Smart Building Technology for Private and Commercial Use

Case Studies
by ubisys

Hermannshöhe – Smart Home for VIVAWEST

Situation

The „Hermannshöhe“ project is located in Bochum (Germany) and was realized on behalf of VIVAWEST, one of the leading housing providers in North Rhine-Westphalia.
Here, 89 unique residential units were created, which are characterized in particular by their high level of comfort and modernity. The seven buildings have five storeys and integrate seamlessly into the existing residential development. Laundry and drying rooms, cellar rooms, technical rooms, garbage rooms and bicycle rooms are located in the basement.
Due to its proximity to the city center, the 5600 m^2 site appeals to singles, couples and families alike. Completion took place in 2018.

VIVAWEST manages almost 120,000 apartments on the Rhine and Ruhr. From single apartments to spacious detached houses, VIVAWEST develops liveable and lovable neighborhoods and high-quality living spaces for all income groups in the population.

89

Apartments with ubisys

Requirements

VIVAWEST was looking for a Smart Home system with shading, lighting and alarm functions. A basic system should be installed before the tenant moves in, with the option of additional expansion by the tenant.
A pre-installed alarm and security system should also be easy to activate and alert residents in the event of burglary or fire.

2,000+

Zigbee Components

Solution

The premium Smart Home solutions from ubisys were able to meet the exact requirements of VIVAWEST. All 89 residential units were equipped with flush-mounted actuators for lighting and shading. The ubisys Smart Home control center, the Gateway G1, also enables control while on the move. Scenes preconfigured by VIVAWEST (e.g. the blinds are lowered and the lights are dimmed up at the same time), which can be activated via a button or in the ubisys app, offer residents additional convenience.
Zigbee smoke detectors were installed as a security system and linked wirelessly to the smart actuators from ubisys, so that in the event of a fire, the blinds are automatically raised and the lights are switched on at the same time. An alarm is triggered via door/window contacts in the event of attempted break-ins. The smoke alarm acts as an alarm siren and the tenant receives a push notification on their smartphone. The system is armed/disarmed via the alarm keypad in the entrance area or the ubisys app.

Product solutions by ubisys and third-party manufacturers

Setup	
Apartments	89
ubisys Gateway G1	89
Zigbee devices in total	2,000+
Zigbee devices per flat / gateway	≈ 20
ubisys Smart Home App	
Zigbee devices: ubisys Gateway G1, ubisys D1, ubisys J1, ubisys S1 and S2, ubisys C4, door/window contacts, motion sensors, smoke detectors, alarm keypads	

Smart Lighting for One of Norway’s Largest Building Complexes

Situation

The Økern Portal is located in Oslo and one of Norway’s largest building complexes. It is Oslo‘s most unique commercial building, a place where business and the local community meet.

The 55,000 square meter Økern Portal is much more than an office and commercial building. It will become a natural part of city life in the center of Hovinbyen, Økern. While providing customized and flexible office spaces, the building will also serve as a natural gathering place for the local population. Visitors are welcomed into the building and its outdoor areas, where they can engage in leisure activities, access daily services, and enjoy recreational amenities. Symbolically, it also stands for access to a more sustainable living infrastructure in the middle of an urban space.

55,000
square meters

This is because the sustainability profile of the modern building complex which is just as extensive as its potential uses.

Requirements

Sustainability and energy efficiency characterize this building complex. A biophilic interior design and beehives on the roof create a direct connection to nature.
The lighting should also meet this requirement and incorporate innovative sensor technology to save energy.

250+
ubisys Gateways

7,500
Light Nodes

Solution

The lighting management system, a collaborative effort between Glamox, a leading provider of lighting solutions, and ubisys, was meticulously crafted with a focus on intelligence, efficiency and sustainability. What truly distinguishes this solution is its unparalleled network scalability, made possible by the seamless integration of more than 250 ubisys Gateways G1. These gateways act as the linchpin, seamlessly binding and orchestrating the control, monitoring, and measurement of over 7,500 light nodes in this groundbreaking project.
A cornerstone of this accomplishment is the integration of cutting-edge sensor technology, finely attuned to optimize energy utilization. Sensors, strategically embedded throughout the building, measure humidity, daylight intensity and room occupancy. The result is an automated daylight simulation (HCL) that not only enhances the well-being and performance of visitors and workers but represents a beacon of innovation in lighting solutions.

