



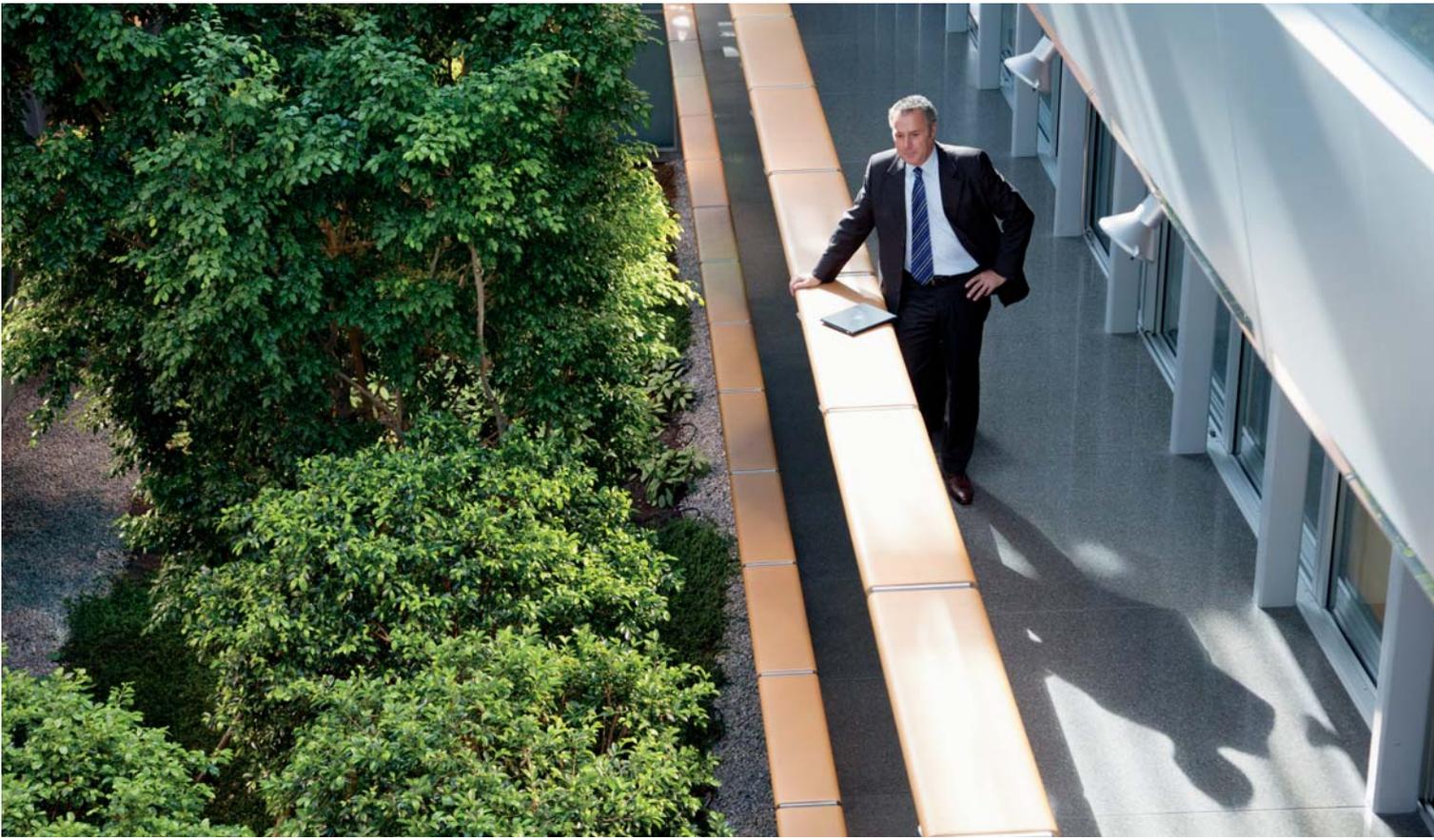
SIEMENS



Desigo building automation – flexible and energy-efficient

The intelligent system for all building types, sizes and all applications

Answers for infrastructure.



Desigo – high energy efficiency and flexibility to protect your investments

Realize savings efficiently without sacrifices – with the building automation and control system Desigo™, you achieve significant energy savings and at the same time benefit from a pleasant room climate and optimum comfort. Especially thanks to features such as centralized, intelligent energy management, highly efficient and innovative energy saving functions, and the effective interaction of all system components and processes.

