Application-oriented, modular automation for Laboratory, Pilot Plant & Mini Plant

HITEC ZANG
MADE IN GERMANY

LABmanager® & LABVision®

- Measurement Control
- Reporting Alarming
- Laboratory Notebook Datalogger
- Recipe Control Visualisation

Everything automation needs!

Actuators

Process

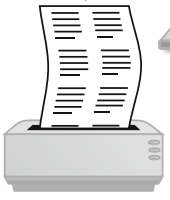
Sensors

NAMUR connection modules

AS
(Interface)

Remote maintenance

OS
(Operator station)



Report printer

Data export to
Microsoft® Excel®, CSV ...

LAN
networking

Automation that you have in full control

Area of Application

The LabManager® system occupies a special position in the range of modern automation and process control systems. It is especially suitable for the **automation of laboratory, pilot and mini-plants**. 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 LabManager® system was developed according to the requirements of the international NAMUR association for research process control systems in collaboration with users from research laboratories of the major chemical companies.

The realization of the unit operation concept guarantees the necessary flexibility for frequently changing tasks in the laboratory. Changes during operation can be made without stopping the process.

The LabManager® system can be used among other things for:

› Data acquisition, process control and monitoring

› Automation of **single and parallel reactor systems**

› Automation of syntheses and screening

› **Recipe procedure control**

› Reaction calorimetry, exothermic early warning system

› Quality assurance applications

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

The LabManager® systems **pay for themselves within a short period** of time thanks to:

› A more intensive use of laboratory capacity

› Saving on various individual devices

› A reduction of set-up times

Additional benefits can be obtained by **increasing the quality** as a result of optimal **reproducibility** and the **complete documentation** of your recipes through the automatic test control. You benefit from the enormous range of applications, a recognized exemplary **after-sales support**, a hotline with competent professionals and a **comprehensive training program**.

Variety of connections

You can easily connect commercially available transducers and actuators **from the pH probe to the solenoid valve**. Even your laboratory equipment such as **balances or thermostats** can be integrated easily.

Modular

Your system configuration is based on the modular connection technique with **panels** that can be **freely combined** to suit your requirements. With the **standardized NAMUR plug connections** and suitably assembled cables, you as a user are able to connect your instrumentation in the shortest possible time and, if necessary, upgrade or convert it.

Compact

The LabManager®, the heart of the system, replaces several individual electronic devices of conventional laboratory automation like **dosing devices, controllers, recorders, titrators, transducers, dataloggers, etc.** Instead of complex individual devices to be connected, you only need one LabManager®.

Multiple function

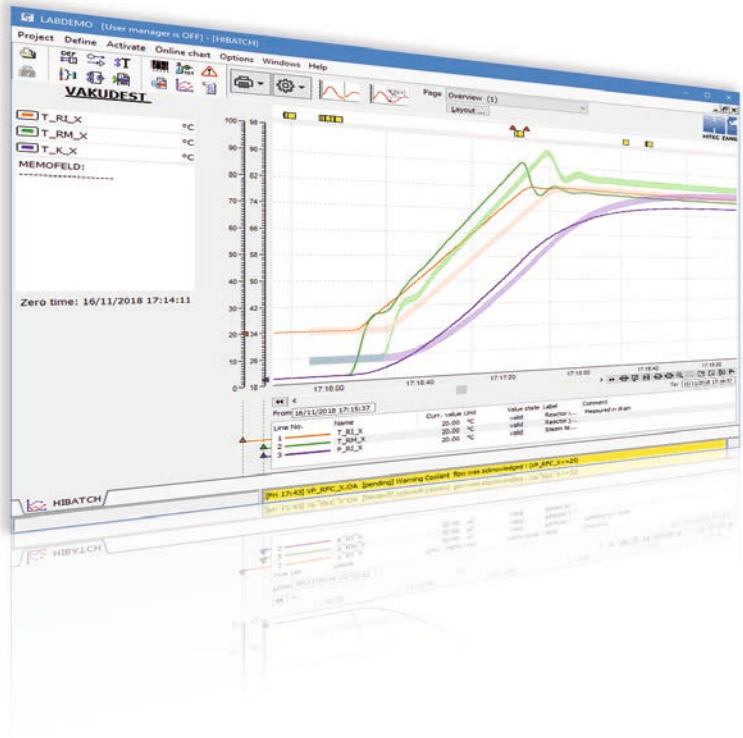
User-friendly program modules allow you to dispense with corresponding routine activities. A **continuous data chain** from instrumentation through to documentation prevents errors. **Automatic testing** and evaluation will enable you to optimise both the quantity and quality of your laboratory work and realise a **considerable savings potential**.

