SMARTHOME

MAKEL

INTELLIGENT BUILDING AUTOMATION SYSTEMS

m MAKEL

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MAKEL®

Everyday a new electronic device enters our lives. From home theatre systems to media players, from ventilation systems to car park lighting, many devices provide us conveniences while increasing energy consumption.

In offices, plazas, apartments, villas, hotels and all other living spaces it has become much easier to both use technology at the most superior level and keep energy costs under control.

While energy efficiency is very important for a more livable world it is also the best solution in terms of your budget.

We produce solutions in which intelligence and appeal are provided together.

at the point where aesthetic meets with intelligence...

Gathering separately used functions and with optimized energy usage, Makel Smart Building Technology gets high on global standards KNX Norms.

PROVIDES FLEXIBILITY IN THE MANAGEMENT OF PREMISES.

You can have a system with maximum flexibility that can have to be adapted to alterations because of moving, change in objective, expansion or sectioning off. You can access and configure the system via PDAr PC or a touchscreen.

You can monitor windows-doors with sensors, you can control underground parking areas and obtain problem notifications

Provided instant warnings in risky situations and you can adjust to turn off the system and you can also display performance curves and temperatures.

You can display error signals and you can also provide these signals automatically forwarded to technical teams or building manager.

You Have the Control with Makel SmartHome System!

Now it so easy to control and manage illumination, heating, ventilation, security, measurement, timing, audio and video aquipments in your building. The system can be adjusted and modified at will. All system's functions can be managed remotely from the console, via internet and mobile phone. Everything is Possible with the Makel Smart Home System...

MAKEL®

SM A RTHOME

globalize

KNX… let this global standard adopted by more than 250 manufacturers worldwide make your life easier, too.

KNX®

no compliance issues

All KNX products are certified by the KNX Association and assured to be in compliance with its standards regardless of the manufacturer.

reduce costs

Energy is used efficiently with KNX based systems. This leads to lower energy consumptions and flexible budgets. Spend less, get more.

and most importantly maximum flexibility

Own a system that can easily adapt to ever changing demands. Now or in the future, easily add limitless functions and scenarios according to your custom preferences with operational flexibility and without the need to change your infrastructure.

the comfort you deserve

You deserve more comfort and convenience both at office and home. Intelligently controllable scenarios offer you a more comfortable working and living environment.

security cannot be compromised

As the buildings use more and more technology the existing classical electrical fixtures will become insufficient to meet developing and expanding demands. Therefore building technologies with fast and smart reflexes are safer now whether there are any inhabitants or not.

work comfortably…

MAKEL SMARTHOME KNX SYSTEM FOR BUSINESS SPACES

One of the highest priority requirements of our times is to use energy efficiently during business hours. Flexibility and efficient energy use are especially important in business buildings. By using the KNX smart building management systems, enable the efficient management of heat, lighting and energy to achieve significant reductions in consumption and therefore costs.

Let your office decide on its own sometimes.

Wouldn't be nice if your blinds open and shut and your heating system created the optimum atmosphere according to time, the amount of outdoor light and the hours you are at the office? It isn't a dream; it's reality with the Makel Smarthome System…

Is that all?

With only the push of a button you can bring your meeting-presentation rooms to a preset mode. You can adjust your distributable lighting according to the outdoor light
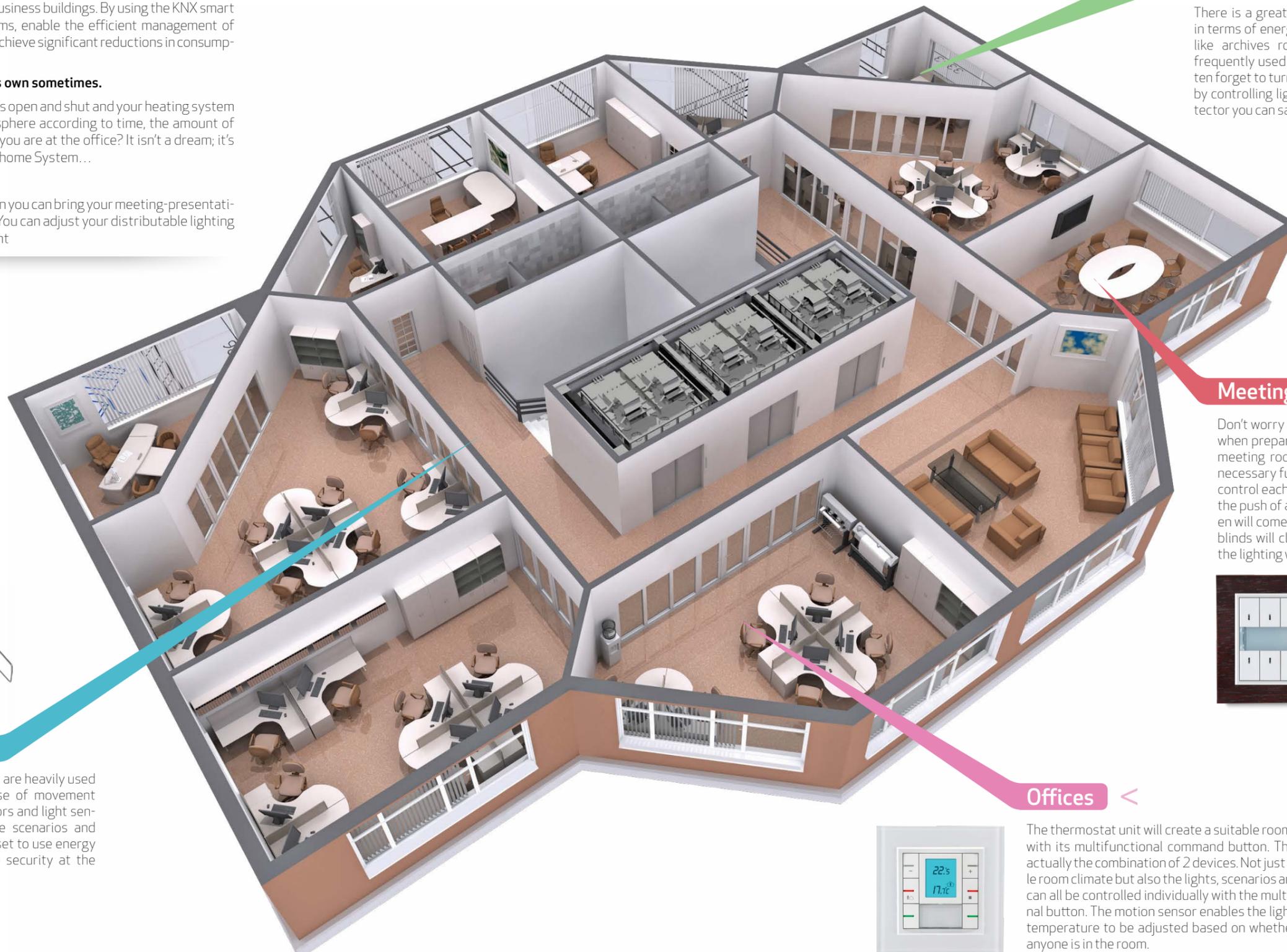
Archives Room

There is a great potential for savings in terms of energy efficiency in rooms like archives rooms, which are not frequently used and where people often forget to turn off the lights. Simply by controlling lights with a motion detector you can save on energy.

Meeting Rooms

Don't worry about the technical side of things when preparing for a presentation. In a smart meeting room you will not need to turn the necessary functions on and off. You can easily control each function from a central unit. With the push of a single button the projector screen will come down to the desired position, the blinds will close, the devices will operate and the lighting will come to the desired level.

Offices

The thermostat unit will create a suitable room climate with its multifunctional command button. The unit is actually the combination of 2 devices. Not just a suitable room climate but also the lights, scenarios and blinds can all be controlled individually with the multifunctional button. The motion sensor enables the lighting and temperature to be adjusted based on whether or not anyone is in the room.

Halls

Halls in the offices. They are heavily used spaces. Through the use of movement sensors, presence sensors and light sensors a variety of usage scenarios and alarm scenarios can be set to use energy efficiently and increase security at the same time.

live comfortably…

SMARTHOME

THE MAKEL SMARTHOME KNX
SYSTEM IN RESIDENTIAL SPACES

You have worked hard enough at the office so when you come home, let the Makel Smart System do the work. Turning the lights on one by one and adjusting the room temperature is now the Makel Smart Home System's job. With only the touch of a button you can achieve the lighting, temperature and security you desire. If you wish the lights will turn off completely, the electrical blinds will come down, the temperature will go down to the minimum and the alarm will switch on when you leave your home. When you come home everything will return to the setting you want. The scenarios you can set easily enable you to live in your home with maximum comfort. Using the Touch-screen Makel Smart Home Central Control Panel you can control your whole home from one point. In fact, if you wish, you can also do this using your mobile phone or the internet. Now your home is smart as well as beautiful…

Dining Room <

You have prepared all day for a dinner, your guests are about to arrive and you are still bustling around. With the press of a button turn on the lights, music and heat for each room at scenarios you have preset …

While the lights and music are operating in the dining room you can set the room where the children are watching TV to have dimmer light and no music to provide a warm atmosphere.

> Bedroom

You can sleep comfortably thanks to KNX. Lights and blinds can easily be controlled by the use of the buttons. Through the use of different scenarios like "panic", all of the lights in the house can go on at once to increase security.

> Kitchen

Does a large portion of your day go by in the kitchen? You can take control of the whole house from a single point with the KNX compatible touch-screen panel you can have installed in your kitchen.

Is that all?

For example, if you choose the "Someone is at Home Simulation" function while leaving the house, your home will appear occupied to deter burglars.

> Entry and Hall

Do you usually come home in the evenings with your hands full?

If you want the lights to turn on automatically without putting down your load the internal space motion detector is just for you!

Also in the motion detector scenarios set according to daylight the lights will not go on when there is sufficient daylight.

Living Room <

Whether you use a central control unit, a table pc or a smart phone you can easily control the lighting, blind and room temperature settings in your living room.

