

LAB-manager

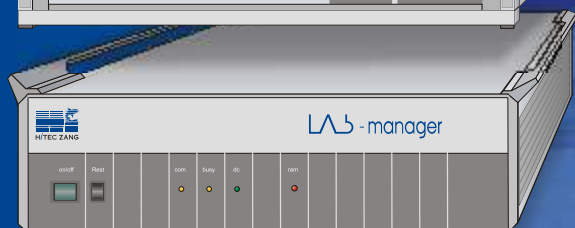
Application-directed Automation for

Laboratory

Pilot-plant

Mini-Plant

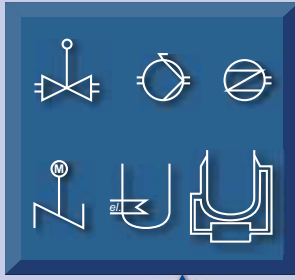
Production



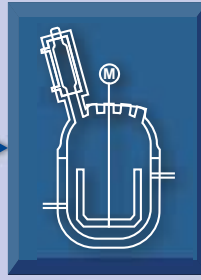
- Measuring
- Controlling
- Regulating
- Monitoring
- Reporting
- Alarming
- Operating
- Observing
- Protocols
- Recipe control
- Unit operations
- Calorimetry

Everything you need for Automation!

Actuators



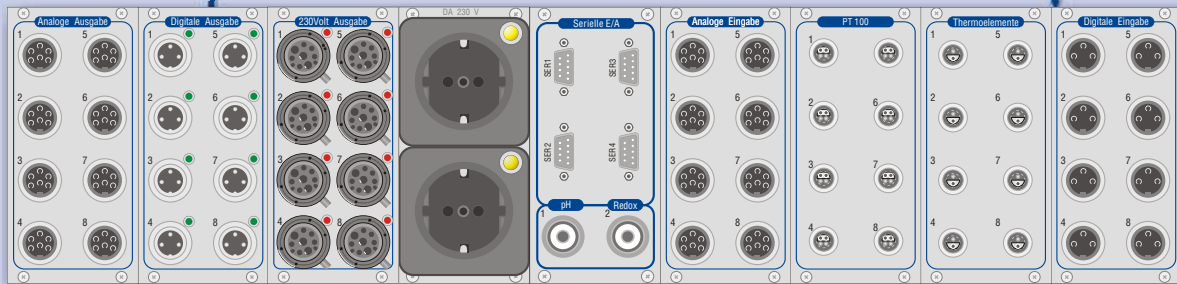
Process



Sensors



NAMUR - Connection Panel



LAB-manager



Telephone network

Modem

ISDN

Remote maintenance

User Interface



Document printer

Data export for MS-Excel, ASCII, etc.



Operating and fault-message printer

LAN network

Automation - at your fingertips

Multiple connections

You can easily connect standard commercial sensors from pH probes to solenoid valves. You can also integrate your laboratory equipment such as balances with no problem whatsoever.

Modular

Your system configuration is based on the modular connection technique with panels that can be freely combined to suit your requirements. With the standardised NAMUR plug-and-socket connectors and suitably configured cables, you, the user, can connect your instruments at lightning speed, upgrading as required.

Compact

The LAB-Manager is the heart of your system-replacing the electronics of various individual pieces of conventional automated laboratory equipment such as dosing devices, regulating units, printers, titrators, measurement converters, data loggers, etc. You need just one lab-manager instead of a number of individual pieces of apparatus that take a long time to inter-connect. What used to be feasible only with extensive planning and enough equipment to fill a cupboard is now possible in the guise of a single, compact device.

Multiple function

User-friendly program modules such as analogue-, incident- and phase charts, form generators, monitoring module and reporting equipment, control and online evaluation, composition control, detailed reporting and process visualisation allow you to dispense with corresponding routine activities. A continuous data chain from instrumentation through to documentation prevents errors. Automatic testing and evaluation will enable you to optimise both the quantity and quality of your laboratory work and realise a considerable savings potential.

Area of Application

The Lab Manager system has pride of place in the range of modern automated and process control computer systems. It is especially suitable for the automation of laboratory, pilot and mini-plant equipment. Thanks to its multiple functions and ease of use, it has proved its worth in these areas as a standard tool for measuring, controlling, regulating, monitoring, operating, observing and evaluating purposes.

