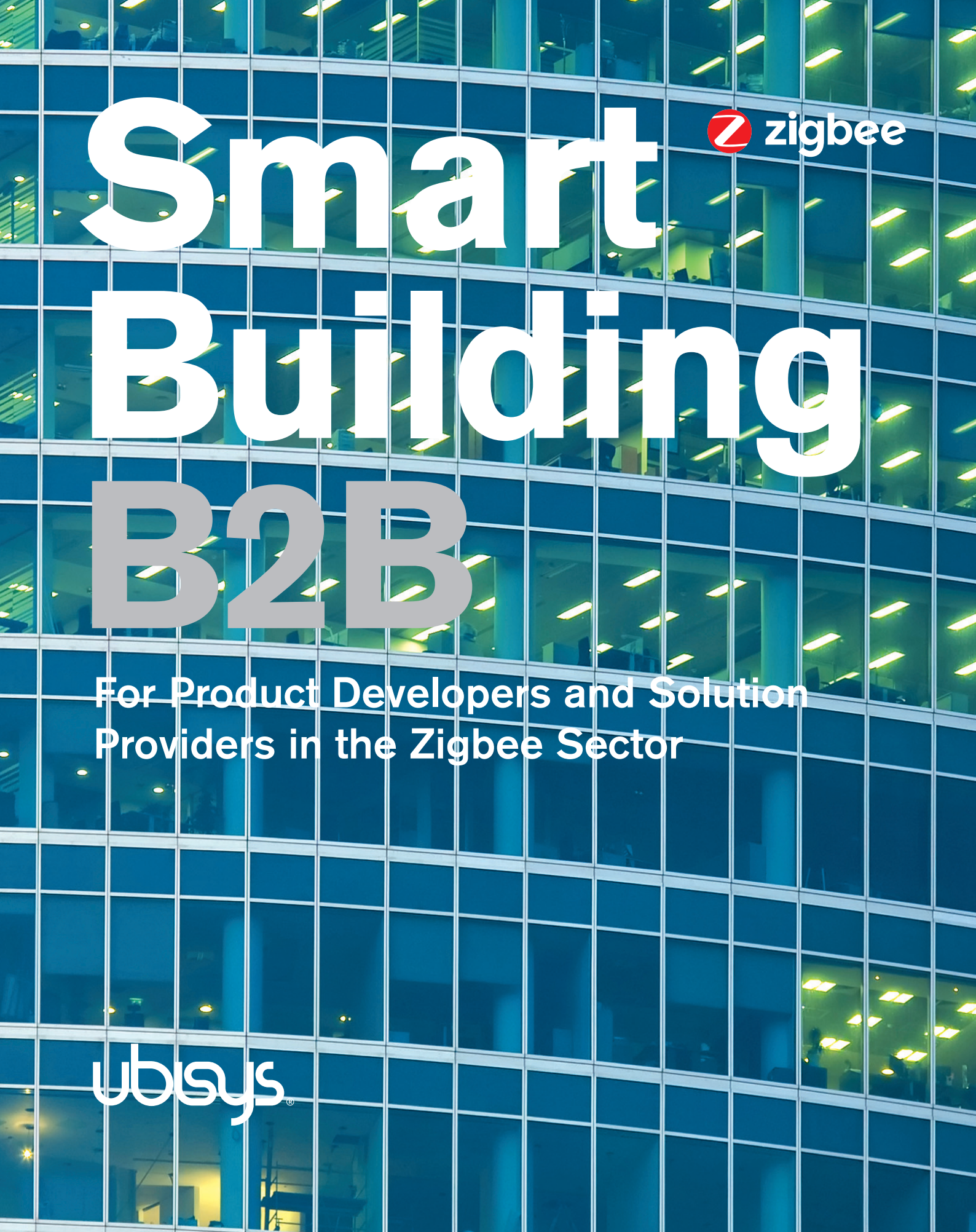

zigbee
Smart Building
B2B
For Product Developers and Solution Providers in the Zigbee Sector
ubsys®

Smart Building
B2B

For Product Developers and Solution Providers in the Zigbee Sector

2020/21

Content

Introduction

As one of the world‘s leading companies in the Internet of Things (IoT) industry, based in Düsseldorf, ubisys develops smart products and solutions for networked building technology and helps other manufacturers to prepare their products for the digital age.
Whether you are a luminaire manufacturer, real estate developer or chip manufacturer, ubisys has the right solution for every application.
Its broad portfolio includes core technologies like certified Zigbee Golden Unit stacks, cloud services, luminaire modules, advanced products including roller shade controllers, dimmers, smart power outlets and heating controllers as well as complete, consumer-facing solutions with gateways and apps for iOS and Android.

ubisys also offers the current product range in the form of customer-specific custom-made products or white label solutions.
We attach particular importance to promote the development of the major international wireless networking standards, which we significantly influence in major positions within the Zigbee Alliance. Named „Golden Unit“ several times, we received an award from the Zigbee Alliance in 2018, honoring our contributions to standardizing and certifying the world‘s first Zigbee 3.0 devices.
With ubisys you can count on first-class Zigbee solutions and benefit from quality products „Made in Germany“.

Solutions

ubisys offers numerous solutions for the private and commercial sectors to make buildings smart. The focus is on the centralized and decentralized control of the entire property, energy and cost efficiency, more comfort, more safety and sustainability.

The solutions range from control applications such as apps, alarm and security functions, to compatibility with other systems such as Amazon Alexa and Apple HomeKit, to daylight simulations via intelligent lighting. The different solutions are equally suitable for private homes/apartments, offices, shops, warehouses etc.

Interface: With the ubisys App you have all the Functions of your System at a Glance – always and everywhere.

With the ubisys system, you can control your facility centrally via an app on your smartphone or tablet, or as usual via your already installed switches. Displaying all the functions and features at a glance:

- lighting control (on/off, dimming, color ambiance)
- heating control
- shutter control (individually or in groups)
- consumer control via switchable sockets (e.g. floor lamps, kitchen appliances, irons)
- power consumption
- alarm via push messages
- many more

The complex building control is represented by easy-to-understand graphics and allows you a quick orientation. When designing the app we especially emphasized maximum user friendliness – colors, font sizes, menu navigation, buttons, etc. guarantee a simple, comfortable and intuitive operation. If you are not on site, you can also control and monitor your building while you are on the road.
In addition the app is also suitable for commissioning and configuration.

The ubisys app is available for Apple iOS and Google Android.

Energy Efficiency: ubisys Smart Building Helps You Saving Energy. This not only Protects the Environment, but Effectively also Your Wallet.

With ubisys Smart Building you save money while simultaneously saving resources. With our universal dimmer D1, you not only ensure cozy feel-good lighting, but also save energy and thus reduce CO_2 emissions. Or simply reduce the stand-by consumption of your devices with our power switch S1.

With our solutions for heating control you also have the opportunity to utilize further savings potential. Mainly because the heating system is responsible for about 60% of the overall energy consumption in an average household. Control your heating via smartphone and set your desired temperature while on the go – or simply automate this process with our time function. Not to forget the possibility of synergy effects in conjunction with blinds, open windows, etc. This not only increases general comfort, but also ensures that no energy is wasted. Your optimized heating behavior will save you money, so that your smart heating control will pay off soon.

Another important cost control feature is power metering. All ubisys building control components have a current measuring function that allows you to measure the power consumption of individual devices. The consumption values are displayed in the app or in our dashboard for data visualization. Allowing you to keep an eye on your energy costs, controlling and saving costs at any time.

Measured parameters*):

- Effective power [W]
- Apparent power [VA]
- Reactive power [VAr]
- Power factor
- RMS value of the voltage [V]
- RMS value of the current [A]
- Instantaneous voltage over time [V]
- Instantaneous current over time [A]

*) These parameters can be detected by the Zigbee components. Which values are actually displayed depends on the visualization solution.

Alarm and Security Functions: Do not Simply Make your Building Smart, but also Safer.

In order to make your object more secure you can not only attach sensors such as door/window contacts, motion detectors, smoke detectors, etc., but also an alarm keypad in the entrance area. The keypad is a permanently installed input device for PIN codes. Authorized persons can use it to operate the ubisys alarm system.

This alarm keypad allows for an easy way to control your ubisys alarm system. Using the action buttons and entering a personal PIN code, the status of the system can be switched between present and out-of-the-property or it can be armed or disarmed. Illuminated buttons allow operation even in the dark. Status LEDs show the current status of the alarm system, allowing the cleaner to operate the alarm system without having to use the ubisys app.

To increase the battery life, the device has a proximity sensor. If a hand comes into its direct environment, the LED illumination of the keys will automatically switch on. This feature protects the batteries while allowing you to adjust settings even in the dark.

A couple of features:

- Easy arming/disarming of the alarm system
- Presence control: present/on the go
- Acoustic feedback during arming, button presses and warnings

If Your Building Sounds Alarm in Case of Danger, You will be the First to be Informed – Even if You are not There.

A ubisys system makes your building safer. Whether by sensors such as door and window contacts, motion detectors, gas and smoke detectors, leakage sensors or by random scenarios that simulate presence (check section „Scheduled Actions“). Here some examples:

In case of fire (registered by smoke detectors)

- All smoke detectors in the object sound an alarm
- All the lights in the building are turned on
- In case of fire blinds/shutters are raised to clear the escape routes
- You will immediately receive a notification on your smartphone where the danger is located within the object

In case of burglary (registered by door/window contacts or motion detectors)

- The blinds are automatically raised and the lights are turned on throughout the building
- You will immediately receive a notification on your smartphone

Scheduled Actions:
Thanks to Timed Events your ubisys System can do a lot of Tasks on its own.

The scheduled actions option allows you to program timed events yourself. It's just as easy as setting an alarm clock. Different types of time functions are available for different tasks, which you can combine in any number of ways:

Variation 1: Any time
Select date and time for a one-time event.

Variation 2: Every day at a specific time
Select a time of day and set desired weekdays. You can include or exclude holidays, specify a time period for random execution (for example half an hour earlier, up to a quarter of an hour later than scheduled), and limit the validity period in the form of a first-time or last-time execution.

Variation 3: At sunrise and sunset
Depending on the location of your system, the astronomical times for the sunrise or sunset are calculated according to the season and can be used as a basis for time control. In addition, you can specify a time offset (rather than planned, later than planned) and a time period for random execution. In addition, times of day may be indicated as a limit, e.g. not before 07:00h, not after 22:00h. Here, too, variants for different days of the week can be set up, as well as public holidays included or excluded.

Variation 4: At regular intervals
Have an action carried out at regular intervals, e.g. every minute, every hour, every eight hours etc. Also supports variations for different days of the week, holidays, random periods and absolute limits for the times of the day (for example not before 10:00h, not after 14:00h).

At the scheduled time, scenes you have defined are called up, e.g. open or close all blinds, call up a lighting mood, switch certain devices on or off, etc.

Examples: During the week, public holidays exempt, raise the blinds at sunrise (but not before 06:45h) in the whole object, but keep lowered in the bedroom and only set the slats to 45°. On weekends and public holidays, this should only happen at 9:00 a.m.

Turn on and dim the lights in different rooms at the time of your vacation, randomly between half an hour before and one hour after sunset. Then switch off gradually between 10:30 p.m. and 11:45 p.m., ending in the bedroom.

The scheduled actions are not based on a cloud service and therefore work regardless of whether an internet connection is available or e.g. was temporarily disconnected.

If you ever need more than a simple time function, you can fall back on our mini-apps that allow very sophisticated automation. Very individual, tailor-made solutions can be implemented using the common and widely used programming language JavaScript. More information can be found under „Solutions/Mini-App Store“ or „Solutions/JavaScript Engine“.

Scenes: When Leaving the Building, You Can Switch Everything off at the same Time with a Simple Tap. This Increases Safety and Comfort.

With this feature you can quickly and easily increase the comfort in your property. In a scene, you can determine presets for certain devices (such as dimmers and/or blinds) and activate them at the touch of a button. You can activate a scene in the app or with a switch or button in your facility. Some examples:

Scene „Goodbye“
You are about to leave the building. Activate the scene „Goodbye“ and all lights and unrequired consumers of your Smart Building system will be switched off, the blinds will be lovered down and the heating will be turned down.

Scene „Hello“
You are back in your property and want to activate several consumers at the same time? No problem with a scene „Hello“: the lights in the entrance area are switched on, the shutters are raised and the temperature increased to „comfort temperature“.

Scenes can be created quickly and easily, as well as changed and deleted at any time.

Configuration: Individual Settings of your Smart Building System can be done quickly and easily by Yourself.

In addition to simple and intuitive operation, the ubisys system also offers the option of configuring your system by yourself. Allowing you to easily make the initial setup as well as the configuration of subsequent installations (create and name rooms, name components and place them in the corresponding rooms, etc.). The configuration is easily carried out via the ubisys app. You can also create groups combining several components, which you then control via a switch or pushbutton (example: one shutter switch simultaneously controlling several blinds).

You can also add a scene to a button or switch (example scene „Goodbye“: A button/switch in the entrance area lowers all blinds down to 80%, all sockets are deactivated and the lights are switched off).

The possibility of individual configuration by yourself offers you maximum freedom and flexibility: You can quickly create, change and delete everything easily by yourself.

Amazon Echo: “Alexa, Dimm the Light in the Office at 50%.”