There is no need for you to worry about the weather. You can control the heat automatically with a weather control unit added to the system. For example, if a storm is approaching the shutters close automatically and prevent possible damage.
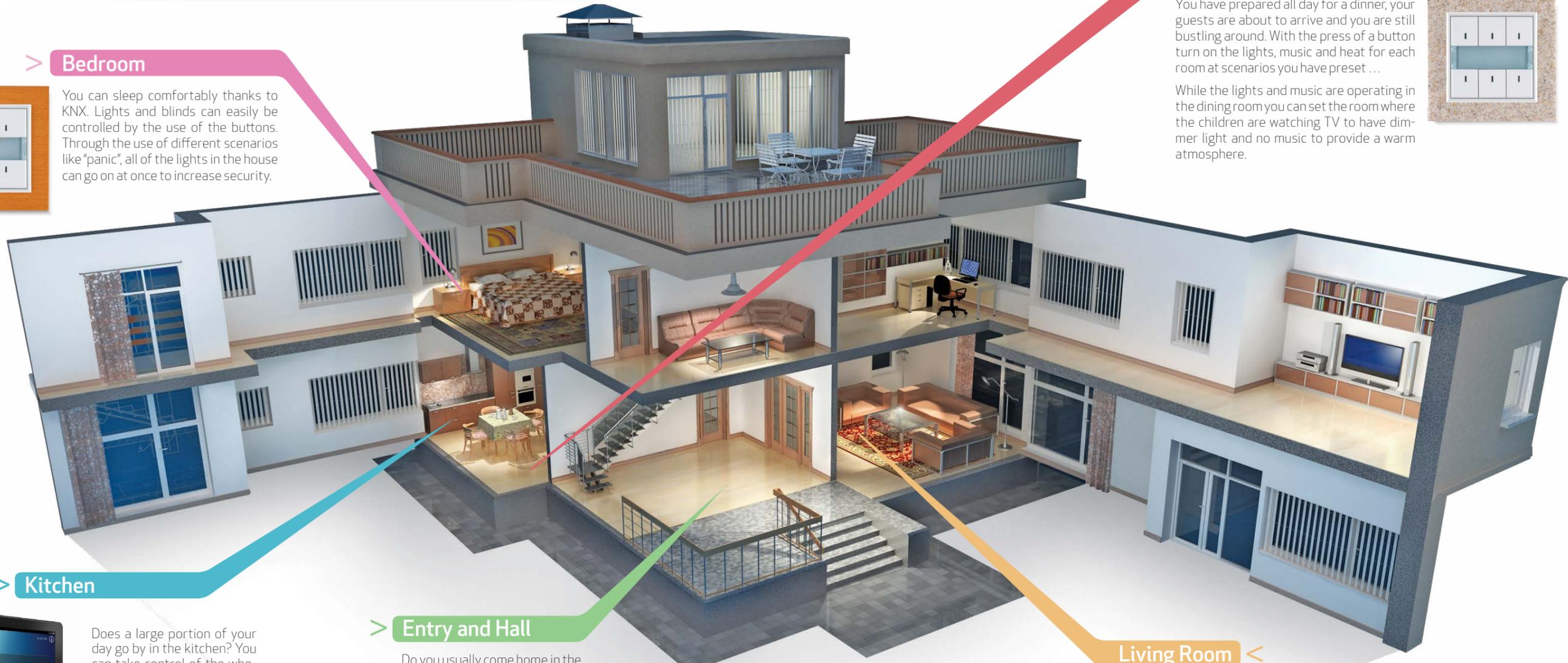
remote access

YOU CONTROL YOUR BUILDING
NO MATTER WHERE YOU ARE...

security

THE SECURITY OF YOUR HOME IS
RIGHT AT YOUR FINGER TIPS

Thanks to remote access you can control the systems in your house even before you get home. Thus you can create the ambience of your home being occupied even when you are out.

If you want to be greeted with a warm house when you come home you can use your mobile phone to connect with the system to operate your heat at whatever temperature you wish and control the other climate settings (humidity, fan speed control, under floor heating, etc.) and later integrate these into your system.

You can connect to the system in your home via pc or iPad and activate any scenarios you wish.

No matter where you are you can control your building, due to the remote access via internet…

Are the precautions you have taken for the security of your home sufficient? Did you hear a concerning sound at night?

You can turn all the lights on at once by pressing a single button at your bedside. The more secure your building is the safer you will feel.

Motion detectors may determine uninvited guests and deter them before they enter your home, the doors and windows can be equipped to sound off a warning and send an SMS if tampered with.

- Smoke detectors, heat detectors, flood detectors and gas leakage detectors can provide protection. Strategically placed cameras can enable you to watch your home or record images over the internet or your mobile phone.

- You can protect your home against burglary with motion detectors that are integrated with the building's automation system.

- Smarthome is a system that can warn you with water detectors in the event of water leakages when you are not home and any gas leakage, smoke and fire events and can activate a variety of scenarios to deal with these situations.

- Also the presence detectors that are integrated into the system will allow you to monitor presence activity in various parts of your home or office.

energy efficiency

USE ENERGY EFFICIENTLY WITH SMARTHOME TO ACHIEVE A MORE LIVABLE WORLD AND HIGHER STANDARDS FOR LIFE

Presence Detector
By detecting even the smallest motions in a setting, the presence detector can activate the desired scenarios and controls. By these means the system can set into motion any lighting, curtain, shutter, climate or multimedia controls as you wish when leaving or entering your home or office to provide a comfortable setting. Even if you don't move the presence detector knows you are there.

Motion Detector
This detector will respond to your movement in narrow areas such as corridors and entryways to provide control for your stairway and hallway lighting. You won't have to look for your keys in the dark again

Daylight Detector
By detecting the level of light in an area this detector will convey information to the lighting system to make sure there is enough light. Thus the light level you wish to have in your home or office will be maintained at all times.

The Ability to Set Room Temperatures Individually Will Help Save On Your Budget
Every family and every home has their own special heating needs. With Smarthome you can find the solution that best suits you.
Since this way of setting is carried out closer to real conditions it provides more energy efficiency than other radiator control systems (when you reduce the average heat by just 1C you will get a savings of up to 6% on your heating costs. It is possible to achieve a savings of up to 30% in your heating costs this way).
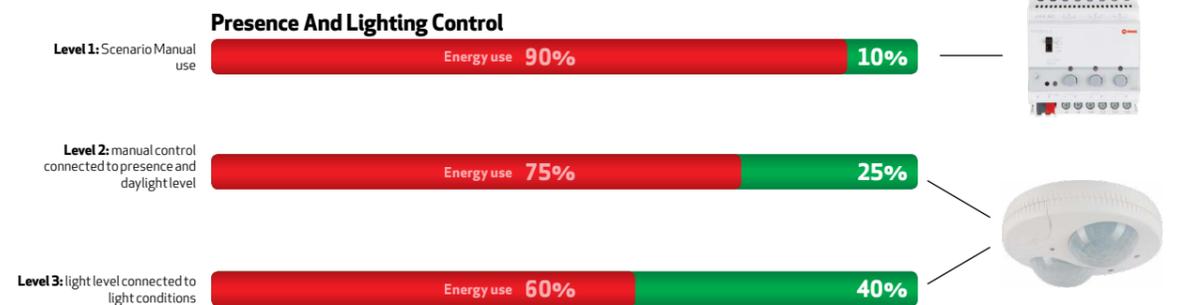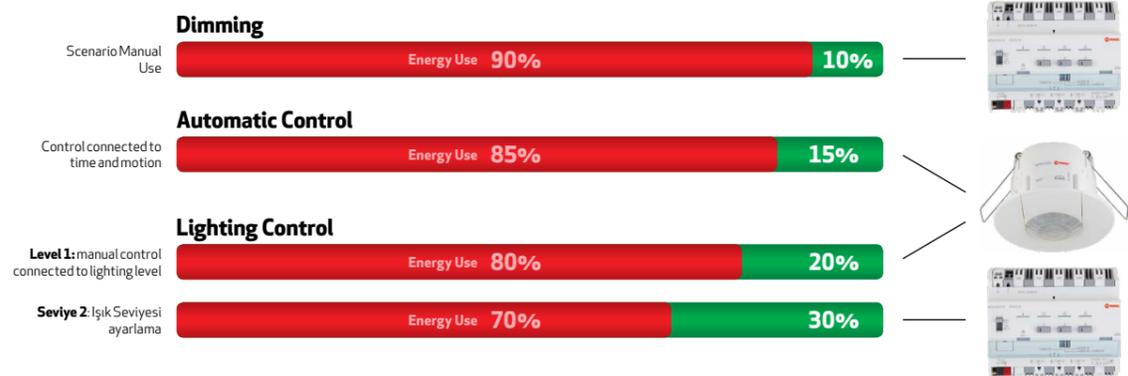
Feel Much More Peaceful
You won't ever have to return from your holidays to a cold house again thanks to Smarthome. You can turn your heat on with your mobile phone when you're only on your way home. On the other hand if you have left your heat on by mistake you can turn it off with a simple phone call while you are on holiday. Trust the ability of Smarthome to command and let your mind be at peace.
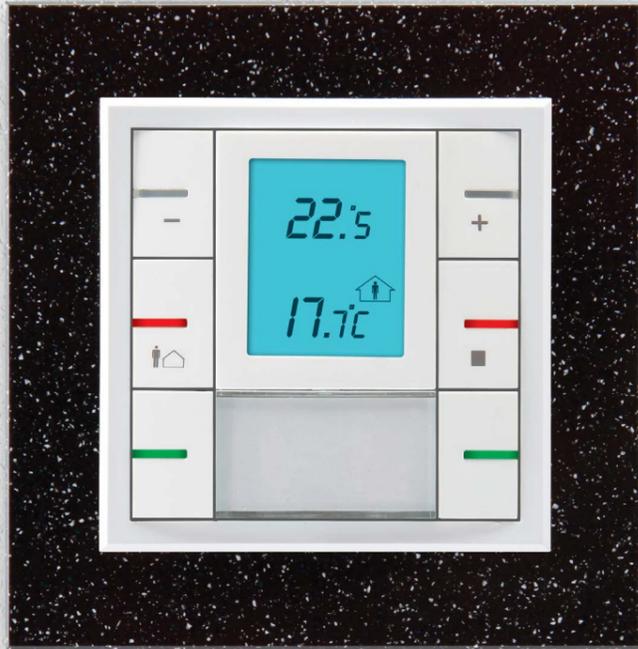
How Well Does Your Heating System Know Your Home?
You can create an individual temperature profile for each room. You can determine how hot or how cold a room should be. A cooler bedroom, a warmer kid's room, a fixed temperature bathroom. At the same time you can determine the days and times when the temperature settings are to change. Spread the smartness throughout every corner of your home.

