SIEMENS

8th April 2013

Dear Ms. Foong Wai Yoke,

Greetings from Siemens Pte Ltd. Thank you for the support you've shown us and we hope that we can continue to provide products and solutions that cater to your specific needs. In a buildings market with so many players, it is essential for you to distinguish the quality products from the mediocre ones, and to understand the value-added propositions of the different solutions providers in the market.

We are committed to helping you gain access to the products and systems relevant to your business. In this brochure packet, we would like to introduce you to the
Siemens GAMMA Advanced Lighting Control System.

The Siemens GAMMA Advanced Lighting Control System is a full-featured lighting control system that has a proven track record of 20 years and is continuously being improved and adapted for present-day needs.

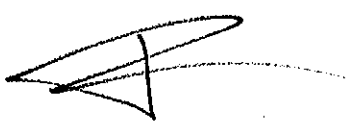
There are five key characteristics that make GAMMA unrivalled in the market:

- *Cost Effective:* GAMMA does not require expensive server or front-end costs because it is designed to be flexible according to your building project's scale and future expansion. GAMMA is suitable for all project sizes: from single basic rooms to multi-building campuses.
- *Up to 44% Energy Saving:* GAMMA deploys solutions that intelligently optimize a building's most energy-intensive assets: HVAC and lighting. By reducing energy without compromising comfort, GAMMA effectively monitors and controls all switching and dimming loads.
- *Integrated:* GAMMA is part of the Siemens Building Technologies portfolio, which means there is the potential to receive a one-window provider to all your building needs (i.e. BMS, HVAC, Fire Safety, Security).
- *Applicable:* GAMMA works from the KNX open standard, which means that any other KNX product can be seamlessly integrated.
- *Reliable:* GAMMA controls are fully distributed. There is no single point of failure.

Siemens is the industry leader in reliable, energy-efficient and technologically advanced solutions for buildings, and the GAMMA Advanced Lighting Control System is an excellent example of this. For more information, please take a look at the supplementary brochure and contact us for more details.

Thank you once again for all your support!

Best regards,



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SIEMENS



GAMMA building control

Future-proof KNX-based electrical installations

SIEMENS

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Answers for infrastructure.



Intelligent and integrated building and room automation

The GAMMA building control is based on the proven, globally implemented standard KNX in accordance with EN 50090 and ISO/IEC 14543. KNX forms the basis for a comprehensive building automation in the electrical installation. Wireless systems can be incorporated during installation for increased flexibility. These include infrared and radio systems. These technologies are connected to KNX via gateways. Various display and operating elements to operate the room functions are available to the user with all technologies – from the simple pushbutton through multi-functional room control units up to web-based systems.

The GAMMA building control allows efficient building management through sensible room automation. And this with maximum comfort for the user.



Improved energy efficiency with building control

Highlights

- Room automation offers considerable savings potential
- GAMMA building control enables users to achieve energy efficiency class A
- Efficient building management through optimal room automation
- Consistent components provide optimum control of lighting, sun protection and room climate

Efficiency through automation

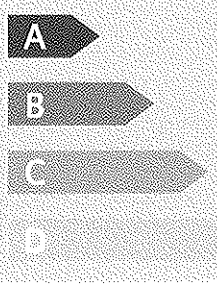
Considerable demands are placed on the energy efficiency of buildings today. The optimization of power supply, distribution and usage can reduce costs and reduce the strain on the climate. For example, in office buildings around 28 percent of all the electrical power is used for lighting. Here and in many other sectors, intelligent automation systems for buildings offer considerable potential for savings. Based on the standard EN 15232, the four efficiency classes from A to D illustrate the correlation between building automation and energy efficiency.

Comfort for the user

The GAMMA building control is the answer for efficient building management: Sensible room automation means maximum comfort for the user and saves energy at the same time. Lighting, sun protection and room climate are optimally coordinated and can be adjusted to meet every requirement. Despite automation, the user always has the opportunity to control his working environment individually.