LabVision® - your window to the process

LabVision® is one of the most high-performance and respected process visualisation or SCADA tools. It satisfies the requirements of the NAMUR association - WP 2.4 in terms of research process control computer systems (RPCCS) and is thus equipped for frequently changing or modified applications.

The plotting system

The multi-plotter is an integral, innovative plotting system comprising of **analogue diagram, event and phase plotter**. 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

Historical values can be displayed as curves for comparison with the current values. Online charts depict xy- and xt-diagrams **either linearly or logarithmically**. In addition to the measured and calculated values, events can be visualised via **symbols and process phases by bars above the time axis**. In this way, values, events and phases are presented in a consistent, unsurpassed format. Chart parameters can be parameterised using the menu or a HiText™ program.

LabVision® for batch and continuous processes

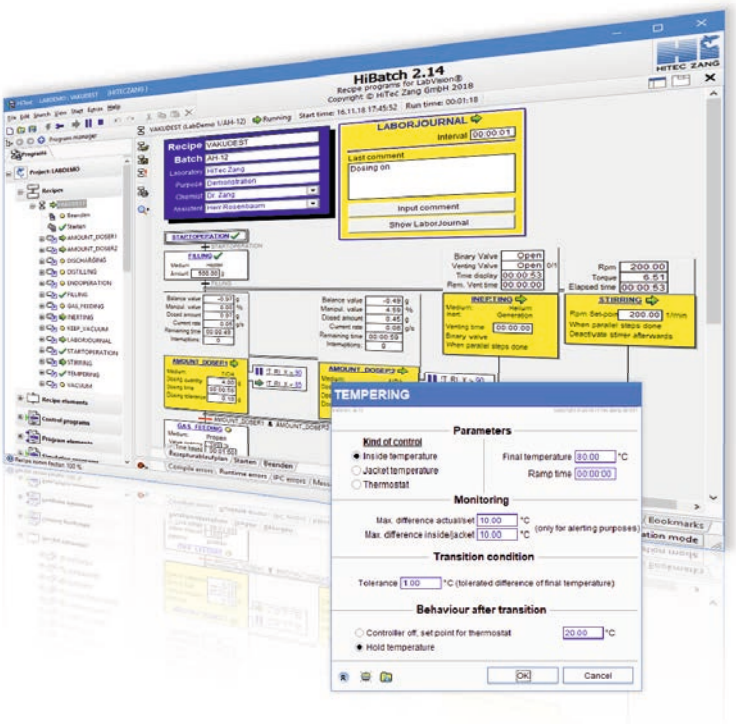
No matter, which process you want to investigate or optimize, just connect your devices to the LabManager® system and start data logging, process visualisation, automation and reporting.

Process flow chart

A clear process flow chart enables you to observe the current **plant situation and to carry out the operator actions**. For this you can operate real and virtual laboratory equipment via freely definable operator displays 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 recorded online. **User management** and access monitoring protect against prohibited operations.

With the integrated RI-CAD™ software module for LabVision®, you can already use the **standard drawing of the process flow diagram according to DIN EN ISO 10628** and for managing additional technical equipment information during the preliminary planning phase.



Recipe control

The recipe control operating according to the NAMUR basic operation concept brings the **GLP & GMP-compliant** working method into your laboratory. The automated test procedure guarantees the best possible **reproducibility** and documentation. Create the control recipe of a **complex synthesis** 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 process report, plotter and, alternatively, in a free format protocol.

Unit operations library

In this library, you will find operations for **dosing, tempering, pH-regulation and distilling etc.** The basic operations comprise function blocks and dialogue masks. You can **freely modify** the programs for your applications and **expand the library at any time**. Parameters such as quantities, times and temperatures etc. are entered in clearly laid out dialogue masks.