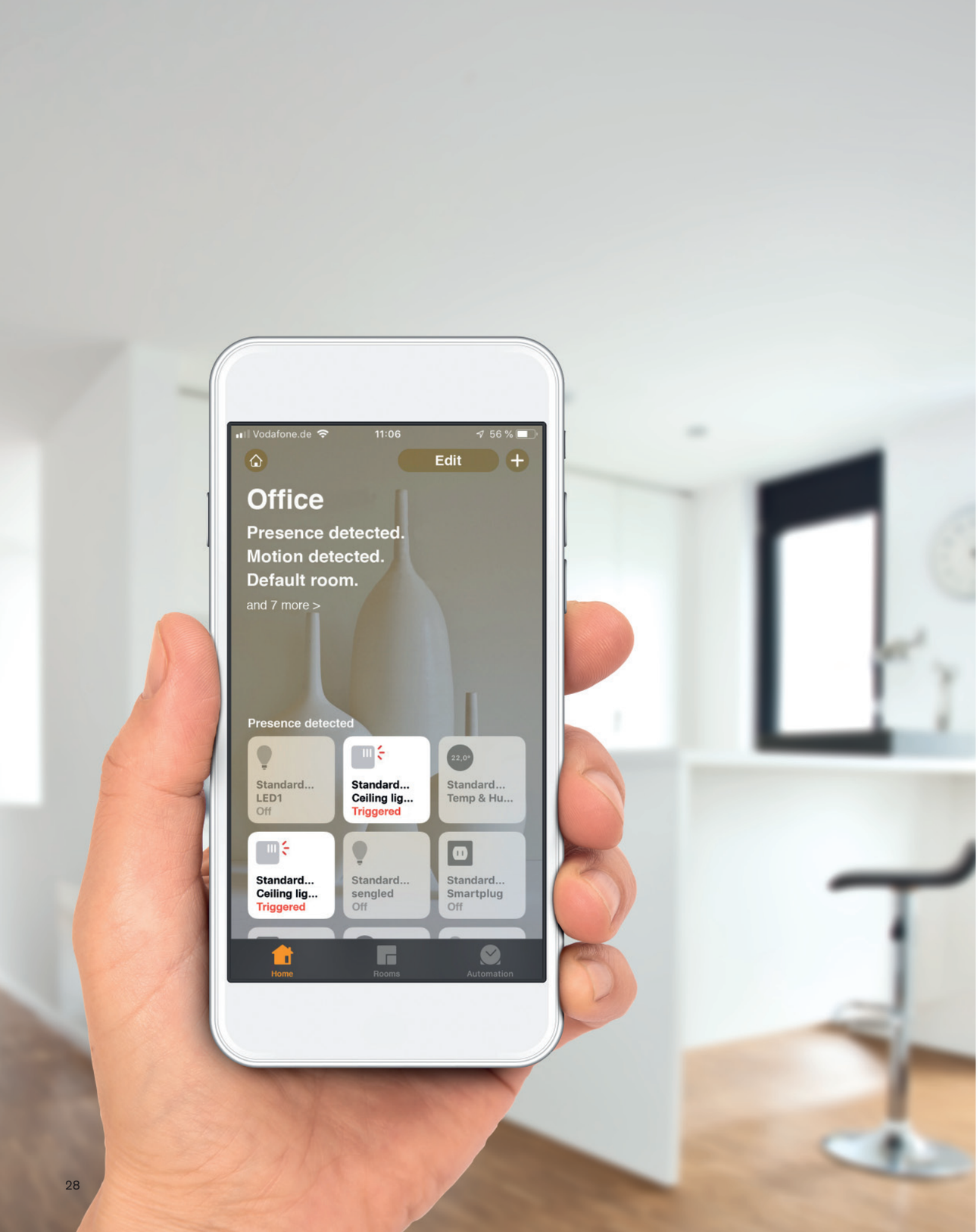
The Amazon Echo speaker connects to the cloud-based Alexa voice service to play music, make phone calls, set alarms and timers, view the calendar, weather, traffic and sports scores, manage to-do and shopping lists as well as compatible smart home devices and more.
With Amazon Echo, you can easily control your ubisys system by voice. Alexa is constantly learning and getting new features and skills. Some features of Amazon Echo in combination with ubisys products:

Dimm function
Dimming your light via voice control with the ubisys Universal Dimmer D1.

Controlling groups
Control multiple ubisys devices simultaneously by voice.

Scenes
Activate your favorite scenes via voice control.

Note: Amazon Echo is available in different versions. In order to control your ubisys components via Alexa, you need the Amazon Echo or Echo Dot in combination with the Gateway G1 and the ubisys Skill.
The Amazon Echo Plus has a built-in Zigbee hub, so no additional hub is required. You can use it to control ubisys devices without the Gateway G1 and ubisys Skill.



Apple HomeKit: ubisys Products are Compatible with Apple HomeKit.

With the Apple Home app, similarily to the ubisys app, you can easily and securely control and monitor your facility:
Since the HomeKit function is already integrated into the operating system, the devices can be controlled quickly – whether via Siri, favorites in the control center or the Home App (also on the Apple Watch).
Let Siri turn off the light from your iPhone. Check on your iPad who's at the front door. Using your Mac, comfortably adjust the temperature in the living room. Control your building from outside via Apple TV. With the Home App, all your connected devices will work better – and smarter.

Over 100 brands worldwide are committed to providing accessories that are compatible with the HomeKit framework, and the number available is growing every day. Each of these accessories is reviewed and approved by Apple to help ensure your security when you use it.

The Home app allows you to set scenes, which enable multiple accessories to work in combination – all with a single command.

Integrate ubisys products into your Apple HomeKit quickly and easily to create scenes and/or scheduled actions.

Energy-Independent Push Button: No Wires, no Battery, no Maintenance – Retrofitting doesn´t get any easier than this.

This battery-free wireless pushbutton as a single or double rocker solution offers you maximum flexibility in the expansion of your ubisys system.
You can attach it anywhere in your property without any complicated installation - it can be easily glued or screwed on, no additional wiring required.

Utilising the Zigbee Green Power standard you can switch individual consumers such as lamps (via ubisys Universal dimmer D1), outlets/sockets (via ubisys S1 Power switch) or entire groups. Furthermore, the button allows the activation of scenes, as well as controlling your shutters and blinds. In addition, the pushbutton can also be linked directly to universal dimmers, shutter controls or power switches from ubisys and works both with or without a gateway. For Zigbee devices that do not yet provide direct or sufficient support for Green Power, the Gateway G1 can also translate – allowing these buttons to be used with most common smart bulbs by major brands.

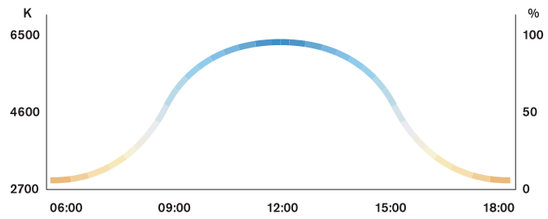
This button is completely maintenance-free – **no battery changes** are necessary, since the necessary energy is gained completely from pressing the button. And thanks to the generic profile, these are highly versatile. Especially in the commercial sector, this solution offers not to be underestimated advantages – especially in terms of cost reduction: No planning effort, minimal installation costs, retrofittable at any time.

Human Centric Lighting (HCL): Daylight Simulation – the Right Light at the Right Time.

Daylight plays an important role in the well-being of humans. But what if it is not available to a sufficient degree?
In this case, artificial light can assume the role of daylight and dynamically simulate the course of the day. Contemporary artificial lighting must be able to promote well-being and human performance. The aim of modern lighting must be to integrate the positive aspects of daylight into lighting design. Of particular importance are the changes in brightness and light color (tunable white). With the ubisys app and Zigbee lights with daylight control, you have the ability to use various pre-made HCL profiles to dynamically adjust your daytime lighting. For example, your daylight could look like this:

- Morning: warm light, less bright
- Noon: cold light, very bright
- Evening: warm light, less bright

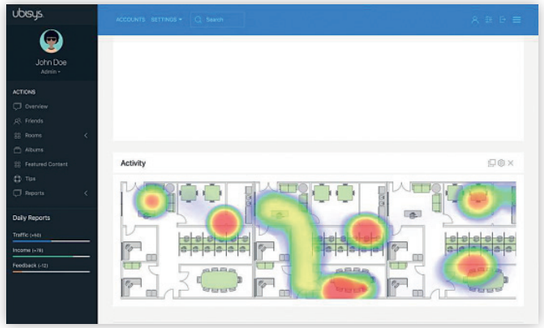
This overall solution is particularly suitable for offices, industry (warehouses), shops (retail) and education. But it is also suitable for the private sector.



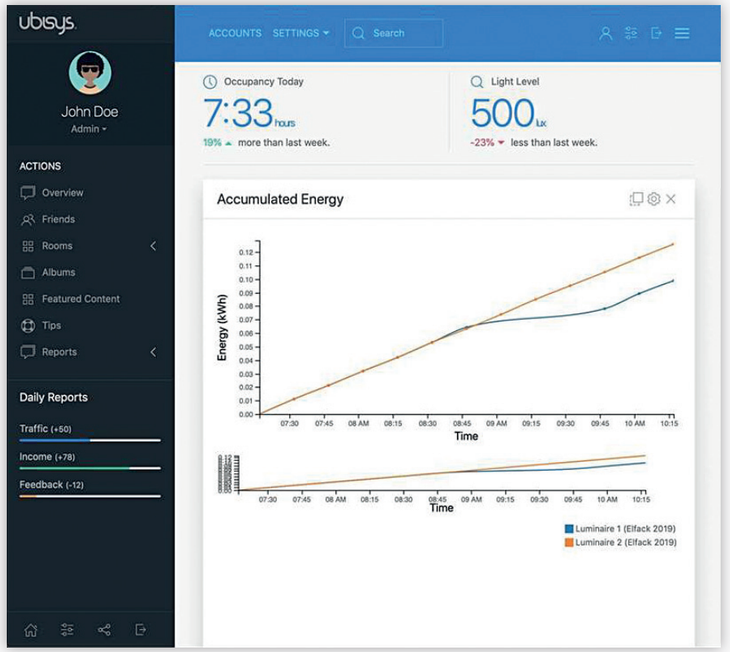
Data Visualization: Collect Data and Statistics on Energy Consumption, Occupancy and Temperature Fluctuations.

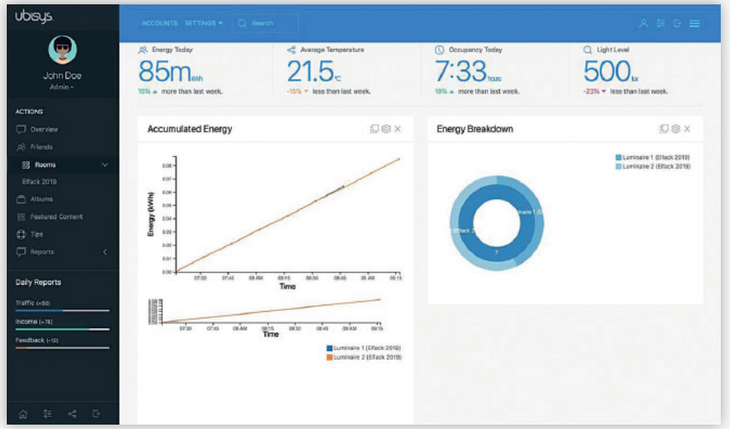
This built-in dashboard for small and mid-size deployments provides insight into your premises. In the form of graphs and diagrams you get detailed information about energy consumption, light level, temperature or occupancy. Consumption values and activities are recorded via various sensors. The following parameters are displayed in the dashboard:

- What was the average light level?
- How well was a certain space utilized?
- How much energy was consumed?
- How does that compare to the last week/month/year?



Heatmap showing activity



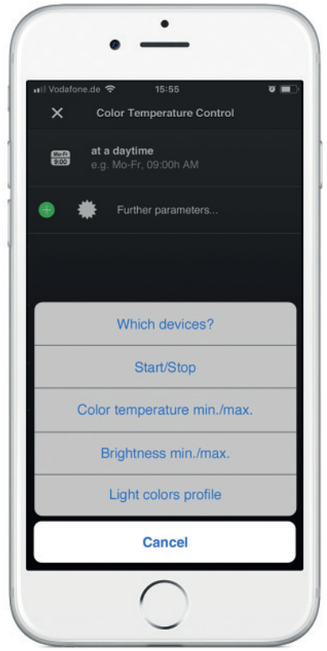


Accumulated energy, occupancy, temperature and light level

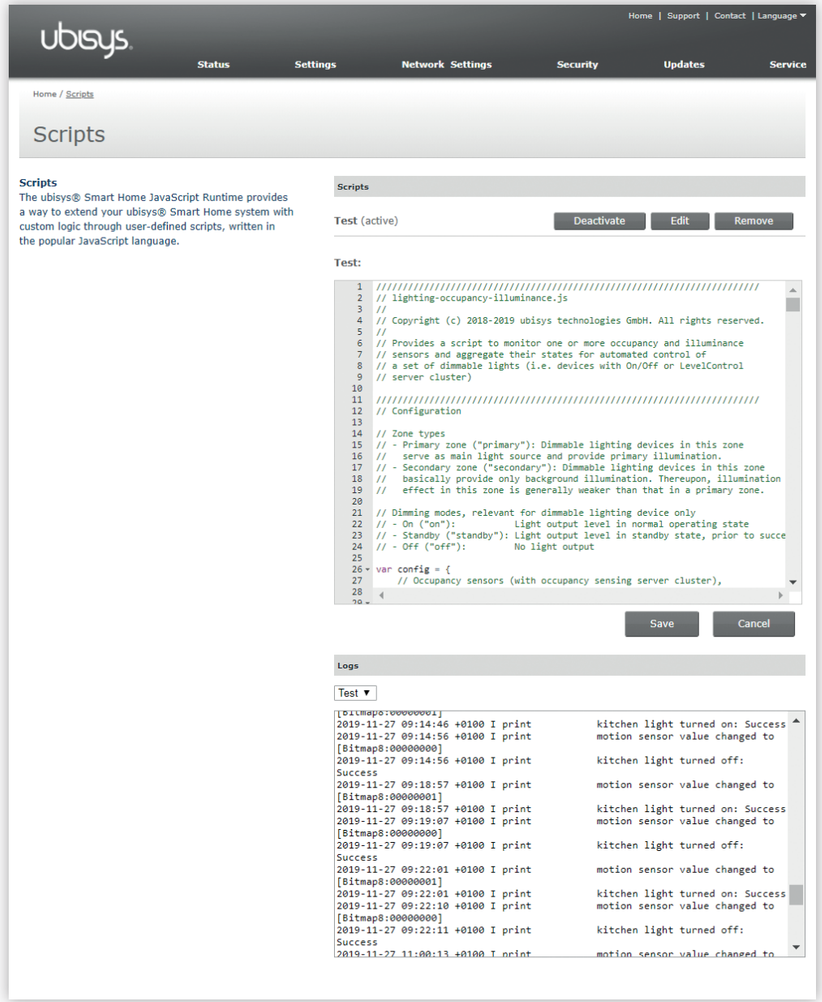
Mini-App Store: Sophisticated Automation easily Configured.

In addition to scenes and timer functions the system from ubisys also includes mini-apps adding yet another automation option. The user can extend his smart home app to further automate his system with applications found in the mini-app store.
These are e.g., applications for the areas of lighting control, color temperature control, shutter control or irrigation control. Predefined parameters (e.g. start/stop times, color temperature, brightness, etc.) can be set individually in the ubisys app and combined with each other. In the background, the JavaScript engine executes the mini-apps.