Planning according to energy efficiency class

The choice of technology depends primarily on the required energy efficiency class. For a cost effective solution in class C, digital time switches and dusk switches are used to control heating, ventilation or air conditioning. If efficiency classes A or B are required, communication-capable systems such as the GAMMA building control are used. Their consistent components control lighting, sun protection and room climate, for example, and therefore help to save energy.



Energy efficiency classes according to the EN 15232 standard

Class A:
Highly energy-efficient building automation systems and technical building management
Class B:
High-grade building automation systems and technical building management
Class C:
Standard building automation systems (reference basis)
Class D:
Non-energy-efficient building automation systems



Various display and operating elements to operate the room and building functions are available – from the simple pushbutton up to web-based systems.

For more comfort and efficiency in the building

Building automation is KNX

Increasing demands for comfort, safety and efficiency require ever more stringent installation concepts combined with intelligent, multi-utility control of all technical components. For lighting, sun protection and room climate, KNX technology offers safe and reliable control and monitoring of the functions in the building. Various wireless systems with infrared and radio technology can be integrated into the installation via gateways in order to operate the room functions. This allows a flexible installation of operating elements and sensor systems – without cable. In this way, changes of usage can be implemented quickly and easily.

Unlimited display and operation

To guarantee optimal operation of room and building functions, a wide range of display and operating elements are available – from the simple pushbutton, handheld and wall-mounted transmitters for KNX, through multi-functional room control units up to browser-based systems.

Operating the room functions

Standard operating elements are available in 1 to 4-fold versions – to operate room functions such as lighting, shutters or scenes. There are remote control systems, based on infrared and radio technologies, for increased flexibility. Multi-functional room control units control numerous functions and show all the information at a glance conveniently on a display.

Display and operation in the building

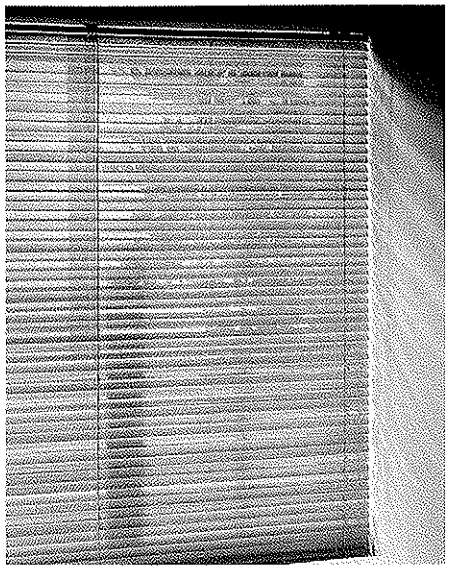
Functions can be displayed and operated centrally via the touch panel. With a web-based monitoring and operating system, you can conveniently control and monitor functions inside one or a number of buildings.

KNX is world-wide standard for home and building control

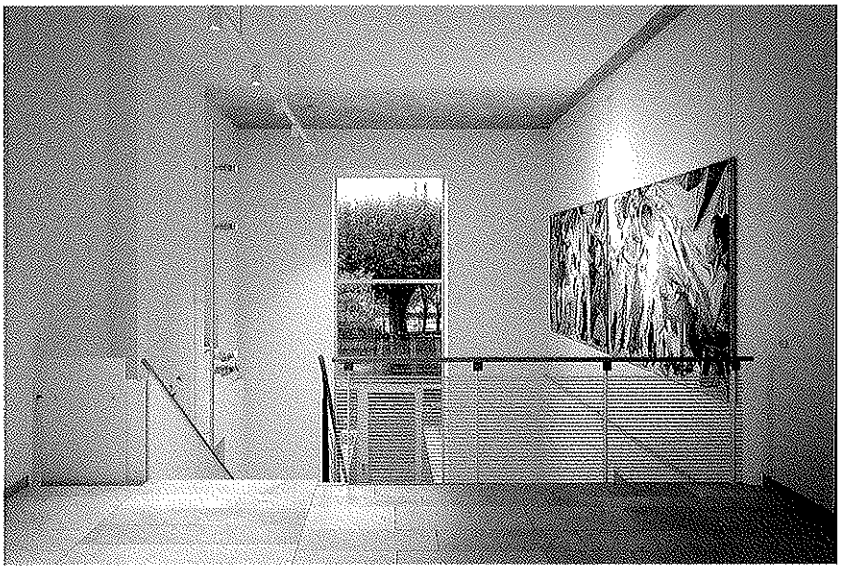
KNX®

Highlights

- Building and room automation based on the world-wide, open standard KNX
- Simple, comprehensive operating concept
- Operating elements available in numerous designs



Automatic shading control according to the level of daylight.



