

■ Intelligence of stellar architecture

Integrated into a sustainable building concept with KNX modules

Winner
KNX Award 2012
Category
National



Freely definable KNX light scenes contribute to the success of the events held in the 2500 square metre atrium.

High levels of daylight, glass building materials and an imposing architectural design from the star architects "Ingehoven Architects" characterise the new headquarters of the HDI Gerling property insurance group in Hannover. Spread over five floors and covering an area of 75,000 square metres, 2000 employees have a modern, ecological and ergonomic place to work. The sustainable building concept is guided by the DGNB gold standard and links minimum consumption of energy and resources with greater convenience of use. In addition to triple glazing, thermal insulation and the production of regenerative energy, the lighting and blinds controlled by KNX is an important part of the energy efficiency throughout the system. The company charged with the project implementation, Bauer Elektroanlagen GmbH Halle, was presented with the KNX National Award for Germany for this unusual project.

Sun protection designed using a model

The blind control in building complexes is very important. Possible wind influences, seasonal positions of the sun, shadows, reflections and thermal discharge have therefore already been simulated and calculated during the planning phase using a model. A complex blind control system was developed on this basis with KNX, SMI and Ventus Digisonic sun protection. The shading functions depend on a time program, solar radiation, shadows and wind strength. 70 wind monitoring points have been installed to take into account different wind conditions of the facades. Finally, the automatic louvre adjustment guarantees optimum use of external brightness. The employees are also able to operate their blinds themselves via bus push buttons. The presence- and brightness-dependent lighting control via KNX and DALI is also efficient. The high level of flexibility of the lighting installation is impressive,

whereby each of the 3000 lights has its own presence detector. The light sources can be easily assigned with the specially developed Codsys program when there are changes in use. Bus push buttons have been equipped with the flexible system Gira ITS30. Smart sensors, which match the décor, control the ceiling cooling fans.

The lighting in the corridors, staircases, underground car parks and outdoor areas is also controlled automatically. In the conference area, scenarios with blackout, lighting and projectors can be called up via the media technology. By coupling the intruder and fire alarm system, the lighting is automatically switched on and blinds are raised in the event of an alarm.

KNX panels have been installed in areas where operating functions are more frequent, such as the restaurant, the canteen, the kitchen and conference rooms. Important KNX functions are monitored, controlled and influenced via a central building management software. To do so, 4,500 data points have been processed via the KNX OPC server Net-X-Automation. The topology of the KNX installation is organised via Wago KNX IP controllers which also provide interfaces to other systems with corresponding "terminals".

Benefits provided by KNX in this project

- Increased energy efficiency through intelligent functions
- Comfortable working conditions due to optimum shading
- Individual operation of lights and blinds in the offices
- Central functions for lighting, sun protection and room temperature
- Light moods for events thanks to scene control
- Consistent and uniform installation
- Flexible for changes in use

Technical refinements

- Complex blind control according to time, solar radiation, shadows and wind strength
- Constant lighting control for efficient lighting
- High level of flexibility due to presence detection per lamp
- Special supplementary program for assignment of the lights
- Coupling of intruder and fire alarm systems
- Coupling with the BMS

Companies involved

Building owner:

Ampega Gerling, Hannover
(www.ampegagerling.de)

Architect:

Ingehoven Architects,
Düsseldorf,
(www.ingehovenarchitects.com)

Electrical installer and KNX System Integrator:

Bauer Elektroanlagen GmbH
Halle (www.bauer-netz.de)

Area of application:

Administration building

Functions:

- Lighting
- Sun protection
- Cooling
- Alarm systems
- Technical monitoring
- Energy management
- Media technology
- Visualisation
- Interfaces to other systems

Scope

Number of KNX devices: 1793,
Gira, Siemens, etc.

Costs:

800,000 euros