

SIEMENS



Desigo Total Room Automation – for flexible and energy-efficient rooms

Seamlessly combining multiple disciplines and making it easier
for room users to save energy.

Answers for infrastructure.



All functions in a room from a single source – making life easier

Desigo™ Total Room Automation (TRA) merges the individual disciplines HVAC, lighting and shading into one perfectly coordinated and thoroughly tested whole. With this newest member of the Desigo family, room automation adapts even more flexibly to growing requirements. In addition, eu.bac certification attests to high quality, control accuracy and energy efficiency.

What this means for you: the right room temperature, perfect lighting conditions and excellent indoor air quality at all times – together with low, cost-effective energy usage and reduced CO₂ emissions that help protect the environment. What's more, everything comes from a single, reliable partner, which also means a minimum of interfaces for project execution.

Simple operation for impressive comfort

Intelligent comfort – advantages for all

In the context of Desigo Total Room Automation, “intelligent” means high comfort and energy efficiency in equal measure. But intelligent comfort also means being able to attract good employees through optimal workplace conditions and easy operation, increasing work efficiency and thus surviving in the marketplace.

Stay flexible – for future-proof investments

Business plans change, customers’ requirements increase and the market is shaped by new standards and trends. What you need is a system that keeps pace, grows along with conditions and permits step-by-step expansions – in terms of both function and size. Because Desigo TRA uses worldwide communication standards and a well thought-out system concept, it can be adapted to each building application individually.

The complete package for energy savers

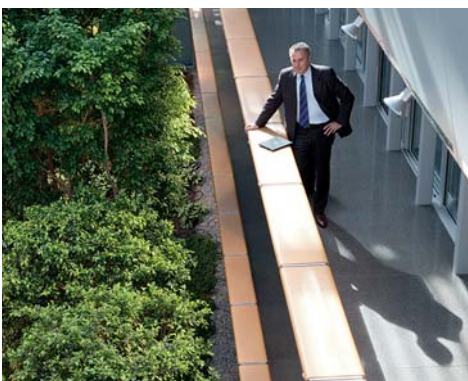
To ensure that room automation operates at the highest level of efficiency, Desigo TRA merges all disciplines into a single whole: heating, ventilation and air conditioning, lighting and shading as well as electrical switches and outlets. Thanks to the perfect interaction of all components and functions such as time switching programs, it is possible to respond to current room requirements and to prepare and distribute only as much energy as is actually needed. In addition, Desigo TRA turns simple building users into active energy savers*.

A thousand preferences, five hundred employees, one hundred rooms – a single system

With Desigo TRA, you get everything you need for optimal room automation from a single source. At the same time, you benefit from a reliable partner with many years of experience, a comprehensive product strategy and a broad installed base. Many tens of thousands of Desigo building automation systems are operating successfully around the world. The extensive application know-how gained is constantly being fed back into the further development of products and systems – for even greater quality and comfort. For example, tested applications guarantee smooth, fault-free, efficient operation.

Highlights

- Optimal work environment thanks to intelligent comfort
- Long-term investment protection thanks to the system’s flexible adaptability
- High energy efficiency thanks to cross-discipline functions, time-based programs and straightforward operation
- Everything from a single, reliable partner



* Studies at the Technical University of Munich prove that energy-optimized behavior on the part of room users reduces energy usage by up to 25%. With RoomOptiControl, room users can actively participate in building management without any technical expertise, thereby saving both energy and costs. The Green Leaf symbol shows them how and when.





Active energy management by room users:

The RoomOptiControl energy efficiency function identifies unnecessary energy consumption and indicates it by changing the color of the Green Leaf symbol on the operating unit from green to red. The user simply presses the symbol and room control returns to energy-optimized operation without sacrificing comfort. The Green Leaf symbol then turns back to green.



Energy-optimized operation



Unnecessary energy usage and energy saving potential

Flexibly into the future

Minimal initial costs through scalability

The scalable system concept permits minimal installation in the basic configuration that can also be flexibly adapted and expanded through tenant modification without a great deal of additional cost. The result is shorter construction phases and faster rentals and sales of buildings.

One system that can do almost everything

Desigo TRA provides a wide range of applications for HVAC, lighting and shading. They've all been tested at the HVAC laboratory from Siemens, are perfectly coordinated and can be flexibly combined as needed.

Staying flexible while protecting investments

The PXC3 room automation stations are based on standards such as BACnet, DALI and KNX. This means that you can continue to use existing HVAC and lighting installations and optimize them with enhanced functions, thus protecting your investments. The room automation stations can be integrated into existing BACnet installations to permit end-to-end BACnet communication from the management station right down to room automation.