Intelligent technology: Rooms are only lit or heated when they are being used.

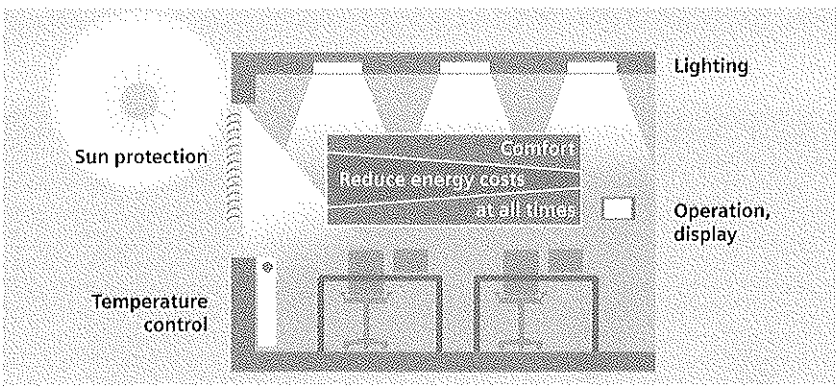
Achieving a more efficient building management

The central visualization function in GAMMA building management systems shows an updated graphic of all functions in the building and permits central operation. Through connection to existing data networks (LAN and Internet) or a building control system, the building management can even cover multiple buildings. Whether within a building complex, within a town or further afield, even distributed locations are managed optimally and efficiently in terms of energy on the basis of the current status information.

Highlights

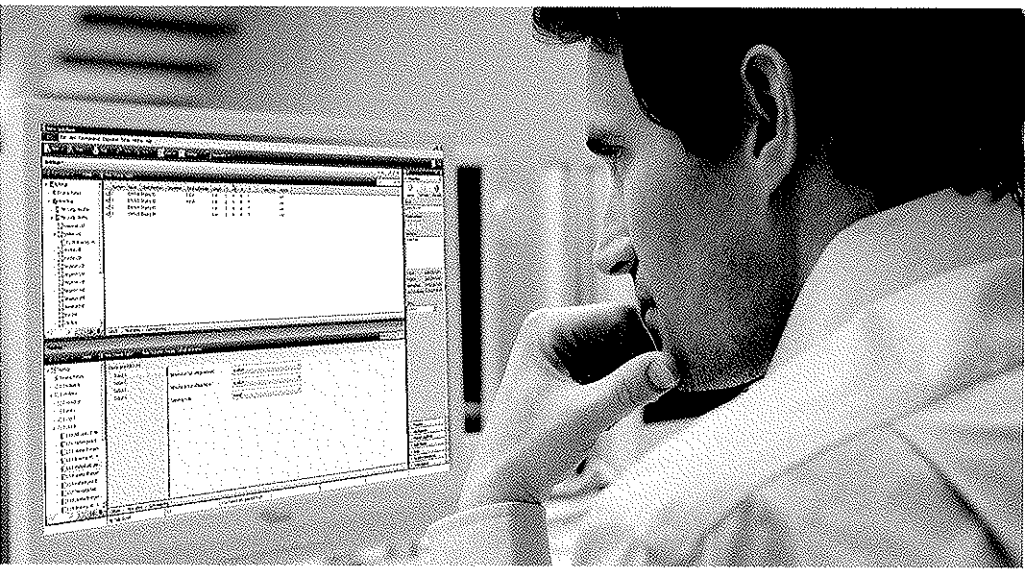
- Reducing energy costs by up to 44 percent with GAMMA building management systems
- Constant light level control with daylight utilization provides only the amount of artificial light required
- Manual control and adjustment according to individual requirements is possible at any time if required

Lighting, sun protection or room climate, the automatic control combines cost efficiency and comfort.