The photos show examples of screens from the mini-app „color temperature control“. Left: Description of the app in the mini-app store. Right: Defining the parameters for the automation of luminaires.



JavaScript Engine: Individual and Customized Automation for Professionals.

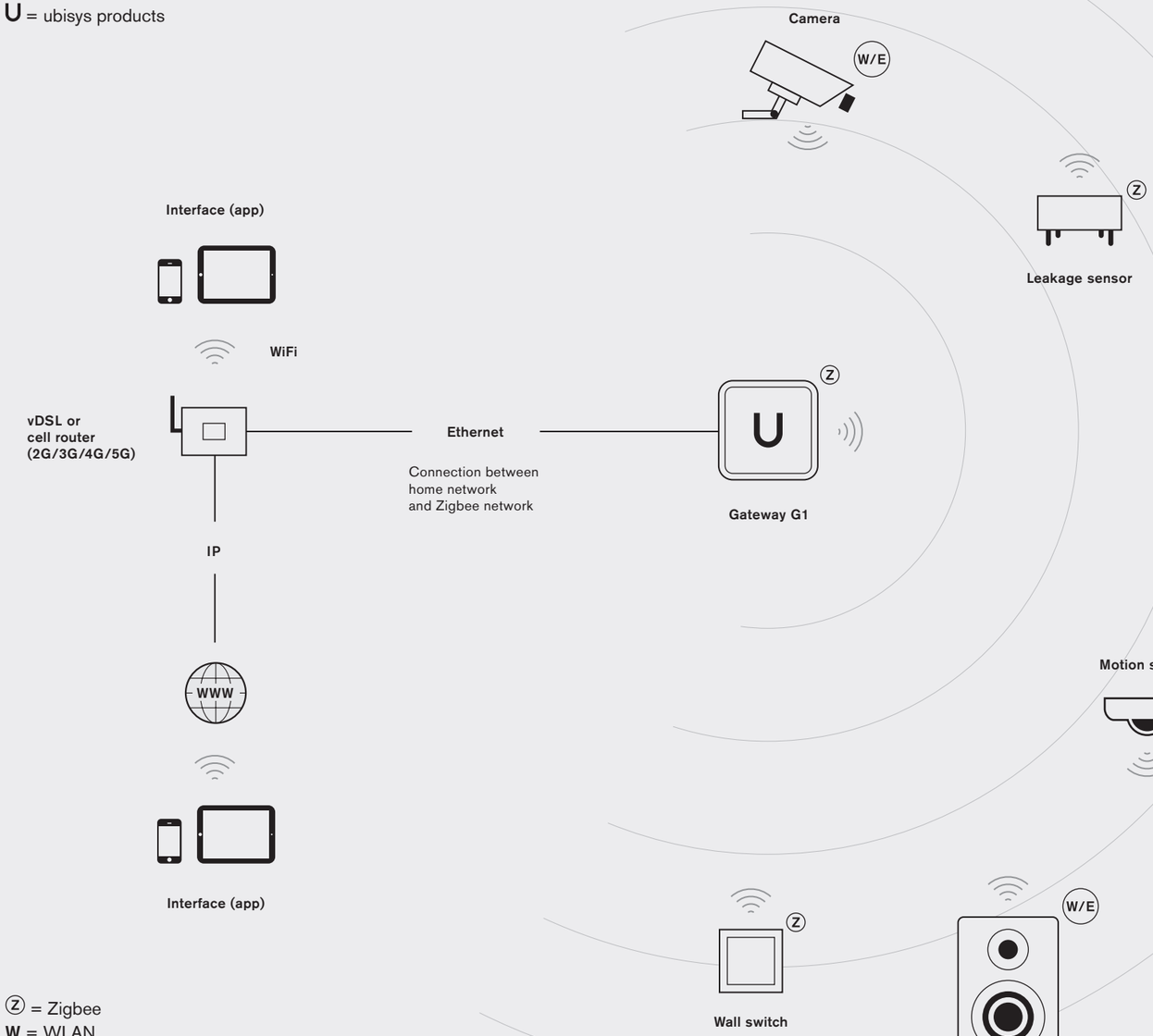


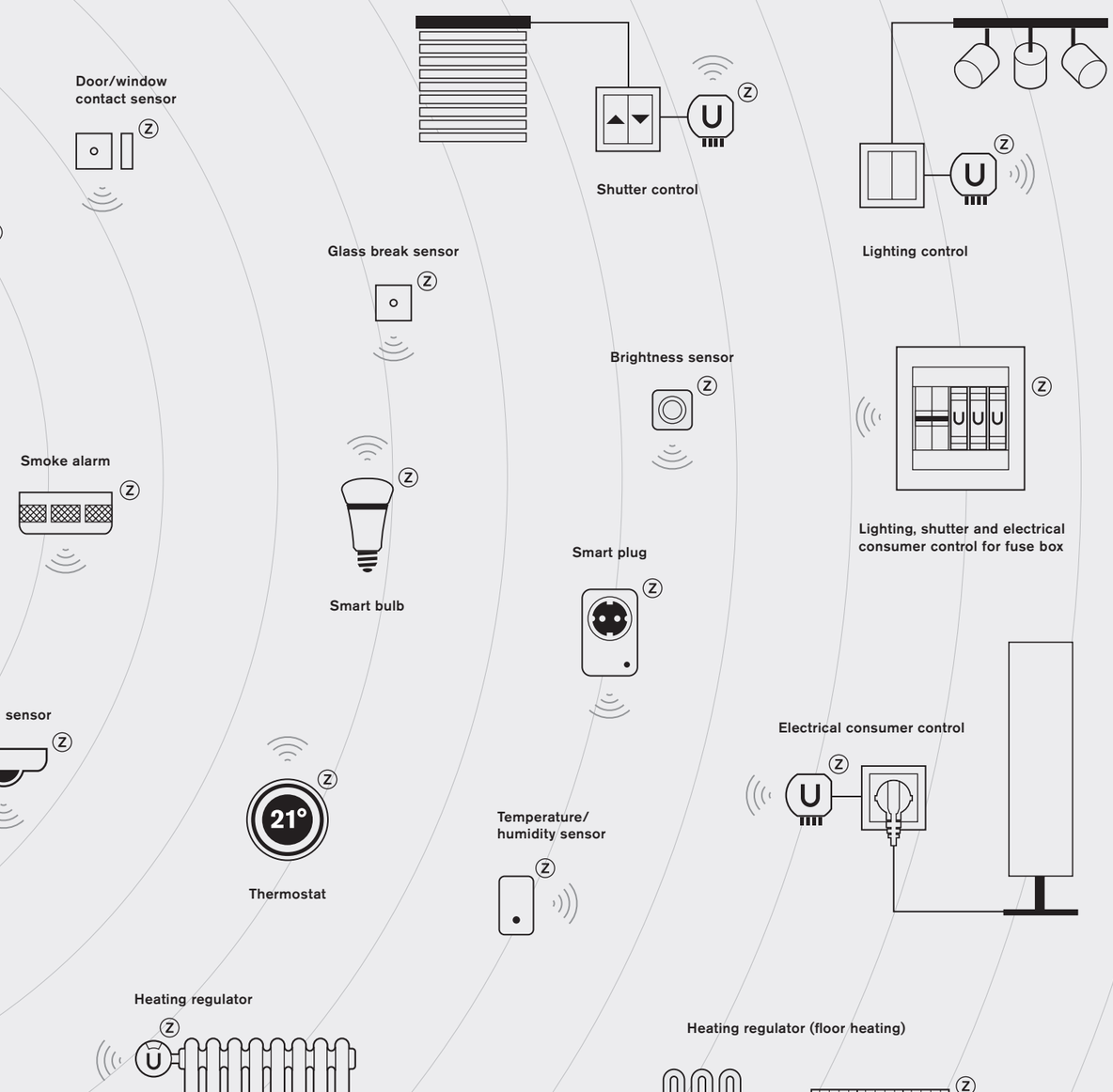
If the possibilities of the mini-apps are not sufficient for the automation of your smart building system, you have another option via JavaScript:
The ubisys Smart Home JavaScript Runtime provides a way to extend your ubisys Smart Building system with custom logic through user-defined scripts, written in the popular JavaScript language. There are almost no restrictions to automate your facility according to your wishes.

For example, you can integrate a logic controlled by motion or brightness sensors into your lighting, as well as highly complex sequences with timers, web hooks and much more. Possibilities that go far beyond simple rule-based systems.
The input field for scripts is located on the web interface of your gateway. You can define as many scripts as you want and activate/deactivate them individually and manage them accordingly. An activated script is executed until it is deactivated or stopped by an error.

System overview with some solutions/products

U = ubisys products





Ⓩ = Zigbee
W = WLAN
E = Ethernet (LAN)

Products for Zigbee Product Developers

Integrate Zigbee into your products! We help you with hardware, software and everything else.
Many companies trust us when it comes to making their products Zigbee-ready. We are happy to help with concepts, hardware components, software solutions, design-in-services and everything else that goes with successful product launches.
In addition to our Smart Building products for lighting, shading, climate, etc., ubisys also offers components specifically for Zigbee product developers. These include e.g. certified golden unit stacks, Zigbee gateway solutions and various software libraries.

If you have any questions about our range of services, our sales team is at your disposal:

T: +49. (0)211. 54 21 55 - 00
E: sales@ubisys.de

Zigbee Stack Solutions

Compact7B™ Zigbee Stack Solution

Overview

Compact7B is an embedded C++ library for 32- and 64-bit controllers and System-on-Chips offering wireless communication based on Zigbee PRO. It requires CompactFrameworkTM and Compact15.4™ to provide the runtime-environment as well as PHY and MAC layers, respectively. The Compact7B™ is Zigbee PRO 2015 Compliant Platform with Green Power feature, awarded Golden Unit designation by the Zigbee Alliance. It is the foundation for the world's first certified Zigbee 3.0 products.

First rate Zigbee products and high-performance applications can easily be developed using the Compact7B™ Stack, as the framework is object-oriented throughout, easing the workload of the firmware developers while giving them more room for their own ideas. Support for Zigbee Green Power and the Zigbee Cluster Library is integral to the framework and most of the Standard Clusters have already been implemented and can easily be integrated in your own applications. Compact7B™ is a mature, reliable and proven solution, providing you with state-of-the-art Zigbee technology.

Features

- C++ class library with all the benefits of inheritance, polymorphism, templates, STL, etc. designed and optimized to run on 32-bit ARMmicro-controllers, SoCs and application processors
- Covers all software from IEEE 802.15.4 MAC and PHY glue, to Zigbee Network (NWK) and Application Support (APS), to Zigbee 3.0 Base Device Behavior (BDB), to the Zigbee Cluster Library (ZCL)
- Industry-unique, fully-integrated Zigbee Green Power (GP)
- All Zigbee device roles supported (Coordinator, Router, Sleeping and non-sleeping End-Device), also in a single binary image (e.g. USB dongle or gateway with configurable role)
- Sophisticated Application Framework with comprehensive and automated support for ZCL clusters, attributes, reporting, etc. with in-built flexibility for customization
- Simplifies application development and maintenance by providing overloadable/overridable default behavior, such that applications are only required to react on changes to attributes, commands etc.
- Use readily available clusters or derive your own implementation with specific tweaks to certain behavior
- Framework includes support for finding & binding, application only has to enable endpoints as finding & binding target or initiator
- Framework automatically generates all the descriptors (active endpoints, simple descriptors, etc.) on behalf of the application
- Supports applications defined at compile-time and optionally applications defined at run-time (e.g. for gateways or bridges)
- Modular and still tightly coupled, monolithic design to ensure optimum code reuse
- Framework libraries for core services, peripherals, timers, smart packethandling, security etc.
- Persistent Storage in flash-memory with ability to repair bad blocks and predictable, deterministic wear leveling for frequently changing values (like counters) featuring an advanced API for searching and updating tokens
- Firmware completely upgradable via USB (e.g. USB dongles, embedded into gateways etc.) or Zigbee OTA Upgrade Cluster
- Designed for performance, reliability and robustness
- Advanced debugging features in debug builds (assertions, heap usage and detailed dump, stack usage etc.)
- Silicon-vendor independent; portable to a variety of microcontroller and IEEE 802.15.4 radio combinations; simplifies migration e.g. when parts are discontinued and also facilitates second source

Existing Ports

- Atmel AT91SAM7S512 (ARM7TDMI, bare-metal) + Texas Instruments CC2520 radio
- Atmel ATSAM4S8B (Cortex-M4, bare-metal) + Texas Instruments CC2520 radio
- Atmel ATSAM4S8B + GP712
- Broadcom BCM2835 (ARM1176JZFS, Raspbian Linux) + Qorvo GP712 radio
- Ralink MT7620 (MIPS 24KEc, openWrt) + Qorvo GP712 radio
- Qorvo GP570, QPG6095 SoC (Cortex-M4, bare-metal), integrated radio

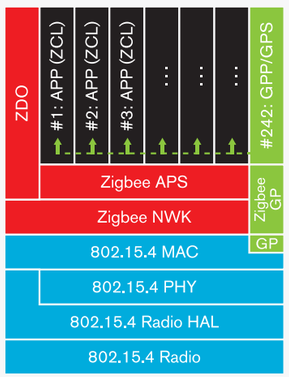
Examples

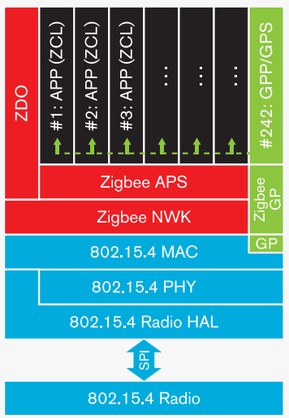
Zigbee SoC Solution (Single-Chip)

- Solution for „things“, i.e. actuators and sensors
- SoC includes radio and MCU running the stack
- All Zigbee device roles supported: Trust Center, Router, or End-Device
- Recommended: Cortex-M, 256KB Flash (512KB for on-chip OTA storageor full debugging features), 32KB+ RAM
- Examples: CC2538, QPG6095, BL707, ARM Cortex-M + Cordio 15.4

Zigbee Transceiver Solution (Dual-Chip or SiP)

