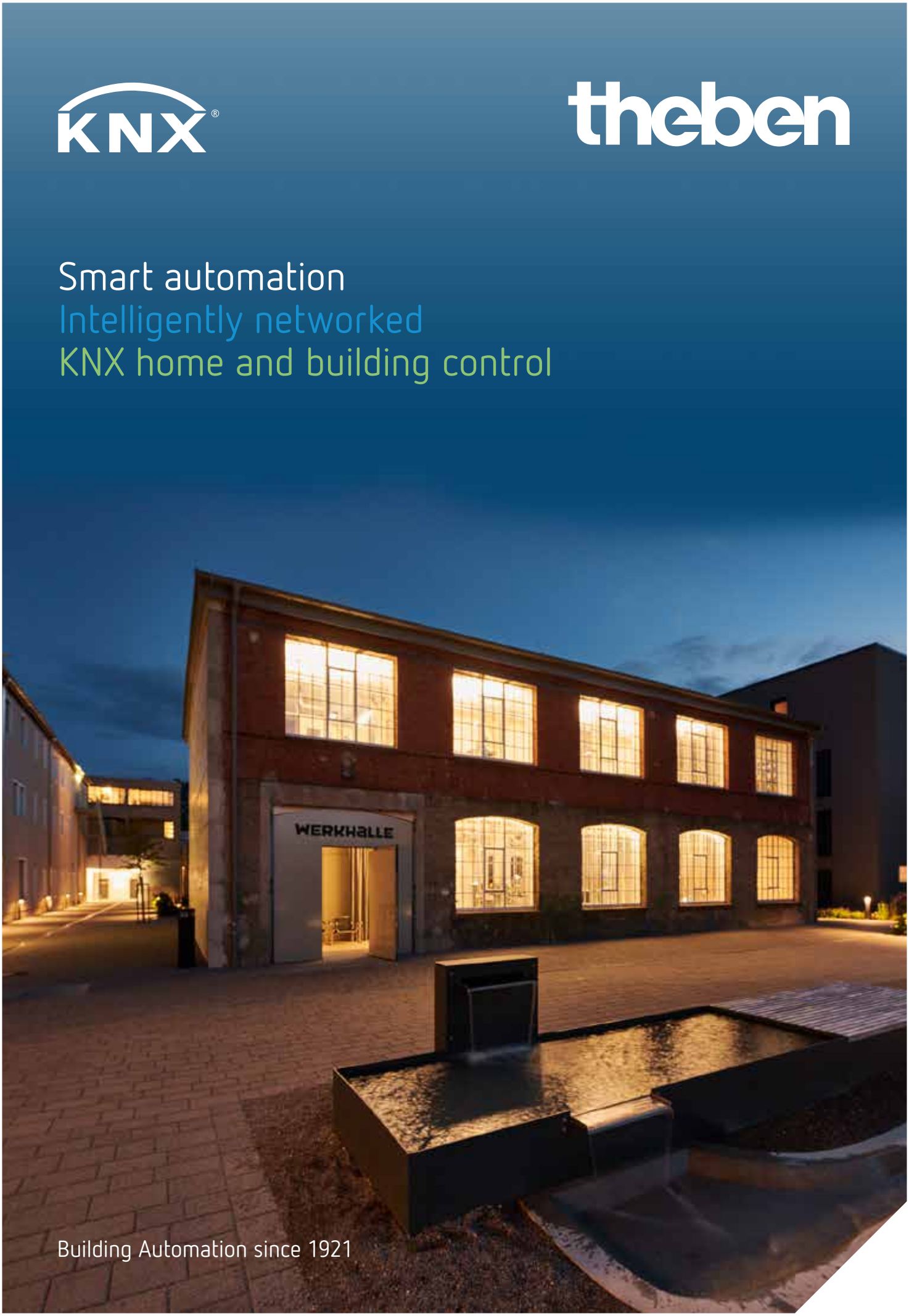
KNX®

theben

Smart automation
Intelligently networked
KNX home and building control



Building Automation since 1921

Theben@KNX
One standard
Infinite possibilities

KNX has long been established as the global standard for house and building automation. Whether new buildings or renovations in universities, schools, administrative and office buildings, care facilities and hospitals, museums, hotels or private homes – KNX offers planners, system integrators and electrical installers the ideal basis for transforming buildings into smart homes or smart buildings.

Basics and product overview

Basics and introduction

Product overview

Technical data

Applications and solutions

Lighting control

Sun protection

Room climate control

Greater flexibility
in building automation

Link and control indoor climate, heating, ventilation, lighting and blinds. Integrate alarm, security and multimedia systems seamlessly. Keep all functions under control via Google Assistant or Amazon Alexa, via push buttons, tactile sensors or app, via control units in the rooms or central visualisation. KNX with Theben ensures that energy is used more efficiently and that comfort and quality of life increase. As versatile and flexible as people want it to be. At the same time, the investments are literally smart and future-proof. This is because new devices can easily be integrated in the future thanks to the open KNX standard. DALI gateways can be used to link the KNX installation with DALI systems for lighting control.

Member of the Executive Committee since 1992
KNX experts right from the start

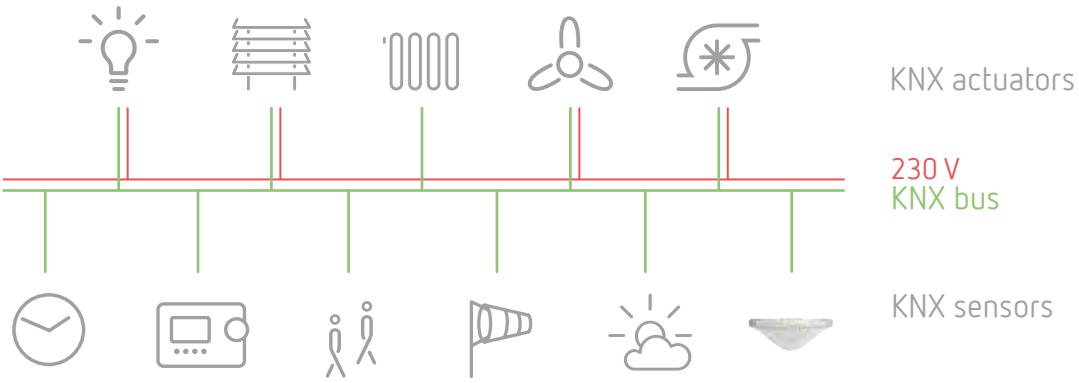
You like counting on experience? That's what we have. Theben and KNX have belonged together from the very beginning. As one of the first companies, Theben joined the Executive Committee of the KNX Association back in 1992 and has been actively influencing the development of KNX technology ever since. In addition, we have been a member of the KNX Technology Committee since 2015. In 2019, Theben was the first manufacturer to introduce KNX wireless actuators according to the KNX Data Secure standard.

If KNX, it is Theben

- Comprehensive product and solution range for all types of installation via KNX bus and wireless (KNX-RF)
- Stylish operating controls, push button interfaces, time switches and sensors for weather and environmental data
- Five DALI-2 certified gateways and actuators as interface between KNX bus and DALI system
- More than 35 items: Optimally protected data with KNX Data Secure and KNX IP Secure
- Extensive range of presence and motion detectors for indoor and outdoor, wall, ceiling, flush or surface mounting
- Longstanding experience of switching and dimming LEDs in KNX systems

KNX
Sensors and actuators
How everything interacts

KNX is like the body's nervous system, which is equipped with sensors and actuators. Everything the sensors detect is sent to the actuators, as a command. The actuators trigger the desired response: they switch on the light when it gets too dark, they activate the heating when it gets too cold and they control the blinds, when the sun gets too bright. The topology is extremely versatile: line, tree, or star structures are possible.
KNX devices are connected to the KNX bus which in many cases is also the power supply to the device, for example presence detectors. While in conventional systems control and energy distribution are interconnected, KNX participants communicate using their own line network. The line network of a KNX installation is divided into sections, so-called lines, and structured hierarchically. The lines are logically and physically interconnected via line or area couplers. Each line has a power supply, which can supply up to 64 devices, depending on the individual design. A line can be extended with up to three line amplifiers by a further 64 devices each. 15 of these KNX lines make up one area. 15 areas can be linked with each other via an area line, the so-called "backbone". Minus the system components, up to 58,384 KNX devices can be installed in one system.



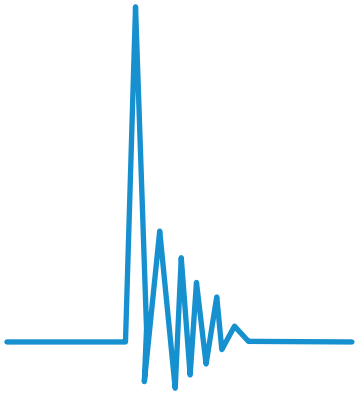
Always smart
Sure and safe
With KNX Secure

Smart buildings with KNX components and connection to IP networks also place high demands on data security and data protection. After all, residents and users should be able to rely on the fact that only authorised persons can access the smart systems and that the data is reliably protected from access by unauthorised persons.
This is where KNX Secure technology, standardised according to EN 50090-3-4, comes into play. It offers double protection: KNX Data Secure signs and encrypts communication in the KNX system on all communication media (IP, TP, RF) and ensures secure data transmission of telegrams. It uses security algorithms standardised according to ISO 18033-3, such as AES-128 encryption. This effectively prevents e.g. telegram recordings, repetitions or modifications. KNX IP Secure encrypts and authenticates all telegrams at the network level. This means that communication in the IP network can neither be interpreted nor manipulated. KNX IP Secure has been recognised as an international security standard according to EN ISO 22510.

No opportunity for data theft or tampering

Many KNX components from Theben are certified according to KNX Secure and thus offer maximum protection against data theft or tampering. Devices for twisted pair or wireless communication support KNX Data Secure. Furthermore, the IPsecure Interface KNX and the IPsecure Router KNX ensure secure data exchange in IP networks. Devices supporting KNX Secure are generally marked with an "X" on the product label.

LED – low consumption when used
Wasteful when switched on



Hard work for the contacts
Capacitive switching loads

How can an LED lamp that only has a few Watts rated output destroy a switching contact that is rated for a higher wattage? Upon closer inspection, the answer is found in the switching currents: in light bulbs, the typical switching currents of the cold spiral coil cause a tenfold increase of the respective rated current. With LED lamps and energysaving lamps with their capacitive characteristics, one finds switching current pulses in the µs range that could be a thousand-fold and more of the rated current.

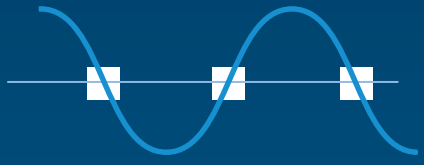
A measurement in our test laboratory authorised by the VDE has shown, that in a most unfavourable case, a 1.8 W LED lamp had a switching current of 19A. That is 2.427 times the rated output!

How to switch LED lamps
With the right contacts at the right time

10 A–10 AX
230 V~

Two contacts for all switching cases:
Tungsten pre-contact

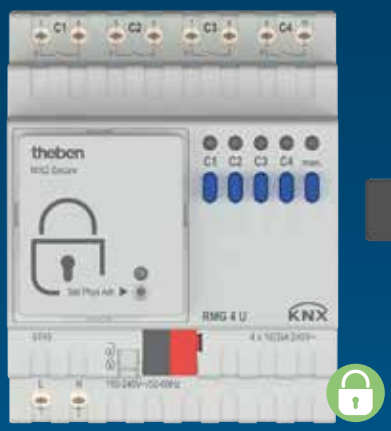
High currents require special contacts. Next to silver tin oxide ($AgSnO_2$), Theben uses a combination of two contacts that close one after another: the tungsten pre-contact. The leading contact comprises< of high-Ohm and highly-resistant tungsten. It captures the starting current and limits it at the same time. The low-Ohm main contact remains unloaded from the switching peaks in such a manner. Theben uses these relays for the switching, dimming and blind actuators.



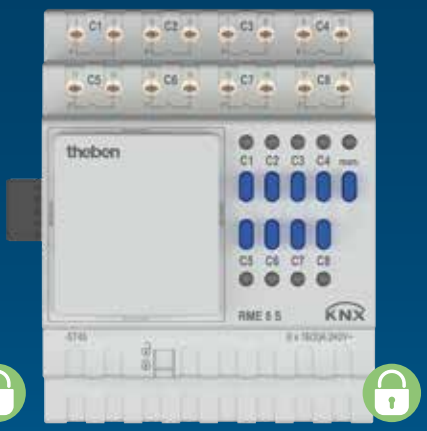
Switching precisely at a point:
zero-cross switching

Switching devices that are designed for a C load generally deal with the switching currents in a better manner. In doing so, Theben uses a particularly efficient solution, so-called zero-cross switching. This calculates the zero crossing of the sine curve of the alternating voltage. At this moment,
the switch-on current is minimum when switching. This protects the relay contact and extends its service life, even at nominally high switching loads. The C-Load switching actuators with current detection are equipped with this.

More resiliant, more reliable, stronger
KNX dimming actuators



MIX2 base module RMG 4 U KNX



MIX2 extension module RME 8 S KNX

FIX1 actuator RM 8 T KNX

To cover all applications
An overview of switching values

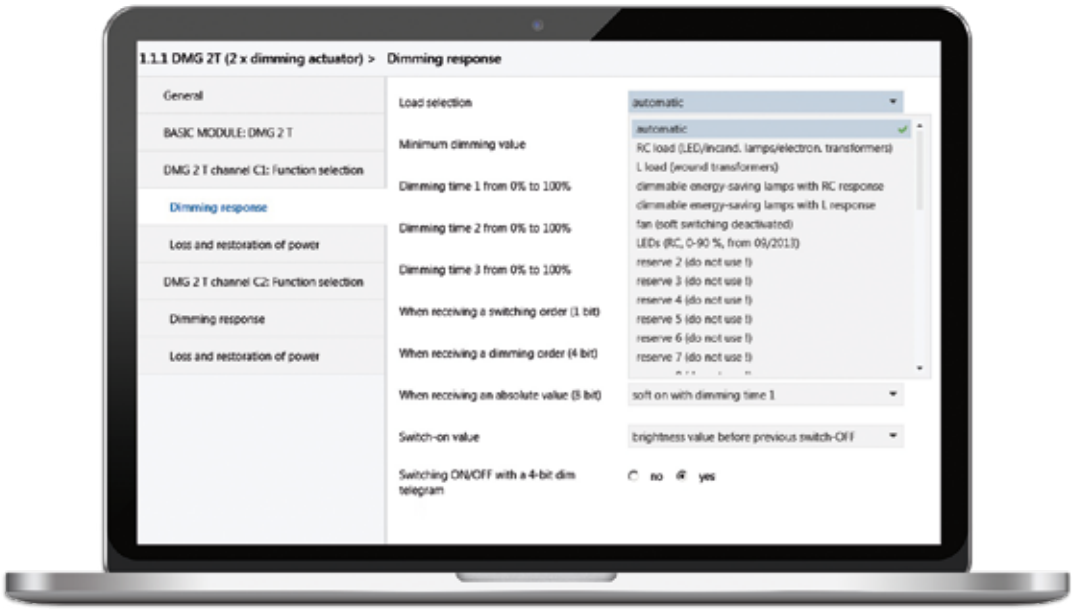
Quality has a price. But it pays for itself: Due to the high testing requirements in our company laboratory, e.g. 40,000 switching cycles, we are above the standard. This demand in quality is also confirmed by an external VDE test. This also applies to switching loads, from which the same is expected.

Switching	Execution	Item no.	Switching capacity	LED switching capacity
RMG 4 U KNX	Basic module	4930223	16 A | max. 800 A/200 µs 40.000 Schaltzyklen bei 140 µF	600 W (>2W)
RME 4 U KNX	Extension module	4930228		
RM 4 U KNX	Module FIX1	4940223		
RMG 4 I KNX, C-Last	Basic module	4930210	16 A | max. 1.500 A/200 µs 40.000 Schaltzyklen bei 200 µF*	850 W (>2W)
RME 4 I KNX, C-Last	Extension module	4930215		
RM 4 I KNX, C-Last	Module FIX1	4940210		
RM 8 I KNX, C-Last	Module FIX2	4940215		
RM 4 H KNX	Module FIX1	4940212	25 A | max. 1.200 A/200 µs	850W (>2W)
RM 8 H KNX	Module FIX2	4940217		
RMG 8 S KNX	Basic module	4930220	16 A | max. 800 A/200 µs 40.000 Schaltzyklen bei 140 µF	600W (>2W)
RME 8 S KNX	Extension module	4930225		
RM 8 S KNX	Module FIX1	4940220		
RM 16 S KNX	Module FIX2	4940225		
Switching/blind actuators	**Execution**	**Item no.**	**Switching capacity**	**LED switching capacity**
RMG 8 T KNX	Basic module | 8-way switching or 4-way blind actuator	4930200	16 A | max. 800 A/200 µs 40.000 Schaltzyklen bei 140 µF	600W (>2W)
RME 8 T KNX	Extension module | 8-way switching or 4-way blind actuator	4930205		
RM 8 T KNX	Module FIX1 | 8-way switching or 4-way blind actuator	4940200		
RM 16 T KNX	Module FIX2 | 16-way switching or 8-way blind actuator	4940205		
Flush mounted actuators	**Execution**	**Item no.**	**Switching capacity**	**LED switching capacity**
SU 1 KNX	Flush mounted switching actuator	4942520	16 A | max. 740 A/200 µs*	600W (>2W)
SU 1 RF KNX	Flush mounted wireless switching actuator	4941620	10 A | max. 740 A/200 µs*	

* Thanks to optimised zero-cross switching

Dimming LEDs precisely
Today and in the future

Whether you opt for the FIX series or the MIX series, with KNX universal dimming actuators from Theben you can steplessly dim LED, halogen and energy-saving lamps without any flickering. The only prerequisite is that the selected lamp is dimmable. In view of the increasing number of connected LED lamps with small wattages, multiple channels provide greater freedom of design.



Up to date with KNX
Adaptable dimming curves

KNX universal dimmer actuators from Theben go one step further: in the KNX programming software ETS, various dimming curves are stored, which correct the dimming response depending on the lamp used, thus ensuring stepless transitional dimming. Theben is currently the only manufacturer to offer you the possibility to adapt dimming curves individually to your lamps, to create a harmonius dimming response.

Another advantage is the high dimming output with up to 400 watts LED per channel. This output can even be increased to 800 watts by connecting 2 channels in parallel.

Continuous, flicker-free, harmonious
KNX dimming actuators for small LED wattages

MIX2 range

Flush mounted actuators

FIX1 and FIX 2 range

Optimised for small wattages

The times of high wattages are over. Today, the art is in dimming LEDs with small wattages. Theben is keeping abreast of this trend and offers dimming actuators with a minimum load of just 2 watts.

Optimised dimming curves

In the KNX programming software ETS, various dimming curves are stored, which correct the dimming response appropriately depending on the lamp used, thus ensuring step-less dimming.