KNX®

The world-wide standard for home and building control



The manufacturer-independent software ETS is used to plan and configure KNX systems

Engineering Tool Software (ETS)

Commissioning of all KNX products

The ETS (Engineering Tool Software) is the manufacturer-independent tool software for the planning and configuration of intelligent home and building control with the KNX system; it runs under all versions of MS Windows®.

Convincing benefits

The KNX Association, as the founder and owner of the KNX standard, offers with the ETS a configuration tool for planning, commissioning and diagnosis of KNX systems, with the following advantages:

- Guarantee of maximum compatibility of the tool with the KNX standard.
- All product databases with certified products from KNX manufacturers can be imported into the ETS.
- Backward compatibility of the ETS with product data and projects from earlier ETS versions (up to ETS2) secures previous work results and facilitates continued processing.
- Throughout the world, all planners and installers use one and the same tool for each KNX project and for each KNX certified device. Reliable data exchange is therefore guaranteed.

Universally usable

The ETS is directed at all KNX system users, from the beginner up to the skilled and experienced KNX partner or installer.

Always at the forefront of technology

ETS4 Professional, the latest and most comprehensive ETS release, is the powerful successor to ETS3. When implementing home and building control projects of all sizes, ETS4 Professional supports and optimizes the users' work in the following phases:

- Project planning & design
- Commissioning
- Project documentation
- Diagnostics and troubleshooting

More information

www.knx.org/knx-tools/ets4/

Highlights

- Manufacturer-independent configuration tool
- Maximum compatibility of the ETS with the KNX standard
- Universally usable – from planning to troubleshooting
- Comprehensive project documentation, available simply by pressing a button



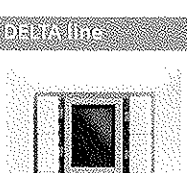
GAMMA *instabus* – available in all DELTA product ranges

Increased safety and comfort with maximum efficiency – this is facilitated with the GAMMA *instabus* building management systems on the basis of the global KNX standard – realizable with all DELTA programs.