- Solution for „things“, i.e. actuators and sensors
- MCU runs stack and application
- Transceiver connected via SPI
- All Zigbee device roles supported: Trust Center, Router, or End-Device
- Recommended: Cortex-M, 256KB Flash ROM (512KB for on-chip OTAstorage or full debugging features), 32KB+ RAM
- Transceiver Examples: CC2520, AT86RF233, GP712
- SiP example: ATSAMR21





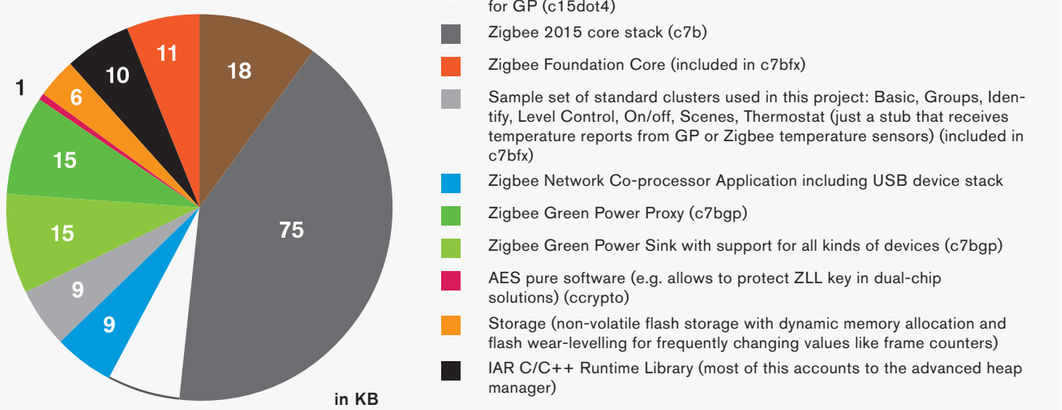
Specifications

Memory Requirements

Zigbee Device Role	Coordinator & Trust Center	Router	End Device	Universal (Runtime Configurable)
Flash (Release)	256KB	256KB	128K	256KB
Flash (Full Debug)	+256KB	+256KB	+128KB	+256KB
Flash on-chip OTA	Twice the above number	Twice the above number	Twice the above number	Twice the above number
RAM	64KB	32KB/64KB	16KB	64KB

Above numbers are for the ARMv7-M architecture (e.g. Cortex-M3/M4), including Compact15.4, Compact7B and a typical application. Examples: A Trust Center product with the release build and not implementing on-chip OTA (e.g. using external memory or another upgrade approach) can be implemented in a device with 256KB Flash. A router using the full debug build and supporting OTA downloads at the same time on the same chip would require up to 1MB of flash memory.

Code Memory Usage Example



Compact15.4™

Overview

Compact15.4™ is a C++ library for 32-bit and 64-bit controllers (e.g. Atmel AT91SAM7S and ATSAM4S) enabling wireless communication based on IEEE 802.15.4 MAC. Our Compact7B™ Zigbee Stack also uses it as a basis. Currently, the 2.4GHz PHY CC2520 by Texas Instruments is supported. It requires the ubisys CompactFramework™ bare-metal OS.

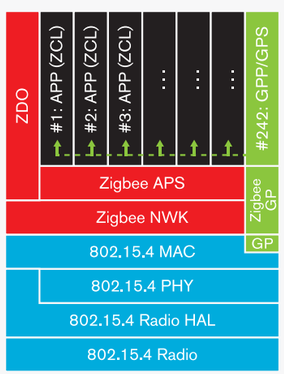
Compared to the widespread IEEE 802.15.4 Stacks for 8-bit controllers with relatively limited RAM, products based on Compact15.4™ deliver significantly higher performance.

The ubisys Compact15.4 MAC includes specific extensions and optimizations for bidirectional Zigbee Green Power communications. Another rare feature when implementing IEEE 802.15.4 MAC is the possibility of supporting multiple PHYs simultaneously, for example making IEEE 802.15.4 868MHz/2.4GHz Bridge Devices possible.

Features

- Compact15.4™ is a certified IEEE 802.15.4 MAC
- Embedded C++ library
- Provides radio hardware abstraction
- Supports varying levels of hardware acceleration
- ubisys extensions for bidirectional Green Power (GP) support
- Depending on the target platform
  - either a full MAC implementation, or
  - a wrapper glue for an existing customer MAC implementation

Example



Platform7B™
All-in-one Zigbee Stack Solution

Overview

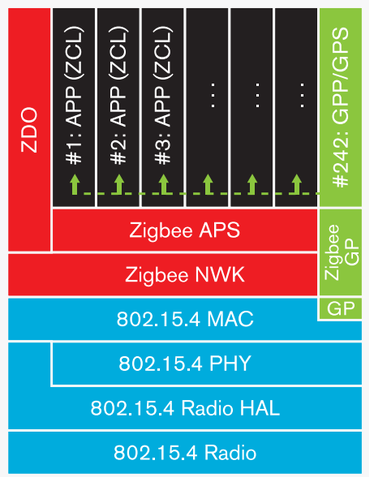
A controller with 2.4GHz RF-Transceiver and the Compact7B™ C++ Zigbee stack: Those are the components of ubisys „Zigbee Platform" which you can use as the foundation for your products.

Compared to the widespread Zigbee Stacks originally designed for constrained for 8-bit controllers with relatively limited RAM, products based on Platform7B™ deliver significantly higher performance.

Examples

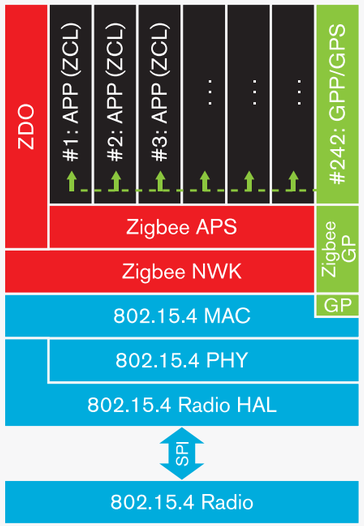
Zigbee SoC Solution (Single-Chip)

- Solution for „things", i.e. actuators and sensors
- SoC includes radio and MCU running the stack
- All Zigbee device roles supported: Trust Center, Router, or End-Device
- Recommended: Cortex-M, 256KB Flash (512KB for on-chip OTA storage or full debugging features), 32KB+ RAM
- Examples: CC2538, QPG6095, ARM Cortex-M + Cordio 15.4



Zigbee Transceiver Solution (Dual-Chip or SiP)

- Solution for „things“, i.e. actuators and sensors
- MCU runs stack and application
- Transceiver connected via SPI
- All Zigbee device roles supported: Trust Center, Router, or End-Device
- Recommended: Cortex-M, 256KB Flash ROM (512KB for on-chip OTA storage or full debugging features), 32KB+ RAM
- Transceiver Examples: CC2520, AT86RF233, GP712
- SiP examples: ATSAMR21

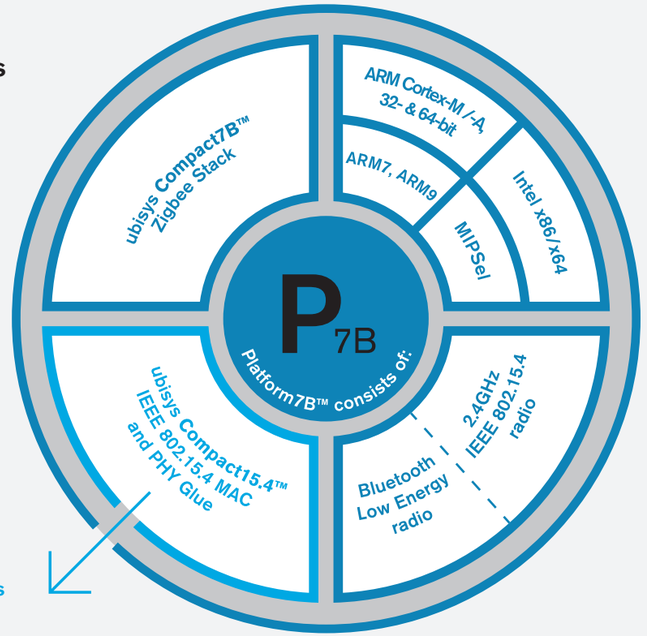


Composition and Certifications

Certifications

Platform7B™ is a Zigbee 2017 certified platform

Compact15.4™ is a certified IEEE 802.15.4 MAC



Awards

Awarded Golden Unit designation for its Zigbee Core Stack

Awarded Golden Unit designation for its Zigbee Green Power feature

All ubisys Zigbee 3.0 certified products are based on this platform.

Hardware

Zigbee USB Stick U1

Overview

Zigbee USB Stick with integrated antenna (2.4 GHz)

Zigbee USB Stick with integrated antenna (2.4 GHz), which allows notebooks, netbooks and PCs to access IEEE 802.15.4/Zigbee radio networks.
You require this stick if you want to use ubisys Zigbee commissioning software for professional installation to set up basic configuration without a gateway during the shell construction phase.

Technical Data

Features
- Zigbee Coordinator and Trust Center
- Zigbee Router
- Centralized and Distributed Security

Further Features
Upwards of firmware version 1.70, the stick can also be used with the ubiqua software from ubilogix to examine networks based on the Zigbee standard or other IEEE 802.15.4 protocols in the 2.4 GHz band.

Standards
- IEEE 802.15.4
- Zigbee 3.0
- USB 2.0 full-speed

Firmware
ubisys Zigbee/USB Adapter

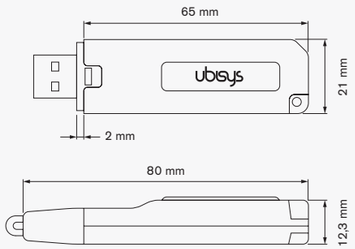
Colour
Black (RAL 9005)

Material
Plastic

Item No. and Price	
Item No.	9072
Price*)	**100,00 €**

*) Price excl. VAT.

zigbee
certified
product



IEEE 802.15.4 Wireshark USB Stick

Overview

IEEE 802.15.4 USB Stick for Wireshark with integrated antenna (2.4 GHz)

Diagnostics tool with remarkable performance for analyzing wireless IEEE 802.15.4 networks in the 2.4GHz band. Use the standard tool Wireshark™ to analyze protocols like 6lowpan, Zigbee and Zigbee PRO, as well as diagnose errors during network installation and evaluate network protocols etc.

This solution is also suitable in case you have realized own protocols based on IEEE 802.15.4 MAC and want to verify them, because Wireshark can easily be extended adding new protocols (e.g. WirelessHART, ISA100.11a etc.) by plug-ins.

High-end components such as the 32-bit ARM processor with a clock frequency of 48 MHz and 64KB SRAM as well as our own ubisys Compact15.4™ MAC implementation allows this Wireshark™ capture device enough performance reserves to analyze dense, high traffic networks – without having to discard frames due to memory shortage or lack of system performance. Especially in network-wide broadcasts leading to a large number of packets within a short period of time, regular IEEE 802.15.4 dongles from other manufacturers will quickly reach their limits.

Due to its small size and being a USB network adapter (Microsoft® RNDIS) this stick is ideally suited for notebooks and netbooks. In contrast to solutions relying solely on ethernet interfaces, here no configuration whatsoever is needed. The channel to be surveyed is chosen with the device manager. You can also run multiple devices recording multiple channels simultaneously.

Technical Data

Standards
- IEEE 802.15.4
- Zigbee 3.0
- Zigbee Green Power
- 6lowpan

Performance
- USB 2.0 full-speed
- ARM7, 48MHz, 64KB RAM
- 128 frames à 127 bytes

Colour
Black (RAL 9005)

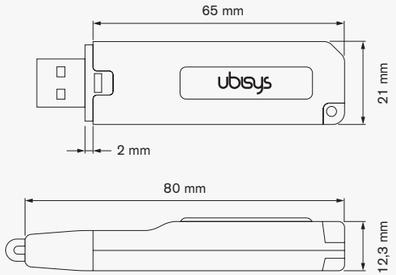
Material
Plastic

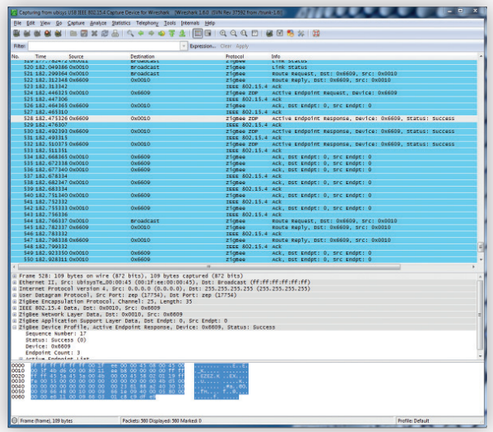
Item No. and Prices	
Item No.	9010
Packaging unit	1 pc
Price*)	199.00 €
Item No.	9041
Packaging unit	16 pcs**)
Price*)	**1,399.00 €**

*) Price excl. VAT.

**) Complete package for simultaneous recording of all 16 channels in the 2.4 GHz band. Recommended for the analysis of frequency hopping systems such as Zigbee RF4CE or detailed analysis of systems with interference-triggered channel switching such as Zigbee PRO.

Products for Zigbee Product Developers / Hardware / Diagnostics tool / IEEE 802.15.4 Wireshark USB Stick





Zigbee Luminaire Module

Overview

The ubisys wireless connectivity module series M7B-Q95 integrates Qorvo's QPG6095 low-power wireless system on chip, which comprises an ARM Cortex-M4, 512KB flash ROM, 64 KB SRAM and a multi-channel, multi-protocol radio with quasi-concurrent support for IEEE 802.15.4 (Zigbee, rf4ce, Thread) and Bluetooth Low Energy (BLE). Additional flash memory is available on the module to store over-the-air upgrade images or other data. This series provides a line-up of surface-mount modules in various common form-factors with different antenna options.
These modules come with the leading ubisys Compact7B™ Zigbee stack and pre-loaded applications, which greatly simplify the design and manufacturing of connected products. For example, ready-to-use images for typical lighting control applications are available, which can directly steer power stages using PWM signals or analogue control circuits using 0-10V signals. In addition, customized firmware can be ordered, which allows interfacing to existing digital control circuits using proprietary protocols running over UART, SPI or I²C.

