controller can be supplied with 4 different types of brushless stirrer motors that can support mixing in vessels up to 130 L.

Powerful Stirring

- Powerful stand-alone motor controller for laboratory applications
- Support of maintenance-free brushless motors reduces costs
- Easy operation due to very intuitive user interface

The Motor Controller can be used in bioprocessing applications as a (more powerful) external motor controller for biocontrollers, such as the in-Control, or as a stand-alone controller that can be used for mixing applications. These can be mixing of medium tanks in bioprocessing applications or general mixing purposes in any industry.

The Motor Controller can be controlled remotely, which allows for easy integration in existing systems and also allows for data logging in to external software platforms.

Intuitive user interface

The Motor Controller comes with an intuitive 7" color touchscreen user interface. Its software has been developed to make it very easy for the operator to work with the controller, like integrated trending and alarming options.

External control

This stand-alone controller can be integrated with biocontrollers and/or SCADA software through external control possibilities making it a powerful solution for laboratory applications.

Brushless motor support

The Motor Controller supports 4 different types of brushless stirrer motors for control up to 130 L vessels. Since those brushless motors are maintenance-free the costs for cultivations can be decreased.

Specifications

Stirring	
Measurement and control range	M10: 0 - 2000 rpm M14: 0 - 750 rpm M20: 0 - 2000 rpm M33: 0 - 1000 rpm
Measurement and control accuracy	0.1 % of full scale
Feedback	Encoder
Motor type	DC, permanent magnet
Safety features	External E-stop
External control	Via analog signal SCADA through ethernet connection
Control	
Certifications	CE certified, GAMP compliant
Connectivity	Compatble with SUB-Control, ez-Control, ez2-Control, my-Control, and in-Control

The Applikon Motor Controller is ideal for the following applicatio

- Stirrer motor controller in bioprocessing application
- Mixing device for general mixing purposes

Applikon my-Control

The my-Control is ideal for small scale cultivations as this controller requires less bench space than other controllers. This advanced system can control single- and multi-use bioreactors from 50 mL (working volume) up to a total volume of 3 L for both cell culture and microbial cultures.

Color your Lab

- Easy operation through web browsers
- Expandable control system with optional extra inputs and outputs
- Enhanced parallel processing by allowing up to 8 my-Controllers in one human interface

The selectable colored band on the unit allows the system to be personalized and to fit your laboratory. The advanced my-Control software makes it possible to switch from microbial to cell culture configuration in seconds. With its footprint of only 19 by 35 cm (W x D) it uses the minimal amount of bench space, allowing to set up as many as

idth f b h

Full control

The my-Control provides full control of all bioprocess parameters, including pH, temperature, dissolved oxygen, RedOx, agitation, foam, and level. It has USB connections for optional balances, Biomass, Fluorophor pH and DO sensors.

It is based on the same familiar Getinge Applikon control platform as the other controllers.

Advanced control strategies

The my-Control comes with selectable autotuning adaptive PID control for accurate control when process conditions change during the culture.

It has extended liquid additions options tuned to small scale cultivation via up to 4 variable speed pumps at the front of the controller. And it comes with enhanced gas addition strategies via 4 mass flow controllers.

Easy operation through web

The built-in web server allows the my-Control to be operated by any computer with a web browser: Microsoft Edge, Mozilla Firefox, Apple Safari or Google Chrome. Wireless devices like iPad, iPhone or Android tablets or phones can also be used to operate a my-Control.

Via the built-in web server enhanced parallel processing is accessible which allows user to control multiple (up to 8) bioreactors in parallel.

Specifications

Sensors

	or Single-use
Redox	Traditional electrochemical
Temperature	Pt-100, measurement Range: 0-150 °C accuracy 0,1°C
Foam/level	Resistive based measurement
Weight	Input for external balances
Optional	Biomass (Capacitance or optical density) or Offgas measurements
Additional I/O	Up to 4 Analog in and 4 Analog out, up to 8 Digital out
Actuators	
Gas	Up to 4 MFC’s or needle valves with solenoid valves, max flow 1.500 mL/min N2 equialent
Liquids	4 variable speed pumps, up to 40 mL/min 2 microvalves or up to 4 external variable speed pumps
Stirring	0-2000 rpm
Temperature	Peltier elements or heating blanket or cooling with cold water water valve
Control	
Control Hardware and Software platform	Applikon proprietary and Applikon Firmware
Certifications	CE certified, GAMP compliant
21 CFR part 11 compatible	Yes
Communication & SCADA	Lucullus PIMS, DeltaV
	Applikon OPC server available

Livit Flex

The next generation in bioprocess control

Go from the expected to the **extraordinary** with Livit Flex

Cost-effective

Ensure an optimized system configuration and investment that match your dedicated needs

Faster to market

Speed up development thanks to system flexibility and advanced software functionalities

Intuitive interface

Reduce the risk of operator error and cut training time with a user-friendly interface

GETINGE


Livit Flex bioprocess controller

From standard to **state-of-the-art** with Livit Flex

Livit Flex brings nearly half a century of Applikon expertise together with the latest technologies to deliver an intuitive and easily configurable bioprocess controller that fits any R&D application.

Livit Flex can be configured as a single or dual control system for single-use or multi-use bioreactors to optimize bench space in the laboratory. The new Livit Links enable plug-and-play connection of sensors and auxiliaries, with the controller automatically recognizing new devices.

Both experienced and new users will be up and running in no time thanks to the new, intuitive Livit software platform with built-in data acquisition. Livit software is fully configurable and easy to use. Every sensor or actuator has its own widget so users can easily access and modify all settings, and even connect multiple Livit Flex controllers in a network. By accessing and controlling multiple controllers from one PC in a lab, users can easily set-up parallel experiments and monitor all experiments from one central location.

Combining the flexibility of the Livit Flex controller, the intuitive Livit software, and Getinge bioreactors enables you to accelerate your R&D processes and bring your pharmaceutical and biotech products to market faster.

Livit Flex features

- Single or dual bioprocess control system
- Up to 8 variable speed pumps
- Up to 12 mass flow controllers or up to 8 mass flow meters
- Electronic gas selection block
- Plug-and-play sensor and actuators through Livit Links
- Built-in data acquisition, alarm and user management,
- OPC-UA compliant
- Compatible with V-Control and Lucullus software
- Compatible with Applikon multi-use and AppliFlex ST single-use bioreactors

Applications

- Cell cultures
- Microbial cultures
- ATMP
- Batch cultures
- Fed-batch cultures
- Continuous cultures
- Perfusion cultures

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