SIEMENS

Desigo building automation – energy-efficient and flexible

The innovative system for cost-effective buildings

Answers for infrastructure and cities.

Desigo creates true added value for your building

Buildings not only offer space for working and living, they are also capital investments. Their value can be maintained only if they are operated cost-effectively. Currently, buildings account for 40 percent of the energy consumed worldwide. You can minimize this cost factor by using a state-of-the-art building automation system.

The Desigo™ building automation system allows you to achieve significant energy savings by efficiently linking, controlling and monitoring a variety of different functions and building disciplines. This results in a healthy room climate and higher user satisfaction. In addition, efficient energy saving features lower ever-increasing operating costs. Investments in this future-oriented technology pay off quickly. Another benefit are lower CO_2 emissions, which gives your company a "green" image. A true added value for you and your building.

Desigo – an innovative system for all demands

Saving energy and achieving highest efficiency classes

Using tested applications as well as energy saving and monitoring functions on all system levels, Desigo allows you to permanently lower your energy costs without sacrificing room comfort. Another way to save energy is to actively involve room users in the room automation process, as demonstrated at the ThyssenKrupp headquarters.

Maximum flexibility for long-term investment protection

If your building's usage changes or if you need to modify the room layout, Desigo can be flexibly adapted to the new situation. Open communication standards offer cost-effective integration capabilities for any building requirement – and you benefit from maximum IT compatibility. In addition, Desigo meets international BACnet standards and AMEV[1] recommendations.

Superior comfort for maximum performance

An optimized room climate has a positive effect on room users, whether it is better motivation, improved concentration or higher performance. Desigo makes it particularly easy to achieve the ideal room climate using system-wide intelligent control strategies as well the Green Leaf symbol with its uniform operating and monitoring concepts.

Significant productivity and efficiency gains

Desigo permanently lowers your operating costs, promotes a positive image for building operators and increases the value of the building. One reason are the infrequent maintenance intervals which do not affect your operations and productivity. In addition, the system delivers everything you need to meet the highest building certification levels in accordance with LEED[2], DGNB[3] or BREEAM[4].

Easy installation, easy maintenance

Desigo makes installation and commissioning quick and easy. Standardized engineering greatly reduces the maintenance effort. Intuitive room operator units can be mounted in minutes. In addition, an extensive library of tested applications improves reliability and facilitates commissioning and maintenance.

Reliability across the entire life cycle

Desigo delivers the reliability of a system that has proven itself in many installations. All components are tested by independent certification authorities and offer measurable reliability from the automation to the management level.

Highlights

- Lower energy costs resulting from intelligent energy management and energy saving functions
- Long-term investment protection due to maximum flexibility
- Optimized room climate enhancing user productivity
- Higher efficiency with lower maintenance effort
- Convenient handling in each phase
- Certified reliability and longevity

[1] AMEV: Arbeitskreis Maschinen- und Elektrotechnik staatlicher und kommunaler Verwaltungen (Mechanical and Electrical Engineering Working Party of National, Regional and Local Authorities – Germany)

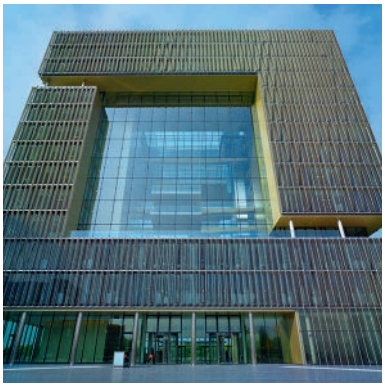
[2] LEED: Leadership in Energy and Environmental Design (USA)

[3] DGNB: Deutsches Gütesiegel Nachhaltiges Bauen (German Sustainable Building Certification – Germany)

[4] BREEAM: Bre's Environmental Assessment Method (UK)

Tested quality

BACnet® Testing Laboratories (BTL) is a registered trademark. Products that were successfully tested by BACnet Testing Laboratories are allowed to carry the BTL trademark.