With Desigo, you also benefit from a kind of flexibility that protects your investments throughout the buildings' entire life cycle. Not only can the system be tailored precisely to suit your buildings and applications, but it can also be easily adapted to changes in your requirements and expanded at any time.

An intelligent system for high comfort requirements

Everything you need

Desigo offers you a building automation and control system for all building types and sizes – and for every use. It comprises a wide, modular range of highly reliable components. Desigo offers safe automation, control, and optimization of simple to complex systems with products ranging from individual room controllers to the management station.

Open communication – for flexible integration

Desigo gives you a complete choice of integration options thanks to open, standardized communication and interfaces. And that allows you to integrate your different building systems easily and cost-efficiently.

Ease of operation – for optimum comfort

Desigo features extremely user-friendly controls to quickly and conveniently select optimum room comfort conditions. You can set the systems' controls to create any climate you want, whether it's a pleasant level of warmth and comfort for relaxation or recreation areas or a bracing atmosphere for enhancing performance in work areas. Clear, intuitive user guidance and well arranged, easy-to-understand graphic displays reduce on-the-job training for local control units up to the management station – making them highly practical for everyday use. The system can also be controlled independent of time and place via a Web browser, making building management even more efficient and reliable.

Broadly based experience

Desigo combines a well proven system with a wide installed base. Tens of thousands of Desigo building automation and control systems are operating successfully throughout the world. This success is built on the comprehensive, practical knowledge and application know-how acquired by Siemens during more than 60 years in HVAC control technology and more than 30 years experience with HVAC systems, as well as active participation in international standardization committees.

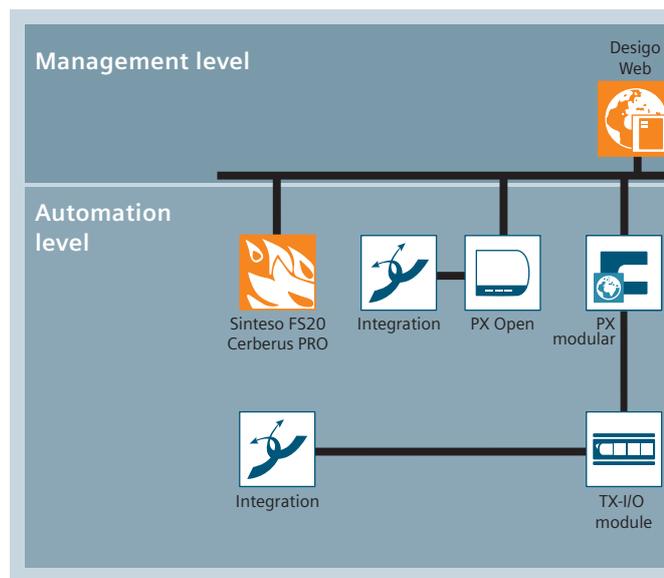
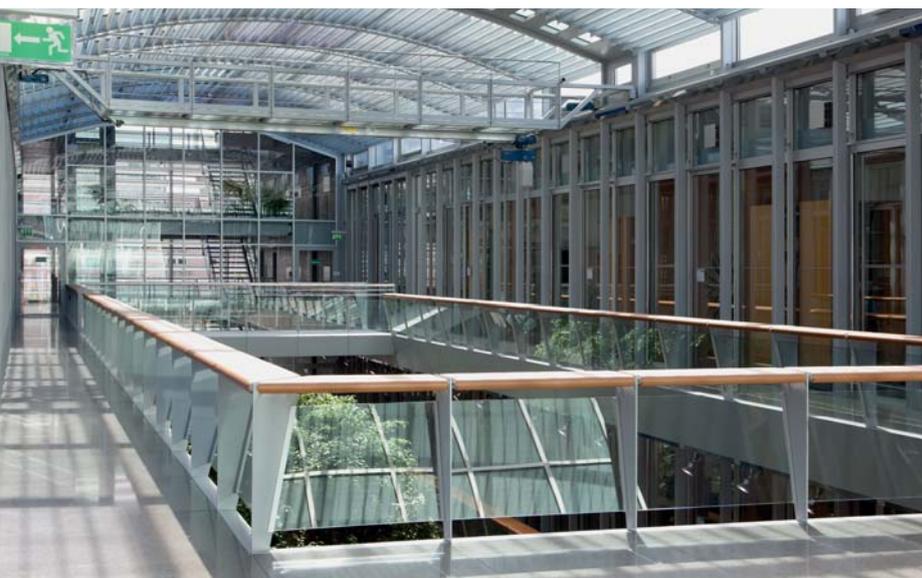
Full support – over the entire life cycle

When you choose Desigo, you invest in a system that is fully supported in every phase of the buildings' life cycle, comprising special tools, the backing up of all data on your local system as well as global support. Thanks to Siemens' presence in more than 50 countries, Desigo is available everywhere.