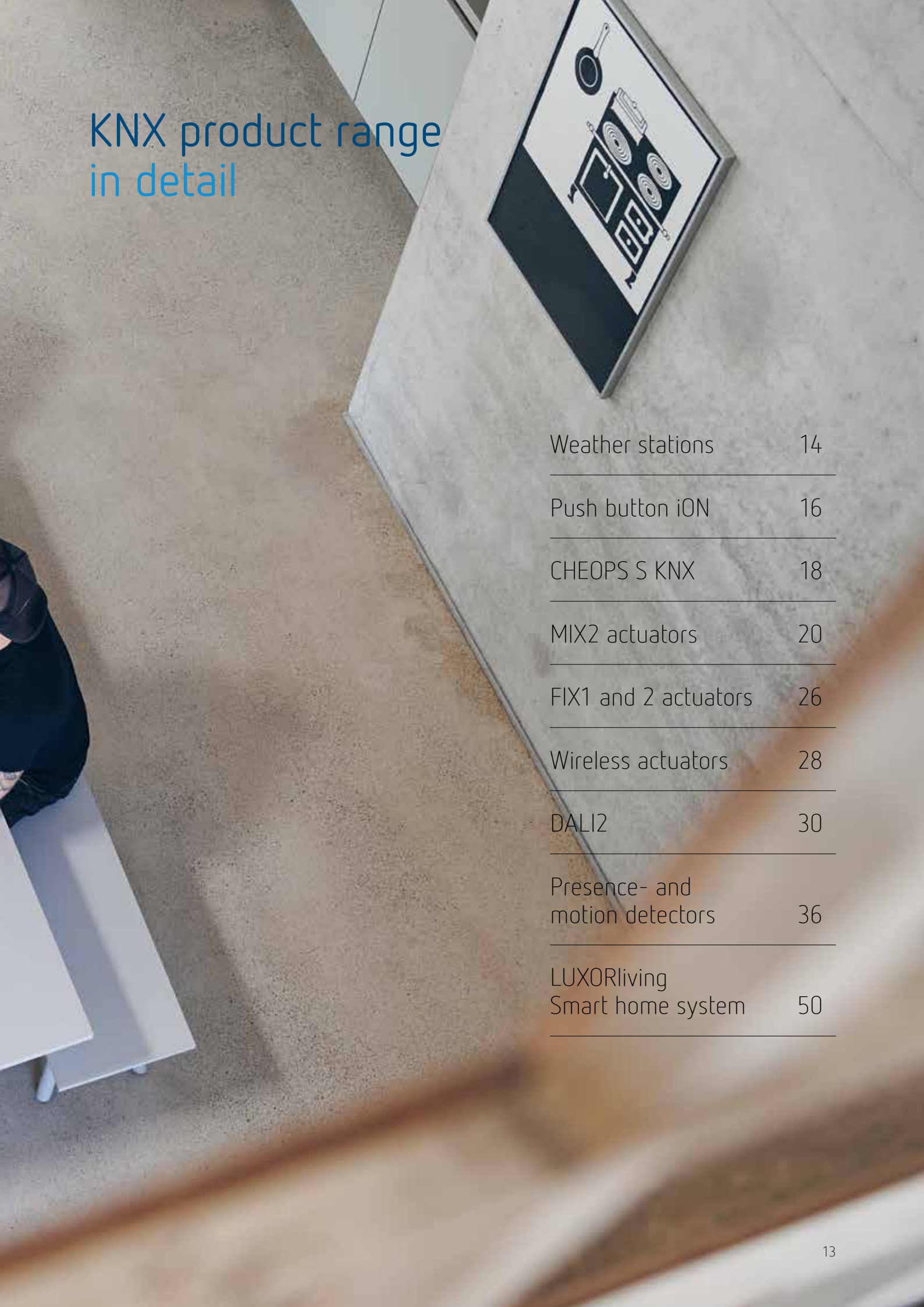
Fast start-up

Quick function tests for start-up are possible via 4 buttons (25 %, 50 %, 75 %, and 100 %) even without bus connection. The bus module can be attached later.

Versatile scene function

The DMG 2 T KNX – similar to the RMG 8 S KNX switching actuator – can be used to save different scene functions.

KNX product range in detail



Best in all weathers
Meteodata weather station

The Meteodata weather station offers the perfect combination of function and aesthetics. Thanks to the transparent housing, it blends harmoniously into any facade, whether wood, concrete, or brick. The anemometer detects wind, regardless of the wind direction, and it measures the wind speed, even in snow and ice. The capacitive rain sensor reliably detects precipitation even when dirty.

The position of the sun is measured from three directions via three light sensors. Blinds can be controlled as desired on up to eight facades. Thanks to the automatic sun position tracking, the slats of the blinds, or the height of the roller blinds/awning, adjust to the current position of the sun. The temperature sensor is outside the housing and provides precise measurement values.

The Meteodata weather station is available in many versions: starting with the basic version without rain sensor, through devices with integrated GPS receiver, and a 24 V version.

Meteodata automatically calculates the position of the sun and the sunlight incidence angle, and it detects wind, rain, brightness and temperature. In this way, it provides all data necessary for fully automatic control of blinds and sun protection of up to eight facades. Including sun position tracking. Measurement and evaluation of the weather data take place directly in the device.

The position of the slats is automatically adjusted to the course of the sun. This means maximum sunlight without the irritating glaring effect.

For effective glare protection with sun position tracking

- **Reliable detection of the sun position**
- **Precise temperature measurement**
- **Capacitive rain measurement**
- **Wind measurement independent of its direction**

Whitepaper "Meteodata weather station"
Download now for free

To find out how Meteodata can help you make your customers' lives more comfortable and increase the revenue in your wallet, read our free whitepaper.

Read how the Meteodata weather station functions and how you can benefit from it:

- All functions and advantages at a glance
- Practical examples
- Important information

www.theben.de/meteodata-en

Designed by ID AID.

iON KNX button and room controller
Looks great, works great

iON 102 KNX

1-way tactile sensor with two operating points and temperature sensor. Switching and dimming lights, control blinds, initiate and save scenes, measure temperature, manage colours, show status (multicolour LED).

iON 104 KNX

2-way tactile sensor with four operating points and temperature sensor. Switching and dimming lights, control blinds, initiate and save scenes, measure temperature, manage colours, show status (multicolour LED).

iON 108 KNX

KNX room controller with 20 functions, LC display, room thermostat, app operation and two operating points. Switching and dimming lights, control blinds, initiate and save scenes, control temperature, manage colours, show status (LC display), Bluetooth interface for using the app.

Bluetooth®

Simple operation
Superb functionality

The new Theben iON KNX tactile sensors are an excellent alternative to the binary inputs available so far. iON tactile sensors are flexible and, thanks to their frameless design, cut a stylish figure in any room. And by the way, the KNX buttons support secure communication through KNX Data Secure.

Theben iON KNX tactile sensors and room controllers with integrated temperature sensor allow various functions in KNX installations to be triggered at the push of a button.

For example
- switching light on/off and dimming
- adjusting light colours and calling up lighting scenarios
- raising and lowering blinds
- triggering and saving user-specific scenarios
- operating central or group functions

Theben iON KNX tactile sensors are available in various versions: as 1-way (2 buttons), 2-way (4 buttons) and as a room controller with LCD display and Bluetooth interface. Depending on the device, up to 20 functions can be controlled with a single button. iON KNX tactile sensors stand out from the crowd thanks to their extensive functionality and exceptional ease of use. The iON 108 KNX room controller with LCD and integrated room thermostat features a Bluetooth interface to make it easier to use. All tactile sensors come with an integrated bus coupler and can be programmed without the ETS app.

Electromotive actuator
CHEOPS S KNX
with integrated controller and temperature sensor

The new electromotive actuator CHEOPS S KNX from Theben is the perfect solution for controlling heating or cooling systems in KNX building automation. The powerful actuator offers the perfect combination of high maximum actuating force up to 220 N, great flexibility thanks to two binary inputs and maximum security thanks to KNX Data Secure.

Motorised actuators such as the CHEOPS S KNX have an integrated temperature sensor and an integrated room temperature controller for efficient heating and cooling, each with an additional stage. Therefore, external devices for temperature measurement and control are not necessary. Even the use in heating circuit distributors is possible. Also, logic for connecting up to 10 window contacts is integrated. In addition, the motorised actuators offer two universally usable binary inputs. These can be used, for example, to connect an external temperature sensor or presence detector.

Other functions include:

→ Switching
→ Dimming
→ Blind controls
→ Universal valuator
→ Window contact
→ Remote temperature sensor

The advantages of CHEOPS S KNX at a glance

NEW

- **High actuating force:** Up to 220 N at a maximum valve stroke of 8mm.
- **Integrated controller:** For heating and cooling with one additional stage each.
- **Integrated temperature sensor:** No external temperature sensor necessary.
- **Two binary inputs:** Connection option e.g. for external temperature sensor, windows contact, presence detector or push button.
- **Flexible use:** Universally usable due to two different valve adapters (included in delivery) for most common valves M30x1.5 and Danfoss.
- **Theft and tamper-proof:** Removal only possible with tools.
- **Maximum security:** KNX Data Secure support protects against data theft and manipulation.

The Mix does it
KNX MIX2 actuators
complete, flexible, extendable

NEW

MIX2 actuators from Theben offer maximum flexibility in planning and conversion. The system consists of various base modules with a bus coupler, to which you can connect up to two extension modules. In this way, the number of output channels per bus module can be tripled. This includes a wide variety of functions, such as switching and dimming lights, controlling sun protection, or regulating the heating. That saves space and costs. If necessary, the bus coupler in the base module can be replaced quickly and easily.

Optimally protected by KNX Data Secure

This is also the key to KNX Data Secure. From now on, Theben will equip all MIX2 actuators with KNX Data Secure. Even modules older than 10 years can be retrofitted. It is up to you whether you want to use KNX Secure or not. There is no difference in price and the additional effort is minimal.

Huge variety of combinations

For MIX2, one base module and one extension module of each type are available. This allows a total of 121 combinations to be implemented. The extension modules communicate with the base module via an internal, proprietary bus. You need outputs for switching, dimming or controlling heating and blinds, but you don't know how many? No problem: MIX2 allows you to respond to change requests even during installation. And even after start-up, provided there is space for an extension module.

Highest investment protection

As with all other products, Theben attaches great importance to investment security, also with MIX2. Thus, they are fully compatible with the older MIX1 extension modules. The cost effectiveness and flexibility of MIX2 is matched by any other product on the market. Moreover, the devices can be exchanged without any programming effort. In the event of a defect, only the respective module must be replaced, not the entire device. The firmware will be easily updated via ETS.

Efficient and safe

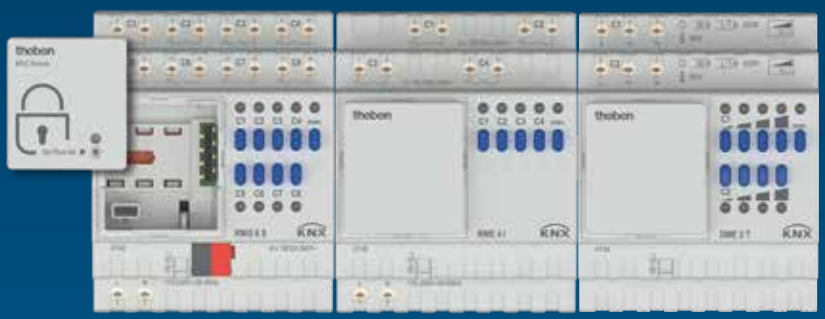
The performance of the modules meets even high demands. Up to 24 switching or 12 blind channels can be implemented with only one bus sharing unit. Switching, dimming, blind and heating actuators as well as binary inputs can be freely combined. The MIX2 series is ideal for the automation of rooms and single-family houses. For example, if you want to control lighting, sun protection, and heating. As the degree of networking in smart buildings increases, so do the requirements on the security of the individual systems. Thanks to KNX IP Secure in the Theben IP Secure Router KNX and IP Secure Interface KNX, messages sent by KNX devices in IP networks are authenticated and encrypted.

Whitepaper "MIX2 actuators"
Download now for free

Find out more about the flexibility MIX2 actuators offer in planning and conversion in our free white paper.

Read about the enormous variety of combinations MIX2 actuators offer and about the advantages they bring to you:

www.theben.de/mix2-actuators



Removable intelligence:
Only the KNX MIX2 base module has a bus coupler to which the extension modules can be connected. If needed, it can be easily removed and replaced.

Mixing in series
Everything KNX desires
That only exists at Theben

Base module (G) + maximum 2 extension modules (E)

MIX2 benefits at a glance

1. Removable bus coupler

The installer fits the base module (G), the system integrator configures the bus coupler – at the office, comfortable and practical. Just before start-up, the module is simply plugged in – done. That is cost effective, because for installation and wiring it is not absolutely essential that an installer with bus knowledge be on site.

2. Inexpensive extension devices

As only the base module is fitted with a bus coupler, this reduces the costs for the extension devices (E) – and due to the saved system devices – by up to a third. It pays off. Especially in property construction. Add it up!

3. Flexible expandability

With KNX MIX2, controlling lighting, dimming, heating, climate or sun protection is never a problem, but desirable. With MIX2, you create an individual solution, which is customized to each room and its specific needs. Only Theben offers this flexibility.

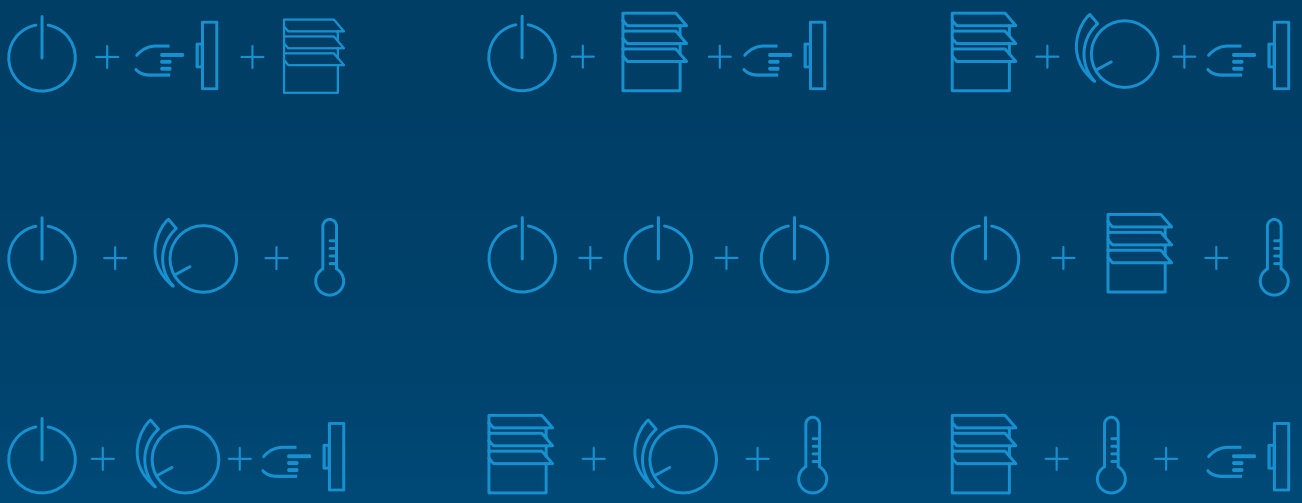
4. Clearly arranged application

The configuration menus in ETS are not only identically structured for all actuators, but also very clearly and intuitively arranged. You can select the actuators you want via drop-down menus according to your project and requirements. Even afterwards, in case an extension module with a different functional range is needed. Only Theben offers this.

MIX2 actuators - the video
intelligent, flexible, expandable

In an easily understandable way, our MIX2 video shows you the various advantages of the MIX2 series.

www.youtube.com/TheThebenAG



A good mix – with 129 functions and up to 729 combinations

Switching

As you want

On/off with and without delay or staircase light with forewarning – as for instance the 4-fold C-load switch actuators – offer you new freedom of action on up to 12 channels. They feature current recognition and are designed for higher lamp loads (see page 11).

Switch actuators
MIX2 RMG 4 U KNX
MIX2 RME 4 U KNX
MIX2 RMG 4 I KNX
MIX2 RME 4 I KNX
MIX2 RMG 8 S KNX
MIX2 RME 8 S KNX

Combination actuators
MIX2 RMG 8 T KNX
MIX2 RME 8 T KNX

Dimming

But right

No flickering, an attractive, evenly rising brightness level with all currently available LED lamps – Theben's universal dimming actuators have already proven themselves in the market. Without exception, they have been enthusiastically received. They are considered to be one of the best dimming actuators of all.

Dimming actuators
MIX2 DMG 2 T KNX
MIX2 DME 2 T KNX

Blinds

Flexible control

With the switch/blinds actuators you can switch and control as you like. From 4 to 8 or 12 blinds or 24 switching channels. Or mixed. Everything just with three modules. This gives you more freedom in the use of the channels because you can assign them as you please afterwards.

Switch/blinds actuators
MIX2 JMG 4 T KNX
MIX2 JME 4 T KNX
MIX2 JMG 4 T 24V KNX
MIX2 JME 4 T 24V KNX

Combination actuators
MIX2 RMG 8 T KNX
MIX2 RME 8 T KNX

Heating

Can be so cheap

With the heating actuators, Theben offers you the possibility of capturing the temperature in the individual rooms with affordable temperature sensors. Temperature control takes place in the actuator itself.

Heating actuators
MIX2 HMG 6 T KNX
MIX2 HME 6 T KNX

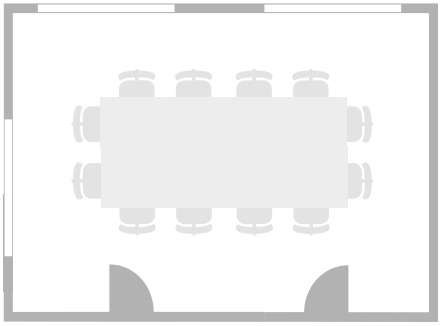
Binary inputs

Universal usability

Theben binary inputs cover the full range of contacts and voltages – whether floating contacts, 24 V, or 230 V. Each of the binary inputs offers six channels. That means more flexibility and greater investment security. Also, for ease of maintenance or service, each channel can be tested via manual operation.

Binary inputs
MIX2 BMG 6 T KNX
MIX2 BME 6 T KNX

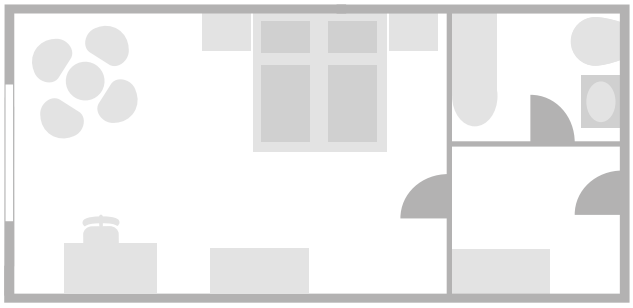
Exemplary room solution
with MIX2 actuators



Conference room

1. Manual switching/dimming of lighting, blinds and sun protection
2. Message "room occupied"
3. Scene controls (incl. a scene for switching off, moving up and vacation of room)

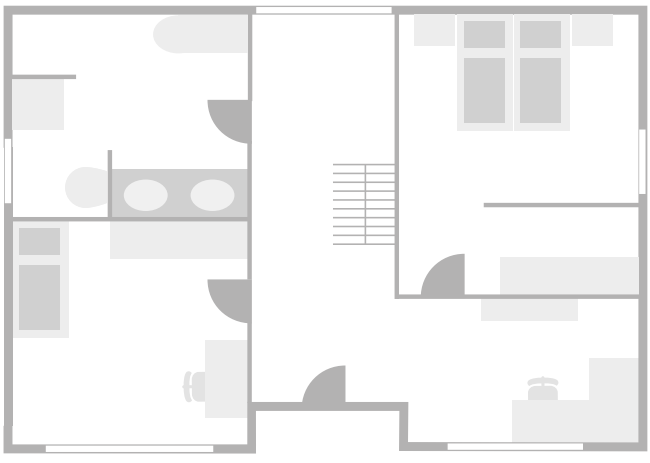
Operation is optionally via iON tactile sensors or conventional push buttons with KNX push button interface.



Hotel room or apartment

1. Manual switching/dimming of lighting and blinds
2. Scene controls
3. Fan control
4. Central switching off via Hotel Card switch
5. Emergency alarm in the bathroom
6. Monitoring of windows for room climate control and outdoor monitoring
7. Message "Do not disturb" and "Clean"

Operation via conventional buttons with KNX button interface.



Floor of a single-family house

1. Manual switching/dimming of lighting
2. Fan control
3. Room heating control
4. Central switching off

Operation and temperature measurement via KNX button of various manufacturers.

Base module RMG 4 U KNX

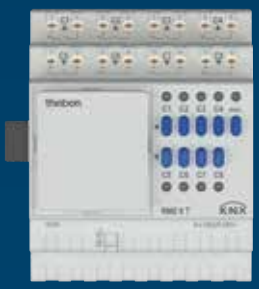
- LED lighting of wall
- Message "Occupied"

Extension module DME 2 T KNX

- LED lighting ceiling

Extension module JME 4 T KNX

- Blinds/curtains
- External blinds



Base module BMG 6 T KNX

- Card switch (hotel) Emergency alarm in the bathroom
- Window contact

Extension module RME 4 I KNX

- Socket outlets left/right bed
- Socket outlet floor/table lamp
- LED lighting

Extension module RME 8 T KNX

- Corridor LED lighting
- Bathroom LED lighting
- Bathroom lighting, mirror
- Bathroom fan
- 2x blinds/curtains
- 2x messages

Base module HMG 6 T KNX

- 6x heating circuits for radiator or underfloor heating

Extension module RME 8 S KNX

- Bedroom socket outlets, bed
- Bedroom LED lighting
- Corridor LED lighting
- Bathroom LED lighting, ceiling
- Bathroom LED lighting, mirror
- Toilet lighting
- Toilet fan

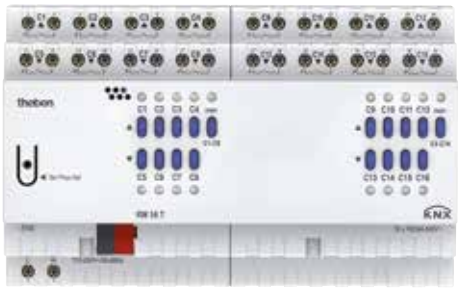
Extension module DME 2 T KNX

- Children's room 1 LED lighting
- Children's room 2 LED lighting

Made for business
KNX FIX actuators for functional buildings
Ready, steady, optimal

Whether as a dimming actuator for LED lamps, blind actuator for glare-free sun protection, or switch actuator with current detection: The KNX actuators of the FIX series from Theben offer maximum flexibility, a wide range of functions and impress with their quality and performance.

