



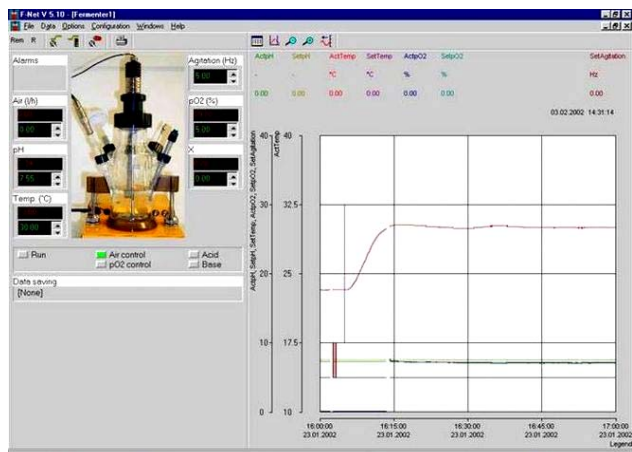
LAMBDA Laboratory Instruments

Where innovation keeps quality high and prices low

LAMBDA MINIFOR bench-top fermenter-bioreactor
Innovation leads to a quality fermentor at low costs. LAMBDA MINIFOR introduces new concepts in laboratory fermentation and cell cultures:



- “easy-sterility” concept
- Automatic control of temperature, pH, pO₂ (dissolved oxygen DO), air-flow
- New whole glass vessels with threaded necks and fittings increase flexibility of use
- Culture volumes from 35ml to 6.5 liters in one single instrument
- New infrared radiator for gentle, precise and economic culture heating (no expensive water bath required)
- Extremely compact, handy and fully accessible from all sides
- New biomimicking “fish-tail” stirrer for gentle and efficient mixing of cell cultures
- Batch, fed-batch and continuous culture operation
- Gas flow control using precise mass flow measurement
- Automatic anti-foam control (optional)
- Very fast and easy to set up and dismantle
- Sterilizable in common autoclaves
- Modern high-tech materials used
- Stand-alone or controllable by PC
- Fermenter control software FNet or SIAM (optional)
- Well suited also for parallel fermentation processes



LAMBDA PRECIFLOW, MULTIFLOW, HIFLOW and MAXIFLOW peristaltic pumps
Practical, precise and reliable pumps - the most compact in their class.



- Flow rates from 0.01 to 10'000 ml/hour
- Large digital speed setting range from 0 to 999
- New motor technology
- Extensive remote controls
- Greatly extended tubing life with decreased pulsation
- Flow rate programming (up to 99 steps) and automatic switch-on and -off without using any timer
- Very economic in use; virtually noiseless operation
- Most compact pump of this type on the market
- Access to reaction kinetics by using the Pump-Flow INTEGRATOR
- Low voltage plug-in power supply for maximum safety
- RS-485 interface (optional)
- Control software PNet (optional)

LAMBDA MASSFLOW gas flow controller
New mass flow controller system specially designed for the use together with LAMBDA MINIFOR fermentor. The MASSFLOW allows a precise, automatic control of pH in cell cultures without the need of any other gas station.



- Allows the control of pH of cell cultures by controlled addition of gaseous CO₂
- Control of gas flow of air, O₂, N₂, CO₂ or other gas with a suitable controller
- High-quality laminar mass flow sensor with minimal pressure drop
- Can be used independently - all functions accessible from the front panel
- Flow rates from 0–500 ml/min or 0–5 l/min
- Flow rate regulated by a proprietary proportional needle valve controlled by a microprocessor
- Linearity error less than $\pm 3\%$ reading (which is much better than precision expressed as percent of full scale used by some producers)
- Repeatability better than $\pm 0.5\%$ reading
- Programmable flow rates
- Flow volume can be recorded with INTEGRATOR
- RS-485 interface (optional)
- Control software PNet (optional)



LAMBDA OMNICOLL fraction collector and sampler
A new concept in fraction collection with almost unlimited flexibility – opens new possibilities in chromatography and multiple stream sampling:



- Collects fractions in any racks of your choice
- Collects unlimited number of fractions in single or multiple fractions
- No danger of spilling; the complete collector is placed above the tubes
- Unlimited number of programs
- Extremely easy programming of rack and tube position with a simple pen
- Fractionation according to time (0.1 – 9999 min) or volume (0.05 – 500 ml or 0.1 – 30 l)
- Drop counter (optional)
- Sampling with pause (0.1 – 9999 min) and line washing; the fraction collector can be used for sampling during cell cultures, fermentations, chemical reactions, etc.
- Can be placed in a cold bath or any other thermo-stabilized container
- Multicolumn attachment for simultaneous fraction collection (up to 18 or more)
- Solvent resistant metal construction
- Tubes easily accessible from all sides
- Low voltage power supply; battery operation possible
- RS-232 interface (optional)

LAMBDA VIT-FIT polyvalent syringe pump
High precision and excellent price/performance ratio



- New syringe fixing system “VIT-FIT” allows almost any syringe to be used without adapter (from micro-syringes to large volume syringes of 150 ml and more)
- The syringe is tightly held in both directions – infusion and filling
- Highest mechanical stability allows for high pumping forces and precise flow rates without pulsation
- High force of 300 N (600 N for high-pressure model)
- Programmable (99 steps for infusion and filling)
- Very easy handling of the syringes
- Swiss quality motor and ball screws
- Two valve outputs
- Remote controls
- RS-485 interface (optional)
- Control software PNet (optional)

LAMBDA SAFETY DOSER for powder dosing
Unique pump for free-flowing solid substances



- For automatic or continuous addition of solids, powders, crystalline substances, nano-materials and nano powders without a spoon
- Dosing speed range from 0 to 999
- Reproducible dosing flow rates (e.g. 50 mg/min to 50 g/min for NaCl)
- Programmable
- Easy assembly and cleaning
- Necessary to comply with GLP/GMP requirements and safety standards
- Hermetic construction allows operation in controlled atmospheres (Ar, N₂,...)
- Safe handling of dangerous and toxic substances
- Remote controls
- RS-485 interface (optional)
- Control software PNet (optional)

LAMBDA PUMP-FLOW INTEGRATOR
Allows visualizing how much liquid, gas or powder has been transferred in function of time in controlled processes



- Control of pH during chemical reactions where the pH is controlled by addition of acid or base (hydrolysis of esters, amides, anhydrides etc.)
- Measurements of enzyme activities of numerous enzymes (esterases, acylases, lipases, proteases and others using a pH-stat)
- Control and quantification of metabolic activity of cells during fermentations and cell-cultures (by control of pH, rH, pO₂, pCO₂, conductivity or other required parameter)
- Recording of foam formation (automatic addition of antifoam agent)
- Recording of addition of reactives during exothermic reactions with addition of reactive controlled by a thermostat
- Recording of consumption of reactives during titration making of gradient for gels, chromatography etc.

LAMBDA Laboratory Instruments has over 35 years of experience in the development of laboratory instruments.

Our mission is to invent, develop and supply high quality laboratory instruments with interesting properties and innovative concepts for biotechnology, microbiology, food and agricultural, chemical and pharmaceutical research and development as well as for educational and general laboratory use.