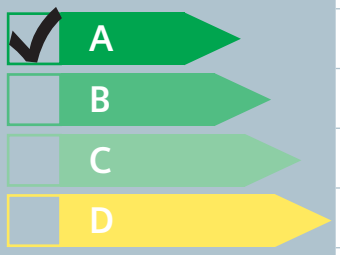
ThyssenKrupp headquarters, GER

The approximately 2,000 employees working at the ThyssenKrupp corporate headquarters enjoy a comfortable workplace climate. A special Desigo operating concept allows each employee to individually set the climate, lighting and shading controls, thus helping lower the company's energy costs.

Desigo – an energy-efficient and economical system

An intelligent building automation system creates the ideal framework for meeting the requirements for efficiency class A under European Standard EN 15232. This allows offices to save up to 30 percent thermal and up to 13 percent electrical energy compared to efficiency class C.

BACS efficiency classes – EN 15232



High energy performance
BACS and TBM

Advanced
BACS and TBM

Standard
BACS

Non-energy-efficient
BACS

BACS Building Automation and Control System
TBM Technical Building Management System

	Thermal energy	Electrical energy
Efficiency factors	0.70	0.87
	0.80	0.93
	1	1
	1.51	1.10

① Building management – central and convenient

Operate and control your building automation system from one central location: Using the Desigo Insight management station, you can conveniently record energy data and optimize it as needed based on the operating concept of the Green Leaf symbol. In addition, centrally displayed energy trends make you aware of unfavorable developments so you can intervene in a timely fashion to prevent unnecessary energy losses.

② Room automation – efficient and flexible

Desigo room automation networks all building disciplines – from heating, ventilation and air conditioning (HVAC) to lighting and shading. This allows you to lower your energy consumption and costs while increasing room comfort.

Lower energy consumption

Thoroughly tested energy saving functions and the targeted involvement of room users in the energy saving process, made possible by the Green Leaf symbol, all increase efficiency.

Matched lighting

The lighting level is automatically adjusted to match the time of day. When needed, shading is provided to ensure optimal use of natural light without glare.

Perfect shading

Blinds are optimally adjusted to allow the use of natural light, to minimize glare and to protect from the heat and the cold.

③ Plant automation – flexibly scalable

The Desigo automation stations and operator units efficiently control and monitor your building plants using a variety of energy saving functions for energy production and distribution. Data is exchanged with room automation to make sure energy is supplied only when needed to heat, cool or ventilate a room. This allows the air volume flow to be optimized based on demand and to enforce energy-efficient operation of your ventilation and air conditioning plants. At the same time, comfort control ensures that temperature, air quality and humidity limits are not exceeded. If inefficient operation occurs, you will be notified automatically via the Green Leaf symbol on the management station.

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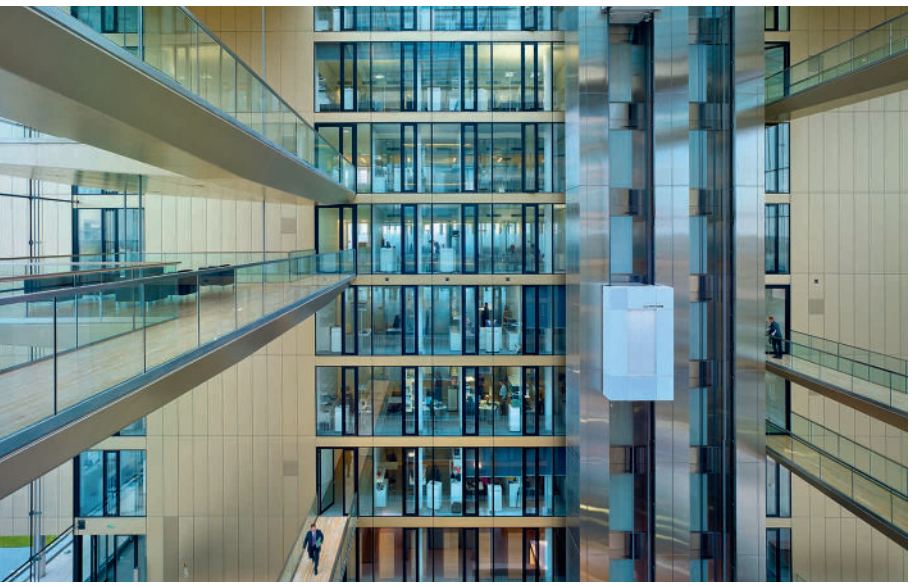
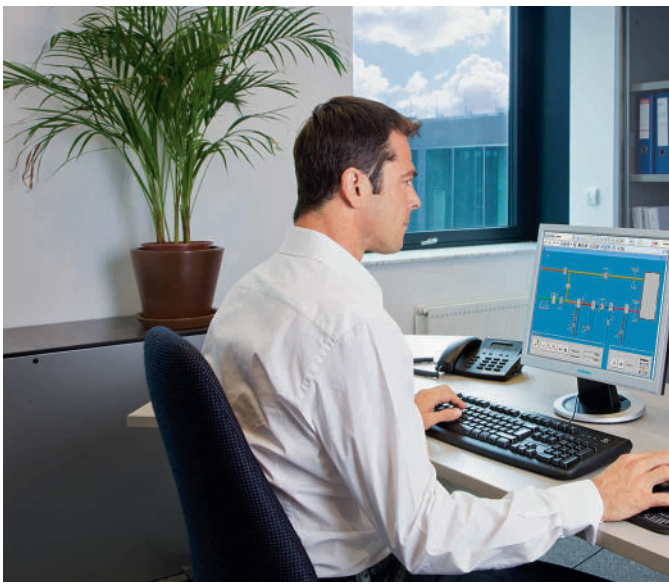