Flexibility as a concept

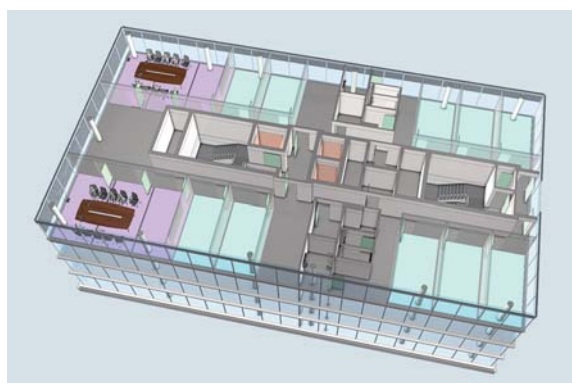
Using the segment concept, Desigo TRA reduces the cost of room alterations. Floors are divided into segments that are flexibly combined into rooms. A room automation station (PXC3) takes over the control tasks for multiple rooms.

The right design for each room

Desigo TRA is compatible with a wide range of operating units and switch designs from Siemens as well as frames from other manufacturers. The innovative operating units can be optimally integrated anywhere, thanks to wired and wireless technology.

Highlights

- Low initial costs based on flexible scalability
- Investment protection through the simple integration of existing installations
- Easy room alterations thanks to the flexible segment concept
- Flexible design based on compatibility with a wide range of operating units and frame designs



With Desigo TRA, flexibility means being able to adapt the building's floor plan and partitioning of individual rooms both quickly and easily through the sophisticated segment concept – without changing the electrical and HVAC installation. The result is a lower initial expenditure and lower costs in the basic configuration as well as complete freedom to add functional expansions when adding tenants.



With the new system, room temperature is always kept at the desired level, and sufficient lighting is turned on exactly when needed. At the same time, there's no more forgetting to switch off the lights when it becomes bright enough. And with the Green Leaf symbol, you always know whether the room is operating efficiently or energy is being wasted. If the Green Leaf is red, simply press a button on the operating unit and everything returns to green. This provides for an added feeling of well-being. Comfort for you – and lower energy usage for the environment.

Optimal working climate

More comfort using less energy

Desigo TRA increases the comfort of a room while reducing energy usage and costs at the same time. Want to know how? For example, by intelligently networking all disciplines in a room – whether heating, ventilation, lighting or shading. And by using innovative, fully tested energy saving functions as well as by deliberately integrating the room user into the energy saving process.

Perfectly adapted to each room

Desigo TRA controls each room independently in accordance with the preferences of room users and building operators – based on demand, energy-efficient and comfortable. The operating units are easy to understand and intuitive to operate, virtually eliminating operating errors and the associated energy losses.

Working under the best lighting conditions

Optimal lighting conditions at the workplace ensure that employees' eyes aren't so easily fatigued. This increases their ability to concentrate and positively affects motivation. The result is fewer errors and higher productivity. That is why Desigo TRA guarantees the right illuminance for every time of day – while also providing shading whenever necessary for glare-free daylight.

Highlights

- Greater comfort and lower energy consumption due to cross-discipline networking, energy saving functions and the integration of the room user
- Increased workplace comfort based on optimally controlled lighting
- Comfortable adaptation of the room atmosphere to specific situations thanks to simple scene operation



Comfortable scene operation

With the aid of individually preprogrammed "scenes," the room atmosphere can be changed simply by pressing a button. The scenes ensure that room temperature, ventilation, shading and lighting will be just right for each situation. Thus, for example, lighting is dimmed and blinds are lowered for presentations or lighting and ventilation are switched on and heating is lowered for the break.

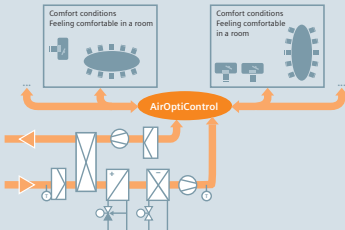
Desigo TRA – the technology at a glance

RoomOptiControl – comfort and energy efficiency in the room



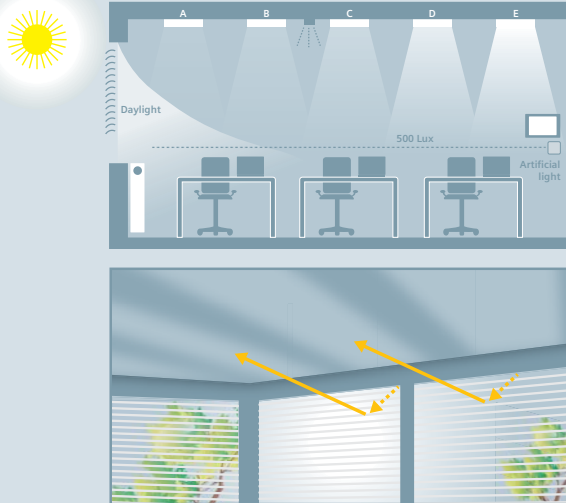
- Cross-discipline, intelligently linked efficiency function; automatic detection of unnecessary energy usage in the room
- Changing color of Green Leaf symbol – notifies room user of inefficiency; energy-efficient operation resumed with the press of a button