The LAB-Manager system was developed in accordance with the requirements of the NAMUR Working Party for research process control computer systems in conjunction with users from the research laboratories of major chemical companies.

The realisation of the unit operations concept guarantees essential flexibility for the highly varied modes of laboratory application. Changes can be made during operation without departing from the process.

The LAB manager system can be used amongst other things for:

- data akquisition, process control and monitoring,
- automation of individual and parallel reactor systems,
- automation of syntheses and screening,
- step-by-step composition or recipe control,
- reaction calorimetry, exothermic early warning system,
- quality assurance applications.

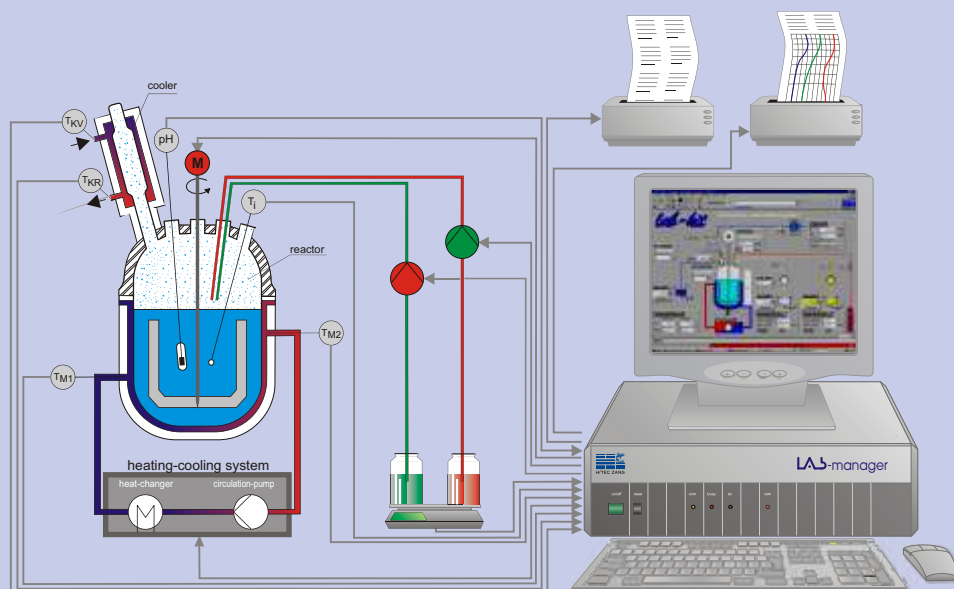
You can automate virtually every chemical unit operation using this system.

The LAB-manager systems pay for themselves within a short space of time thanks to:

- a more intensive use of laboratory resources,
- saving on various individual devices and
- a reduction in upgrading times.

Additional benefits can be obtained due to enhanced quality as a result of optimal reproducibility and the comprehensive documentation of compositions thanks to automated test processes.

The enormous scope for application, recognised after-sales support, a hot-line manned by competent experts and an extensive training program all confirm the fact that you, the user, have chosen the right system!



LabVision - your window to the process

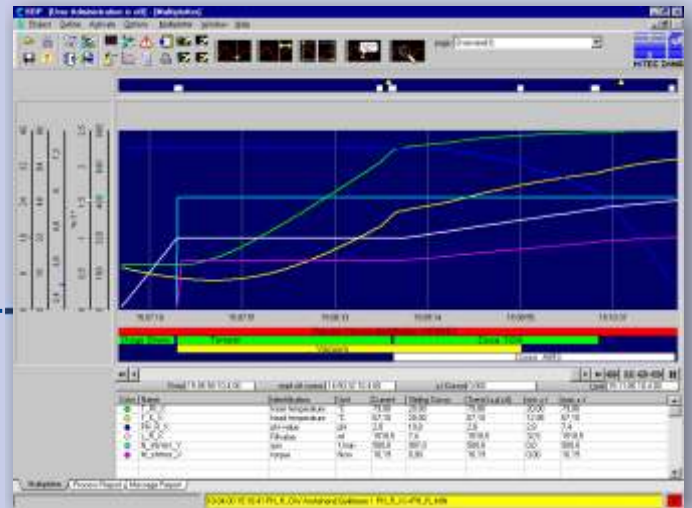
LabVision is one of the most high-performance and respected process visualisation or SCADA tools. The 32-bit Windows NT or 2000 program system is particularly suitable for the visualisation and automation of conti- and batch processes in the laboratory, technical analysis and production. The industry standard for laboratory automation, its

main strength lies in its flexible application.