Features
- 12 GPIO (3 analog)
- Configurable interfaces like UART, SPI or I²C
- Up to 6 PWM channels usable for RGBW or CW/WW
- Preconfigured luminaire-specific clusters (special clusters on request)
- Zigbee router

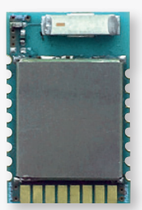
Power Supply
- 3.3V~, 50mA (peak)

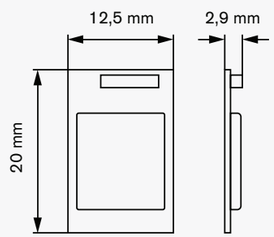
Installation
- PCB mounting

Item No. and Price	
Item No.	1427
Price	on request

Technical Data

Standards
- IEEE 802.15.4
- Zigbee 3.0
- Bluetooth Low Energy 4.2





Zigbee Development Board ZDB

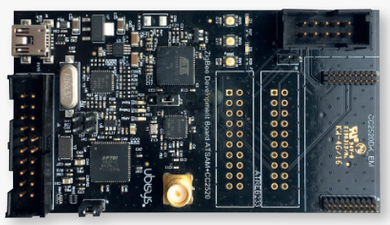
Overview

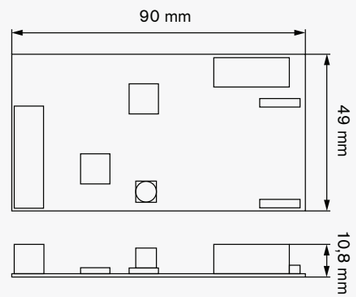
The ZDB development board is available with Golden Unit firmware for the Zigbee Core Stack and Green Power. It is available with AT91SAM7S512 (ARM7TDMI) or ATSAM4S8B (Cortex-M4).
A 2.4GHz 802.15.4 transceiver is on-board (CC2520), others can be connected via connectors (GP712, AT86RF233, CC2520 EM).

Item No. and Price	
Item No.	1410
Price	on request

Technical Data

Standards
- IEEE 802.15.4
- Zigbee 3.0

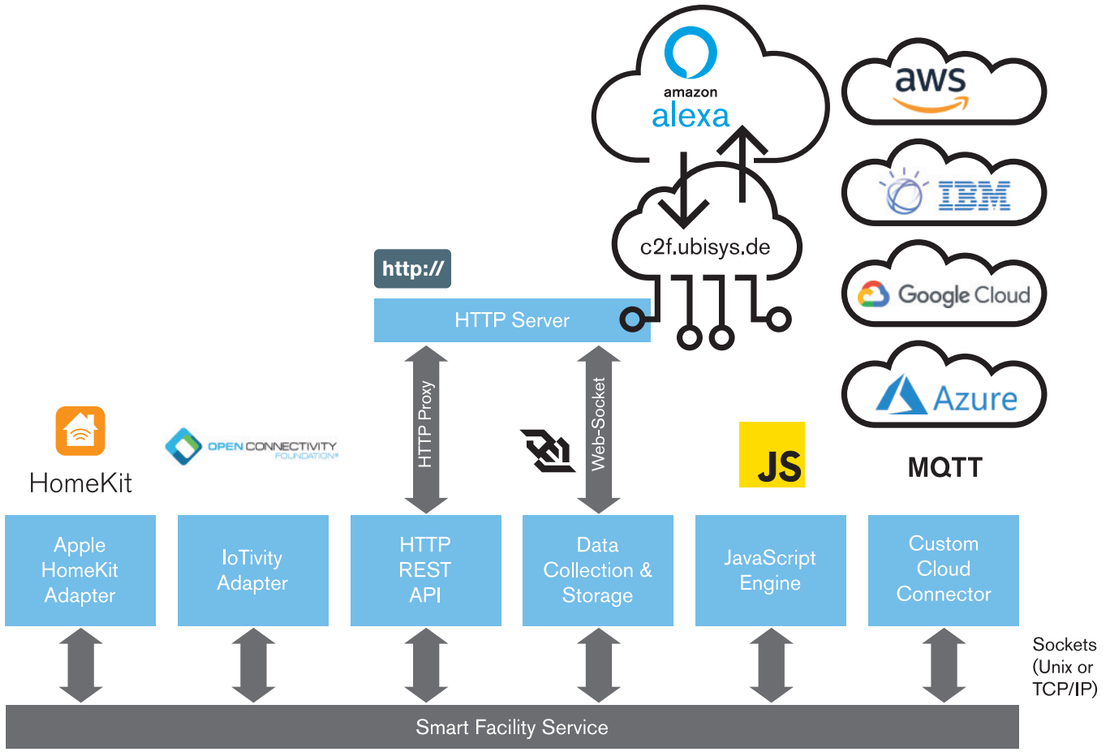




Software

Zigbee Gateway Solutions and Services

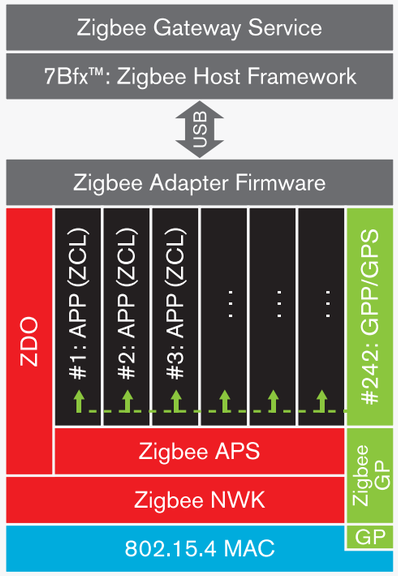
Universal and Scalable Gateway Architecture



Solutions

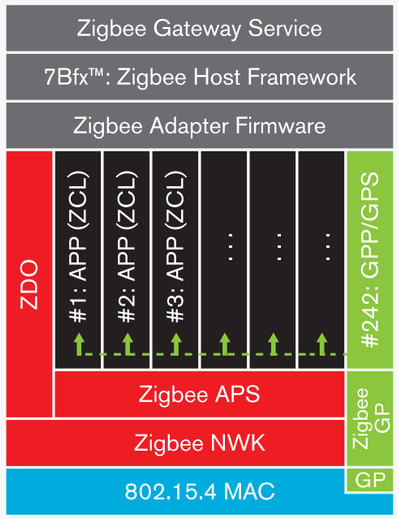
Coprocessor Solution

- Solution for „hubs“, i.e. gateway-grade devices
- Host Processor with Linux OS
- ubisys Zigbee Gateway Service with GRIP binding (ASN.1 binary TCP stream), fully standards-compliant
- Zigbee Adapter Firmware on Single-Chip or Dual-Chip platform serves as Zigbee Network Coprocessor, fully off-loading the host from timing critical tasks



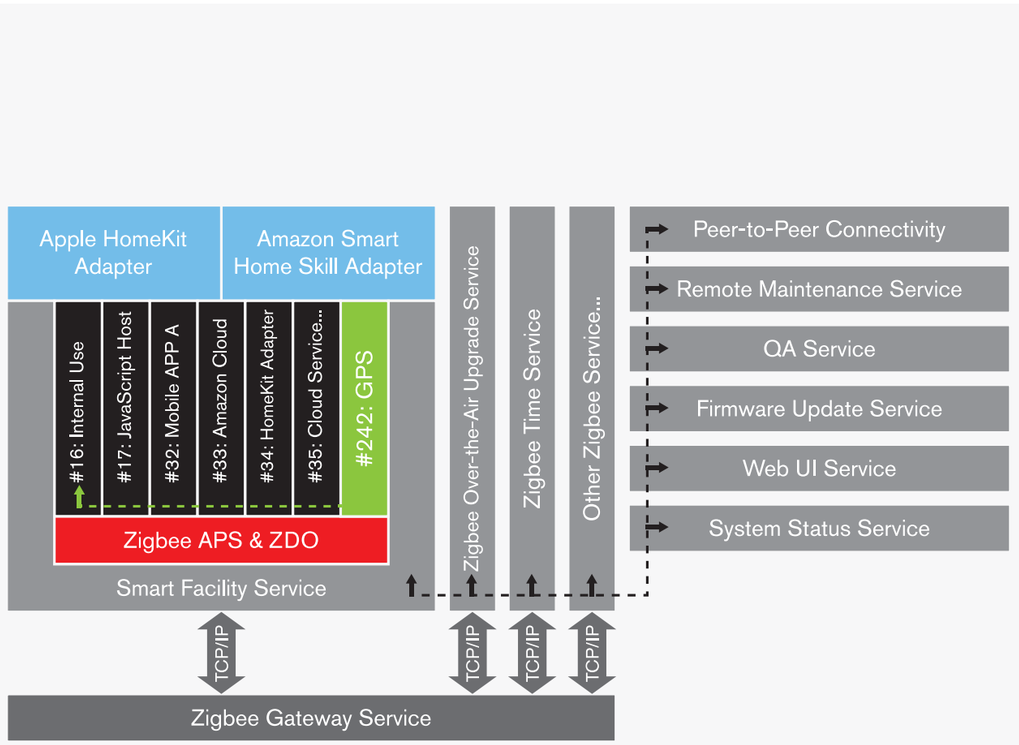
Embedded Stack Solution

- Solution for „hubs“, i.e. gateway-grade devices
- Host Processor with Linux OS
- ubisys Zigbee Gateway Service with GRIP binding (ASN.1 binary TCP stream), fully standards-compliant
- Virtual Zigbee Adapter Firmware on top of embedded Zigbee Stack instead of dedicated Zigbee Network Coprocessor



Products for Zigbee Product Developers / Software / Zigbee Gateway Solutions

Complementary Services for an all-in-one Solution



CompactAES

Overview

CompactAES is an efficient C++ realisation of the symmetrical AES/ Rijndael Block Cyphers utilising either 128, 192 or 256 Bit encryption levels, making it ideal for embedded systems. CompactAES only requires aproximately 1,5KB ROM and only a few hundred bytes RAM on an ARM7TDMI running in thumb mode.

Note: Also suitable for iOS, Android and other mobile platforms.

CompactXML

Overview

ubisys presents CompactXML, a C++ class library allowing you to import and also generate XML documents according to the Extensible Markup Language Recommendation 1.0 . At your disposal you have all interfaces, methods and attributes defined in the Document Object Model (DOM) Specification. The entire library needs around 8KB ROM (ARM Thumb command set). RAM requirements depend on the size of the documents to be proccessed. Memory requirement (ROM and RAM) can cn be reduced even further by deactivating certain features. Amongst them are

- Support for comments
- Support for Processing Instructions
- Support for CDATA Sections
- Support for Attributes

You can also define if the library is to be used for importing or generating XML documents, thereby reducing code volume and RAM requirement accordingly. These optimizing options can safely be used when document proccessing and generating is done by a single person.

Note: Also compatible with iOS, Android and other mobile platforms.

CompactECC

Overview

Being an asymmetric realization ECC ideally complements AES. This happens to be one of the most secure and high performing public-key methods available today. Users can benefit from the advantages without having to bother with the complex mathematics behind elliptical curves over finite fields. Part of CompactECC is an implementation of ECDSA to generate and verify digital signatures and ECDH for key deduction. CompactECC already offers the most important SEC2 standardized curves „out-of-the-box" with encryption levels of 160, 192, 224, 256, 384 and 521 Bit. However, an ECC key with 224 Bit corresponds to a 2048 Bit RSA encryption. Due to this fact ECC is predestined for mobile devices and other embedded systems with low computing performance and limited memory storage capabilities. On an ARM7TDMI the whole package consisting of basis arithmetic ECC and ECDSA requires aprox. 8 KB ROM and — at 256 Bit key length — also aprox. 8 KB RAM. With shorter keys RAM requirement is reduced whereas ROM is only slightly reduced.

Note: Also suitable for iOS, Android and other mobile platforms.

CompactECC+

Overview

For applications requiring especially high performance we have added an optimized ECDSA signature function to the p192r1 curve in our CompactECC library. Signatures along this curve are mandatory for smart meters used in private households (EDL21/EDL40) and industrially (SyM²). The CompactECC+ library generally works with many processors, e.g.32-bit ARM and 8-bit AVR. Optimized assembler code for ARM cores with thumb und thumb 2 command set, e.g. ARM7TDMI and ARM Cortex-M3. Specifically optimized for Atmel's AT91SAM7S, AT91SAM7X and ATSAM3 controllers.

Note: Also suitable for iOS, Android and other mobile platforms.

CompactMD5

Overview

This C++ implementation makes the Message Digest 5 Algorithm for Embedded System applications possible. This allows you to generate 128 Bit long Hash Values to test files for integrity. Compared to CompactMD5 regular implementations require a multiple amount of ROM/RAM rendering them useless for MCUs with limited resources. On an ARM7TDMI our MD5 implementation only needs ca. 1,5KB ROM and about a hundert Byte RAM. For safety-critical applications, e.g. digital signatures we do not recommend the MD5 Algorithm, due to some security issues which could present an opportunity to potential attackers. In this case a version of the SHA-2 family is a better fit, for example SHA-256.

Note: Also compatible with iOS, Android and other mobile platforms.

CompactSHA

Overview

If higher security than MD5 offers is required, SHA-256 is the answer. This secure algorithm meets the highest standards. As all our products from the Compact range, CompactSHA™ was developed for under-resourced MCUs. On an ARM7TDMI our implementation only needs ca. 3KB ROM.

Note: Also compatible with iOS, Android and other mobile platforms.

CompactStorage

Overview

This C++ library offers you a dynamic memory management for Flash Memory. Define a memory pool from where, by and by areas of unlimited size can be requested. This way commands such as the common malloc() and free() functions for Flash memory are at your disposal.
In addition, this persistent storage library provides associative, non-volatile storage for any data, including configuration data.

Version 2 is optimized for modern flash memory and robust and durable thanks to wear-leveling and journaling. Here it makes no difference whether you want to use areas on the on-chip Flash ROM of a microcontroller to log configuration data, or record sensor data on an external SPI Flash.

Note: Also compatible with iOS, Android and other mobile platforms.

Network Manager

Overview

Zigbee Software for Evaluation, Testing and Commissioning

With the ubisys Zigbee Network Manager, the electrician, system integrator or technically interested user can search for Zigbee networks on a PC, notebook, netbook or tablet and log into a network to perform a basic configuration, document the installation, diagnose problems, etc. A basic knowledge of the Zigbee concepts is a prerequisite for the successful use of this versatile tool.
Create bindings, set up reportings, explore the network, check settings, etc. The software also supports Zigbee devices from other manufacturers.
The program is also ideal for rapid evaluation of Zigbee components.