ENERGY EFFICIENCY PERFORMANCE

Dimming
Scenario Manual Use

| | Energy Use 90% | 10% |

Automatic Control
Control connected to time and motion

| | Energy Use 85% | 15% |

Lighting Control
Level 1: manual control connected to lighting level

| | Energy Use 80% | 20% |

Seviye 2: Işık Seviyesi ayarlama

| | Energy Use 70% | 30% |

Presence And Lighting Control
Level 1: Scenario Manual use

| | Energy use 90% | 10% |

Level 2: manual control connected to presence and daylight level

| | Energy use 75% | 25% |

Level 3: light level connected to light conditions

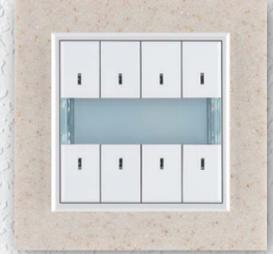| | Energy use 60% | 40% |

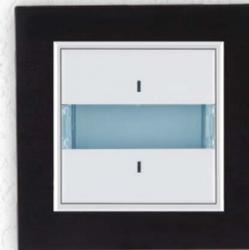| BLACKQUARTZ	DUSK	SANDSTONE	AURORA

Complete your decoration with the Corian Series of frames that have the smoothness and stylishness that suit your home. The Smarthome products combined with Corian frames provide beauty and intelligence at the same time throughout every corner of your home. Discover the wealth and flexibility of selections in the Corian Series.

Makel Smarthome, which provides impressive designs, creates stylish alternatives with band new materials, colors and key programs

SMARTHOME Metal

FRAME OPTIONS

BLACK	SATIN	BLACK	SILVER

New frames with classical elegance have arrived in the Metal Series to compliment your decor. Metal frames combined with the Smarthome products simultaneously provide beauty and intelligence throughout every corner of your home. For a durable, refined and select appearance there is definitely a Metal Series frame that is right for you.

By providing impressive designs Makel Smarthome creates stylish alternatives with brand new materials, colors and key programs

FRAME OPTIONS
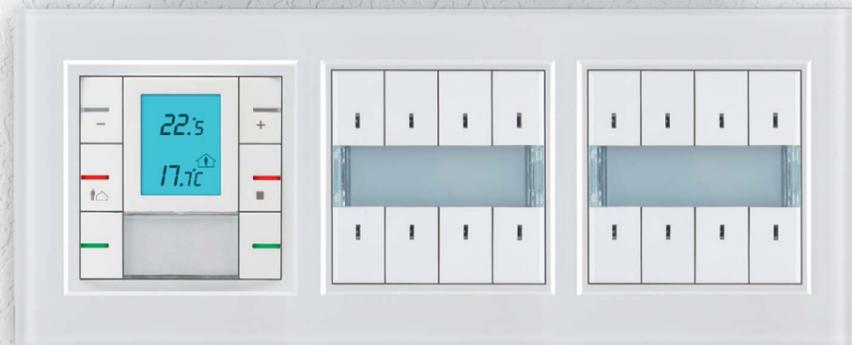
BLACKMAGIC   WHITEPEARL   GREENLEAF   RIVERBLUE

Nature stands before you in its purest and plainest form. The Smarthome products combined with Glass frames which accentuate light and the graceful colors of nature in your living spaces simultaneously provide beauty and intelligence throughout every corner of your home. Glass frames combined with the Smarthome products simultaneously provide beauty and intelligence throughout every corner of your home. For a durable, refined and select appearance there is definitely a Metal Series frame that is right for you.

By providing impressive designs Makel Smarthome creates stylish alternatives with brand new materials, colors and key programs.

SMARTHOME Wood
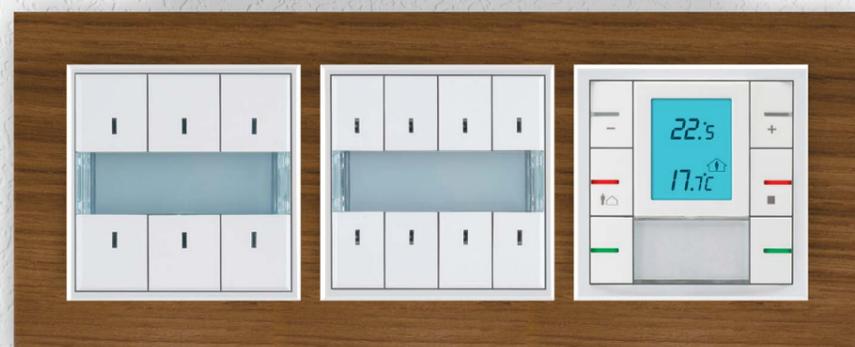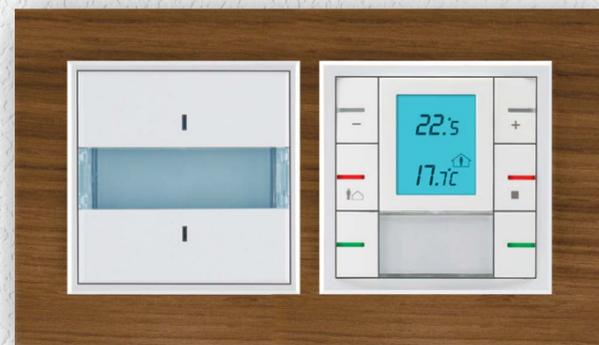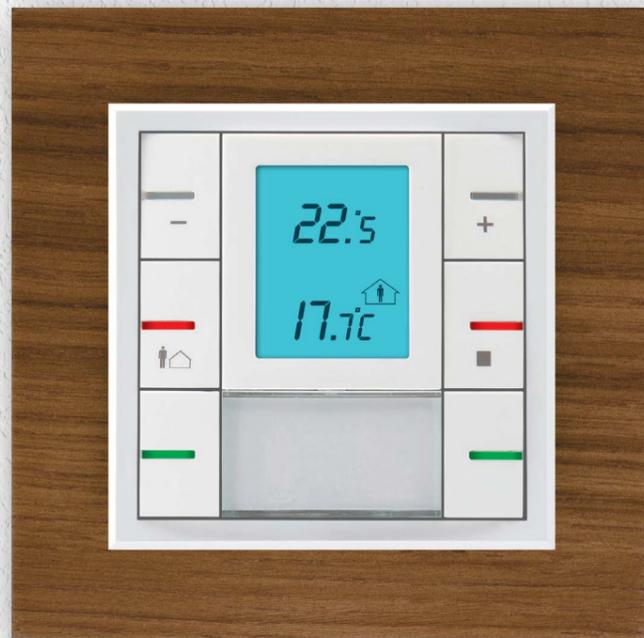
FRAME OPTIONS
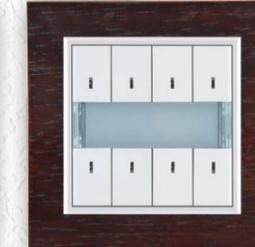
WALNUT VENGE ANTIQUE OAK

BEECH DARK CHERRY

If touching nature comfort you... Lumia WOOD Series is ready for your touch to compliment your decoration with its natural, minimalist and different style.

Wood frames combined with the Smarthome products simultaneously provide beauty and intelligence throughout every corner of your home.
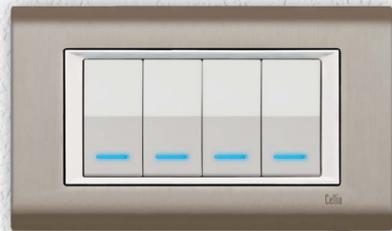
By providing impressive designs Makel Smarthome creates stylish alternatives with brand new materials, colors and key programs.
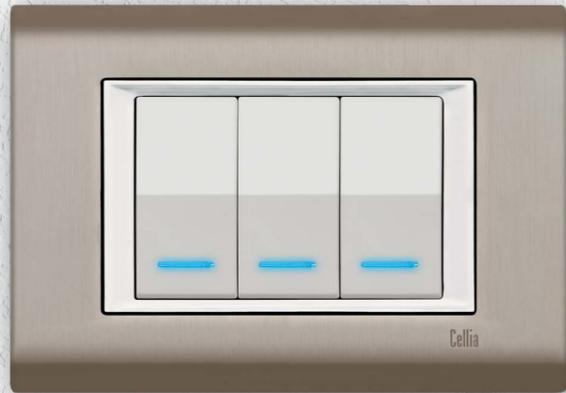
3M FRAME

4M FRAME

7M FRAME

CHROME/BLACK

CHROME/FUME

MATT CHROME/BLACK

MATT CHROME/WHITE

SATIN/WHITE

SATIN/FUME

MATT GOLD/BLACK

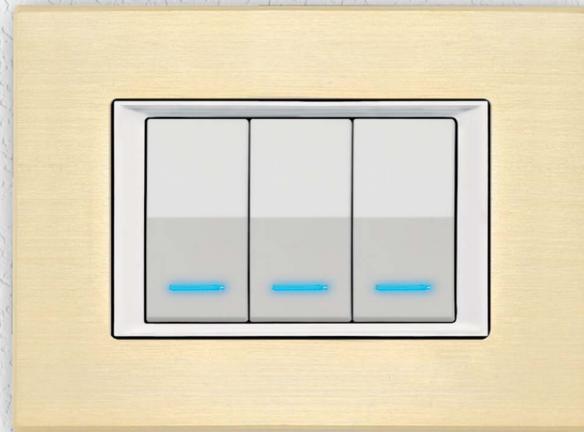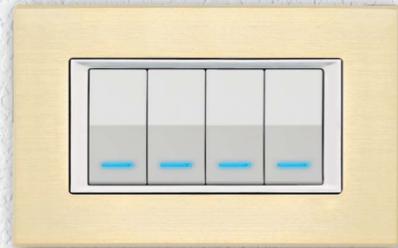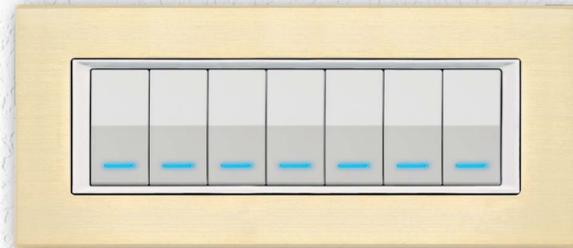GOLD/BLACK

