

A man in a dark suit and glasses stands on a modern building's walkway, looking thoughtful with his hand to his chin. He is holding a white document. The background features a large glass and wood-paneled structure with a staircase. A speech bubble tail points from the text above to the man.

How do I monitor critical environmental parameters and keep optimum room conditions?

With the reliable and energy-efficient DESIGO building automation system for the life science industries.

Answers for infrastructure.

SIEMENS



DESIGO – for optimal environmental conditions in the life science industries

The strictly regulated life science industries rely on comprehensive monitoring and control of all environmental conditions in critical areas. This is where a building automation and control system that reliably meets technical and regulatory requirements comes in. Our DESIGO™ building automation solution for the life science industries helps you increase energy efficiency and thus reduce operating costs of your facility throughout the entire building's life cycle. As the system is highly flexible, it can be adapted to changes in building structure or room usage any time. Furthermore, DESIGO provides you with a function for a traceable, secure, and reliable information management system.

So you see: Deciding for DESIGO is a secure investment in the future.

DESIGO – the system for your life science environment

■ Everything you need

With DESIGO, you receive a flexible, future-oriented building automation system. Over the entire life cycle of your building, you can benefit from our comprehensive service portfolio – ranging from risk assessment to supporting you maintain your validated status. Together with you, we distinguish processes and building areas in terms of possible impacts on product quality. The big plus: You can reduce validation costs, as you need to validate only the plants with a direct impact.

■ Keeping an optimum climate

Air cleanliness, room temperature, and humidity can influence the quality of processes and products in the life science industries. DESIGO allows you to control room conditions to exactly what's required for your processes. And it helps you save energy without compromising regulatory compliance.

■ Regulatory compliance by design

With DESIGO, we provide a building automation system for optimal controlling and monitoring. It ensures the safety of electronic records through comprehensive measures such as access authorization, integrated audit trail, backup, and archiving functions.

■ Proven quality management ensures reliability

While developing DESIGO for the life science industries, we applied the stringent quality measures of the pharmaceutical industry. Our long established ISO9001:2000 certified quality manage-

ment system together with our strict development process influenced by GAMP is successfully audited on a regular basis by independent experts from the pharmaceutical industry. This allows us to guarantee that DESIGO will easily master any challenge within your environment.

■ A secure investment for the future

DESIGO consists of flexible components, which ensures that your investment is protected for the long term. Thanks to its flexible and modular design, modifications and expansions are possible any time. Step-by-step migration possibilities and compatibility with existing systems are a matter of course. This ensures that DESIGO will grow with you and your requirements – even if the building structure or usage of a room might change. Moreover, we document any possible impact changes might have on the validated status of DESIGO as well as all required testing and qualification measures.

■ Intelligent building automation

With DESIGO, you can efficiently control and monitor the room climate according to your requirements. Accurate temperature and humidity control for example provide optimum environmental conditions in production. Moreover, fire safety and security systems can be easily integrated into DESIGO. Our reliable fire detection systems significantly increase the safety of your employees and your assets. Ventilation controls for example can be optimally coordinated with reactions to a fire. Access control and video surveillance further enhance safety by reducing the risks of cross-contamination.

■ A strong partner you can rely on

With DESIGO, you receive a system that includes full support in every phase of its life cycle – from the local backing up of all data to global service support. Tens of thousands of DESIGO building automation systems are operating successfully all around the world. Our success is built on the comprehensive, practical knowledge and application know-how that have been acquired by Siemens during more than 60 years in HVAC control technology and more than 30 years experience with HVAC systems, as well as decades of experience in the life sciences industry.

Highlights

- Building automation tailored to requirements of life sciences industry
- Comprehensive services from risk assessment to supporting you maintain the validated status
- Compliance with regulatory requirements and reduced energy costs
- High flexibility and modular design ensure investment security
- Full support over the entire life cycle





InfoCenter Suite – designed for GxP monitoring and reporting

Expand your DESIGO building automation system with our powerful data management historian and reporting package. InfoCenter Suite is designed to provide you with the documented proof of the exact room conditions – quickly and in an easy-to-read format. This important evidence must be stored securely for many years. InfoCenter was developed for the life science industries with exactly these tasks in mind.