Highlights

- Intelligent energy management including monitoring and innovative energy saving functions cut energy costs
- Long-term investment protection as a result of open communication and simple expandability
- Modular product range results in flexible system designs for every building
- User-friendly operation
- Well proven system with an extensive installed base





Desigo – the energy-efficient and flexible system

With Desigo, you can increase the energy efficiency of your building and react flexibly to changes in your building's usage requirements – and so protect your investments over the long term.

Sustained energy efficiency

Desigo reduces your energy costs by exchanging information. For example, the system switches on only those units that are actually needed for room and building comfort. Also, Desigo shows the room user and the facility manager the building's energy efficiency state. The RoomOptiControl energy saving function signals unnecessary energy usage on the room operating unit through a color change of the Green Leaf display. At the same time, the Eco Monitoring system function of the Desigo Insight manage-

ment station informs via Green Leaf display about the building's efficiency.

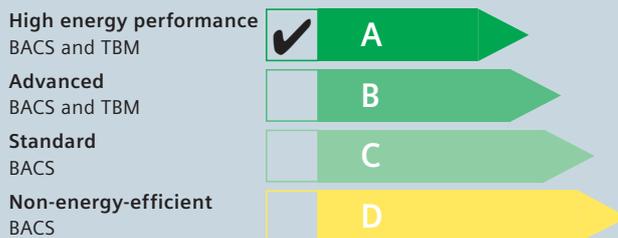
Managing energy on demand

At management level, you benefit with Desigo Insight from the continuous monitoring of process and consumption values: Eco Monitoring, trend analysis, and evaluation functions identify energy saving potentials. And thanks to Web functionality, energy discrepancies can be quickly detected and eliminated by remote access.

BACS efficiency classes – EN 15232

With Desigo, the tested functions conform to the European standard EN 15232 in the highest classes. Energy efficiency class A, for example, states that energy savings in office spaces can reach 30% in relation to the standard.

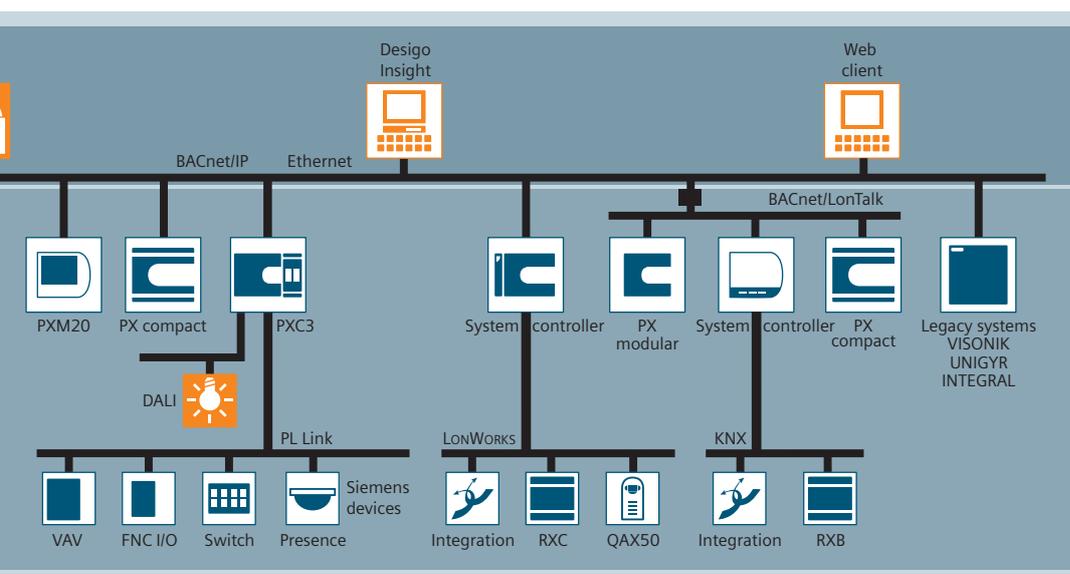
BACS efficiency classes – EN 15232



BACS Building Automation and Control System
TBM Technical Building Management System

New energy efficiency functions for the room and primary plants use the Green Leaf, thus disclosing effectively energy saving potentials.