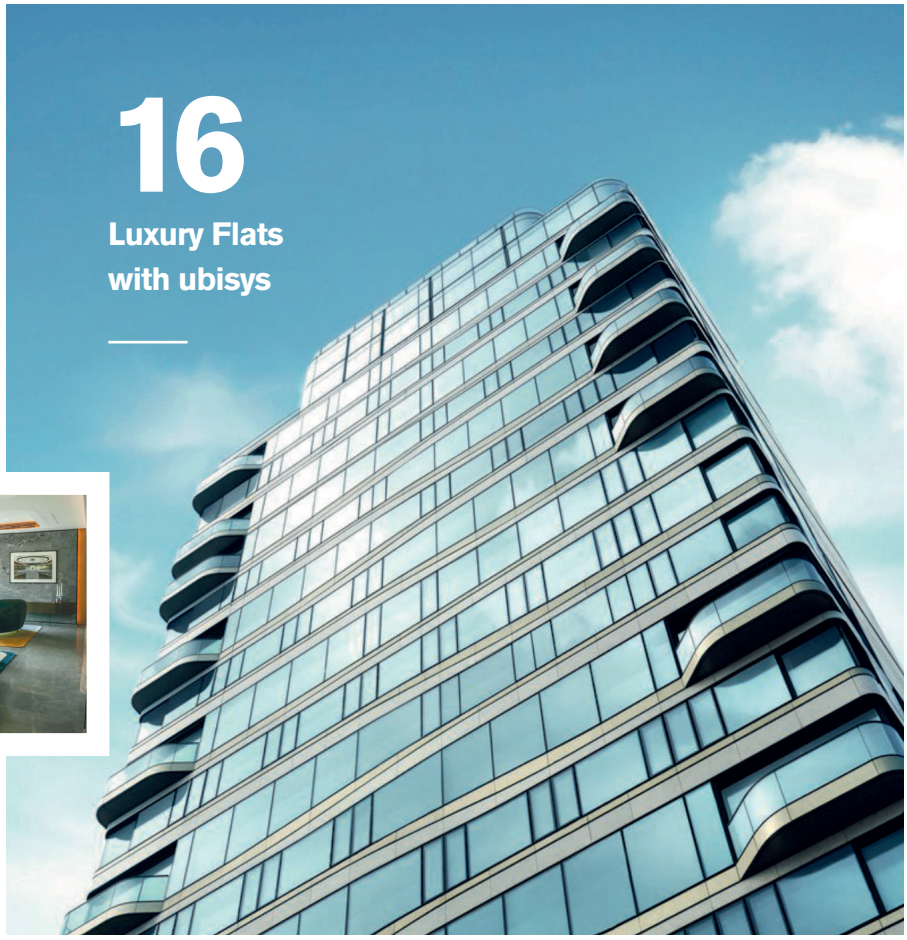
Setup	
Philips MasterConnect light nodes	7,500
ubisys Gateway G1	250+
Groups of lights per Gateway	30-40
Split based on MasterConnect grouping	
MasterConnect lighting control with G1s providing HCL heartbeat	
G1s serving as connection point into Glamox Connect Cloud	

Product solutions:
ubisys Gateway G1 and Philips EasyAir210 MC

Dukes Place – Luxury Smart Home for Hong Kong Telecom

Situation

Dukes Place, located in one of Hong Kong's most sought-after districts, Jardine's Lookout, is a first-class building project. The striking outer facade of curved glass rounded off with champagne-colored metallic lines, and the recurring Italian stone used in the construction makes the magnificent building stand out even in this metropolis of millions. The project of the Chinese company Hong Kong Telecom offers its demanding customers an extraordinary living experience in 16 individual residential units ranging in size from 260m² to 631m², on a total area of 5,580m².



A phenomenal view and light-flooded rooms are decisive advantages of the HKT Tower.

Requirements

Hong Kong Telecom needed a Smart Home system for 16 luxury flats that offered maximum flexibility in terms of size and application while meeting the high demands of the elite residents. In addition to smart climate control, intelligent curtains were also to be a feature.