Those who like it compact and can go without flexibility will find the FIX1 and FIX2 simple actuators to be the perfect alternative for the MIX2 actuators. Moreover, an affordable one. For example, the switching/blinds actuator RM 16 T KNX with 16 relays can control mixed lights and blinds and is perfectly suited for use in property construction: for instance in office buildings, public buildings, educational facilities or hotels. Wherever lighting and sun protection control are required in one room.



Switching actuators

FIX1 RM 4 U KNX
FIX1 RM 4 I KNX
FIX2 RM 8 I KNX
FIX1 RM 8 S KNX
FIX2 RM 16 S KNX
FIX1 RM 4 H KNX
FIX2 RM 8 H KNX

Blinds actuators

FIX1 JM 4 T KNX
FIX2 JM 8 T KNX
FIX1 JM 4 T 24V KNX
FIX2 JM 8 T 24V KNX

Dimming actuators

FIX1 DM 2 T KNX
FIX2 DM 4 T KNX
FIX1 DM 4-2 T KNX
FIX2 DM 8-2 T KNX

Heating actuators

FIX1 HM 6 T KNX
FIX2 HM 12 T KNX

Binary inputs

FIX1 BM 6 T KNX
FIX2 BM 12 T KNX

Combination actuators

FIX1 RM 8 T KNX
FIX2 RM 16 T KNX

Secure communication with KNX Data Secure
The smart flush-mounted solution
KNX flush-mounted actuators

The flush-mounted actuators in TP and RF versions support secure communication with encryption according to the "KNX Data Secure" standard. This standard effectively prevents intervention and manipulation of the sent information. Thanks to their compact design, KNX flush-mounted actuators fit into any switch/junction box.

With the new wireless actuators that comply with the KNX standard "KNX RF1.R S-Mode", Theben offers a practical option to expand existing KNX systems in buildings without the need to invest much time or effort. In this way, extensions to buildings or functions can be easily integrated into the system at a later date Thanks to the media coupler, you can easily link wired and wireless components.

Wide range of applications
Use depending on the device for dimming, for blind/shade control, for switching loads with high inrush currents, heating control, for integrating push buttons, signal contacts and temperature sensors.

Quick installation
Thanks to their compact design, the KNX flush-mounted wireless actuators fit into any switch/junction box

Flexible integration
With 2 external inputs for connecting a push button, signal contact or temperature sensor

Switching actuators

SU 1 KNX
SU 1 S RF KNX

Blinds actuators

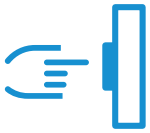
JU 1 KNX
JU 1 S RF KNX

Dimming actuators

DU 1 KNX
DU 1 S RF KNX

Heating actuators

HU 1 KNX
HU 1 S RF KNX



Binary inputs

TU 4 S RF KNX

Flus-mounted actuators
TP and RF versions
for secure communication

NEW





KNX®
Data Secure





DALI-2 Room Solution
Complete. Open
As simple as broadcast

NEW

Welcome to the DALI-2 Room Solution from Theben. This complete single-room solution includes all necessary DALI-2 core components, such as presence detectors and sensors, push button interfaces and actuators.

What if you could implement individual, DALI-2 based lighting controls with HCL functionality, RGBW light and time-controlled functions as easily as with broadcast detectors? If DALI-2 components from other manufacturers could also be integrated without any problem? And if programming could be carried out conveniently via app?

DALI 2

#01 Complete

Complete solution consisting of presence detectors, presence sensors, push button interfaces and switch actuators.

#02 Open

Investment security thanks to open DALI-2 system.

#03 Versatile

HCL functionality, RGBW light and time-controlled functions.

#04 Convenient

Start-up and control via DALI-2 RS Plug app. Available for iOS and Android, or Windows. Download at www.theben.co.uk/dali2

Download iOS version

Download Android version

#05 Intuitive

Simple start-up – individual addressing as easy as broadcast.

Detailed information about the DALI-2 ROOM SOLUTION can be found in our new brochure or on our website.

www.theben.de/dali-2-bro-en

The lighting control dream team

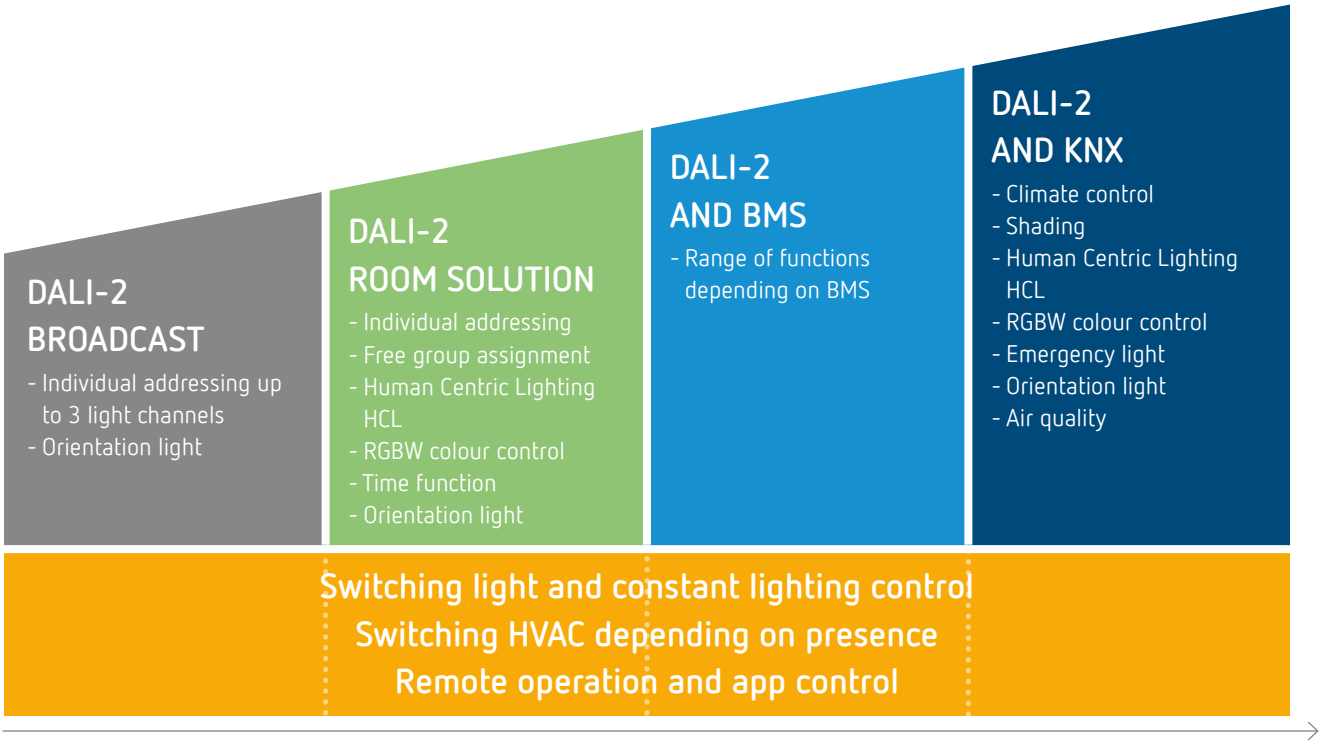
Theben offers you a wide range of DALI-2 presence detectors and presence sensors for nearly any need. DALI-2 broadcast presence detectors provide high-quality standard solutions with simple start-up, a lighting group with constant lighting control and orientation light. In addition, an external DALI-2 relay can be easily integrated, such as for HVAC applications.

Addressable DALI-2 presence detectors allow flexible assignment of up to three lighting groups on one DALI line with constant lighting control and orientation light. The devices offer 2- or 3-channel mixed light measurement. Moreover, the push buttons can be conveniently assigned to the individual lighting groups by remote control or push button.

The DALI-2 Room Solution allows you to implement individual, DALI-2 based lighting controls with HCL functionality, RGBW light and time-controlled functions. As simple as with broadcast detectors. All DALI-2 presence sensors can also be integrated into the DALI-2 Room Solution.

Theben DALI-2 presence sensors can be operated with any multi-master application controller that complies with IEC 62386 parts 101 / 104. This way, you can also connect your DALI-2 lighting management system to the higher-level control of a building management system.

A large selection of KNX / DALI gateways provides a bridge into the KNX world and thus further functionality, such as shading and climate control.

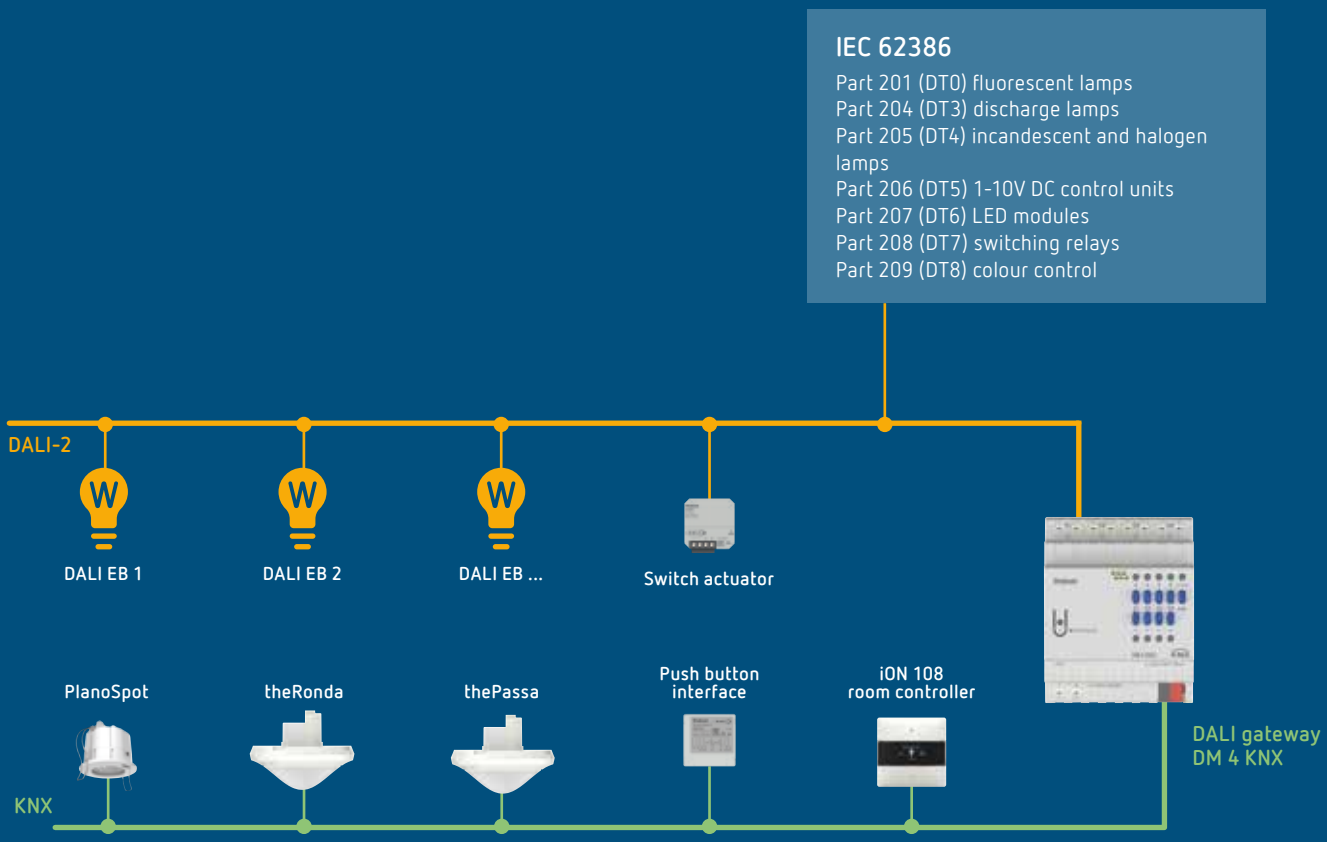


Flexible colour control in KNX building automation with KNX and DALI-2 Device Type 8

With the DALI-2 certified DM 4 DALI KNX gateway, up to 30 DALI operating devices per channel can be easily controlled via broadcast commands. Broadcast communication requires no DALI addressing or grouping and greatly simplifies start-up and maintenance.

The highlight: the 4-channel gateway also supports the control of colour and colour temperature of devices according to DALI Device Type 8 (DT8) in a KNX building automation system. Of course, optimally protected by KNX Data Secure.

For example, the working atmosphere in offices and conference rooms can be made more comfortable by using colder or warmer light. Also, creative accent lighting is possible, e.g. in hotels, lounges, exhibition rooms or outdoor areas. By using LED strips, you gain maximum flexibility in the colour and colour temperature design of individual lighting concepts.



System diagram: Broadcast control

NEW

KNX Data Secure

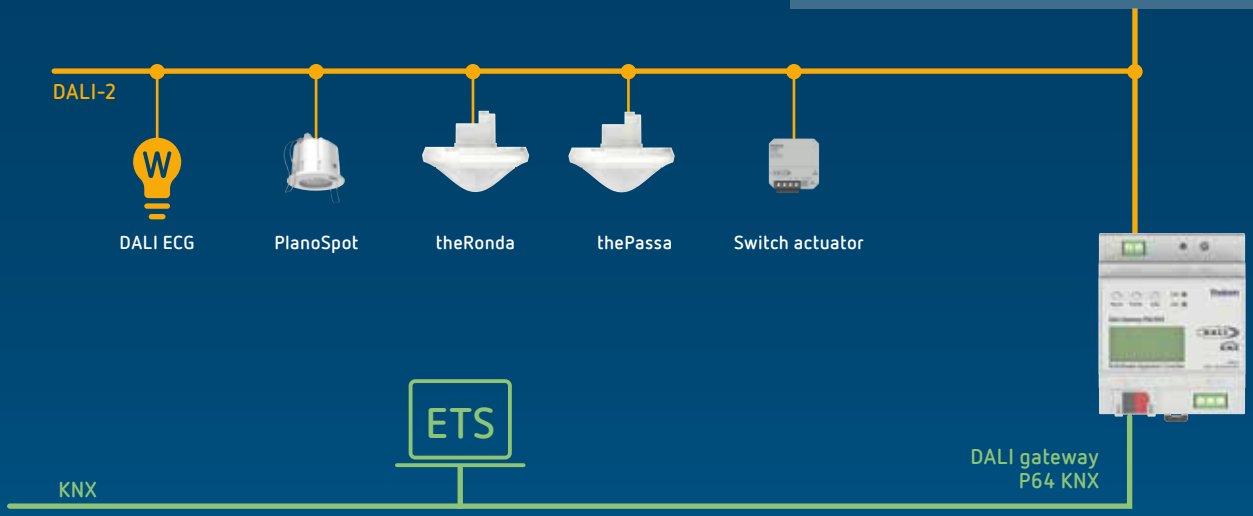
Simply colourful: DALI broadcast actuator

The DM 4 KNX DALI Gateway is for controlling electronic ballasts with DALI interface via the KNX installation bus.

- → Broadcast-actuator
- → 4 independent channels
- → 30 DALI EBs per channel
- → Simple start-up and maintenance thanks to broadcast communication
- → Support for colour and colour temperature control (Device Type 8)
- → Complies with DALI-2 standard and offers maximum operational safety and compatibility
- → Simple start-up and programming in the ETS, without additional tools or ETS app
- → Secure communication thanks to KNX Data Secure

Making more out of light automatically DALI gateways

IEC 62386
Part 201 (DT0) fluorescent lamps
Part 202 (DT1) emergency lamps with individual battery
Part 204 (DT3) discharge lamps
Part 205 (DT4) incandescent and halogen lamps
Part 206 (DT5) 1-10V DC control units
Part 207 (DT6) LED modules
Part 208 (DT7) switching relays
Part 209 (DT8) colour control
Part 303 motion detectors
Part 304 brightness sensors



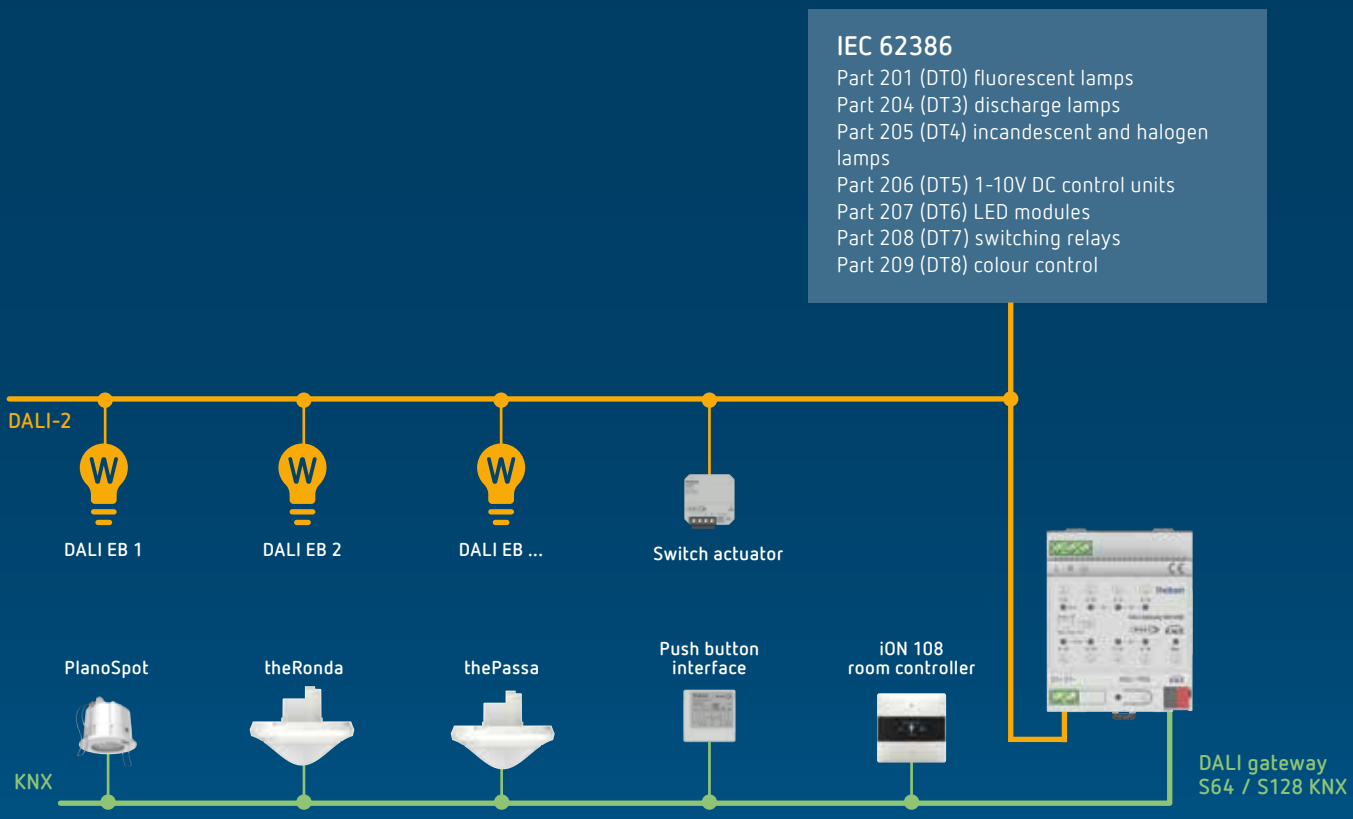
System diagram: Multi-master application controller

Connecting worlds: Multi-master DALI gateway P64 KNX

The P64 KNX DALI gateway is a multi-master application controller for controlling electronic ballasts with DALI interface via the KNX installation bus.