At management level, Desigo Insight provides an overall user interface for operating, monitoring, and analyzing of all connected systems and plants.

At automation level, primary plants are controlled by Desigo PX and operated by PX Web via a Web client. Desigo Total Room Automation and Desigo RX also enable individually tailored solutions to provide comfort control in individual rooms plus control of lighting and shading. Desigo I/O modules provide the interfaces to actuators and sensors.

What's more, optimized migration solutions for the legacy systems UNIGYR, INTEGRAL, and VISONIK ensure a high level of investment protection.

Energy-saving automation

At automation level, Desigo PX offers you energy- and cost-efficient control through control components and numerous integrated energy saving applications plus plant monitoring functions. They allow you – in addition to the classical HVAC functions – to include the building in the energy management system via the so-called thermally active building structure. And they enable you to integrate solar energy in your energy budget.

Open communication

Desigo also keeps your future options flexible. Open, vendor-neutral communication standards and interfaces allow you to expand, change, and modernize your building automation and control system at any time. BACnet™ allows data exchange between the automation stations for primary plants and room automation stations as well as to the management level, thus ensuring consistency and minimum engineering costs. This is an open protocol standard that Siemens is continuously advancing and that offers you high investment security. Thanks to BACnet, you can also use Desigo Insight as a management station for other systems in a building. Moreover, because it supports the LonWORKS® and KNX standard, the range of Desigo RX room controls also offers flexibility and an open platform for third-party devices.

Building management across all disciplines

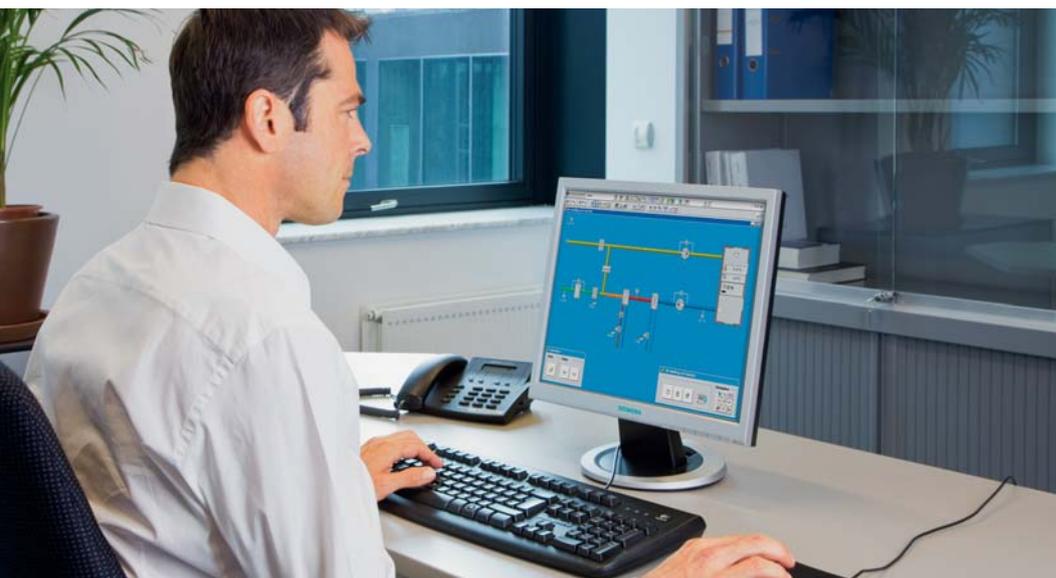
Desigo not only allows you to optimize your room climate from a central location, but also offers a user-friendly way to integrate other disciplines with flexible monitoring and control – for example access control, video surveillance, and fire safety. The Sinteso™ fire control panel from Siemens can be straightforwardly connected – directly via BACnet. You can pinpoint problems more quickly, and all relevant data are centrally displayed. You are also given full documentation and a common database for all systems and processes.

Compatibility for considerable investment protection

Desigo remains fully compatible with regard to interfaces, data or application libraries. Desigo supports current IT standards, based on Microsoft®. This saves time and costs. Protection of investments is ensured by optimum migration solutions for the legacy systems UNIGYR, VISONIK, and INTEGRAL.