2,400
Zigbee Devices

150
per Apartment

Solution

HKT opted for the premium Smart Home provider ubisys and its devices „Made in Germany” for this first-class construction project. Thanks to the flush-mounted actuators, the system remains completely invisible and thus integrates perfectly into the high-quality furnishings of the residential units.
In addition to the climate control, ubisys also supplied components for smart lighting and consumer control – via app or the existing buttons / switches. The desired curtain operation was implemented with the smart Shutter Control J1. Using the ubisys App, residents can set up and trigger scenes, time and group controls themselves. Thanks to the wireless technology, the apartments can be expanded with additional devices at any time – for even more living comfort.

Setup	
Luxury flats	16
Zigbee devices in total	2,400
Zigbee devices per flat / gateway	≈ 150
ubisys Smart Home App	
Devices: ubisys Gateway G1, ubisys D1, ubisys J1 (driving motorized curtains), ubisys S1 and S2, ubisys C4, BEGA Zigbee/1-10V converter, split HVACs via Ethernet-connected IR converters	

Product solutions by ubisys

Advanced Lighting Control for a Global Sneaker and Apparel Brand

Situation

A global sneaker and apparel brand‘s European Headquarters is located in Hilversum, The Netherlands. Formerly grounds of the 1928 Amsterdam Olympic Equestrian Games, the campus features fabulous sport facilities and running tracks. With 10 campus buildings and more than 2,000 employees from over 80 countries, the campus is a dynamic, energizing place to work that reflects the global spirit of the brand.

The flexible, adaptable workplace, designed to convert to housing in the future, includes strong connections to the outdoors through daylighting, natural ventilation, and access to views. Employee health is further optimized through the use of low-VOC finishes in a virtually PVC-free environment. Renewable energy sources provide 30% of the total supply, due in large part to one of northern Europe’s largest geothermal heating and cooling systems.

Designed and built on a schedule as rapid and ambitious as any European office complex of its size, the project offers a model of effective resource management, community connection, long-term flexibility, and aesthetic appeal while reflecting its tenants’ commitment to corporate social responsibility.

European Headquarters in Hilversum with 375,000 m^2

Product solutions (selection) by ubisys

Requirements

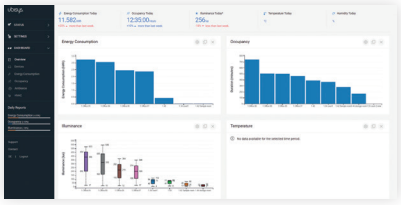
The task was to design and implement a Smart Lighting solution that meets the environmental and sustainability requirements of the building and offers employees maximum comfort. The solution should also reflect the innovative spirit of this world-famous sneaker and clothing brand.

Solution

In cooperation with Keylight, a leading light designer, luminaire manufacturer and system integrator, ubisys and its extremely powerful devices and solutions allowed an IoT milestone to be created. Some of the main features:

- **Automated lighting:**
  1.) based on occupancy and illuminance reports provided by Philips EasyAir Sensors (SNS210 / SNS300),
  2.) time-controlled scenes based on scheduled actions
- **ubisys Dashboard** seamlessly melding luminance, power data, and occupancy insights
- **Multi-zone lighting control** like flexible zoning (independently control lighting with “multi-zoning”), global scenes (set lighting conditions across multiple gateways with “one press”). Adjust light levels, hues, and colour temperatures effortlessly
- **Energy-harvesting or mains-powered switches**

The result is a real showcase of the capabilities of Smart Lighting technology which will undoubtedly see many more applications in the near term future.



ubisys
Dashboard

Product solutions by
third-party manufacturers

Setup	
4 floors with open space, closed meeting rooms and collaboration rooms	
ubisys Gateway G1	7
Luminaires	≈ 350
Luminaires per gateway	≈ 50
Luminaires per floor	≈ 100
Further devices: SNS300, SNS210, ubisys R0, ubisys C4, ubisys S1-R, EnOcean Green Power switches	

atelier rheinruhr – Smart Home for Architect’s Office and Residential Building

Situation

This new-build project was completed in Oberhausen (Germany) in 2009 and serves as a residential and commercial building. The building is divided into two sections:
One half houses the office of atelier rheinruhr, a planning office for architecture and desin, and the other half serves as a residential area. The solid construction extends over two floors and also has a garage at ground level. Architecturally, the residential office impresses with its clear lines, timeless Bauhaus-style design and high-quality materials.