Central and convenient building management

The Desigo Insight management station allows you to check and operate your building automation system from a central location. Its modular, user-friendly software makes operation easy and intuitive and prevents errors.

Efficiency through insight

Desigo Insight supports cost-effective plant operations. If your primary plants operate inefficiently, the Green Leaf symbol in the management station's Eco Viewer automatically switches from green to red. You will also be notified by SMS, fax, pager or e-mail, as configured. This allows you to quickly identify the source and initiate corrective actions.

Energy efficiency with class

Energy-saving applications help you meet the requirements for the highest efficiency classes under European Standard EN 15232. With realistic plant graphics and integrated Green Leaf symbol, the Plant Viewer allows targeted monitoring and operation of the system. You can use the scheduler to centrally program all time-controlled building functions – including individual room control. The Trend Viewer displays process data so you can identify trends that negatively affect energy consumption early on.

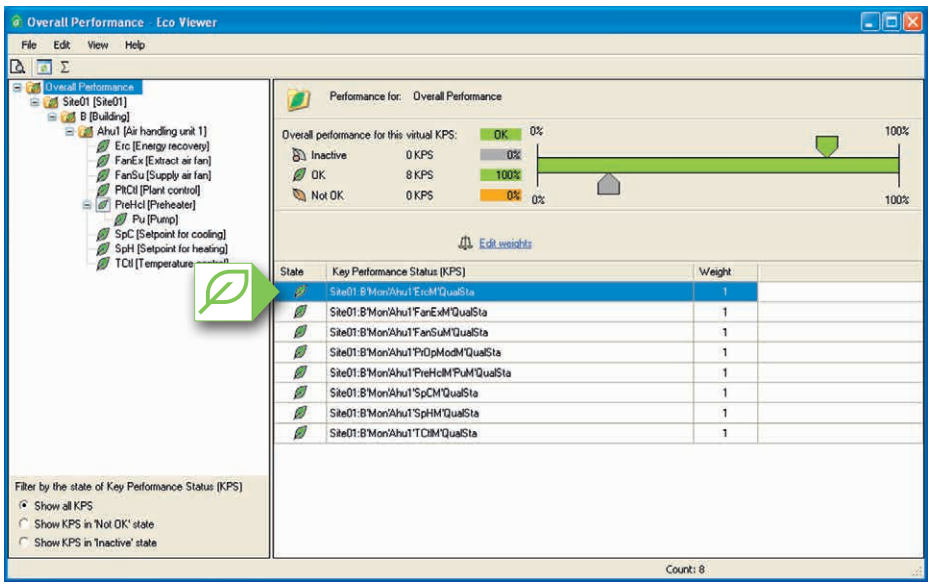
Central alarm management

Any alarm that occurs on one of the integrated systems is centrally displayed on the management station. A powerful alarm routing feature allows alarms to be forwarded based on the operation – regardless of whether the management station is staffed or not.

