

# LASmanager® - Laboratory Automation System



*The modular interface genius with over 3,000 possible connections!*

## Areas of use

- » Chemistry
- » Pharmacology
- » Biotechnology
- » Food technology
- » Environmental technology
- » Quality assurance
- » Calibration equipment
- » Education

## Applications

- » Process development and optimisation
- » Product development
- » Scale-up
- » Screening
- » Parallel reactor systems
- » Continuous, batch and semi-batch processes
- » Automatic sample drawing and filling
- » Reaction calorimetry and much more

## Automation of

- » Temperature, pressure and vacuum regulation
- » Dosing control of liquids, solid matter and gases, gravimetrically and volumetrically
- » Stirrer speed control and torque recording
- » Single and multi-stage synthesis
- » Controlled distillation and rectification
- » Polymerisation and polycondensation
- » Extraction, crystallisation and much more

## LabManager® laboratory automation system

Automation in the laboratory, pilot plant and mini plant is the method of choice if you wish to improve quality and productivity and at the same time reduce costs.

The LabManager® system is a specialised automation system for laboratory, pilot plant, mini plant and bench plant process cells. It is suited for the automation of practically all chemical process engineering batch, semi-batch and continuous processes and sets the standards worldwide for laboratory automation.

The LabManager® system was developed in close collaboration with specialists from laboratories and pilot plants in significant chemical companies. It has proved its worth as a standard tool over a wide area in over 1,000 applications.

Particular care has been directed to develop a user-friendly man-machine interface, a compact design, and high application flexibility in accordance with the requirements of the NAMUR working party for research process control computer systems (RPCCS).

The LabManager® RPCCS is distinguished by the fact that it is also transparent and easy to handle for personnel inexperienced in automation techniques.

### Modularity

LabManagers® can be modified or upgraded by the user at any time and thus be adapted to the changed or increased tasks. The scalable system grows with the demands placed on it from a small data logging system up to a complex process control system. In this way your process is able to migrate from the laboratory into a pilot plant, into a mini plant and into production. At an early stage you are able to gain important knowledge on the capability of your process to be automated and can thus shorten the time to market.



Easy „on-the-fly“ change of the slide-in modules

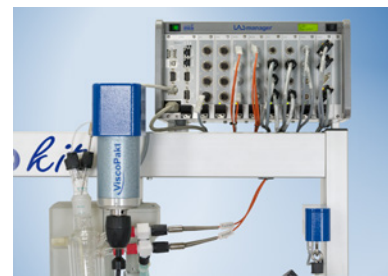
### Functions

LabManager® ASs are equipped for the special ambient conditions in the laboratory or pilot plants.

External transducers, buffer amplifier etc. are no longer necessary. Due to the compact design of the device, the required space is reduced to a minimum so that it fits in any rack and on any lab table. If conventionally constructed, a comparable technology would fill one control cabinet and thus waste valuable laboratory space.

The possibility to mount the device directly on to the plant represents a significant help in saving costs for project planning and cabling and allows an easy remounting or expansion of the instrumentation.

The well thought-out security and alarm concept enables unattended operation, both overnight and at weekends. Simply through the subsequent possible more intensive use of your equipment your investment pays off after a very short time (typically 6 months).



LabManager® - space-saving installation directly onto your plant

### Diversity of connections

The LabManager®-product family contains automation devices of different sizes that are built up in a modular manner. This ensures that you always obtain a device which best meets your requirements.

The connecting technology is uniformly based on slide-in modules with four inputs or outputs in each case and standardised plugs and sockets.

#### Available slide-in modules

- › Voltage and current inputs with sensor supply for pH sensors, pressure sensors ...
- › Voltage and current outputs for pumps, proportional valves ...
- › Pt100 and Pt1000 temperature sensor inputs, resolution < 1 mK
- › Thermocouples inputs, types R, J, L, B, T, N, K ...
- › Strain gauge bridge inputs for weight, torque ...
- › Digital inputs with sensor supply for limit switches, frequency measurement ...
- › Digital outputs with actuator supply for solenoids, reflux separators ...
- › Serial interfaces: RS232 or RS485 for thermostats, stirrers, pumps ...



LabManager® 1 to 3

### The advantages

- › More intensive utilization of your personnel and equipment resources
- › Release of the lab personnel from routine activities
- › GLP/GMP compliant working method without additional outlay
- › Optimal reproducibility of your recipes, even after years
- › Complete documentation of the entire process
- › Savings during the instrumentation thanks to virtual devices
- › Can be scaled from a simple data logging system up to a networked process control system with an LIMS database
- › Extremely high accuracy
- › Shorter „time to market“ period for your products
- › Quality improvement
- › Reduction in costs and potential danger

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