Requirements

The building was designed as an intelligent residential office. Equipped with a future-oriented Smart Home system, it should offer its users maximum flexibility, security and convenience. The system should provide lighting, shading and heating control functions and be expandable as required

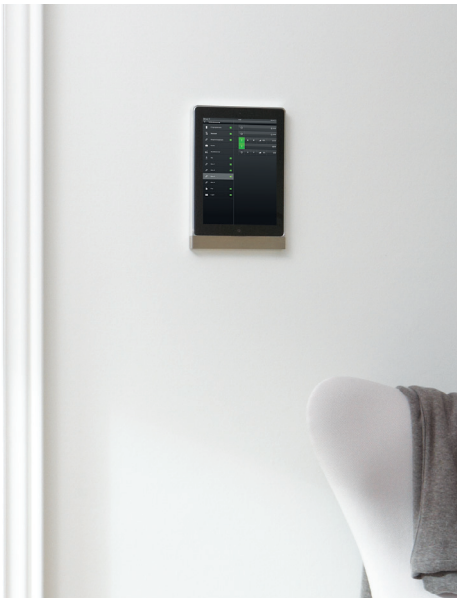
50+

Zigbee Components

Solution

With the Smart Home solutions from ubisys, all requirements were met. The existing building technology for lighting, shading and heating was upgraded and retrofitted with the intelligent components from ubisys with little effort. Flush-mounted devices and components for the fuse box were installed. The entire system can also be controlled remotely via the Gateway G1.
The blinds in the living/dining area can all be lowered/raised simultaneously via group control. The underfloor heating was made smart via the Heating Control H10, while the Heating Thermostat H1 was used in all bathrooms. Scenes such as „Goodbye“ („Everything off“) are activated via a button in the entrance area – or via app.
As a security feature, door/window contacts have been installed that send a push message to the residents when triggered. Motion detectors that only switch the light on when someone is present provide even more convenience.

Product solutions (selection) by ubisys and third-party manufacturers



Setup	
Building with reinforced concrete walls	
ubisys Gateway G1	1
Zigbee devices in total	50+
ubisys Smart Home App	
ubisys devices: G1, D1, J1, S1, S2, C4, D1-R, J1-R, S1-R, S2-R, R0, H10, H1	
Third-party devices: door/window contacts, motion sensors, smoke detectors	

Kureck – Smart Lighting for Hessian State Chancellery

Situation

Wiesbaden‘s Palais am Kureck, a historic office building dating from 1907 in the city center has been renovated and extended to the highest quality. This has resulted in the restoration of an architectural highlight in Wiesbaden‘s city center.
The revitalization of the five-storey old building, which was fitted with high-quality tenant fit-outs required a comprehensive refurbishment with complete gutting, demolition, and new construction of the fourth floor and the improvement of the foundation. Following demolition and renovation, the new building now has a total of around 4,700 square meters of office space spread over five expansive floors with ceiling heights of up to 3.50m - 4.00m and an exclusive interior design. After three years of construction, the

4,700
square meters

tenants, including the Hessian State Chancellery was able to move into their new premises in Taunusstrasse on time.

Requirements

Intelligent lighting was the prerequisite for the modernized premises, offering tenants maximum comfort and energy savings. The lighting had to be designed to be active only when people are present. Automated daylight simulation (Human Centric Lighting) was added to promote the well-being and performance of the users.

9
ubisys Gateways

200
EasyAir SNS300

Solution

This pilot project was the very first time, the ubisys Gateway G1 enabled smart lighting control in conjunction with the Philips EasyAir SNS300 sensors. Together with SILTaS GmbH, a solution provider for lighting installations, the customer’s requirements were determined and implemented accordingly by ubisys.

Automated lighting control
Utilizing the ‚reports‘ transmitted by the EasyAir sensors, detailing detected movement and brightness, and leveraging the robust JavaScript engine of the ubisys G1, a tailor-made JavaScript script was crafted. This script encompasses predefined switch-on light levels, standby levels, and transition times. Moreover, it incorporates daylight-dependent controls (HCL), meticulously customized for each zone (room).
To further enhance user control, Philips Hue dimmer switches were seamlessly integrated into the gateway. This allows for manual adjustments to the automation settings, providing users with temporary influence over the system.