Highlights

- Reduced energy costs combined with optimum indoor climate
- Display of energy saving potentials through monitoring and indication of plant efficiency
- Potential for future upgrading through open communication and compatibility
- Building management across all disciplines for rapid decision-making and reliability



Desigo Insight – simple display of complex matters

Desigo Insight's easy-to-understand, graphic displays provide simple, intuitive control of your building systems – error-free.

Central alarm management

Desigo Insight can be used for the central acquisition, handling, and evaluation of alarms from all integrated systems. With the powerful alarm routing system, alarms can be forwarded via text messages, fax, e-mail or pager to users wherever they are, regardless of whether or not the management station is attended.

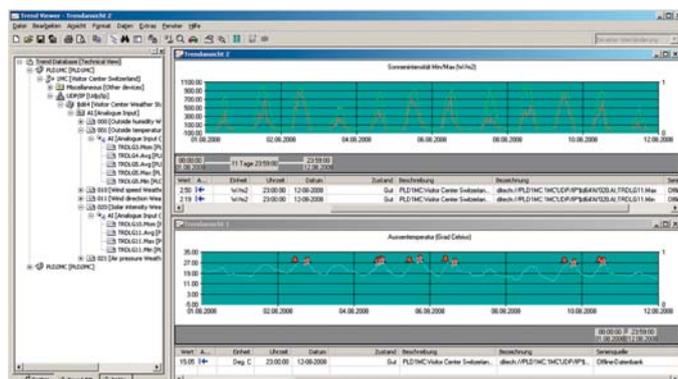
Flexible data management

Actual figures that are recorded by energy consumption meters are compared with target figures. Fully integrated

historical and real-time data handling provide for fast and focused plant optimization. Regular reports provide the basis for taking further steps. It is also possible to transfer data directly into MS Office applications and use them there for further analysis.

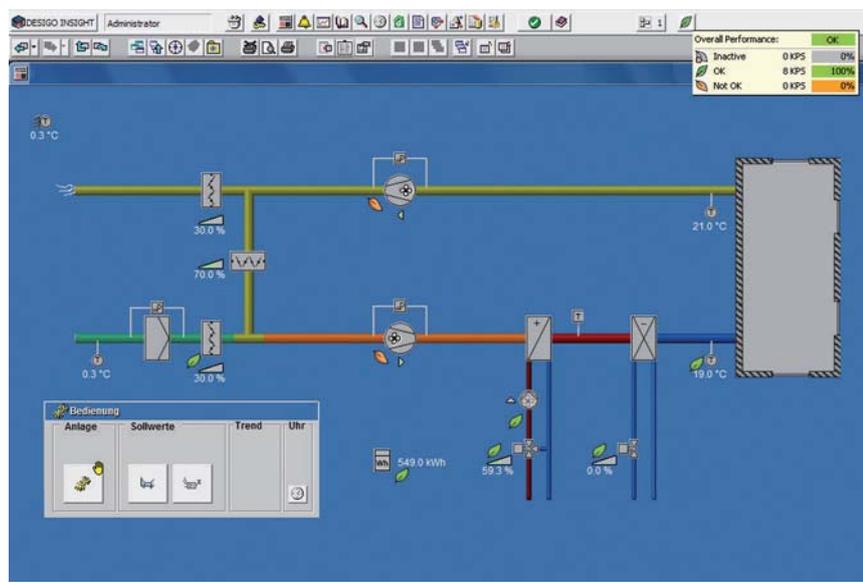
User-specific displays

Access, viewing, and the quantity of information can be tailored precisely to the needs and qualifications of individual users. That protects against operator errors, unauthorized accesses, and infor-



Trend Viewer

- Recording and display of historical and real-time process data
- Optimization of plants and reduction of operating costs
- Analysis and evaluation of plant status
- Saving large bulks of trend data via SQL server database and optimized storage



mation overload. It also simplifies and speeds up reaction times to alarms and messages by allowing users to focus on the most essential matters.

Future-proof technology

Desigo Insight can be implemented in modern office environments and is based on a broad range of standard technologies. It supports the latest IT technologies and thus provides the best conditions for a future-proof management station.