Flexible data management

Values recorded by energy consumption meters are compared against the target values. Fully integrated processing of historic and real-time data allows for fast and targeted plant optimization. Regular reports form the basis for subsequent actions. In addition, you can import data directly into Microsoft Office* applications to perform additional evaluations.

* Microsoft Office is a registered trademark of Microsoft Corp.



Central efficiency monitoring

In the management station's Eco Viewer, you can display information about the cost-effective and environmentally friendly operation of all primary plants with a single mouse click. This prevents unnecessary energy consumption and lowers operating costs.

The Green Leaf symbol indicates the energy status of each plant area: Green stands for energy-efficient operation, red for unnecessary energy consumption.

User-specific displays

You can tailor the access rights, layout and type of information displayed to the requirements and responsibilities of individual users. This simplifies and accelerates the response to alarms and messages.

Remote access over the Internet

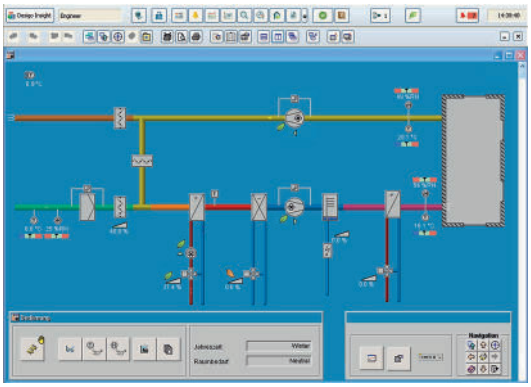
Using the Desigo Web solution, you can access your building automation system over the Intranet or Internet – anytime and anywhere. This allows you to quickly respond to alarm or maintenance messages and to perform remote operation, remote diagnosis or online optimization tasks. As an additional benefit, your operating costs will be noticeably lower.

Future-proof technology

Desigo Insight can be used in a wide variety of office environments: The management station is based on the latest standard Windows technologies, is BACnet-certified and meets AMEV requirements – ideal prerequisites for a future-proof building management solution.

Highlights

- Easy monitoring and operation using graphical interfaces
- Lower energy costs with Green Leaf symbol and energy-efficient applications
- Improved safety through centralized alarm management
- Early intervention based on automated warnings
- Detailed data for decision-making and analysis
- Enhanced operating safety due to user-specific displays
- Efficient operation via web-based remote access



Indication of energy-efficient plant operation

The Green Leaf symbol with its uniform operating concept shows the status of the energy efficiency functions for the room and primary plants. This allows you to identify hidden energy saving potential.

Active energy management by room users

A study conducted by Technische Universität München (TUM) suggests that by actively involving room users in the energy saving process, energy consumption can be reduced by up to 25 percent.

Desigo TRA helps you leverage this (additional) energy saving potential. If unnecessary energy consumption occurs within a room, the Green Leaf symbol switches from green to red. A simple fingertip on the room operator unit returns the room automation system to energy-efficient operation.

Efficient and flexible room automation

The innovative Desigo room automation solution networks and controls multiple disciplines, thus creating a comfortable room climate and lowering energy costs.

Reducing energy costs room by room

Controlling and monitoring all disciplines within a room: Desigo Total Room Automation (TRA) combines heating, ventilation, air conditioning, lighting and shading into a coordinated and tested whole. In addition to the perfect interplay of all room disciplines, sophisticated functions optimize the energy consumption within each room. Rooms are supplied with the required amount of energy based on the current demand. Time-based programs ensure that energy is requested and distributed only when a room is actually occupied. In addition, room users can play an active role in the energy management process by using the energy efficiency function RoomOptiControl and the Green Leaf symbol – lowering energy consumption by up to 25 percent.

Higher room flexibility, lower operating costs

The scalable system concept allows you to stagger your investments and offer potential tenants more design freedom. The basic design is limited to a minimal

Gebäude Effizienz

Excellent room automation

The room operator unit QMX3 featuring Desigo Total Room Automation's RoomOptiControl function received the "GebäudeEffizienz Award 2012" (building efficiency award) as the best automation product.

installation; after a new tenant signs up, it is expanded based on their requirements. Subdividing floors into room segments gives you maximum flexibility across the entire useful life of your building. These room segments can be combined into rooms as needed. When the room arrangement and usage change, the system can be adapted quickly and easily.