- Multi-master application controller
- 1-channel for 64 EBs and 8 DALI-2 motion detectors or light sensors
- Individual control or in 16 groups
- Coloured light control with Device Type 8 (DT8), individually or in groups
- Time-dependent colour control
- Scene module for 16 scenarios
- Effect module for sequential control
- Energy saving by switching off the EB power supply in the groups (communication object)
- Easy replacement of EBs in the event of a fault
- DALI start-up via free ETS app (DCA) or integrated web server
- Secure communication thanks to KNX Data Secure

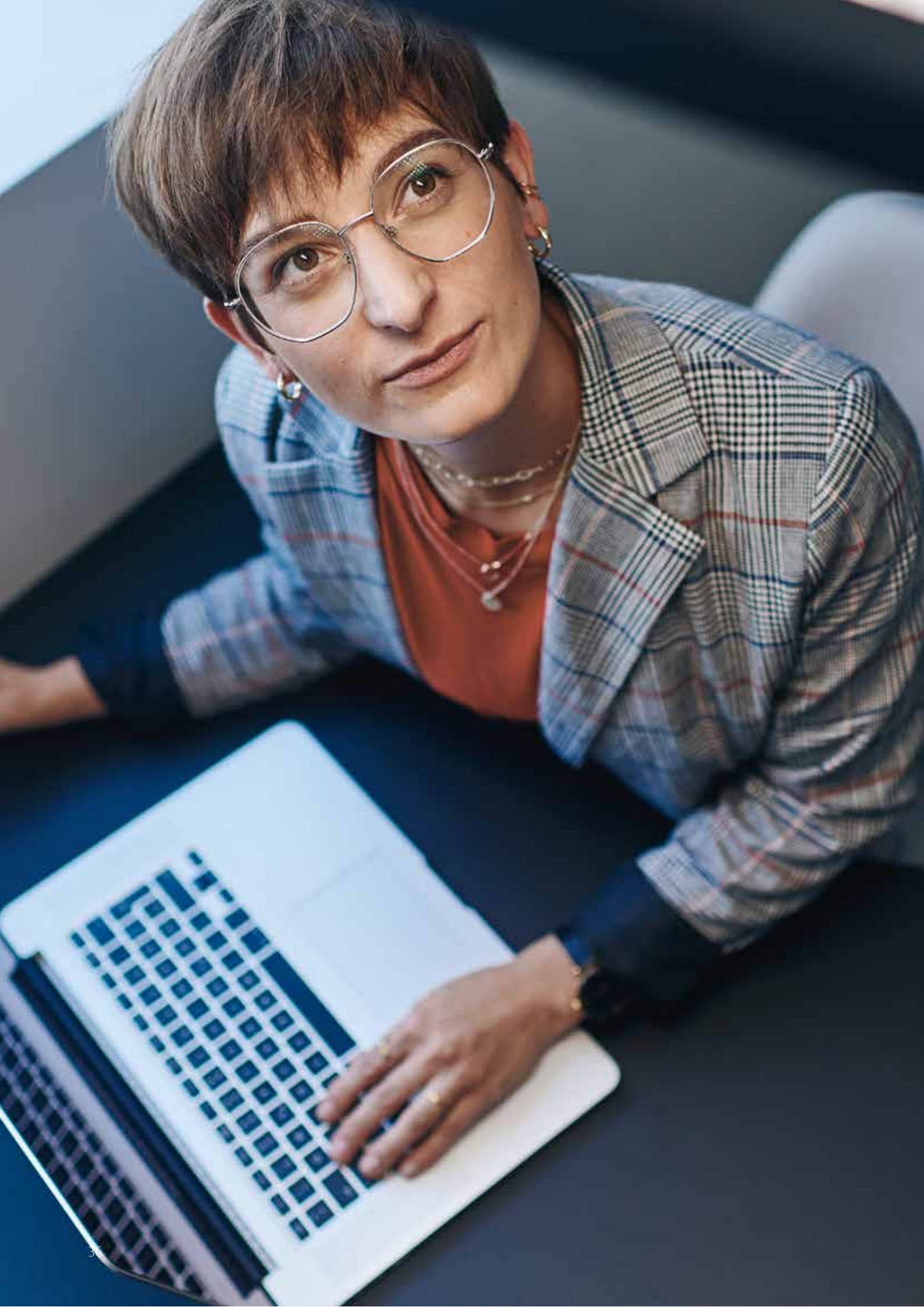
KNX Data Secure



System diagram: Single-master application controller

DALI gateway S64 and S128 KNX
Common functions:

- → Single-master application controller
- → 1-channel for 64 EBs / 2-channel for 2x 64 EBs
- → Individual control or in 16 groups
- → Coloured light control with Device Type 8 (DT8)
- → Time-dependent colour control
- → Scene module for 16 scenarios
- → Energy saving by switching off the EB power supply in the groups (communication object)
- → Easy replacement of EBs in the event of a fault
- → DALI start-up via free ETS app (DCA)



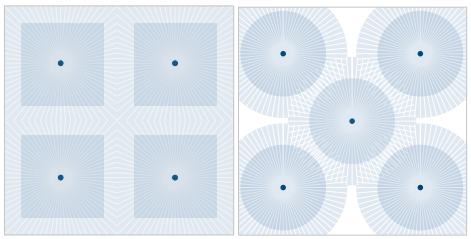
KNX presence and motion detectores
Energy-efficient lighting control
Elegant and award winning

With the Theben presence detectors, you have every option for energy-efficient and intelligent lighting control. In addition to the classic use for lighting control in offices, corridors and public buildings, you can also control heating and air-conditioning depending on presence. This lets you save energy costs and considerably reduce CO_2 emissions.

Our presence detectors work according to the same principle as motion detectors: They detect thermal radiation in their surroundings, that is in their detection area. If thermal radiation is detected in the detection area, for example caused by a person approaching the presence detector, the presence detector converts the radiation into a measureable, electric signal, and the light is switched on.

The difference between motion and presence detectors lies in the sensitivity of the sensors. Presence detectors have much more sensitive sensors than motion detectors and detect the smallest of movements. The sensitive sensors divide the detection area evenly into up to 1000 zones. Like on a chessboard, the zones run through the entire detection area. Even minimum changes in the thermal image, such as typing on the keyboard in an open-plan office, will be detected.

Light measurement is another difference. A motion detector measures brightness once, when the light is switched on because of a movement. Presence detectors measure the brightness permanently: If a set brightness value is exceeded, the presence detector switches the light off or dims it down – even if it detects movement.



In contrast to presence detectors with a circular detection area, presence detectors with a square detection area ensure optimum coverage of rooms without unnecessary overlapping or gaps.

KNX presence detectors, ideal for...

Conference room

theRonda S KNX FLAT
Circular detection area of up to Ø 9 m
Mounting height 2 - 4 m

Wet rooms

theRonda S KNX AP
Circular detection area of up to Ø 9 m
Mounting height 2 - 4 m

Entrance and warehouse

theRonda P KNX
Circular detection area of up to Ø 25 m
Mounting height 2 - 15 m

Changing room

theRonda S 360 KNX UP
Circular detection area of up to Ø 9 m
Mounting height 2 - 4 m

Large offices

thePrema P KNX
Square detection area of up to 20 x 20 m
Mounting height 2 - 10 m

Individual offices

thePrema S KNX
Circular detection area of up to 8 x 8 m
Mounting height 2 - 3,5 m

Classroom

thePrema P360 KNX AP Multi
Square detection area of up to 20 x 20 m
Mounting height 2 - 10 m

Halls

thePassa KNX
Rectangular detection area of up to 5 x 30 m
Mounting height 2 - 15 m

Desk sharing

thePixa P360 KNX UP
Rectangular detection area of up to 11 x 15,5 m
Mounting height 2,5 - 4,5 m

Offices

PlanoSpot KNX
Square detection area of up to 8 x 8 m
Mounting height 2 - 3.5 m

Toilet

theMura P180 KNX UP WH
Rectangular detection area (170°)
of up to 14 x 17 m
Mounting height 0,8 - 1,2 m

KNX motion detectors, ideal for...

Treppenhaus

theMura S180 KNX UP WH
Rectangular detection area (170°)
of up to 14 x 17 m
Mounting height 0,8 - 1,2 m

Outdoor facade

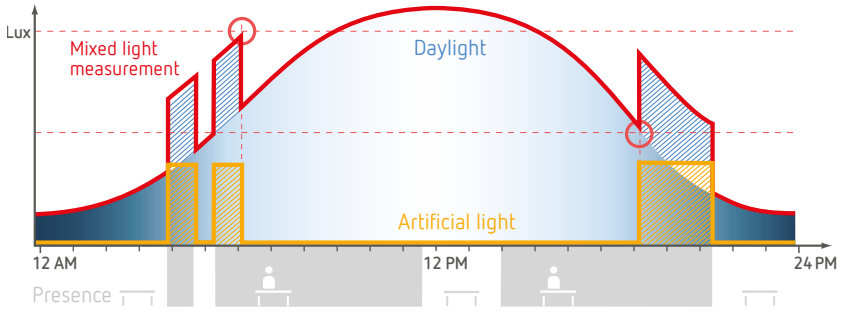
theLuxa P KNX
Circular detection area (300°) of up to 32 m
Montagehöhe 2 - 4 m

Technical data see page 80

Light measurement in detail

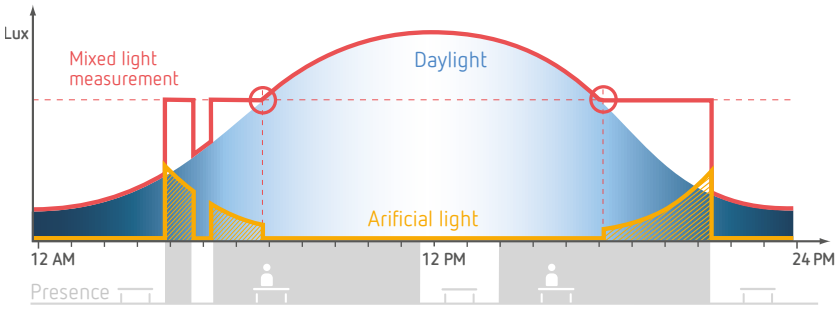
Lighting control using presence detectors is based on detected movement on the one hand and on light measurement on the other. Presence detectors permanently measure the brightness inside the room. Through this permanent light measurement, the presence detector is able not only to switch on artificial light when there is not enough daylight, but also to switch it off again when there is sufficient daylight. It sounds very easy, but in fact the presence detector must be able to assess, whether there is enough daylight after switching off the artificial light.

Switching operation



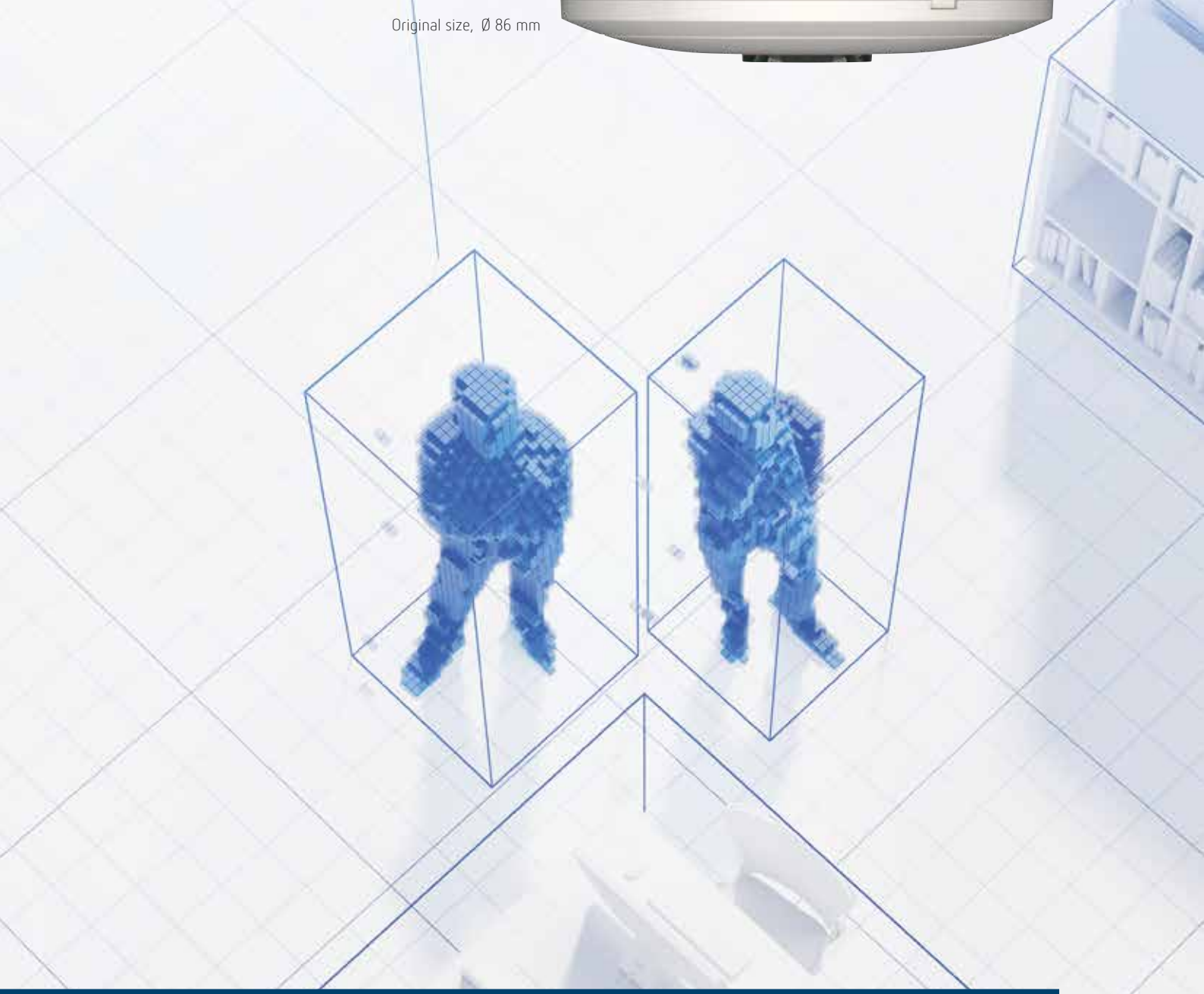
During switching operation, the presence detector measures the sum of artificial light and daylight. In order to be able to switch off the artificial light at the right moment when there is increasing daylight, the presence detector must know the proportion of artificial light (see fig.). This value is automatically learned by the detector, by constantly analysing the switching processes for the lighting in the room. This enables it to calculate the current daylight intensity at any time from the measured total brightness. The advantage of mixed light measurement is that it works with any light source – whether LEDs, halogen or fluorescent lamps. Mixed light measurement is the basis for constant light control.

Constant light control



With constant light measurement, the presence detector permanently measures the sum of natural and artificial light (see fig.). It determines the desired brightness value from these two light sources. On a misty or rainy morning the natural light is less. In this case, the presence detector increases the proportion of artificial light, in order to reach the desired brightness in the room. If the sun breaks through in the course of the morning and there is more natural light through the windows, the presence detector reduces the proportion of artificial light. The brightness level in the room therefore remains constant, regardless of the amount of natural light. Typical applications: rooms in which a specific brightness level is required by law or standards.

Original size, Ø 86 mm



Optical presence detector thePixa
Your new plus in flexibility
inside the building can do more

- → Pixel-based detection technology
- → Detecting and counting objects / persons
- → 100 % GDPR compliant
- → Easy start-up via app programming
- → Triggering KNX building automation actions
- → Added value for building operators
- → Flexible detection zones
- → Tamper-proof thanks to KNX Data Secure

KNX Data Secure

GERMAN INNOVATION AWARD '21 GOLD

Optimised building automation and building operation simple and convenient

NEW

The optical presence detector thePixa now opens up further applications with significant added value thanks to its pixel-based detection technology. These go far beyond the possibilities of PIR presence detectors. The optical presence detector thePixa detects how many people are in a room and where they are. This information is used to trigger predefined actions in the KNX building control system. However, not just the building automation features stand to gain. There are completely new benefits, especially for building operators. For example, flexible options for configuring desk-sharing or for optimising room occupancy and building cleaning activities.

The presence detector **thePixa** has been checked by **DEKRA*** for compliance with **GDPR!**

Easy programming via thePixa Plug app

Via thePixa Plug app, you can divide the detected area into up to 6 zones if desired and programme them freely. The precise subdivision of the detection area, with dimensions up to 11 x 15.5 m, enables accurate lighting control in larger rooms. False switching operations are effectively prevented.
The high installation costs that are often incurred after conversion or room restructuring are completely eliminated. It is easy to create new zones within the detection area in the app. The settings programmed in the app are then simply transferred from a smartphone or tablet to thePixa via Bluetooth.

GDPR-compliant detection

thePixa KNX uses very low-resolution images and therefore fully complies with GDPR requirements (DEKRA tested*). There is no live picture at any time. Using image analysis, the optical presence detector identifies differences in the situations that arise in the rooms being monitored and processes the associated information. thePixa can then detect how many moving objects are within the detection area and count them. Accurate, reliable and tamper-proof thanks to KNX Data Secure.

*www.theben.de/thepixa-datenschutz

Planning and installation
Correct installation of presence detectors

To ensure optimum functionality of the presence detector and to avoid sources of interference, a number of factors must be considered during installation. For example, there should be nothing obstructing the presence detectors field of vision, such as suspended lamps, partitions, shelves or large plants. Sudden temperature changes in the surroundings of the presence detector – for instance caused by switching fan heaters or fans on or off – simulate movement. Lamps which are switched on or off in the vicinity of the detection area (e.g. halogen lamps at a distance of less than 1 m) simulate movement and can lead to incorrect switching. Moving objects, such as machines and robots, simulate motion signals or temperature differences. However, slowly warming objects, such as heat radiators (lateral distance from lines and radiators greater than 0.5 m), IT equipment (computers, monitors), sunny surfaces, or room ventilation systems do not disturb the function of the presence detector as long as the warm air is not directly pointed at the presence detector.

Attention: Do not install presence detectors next to suspended lamps, partitions, shelves and indoor plants or devices with moving parts such as fans, air cleaners or machines.

Planning security
with sensNORM

As a member of the European association and quality label sensNORM, Theben and other industry representatives are committed to greater transparency, quality and planning certainty for motion and presence detectors in building automation. Products carrying the sensNORM quality label have been tested in line with standardised test specifications, allowing consumers to make a cross-brand comparison they can rely on.

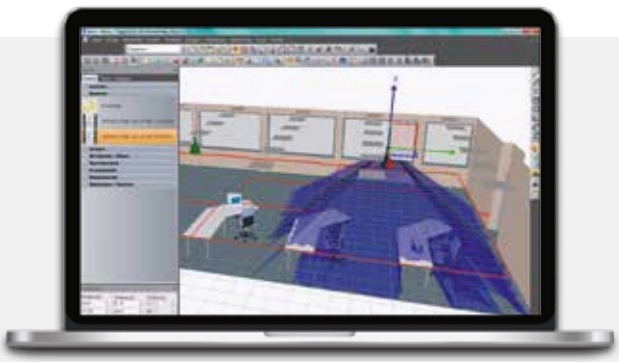
The measuring method according to sensNORM has established itself as an industrial standard and was included in the European standard IEC 63180.

The measured detection areas according to sensNORM can be found in the data sheets of the respective products.

sens)))NORM

Planning software
for safe detector positioning

Customers wishing to position, use and control the light correctly right from the start will benefit from Relux light simulation, which is generally free of charge. Relux offers professional planning software for development and implementation of complex lighting control tasks. The software for planners, architects and light designers is based on lighting solutions from various manufacturers and is valued by its users around the globe. Theben is a Relux member in the sensors product group.
More info at www.relux.com



RELUX®
light simulation tools

The RED CAD planning software can be used to create plans professionally and efficiently. Thanks to the integrated icon library with the proven Theben motion and presence detectors, the detection areas can be quickly and reliably included in the plans.
More info at www.redcad.eu/en/

RED CAD

Simple and efficient
Practical advantages of
KNX presence detectors

Due to their very fine sensor technology, Theben KNX presence detectors detect even the smallest movements and temperature differences. In this way, they allow to exactly adjust light and climate to the needs of inhabitants and users. Depending on the model, the various presence detectors are available in the colours white, grey, silver, black or in special colours upon request.

Square detection-area

The square detection area is ideal for most rooms in which presence detectors are installed. In this way, the individual detectors can be perfectly arranged. Without any gap or unnecessary overlapping. Without blind spots. This makes planning easier, reduces the installation effort, saves energy and lowers costs – because, due to the square detection area, usually fewer detectors are needed.

High installation height

Presence detectors in entrance halls or warehouses must reliably detect movements from a great height. The innovative optics ensure that the presence detector does not miss anything from an installation height of up to 15 m.

Easy to use remote control

With a remote control, certain settings, including activation of the programming mode, can be made and changed conveniently from the ground. This is faster, shortens the installation time and lowers costs. And, what's more, it's safer.

Most simple energy saving setting

"eco" stands for optimum switching behaviour. "eco plus" for maximum energy savings. By configuring, you decide what is best for you. Just as you want. Exactly how you need it. There is no easier way to save energy.