LabVision satisfies the requirements of the NAMUR Working Party - WP 2.4 in terms of research process control computer systems (RPCCS) and is thus equipped for frequently changing or modified applications.

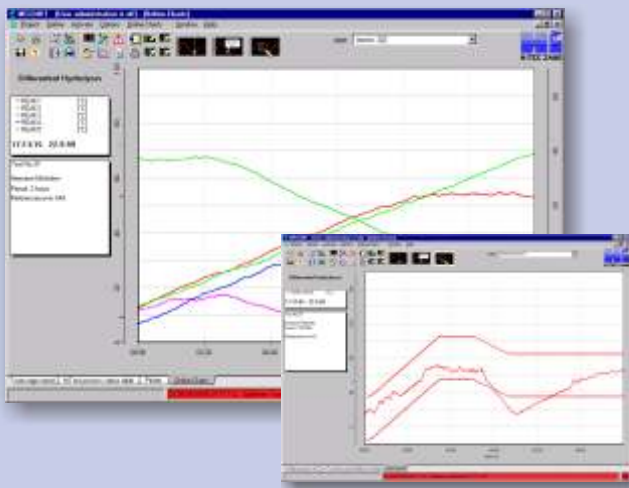
The Chart System

The Multiplotter is an integral, innovative plotting system comprising of analogue, incident and phasecharts printers. It offers a clear-cut, consistent overview of current and historical process conditions in the form of values, incidents and process phases. Various measurement functions lend support for reading and analysing values. Gradient, integral and statistical values can thus be read off directly. The values can be exported in various data formats.



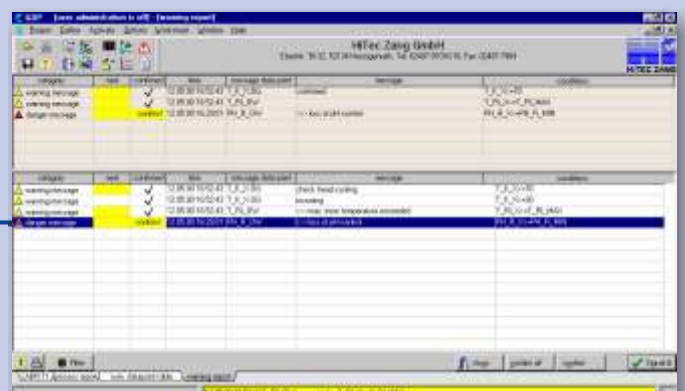
Online Charts

On-line charts depict xy- and xt-diagrams either linearly or logarithmically. Compared with current values, historical values can be inserted as curves. In addition to the measured and calculated values, incidents can be visualised via symbols and process phases by bars above the time axis. In this way, values, incidents and phases are presented in a consistent, unsurpassed format. Chart parameters can be set using the menu or a HiText program.