Supported Function Groups (Zigbee Cluster):

Network Functions	▪ Search for Zigbee networks ▪ Create a new network ▪ Join an existing network	▪ Leave the network ▪ Diagram of channel workload
Management (ZDO/ZDP)	▪ Explore network ▪ Address solution ▪ Open/close network ▪ Create/delete bindings	▪ Retrieve report settings ▪ Remove a device from the network
Basic Functions (Basic Cluster)	▪ Restore default settings ▪ Manufacturer, model, date of manufacture	▪ Identification ▪ Installation location ▪ Environment
Identification (Identify Cluster)	▪ Allow unit to identify	
Groups (Groups Cluster)	▪ Add device to a group ▪ Remove device from a group	▪ Show group membership
Scenes (Scenes Cluster)	▪ Number of saved scenes ▪ Future version: Edit scenes	
Switching (On/off Cluster)	▪ Turn on ▪ Turn off	▪ Switch ▪ Request switching state
Level (Level-Control Cluster)	▪ Approach certain level ▪ Raise/lower	▪ Stop ▪ Request level
Colour (Color-Control Cluster)	▪ Set specific colour ▪ Request current colour	
Shutter Control (Window Covering Cluster)	▪ Raise until stop ▪ Lower until stop ▪ Stop ▪ Target certain height (absolute, percentaged)	▪ Adjust lamella angle (absolute, percentaged) ▪ Parameterizing methods ▪ Calibration (only ubisys devices)
Meter (Metering Cluster)	▪ Total consumption ▪ Total yield ▪ Instantaneous power (received)	▪ Instantaneous power (released)
Thermostat (Thermostat Cluster)	▪ Request room and outside temperature ▪ Request presence state ▪ Request temperature ranges of heating and cooling regulators ▪ Request and specify limitations of the desired value ranges	▪ Select internal or external sensors for control circuits ▪ Request and specify desired values both for presence and absence case for heating and cooling regulators
Temperature Measurement (Temperature Measurement Cluster)	▪ Measurement value ▪ Measurement range	▪ Tolerance
Electrical Measurement (Electrical Measurement Cluster)	▪ Voltage ▪ Current ▪ Frequency ▪ Phase angle	▪ Power factor ▪ Apparent power ▪ Active power ▪ Reactive power
Power Source (Power Configuration Cluster)	▪ Power supply: Voltage, frequency ▪ Power supply: Alert threshold for both undervoltage and overvoltage	▪ Battery: Manufacturer, type, rated capacitance, rated voltage, amount, voltage, alert threshold for undervoltage
Commissioning (Commissioning Cluster)	▪ Pre-configure network key ▪ Change commissioning key	▪ Set channel mask ▪ Set transmitting power
Commissioning (Touchlink Cluster)	▪ Restore to default settings	
Firmware Update (OTA Upgrade Cluster)	▪ Start an update	▪ Display parameters

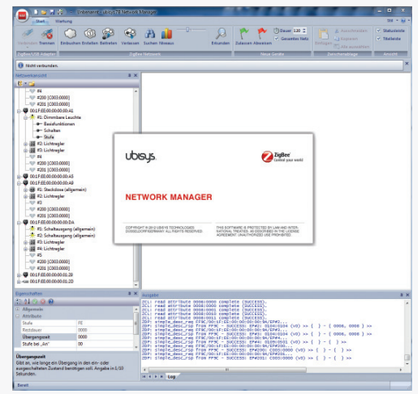
Technical Data

Standards
Zigbee 3.0

System requirements
- PC with x86 or x64 processor
- Windows Vista, Windows 7, Windows 8, Windows Server 2008, 2008 R2, 2012
- The Network Manager is a desktop application
- ubisys Zigbee USB Stick U1

Item No. and Price	
Item No.	1113
Price*)	**200.00 €** (Company-wide license)

*) Price excl. VAT.



Products for Zigbee Product Developers / Software / Network Manager

Smart Building Products (also as OEM)

You would like to launch a Zigbee product in the smart building segment on short notice?

Then take advantage of our white label service and bring ubisys products to market under your company name within the framework of a partnership.
Products and solutions from ubisys are „Made in Germany“ and are distinguished by being of highest quality, easiest handling and smoothest operation. Furthermore, ubisys also offers customized special developments based on the current product portfolio.

If you have any questions concerning these topics, simply contact us by phone or by e-mail. Our support team will be happy to help.

T: +49. (0)211. 54 21 55 - 00
E: support@ubisys.de

Smart Building Products

Overview

On the following pages you get an overview of our current smart building portfolio. All components shown here are also available as a white label version. Either in a co-branded or a complete re-branding version.
In addition to the devices, the corresponding documentation is possible in your corporate design.

For more detailed information about each component and its features, visit our website or contact our sales team: sales@ubisys.de.

Gateway G1

G1

ubisys G1 — Zigbee/Ethernet Gateway

The gateway links your wirelessly connected devices to the outside world. It not only establishes a link via the internet connecting the ubisys Smart Home App on your mobile end device, or a cloud service like Alexa, to the Zigbee components installed in your home; it also provides the edge intelligence required for a low-latency experience, which is also resilient to cloud server outages and internet connectivity issues. Connect the gateway to your DSL or cell router (2G/3G/4G/5G) and manage and monitor your facility while on the road. Whether we are talking about Zigbee transmission within the object or outside access, proven encryption, key exchange, and signature procedures (AES-128, ECDH, ECDSA) ensure that you have the highest levels of security always keep control.

Privacy guaranteed: no cloud service – your data stays on the gateway

System Details
- 32Bit ARM CPU, 400MHz
- 128MB DDR2 SDRAM
- 256MB NAND-Flash

Power Supply
- 5V⎓, 48V (PoE)
- Power consumption: 0.8W

Gateway Server Software
- Smart facility server
- Zigbee over-the-air upgrade server
- Zigbee time server
- Zigbee/IP gateway (GRIP)
- Linux operating system
- Apple HomeKit bridge
- Amazon Alexa integration
- HTTP REST API
- Data collection and storage service
- Self-contained web dashboard

Standards
- IEEE 802.3af PD
- IEEE 802.15.4
- Zigbee 3.0

zigbee certified product

green power by zigbee alliance

Unparalleled Compatibility
- Zigbee 3.0
- Zigbee Light Link 1.0, 1.1
- Zigbee Home Automation 1.0, 1.1, 1.2
- Strong Support for Zigbee Green Power
- Diverse application domains beyond Lighting, e.g. HVAC, Security & Safety, Energy Management, Closures, etc.
- Open platform, no white listing
- Compliant devices in supported application areas expected to work out of the box, regardless of make & model

Connections
- 10/100 Base-T Ethernet, PoE PD
- Power supply, 5V/1A (only needed if PoE is not desired)
- USB 2.0 High-Speed Host Port (for future development)
- Version with RP-SMA for external Antenna available

The G1 is available in different versions and price levels. In general, we recommend the version with integrated antenna and PoE option.

Item No. and Price	
Version	
PoE*)	yes
Antenna	integrated
Item No.	1014
Price)**	**293.28 €**

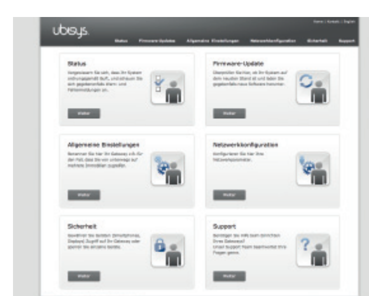
*) Power-over-Ethernet
**) Price excl. VAT.

Web Interface

The web interface gives apps on selected devices access to your Smart Building.

The intuitive interface makes the gateway easy to set up. All you need is a web browser. The gateway can download updated firmware for itself and all other ubisys components in the object. In addition, we regularly make new features available to you. Should, contrary to expectations, a problem arise, it can also be solved through the interface, as the interface also includes a remote maintenance function which can only be activated by yourself, allowing our customer service access to your device.

Features
- Network configuration (DHCP, static etc.)
- Firmware-Updates – also for already deployed devices
- Enrolling of mobile devices, and revoking access permissions
- Enable remote maintenance access



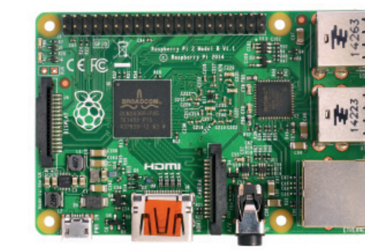
Further Gateway OEM Solutions

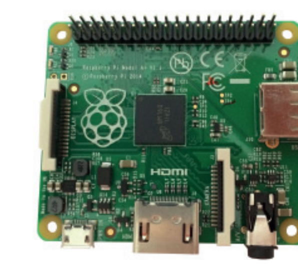
Fully Customized Gateways (OEM/ODM)

Various levels of customization and design services are offered by ubisys:

Integration/design-in/customization
- Build your own gateway or augment your existing hub with industry-leading Zigbee capabilities
- Proven hard- and software architecture and technology
- Already supporting 20+ toolchains for ARMv5TE, ARMv7-A, ARMv8-A, MIPSel, x86, x64 in combination with glibc, uclibc, newlib, etc. for Linux and Android

Customer-Specific Firmware for G1
Options include (upon request only):
- Rebranding, i.e. embedded website adhering to customer's corporate design
- Customer-specific default settings, e.g. OTA time windows, reporting configuration details, etc.
- Additional (exclusive) features, for instance custom connectors for cloud platforms like AWS IoT, IBM Watson IoT, Google Cloud IoT, Azure IoT, and others, including proprietary





Interface

ubisys App

App for Smartphones and Tablets

The ubisys Smart Home App allows you to manage your property with an iPhone, iPad oder iPod touch – while on the road or from any room in your building. Of course there is also a version for smartphones oder tablets running on the Google Android operating system available. Operation is simple and intuitive. You can keep an eye on the building technology any time with mobile radio or WiFi.

Erhältlich im App Store

ANDROID APP ON Google play

Availability and Price	
Apple*) (iOS 6.0 or higher)	**iPhone** (3GS, 4, 4S, 5, 5C, 5S, 6, 6+, 7, 8, X, 11) **iPad** (1, 2, 3, mini, Air, Air2, Pro) **iPod touch**
Google Android (version 2.3 or higher)	e.g. Samsung, LG, HTC, Motorola, Sony etc.
Item No.	1083
Price	**free**

***) Note:** New versions of the app may require newer iOS versions. Older devices will continue to work, but new features or bug fixes will not be available.

Lighting and Consumers

Universal Dimmer D1

Radio networked and with power consumption metering

This universal dimmer allows for variable dimming of conventional light bulbs, high-voltage halogen lamps, low-voltage halogen lamps with a conventional wound transformer, low-voltage halogen lamps with a dimmable electronic transformer, and even dimmable LEDs and CFL lamps. Unfortunately, conventional fluorescent lights can not be dimmed. All essential electric properties (R/L/C) of the attached end devices are gauged when switched on and then the best suited dimming mode (forward or reverse phase control, also known as leading and trailing edge, respectively) will be selected automatically.
Wireless, battery-free and therefore maintenance-free Zigbee Green Power switches can be linked directly.

Features
- 1 dimming end device
- 2 operating elements (push-buttons)
- Consumption metering
- Zigbee router
- Zigbee Green Power Sink

Output (consumer)
- 230V~, 50Hz, 500VA
- Leading phase angle (L)
- Trailing phase angle (R/C)

Item No. and Price	
Item No.	1045
Price*)	**100.00 €**

*) Price excl. VAT.

zigbee certified product

green power by zigbee alliance

Universal Dimmer D1-R

Radio networked and with power consumption metering

This universal dimmer allows for variable dimming of conventional light bulbs, high-voltage halogen lamps, low-voltage halogen lamps with a conventional wound transformer, low-voltage halogen lamps with a dimmable electronic transformer, and even dimmable LEDs and CFL lamps. Unfortunately, conventional fluorescent lights can not be dimmed. All essential electric properties (R/L/C) of the attached end devices are gauged when switched on and then the best suited dimming mode (forward or reverse phase control, also known as leading and trailing edge, respectively) will be selected automatically.
Wireless, battery-free and therefore maintenance-free Zigbee Green Power switches can be linked directly.

Features
- 1 dimming end device
- 2 operating elements (push-buttons)
- Consumption metering
- Zigbee router
- Zigbee Green Power Sink

Output (consumer)
- 230V~, 50Hz, 500VA
- Leading phase angle (L)
- Trailing phase angle (R/C)

Item No. and Price	
Item No.	1137
Price*)	**116.81 €**

*) Price excl. VAT.

zigbee certified product

green power by zigbee alliance

Power Switch S1

Radio networked and with power consumption metering

This universal switching actuator allows you to switch any electrical consumer/end device with a constant power draw of up 3,680VA – corresponding to a current of 16A at 230V. The actual switching is done by a bi-stable relay that only draws power when switched and also happens to be extraordinarily reliable and durable. It retains its switching state over reboots, as e.g. occur after a firmware update.
Wireless, battery-free and therefore maintenance-free Zigbee Green Power switches can be linked directly.

Features
- 1 end device switch
- 1 operating element (push-button)
- Consumption metering
- Zigbee router
- Zigbee Green Power Sink

Output (consumer)
- 230V~, 50Hz, 3,680VA, 16A max.
- Relays, bistable

Item No. and Price	
Item No.	1052
Price*)	**83.19 €**

*) Price excl. VAT.

zigbee certified product

green power by zigbee alliance

Power Switch S1-R

Radio networked and with power consumption metering

This universal switching actuator allows you to switch any electrical consumer/end device with a constant power draw of up 3,680VA – corresponding to a current of 16A at 230V. The actual switching is done by a bi-stable relay that only draws power when switched and also happens to be extraordinarily reliable and durable. It retains its switching state over reboots, as e.g. occur after a firmware update.
Wireless, battery-free and therefore maintenance-free Zigbee Green Power switches can be linked directly.