Configurable sensitivity

How sensitively presence detectors react to movements inside the room, is entirely up to you. The PIR sensors can be conveniently set using the remote control – according to the individual requirements of the users.

Room surveillance

A presence detector misses nothing. This is a particular advantage when the presence detector is integrated in the building system technology of large office or administration buildings. In this way, the building management always knows in which rooms people are still working.

Constant lighting control

The KNX presence detectors feature constant lighting control, which permanently compares artificial light and daylight. They determine the desired brightness value from these two light sources. No matter how changeable the weather: The lighting conditions inside the room remain pleasantly constant.

Calibration of brightness measurement

The measured brightness value is influenced by the installation location, the incidence of light, the position of the sun, the weather conditions, as well as the reflection properties of the room and the furniture. The automatic calibration is carried out by the remote control, which has which has an integrated luxmeter. It is also possible to manually enter a lux value, or change the room correction factor. This calibration ensures that the set point value in lux will be exactly observed at each workplace.

Self-learning time delay

Depending on how people behave inside the room, the time delay changes automatically. If people hardly move or only rarely, the time delay is increased to up to 20 minutes. This saves energy, increases comfort and allows people to work in their most efficient way: active and lively or still and focused.

Illuminating short stays

In the event of a short stay, the light is only on for two minutes, because presence detectors "detect", whether and how long someone is in the room. This means that whoever enters the room for a short period of time does not automatically trigger the time delay that has been set but still does not have to go without light.

Innovative light measurement

The integrated, calibrated light measurement provides a reliable and continual measurement of the proportion of artificial and natural light. The presence detector measures the brightness by means of up to three directed light measurements, and can thus optimally respond to the diverse conditions inside the room. This ensures optimum lighting, even under difficult lighting conditions.

Clever teach-in function

Lighting conditions change quickly – it is good if you can simply save them when they are exactly how you want them to be. With the clever teach-in function, the current lux value can be permanently saved. Without specialist knowledge. By the end user. It couldn't be easier.

Individual lighting scenarios

Bright daylight or softly dimmed light – you can choose between two lighting scenarios, which you can define whatever mood takes you. For example, in conference rooms where the light has to be dimmed for presentations. For exactly those lighting arrangements that are necessary in everyday situations. Settings can be made, saved and changed quickly and easily by using the remote control.

Intelligent parallel switching

Presence detectors allow for more than just increasing the detection area via master/slave switchings. Via master/master/parallel switchings, the lighting conditions can be set in the detection area of individual devices independently, and thus individually. This is an advantage if, for instance, in open-plan offices, different lighting conditions are to be balanced between areas close to windows and the room's interior.

Suitable for damp rooms

Presence and motion detectors with protection class IP 54 can also be used in damp rooms such as showers, changing rooms or toilets.

All functions at a glance
KNX presence and motion detectors

Functions	thePixa P360 KNX UP	theMura P180 KNX UP	thePrema S360 KNX UP	thePrema P360 KNX UP	thePrema P360 KNX AP Multi	theRonda P360 KNX UP
Square/rectangular detection area	●	●	●	●	●	
High installation height			●			●
Innovative light measurement	●		●			
Calibration of brightness measurement	●	●	●	●	●	●
Self-learning time delay		●	●	●	●	
Energy saving short stay		●	●	●	●	●
Clever teach-in function	●	●	●	●	●	●
Simplest energy-saving setting			●		●	
Configurable sensitivity	●	●	●	●	●	●
Room monitoring		●	●	●	●	
Constant lighting control	●	●	●	●	●	●
Easy to use remote control		●	●	●	●	●
Individual lighting scenarios		●	●	●	●	●
Parallel switching	●	●	●	●	●	●
Suitable for damp rooms (presence detectors) or outdoor use (motion detectors)						❶
Additional sensors, e.g. temperature, acoustics, CO2, ...	●	●			●	
Logic building blocks		●				

❶ IP 54 when fitted

thePassa P360 KNX UP	**theRonda** S360 KNX AP	**theRonda** S360 KNX Flat DE	**theRonda** S360 KNX UP	**PlanoSpot** 360 KNX DE	**PresenceLight** 360B KNX	**PresenceLight** 180B KNX	**theMura** S180 KNX UP WH	**theLuxa** P300 KNX
●				●	●		●	
●								
●				●				
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❶	●	❶	❶		●	●		●
								●
							●	●

Technical data from page 80

Detecting everything in a wide range
theLuxa P300 KNX

PLUS X AWARD®
2014 achieved for:
High Quality
Design
Functionality

KNX motion detectors
for outdoor use
A clear line

Comfort and safety – two aspects a KNX motion detector must cover. Nothing accomplishes these tasks better than theLuxa P300 KNX. Integrated in the KNX building system technology, it detects exactly , when it should guide the way.

Especially in larger areas, it is about detecting and automatically responding to streams of movements which have to be expected. For instance of employees, who enter the company premises in the early morning, and often leave late in the evening. Or employees and visitors of hotels, hospitals and administrative buildings. In all these cases, it is about the required control, but also a predictive lighting of entrance halls, access routes and connecting passages.

theLuxa P300 KNX (protection class IP 55) is available in white or black, and can be installed on the wall or ceiling, thanks to its swivelling sensor head. With a 300° detection area of up to 16 m, and creep under protection, theLuxa P300 KNX does not miss anything. Via ETS, the motion detector can be easily integrated into the building automation, and it is easy to configure. Brightness thresholds, duty cycle, and sensitivity can easily be configured via the KNX visualisation.

More flexible: ceiling and wall mounting

Thanks to its swivelling sensor head, theLuxa P300 KNX is also suited for ceiling installation. The motion detector and its included accessories (corner bracket, spacer frame) are available in white and in black.

Various functions with numerous advantages

Comprehensive motion channels

The four motion detector channels can be linked in a timedependent manner for various lighting applications, such as switching or dimming, for instance as an orientation light. Functions, such as short-time presence, master/slave, fully automatic/semi-automatic device and two switchable time delays can be configured via ETS.

Precise time switch function

Functions, such as "locking", "permanent ON", "brightness threshold", and "change over time delay" can be called up in a time-dependent manner via the integrated time switch function with a simple weekly program.

Flexible universal channels

The four universal channels respond, independent of movement, to temperature and/or brightness, and can thus be used as a twilight switch, for instance.

Integrated temperature measurement

theLuxa P300 KNX has an integrated temperature sensor, which can be used for temperature-dependent operations.

Sensitive brightness sensor

The motion detector has an integrated brightness sensor, which can be used as a twilight switch.

Independent logic channels

The "AND", "OR", and "XOR" operations of the four independent logic channels respond to current bus events. As initial object, switch commands, or percentage values can be sent, for example.

Easy to use remote control

theLuxa P300 KNX supports remote operation. 2 scenes and numerous settings can be easily made from the ground. This is faster, shortens the installation time and lowers costs. And, it is safer.

Various scene functions

theLuxa P300 KNX is an enrichment to any scene. The motion channel can be incorporated into scenes in a number of versatile ways: "locking", "permanent ON", "brightness threshold", and "change over time delay".

Clever teach-in function

Lighting conditions change quickly - it is good if you can simply save them when they are exactly how you want them to be. With the clever teach-in function, the current lux value can be permanently saved.

Presence- and motion detectors theMura KNX
Attractive and clever
the power of versatility

The theMura KNX presence and motion detectors are elegant wall detectors and are perfect for energy-efficient lighting control, e.g. in corridors, stairwells, cellars and toilets. They are installed at switch height and can be integrated into the most common switch ranges using accessories. The integrated button enables manual switching of the lighting - therefore the user does not have to do without manual override despite the detector.

Universal genius
adapter frame
clever and attractive

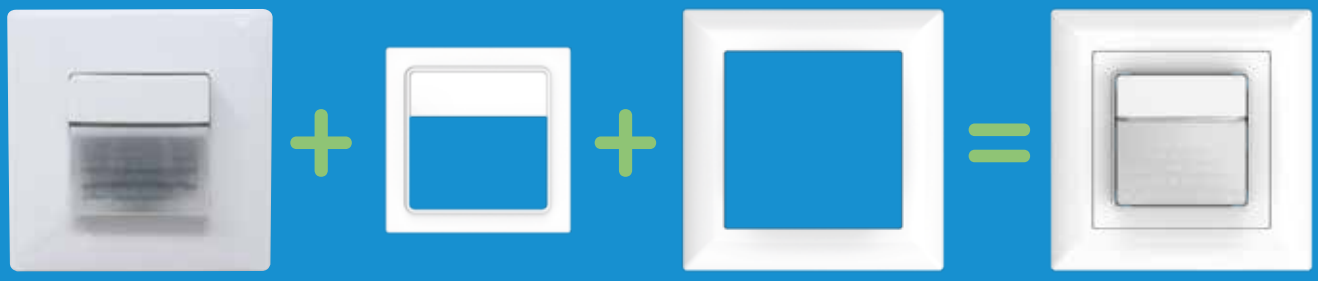
NEW

Theben theMura flush-mounted motion and resence detectors are suitable for universal use with the switch ranges of all leading manufacturers. The scope of supply depends on the respective switch range.
Additional information at **www.theben.de/themura-en**

- Attractive, flat design
- Large detection area of 14 x 17 m
- Integrated push button
- Flexibility through day/night switching
- Logic channels
- Thanks to accessory sets, theMura fits perfectly into the specified switch range

Motion detector
theMura S180 KNX UP WH (Item no. 2060650)
- 1 x light, 1 x HVAC (presence)

Presence detector
theMura P180 KNX UP WH (Item no. 2060655)
- 2 x light, 2 x HVAC (presence)
- Integrated sensors (temperature, acoustic)
- Integrated orientation light
- Push button interface



Theben frame
(Item no. 9070798)
included

Accessory set consisting of push button cover, adapter frame and optional plastic mounting plate
e.g. JUNG adapter frame + push button cover

(Item no. 9070789)

Frame from the corresponding switch program manufacturer

Smart home?
Why, surely!
Well protected with LUXORliving.

Everything off. Maybe the smartest feature.

You know this scenario: the car is packed, the family is waiting and you go through the whole house again really to check everything. In the end, you still have an uneasy feeling of having forgotten something. That's history now. With LUXORliving you can relax and close the door behind you. You simply press "Central OFF" - and everything is off. From the TV to the iron.

LUXORliving
A calming one sense of security

Safety and security for the whole family is what most people associate with their home. The thought of a possible burglary can affect this feeling. Smart home systems such as LUXORliving offer numerous possibilities.

Always there for you. Presence simulation with LUXORliving.

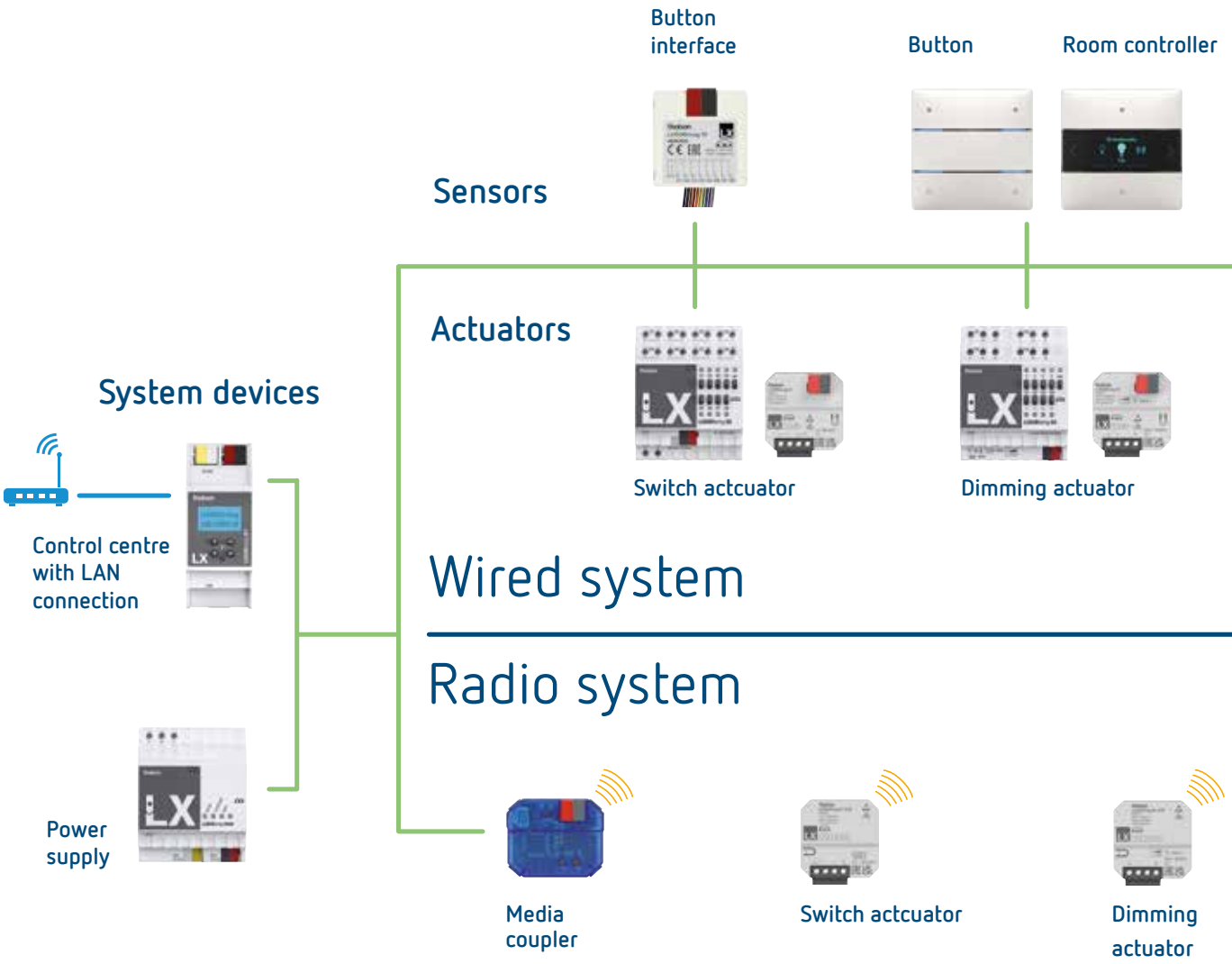
Sometimes you simply have to close the doors and leave everything behind. So it's great when everything continues in an orderly manner. Just how you want it. The presence simulation of LUXORliving makes sure that the lights come on and the blinds go down at the usual time every evening. Not everyone needs to know that you're not at home.

A comforting sense of security. No panic with LUXORliving.

It's good to know that everyone is safe and sound at home. With the panic function, LUXORliving plays a huge role in creating this sense of security, eliminating the thought of panic completely. Or at least it does for you personally – but not for those who want to catch you unawares. If there is the slightest disturbance or unexplained noise in front of, next to or behind the house, a command triggers the simultaneous activation of the building lighting and blinds. This drives away anyone who shouldn't be there. Even if it's only the neighbour's cat.

Certified components

LUXORliving uses standard KNX communication, making it a secure investment that is fit for the future compared to proprietary systems. Updates ensure it is always at the cutting edge and the system is easy to extend if necessary. The showstopper: LUXORliving has as much KNX as is needed and as little complexity as possible. That's what makes LUXORliving so incredibly simple.
For the installer as well as for the user.



Simply flexible when it comes to setup

Simply wire, set up, program and you're done. Or retrofit with wireless actuators. The visualisation is generated automatically. With LUXORplug, you can create the project file in an instant. Whether you are carrying out the installation at your office or directly on site, you have everything at your fingertips. And online via the Theben cloud, you have everything to hand with the LUXORplay app – total convenience on a smartphone or tablet.With LUXORliving, everything becomes much simpler. But some things, such as the installation process stay as simple as you've come to expect from Theben and LUXOR.

Certified components

LUXORliving uses standard KNX communication, making it a secure investment that is fit for the future compared to proprietary systems. Updates ensure it is always at the cutting edge and the system is easy to extend if necessary. The show-stopper: LUXORliving has as much KNX as is needed and as little complexity as possible. That's what makes LUXORliving so incredibly simple. For the installer as well as for the user.

Simple start-up

LUXOR has always been easy to install. LUXORliving is child's play. Just install, wire and programme. Done. No ETS. No licence required. No prior knowledge either. Just go with your intuition – speedy, safe, successful.

Motion detector

Weather station

Room thermostat

Binary input

DALI actuator

Roller blind actuator
Blind actuator

Heating actuator

LUXORplug for setting up the system

LUXORplay for operating the system

Roller blind actuator
Blind actuator

Heating actuator

Button interface

Button module

BUS Flexible BUS wiring

In conventional setups, the functions are preset and fixed through the wiring. This is not the case with LUXORliving.Based on flexible BUS wiring, lights, roller blinds or other applications can be assigned to the buttons as you wish. This gives you leeway to change existing installations and reduces costs as fewer switches are needed.

Free push Button selection

With many smart home systems the buttons are preset. This is not the case with LUXORliving. With this system, homeowners can choose for themselves whether they use the LUXORliving iON button or any other conventional button in connection with our binary inputs and button interfaces.

Clever presence simulation

When the occupants are at home, they use LUXORliving. When they're not at home, LUXORliving is of use to them. The clever smart home system makes sure that the lights come on and the blinds go down every evening, while the occupants can enjoy their holiday without having to worry.

Individual scenarios

Lighting moods and blind positions can of course be programmed freely and can be activated with a command as required. This means that each individual can create the scenarios of their choice.

Simply set up
Easy to use
In 6 steps

1. Start project

First, complete the formalities by entering all the relevant project information, such as the project name, builder, address and installer.

2. Create overview

Using drag & drop, you can add the rooms to the relevant floors and assign individual names.

3. Integrate devices

Devices that have already been installed can be imported, identified and named automatically. Or you can create the device list manually and offline.

4. Define functions

Use drag & drop to add functions to the devices in each room. This determines which devices communicate with each other.

5. Program functions

These functions can be transferred at any time.
The project planning does not have to be completely finished to program the devices.

6. Prepare visualisation

The project file is transmitted to the system control centre. The functions are then extremely easy to operate and configure using the LUXORplay app.

LUXORliving
The complete range

Function	Channels	Type	Item no.	
Button interface	2	LUXORliving T2	4800402	
	4	LUXORliving T4	4800404	
	4	LUXORliving T4 RF	4800604	
	8	LUXORliving T8	4800408	
Switch actuator	1	LUXORliving S1	4800520	
	1	LUXORliving S1 S RF	4800621	NEW
	4	LUXORliving S4	4800420	
	8	LUXORliving S8	4800425	
	16	LUXORliving S16	4800429	
Binary input	6	LUXORliving B6	4800430	
Heating actuator	1	LUXORliving H1	4800540	
	1	LUXORliving H1 S RF	4800641	NEW
	6	LUXORliving H6 24 V	4800441	
	6	LUXORliving H6	4800440	
Blind actuator	1	LUXORliving J1	4800550	
	1	LUXORliving J1 S RF	4800651	NEW
	4	LUXORliving J4	4800450	
	8	LUXORliving J8	4800455	
Dimming actuator	1	LUXORliving D1	4800570	
	1	LUXORliving D1 S RF	4800671	NEW
	2	LUXORliving D2	4800470	
	4	LUXORliving D4	4800475	
	4	LUXORliving D4 DALI	4800300	NEW
Controls	-	LUXORliving R718	4800480	
	2	LUXURliving ION2	4800412	
	4	LUXORliving ION4	4800414	
	10	LUXORliving ION8	4800418	
Motion detector	1	LUXORliving BI180	4800350	NEW
Weather station	-	LUXORliving M140	4800490	
	-	LUXORliving M100	4800491	
	-	LUXORliving M130	4800492	
System control centre	-	LUXORliving IP1	4800495	
Power supply	-	LUXORliving P640	4800990	
Media coupler for RF devices	-	LUXORliving RF1	4800868	

Starter packages

LUXORliving „Drives Basic" 1x system control centre LUXORliving IP1, 1x power supply LUXORliving P640, 1x blind actuator LUXORliving J8, 4x push button interface LUXORliving T4	4990013
LUXORliving "Drives" 1x system control centre LUXORliving IP1, 1x power supply LUXORliving P640, 1x weather station LUXORliving M140, 1x blind actuator LUXORliving J8, 2x push button interface LUXORliving T4	4990010
LUXORliving "Lighting" 1x system control centre LUXORliving IP1, 1x power supply LUXORliving P640, 1x switch actuator LUXORliving S8, 1x dimming actuator LUXORliving D4, 2x push button interface LUXORliving T4	4990011
LUXORliving "Drives & Lighting" 1x system control centre LUXORliving IP1, 1x power supply LUXORliving P640, 1x weather station LUXORliving M140, 1x switch actuator LUXORliving S8, 1x dimming actuator LUXORliving D4, 1x blind actuator LUXORliving J8, 4x push button interface LUXORliving T4	4990012

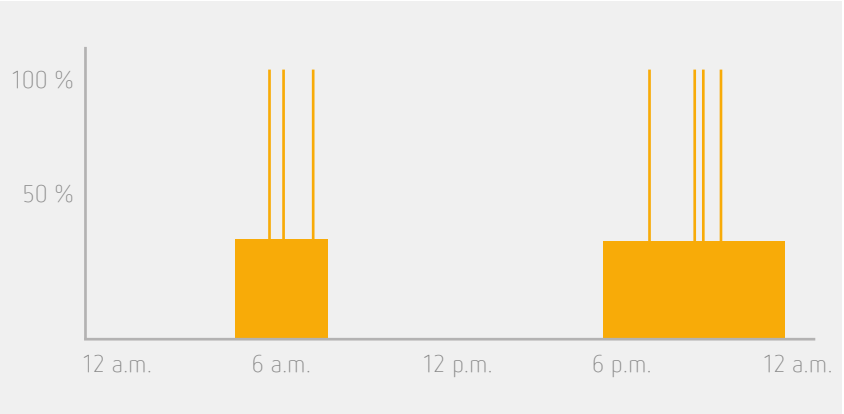
For all occasions
Use cases and solutions from Theben

Pioneering lighting concepts
KNX lighting control from Theben creates emphasis and provides orientation

Twilight is predictable. In the morning, in the evening. One can adapt to it. It sounds simple, but it is not – especially if the KNX installation has to be programmed accordingly. Many parameters have to be observed. The season, sunrise and sunset, the daily brightness values, the weather conditions. But it is possible. Especially with Theben. For instance in front of entrances, accesses or on parking lots of companies, industrial plants, administrative buildings or housing areas. That is, in applications in which lighting is required especially at the start and end of work.