Attractive comfort with intuitive operation

Achieving more with less energy: Desigo room automation saves energy while ensuring room comfort, good air quality and optimal lighting conditions. In addition, all room disciplines can be operated via a single room operator unit – which is so simple to use that operator errors are virtually eliminated. This creates pleasant working conditions and increases employee motivation.

Reliability of a competent partner

Siemens is a reliable partner with decades of experience in room automation. More than a million installed controllers speak for themselves. Furthermore, everything you receive is from a single source. In addition to Desigo TRA, we also offer our proven Desigo RX room automation line for standard applications.

Highlights

- Significant energy savings resulting from intelligent functions and the involvement of room users
- Long-term investment protection through flexible adaptability
- Optimal working environment and user satisfaction due to intelligent comfort
- High level of safety because of an experienced, reliable partner

Comfortable room operator units

In addition to sensors, Desigo offers you a broad range of room operator units: Be it for HVAC or lighting/shading, with or without Green Leaf symbol, flush or wall mounting. The high-quality, IP-compatible touch room operator unit QMX7 features capacitive color display and can be installed even horizontally or vertically.

Flexibly scalable plant automation

With Desigo PX, you can tailor the control and monitoring of your heating, ventilation, air conditioning and other building systems to your exact requirements.

Controlling and monitoring building systems efficiently

The Desigo PX automation stations and operator units efficiently control and monitor your building systems. Comprehensive system features such as alarm signaling, time-based programs and trend logging cover all building system requirements.

Maximum scalability for individual requirements

The scalable, freely programmable automation stations and operator units can be optimally matched to your requirements. The modular automation stations can be flexibly equipped with TX I/O modules for alerting, measuring, metering, switching and setting: ideal for environments with many data points.

The compact stations with a fixed number of universal inputs and outputs are perfect for environments with fewer and distributed data points.

Open system architecture and easy integration

The open BACnet communication protocol used by the Desigo PX automation stations and the ability to add interfaces to connect devices that communicate via KNX, LonWorks®, Modbus, M-bus, etc. ensure an open system architecture. This makes it possible to also integrate third-party systems and components easily and cost-effectively.

Uniform and intuitive plant operation

The touch panel offers intuitive operation and monitoring of multiple plants. The user-friendly graphical interface makes plant operation particularly straightforward and efficient. Time-based programs optimize the energy consumption of the plants. The alarm list allows you to comfortably view and acknowledge any malfunctions that may occur. The attractive touch panels featuring high-resolution capacitive displays are available in 10- and 15-inch models.

Energy efficiency based on tested applications

You have access to extensive, proven libraries containing tested applications for efficient commissioning and maintenance. They help to significantly reduce your energy consumption and your energy costs since energy saving functions are already built in. Thermally active building structures (TABS), solar systems, the position of the sun and current weather data, for example, can all be integrated into the building automation system via applications.

Wide selection of operating options

For plant monitoring, you can choose from a variety of operating options featuring intuitive user guidance and graphic display of information. These include simple operator units, touch panels optimized for finger operation as well as a convenient Web operation.

Highlights

- Efficient automation of building plants
- Flexibility and scalability for any application
- Easy integration of third-party systems through open communication protocols
- Optimal operations using tested applications
- Operating option suitable for any requirement

Comfortable Web operation from anywhere

Cost-effective plant monitoring and operation: A Web interface allows you to check and operate your plants anytime and anywhere from a tablet, smart phone or notebook using a standard Web browser. This makes it possible to respond efficiently and accurately to alarms and error messages in order to prevent loss of energy and comfort or equipment damage.

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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. The document contains a general product overview. Availability can vary by country. For detailed product information, please contact the company office or authorized partners.

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Answers for infrastructure and cities.

Our world is undergoing changes that force us to think in new ways: demographic change, urbanization, global warming and resource shortages. Maximum efficiency has top priority – and not only where energy is concerned. In addition, we need to increase comfort for the well-being of users. Also, our need for safety and security is constantly growing. For our customers, success is defined by how well they manage these challenges. Siemens has the answers.

"We are the trusted technology partner for energy-efficient, safe and secure buildings and infrastructure."

www.siemens.com/desigo