



Feel comfortable in your building

Our solution for Brucity





Brucity Administration Building – An eye-catching landmark in Brussels (BE)

By 2050, buildings within the EU are set to become climate-neutral. Building automation offers a step towards improving energy efficiency. Lighting, heating, air conditioning, ventilation and shading can be automated based on occupancy. In the European capital, Brussels, Brucity – a large administrative building – was constructed, utilising lighting control from B.E.G. Brück Electronic GmbH and the expandable KNX system.

The Brussels administration aims to present itself as democratic, open and transparent. This led to the creation of Brucity, a glass, light-filled administrative building in the city centre, whose lighting has been automated to be energy-efficient for the city and extremely comfortable for all building users.

Brucity was built on the site of the former Parking 58 and covers an area of 37,000 m² across 12 floors, providing workspaces for 1,700 city employees. Architecturally striking features include the atrium in the entrance area with two glass lifts, as well as the circular council chamber.

The public building's meeting rooms, study rooms and conference rooms are also available to students and local associations.

With 559 underground parking spaces and 250 bicycle parking spaces, the basement levels not only provide ample parking for staff but also serve as convenient starting points for a visit to the administrative offices or a stroll through the nearby city centre.

On the eighth floor, there is a restaurant open to everyone, and just above it, a roof terrace offers breathtaking views of the European capital.



Brucity is intended to be a model of sustainable, climate-friendly construction. The energy performance of this passive building meets the standards of the Brussels-Capital Region: solar panels, combined heat and power, LED lighting and a rainwater harvesting system for the sanitary facilities ensure low resource consumption. Added to this is KNX building automation, which delivers further savings by enabling the building systems to respond based on occupancy.

KNX is a globally recognised standard for building automation, utilising a communication protocol to automate and network systems and devices. As a result, KNX leaves nothing to be desired. Lighting control, heating control, climate control, ventilation control, air quality monitoring, blind control and many technical installations – with KNX, the building becomes a functional unit and a modern, comfortable environment for all users. Building automation with KNX helps to reduce operating costs and emissions, make the building future-proof and flexible, but above all to enhance comfort for users. KNX is a secure, stable system with exceptional interoperability and flexibility.

Systems used: DALI-LINK

Products used*: 74 x PSN-230 / 640 / 30 / KNX REG
41 x LK-TP / KNX REG
4 x LK-IP / KNXs REG
162 x DA64-230 / KNX REG
50 x SA8 - 230 / 16 / H / KNX REG
746 x PD11-KNX-FLAT-ST-FC
149 x PD4N-KNX-K-DX-FC
204 x BL2-FC

Implementation



Thanks to KNX Secure, KNX communication is securely protected against unauthorised access and manipulation.

B.E.G. Brück Electronic GmbH is recognised worldwide as a specialist in sensor technology and lighting control. The manufacturer's KNX sensors offer a range of functions that is unique on the market. Brand new features include, for example, the software-based control of individual motion detectors, the integrated offset control to compensate for varying brightness levels in the room, and the fully-fledged integrated logic module for complex linkages. The extensive range of KNX components, the planning, implementation and personalised service provided by the Belgian B.E.G. team were immediately convincing. As a solution-oriented partner, B.E.G. was awarded the contract to implement the KNX project.

The PD11-KNX-Flat-ST-FC was installed in Brucity's numerous offices; this is a sensor with an ultra-flat lens that integrates almost invisibly into ceilings, thereby enhancing the homely feel of the rooms and increasing comfort for users. Within a detection range of up to 9 m, the sensor detects even the slightest movements, such as typing on a keyboard. It thus ensures optimal lighting at workstations when people are present in the room. It controls and dims the light to achieve a uniform lux value in accordance with the workplace lighting standard DIN EN 12464-1.

At other times, the lighting is dimmed or switched off, thereby prolonging the life of the lights and saving energy. The light sensor measures the ambient brightness and compares it with the setpoint stored in the KNX building automation system, reliably dimming the light in response to movement. Office users can also make manual adjustments via a wall-mounted switch. Desired lighting scenes – such as presentation modes – can be activated via this switch. The device can control up to three lighting groups via offset. The presence detector has 3 outputs: 1 x lighting (dimmable or switchable), 1 x slave output for extending the detection range and 3 x HVAC outputs (independent).



The PD4N-KNX-K-DX-FC presence detector has been installed in the corridors. This presence detector features a specially shaped lens. With a long detection range of up to 40 m x 5 m across and up to 20 m x 3 m from the front, it is perfectly designed for long corridors. The corridor function has also been activated in Brucity. If an employee switches off the light when leaving their office, the light will usually remain off for a few seconds when they re-enter. The activated corridor function, however, ensures that the lighting in the office switches back on automatically within seconds. This ensures a clear view at all times, for example, if something has been left behind in the room. With this corridor function, the delay time can be set to a very short duration of between 1 and 60 seconds. The built-in Deluxe version of the PD4N also ensures basic safety at the entrances throughout the building's operating hours. Even when no one is actively moving through the corridors, they are always provided with basic lighting at 20% intensity.