Monitoring & Reporting

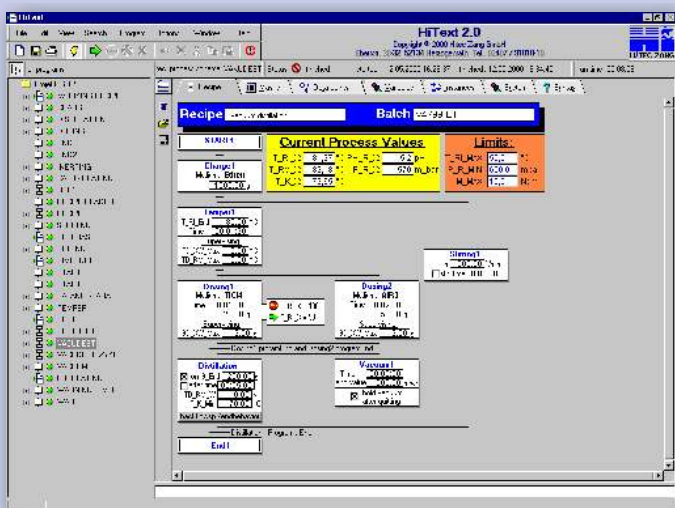
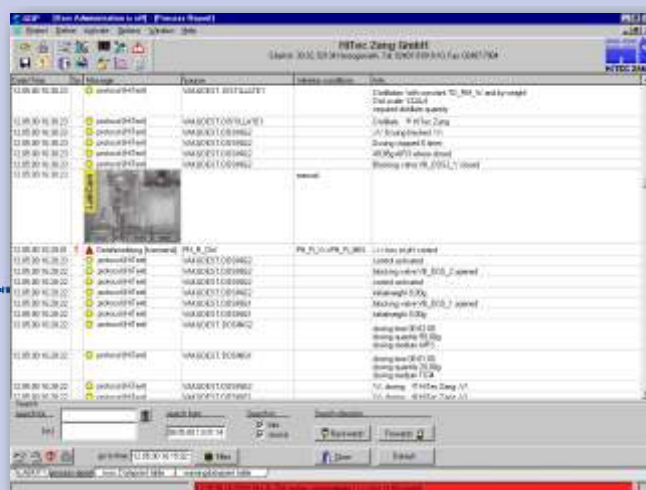
Inadmissible system conditions are detected and corrected. Every data point can have several monitoring conditions. Numerous reactions are planned for dealing with monitoring condition - from text reporting through the launch of a control program to an alarm call by e-mail or via the telephone network.



LabVision for Batch and Continuous-processes

Step-by-Step Report

All intermittently recorded data or incidents such as error reports, batch protocols or interventions are documented with a time stamp in a step-by-step report available in multi-media format. Indication filters and selections will give you an overview of the data even if several thousand entries are present. With the LabCam option, you can insert incident-related digital photos into the report, thus giving you comprehensive coverage of the process.

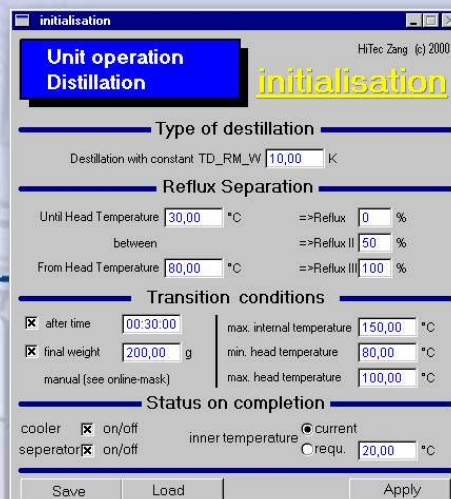


Recipe Control

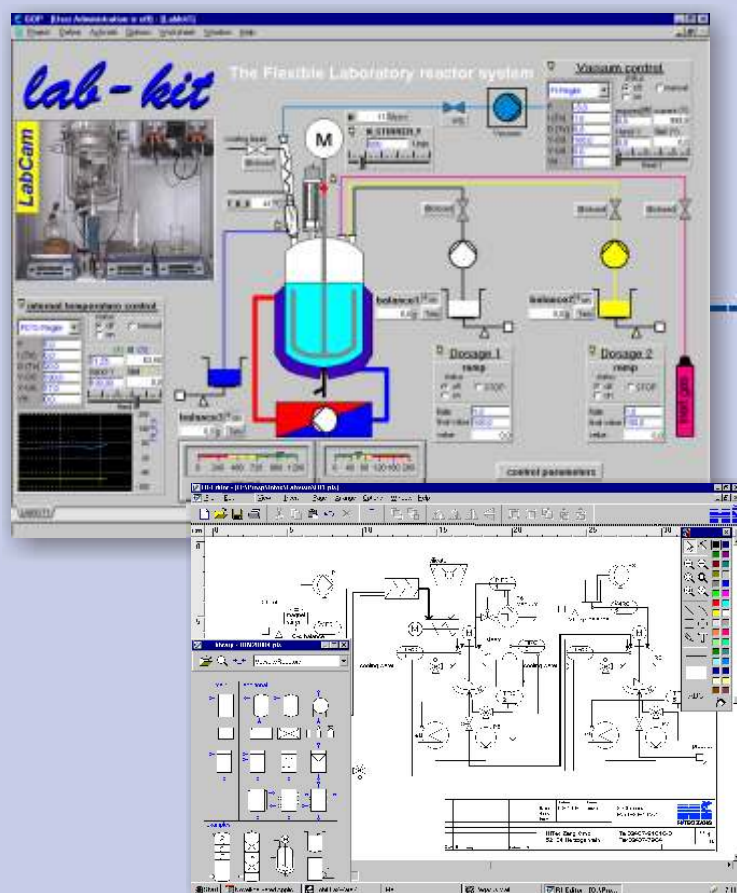
Recipe control developed on the basis of the NAMUR basic operating concept brings procedures to your laboratory conforming to GLP. Automated testing ensures optimum reproducibility and documentation. The control components of a complex synthesis are obtained in minutes. For this purpose, function blocks from the basic operating library are combined with a user-friendly chart editor to produce a self-documenting, step-by-step plan. The control components can be saved, reloaded and executed at any time. The process is documented in the step-by-step process report, chart recorders and, alternatively, in a free-format protocol.