Features
- 1 end device switch
- 2 operating element (push-button)
- Consumption metering
- Zigbee router
- Zigbee Green Power Sink

Output (consumer)
- 230V~, 50Hz, 3,680VA, 16A max.
- Relays, bistable

Item No. and Price	
Item No.	1151
Price*)	**100.00 €**

*) Price excl. VAT.

zigbee certified product

green power by zigbee alliance

Power Switch S2

Radio networked and with power consumption metering

This universal switching actuator allows you to switch any two electrical consumers/end devices (motors as well) with a constant power draw of up to 500VA each. Topnotch and absolutely wear-free semiconductor switches (TRIACs) guarantee a very long life span and silent switching. Perfectly suited for double light fixtures and double switches.
Wireless, battery-free and therefore maintenance-free Zigbee Green Power switches can be linked directly.

Features
- 2 end devices switch
- 2 operating elements (push-buttons)
- Consumption metering
- Zigbee router
- Zigbee Green Power Sink

Output (consumer)
- 1: 230V~, 50Hz, 500VA
- 2: 230V~, 50Hz, 500VA
- TRIAC

Item No. and Price	
Item No.	1069
Price*)	**83.19 €**

*) Price excl. VAT.

zigbee certified product

green power by zigbee alliance

Power Switch S2-R

Radio networked and with power consumption metering

This universal switching actuator allows you to switch any two electrical consumers/end devices (motors as well) with a constant power draw of up to 500VA each. Topnotch and absolutely wear-free semiconductor switches (TRIACs) guarantee a very long-life span and silent switching. Perfectly suited for double light fixtures and double switches.
Wireless, battery-free and therefore maintenance-free Zigbee Green Power switches can be linked directly.

Features
- 2 end devices switch
- 2 operating elements (push-buttons)
- Consumption metering
- Zigbee router
- Zigbee Green Power Sink

Output (consumer)
- 1: 230V~, 50Hz, 500VA
- 2: 230V~, 50Hz, 500VA
- TRIAC

Item No. and Price	
Item No.	1168
Price*)	**100.00 €**

*) Price excl. VAT.

zigbee certified product

green power by zigbee alliance

Shading

Shutter Control J1

Radio networked and with power consumption metering

This shutter control allows you to drive your shutters, awnings, screens and blinds up and down. Connect conventional tubular motors with a mechanical or electronic limit switch. After the teach-in phase (calibration), the blind controller can be used to position the height and if possible the slat angle. You can use motors with a max. power output of up to 500VA. Wireless, battery-free and therefore maintenance-free Zigbee Green Power switches can be linked directly.

Features
- 1 shutter control
- 2 operating elements (push-buttons)
- Consumption metering
- Zigbee router
- Zigbee Green Power Sink

Output (consumer)
- 230V~, 50Hz, 500VA
- TRIAC

Item No. and Price	
Item No.	1076
Price*)	**125.21 €**

*) Price excl. VAT.

zigbee certified product

green power by zigbee alliance

Shutter Control J1-R

Radio networked and with power consumption metering

This shutter control allows you to drive your shutters, awnings, screens and blinds up and down. Connect conventional tubular motors with mechanical or electronic limit switch. After the teach-in phase (calibration), the blind controller can be used to position the height and possibly the slat angle. You can use motors with a max. power output of up to 500VA. Wireless, battery-free and therefore maintenance-free Zigbee Green Power switches can be linked directly.

Features
- 1 shutter control
- 2 operating elements (push-buttons)
- Consumption metering
- Zigbee router
- Zigbee Green Power Sink

Output (consumer)
- 230V~, 50Hz, 500VA
- TRIAC

Item No. and Price	
Item No.	1144
Price*)	**142.02 €**

*) Price excl. VAT.

zigbee certified product

green power by zigbee alliance

Climate

Heating Regulator H1

Radiator thermostat – radio networked

The heating regulator H1 is a radio controlled actuator with an integrated thermostat for radiators. It can be retrofitted at any time and therefore is also suitable for existing buildings. The H1 is battery powered and characterized by its low power consumption.
In addition to controlling it via a smart home system, the desired temperature can also be set on the device via a rotary knob.

The device has internal temperature sensors, but can also be linked to a Zigbee room temperature sensor if the gateway supports this feature.

And with the over-the-air (OTA) firmware upgrade, this component, like all our smart building components, stays up to date.

Features
- Regulating of a radiator

Standards
- IEEE 802.15.4
- Zigbee 3.0

Item No. and Price	
Item No.	1267
Price*)	**67.22 €**

*) Price excl. VAT.

Heating Regulator H10

Heating regulator H10 for underfloor heating systems – wireless networked

The heating regulator H10 is a radio controlled room temperature regulator for up to 10 independent heating and/or cooling zones.

Moreover the heating regulator H10 allows for individual room control and is very versatile due to its modular concept. The base module fits up to 10 thermo-electric actuators for underfloor heating to be connected to your smart building. Optional add-on modules offer controlling of circulation pumps, the detection of forward and return flow temperatures for advanced control algorithms, generating heat requirement notifications to conventional boilers, and connecting existing room thermostats. It goes without saying that includes communicating with Zigbee thermostats and temperature sensors. Available in a 24V and 230V version.

Some features at a glance:

- Modular design – perfectly suited for adapting to customer's heating infrastructure with following devices: Thermostat interface, heating/cooling demand module, sensor interface and pump control
- Base module H10-B for direct driving of thermoelectric radiator valves: either 10 heating or cooling zones (one valve control output per zone, two-pipe system); or 5 heating and cooling zones (two valve control outputs per zone, four-pipe system)
- Compatible with Legrand's in-wall thermostat UI Model No. 0 663 40
- Different operating modes: Under normal operating conditions thermostat set-points, occupancy information and temperature readings are used for closed-loop control of the temperature; When sensor reports are missing the device enters back-up mode and applies default valve opening values with different pre-sets for summer and winter seasons; Automatic temperature regulation of the built-in thermostat can be overruled by setting arbitrary steering values per valve output, e.g. 10%, 50% or 100% using Zigbee level steering; Pass-through mode allows legacy wired in-wall thermostats to control valve outputs, i.e. the valve behaves like it was directly wired to the legacy thermostat; Manual mode allows valve control using a button (bypassing valve settings determined by either the Zigbee thermostat, legacy thermostats, or Zigbee level steering)
- Supports classic and Green Power sensors directly

Further features

- Individual room control for floor heating
- Zigbee router
- Zigbee Green Power Sink

Nominal voltage

- 24V-version: 24V
- 230V-version: 230V~, 50Hz

Max. switching capacity

- 24V-version: 5W per output
- 230V-version: 10VA per output

Standards

- IEEE 802.15.4
- Zigbee 3.0

Item No. and Price	
Item No.	1205 (230V) 1199 (24V)
Price*)	**209.24 €**

*) Price excl. VAT.

For which heating/cooling systems is the heating regulator H10 suitable?

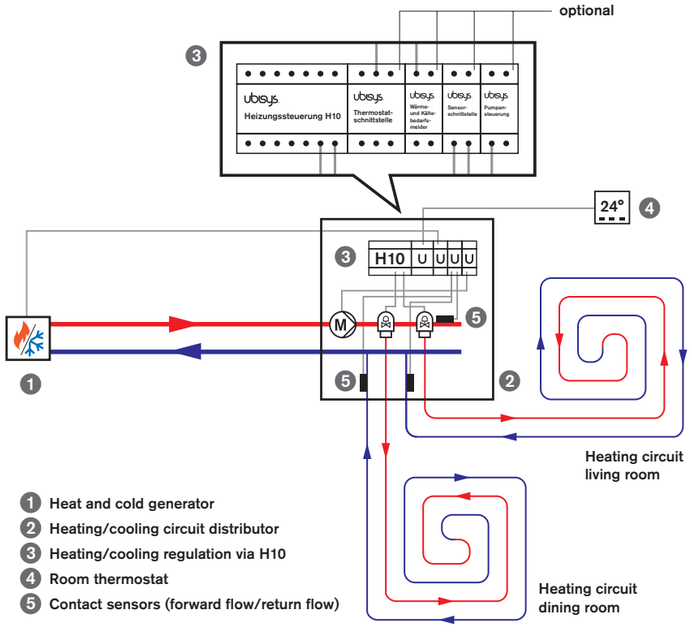
The heating regulator H10 has 10 independent control circuits (PI controller) for temperature control in up to 10 different zones. The zones can either be heated or cooled, or alternatively 5 zones can be heated and cooled.
Room temperature sensors include wireless temperature sensors (Zigbee or Green Power), wall-mounted thermostats - with Zigbee or conventional cabling („on/off") - and wired 1-Wire® sensors.

The device supports two- and four-pipe systems, it can optionally report heating and cooling requirements and control circulation pumps. The measurement of forward and return flow temperatures enables precise control algorithms.

Thus, the H10 and the additional options available (thermostat interface, heat and cold demand detector, sensor interface, pump control) are suitable for a wide range of heating and cooling systems.

By way of example, a 2-pipe heating/cooling system is shown here that heats or cools via the heat pump in the heat and cold generator (illustration: heating).
The control would be done via a wired room thermostat or via the ubisys Smart Home app.

Further application examples can be found on www.ubisys.de.



Note:
The additional modules thermostat interface, heat and cold demand detector, sensor interface and/or pump control can be optionally added. In principle, the base module is sufficient to integrate your underfloor heating/cooling into your ubisys Smart Building.

Thermostat Interface for H10

Note:
The thermostat interface is an additional option. Prerequisite for commissioning is the installation of the heating control H10 for underfloor heating systems.

The thermostat interface (option H10/24-XI or H10/230-XI) is an accessory to the ubisys heating control H10. It allows the integration of conventional 24V wall thermostats into the H10 heating control and is connected to the base module H10 via an extension interface. The thermostat interface is available in a 24V and a 230V version.

Features
- Interface for built-in room thermostats

Nominal Voltage
- 24V-version: 24V
- 230V-version: 230V~, 50Hz

Item No. and Price	
Item No.	1205 (230V) 1212 (24V)
Price*)	**100.00 €**

*) Price excl. VAT.

Pump Control for H10

Note:
The pump control is an additional option. Prerequisite for commissioning is the installation of the heating control H10 for underfloor heating systems.

The pump control (additional option H10-XP) is an additional device for the ubisys heating control H10. It enables the integration of circulation pumps in underfloor heatings and is connected to the base module H10 via an extension interface.

Features
- Regulation of circulation pumps in underfloor heating systems

Nominal Voltage
- 230V~, 50Hz

Max. Switching Capacity
- 500VA per output

Item No. and Price	
Item No.	1250
Price*)	**100.00 €**

*) Price excl. VAT.

Heating/Cooling Demand Module for H10

Note:
The heating and cooling demand detector is an additional option. Prerequisite for commissioning is the installation of the heating control H10 for underfloor heating systems.

The heating and cooling demand detector (additional option H10-XS) is an accessory for the ubisys heating control H10. It is used to generate heating and cooling demand messages sent to conventional boilers in underfloor heating systems and is connected to the base module H10 via an extension interface.
The messages are provided in the form of a potential-free switch, thus allowing the influencing of heat or cold generators, or switching on/off simple heat sources such as hot water boilers.

Features
- Generates heating and cooling demand messages sent to conventional boilers in underfloor heating systems

Max. Switching Voltage
- 230V~, 50Hz

Max. Switching Capacity
- 2 x 1,800VA

Item No. and Price	
Item No.	1243
Price*)	**100.00 €**

*) Price excl. VAT.

Sensor Interface for H10

Note:
The sensor interface is an additional option. Prerequisite for commissioning is the installation of the heating control H10 for underfloor heating systems.

The sensor interface (option H10-XW) is an accessory to the ubisys heating control H10. It allows the integration of contact temperature sensors to determine forward and return flow temperatures and is connected to the base module H10 via an extension interface.

Note: Use only sensors sold by ubisys, e.g. H10-XW-F, H10-XW-R01, H10-XW-R02, ...etc., because the measurand is preconfigured. The sensors are available at www.smarthome-store.
Commercially available stnadard sensors are not supported.

Features
- Interface for contact temperature sensors

Nominal Voltage
- 5V

Max. Power Supply and Standby Consumption
- 140mA@5V
- 0.05W

Max. Amount of Sensors
- 64

Item No. and Price	
Item No.	1236
Price*)	**100.00 €**

*) Price excl. VAT.

Additional Options

Control Unit C4

Radio networked

The control unit C4 can be connected to other Zigbee components from our Smart Building product line to control lamps, shutters or other electrical consumers*). This allows you to integrate more push-buttons, switches, motion sensors or twilight switches in your system.

Note: The control unit C4 is to be considered as an supplementary option, which provides additional inputs.

This component has 4 connectors for controls (inputs for switches or push-buttons). The connected push-buttons can be set up so that you can dim lights, turn on/off electrical consumers, control shutters or call up scenes, for example.

Features
- 4 inputs (push-buttons)
- Zigbee router

Item No. and Price	
Item No.	1120
Price)**	**83.19 €**

*) There may be restrictions on the features that can be used simultaneously
**) Price excl. VAT.

zigbee certified product

Router R0

Radio networked

The router R0 is a Zigbee radio router and is used for routing Zigbee data in widely ramified buildings.

Note: The router R0 is to be considered as an additional option. The components D1/-R, S1/-R, S2/-R, J1/-R, C4 and G1 already feature the router function. The router R0 has no connectors for control units (switch inputs, push-buttons or loads). Using this device makes only sense when combined with other Zigbee devices, mainly as a range extender.

Features
- Zigbee router

Item No. and Price	
Item No.	1182
Price*)	**66.39 €**

*) Price excl. VAT.

zigbee certified product

Zigbee USB Stick U1

Zigbee USB Stick U1

USB Stick with integrated antenna

This device allows notebooks, netbooks and PCs to access to IEEE 802.15.4/Zigbee radio networks.
Manufacturers of Zigbee luminaires, for example, can establish a radio link between their luminaires and a PC.

Features
- Zigbee Coordinator and Trust Center
- Zigbee router
- Centralized and Distributed Security

Additional Features
Upwards of firmware version 1.70, the stick can also be used with the ubiqua software from ubilogix to examine networks based on the Zigbee standard or other IEEE 802.15.4 protocols in the 2.4 GHz band.

Item No. and Price	
Item No.	9072
Price*)	**100.00 €**

*) Price excl. VAT.

zigbee certified product

Complete Overview of White Label Products

All components shown here are also available as a white label version. Either in a co-branded or a complete re-branding version.