Remote access via Internet service

With Desigo Web and Remote Desktop, you can access your system at any time. And that enables you to reduce operating costs and respond quickly to alarm or maintenance messages. Via your intranet or the Internet, Desigo Web allows authorized personnel to access the sys-

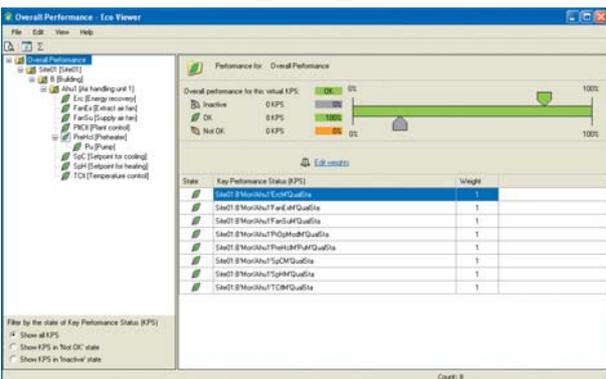
tem regardless of time or location for remote control, remote fault diagnostics or online optimization.

Economical operation thanks to Eco Monitoring

Desigo's Eco Monitoring system function offers you decision criteria per mouse click to ensure economical operation of all plants. Uneconomical operation of primary plant is automatically signaled to the facility manager by the superimposed Green Leaf display in the management station which changes its color from green to red. Information about extraordinary events is provided via SMS, fax or e-mail, if required. With the help of the Desigo Eco Viewer, the cause of the problem can then be traced fast and straightforwardly. Then, measures can be taken to restore economical operation.

Highlights

- Reliable and user-friendly operation via fully graphical user interfaces and animations
- Increased security thanks to flexible, centralized alarm management
- Optimized overview through analysis and reports
- Immediate intervention thanks to monitoring before energy usage dramatically increases or wear occurs
- Expanded operating security and access protection thanks to user-specific displays
- Economical and secure operation over web-based remote access



Eco Viewer

- Real-time display of efficiency of primary plant based on reference data (baseline comparison)
- Information about unusual events and unnecessary energy usage
- Decision criteria for restoring economical operation of plant



Desigo PX – automation with flexible scalability

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

Comprehensive range

Desigo PX programmable automation stations deliver a flexible solution for every requirement. Decentralized automation stations operate autonomously with consistently networked BACnet communication, guaranteeing a high level of operating reliability. You also benefit from uniform equipment design. Thanks to standard handling, installation, maintenance, and replacement are quick and cost-efficient.

Application-optimized product lines

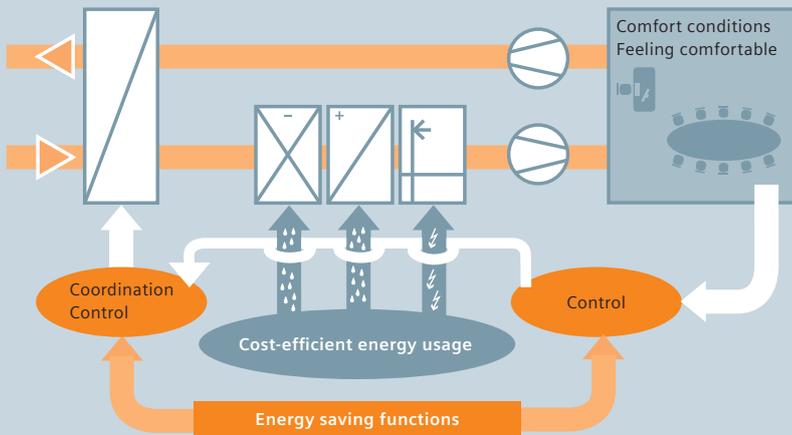
The automation stations are available in two ranges – ideal for making the best match between the control functions and your requirements. The stations of the compact range are suitable for a small and distributed amount of data points. Their design is space-saving and they are equipped with a defined number of universal inputs and outputs. The modular range of automation stations is ideal for a larger amount of data points. To meet your individual requirements, there is flexibility in the way TX-I/O modules can be connected to them.



The BACnet® Testing Laboratories (BTL) Mark is trademarked and its use strictly regulated. Products that have been successfully tested by the BACnet Testing Laboratories are eligible to display the BTL Mark as part of the listing process.



Optimized tools and experienced personnel ensure efficient commissioning and service.



Controlling comfort with great efficiency – based on many years of building automation and control experience:

Using optimized control strategies, Desigo ensures maximum comfort and energy savings of up to 50%. This includes demanding applications, such as TABS, AirOptiControl or tx2 Economizer for energy-optimized operation of ventilation and air conditioning plants.