Here, KNX lighting controls from Theben create clear emphasis and provides orientation. Precisiely then, when it is needed. Outdoor – and of course indoor. It feels good to come home, and the light goes on – long before you reach the door. It feels safe, to have orientation light in the garden or on the parking place. It is convenient to find the way in corridors of hotels or nursing homes during the night, because softly dimmed light never leaves you in the dark.

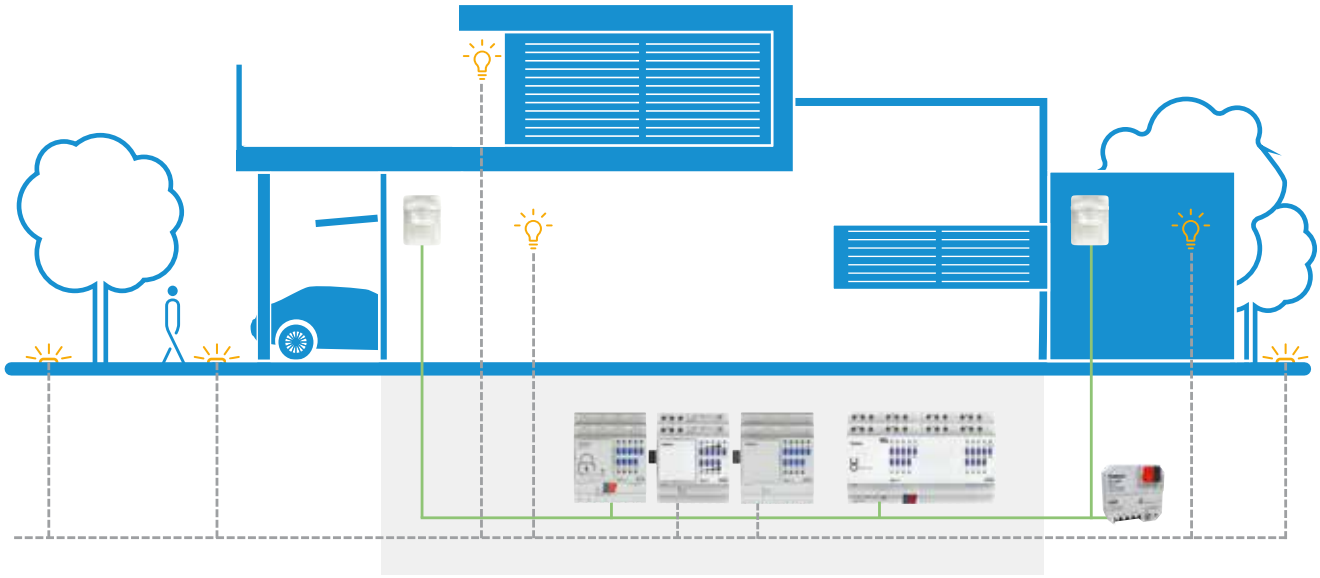
With Theben, comfort can be created easily – with theLuxa P KNX motion detectors and universal dimmer actuators, which always provide the desired brightness. Even at a specific period of time – in the morning, in the evening, or at night. Permanently or temporarily. With specific brightness values or with certain responses and time delays.



Basic principle of orientation light

In the morning and evening hours, a basic lighting of 40 % provides orientation. When motion is detected, the brightness is switched to 100 %. After a time delay, the lighting is softly dimmed down to the level of the orientation light.

Theben KNX lighting control
for buildings and outside facilities



Benefits at a glance

1. Large detection area and universal applicatons

- The outdoor motion detector theLuxa P300 KNX has a large detection area of up to 16 m and separate creep under protection.
- It is suited for ceiling installation and wall mounting. Corner brackets for the installation at inner and outer corners, as well as spacer frames for lateral cable routing are included in the scope of supply.

2. Sophisticated applications

- theLuxa P300 KNX features change over between alternative values for brightness and time delay, which allows different values to be considered for different times of the day and situations.
- The most important settings, such as brightness and time delay, can be changed during operation via the KNX objects.

3. High investment security

- In the KNX universal dimmer actuators, various dimming curves are stored, which correct the dimming response depending on the lamp used, thus ensuring stepless and flicker-free dimming of LED lamps.
- The dimming output is 400 W or 200 W per channel, depending on the device type. If a greater output is required, this can be doubled to 800 W or 400 W by connecting two channels in parallel.
- The KNX flush-mounted switch actuators, such as the SU 1 KNX, are also optimised for high inrush currents and offer flexible application options thanks to the integrated binary inputs.

Motion detector theLuxa P KNX
Responds to every movement

This motion detector has a very large detection area of up to 16 metres. An advantage, especially with large building complexes, because a few detectors will suffice, in order to cover large entrance areas, parking lots, or accesses. It can be mounted on walls, or ceilings. Many of its functions can be easily changed with theSenda remote control from the ground.

Dimming actuator DM 8-2 T KNX
Dims like no other

Whether you opt for the FIX series or the MIX series – with KNX universal dimmer actuators from Theben you can steplessly dim LED, halogen and energy-saving lamps without any flickering. The times of high wattages are over. Today, the art is in dimming LEDs with small wattages. Theben responds to this trend and offers dimming actuators with a minimum load of just 2 watts.

Switch actuator RMG 8 S KNX
Compact, flexible, extendable

The 8-channel switch actuator RMG 8 S KNX is just 4 modules wide and yet switches inrush currents of up to 800 A (200 µs) per channel safely and reliably. The complete range of KNX MIX2 actuators opens up new design options in the realm of building automation. All you need is a basic module to which up to two extension modules can be connected.

Flush-mounted switch actuator SU 1 KNX
Small but nice

Thanks to its compact design, the KNX flush-mounted switch actuator fits into any switch/distribution box and still switches inrush currents of up to 740 A reliably and safely. Two external inputs for connecting a button, signal contact or temperature sensor offer maximum flexibility.

Constant lighting conditions
Implemented across systems
KNX and DALI

We all sense temperature differently. Similarly, we all sense brightness differently: Too bright or too dark are elastic terms, and are understood in a different way by each individual. However, we all know that light is an important asset. For several years, a growing number of experts has pointed out the health impact of poor lighting, in numerous studies. The challenge has been clearly defined: On the one hand, it is important to save energy and to lower CO_2 emissions. On the other hand, we want to permanently create good lighting conditions, under which people can work in a focussed manner without health implications. Theben offers you the appropriate solution.

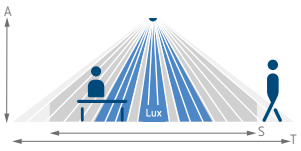
Whether open-plan offices, classrooms, or seminar rooms: Near the window it is bright, while it is darker inside the room. Dusk and dawn, or rainy weather increase the effect. KNX building automation with constant lighting control ensures homogenous and energy efficient lighting conditions, which incorporates the DALI lighting control.

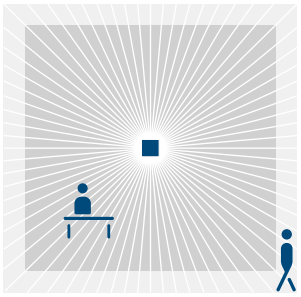
For this, Theben provides the two critical components: thePrema P360 KNX presence detectors, which optimally cover large rooms, thanks to their large and square detection area, and the DALI Gateway KNX, which forwards the KNX telegrams from the presence detectors to the DALI participants. With the three directed light measurements, the brightness situation is exactly determined by thePrema P360 KNX. In this way, it is possible to implement a separate constant light control for each of the two groups of lights. The large saving potential: Thanks to the square detection area, less presence detectors usually cover the rooms better. This saves time and money for devices, installation and programming. Due to the exact light measurement and the corresponding lighting control via DALI Gateway KNX, highest energy efficiency is preprogrammed.

With the DALI Gateway KNX, 64 DALI participants can be divided into up to 16 group of lights. Between the lamps and the KNX building automation, information is exchanged bidirectionally. The advantage: The lamps cannot only be controlled, but failures of the EBs or lamps can be displayed in the KNX visualisation theServa.

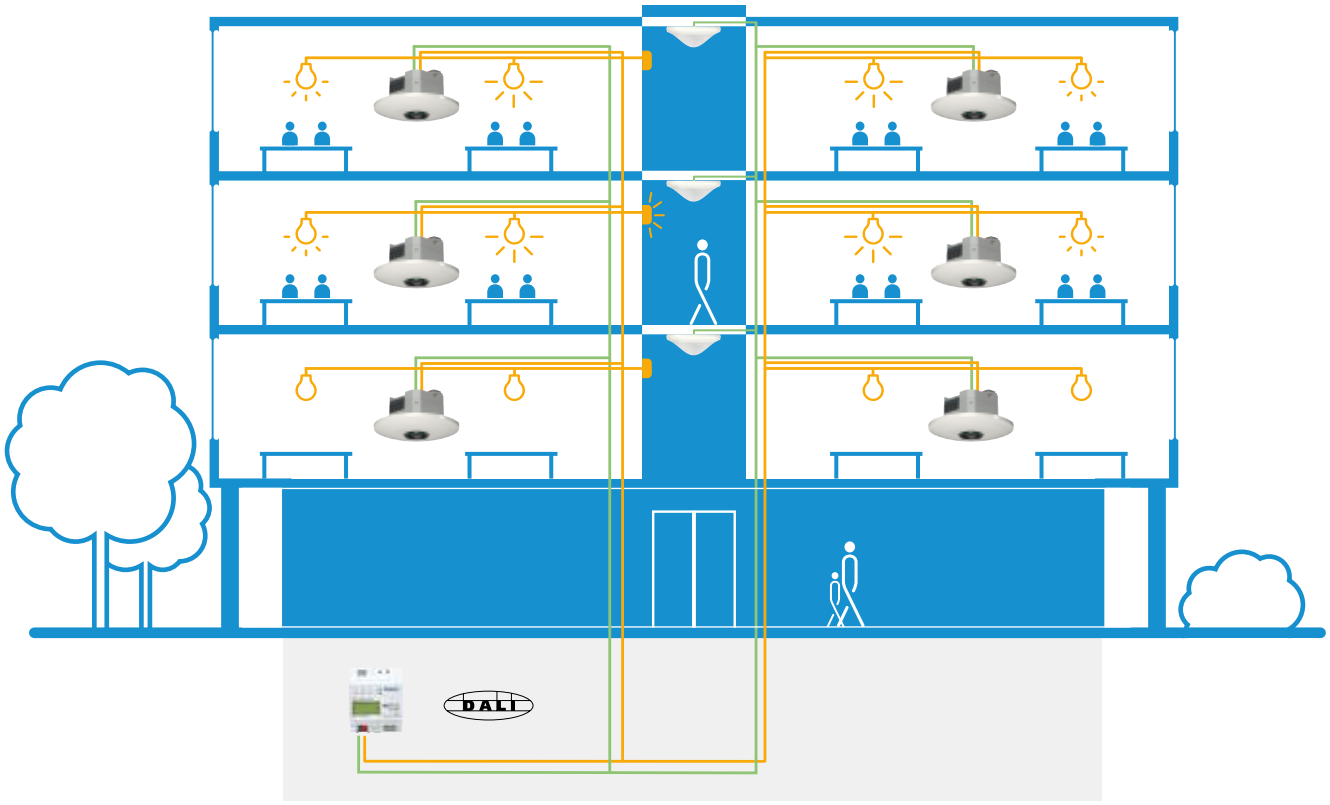
Directed light measurement

Thanks to its differently aligned light measurement, the presence detector thePrema P detects the solar radiation and controls the lighting group near the window independently of the lighting group in the interior of the room.





Theben KNX brightness control
in a public building



Benefits at a glance

High detection quality

- The optical presence detector thePixa KNX has up to 6 flexible detection zones, which can be easily adjusted at any time using the app. Thus, clear demarcations of the detection areas are not a problem. A person-dependent ventilation control, for example, can also be implemented.
- For a flush ceiling installation, we recommend the PlanoCentro and PlanoSpot presence detectors with a structure height of only 3 mm and very good detection quality thanks to mirror optics. Also the new theRonda S360 FLAT, with a structure height of only 5 mm, is almost invisible.

Optimised energy consumption

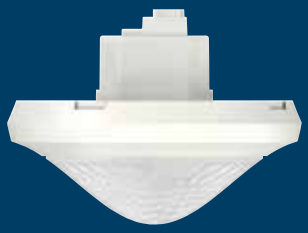
- The functions "Short-term presence for passage ways" and "Adaptive time delay" optimise the energy savings and thus significantly reduce energy consumption.
- The light can be controlled fully automatically via the detector, depending on the individually desired setting.
  Or semi-automatically: Here, the light can be switched on via the light switch.
  Switching off is done by the presence detector.

Greater comfort and flexibility

- On the KNX presence detectors, the most important settings such as "time delay" and "brightness threshold" can be changed via KNX objects during operation.
- With the DALI-Gateway 64 KNX, the lighting cannot only be switched and dimmed; thanks to support for Device Type 8 (DT8), colour and colour temperature control is also possible.
- The iON 108 KNX room controller can be used to operate and control the lighting. The up to 20 functions of the iON 108 KNX can be operated via button and display, as well as with an app.

Optical presence detector thePixa KNX
So you are flexible

Thanks to the pixel-based detection technology, the optical presence detector thePixa opens up additional applications with decisive added value. These go far beyond the possibilities of PIR presence detectors. The optical presence detector thePixa recognizes how many people are in a room and where they are. This information is used to trigger predefined actions in the KNX building control. Thanks to the individual detection zones, you will remain flexible in the future.



Presence detector theRonda P KNX
Draws everyone into its circle

theRonda P KNX is an excellent addition to thePrema P KNX. Especially, if not only classrooms, but other large spaces, such as assembly halls, or the sports hall should be integrated into the KNX building automation. theRonda P KNX has a l arge, circular detection area of 25 m in diameter, and is suited for all applications with unusual room geometries, such as fan-shaped concert halls, or events halls. A possible mounting height of 2 - 15 m as well as the high IP protection class of IP 54 makes it an all-rounder.

For safe and easy planning:

RELUX light simulation tools RED CAD

DALI-Gateway S64 KNX
Light and automation

The DALI-Gateway KNX plus combines the DALI protocol of digital lighting control with the building automation across rooms. It controls up to 64 operating units with DALI interface, individually or in groups. Start-up can be performed either via ETS 5 (DCA) or via the integrated web interface with a mobile device. Another highlight is the support of DALI DT8, which allows control of colour and colour temperature.

Room controller iON 108 KNX
Design meets ease of use

On the iON 108 KNX room controller, an icon can be selected from a library for each of the up to 20 functions. The icon can be complemented by suitable function names, and it shows the current status. This greatly simplifies operation and navigation on the room controller. Operation is made even easier by access via App. The integrated Bluetooth interface establishes a comfortable as well as secure connection between the iON 108 KNX and smartphone or tablet.

Push button interface TA 4 S KNX
Intervention desired

In some cases it makes sense to be able to manually intervene into an automatic lighting control. For instance, in order to permanently switch on or off the light at the blackboard in the classroom. The push button interface with 4 binary inputs provides the option of using conventional push buttons and switches.

Theben KNX blind controls
Sun position tracking for better glare protection

The sun rises in the east and sets in the west – but in between and over the year, it shows a surprisingly variable course, which has different effects on houses, functional buildings, and the people who live and work inside.

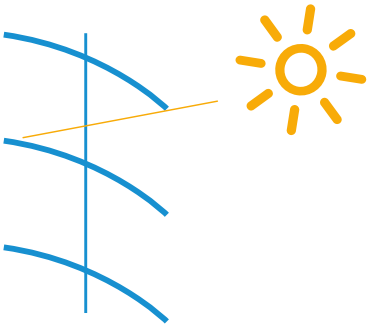
For some people it is quickly too warm, others are blinded by the glare of the sunlight. Those who want to create constant lighting and temperature conditions, and ensure an efficient working atmosphere, find exactly the right components in the KNX building automation from Theben, which counteract the complex interplay of sun position, azimuth, and elevation: sun protection with sun position tracking.

All this is also energy efficient: Because in winter, solar energy is used to reduce heating costs, and in summer, the cooling load is reduced by correct shading.

The temperature is 21 degrees Celsius, the wind speed is 7.5 kilometres per hour, it is very bright and there is no rain – in short: It is a beautiful sunny day. Data like this is sent by Meteodata 140 S GPS KNX to the Theben multifunction display VARIA 826 S KNX inside the individual rooms and to the MIX2 blinds actuators in the switch cabinet – and shading in accordance with the supplied GPS positioning is done.

Basically, it is all just a question of programming: What is the position of the facade in relation to the course of the sun? At which time of the day does the sun appear in the defined protection zone, and when does it leave it? And, how does it change its position in the course of the day and in the course of the year? The elevation shows the height of the sun, the azimuth shows the direction, from which the sunlight comes. The interplay of GPS weather station, multifunction display and KNX MIX2 blinds actuator reliably ensures that there are always pleasant lighting conditions on the sunny side of the facade – without dazzling. One should not forget the positive effect on climate control, since an accurate shading protects against overheating and reduces energy costs for cooling control. All this, of course with highest safety: Because during storm, ice, and frost, the blinds move up automatically.