■ Reliable monitoring and fast reporting

In the life science industries, all process-critical and quality-relevant parameters have to be monitored. The data has to be readily available throughout the entire life cycle of a product. This is why DESIGO continuously monitors and records parameters such as room conditions, user access, alarms, warnings, and system functions. The Report Manager prepares

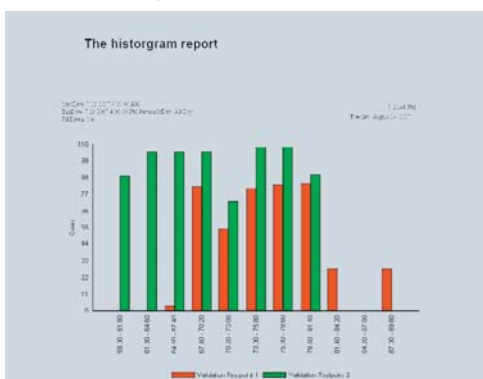
this information, so you gain a quick overview for well-founded decisions. Moreover, you can tailor individual reports to provide the information you need at the touch of a button.

■ Turn raw data into information

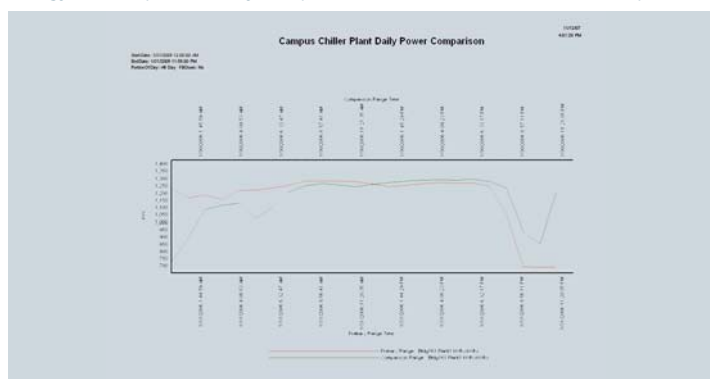
With InfoCenter, you can simply add statistical evaluations like MKT, Max, Mean, Min or Deviation to your reports. An "out-of-specification report" only shows alarms

or deviations that exceed or drop below required limit values, thus drastically reducing the size of your report down to the information you are most interested in. The Adobe PDF reports created by InfoCenter can be electronically signed, using an adequate digital signature authentication service. A secure Web access rounds off the features of InfoCenter and provides access to the generated PDF report files and templates for ad-hoc reporting needs.

The histogram chart report shows the value distribution of a point over time.



The comparison report compares points values between two time ranges, e.g. energy consumption in May compared with the same month from the previous year.





■ **Data archiving and security**

Designed for large data volumes, InfoCenter is based on the powerful and flexible Microsoft® Windows™ SQL server. It automatically and securely archives and retrieves all relevant data and reports. The fully automatic and comprehensive data base backups reliably increase data security. Data access is controlled by comprehensive security measures. Any changes in the data base are chronologically recorded in the permanent audit trail with editable comments, preventing unauthorized modifications.

■ **Comprehensive laboratory solution**

Secure and efficient control of laboratories with fume hoods places high demands on building automation and

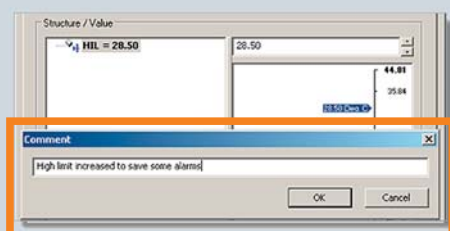
control systems. With its laboratory solution, DESIGO offers the highest possible energy efficiency, security, and comfort for laboratory buildings.

Combined with fast damper actuators and accurate volume flow control, DESIGO offers maximum control stability and accuracy. Due to a seamless exchange of information within the building automation system, the laboratory is operated according to current demands – increasing energy efficiency. In addition, DESIGO ensures immediate detection and alarming of possible deviations, malfunctions or incidents such as fire. Based on the LonWorks® communication standard, our laboratory solution stands for high flexibility and cost efficiency.

Highlights

- Developed in cooperation with the life science industries
- Reliable monitoring and fast report generation
- Increased data security due to backup and audit trails
- Secure and efficient control of laboratories

Mandatory commenting of user actions



Integrated Microsoft Windows authentication simplifies user account management.





DESIGO – flexible and energy-efficient building automation

With DESIGO, you can efficiently reduce energy consumption in your building, react flexibly to changes in building or room usage – and protect your investment in the long term.

■ Everything you need – for plants from simple to complex

DESIGO is a modular system for flexible and energy-efficient building automation. The user-friendly management station DESIGO INSIGHT is used for overall control, monitoring, evaluation, and optimization of all integrated systems and processes. You can easily tailor alarms, messages, graphical displays, and access rights precisely to the needs and qualifications of individual users.