Flexible connection of peripheral equipment

TX-I/O modules for the connection of field devices, M-bus, Modbus, and other third-party devices facilitate straightforward, fast, and favorably priced installations, maintenance, and extensions. Also, using decentral I/O islands, installations can be optimally matched to building structures. The TX-I/O modules feature local, unique priority operation with LCD.

Ergonomic operation regardless of location

User-friendly, easy-to-understand, and flexible to use: Desigo PX offers you a choice of different control units for monitoring and setting building systems. They excel in intuitive handling with clear user guidance and full graphical displays.

Remote access means more security, ease of use, and independence. Automation stations can be accessed from any location and at any time via Desigo PX Web. This offers you low-cost monitoring and controlling of small to medium-sized systems.

Wide choice of applications for energy efficiency

For efficient engineering, extensive and proven libraries with tested applications are available. Because the energy saving functions are already built in, such applications also help to significantly reduce your energy consumption and costs. Thermally activated building structures (TABS), solar systems, the position of the sun, and current weather data, for example, can all be integrated into the Desigo building automation system via applications.

Highlights

- Flexibility and scalability for every application
- Cost-reduced panel construction thanks to space-saving designs
- Reduced installation costs through decentralized I/O islands
- Extremely easy to operate thanks to intuitive user interface and Web operation
- Increased system availability, reliability, and energy efficiency due to predefined applications
- Protection of investments thanks to optimized migration solutions

Web operation via PX Web, enabling plant to be accessed from anywhere in the world

Operation from anywhere in the network

Operation via touchpanel





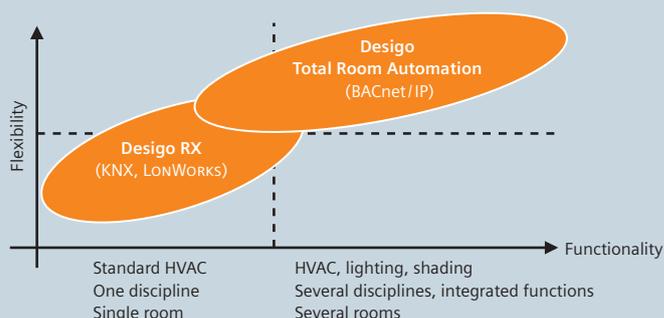
Desigo Total Room Automation – for innovative room automation

Desigo Total Room Automation (TRA) enables room users to get actively involved in energy management.

Perfect solution for the room

New directives on energy saving, lower operating costs, and more demanding requirements in terms of comfort and design call for an ever better interplay between the various types of plant. Using the modular PXC3 room automation station, lighting, shading, and HVAC are combined as an overall solution to be connected directly via BACnet/IP to the PX automation stations of primary plants. The PL Link bus enables field devices, such as room operating units, push-buttons, and presence detectors, to be

integrated with no need for extra engineering. Thanks to the support of KNX, DALI, and EnOcean devices, the PXC3 becomes the perfect solution for the room.



For buildings with demanding requirements with regard to functionality and flexibility, the Total Room Automation (TRA) range is the number one choice. Desigo TRA is used when several disciplines (HVAC, lighting, and shading) are to be combined in one overall concept. The modular room automation stations (PXC3) communicate via BACnet/IP and are freely programmable.

The proven Desigo RX room automation range offers predefined applications for all types of HVAC functions and provides basic functions for lighting and shading. Integration of the LonWorks or KNX network into a superimposed building automation and control system allows the implementation of extra functions.



Desigo RX – the proven product portfolio for the room

Desigo RX offers proven standard functionality with regard to communication and a scope of functions for rooms and zones.

Room automation for all applications

For pleasant room conditions in individual offices, restaurants or entrance halls, the adaptable room automation range Desigo RX offers matching products. Their design ensures user-friendly, energy-efficient control of HVAC systems as well as basic applications covering lighting and shading. You can adjust all room functions to your requirements with a single control unit.

LONWORKS and KNX communication

The portfolio ranges from stand-alone controllers and KNX-based individual room controllers to controllers with LONWORKS technology. Thanks to the implementation of the globally applicable bus technologies KNX and LONWORKS, third-party devices can be used, extensions are possible at any time, and your investments are protected in the long term. The product portfolio is complemented by sensors and operating units that use wireless EnOcean technology.



eu.bac certification of the Desigo RX controllers stands for tested quality, control accuracy, and energy efficiency.