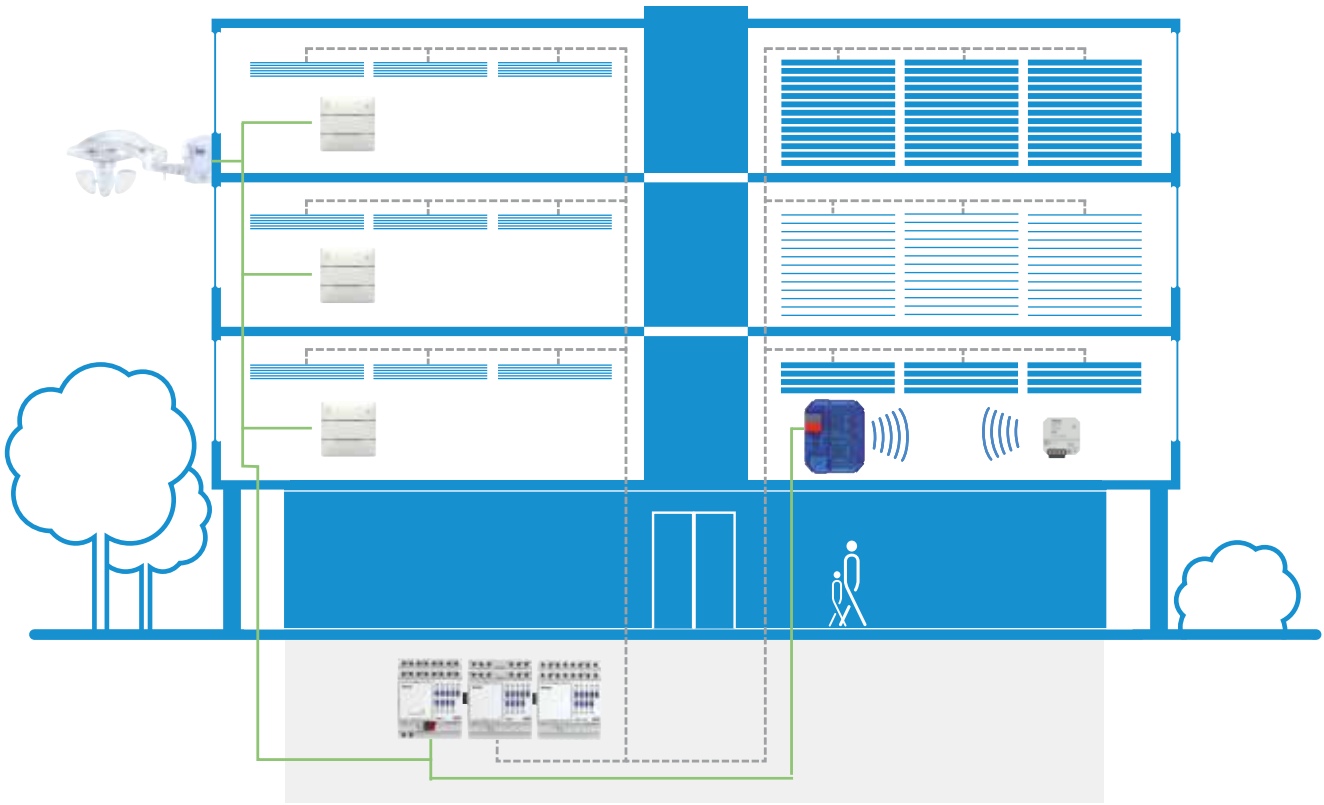
The advantage of the Theben KNX solution: In contrast to other suppliers, the measured data is processed directly inside the weather station. An additional module is not necessary.



Slat adjustment

In case of high solar radiation, the position of the slats is automatically adjusted to the course of the sun. Dazzling and directly incident sunlight is thus avoided, without excluding the daylight completely.

Theben KNX blind controls
go with the sun



Benefits at a glance

1. Less components – reduced costs

- In contrast to most other suppliers, the processing of the measured data and sun position tracking takes place directly inside the KNX weather station Meteodata 140 S GPS KNX. An additional control module is not necessary.
- The weather station protects the awnings against frost, storm or rain, and moves them into a safe position.
- Passive houses with internal blinds benefit from blinds actuator JMG 4 T 24 V: The 24 V version is ideal for this type of application.

2. Adaptable

- Through the transparent housing of the KNX Meteodata weather station, the background colour of the facade shines through, so the weather station harmoniously blends with its surroundings.
- Retrofitting is also possible with the KNX wireless actuators, simply and without the need for extensive wiring. Communication with KNX Data Secure encryption offers maximum security.
- Maximum flexibility is provided by the switch/blinds actuators of the MIX2 and FIX series. The outputs of the 8- and 16-channel actuators allow an individual use as switching or blinds channel. This allows you to control drives and also switch loads cost-efficiently with just one device.

3. Energy saving comfort

- The sun position tracking ensures pleasant and glare-free working.
- The heating and cooling support contributes to reducing the energy consumption during each season.

Weather station Meteodata 140 S GPS KNX
Exactly calculates the position of the sun

The incorporation of combined sensor, weather station and integrated GPS receiver makes Meteodata 140 S GPS KNX a true weather expert. Azimuth and elevation are calculated automatically. Temperature, rain, wind, and brightness are exactly detected. Thanks to the three brightness sensors, the weather station is suited for sun protection control of up to eight facades.

Tactile sensor iON 104 KNX
Timeless design meets advanced functionality

The iON KNX tactile sensors with integrated bus coupler enable secure start-up and communication by supporting KNX Data Secure. For the control of multiple functions: switching, dimming, blinds, value indications, operating mode, scene, colour control or sequence. With the integrated temperature sensor, room temperature regulation via the heating actuators is also possible. States are indicated by multi-coloured status LEDs with adjustable or automatically controlled brightness. A transparent cover allows individual labelling of the buttons.

Wireless blinds actuator JU 1 S RF KNX
Minimum installation effort – maximum safety

The wireless blinds actuator controls the drives of blinds, roller blinds, sun and shade protection devices, skylights and ventilation flaps. Buttons, window contacts or a temperature sensor can be directly linked with the system via the two integrated inputs. The actuator also features integrated heating/cooling support and automatic ventilation. Ideal, when it comes to perfectly tuned lighting, room temperature, and sun protection.

Combination actuator RMG 8 T KNX
It's all in the MIX

With the KNX MIX 2 actuators, various combinations of base module and extensions are possible. The universal actuator adds even more variety to the system, as the channels can be used either as switch outputs or for the control of drives. These switch/blinds actuators are also available in the FIX series.

Theben KNX room climate control
Educationally valuable:
Temperature control with CO_2 measurement

Where many people share a room, the air can get thick. The exhaled carbon dioxide (CO_2) is usually to blame. The result: well-being, concentration and performance decrease. A standard situation from any classroom. If you want to learn, you need fresh air. A KNX-controlled heating control from Theben ensures exactly that.
And a nice side effect: Because the KNX climate control from Theben determines the room temperature and carries out a CO_2 measurement, which allows conclusions to be drawn about the oxygen content. It not only ensures pleasant warmth, but also gives an indication of when fresh air should be let in.
And everyone benefits from that: not only students, teachers and schools, but also the client - and everyone who recommends, installs and maintains this clever form of building automation.

A KNX installation only makes real sense if it is used for building automation across rooms. For instance, for temperature control in six classrooms. No matter whether the control is centralised or decentralised. Theben has the right solution with various designs of heating actuators.

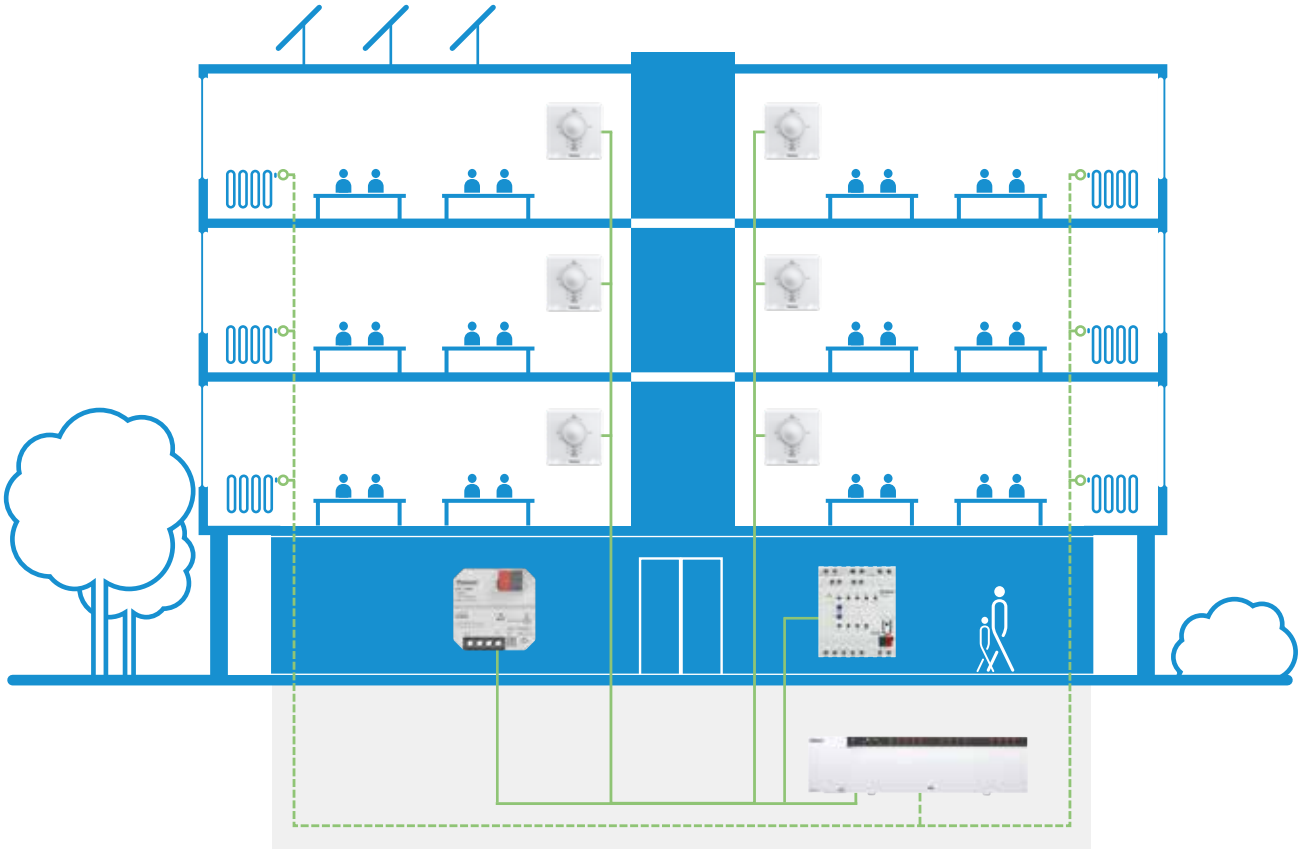
In the classrooms, the CO_2 sensor AMUN 716 S KNX measures the room temperature, the relative humidity, as well as the CO_2 content of the air. The heating actuator in turn controls the heating in coordination with the indoor and outdoor temperature.

With Theben fan coil actuators, you do not have to decide between heating or cooling: the fan coil provides both options, depending on installation type. And the fan coil actuator can regulate both. This means Theben offers you investment security and flexibility.

In mild weather, the system switches to summer mode and reduces the energy consumption. If a window is opened, frost protection mode starts. Comfort mode is activated by pressing the presence button. In each situation, the students inside the classrooms enjoy constantly pleasant temperatures. Additionally, the room sensor indicates the air quality via CO_2 measurement, and lets you know when it is time to air the room again.

The AMUN 716 KNX CO_2 room air sensor also measures air humidity and temperature, apart from the CO_2 concentration in the range of 300–5.000 ppm.

Theben KNX room climate control considers temperature, air quality and energy consumption



Benefits at a glance

1. Less devices, less installation effort

- Each of our latest heating actuators features an independent and fully-fledged room thermostat for each channel. The room temperature is transmitted to the heating actuator by the respective AMUN 716 S KNX CO2 sensor in the individual rooms. This reduces equipment costs, since a separate room thermostat is not needed for each room.
- The installation effort can be considerably reduced by using the flush-mounted heating actuator HU 1 KNX or the wireless version HU 1 RF KNX. Both devices also support secure communication according to the KNX Data Secure standard.

2. Securely monitored

- The FCA 2 KNX fan coil actuator has 2 inputs for condensation monitoring and for connecting an external temperature sensor or window contact.
- All our latest heating actuators have protection against overload and short circuit, because: Better safe than sorry.

3. Universally usable

- The FCA 2 KNX supports both 2-pipe and 4-pipe systems. The 2-pipe system allows for demand-based heating or cooling. The 4-pipe system consists of a separate flow and return for the heating and cooling system. The valves are controlled via 0-10 V outputs, the fan either switching or also via 0-10 V.
- The HMT 12 S KNX can be used to control either 12 x 24 V or 0-10 V actuators.

Room air sensor AMUN 716 S KNX
Exactly detects the air quality

The AMUN 716 S KNX CO2 sensor monitors CO2 levels in schools and classrooms, in offices and meeting rooms, or in passive and low-energy buildings. Thanks to the integrated temperature controller, it is ideal for efficiently controlling the room temperature and for controlling ventilation systems in KNX building automation, depending on the air in the room. With the universal mounting plate, the AMUN 716 S KNX can be installed on the wall or a switch box.

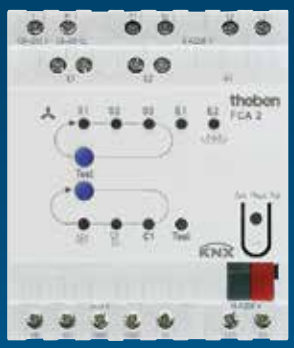
Flush-mounted heating actuator HU 1 KNX
Quick and easy to install

With the KNX flush-mounted heating actuator HU 1 KNX, costly wiring in the control cabinet is no longer necessary. Two binary inputs per device, one of which can be combined with a temperature sensor, as well as power supply via bus voltage.

Heating actuator HMT 12 S KNX
Variably controls heat and cold

The KNX heating actuator HMT 12 S KNX from Theben can be easily installed near the heating circuit manifold using a mounting rail. It offers a large number of high-performance functions, which significantly increase the energy efficiency of the heating system:

- Demand-based adjustment of the flow temperature
- No KNX room thermostat required
- Variable output signal
- Demand-dependent control
- Practical protection functions



Fan coil actuator FCA 2 KNX
Switches correctly, automatically

The fan coil actuator FCA 2 KNC offers everything that you would expect from a heating control: Thanks to proportional control valves (1-10 V), the temperature can be increased or decreased to a precise degree. Ideal for hotel rooms, office buildings and apartment complexes. The two inputs offer the possibility to connect an external temperature sensor or window contact and monitor the condensate. The FCA 2 KNX supports both 2-pipe and 4-pipe systems and can also control small split units.

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Push-button sensor

	Operating voltage	Frequency	Medium	Type of construction	KNX Secure
	KNX bus voltage	–	TP1-256	flush-mounted	Data Secure
	KNX bus voltage	–			Data Secure
	KNX bus voltage	50–60 Hz			Data Secure

Switch actuators

	Operating voltage	Frequency	Medium	Installation-width	KNX Secure	Max. cable cross section	Switching capacity
	110–240 V AC	50–60 Hz	TP1-256	4 units	Data Secure	Solid: 0,5 mm² to 6 mm² strand with crimp terminal: 0,5 mm² to 4 mm²	no contact, 16 A (cos φ = 1), 3 A (cos φ = 0,6
	–	–			–		
	110–240 V AC	50–60 Hz			–		
	–	50–60 Hz		4 units	Data Secure		no contact, 16 A (cos φ = 1), 10 A (cos φ = 0,6
	110–240 V AC			4 units	–		
				4 units	–		
				8 units	–		
	–	–		4 units	–		no contact, 25 A (cos φ = 1), 10 A (cos φ = 0,6
				8 units	–		
	110–240 V AC	50–60 Hz		4 units	Data Secure		no contact, 16 A (cos φ = 1), 3 A (cos φ = 0,6
	–			4 units	–		
	110–240 V AC			4 units	–		
				8 units	–		

Blind actuators

	Operating voltage	Frequency	Medium	Installation-width	KNX Secure	Max. cable cross section	Switching capacity
	110–240 V AC	50–60 Hz	TP1-256	4 units	Data Secure	Solid: 0,5 mm² to 6 mm² strand with crimp terminal: 0,5 mm² to 4 mm²	no contact, 6 A (cos φ = 1)
	–			4 units	–		
	110–240 V AC			4 units	–		
				8 units	–		
	110–240 V AC	50–60 Hz		4 units	Data Secure		Changeover contact, 6 A (cos φ = 1)
	–			4 units	–		
	110–240 V AC			4 units	–		
				8 units	–		

Switch/blind actuators

	Operating voltage	Frequency	Medium	Installation-width	KNX Secure	Max. cable cross section	Switching capacity
	110–240 V AC	50–60 Hz	TP1-256	4 units	Data Secure	Solid: 0,5 mm² to 6 mm² strand with crimp terminal: 0,5 mm² to 4 mm²	no contact, 16 A (cos φ = 1), 3 A (cos φ = 0,6
	–	–		4 units	–		
	110–240 V AC	50–60 Hz		4 units	–		
	110–240 V AC	50–60 Hz		8 units	–		

Info	Type	Item no.
Pushbutton with 2 buttons, multicolor status LEDs, integrated temperature sensor, Labeling field with transparent cover	iON 102 KNX	4969232
Pushbutton with 4 buttons, multicolor status LEDs, integrated temperature sensor, Labeling field with transparent cover	iON 104 KNX	4969234
Room controller with 20 functions, LC display for showing functions, icons and values, integrated temperature controller for regulating and controlling operating mode, temperature and fan speed, Access to the room controller via Bluetooth and operation with iONplay app.	iON 108 KNX	4969238

Inrush current	Resistive load	LED lamp > 2 W	Configuration type	Number of channels	Type	Item no.
max. 800 A/ 200 µs	3680 W	600 W	MIX2 base module*	4	RMG 4 U KNX	4930223
			MIX2 extension module		RME 4 U KNX	4930228
			FIX1 module		RM 4 U KNX	4940223
max. 1500 A/ 200 µs	3680 W	850 W	MIX2 base module*	4	RMG 4 I KNX	4930210
			MIX2 extension module	4	RME 4 I KNX	4930215
			FIX1 module	4	RM 4 I KNX	4940210
			FIX2 module	8	RM 8 I KNX	4940215
max. 1200 A/ 200 µs	4800 W	850 W	FIX1 module	4	RM 4 H KNX	4940212
			FIX2 module	8	RM 8 H KNX	4940217
max. 800 A/ 200 µs	3680 W	600 W	MIX2 base module*	8	RMG 8 S KNX	4930220
			MIX2 extension module	8	RME 8 S KNX	4930225
			FIX1 module	8	RM 8 S KNX	4940220
			FIX2 module	16	RM 16 S KNX	4940225

Configuration type	Number of channels	Type	Item no.
MIX2 base module*	4	JMG 4 T KNX	4930250
MIX2 extension module	4	JME 4 T KNX	4930255
FIX1 module	4	JM 4 T KNX	4940250
FIX2 module	8	JM 8 T KNX	4940255
MIX2 base module*	4	JMG 4 T 24V KNX	4930260
MIX2 extension module	4	JME 4 T 24V KNX	4930265
FIX1 module	4	JM 4 T 24V KNX	4940260
FIX2 module	8	JM 8 T 24V KNX	4940265

Inrush current	Resistive load	LED lamp > 2 W	Configuration type	Number of channels	Type	Item no.
max. 800 A/ 200 µs	3680 W	600 W	MIX2 base module* 8 x switching / 4 x blind	8	RMG 8 T KNX	4930200
			MIX2 extension module 8 x switching / 4 x blind	8	RME 8 T KNX	4930205
			FIX1 module 8 x switching / 4 x blind	8	RM 8 T KNX	4940200
			FIX2 module 16 x switching / 8 x blind	16	RM 16 T KNX	4940205

* Up to 2 extension modules can be connected to one basic module.