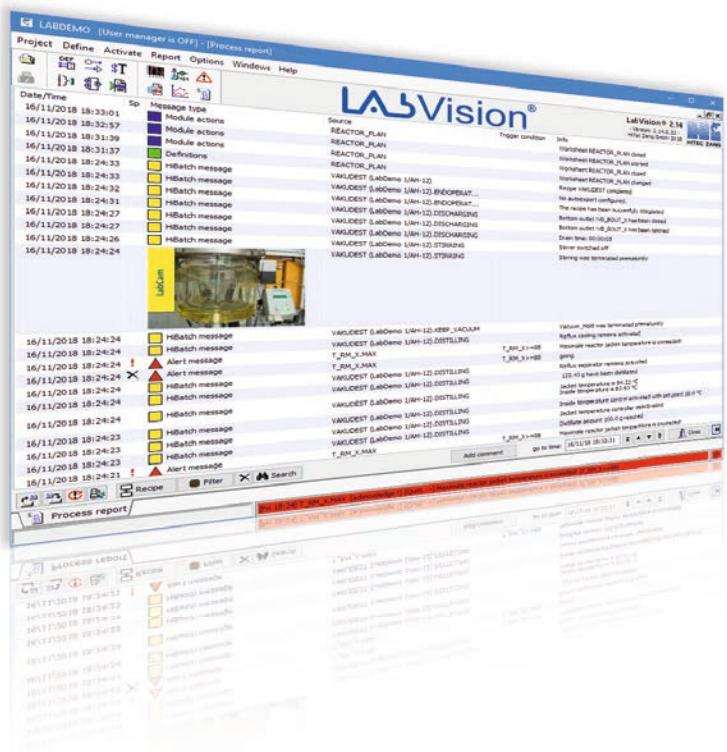
You will like this operating software right away

Get started within minutes.

Save time and achieve reproducible results.

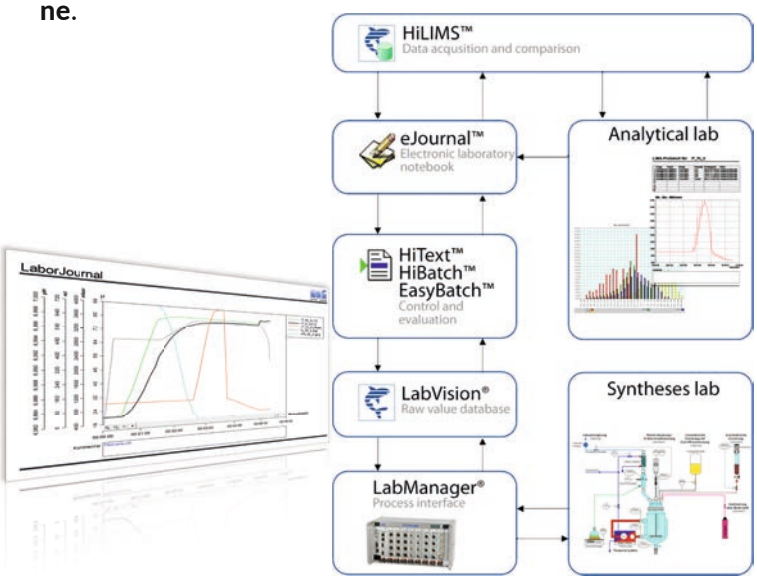
Process report

All intermittently recorded data or **events** such as error reports, batch protocols or user interventions are documented with a **time stamp in the multimedia-capable process report**. 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 event-related digital photos into the report**, thus giving you comprehensive coverage of the process.



Monitoring and reporting

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



eJournal™

The electronic laboratory notebook eJournal™ is more than an adequate substitute for a paper-based laboratory notebook. eJournal™ automatically records all information gathered in the course of a test. In addition, it is also possible to consistently display and archive test regulations, material properties of the reactants and products, laboratory analyses and other information. This significantly increases productivity and prevents a loss of knowledge through employee turnover.

System components

The LabManager® system can be complemented by optimally matched high-performance hardware and software components.