A broad portfolio of freely programmable automation stations increases flexibility – and provides intuitive, integrated control of all room functions together with lighting and blinds control. DESIGO PX automation stations provide a reliable method of controlling, switching, operating, and monitoring the primary plants.

■ Open communication

With DESIGO, you stay flexible for the future. Open and standardized communication interfaces enable comprehensive integration options. You can control and monitor your HVAC plant from a central

point and integrate other systems as well – such as access control, video surveillance or fire protection. Thus, you can increase safety for your building and have all relevant information available at a glance.

Due to open, standardized communication, you can expand, change, and modernize your building automation system at any time. A risk analysis by our experts separates critical from non-critical areas. Thanks to the communication standards, the systems can communicate with each other. Your benefit: increased security of sensible data and reduced validation efforts.

■ Meeting the most demanding quality requirements

In certain applications, the measuring sensors must be recalibrated at regular intervals. The replaceable measuring tips of the Siemens' certified sensors considerably simplify the recalibration process as well as the loop test. This speeds up the time needed to replace the sensors and saves costs.

Highlights

- Scalable system for flexible and energy-efficient building automation
- Comprehensive portfolio from management station to calibrated sensors
- Possibility to integrate other security-relevant systems
- Future-proof building automation system thanks to open communication standards
- Reduced validation costs due to separation of GxP- and non GxP-relevant systems



Success story

■ H. Lundbeck, Copenhagen, Denmark

H. Lundbeck is an international pharmaceutical company conducting research, development, manufacturing, and distribution of pharmaceuticals for the treatment of neurological disorders, including depression, schizophrenia, Alzheimer's disease, Parkinson's disease, and insomnia. The company has a large R&D campus in Valby near Copenhagen as well as sites at three other places in Denmark.

■ The challenge

H. Lundbeck planned to replace its older installations with the latest, state-of-the-art technology from Siemens. Before installing the new building automation solution in the validated areas, H. Lundbeck required that it must undergo in-depth testing by Lundbeck to make sure that it complies with their strict quality guidelines.

■ The solution

H. Lundbeck agreed to participate in the field trial phase of the newest DESIGO pharma solution. At their facility south of Copenhagen, a test installation was realized that worked in parallel to the operational validated monitoring system. A DESIGO PX was installed to monitor approximately 100 environmental parameters. It was connected via Lundbeck's own internal network to a DESIGO INSIGHT management station installed at the main campus. The latest version of InfoCenter was used to centrally gather data and generate customized reports from both the test system as well as two other DESIGO INSIGHTs already running at the campus.

■ The benefits

During the 3-month trial period, H. Lundbeck was able to integrate the latest building automation technology in its existing processes and verify it according to its own quality assurance guidelines while avoiding potential impacts on the validated systems. The possibility to use the new components in a "safe" environment even enabled H. Lundbeck to plan future migration steps in detail – without time pressure. The close cooperation with Siemens during the field trial phase also opened a path for further discussions – for example on the energy optimization potential of existing controls or the IT server consolidation using virtualization.

Highlights

- Integrating customer in development process
- Flexible migration possibilities over system generations
- Integrating the latest technology in existing organizational processes
- Fostering long-term customer relationship



Answers for infrastructure.

■ Megatrends driving the future

The megatrends – demographic change, urbanization, climate change, and globalization – are shaping the world today. These have an unprecedented impact on our lives and on vital sectors of our economy.

■ Innovative technologies to answer the associated toughest questions

Throughout a 160-year history of proven research and engineering talent, with more than 50,000 active patents, Siemens has continuously provided its customers with innovations in the areas of healthcare, energy, industry, and infrastructure – globally and locally.

■ Increase productivity and efficiency through complete building life cycle management

Building Technologies offers intelligent integrated solutions for industry, commercial and residential buildings, and public infrastructure. Over the entire facility's life cycle, our comprehensive and environmentally conscious portfolio of products, systems, solutions, and services for low voltage power distribution and electrical installation technology, building automation, fire safety and security ensures the:

- optimum comfort and highest energy efficiency in buildings,
- safety and security for people, processes, and assets,
- increased business productivity.



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Pictures used show the new court house in Gent, designed in 2007 by the architects Stéphane Beel and Lieven Achtergael from Beel-Achtergael architecten F.V and by Technum.

The information in this document contains general descriptions of technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

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