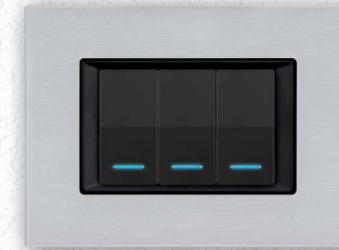FUME/FUME

Kare Modular Metal
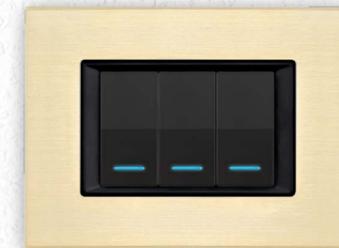
3M FRAME

4M FRAME

7M FRAME

METALLIC SILVER / BLACK

METALLIC SILVER / WHITE

DORE / BLACK
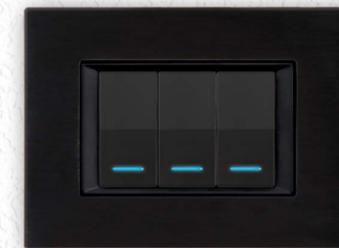
DORE / FUME

DORE / WHITE

BLACK / BLACK

BLACK / FUME

BLACK / WHITE
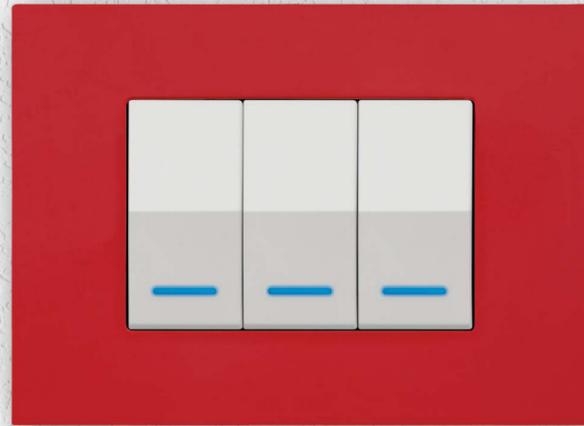
SATIN / BLACK
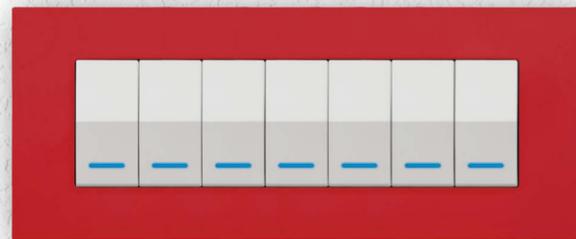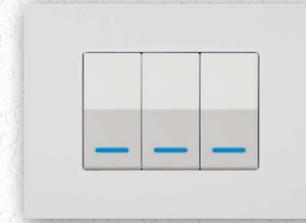
SATIN / FUME

SATIN / WHITE

3M FRAME

4M FRAME

7M FRAME

WHITE / WHITE

WHITE / BLACK

SILVER / FUME

SILVER / BLACK

GLOSSY BLACK / BLACK

GLOSSY BLACK / WHITE

LIGHT CLARET RED / BLACK

LIGHT CLARET RED / BEİGE

lighting applications

AUTOMATIC LIGHTING CONTROL BY MOTION AND LIGHT LEVEL

You can set your lighting automatically according to motion and the level of light in the room. For example on sunny days the light can be turned down and then turned up again to full capacity on cloudy days. In areas where no motion is detected the lights will not stay on unnecessarily providing energy efficiency.

AUTOMATIC LIGHTING CONTROL BY PRESENCE AND LIGHT LEVEL

With automatic lighting control by presence and light level create productive settings in areas like offices, workplaces, corridors, schools, restrooms, etc.

security and air conditioning

PRESENCE DETECTION FOR THE SECURITY SYSTEM

ENERGY EFFICIENCY SOLUTIONS

İklimlendirme
Kontrolü

Perde Kontrolü

Anahtar ile
Kontrol

Take your security system to the highest level with presence detectors. A signal will automatically be sent to the system when someone enters the space so that you can be aware of all entries.
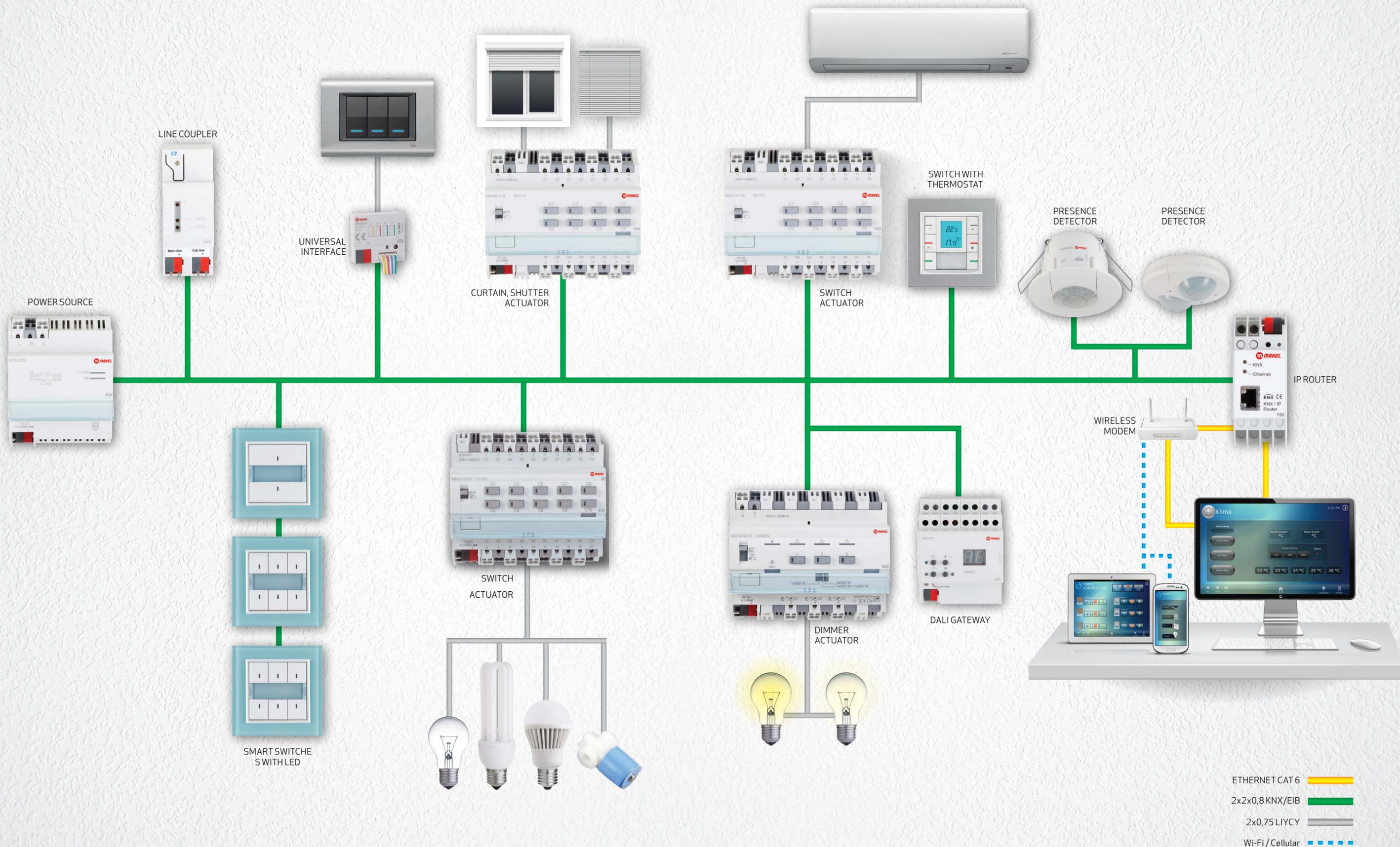

AIR CONDITIONING

A very simple and productive solution to use air conditioning systems efficiently. When someone is working in the room the air conditioning operates and once they have left it turns off.

Curtain-light and air conditioning controls that are programmed with a switch and connected to a scenario are available.
The lighting, curtain and air conditioning controls can be adjusted automatically according to detector and thermostat data.
Curtain-light and air conditioning controls that are programmed with a switch and connected to a scenario are available.
The lighting, curtain and air conditioning controls can be adjusted automatically according to detector and thermostat data.

knx diagram

LINE COUPLER

SWITCH WITH
THERMOSTAT

PRESENCE
DETECTOR

PRESENCE
DETECTOR

UNIVERSAL
INTERFACE

CURTAIN, SHUTTER
ACTUATOR

SWITCH
ACTUATOR

IP ROUTER

POWER SOURCE

WIRELESS
MODEM

SWITCH
ACTUATOR

DIMMER
ACTUATOR

DALI GATEWAY

SMART SWITCHE
S WITH LED

ETHERNET CAT 6
2x2x0,8 KNX/EIB
2x0,75 LIYCY
Wi-Fi / Cellular

Power Source, 320mA
MPS0320

The KNX power source provides the power for devices on each KNX line in an isolated manner. You can supply 32 devices with a 320mA capacity.
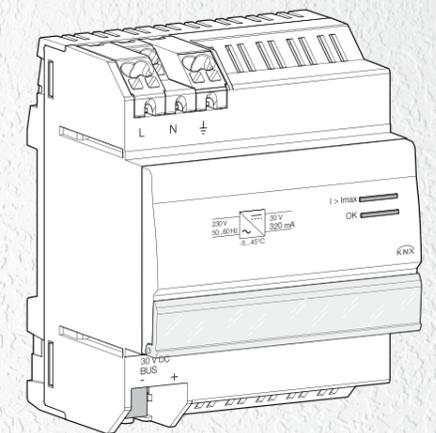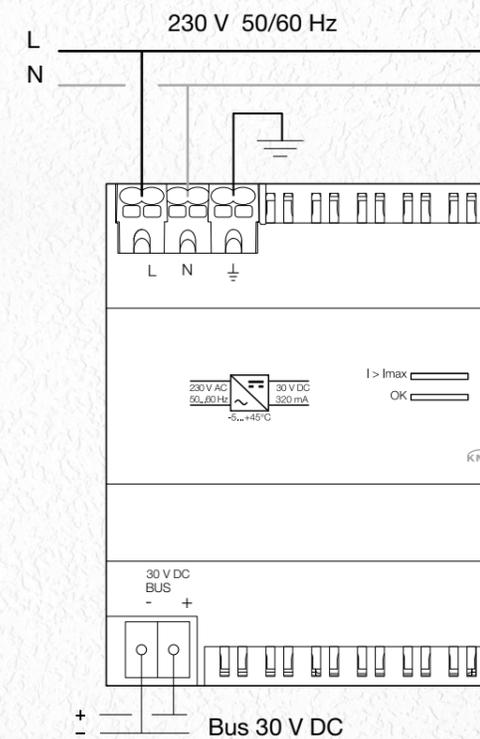
The power supply MPS320 generated the system voltage, which is necessary for the operation of the smarthome devices. The system voltage generated by the MPS320 meets the requirements of the protection measures SELV(safety extra low voltage).
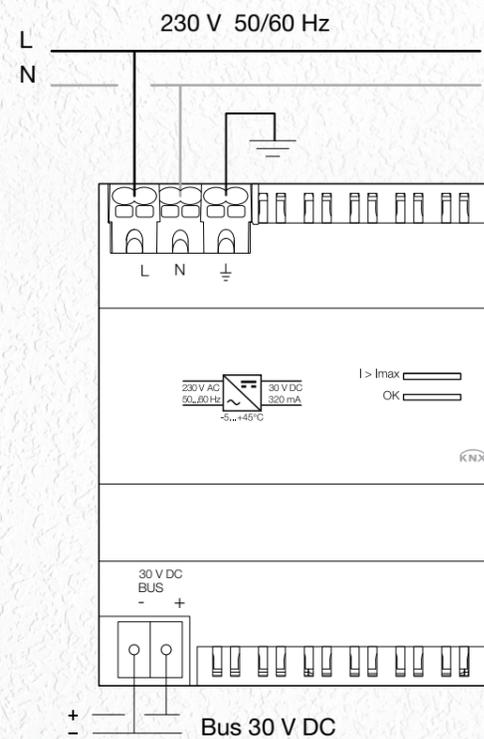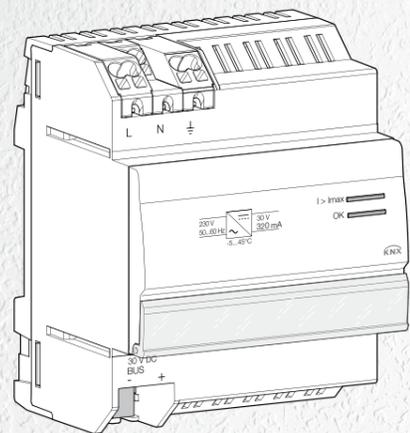
Power Source, 640mA
MPS0640