Unit operations library

In this library, you will find information on dosing, tempering, pH regulating and distilling procedures, etc. The basic operations comprise function blocks and dialog masks. The functionality of the function blocks is based on HiText programs. You can freely modify the programs for your applications and extend the library at any time. Parameters such as quantity, times and temperatures, etc. are entered in clearly laid-out dialogue masks.



Software you will like from the outset



Process flow chart

A clear flow chart enables you to observe the current plant situation and to execute operations. For this purpose, you can use real and virtual laboratory equipment via easy to produce operator tables on the screen. No programming knowledge is required to produce flow charts.

Dynamic flow charts can be generated by using process-dependent alternating texts, alternating images or digital photos produced online. User management and access monitoring guard against prohibited operations.

The integrated editor can be used even at the pre-planning stage for the standard drawing of the process flow chart in accordance with DIN/EN 28004 and for the management of equipment-technical additional information.

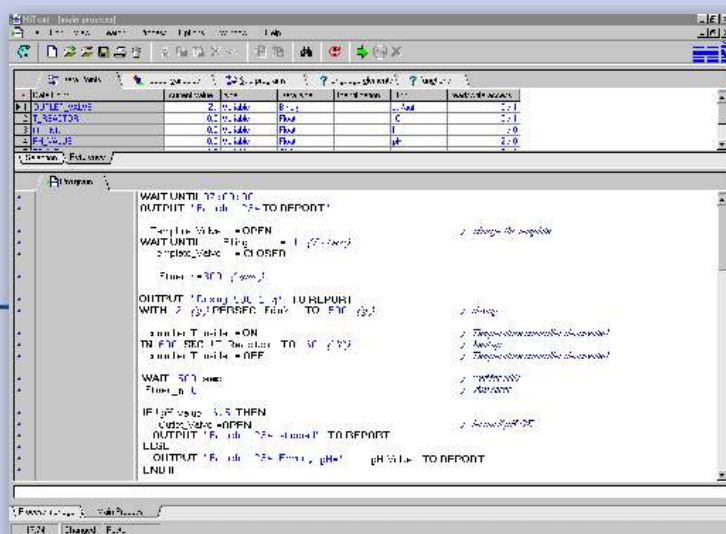
Control & online evaluation

HiText is a self-explanatory, self-documenting and multi-task clear text language for control, on-line evaluation and communication. Since users can learn how to use HiText within a short space of time without previous programming experience, the language is readily accepted in both the laboratory and technical areas. Errors are observed on entry and highlighted.

The command unit also offers special commands for theoretical values, dosing control, timebased planning management and communication, etc. Moreover, HiText contains all the speech elements required for on-line assessment including mathematical functions.

The adjacent program example shows you just how easy it is to understand and use HiText.

The command sequence can, for instance, be used to fill a reactor automatically, to heat it up, to stir during the subsequent dosing phase and then to empty it after a cooling period.