AirOptiControl – optimized air volume flow saves money



- Optimizes air volume flow as needed, thereby guaranteeing energy-efficient operation of ventilation and air conditioning systems
- At the same time, comfort control ensures adherence to the boundaries of temperature, indoor air quality and humidity

Cross-discipline room automation – minimal energy usage with maximum comfort



Lighting:

- Automatic operation by means of presence detectors and/or brightness sensors
- Daylight-dependent light control
- Constant lighting control; lights dimmed in relation to entering daylight

Shading:

- Protection against heat from solar radiation
- Thermal insulation
- Optimized glare protection and daylight usage based on a calculation of the sun's position and the precise positioning of blinds in terms of height and angle

Smooth plant operation – thanks to tested applications

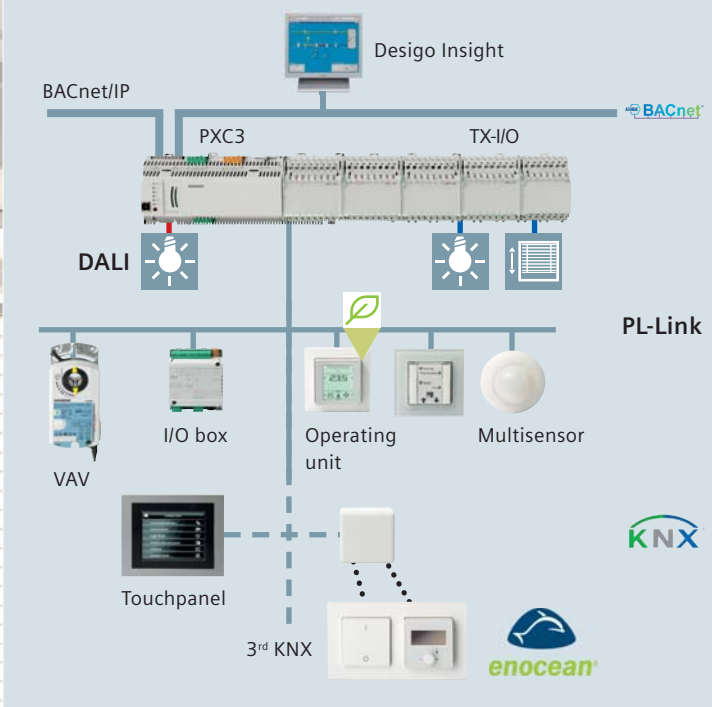
eu.bac



- Applications tested in Siemens' in-house laboratory and by eu.bac
- Fully documented functions
- High level of control accuracy for greatest energy efficiency
- Monitoring functions for preventive maintenance and repair



Room all-rounder – PXC3 room automation station with PL-Link, DALI, KNX and EnOcean



- BACnet/IP communication from the management station right down to room automation
- Modular with TX-I/O modules specifically for HVAC, lighting and shading
- Plug-and-play PL-Link room bus for operating units, presence detectors, pushbuttons, I/O boxes, VAV compact controllers, etc.
- Integration of KNX S-mode and EnOcean devices from PL-Link
- With optional DALI (Digital Addressable Lighting Interface)
- Wide range of EnOcean room operating units and pushbuttons

Fast and safe project execution



- End-to-end communication via BACnet/IP; one standard from the management level right down to the room
- BACnet is the open, worldwide used communication standard for building automation
- Guaranteed reliability thanks to independent test and certification bodies for BACnet devices
- Service by remote access ensures uninterrupted operation
- One manufacturer and one contact for all disciplines

Efficiency class A as per EN 15232 – opening up energy saving potentials

BACS efficiency classes – EN 15232

High energy performance BACS and TBM	<input checked="" type="checkbox"/> A
Advanced BACS and TBM	<input type="checkbox"/> B
Standard BACS	<input type="checkbox"/> C
Non-energy-efficient BACS	<input type="checkbox"/> D

BACS Building Automation and Control System
TBM Technical Building Management System

The four efficiency classes A–D provide clear information on a building's thermal and electrical energy usage. Key factors in achieving efficiency class A are demand-based control and cross-system communication.

Designo TRA provides comfortable, cross-discipline individual room control, thereby contributing to the achievement of the efficiency class A – and opening up high energy saving potentials.

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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.”