Interface

Apps
(iOS and Android)

Lighting and Consumers

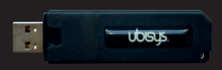
D1(-R) S1(-R) S2(-R)

Gateway

Shading

J1(-R)

Zigbee USB Stick



Additional Options

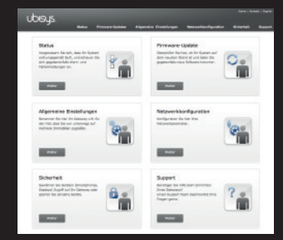
C4 R0

Amazon Alexa Skill

Climate

H1

H10
(+ all four additional options)



Gateway Web Interface

Reference Examples

BEGA

Re-Branding and Co-Branding

As a manufacturer of high-quality luminaires for indoor and outdoor use, BEGA relies on Zigbee components from ubisys for its „BEGA Control“ lighting control system. In addition to the ubisys gateway and the app in a re-branded version, there are various modules (design type: flush-mount and DIN rail) in the co-branded version.
Upon customer request, the gateway was equipped with a black Plexiglas plate.

SLV

Re-Branding

The luminaire manufacturer SLV uses the ubisys Gateway G1, the ubisys App and the Amazon Skill in the re-branded version for its in-house Smart Home System „SLV VALETO®“.

Smart Building Products (also as OEM) / Reference Examples

MEGAMAN

Re-Branding

For Hong Kong-based Neonlite Electronic & Lighting and its „MEGAMAN®“ brand, the ubisys universal dimmer D1 is delivered as a re-branded version. The component is part of the Zigbee-based Smart Lighting System „Ingenium®“.

Compatibility

The ubisys Smart Building platform is open to third-party products that also support the Zigbee standard. These manufacturers include Signify (Philips), Osram, CentraLite, EnOcean, Legrand, LEEDARSON, Nyce, BEGA, IKEA, Develco, etc.
The products include e.g. smoke detectors, door/window contacts, smart bulbs, brightness and motion sensors and battery-free wall switches.

We check compatibility and work closely with third-party manufacturers to ensure smooth interaction.

Compatible Devices of third-party manufacturers

Overview

Depending on the application, you have the option of completing the ubisys system with devices from other manufacturers: door/window contacts, smoke detectors, motion sensors, temperature/humidity sensors, brightness sensors, smart plugs, remote controls, battery-free wall switches, alarm keypads, etc.

We check compatibility and work closely with third-party manufacturers to ensure smooth interaction.

The devices can be controlled via the ubisys app and/or can be integrated into scenes, for example.

Products available in our online shop (**www.smarthome-store.de**) have been tested for compatibility by ubisys and can easily be integrated into your ubisys system.

Example: MasterConnect by Signify

Overview

ubisys Gateway G1 and MasterConnect: A perfect Match

Signify's Zigbee sensor provides a simple solution for measuring the energy consumption of your luminaires and automatically adjusting the light level to the daylight.
Rapidly extend the reach of your Zigbee lights to the cloud! No matter if you connect ten or ten thousand lights, the ubisys G1 allows for the scalability you need in your deployments*).
Autonomous lighting control with loose coupling to the cloud ensures lowest latency and utmost resilience against server outages and intermittent internet connectivity issues. Advanced features like daylight harvesting, occupancy control and schedules are built in.

Being an EasyAir gateway partner, ubisys works closely with Signify to guarantee seamless interoperability of complementary products making the G1 a perfect match for the SNS300 and SNS210 EasyAir sensors.

*) The number of gateways scales with the number of lights and depends on topology, traffic patterns, etc.

Installation

Part of the ubisys Smart Building product range is a flush-mounted solution. This means that some components for controlling your building technology are installed in the existing switch and socket outlets. It does not matter which switch program you have chosen.

The components can be installed behind each socket, every wall/ceiling outlet, every light switch or in the fuse box – irrespective of the manufacturer.
This makes ubisys an excellent retrofit solution.

Installation

Overview

Easy and fast installation

The ubisys Smart Home primarily is a flush-mounted solution. The components can be retrofitted – and disappear hidden away behind your switches or push buttons (see pictures). The prerequisite is that the installation boxes are sufficiently deep. Even if a box should not be deep enough, it can be deepened in the vast majority of cases retroactively.
In some cases, an installation in the control cabinet of your sub-distribution is more sensible, e.g. if you want to replace an existing impulse relay.

Keep your switches and sockets

The system from ubisys will save your investment in switches and sockets, as light or blinds can still be operated via the already installed switch – in addition to the new possibilities offered by the ubisys Smart Building solution. This leaves you independent of the manufacturer and the respective switch program. Only unconventional switches, e.g. those used in bus systems (KNX/EIB) are unsuitable.

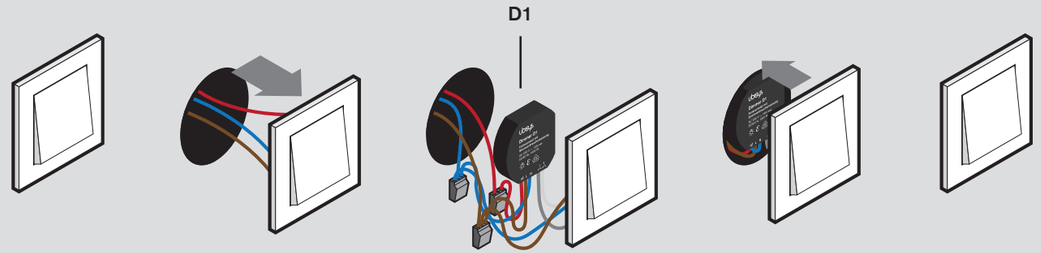
Configuration

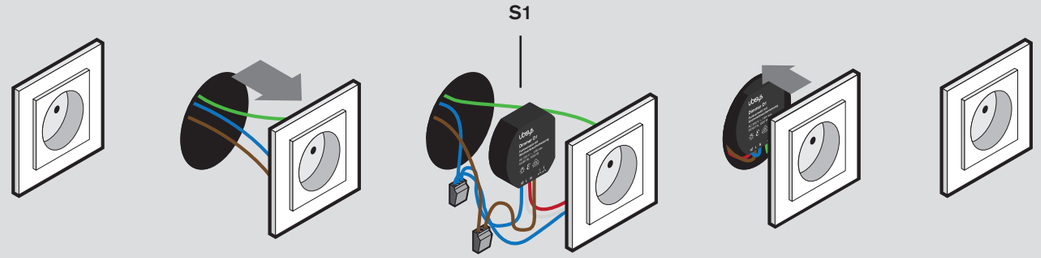
After installing the components, all your system needs is to be configured. This is done either via the app or our PC software. Among other things, basic settings are defined during configuration, such as:

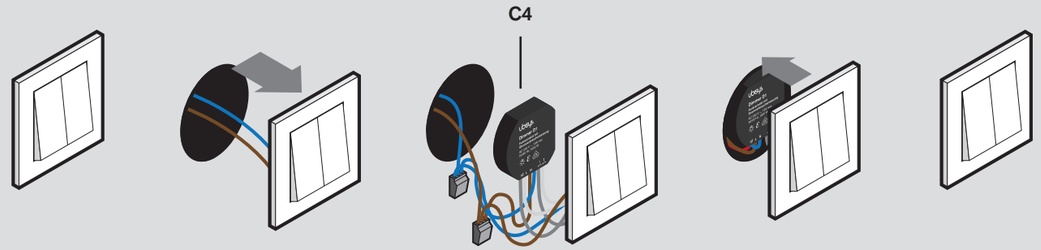
- Designation of the rooms
- Assign components to individual rooms
- Link existing controls to any consumer (for example, a wall switch with a group of lights)
- Assignment of suitable symbols to the corresponding rooms

Furthermore, you have the option, e.g. to create scenes. Here you can create settings in advance for dimmers, blinds and other devices and then activate them by pressing a button.
Example: At the push of a button, all blinds are lowered and at the same time the light dims to 50%. Scenes can quickly and easily be created, changed and deleted at any time.

You can set up your system yourself or have it carried out by an electrician. In other systems, e.g. EIB/KNX, you usually do not have this option.







See picture above (installation of an universal dimmer D1):
The universal dimmer D1 can be installed behind each light switch. The dimmer is simply connected to the existing cables via the supplied clamps.

See picture in the middle (installation power switch S1):
The power switch S1 can be installed behind each outlet. Just like the dimmer and the shutter control, it is integrated into the existing cable infrastructure.

See picture below (installation control unit C4):
Other control units can be supplemented at any time via the control unit C4 or wireless wall switches (see also under „Solutions/Energy-independent push-button“).

Technology and Innovation

High-tech behind the scenes:
Basis of the innovative product line of ubisys is state-of-the-art radio technology based on the IEEE 802.15.4 short-range radio standard and the Zigbee Alliance network and application protocols. The radio technology used complies with international standards.

ubisys is actively involved in the development of the Zigbee standard and brings its know-how to the design of new solutions.

So that your building technology is always up to date, the devices can be easily updated during operation – without requiring a service technician.

Zigbee
Radio Technology

Overview

IEEE Standard 802.15.4 defines transmission and multiple access procedures in the license-free 2.4GHz and 868/915 MHz frequency bands, which are characterized by low energy consumption at adequate data rates and ranges. The transmission power of typically 1mW is orders of magnitude lower than for mobile phones (2W) and wireless networks (100mW). The data rate is 250kbps, sufficient for all building automation tasks.
Based on this, the Zigbee standard defines network protocols with intelligent routing functions and application protocols for various fields of application, such as Home Automation (predominantly private properties), Building Automation (commercial and public entities), and Smart Energy (smart utility grids) as well as other application fields. The data transmission is encrypted according to the highest security standards (AES 128), which, for example, are also approved for documents of the highest confidentiality level by government authorities.
IEEE 802.15.4/Zigbee is far superior to older wireless technologies in all respects. Multi-hop routing helps to avoid connection problems, just as acknowledgment telegrams on different levels of the protocol stack make the transmission safe, robust and reliable..

With Zigbee Green Power, battery-free switches and sensors are possible, or battery-powered devices with battery lifetimes of 20 years.

Zigbee Mesh Network

The ubisys Smart Building components join together to form a mesh-like radio network. Components that are not within radio range of each other may access components other than intermediate stations (routers) to transmit their data packets to the addressee. All components that are permanently connected to the mains always have the router function integrated. This feature makes it possible – even with very low transmission power – to cover larger objects as well.
Routes through the wireless ad hoc network are detected spontaneously, so failure of one router does not cause the entire network to fail. Due to the fact that an alternative route quickly is found: The Mesh Network is able to „heal“ itself. The more components installed, the denser and more reliable the network.

Innovative technology with many advantages

Sustainable. In contrast to wired, older bus installation systems, which require specially installed control cables as well as special switches and actuators (such as EIB/KNX), the radio-based system from ubisys offers the great advantage of being able to retain conventional wiring and, in addition, no new switches and sockets need to be installed.

Budget Saving. Starting from the planing phase installation costs are reduced dramatically. In new installments when using ubisys smart home products compared to regular bus systems such as EIB/KNX, a total cost reduction of up to 60 - 70% is possible. There also are significant savings in cabling.

Simple. The same applies to setting up and configuring your smart building. Save the money that it would cost to set up and configure older bus systems. No need for expert knowledge or costly hard- and software tools for a simple one-time reassignment of a switch to another end device.

Technology and Innovation / Zigbee Radio Technology

Retro-fittable. This feature not only makes ubisys smart home ideal for new buildings but also for retro fitting solutions. Buildings can technically be brought up to date cost efficiently and without major rebuilding neccessary. The components for lights, shutters and heating in buildings can be added later and subsequently help saving costs, highten security and upgrade the property value enormously.

Up-to-date. By updating your firmware in the individual components they all stay up to date and keep their value permanently. This way we can provide new functions or eliminate glitches.

Remote maintenance: First hand service and support

The ubisys gateway G1 has one particular function that backs up our service and support claims: In case of technical problems simply contact our competent support team and if absolutely neccessary allow them remote access to your gateway. No worries: The access is absolutely secure and can be terminated by yourself at any time.

Always up to date

If you decide to use Smart Building by ubisys you will get components whose firmware can be updated via the internet at any given time. As soon as we offer new functions our customers using ubisys components immediately reap the benefits – unless of course, the update in question, is hardware based. Our home gateway regularly checks for ubisys latest firmware. You then decide if you want it automatically installed or maybe wait for an even newer version. The gateway also checks up on updates for all other Zigbee components in your system and makes it available. Via „Zigbee Over-the-Air firmware upgrade (OTA)” these kind of devices can be upgraded while still active within the system – thus eliminating the need of a service engineer showing up or, god forbid, having to deinstall the device and sending it back for servicing.

ubisys products are certified

Almost all ubisys products have been officially certified by the Zigbee Alliance since the availability of Zigbee 3.0. As a result, ubisys was the first company worldwide to receive Zigbee 3.0 certification for its components.
More information can be found on the Zigbee Alliance website www.zigbee.org.

certified product

Quality Claim and Privacy

ubisys products are „Made in Germany“. We develop high-quality smart building components with the highest quality standards.
As the cornerstone of our company, we understand technological excellence and a very reserved approach to the data of our customers. We only collect data that actually is required in operating a secure, wireless network; Data is not stored centrally or otherwise used.

The ubisys Smart Building platform is not a cloud-based solution. Customer data is only stored on the gateway G1.

Quality Claim and Privacy

Highest quality standards and „Made in Germany“

The quality concept is firmly anchored in our company philosophy. ubisys products are „Made in Germany“. The implementation and production of our high-quality Smart Building and Smart Lighting components takes place in Germany. The development of our products takes place completely in-house, so that we always are 100% in control and the components meet our quality requirements at all times.

ubisys developments are based on bundled expert know-how. They are the result of years of experience in dealing with innovative technologies. Experience shared by users of our products – both B2C and B2B – all over the world.

Privacy guaranteed

Unlike other smart building providers, the ubisys platform is not cloud-based. The data of your system remains completely on your ubisys G1 gateway and never will be transferred to the cloud[1)]. This guarantees the protection of your privacy.

Edge Intelligence: For OEM customers, the option of cloud integration is available on request.

Your system runs independently on the local network, ensuring high reliability and fast response times. An internet connection is only necessary for push messages and controlling while on the go. Even when on the move, the app always establishes a direct connection to the gateway – without going through the cloud. Your data is protected at all times.

[1)] Except push notifications sent via Apple and Google News Services.

Contact

You have questions about our product or service solution offerings?
Do not hesitate to contact us, our support team is always at your disposal. Or you simply visit our website or our online shop.

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