Implementation

A KNX/DALI combination is currently the most cost-effective and efficient solution for lighting management. In Brucity, all DALI luminaires are integrated via the DA64-230/KNX REG DALI/KNX gateway. This reduces the number of KNX bus cables and increases the flexibility of the installation. A single gateway can switch and dim up to 64 ECGs in 16 groups. Scene modules can also be used to control individual ECGs. The gateway also supports RGB and TW (DT8).

Another key component is the PSN-230 / 640 / 30 / KNX REG power supply. The KNX PS power supply features an integrated choke to supply the bus with a constant, stabilised voltage. Furthermore, it forms the heart of the bus communication. The device is designed for DIN rail mounting in high-voltage distribution systems.

To connect the KNX bus segments, the LK-TP/KNX REG 41 line coupler from BEG has been installed. It links two KNX segments via twisted pair, e.g. a KNX line with a KNX area. The line coupler features an extended filter table for main groups 0–31 and ensures galvanic isolation between the lines. The coupler supports long frames and is compatible with ETS® software from ETS 4.2 onwards. Among other things, the B.E.G. IP Router KNX IP Router 752 secure 'B.E.G.' was installed. This enables the secure routing of telegrams between different lines via a LAN (IP, Ethernet) acting as a high-speed backbone. As a secure router, the device allows unsecured communication on a KNX TP line to be coupled with a secure IP backbone. The router has an extended filter table for master groups 0 to 31 and can buffer up to 150 telegrams. The device also serves as a secure interface between IP (Ethernet) and KNX and can be used as a programming interface for the ETS. As a KNX Secure Interface (tunnelling), the device prevents unauthorised access to the system. The device allows access to the KNX bus from any point on the LAN. The security option can be enabled or disabled in the ETS.

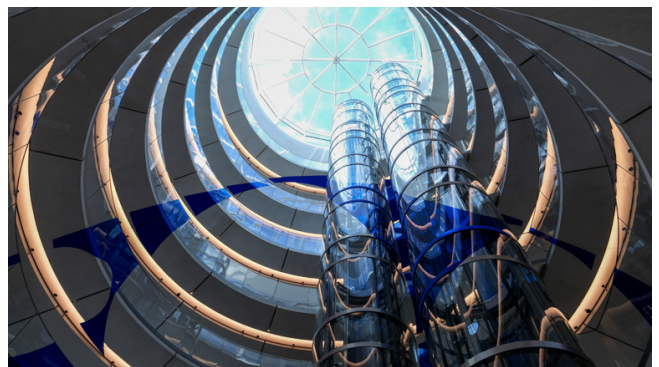
Another device used is the SA8 - 230 / 16 / H / KNX REG switching actuator.

This is used to switch loads, such as lights. The switching actuator sends and receives KNX telegrams and switches up to 8 outputs independently of one another. Each output can be individually programmed via the ETS. Options include logical links, status feedback, blocking functions, central switching functions and comprehensive timing functions, such as switch-on/switch-off delays, staircase lighting functions and a flashing function. Scene functions are also available.

. The BL2 motion detector was installed in the washrooms. As there is no natural daylight in these rooms, the light is simply switched on when someone enters and is not continuously controlled. In washrooms, simple motion detectors save on energy consumption and operating costs. For hygiene reasons, people are reluctant to touch light switches there, so the lighting often remains switched on unnecessarily for hours. . The BL2-FC is supplied with factory settings of 'High' detection sensitivity, a 10-minute follow-up time and a 500 lux switch-on threshold, meaning the sensor can be put into operation immediately without any further adjustments. The ceiling-mounted motion detector can also be programmed using the remote control.

Comfort through B.E.G. is not just about the building user; it starts with the service we provide to electricians, planners and system integrators.

As far as Brussels is concerned, Brucity is a thoroughly successful project.



The following items were fitted to the Brucity:

74x



90214 PSN-230 / 640 / 30 / KNX REG

41x



90401 LK-TP / KNX REG*

4x



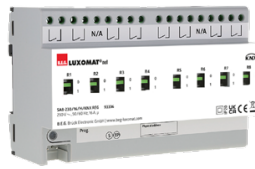
90403 LK-IP/KNXs REG

162x



93302 DA64-230/KNX REG*

50x



93336 SA8 - 230 / 16 / H / KNX REG*

746x



93802 PD11-KNX-FLAT-ST-FC*

149x



93388 PD4N-KNX-K-DX-FC*

204x





93317 BL2-FC




Personal advice

Our team is always on hand to offer advice and assistance. If you have any questions about your order or our products, please give us a call or send us an email.

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* Link to successor product



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