KNX

The worldwide standard for home and building control

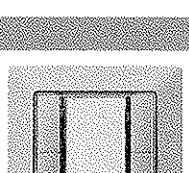
DELTA line



Titanium white



Carbon metallic



Aluminum metallic

DELTA miro Artist Design Tom's Drag



Titanium white

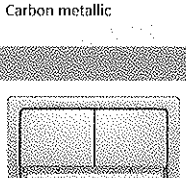


Aluminum metallic

DELTA style

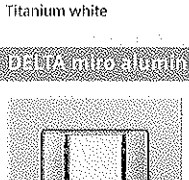


Titanium white

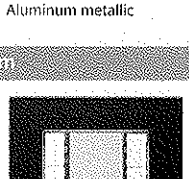


Platinum metallic

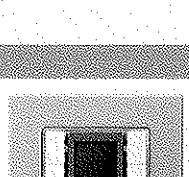
DELTA miro aluminum



Natural/aluminum metallic

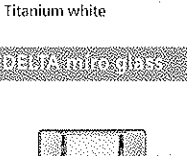


Graphite/titanium white

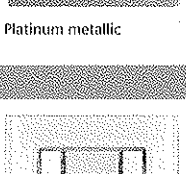


Yellow oxide/titanium white

DELTA miro glass



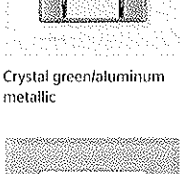
Crystal green/aluminum metallic



White/titanium white

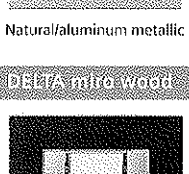


Black/aluminum metallic

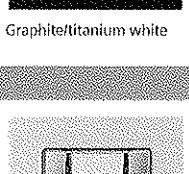


Arena/titanium white

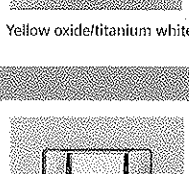
DELTA miro wood



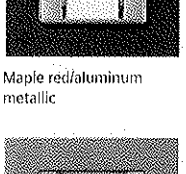
Maple red/aluminum metallic



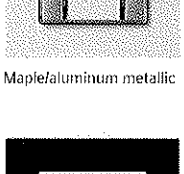
Maple/aluminum metallic



Beech/aluminum metallic

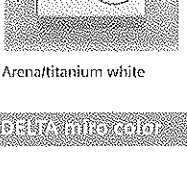


Cherry/aluminum metallic



Wenge/aluminum metallic

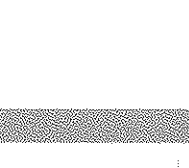
DELTA miro color



Titanium white



Aluminum metallic

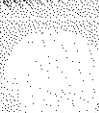


Electrical white

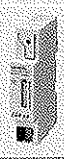
Components for GAMMA building management systems

Selective switching, control and regulation as part of an energy management architecture.

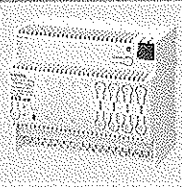
Lighting

	Product	Description
	GAMMA modular switch actuators	– Reliable switching of loads of all types up to 20 AX C load (such as lights) – The modular design guarantees the flexible design for each use and power requirement. A switch actuator main unit can simply be expanded from 3 to 6/9/12/15 channels and can be adjusted to the number and size of loads to be switched – Continuous current detection and monitoring, including detection of significant equipment failure, recording of operating hours and switching operations
	GAMMA universal modular dimmers	– Dimming of incandescent lamps, HV halogen lamps and LV halogen lamps with electronic transformer and conventional transformer – Automatic detection and setting for the connected load type – The universal dimmers for loads from 20 to up to 1000VA, 50-60Hz, automatically determine the load type connected to their outputs (resistive, conductive or capacitive) and switch over to leading-edge or trailing-edge phase mode accordingly
	GAMMA switch/dimming actuators	– Switching and dimming of fluorescent lamps with dimmable electronic control-gear – Control output for 1 ... 10 V interface
	GAMMA KNX/DALI gateway	– Switching and dimming of fluorescent lamps with DALI controlgear – Control of the entire lighting system – Integrated effect lighting control – Support for emergency lighting
	GAMMA light level control	– Switching and dimming of fluorescent lamps with dimmable electronic control-gear – Integrated constant light level control - connected brightness sensors can be used to create the optimal lighting
	GAMMA brightness controllers	– Brightness control of lights with integrated sensor technology – Detection of the current brightness – Control of the lights as required for optimal illumination and to ensure greater efficiency
	GAMMA presence/motion detectors	– Motion detection in the detecting range – Detects persons even when sitting and working
	GAMMA time switches	– Everything you need for time-controlled switching – For maximum safety, convenience and energy saving – Switching of loads (lights) as required and using day/week/year planners
	Programmable logic controllers	– LOGO! The compact programmable controller – Perform small-scale automation tasks more quickly, with 8 basic logic functions and 31 special functions, the LOGO! logic module can replace a large number of conventional switching and control devices
	GAMMA modular room control	– A wide range of modular dimmers, actuators, binary inputs and outputs for room control – The modular room controllers allow the installer to configure the installation according to the project requirements

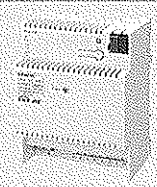
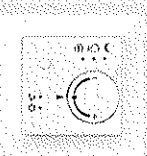
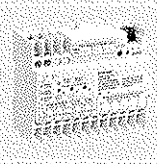
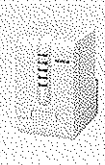
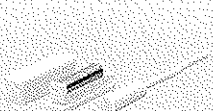
Lighting

	Product	Description
	GAMMA dual sensors	– Measuring the outside temperature and brightness – Control of sun protection and lighting
	GAMMA scene/event modules	– Linking received binary signals and transmission of result via GAMMA instabus – Place a room into a predefined state at the touch of a button with the scene module – For the timed control of sequences or the control of device dependent on specific events