Extract of connectable devices:

Sensors	Actuators
Pt100 temperature sensor inputs, resolution 0.01 K or high resolution with 1 mK	Solenoids, reflux separators
Thermocouple inputs, types R, J, L, B, T, N, K ...	Digital outputs with actuator supply
Torque sensors with analogue or serial interface	Thermostats, stirrers and pumps with RS-232, RS-485 or network interface
RPM sensors: pulse count, PWM, analogue or serial interface	
pH electrodes with analogue or serial interface	Valves: clocked or proportional incl. power supply
Pressure sensors with 4...20 mA	Thermostats, stirrers and pumps with analogue interface with 0...10 V or 0/4...20 mA
Level switches	
Balances with serial interface	Frequency converter with Modbus RTU or Modbus TCP protocol
Flow sensors with analogue or serial interface	
GraviDos® load cells with strain gauge interface	
Pt1000 temperature sensor inputs	

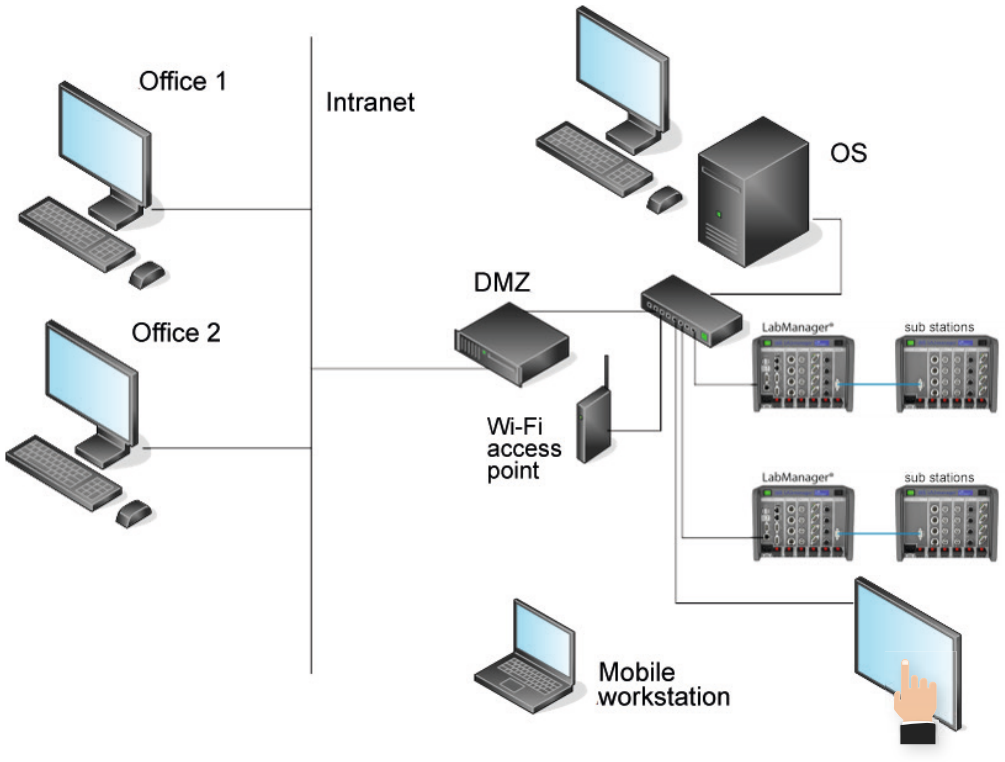
Collaborate in your Lab Network

Use in the networked laboratory environment

LabVision® is fully network-capable. The modular system enables the process control from remote office computers. Plant operation from a tablet is possible as well. The possibility to monitor several instances from only one operating station is just one more example of the wide variety of available applications.

Sample configuration:

- Several racks/LabManager®
- On-site tablet for process display
- Optional user management
- Mobile Engineering Station
- Process control from the office with LabVision® -remote



A competent partner for your projects

	Self-contained bench top devices	LAbmanager®	Process control system
Freely configurable	—	✓	✓
User-friendly operation	✓	✓	—
Step-by-step report (filterable)	—	✓	—
Recipe control	✓	✓	✓
Efficient process development	—	✓	—

„Previously, we needed weeks to set up and run a different recipe. With the LabManager® it works within hours “

„As yet we have not found such flexibility anywhere else “

„I am impressed by how easy your software is to handle “

„It's hard to believe that a few years ago we have dispensed and logged everything by hand “

„The LabManager® is truly indispensable in our synthesis lab“

Visit us online at www.hitec-zang.com and request detailed information about our comprehensive range of laboratory equipment or arrange an appointment with our experts to determine your requirement.

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