Product solutions:
ubisys Gateway G1 and
Philips EasyAir sensors

Setup	
Philips EasyAir SNS300	200
ubisys Gateway G1	9
Lights per Gateway	≈ 23
Split based on each tenant receiving their own gateway with full control over the gateway	
Autonomous lighting management system based on JavaScript	
Daylight harvesting and time schedules	

5CA – Illuminating Future Workspaces

Situation

Right in the heart of Utrecht, is the new home of 5CA, a customer service provider for consumer electronics and gaming suppliers. Surrounded by the rich diversity of the historic city center and strategically located at one of the busiest intersections in the Netherlands, 5CA‘s new offices represents a significant milestone in modernity and progress.

Requirements

With the primary focus on sustainability, 5CA sought a lighting solution that seamlessly integrates innovative sensor technology, and saves energy while also providing automated daylight simulation for optimal workplace lighting. Additionally, they desired colored accent lighting to create different lighting moods for individual spaces.

200+

MasterConnect Light Nodes

80

ubisys LED Controller LD6

Solution

The clear mandate was versatile lighting that supports the work rhythm, provides efficiency through automation, and fosters creativity. Thanks to the advanced ubisys G1, it was possible to develop a solution that enabled both downward spot lighting on the workspace and colored accent lighting towards the ceiling. This synchronous lighting, implemented on track spotlights and profile pendant lights, was executed by the lighting design team of the company „Keylight“ in conjunction with innovative sensor technology.

Inspired by Human Centric Lighting (HCL), the ubisys G1, in collaboration with Philips EasyAir SNS 300 sensors, optimizes the color temperature of the workspace lighting to maximize productivity and comfort. Simultaneously, the ubisys LED Controller LD6 indirectly illuminates the ceiling, enabling colorful accent lighting. This synchronous lighting is exclusively achievable through the use of the ubisys G1, creating both an inspiring atmosphere and optimal illumination in the workspace.

Product solutions:
ubisys Gateway G1, Philips EasyAir Sensoren, ubisys LD6, D1, S1, C4

Setup	
Philips MasterConnect Light nodes	>200
ubisys Gateway G1	6
ubisys LED Controller LD6	80
ubisys D1, S1, C4	total 7
Lighting downwards: Automated daylight simulation (HCL) via MasterConnect Sensors Lighting upwards: Colored accent lighting via LD6	

Master Switch – Centralized Lighting Control Across Multiple Gateways

Situation

The scenario could be as follows:

- A multi-story office building with meeting rooms, collaborative work-spaces, and open areas
- A large educational institution with multiple classrooms and auditoriums
- A warehouse with multiple levels as well as high ceilings

All these scenarios feature a smart lighting control system using sensor-controlled LEDs or smart actuators, based on automations running on several ubisys gateways.

Requirements

In certain situations, it might be necessary to turn off the entire lighting in a building at a moment‘s notice, such as during a security alert or a planned maintenance shutdown. This usually would present a problem, as individual floors or areas that are controlled by multiple gateways typically can only be accessed through each individual gateway.
Therefore the goal was to design a feature that allows users to control the entire lighting system with a single button.

4

ubisys Gateway G1

200+

Further Zigbee Components

Solution

ubisys offers a „Master Switch“ feature within the automation platform „Lighting Control“ which enables users to set up a single command that can be transmitted to multiple gateways, triggering a pre-defined scene.
This secure communication between the gateways happens in the blink of an eye, allowing users to control numerous devices instantly.

The lighting designers at Lightboxx have already successfully implemented this new technology in several projects. Most recently in a renovated villa with 3 floors, now used as an office space, where 4 ubisys gateways are in use along with over 200 additional Zigbee components – primarily Philips EasyAir sensors. In addition to a „Master Off“ button that can turn off the entire lighting system simultaneously through all 4 gateways, an additional multi-button was configured to allow control of specific areas within the building.

Product solutions:
ubisys Gateway G1,
Philips EasyAir Sensors,
EnOcean GreenPower
Switch

Setup	
ubisys Gateway G1	4
EnOcean GreenPower Switch	
Philips EasyAir SNS210	
Automated lighting control with ubisys automations	