The power supply MPS0640 generated the system voltage, which for the operated of the Smarthome devices. The system voltage generated by the MSS0XXX meets the requirements of the protection measures SELV (safety extra-low voltage).

230 V 50/60 Hz

Bus 30 V DC

230 V 50/60 Hz

Bus 30 V DC

Supply Voltage	230 V ~ 50/60 Hz
Output voltage	30 V DC 320 mA TBTS / SELV / ZLVS
Power Draw	15 VA
Dimensions	92x90x56 mm
Operation Temperature	-5 °C → +45 °C
Storage Temperature	- 20 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²

Supply Voltage	230 V ~ 50/60 Hz
Output voltage	30 V DC 640 mA TBTS / SELV / ZLVS
Power Draw	24 VA
Dimensions	92x90x56 mm
Operation Temperature	-5 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²

Line Coupler
MLC0001

Line coupler devices are one of the basic elements of the KNX system. By using these devices lines to which up to 63 devices can be connected on each KNX connection can be created. Line coupler can create smart home systems comprised of up to 65,000 devices in total. Line coupler devices can also be used as repeaters on the same line when necessary. Line coupler devices filter traffic and prevent messages from going to unnecessary lines.
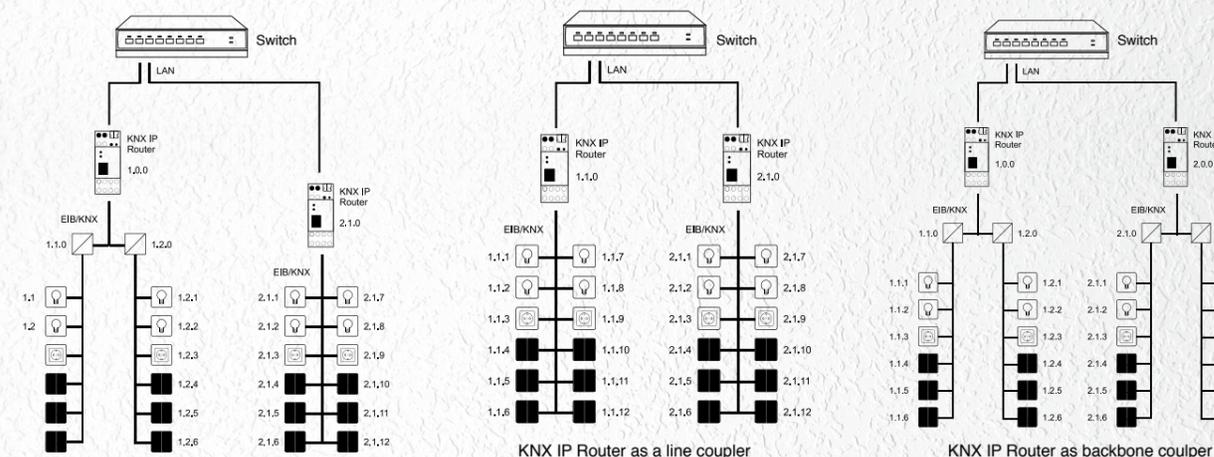
IP Router
MIP1000

The KNX IP router allows you to open your smart buildings and homes to managing over the internet. Also tablets, touch panels and smart mobile devices enable access to the KNX system.

The KNX IP Router forward different lines via a rapid LAN (IP) backbone. The KNX IP Router can also be used as an interface for accessing the bus via IP, replacing an RS232 or USB interface. It has an external 12 V to 24 V power supply or can alternatively be powered via power-over-Ethernet(IEEE 802.3af)

4 Status Leds

Physical addressing button and led

Knx Main Line
Main Line= Power supply products

Knx Sub Line

30V DC

30V DC

KNX IP Router as a line coupler

KNX IP Router as backbone coulper

Coupler Function(Knx Net /IP routing)

The IP Router can operate as a line and/or backbone coupler. In both cases the LAN (IP) acts as backbone. The physical address assigned to the KNX IP router determines whether the device operates as a line or backbone coupler.If the physical address is in the form of x.y.0(x.y;1...15) the router operates as a line coupler. If It is in form of x.0.0(x;(1...15) the router acts as a backbone coupler.

Supply Voltage	21-32 V DC
Main Line Current	6 mA
Bottom Line Current	8 mA
IP	IP 20
All dimensions (2)	36x90x70 mm
Operation Temperature	- 25 ℃ → + 45 ℃
Storage Temperature	- 25 ℃ → + 70 ℃

Supply Voltage	24 V DC
Output voltage	30 V DC 640 mA TBTS / SELV / ZLVS
Power Draw	24 VA
Dimensions	46x90x56 mm
Operation Temperature	-5 ℃ → + 45 ℃
Storage Temperature	- 20 ℃ → + 70 ℃
Electrical Connection	0,75mm² → 2,5mm² / 0,75mm² → 2,5mm²

USB Interface
MUS0100

The programming of KNX devices through the ETS program and monitoring the line traffic is made possible with the TH101 USB interface device. The plug and play feature can easily be set up without needing any kind of a driver..
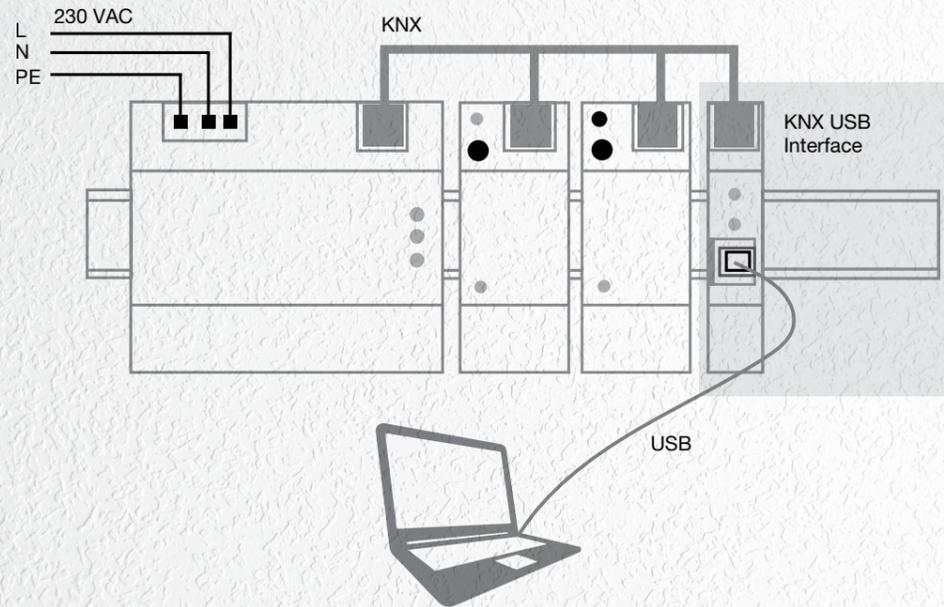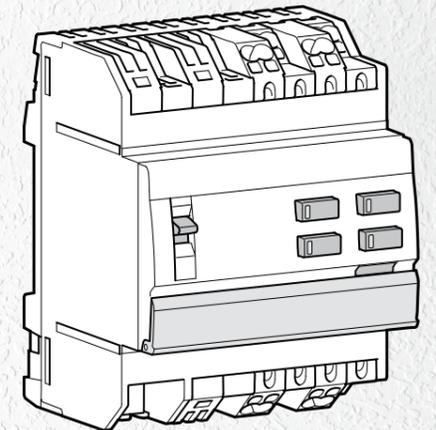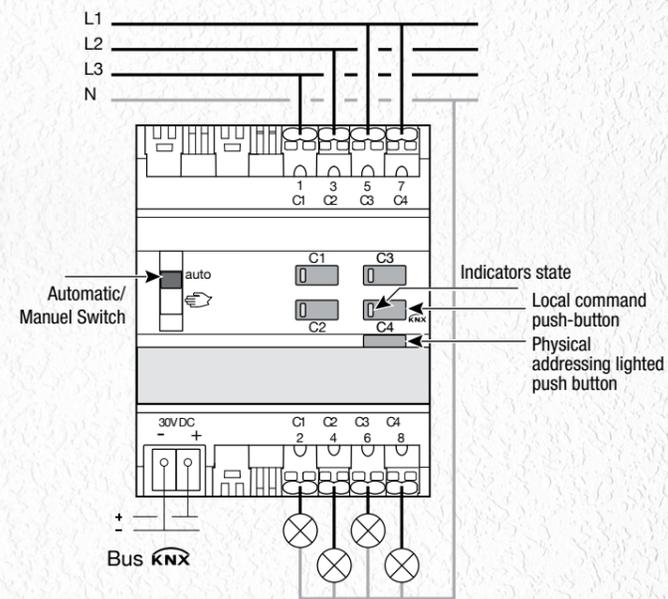
This interface is for establish a bidirectional connection between a PC and the KNX installation bus. The USB connector has a galvanic separation from the KNX bus. Both ETS (Engineering Tool Software) versions ETS3 or later and some visualization tools support this interface.