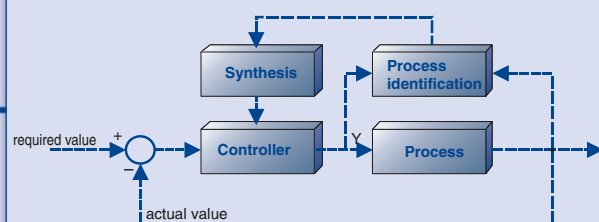
System Components

Add to the Labmanager system with high-performance hardware & software components:

Upgrade modules

- HiTune self-adjusting controller
- HiCon fully-adaptive regulating units
- LabCam on-line image documentation
- SPC IEC programming language
- NAMUR driver for serial ports
- Program modules for reaction calorimetry
- Libraries for virtual equipment
- Remote maintenance and alarming

HiCon

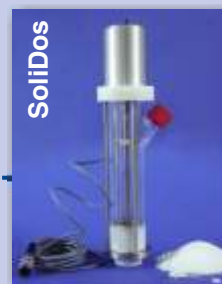


Instrumentation components

- ViscoPakt of the compact precision-torque-measurement stirrer
- Components for reaction calorimetry
- Precision temperature measuring module with a resolution of 1 mK
- Continuous, adjustable calibration heating

Flow-through measurement & dosing system

- MiliFlow flow-through sensors for measuring the smallest of liquids
- SoliDos solid substance dosing device for the Laboratory reactor
- GraviDos - the pump-free gravimetric dosing

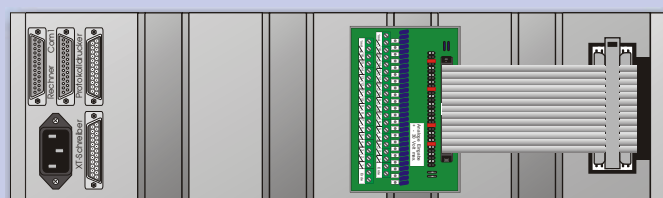
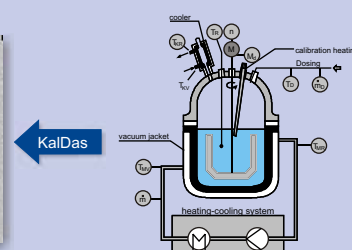
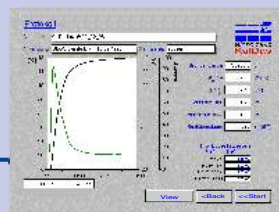


Laboratory reactor systems

- LAB-kit of the construction kit for fully automated laboratory reactor systems
- LAB-kit-rc - the fully automated reaction Calorimeter
- Parallel synthesis equipment

Evaluation programs

- KalDas - the user-friendly evaluation program for reaction calorimetry
- GyroDat projecting, administration and evaluation of stir-technical tests
- DaDas - the tool for generating technical-scientific evaluation programs



The MSR-Manager system

The MSR-manager system with connecting blocks is available as an alternative to the connecting panels for fixed cable systems.

Competent problem-solving for your projects

In addition to the supply of systems and components, HiTec Zang GmbH offers
An extensive range of services:

- MSR-technical advice
- Process-technical advice
- System planning for laboratory and mini-plant equipment
- MSR-technical basic equipment and detailed planning
- Selection of components for solving specific problems
- MSR-technical applications
- Management-technical support
- Starting-up support
- Error diagnosis and analysis
- Equipment connection
- Sensor calibration
- Instruction and training
- Remote maintenance



Use our know-how in the following fields for your projects:

- Automated laboratory reactor systems
- Mini-plant technology
- Parallel synthesis equipment
- NAMUR basic operations
- Reaction calorimetry
- Weighing and dosing techniques
- Instrumentation and sensors
- Highly accurate temperature readings
- Regulating techniques, adaptive control
- Research process control computer systems
- Process management techniques, equipment ports
- CAN-bus, PROFI-bus, SPS technique
- Remote data transfer, remote operations
- Remote warning via e-mail, telephone, fax or pager
- Computer networks



Our experienced project engineers and technicians are on hand to give you the support you need to fully realise your project. Call us if you need advice, have to connect an analytical apparatus with a specific protocol to a control system or if you require a tailor-made system.

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