Sun protection, anti-glare protection, daylight utilization

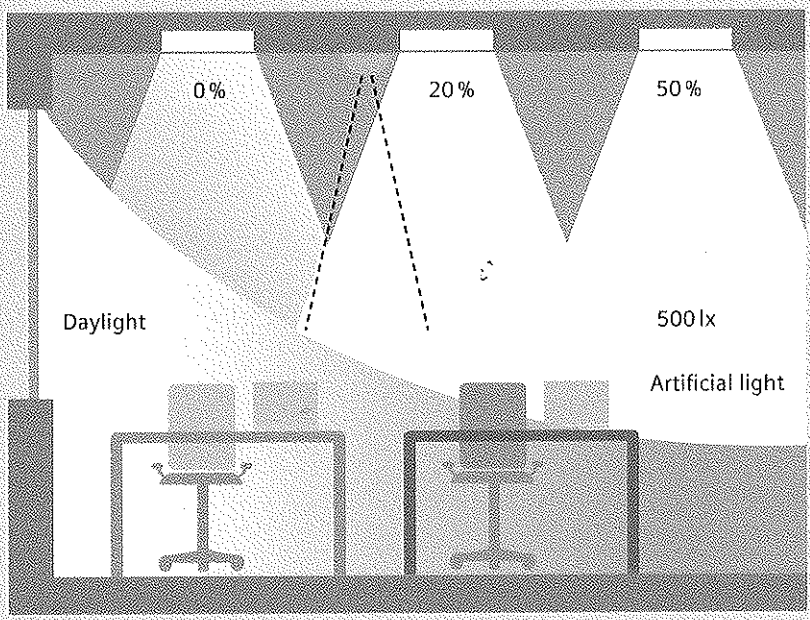
	Product	Description
	GAMMA anti-glare/sun protection actuators	– Reliable control of sun protection systems
	GAMMA weather systems	– Recording of relevant weather data using integrated sensor technology – Ensures that rooms are heated less in the summer – Supports heat discharge in winter to reduce heating costs – Automatic blind slat tracking function in accordance with the changing position of the sun

Heating, air conditioning, ventilation

	Product	Description
	GAMMA temperature sensors	– Detection of temperature – Forwarding of basic values for optimal control
	GAMMA room temperature controllers	– Integrated control and temperature sensor – Optimal control for heating, air conditioning and ventilation
	GAMMA actuators for HVAC	– Control of the drive units for heating, air conditioning and ventilation
	GAMMA valve actuators	– For the opening and closing of small valves – Energy consumption only if the control variable is changed
	GAMMA door/window contacts	– Detection of the window position (open/closed) for energy-optimized heating and air conditioning control, as a safety function and to monitor the building shell

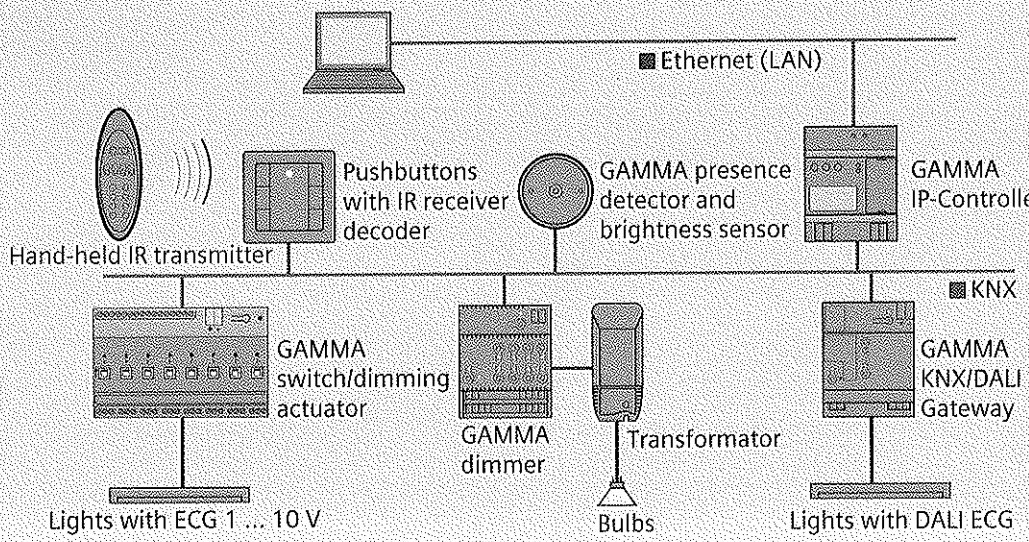
Practical example of building management systems