Switch Actuator
4 Channel 10A
MSA0410-B

You supply energy to or cut the energy off from the control module connected KNX on/off. With a current capacity of up to 10A , number of outlets that can be increased to 4 channels and manual and automatic use functions, they are essential components of smart building systems.

KNX protokolü ile kontrol edilecek, aydınlatma armatürü, klima, selenoid valf gibi saha elemanlarını, aç/kapa şeklinde kontrol etmek amacı ile kullanılmaktadır.

The KNX is a modular part of automation system.

Load type			4A	10A	16A Capacitive	16A Load
	230 V~	Incandescent lamps	800 W	1200 W	2300 W	2300 W
	230 V~	Halogen Lamps	800 W	1200 W	2300 W	2300 W
	12VDC 24VDC	Conventional Transformer	800 W	1200 W	1600 W	1600 W
	12VDC 24VDC	Electronic transformer	800 W	1000 W	1200 W	1200 W
	230 V~	Fluorescent tubes non compensated	800 W	1000 W	1200 W	1200 W
		Fluorescent tubes for electronic ballast (mono or duo)	12x36W	15x36W	20x36W	20x36W
		Parallel compensated fluorescent tubes	-	-	-	1500W | 200 µF
	230 V~	Compact Fluorescent	6x23W	12x23W	18x23W	18x23W

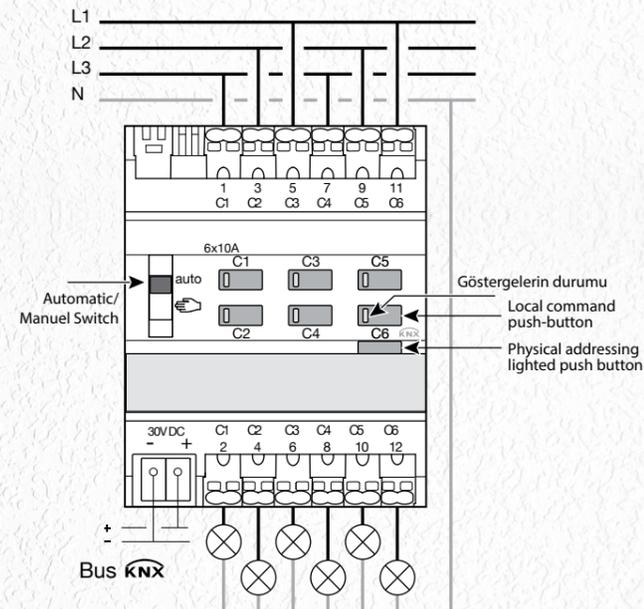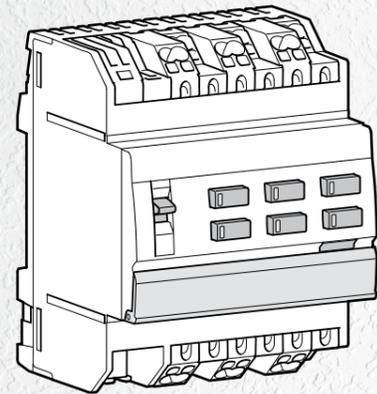| Technical Characteristics	
Supply Voltage	30 V DC
Power Dissipation	2W (4A) 6W (10A) 12W (16A)
Dimensions	92x90x56 mm
Protection Class	IP 20
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²
Norm	NF EN 60669-1 NF EN 60669-2-1 EN 50090-2-2

Switch Actuator
6 Channel 10A
MSA0610-B

You supply energy to or cut the energy off from the control module connected KNX on/off. With a current capacity of up to 10A , number of outlets that can be increased to 6 channels and manual and automatic use functions, they are essential components of smart building systems.

KNX protokolü ile kontrol edilecek, aydınlatma armatürü, klima, selenoid valf gibi saha elemanlarını, aç/kapa şeklinde kontrol etmek amacı ile kullanılmaktadır.

The KNX is a modular part of automation system.

Load Type			4A	10A	16A Capacitive	16A Load
	230 V~	Incandescent lamps	800 W	1200 W	2300 W	2300 W
	230 V~	Halogen Lamps	800 W	1200 W	2300 W	2300 W
	12VDC 24VDC	Conventional Transformer	800 W	1200 W	1600 W	1600 W
	12VDC 24VDC	Electronic transformer	800 W	1000 W	1200 W	1200 W
	230 V~	Fluorescent tubes non compensated / Fluorescent tubes for electronic ballast (mono or duo) / Parallel compensated fluorescent tubes	800W 12x36W -	1000W 15x36W -	1200W 20x36W -	1200 W 20x36W 1500W | 200 μF
	230 V~	Compact Fluorescent	6x23W	12x23W	18x23W	18x23W

Technical Characteristics	
Supply Voltage	30 V DC
Power Dissipation	1W (6x4A) 5W (6x10A) 12W (6x16A)
Dimensions	92x90x56 mm
Protection Class	IP 30
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²
Norm	NF EN 60669-1 NF EN 60669-2-1 EN 50090-2-2

Switch Actuator
8 Channel 10A
MSA0810-B

You supply energy to or cut the energy off from the control module connected KNX on/off. With a current capacity of up to 10A , number of outlets that can be increased to 8 channels and manual and automatic use functions, they are essential components of smart building systems.

KNX protokolü ile kontrol edilecek, aydınlatma armatürü, perde, panjur, klima, selenoid valf gibi saha elemanlarını, aç/kapa şeklinde kontrol etmek amacı ile kullanılmaktadır.

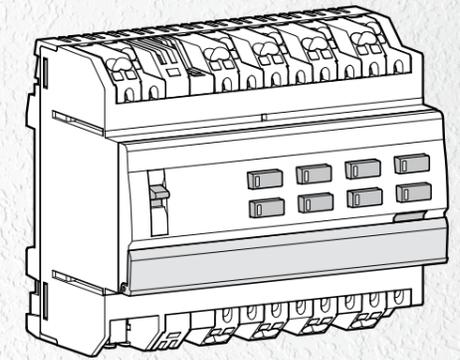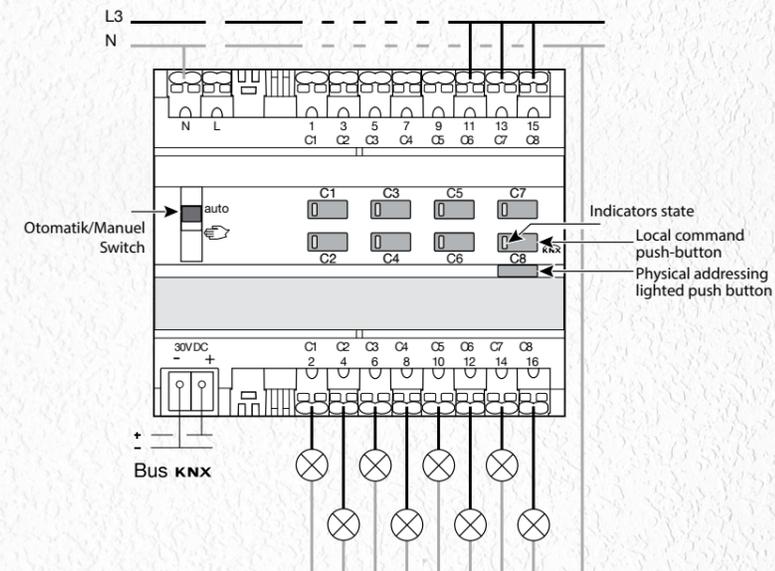The KNX is a modular part of automation system.

Load Type			4A	10A	16A Capacitive	16A Load
	230 V~	Incandescent lamps	800 W	1200 W	2300 W	2300 W
	230 V~	Halogen Lamps	800 W	1200 W	2300 W	2300 W
	12VDC 24VDC	Conventional Transformer	800 W	1200 W	1600 W	1600 W
	12VDC 24VDC	Electronic transformer	800 W	1000 W	1200 W	1200 W
	230 V~	Fluorescent tubes non compensated / Fluorescent tubes for electronic ballast (mono or duo) / Parallel compensated fluorescent tubes	800W 12x36W -	1000W 15x36W -	1200W 20x36W -	1200 W 20x36W 1500W | 200 μF
	230 V~	Compact Fluorescent	6x23W	12x23W	18x23W	18x23W

| Technical Characteristics	
Supply Voltage	30 V DC
Power Dissipation	2W (4A) 6W (10A) 12W (16A)
Dimensions	138x90x56 mm
Protection Class	IP 20
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²
Norm	NF EN 60669-1 NF EN 60669-2-1 EN 50090-2-2

Switch Actuator
10 Channel 10A
MSA1010-B
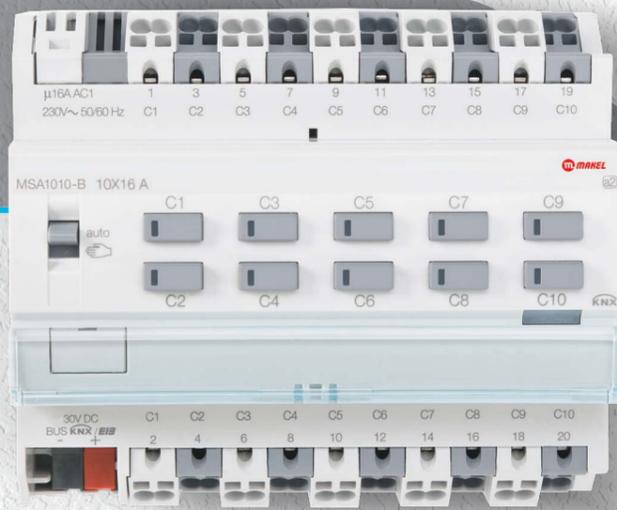
You supply energy to or cut the energy off from the control module connected KNX on/off. With a current capacity of up to 10A , number of outlets that can be increased to 10channels and manual and automatic use functions, they are essential components of smart building systems.

KNX protokolü ile kontrol edilecek, aydınlatma armatürü, perde, panjur, klima, selenoid valf gibi saha elemanlarını, aç/kapa şeklinde kontrol etmek amacı ile kullanılmaktadır.