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Dimming actuators LED

	Operating voltage	Frequency	Medium	Installation-width	KNX Secure	Max. cable cross section	Dimming output LED per channel
	230 V AC	50 Hz	TP1-256	4 units	Data Secure	Solid: 0,5 mm² to 6 mm² strand with crimp terminal: 0,5 mm² to 4 mm²	Trailing edge (RC-Mode) typ. 800W
				4 units	–		
				4 units	–		
				8 units	–		
	–			1 unit	–		300 W
	230–240 V AC	50–60 Hz		4 units	–		Trailing edge (RC-Mode) typ. 200W
				8 units	–		
	230 V AC	50 Hz		4 units	–		–
				4 units	–		–

DALI-Gateways

	Operating voltage	Frequency	Medium	Installation-width	KNX Secure	Max. cable cross section
	110–240 V AC	50–60 Hz	TP1-256	4 units	Data Secure	Solid: 0,5 mm² to 6 mm² strand with crimp terminal: 0,5 mm² to 4 mm²
	100–240 V AC/DC			4 units	–	
				4 units	–	
				4 units	Data Secure	

Flush mounted actuators

	Operating voltage	Medium	Installation-width (mm)	KNX Secure	Max. cable cross section	Switching capacity
	KNX bus voltage	TP1-256	44,5 x 44,6	Data Secure	Solid: 0,5 mm² to 4 mm² strand with crimp terminal: 0,5 mm² to 2,5 mm²	no contact, 16 A (cos φ = 1)
				Data Secure		no contact, 2 x 10 A (cos φ = 1)
				Data Secure		230 V, 50/60 Hz, 250 W
				Data Secure		230 V, 50/60 Hz, 1 A

1-way wireless flush mounted actuators

	Operating voltage	Frequency	Medium	Installation-width (mm)	KNX Secure	Max. cable cross section	Switching capacity
	230–240 V AC	50–60 Hz	RF1.R	46,6 x 44,8	Data Secure	Solid: 0,5 mm² to 4 mm² strand with crimp terminal: 0,5 mm² to 2,5 mm²	no contact, 10 A (cos φ = 1)
		50–60 Hz			Data Secure		no contact, 5 A (cos φ = 1)
		50/60 Hz			Data Secure		230 V, 50/60 Hz, 250 W
		50/60 Hz			Data Secure		230 V, 50/60 Hz, 1 A
		50–60 Hz			Data Secure		–
	KNX bus voltage		TP1-256 RF1.R	40 x 48	Data Secure		

Dimming output LED in parallel operation	Configuration type	Number of channels	Type	Item no.
Trailing edge (RC-Mode) typ. 800W	MIX2 base module*	2	DMG 2 T KNX	4930270
	MIX2 extension module	2	DME 2 T KNX	4930275
	FIX1 module	2	DM 2 T KNX	4940270
	FIX2 module	4	DM 4 T KNX	4940275
–	Extension module Dimmbooster	1	DMB 1 T KNX	4930279
Trailing edge (RC-Mode) typ. 400W	FIX1 module	4	DM 4-2 T KNX	4940280
	FIX2 module	8	DM 8-2 T KNX	4940285
–	Base module	2	SMG 2 S KNX	4910273
–	Extension module	2	SME 2 S KNX	4910274

Number of ECG's	DALI communication	Color control	Multi Master Controller	DALI2 certified	Number of channels	Type	Item no.
4 x 30	Broadcast	yes DT8	no	yes	4	DM 4 DALI KNX	4940300
64	Single control, 16 groups		no	yes	1	DALI-Gateway S64 KNX	4940301
2 x 64	Single control, 2 x 16 groups		no	yes	2	DALI-Gateway S128 KNX	4940302
64	Single control, 16 groups		yes	yes	1	DALI-Gateway P64 KNX	4940303

Incrush current	LED lamp > 2 W	Configuration type	Number of channels	Type	Item no.
max. 740 A/200 µs	600 W	Flush mounted switch actuator	1	SU 1 KNX	4942520
	30 W	Flush mounted blind actcuator	1	JU 1 KNX	4942550
	Trailing edge (RC-Mode) typ. 250 W	Flush mounted dimming actuator	1	DU 1 KNX	4942570
max. 4 actuators (Alpha 5)		Flush mounted heating actuator	1	HU 1 KNX	4942540

Incrush current	LED lamp > 2 W	Configuration type	Number of channels	Type	Item no.
max. 740 A/200 µs	600 W	1-way wireless flush-mounted switch actuator	1	SU 1 S RF KNX	4941621
–	–	1-way wireless flush-mounted blind actuator	1	JU 1 S RF KNX	4941651
–	Trailing edge (RC-Mode) typ. 250 W	1-way wireless flush-mounted dimming actuator	1	DU 1 S RF KNX	4941671
max. 4 actuators (Alpha 5)		1-way wireless flush-mounted heating actuator	1	HU 1 S RF KNX	4941641
		4-way flush-mounted wireless push-button interface	1	TU 4 S RF KNX	4961614
		Media coupler		Media coupler TP-RF KNX	9070868

* Up to 2 extension modules can be connected to one basic module.

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Binary inputs

	Operating voltage	Medium	Frequency	Installation width	KNX Secure	Max. cable cross section	Voltage/current recording inputs
	110–240 V AC	TP1-256	50–60 Hz	4 units	Data Secure	Solid: 0,5 mm² to 6 mm² strand with crimp terminal: 0,5 mm² to 4 mm²	10 V DC–240 V AC 2 mA
	–		–	4 units	–		
	110–240 V AC		50–60 Hz	4 units	–		
	110–240 V AC		50–60 Hz	8 units	–		

	Operating voltage	Medium	Type of construction
	KNX bus voltage	TP1-256	flush-mounted
	KNX bus voltage		
	KNX bus voltage		
	KNX bus voltage		

Presence detector for indoor use

	Detection area lateral walking installation height 3 m	Detection area seated installation height 3 m	Installation height	KNX Secure	Channels
	■ 78 m² | 7,5 m x 10,5 m	■ 35 m² | 5 m x 7 m	2,5–4,5 m	Data Secure	6 x light | 6 x HVAC (presence) 6 x room occupancy
	■ 49 m² | 7 x 7 m	■ 25 m² | 5 x 5 m	2–3,5 m	–	2 x light | 2 x presence
	■ 81 m² | 9 x 9 m	■ 49 m² | 7 x 7 m	2–10 m	–	3 x light | 2 x presence
	■ 81 m² | 9 x 9 m	■ 49 m² | 7 x 7 m	2–10 m	–	3 x light | 2 x presence
	● 452 m² | Ø 24 m	● 28 m² | Ø 6 m	2–15 m	–	2 x light | 2 x presence
	■ 135 m² | 30 x 4,5 m				
	● 50 m² | Ø 8 m	● 13 m² | Ø 4 m	2–4 m	–	
	● 50 m² | Ø 8 m	● 13 m² | Ø 4 m	2–4 m	–	2 x light | 2 x presence
	■ 49 m² | 7 x 7 m	■ 20 m² | 4,5 x 4,5 m	2–3,5 m	–	3 x light | 2 x presence
	■ 49 m² | 7 x 7 m	■ 25 m² | 5 x 5 m			2 x light | 2 x presence
	◒ 100 m² | 16 m (at 2,2 m height)	■ 25 m² | 7 m x 3,5 m (at 2,2 m height)	1,6–2,2 m	–	
	■ 238 m² | 14 m x 17 m		0,8–1,2 m	Data Secure	2 x light | 2 x HVAC (presence) 6 x logic

Configuration type	Number of channels	Type	Item no.
MIX2 base module* 8 x switching / 4 x blind	6	BMG 6 T KNX	4930230
MIX2 extension module 8 x switching / 4 x blind	6	BME 6 T KNX	4930235
FIX1 module 8 x switching / 4 x blind	6	BM 6 T KNX	4940230
FIX2 module 16 x switching / 8 x blind	12	BM 12 T KNX	4940235

Configuration type	Type	Item no.
Binary input / output pushbutton interfaces 2-way	TA 2 S KNX	4969222
Binary input / output pushbutton interfaces 4-way	TA 4 S KNX	4969224
Binary input / output pushbutton interfaces 6-way	TA 6 S KNX	4969226
Binary input / output pushbutton interfaces 8-way	TA 8 S KNX	4969228

Type of installation	Brightness setting range	Light time delay	Protection rating (when installed)	Type	Item no.
Flush mount (ceiling mount & surface mount with accessories)	5 – 3000 lx	0 s – 60 min	IP 20	thePixa P360 KNX UP WH	2269200
Flush mount (ceiling mount & surface mount with accessories)	5 – 3000 lx		IP 40	thePrema S360 KNX UP WH	2079500
				thePrema P360 KNX UP WH	2079000
Surface mount	5 – 3000 lx		IP 20	thePrema P360 KNX AP Multi WH	2079900
Flush mount (ceiling mount & surface mount with accessories)	10 – 3000 lx	30 s – 60 min	IP 54	theRonda P360 KNX UP	2089000
				thePassa P360 KNX UP WH	2019300
Surface mount				theRonda S360 KNX AP WH	2089550
Ceiling mount				theRonda S360 KNX FLAT DE WH	2089560
Flush mount (ceiling mount & surface mount with accessories)			IP 54	theRonda S360 KNX UP WH	2089520
Ceiling mount (surface mount with accessories			IP 20	PlanoSpot 360 KNX DE WH	2039100
Flush mount (ceiling mount & surface mount with accessories)	5 – 2000 lx		IP 54	PresenceLight 360B KNX WH	2009000
Flush mount wall (ceiling mount & surface mount with accessories)				PresenceLight 180B KNX WH	2009050
Flush mount wall (surface mount with accessories switch range)	5 – 3000 lx	30 s – 60 min	IP 20	theMura P180 KNX UP WH	2069655

* Up to 2 extension modules can be connected to one basic module.

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Motion detector for indoor use

	Detection area lateral walking installation height 3 m	Detection area seated installation height 3 m	Installation height	KNX Secure	Channels
	■ 238 m² | 14 m x 17 m		0,8 – 1,2 m	Data Secure	1 x light | 1 x HVAC (presence) | 3 x logic

Motion detector for outdoor use

	Detection area lateral walking installation height 3 m	Detection area seated installation height 3 m	Installation height	KNX Secure	Channels
	Ø 32 m		2 – 4 m		4 x light | 4 x universal | 4 x logic

System devices

	Operating voltage	Medium	Frequency	Installation-width	KNX Secure
	KNX bus voltage	TP1-256	–	2 units	IP Secure
	KNX bus voltage		–	2 units	IP Secure
	KNX bus voltage		–	2 units	–
	KNX bus voltage		–	2 units	–
	KNX bus voltage			–	–
	220 – 230 V AC			4 units	–
				4 units	–
				4 units	–
				4 units	–

Heating and air conditioning control

	Operating voltage	Medium	Frequency	Installationwidth / installation type	KNX Secure
	KNX bus voltage	TP1-256	50 Hz	UP	
	KNX bus voltage			AP	
	KNX bus voltage			AP	
	KNX bus voltage			AP	
	KNX bus voltage			AP	Data Secure
	220 – 230 V		50 – 60 Hz	4 units	
	110 – 240 V AC		50 – 60 Hz	4 units	
	KNX bus voltage			4 units	

	Operating voltage	Medium	Frequency	Installationwidth / installation type	KNX Secure	Max. cable cross section	Switching output pump
	110 – 240 V AC	TP1-256	50 – 60 Hz	4 units	Data Secure	Solid: 0,5 mm² to 6 mm² strand with crimp terminal: 0,5 mm² to 4 mm²	–
	–		–	4 units	Data Secure		
	110 – 240 V AC		50 – 60 Hz	4 units			
				4 units			
	230 – 240 V AC		50 – 60 Hz	290 mm		0,2 mm² to 1,5 mm²	5 A, 240 V AC floating

Type of installation	Brightness setting range	Light time delay	Protection rating	Type	Item no.
Flush mount wall (surface mount with accessories switch range)	5 – 3000 lx	30 s – 60 min	IP 20	theMura S180 KNX UP WH	2069650

Type of installation	Brightness setting range	Light time delay	Protection rating	Type	Item no.
Wall or ceiling installation	1 – 3000 lx	1 s – 60 min	IP 55	theLuxa P300 KNX WH	1019610

Funktionsart	Typ	Item no.
IP Secure router	IPsecure Router KNX	9070770
IP Secure interface	IPsecure Interface KNX	9070771
USB interface	Schnittstelle USB KNX	9070398
Area coupler, line coupler	Linienkoppler S KNX	9070880
KNX overvoltage protection	US 1 KNX	9070848
KNX power supply 160 mA	PS 160 mA T KNX	9070956
KNX power supply 320 mA	PS 320 mA T KNX	9070957
KNX power supply 640 mA	PS 640 mA T KNX	9070958
KNX power supply 1280 mA	PS 1280 mA T KNX	9070959

Configuration type	Number of channels	Type	Item no.
Multifunction display with room thermostat		VARIA 826 S WH KNX	8269210
Individual room temperature controller		RAMSES 718 S KNX	7189200
Individual room temperature controller with setting wheel		RAMSES 718 P KNX	7189210
KNX room air sensor for measuring the CO2 concentration, relative humidity, temperature and air pressure		AMUN 716 S KNX	7169230
Motorized stele drive with integrated controller and temperature sensor		CHEOPS S KINX	7319205
Fan coil actuator with up to 3 fan stages and 2 or 3 point valves		FCA 1 KNX	4920200
Fan coil actuator with up to 3 fan stages or 0-10V control for fans and valves		FCA 2 KNX	4920210
Interface between KNX systems and heat generators with Opentherm interface		KNX-OT-Box S	8559201

Number of actuators/channel	Configuration type	Number of channels	Type	Item no.
1 actuator 24V AC or 5 actuators 230 V AC	MIX2 base module*	6	HMG 6 T KNX	4930240
	MIX2 extension module	6	HME 6 T KNX	4930245
	FIX1 module	6	HM 6 T KNX	4940240
	FIX2 module	12	HM 12 T KNX	4940245
2 actuators 24V DC or 0-10V DC 1 actuator 24V DC or 0-10V DC	Heating actuator	6	HMT 6 S KNX	4900373
		12	HMT 12 S KNX	4900374

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Everything at a glance

Digital time switches

	Operating voltage	Medium	Frequency
	KNX bus voltage	TP1-256	–
	110–240 V AC		50–60 Hz

Weather stations and brightness sensors

	Operating voltage	Medium	Frequency	Measuring range brightness	Measuring range temperature	Measure range Wind speed
	15–34 V DC	TP1-256	–	1–100.0000 lx	–30 °C...+60 °C	2–30 m/s
	15–34 V DC		–			
	110–230 V AC		50–60 Hz			
	110–230 V AC		50–60 Hz			
	KNX bus voltage		–			

	Operating voltage	Medium	Frequency	Installation-width
	KNX bus voltage	TP1-256		AP
	KNX bus voltage			AP
	110–240 V AC		50–60 Hz	3 units

Display units

	Operating voltage	Medium	Frequency
	KNX bus voltage	TP1-256	–
	KNX bus voltage		
	KNX bus voltage		
	KNX bus voltage		
	KNX bus voltage		
	KNX bus voltage		
	KNX bus voltage		
	KNX bus voltage		
	KNX bus voltage		
	KNX bus voltage		
	KNX bus voltage		

KNX Sets

	Operating voltage
	KNX bus voltage
	KNX bus voltage
	KNX bus voltage
	KNX bus voltage

Capture	Type	Item no.
8 channel yearly and astronomical time program, for DCF antenna	TR 648 top2 RC-DCF KNX	6489210
8 channel yearly and astronomical time program, for DCF and GPS antenna	TR 648 top2 RC KNX	6489212

GPS module integrated	Capture	Type	Item no.
–	Wind, rain, brightness, temperature	Meteodata 140 S 24V KNX	1409201
√	Wind, rain, brightness, temperature, time	Meteodata 140 S 24V GPS KNX	1409204
–	Wind, rain, brightness, temperature	Meteodata 140 S KNX	1409207
√	Wind, rain, brightness, temperature, time	Meteodata 140 S GPS KNX	1409208
–	Wind, brightness, temperature	Meteodata 140 basic KNX	1409205
	Configuration type	**Type**	**Item no.**
	Brightness and temperature sensor	LUNA 131 S KNX	1319201
	Brightness sensor	LUNA 133 KNX	1339200
	Twilight switch/light control unit	LUNA 134 KNX	1349200

Configuration type	Type	Item no.
KNX indoor clock, round, one-sided, 250mm, arabic numerals	OSIRIA 220 AR KNX	5009200
KNX indoor clock, round, one-sided, 300mm, arabic numerals	OSIRIA 230 AR KNX	5009210
KNX indoor clock, round, one-sided, 300mm, fine line digits	OSIRIA 230 SR KNX	5009211
KNX indoor clock, square, one-sided, 250x250mm, for flush mounting	OSIRIA 232 BQ KNX	5009223
KNX indoor clock, round, one-sided, 400mm, arabic numerals	OSIRIA 240 AR KNX	5009230
KNX indoor clock, round, one-sided, 400mm, fine line digits	OSIRIA 240 SR KNX	5009231
KNX indoor clock, round, one-sided, 400mm, arabic numerals, metal housing	OSIRIA 241 AR KNX	5009240
KNX indoor clock, round, one-sided, 400mm, bar numerals, metal housing	OSIRIA 241 BR KNX	5009241
KNX indoor clock, round, double-sided, 400mm, Arabic numerals, with wall-ceiling bracket	OSIRIA 242 AR KNX	5009250
KNX indoor clock, round, double-sided, 400mm, fine line digits, with wall-ceiling bracket	OSIRIA 242 SR KNX	5009251
KNX indoor clock, square, one-sided, 400x400mm, Restricted ball-proof	OSIRIA 251 BQ KNX	5009252

Consisting of:	Type	Item no.
Power supply PS 640 mA T KNX, dimming actuator DM 4-2 T KNX, binary input/binary output sensor interface TA 4 S KNX	KNX Set 1 FIX	4990201
Power supply PS 640 mA T KNX, dimming actuator DM 8-2 T KNX, switching/blinds actuator RM 8 T KNX, binary input/binary output sensor interface TA 8 S KNX, 2 x binary input/binary output sensor interface TA 4 S KNX	KNX Set 2 FIX	4990202
Power supply PS 640 mA T KNX, switching/blinds actuator RMG 8 T KNX, 2 x dimming actuator DME 2 T KNX, 2 x binary input/binary output sensor interface TA 4 S KNX	KNX Set 3 MIX	4990203
Power supply PS 640 mA T KNX, Media coupler TP-RF KNX, flush-mounted switch acctuator SU 1 RF KNX, flush-mounted blind actuator JU 1 RF KNX, flush-mounted dimming acctuator DU 1 RF KNX	KNX Set 4 KNX-RF	4990204

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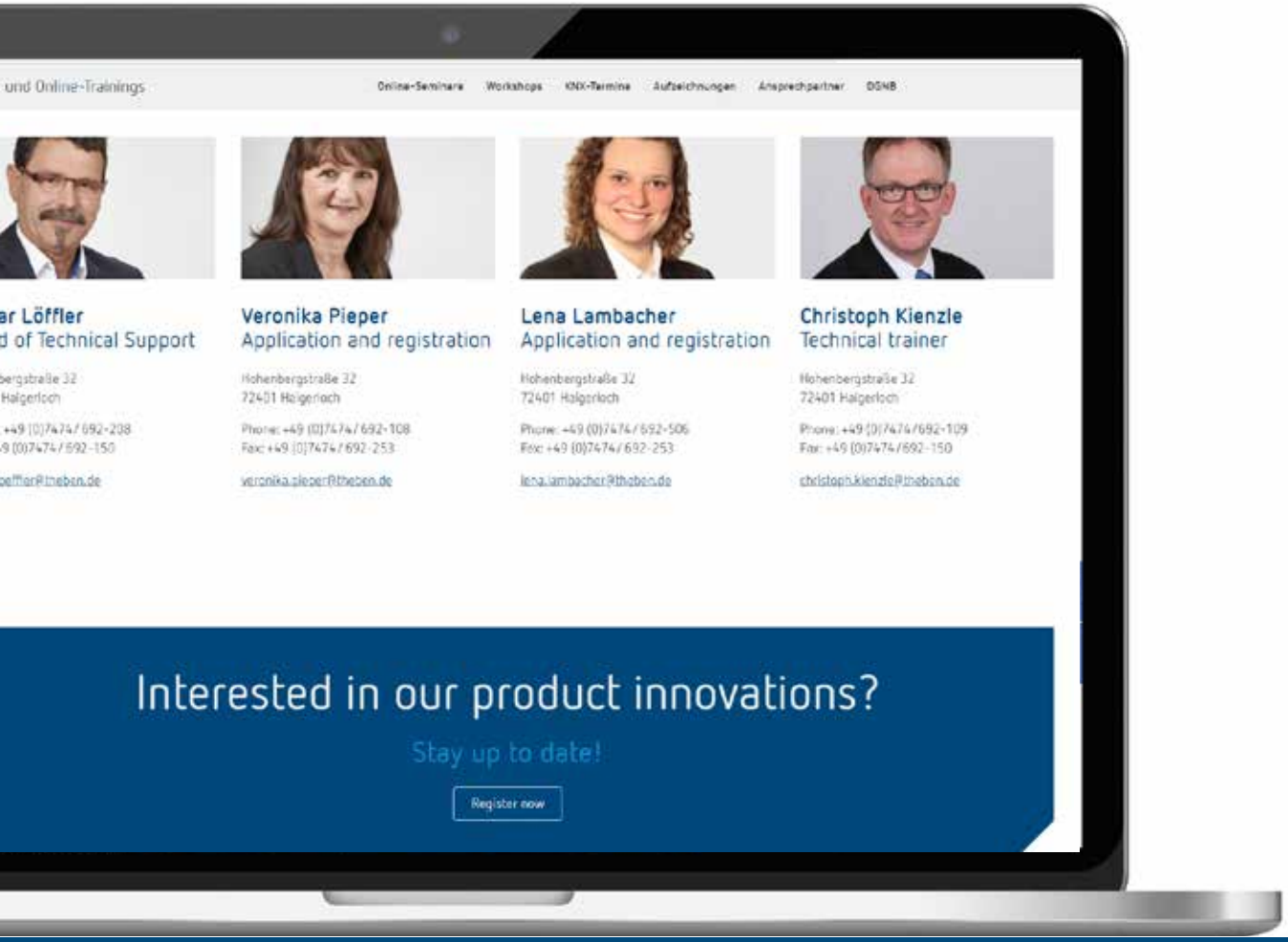

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DALI-2 components simple commissioning.

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→ theSenda Plug
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