Straightforward maintenance of projects

Thanks to the same basic product design and uniformly defined functionality and applications, the room automation solution used can be modified without major effort. Also, EnOcean room operating units and sensors can be easily retrofitted, replaced or differently sited.

Energy efficiency – certified and state of the art

Thanks to Desigo RX's accurate, eu.bac-certified individual room controllers, you can save up to 14% in energy compared with conventional controllers. The eu.bac certification according to European standards confirms the high energy efficiency and control accuracy of the Desigo RX devices. In addition, high control accuracy optimizes the room users' comfort and efficiency. Functionalities, such as EC fan coil support, satisfy current market trends toward energy-efficient overall solutions consisting of room controller and peripheral devices.

Operating units for every room

A comprehensive range of operating units (QAX range) is available for direct operation as well as for monitoring setpoints and actual values in individual rooms. Operating units e.g. with wireless EnOcean technology or in connection with standard switch programs QAX50 (LonWorks technology), or UP588 touch-panel (KNX technology) round off the product range.

Examples of applications

The Desigo RX system covers a wide range of applications for room automation:

Affordable application for radiators chilled ceilings and air volume control

- User-friendly operation
- Signal outputs for low-cost, thermal valve actuators
- Standard interface to VAV compact controllers

Cost-optimized fan coil application

- Low installation costs (relay and transformer integrated)
- Compact design
- Straightforward, ergonomic operation
- Support of energy-saving, stepless adjustable EC motors of fan coils

Highlights

- Proven portfolio with more than 5,000 customer projects with over one mio. installed individual room controllers (RXC)
- Tailored customer solutions thanks to individually usable room automation portfolio
- Easy of operation and cost efficiency thanks to comprehensive, integrated room controllers for HVAC, lighting, and shading
- Investment protection thanks to communication via KNX, LonWorks or EnOcean technology
- Energy savings due to eu.bac-certified equipment and use of products based on EnOcean technology
- Broad standardized choice of applications for ideal room automation

Active energy management by the room users

The innovative operating and display concept of Desigo TRA enables the room user to get actively involved in energy management. The RoomOptiControl energy efficiency function detects unnecessary energy usage and indicates it on the room operating unit by a color change of the Green Leaf symbol. When pressing on the symbol, room control returns to energy-optimum operation without loss of comfort. As a result, energy savings up to 25%* can be achieved.

*Study TU Munich, 2008



Tailored applications

The freely programmable, open, and modular room automation station satisfies the demanding requirements of customized applications. At the same time, the comprehensive and tested applications provided by the library ensure a high level of control accuracy and innovative energy efficiency functions. The solutions are matched to individual needs and deliver maximum efficiency and enhanced comfort.

Reduced operating costs

The costs resulting from room extensions or changes in room usage are a significant factor in a building's life cycle. Room automation stations of the PXC3 line ensure control of up to eight rooms. Thanks to the subdivision of floors into room segments, maximum flexibility is achieved during the building's entire life. With a minimum of effort, the different room segments can be easily combined to rooms. Easy and quick adaptations are made possible whenever room assignment or room usage change.

Operating units for all situations

Be it for individual or wide-span offices, conference rooms, hotel rooms or lobbies, the versatile QMX room operating unit integrates seamlessly in the DELTA design programs. In connection with the GAMMA pushbutton program, integrated operating concepts based on PL Link can be combined for HVAC, lighting, and shading.

Minimum installation costs – flexible installation concept

Thanks to a smaller number of components and wiring within the installation box, planning and installation times become shorter and system availability is increased. This is made possible by application-optimized and compact TX-I/O modules, which can be run remotely from the room automation station PXC3. No additional power supply is needed for DALI, TX-I/O, and PL Link. Even more flexibility is achieved when using the application-specific fan coil modules and communicating VAV actuators which can be fitted directly to the unit and linked via the PL Link to the room automation station.

Highlights

- RoomOptiControl enables the room user to cut energy consumption by up to 25% without loss of comfort
- Comprehensive overall concept thanks to consistent compliance with EN 15232
- Highest flexibility with regard to room usage, owing to open and freely programmable room automation range
- Consistent system communication via BACnet/IP
- Minimum cabling costs and compact overall solution thanks to flexible installation concepts
- PL Link and peripheral plug-and-play bus for more functionality and flexibility
- High protection of investments when changing room usage, thanks to flexible installation and application concept

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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.

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Answers for infrastructure.

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 preferred partner for energy-efficient, safe, and secure buildings and infrastructure.”