The KNX is a modular part of automation system.
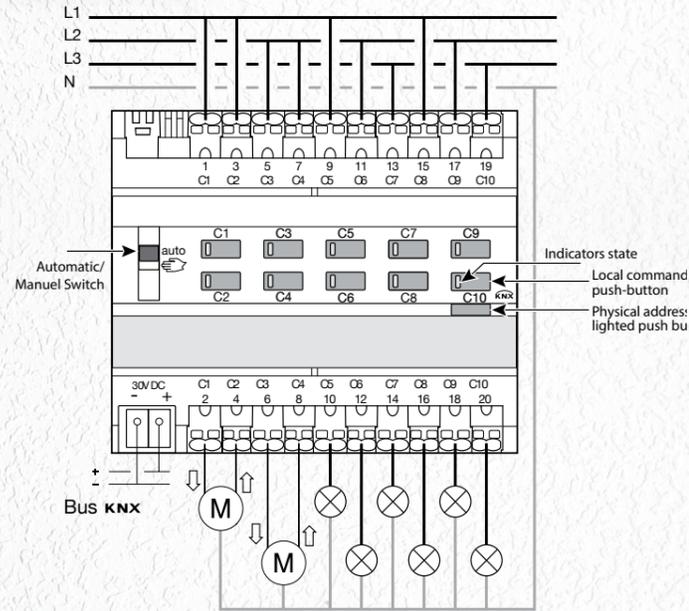
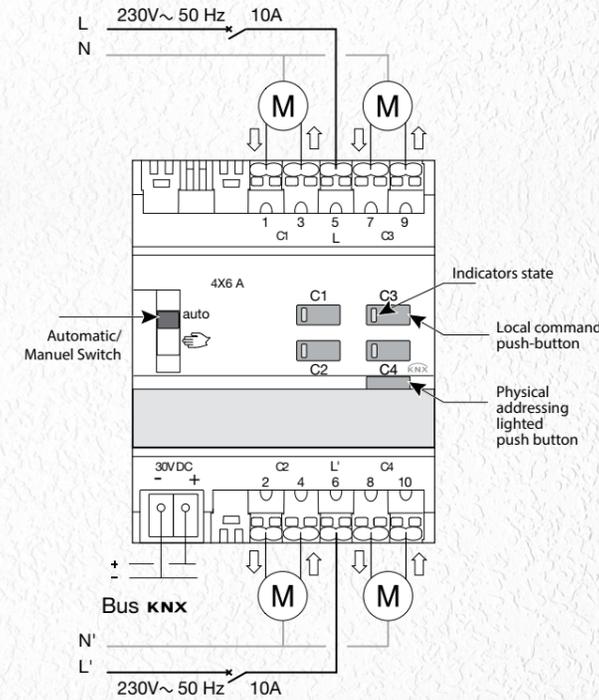# Blind Actuator
4 channels 230V
MSH4220
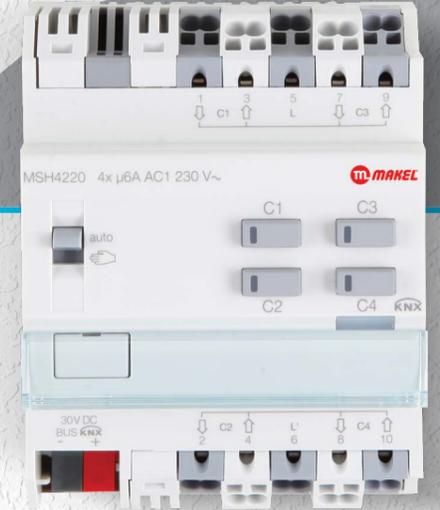
4 Tracked (4x230A) The KNX blind actuators will allow you to use the smart system on your shutter, curtains, awnings and blinds. 230V and 24V selections are available.

The KNX is a modular part of automation system.
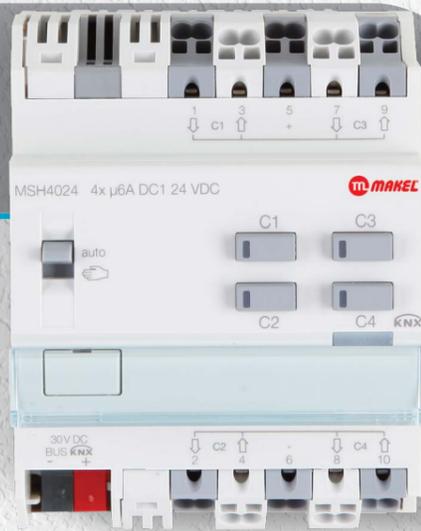
Functions
- 4 independent channels controlled by bus
- Output states are displayed on the product.
- Outputs can be controlled manually from the product.

Yük tipleri			4A	10A	16A Kapasitif	16A Yük
	230 V~	Incandescent lamps	800W	1200W	2300W	2300W
	230 V~	Halogen Lamps	800W	1200W	2300W	2300W
	12VDC 24VDC	Conventional Transformer	800W	1200W	1600W	1600W
	12VDC 24VDC	Electronic transformer	800W	1000W	1200W	1200W
	230 V~	Floresan Tüpler Telafi Edilmemiş	800W	1000W	1200W	1200W
		Ayar Rezistansları İçin Floresan Tüpler (tek ya da çift)	12x36W	15x36W	20x36W	20x36W
		Paralel Telafi Edilmiş Floresan Tüpler	-	-	-	1500W|200 μF
	230 V~	Compact Fluorescent	6x23W	12x23W	18x23W	18x23W

Technical Characteristics	
Supply Voltage	30 V DC
Power Dissipation	15 W
Minimum time between 2 switching operations in series: of all 10 output relays of one output relay	2 sn. 250 ms.
Dimensions	184x90x56 mm
Protection Class	IP 30
Operation Temperature	0 °C → +45 °C
Storage Temperature	- 20 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²
Standartlar	NF EN 60669-1 NF EN 60669-2-1 EN 50090-2-2

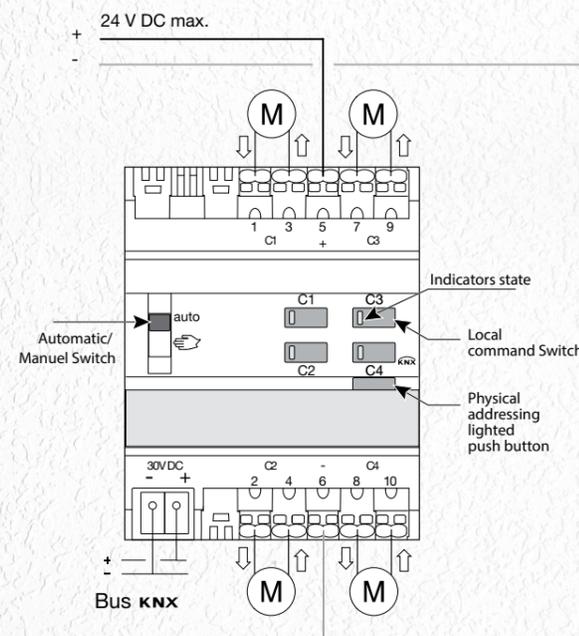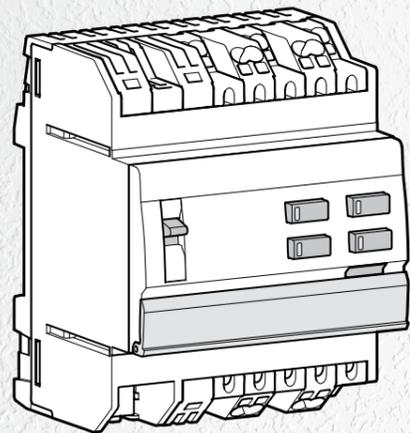| Supply Voltage	230 V ~ 50/60 Hz
Output voltage	30 V DC 640 mA TBTS / SELV / ZLVS
Power Draw	24 VA
Dimensions	92x90x56 mm
Operation Temperature	-5 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²
Norm	NF EN 60669-1 NF EN 60669-2-1 EN 50090-2-2

Blind Actuator, 4 channels 24 V
MSH4024

4 Tracked (4x24A) The KNX blind actuators will allow you to use the smart system on your shutter, curtains, awnings and blinds. 230V and 24V selections are available.

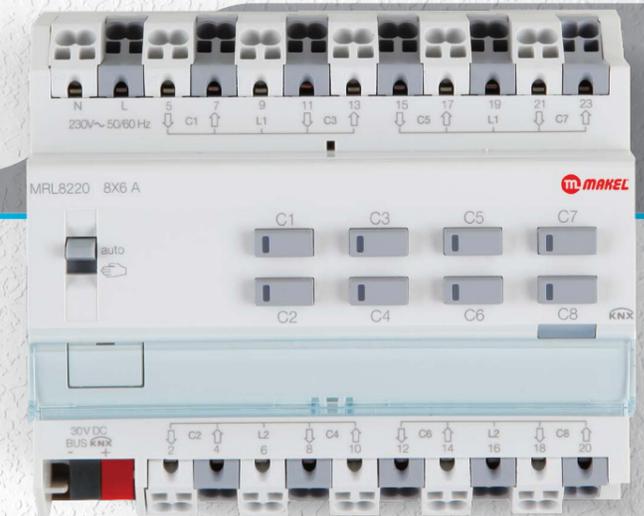The KNX is a modular part of automation system.

Functions
- 4 independent channels controlled by bus
- Output states are displayed on the product.
- Outputs can be controlled manually from the product.
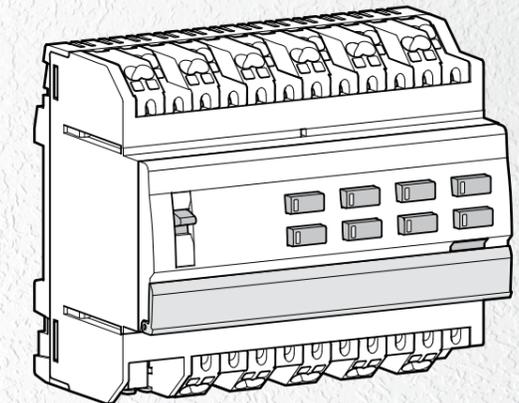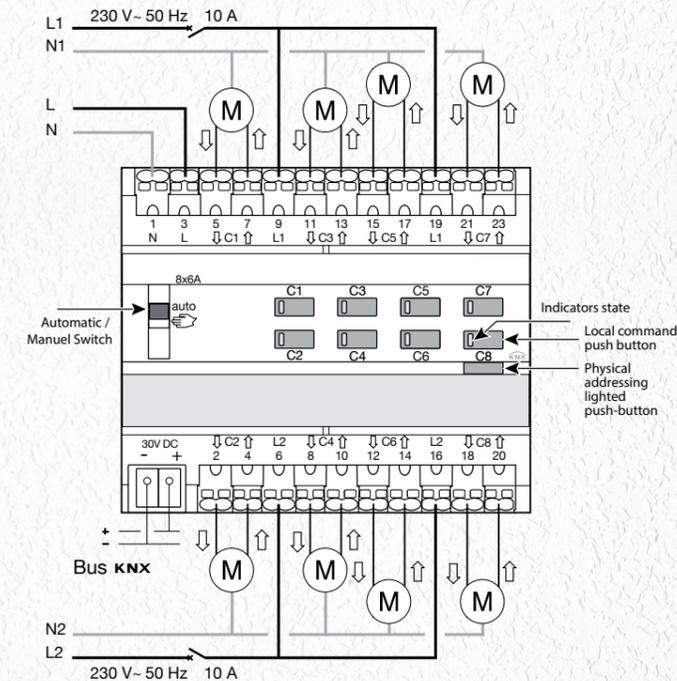
Blind Actuator, 8 channels 230 V
MSH8220

8 Tracked (8x230A) The KNX blind actuators will allow you to use the smart system on your shutter, curtains, awnings and blinds. 230V and 24V selections are available.