Minimum energy consumption, maximum comfort and safe operation



Requirement

Automatic and daylight-dependent lighting control should save up to 30 percent of energy costs in non-residential buildings. This is because often the lighting in a room is switched on and later not switched off or dimmed despite high sunlight levels through the window. Different sunlight angles, temporary clouds or dawn/dusk periods require a different room lighting setting depending on the distance to the window.



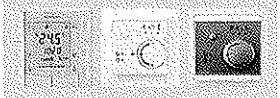
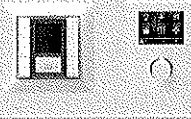
Solution

GAMMA building management systems offer automatic constant lighting control with brightness sensor and switching/dimming actuators based on the international KNX Standard in combination with DALI lighting controls.

Result

- Energy savings thanks to lighting control with intensive use of the level of daylight
- Depending on the distance from the window, the artificial lighting is controlled in separate groups
- Integration into a higher-level room and building management system, such as APOGEE, is possible

GAMMA building control – display and operation

Room				Building
				
Basic operation GAMMA *instabus* pushbutton in different designs for typical room functions	**Operation and control** Fan-coil unit operating device and room temperature controller in various designs	**Display and operation** Multi-functional room control units in various designs and operating modes	**KNX-based central displays and operation** Central display and operation device with additional special applications	**Web-based monitoring and operating** Browser-based application for multi-site KNX infrastructure coverage with IT standard communication
Design – Pushbutton with/without status LED – Pushbutton with status LED, scene control and room temperature controller – Pushbutton with status LED, scene control and IR receiver/decoder – Wide design and color selection **Functions** – Lighting, sun protection, heating, ventilation and climate control – Switching (On/Off, toggling) – Bell function – Dimming – Sun protection control (shutters, blinds) – Scene control, effect control (recall, save) – Transfer of different values (percentages, temperature values, brightness values, etc.)	**Design** – Fan-coil unit controller – Room temperature controller – Wide design and color selection **Functions** Fan-coil unit controller: – Control of fan-coil unit functions, such as temperature and fan speeds – Switch between comfort and energy-saving modes – Fan speed display using five yellow LEDs or LCD display – Display current room operating mode and heating/cooling mode – Room temperature controller – Heating, cooling and combined heating/cooling operation – Changing nominal value – Toggling between comfort and standby modes – Display current room operating mode	**Design** – Text display – Room control unit – Wide design and color selection **Functions** – Lighting, sun protection, heating, ventilation and climate control – Display of various values (temperatures, brightness, consumption), text messages, current operating mode, current fan speed, etc. – Alarms – Date and time display – Timer program with weekly schedules – Scene control – Room temperature controller – Changing nominal value and operating mode – Setting fan speed	**Design** – Color touch panel as multi-function display/operation unit – Wide design and color selection **Functions** – Display and operation of up to 110 KNX functions on 20 display and operating pages – Timer program with weekly schedules – Presence simulation – Scene control (64 scenes) – 32 logic functions – Trending module – Alarm page with display and reporting of up to 16 alarm reports – Individual password protection for each page – Integrated real-time clock, date and time display – Display of individual images on the start page – Configurable slide show	**Design** – N151 IP Viewer **Functions** – Lighting, sun protection, heating, ventilation and climate control – KNX system data visualization and operation – Display of up to five operating pages in a standard web browser, with up to 40 display and operating functions – Configurable start page

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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.

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