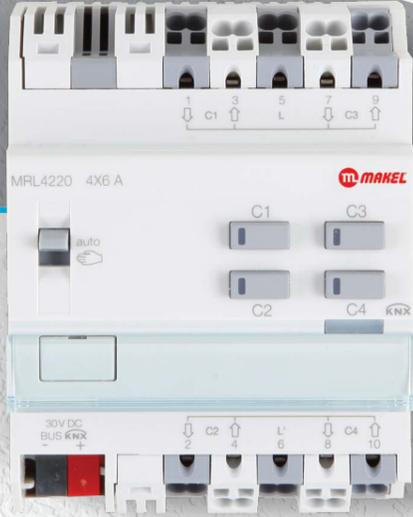The KNX is a modular part of automation system.

Functions
- 8 independent channels controlled by bus KNX.
- Product of display outputs status and presence of bus and/or power network (250V-)
- This outputs may be with or without the presence bus and/or main supply (220 V-)

Indicators state	
Supply Voltage	30 V DC
Power Dissipation	2 W
Time delay between two opposite directions	600 ms
Dimensions	92x90x56 mm
Protection Class	IP 30
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²
Norm	NF EN 60669-1 NF EN 60669-2-1 EN 50090-2-2

Technical Characteristics	
Supply Voltage	230 V ~ / 30V DC
Power Dissipation	4 W
Time delay between two opposite directions	600 ms
Dimensions	138x90x56 mm
Protection Class	IP 30
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²
Norm	NF EN 60669-1 NF EN 60669-2-1 EN 50090-2-2

Roller Actuator, 4 channel 230V MRL4220

The KNX curtain actuator allows you to control your shutters, curtains, canopies and blinds through the KNX automation system.

There are 230V and 24V alternatives available.

The KNX is a modular part of automation system.
- 4 independent channels controlled by bus
- Output states are displayed on the product.
- Outputs can be controlled manually from the product.

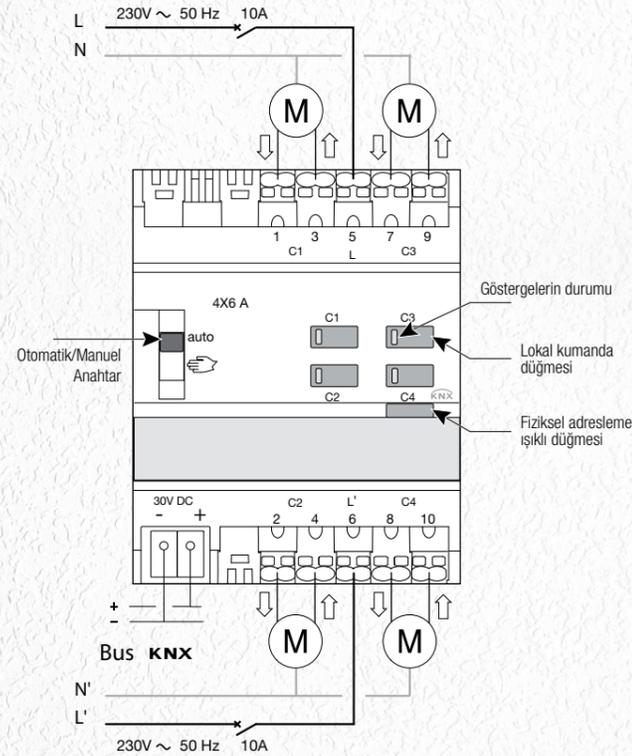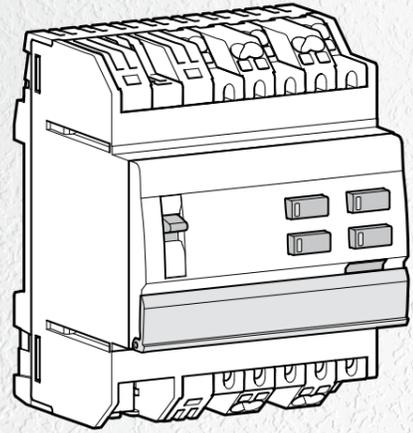| Technical Characteristics	
Supply Voltage	30 V DC
Güç Tüketimi	2 W
Time delay between two opposite directions	600 ms
Dimensions	92x90x56 mm
Protection Class	IP 30
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²
Norm	NF EN 60669-1 NF EN 60669-2-1 EN 50090-2-2

Roller Actuator, 4 channel 24V MRL4024

The KNX curtain actuator allows you to control your shutters, curtains, canopies and blinds through the KNX automation system.
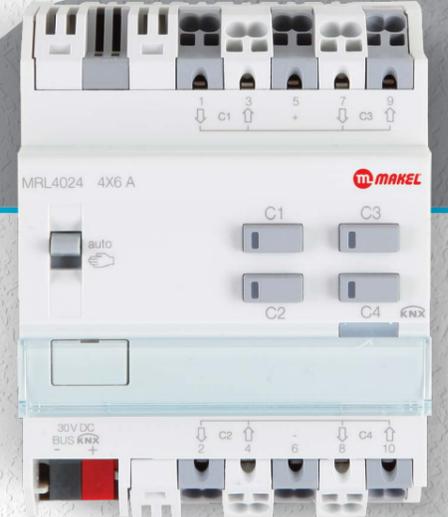
There are 230V and 24V alternatives available.

The KNX is a modular part of automation system.
- 4 independent channels controlled by bus
- Output states are displayed on the product.
- Outputs can be controlled manually from the product.

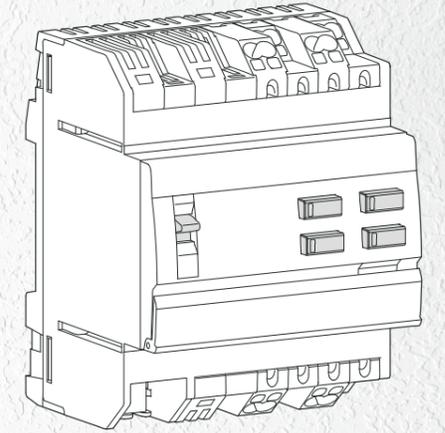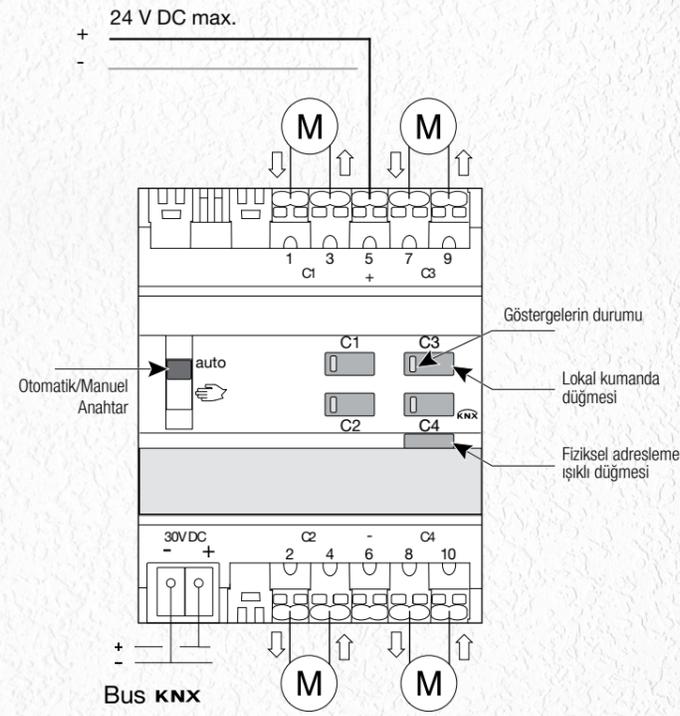| Technical Characteristics	
Supply Voltage	30 V DC
Power Dissipation	2 W
Time delay between two opposite directions	600 ms
Dimensions	92x90x56 mm
Protection Class	IP 30
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²
Norm	NF EN 60669-1 NF EN 60669-2-1 EN 50090-2-2

Roller Actuator, 8 channel 230V MRL8220

The KNX curtain actuator allows you to control your shutters, curtains, canopies and blinds through the KNX automation system. There are 230V and 24V alternatives available.
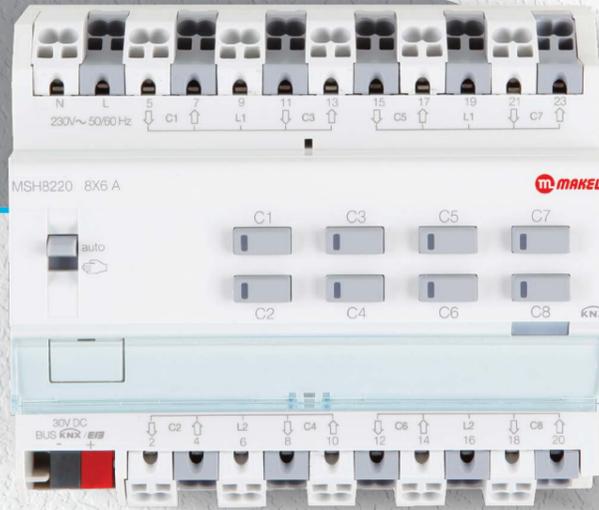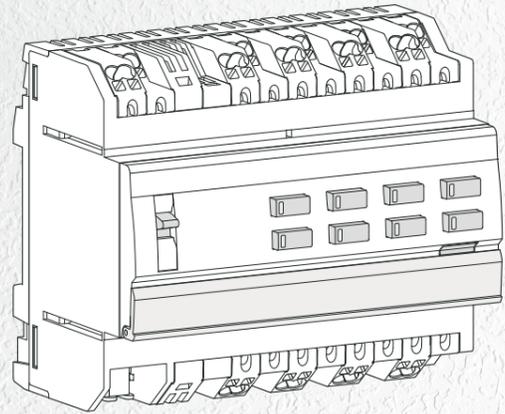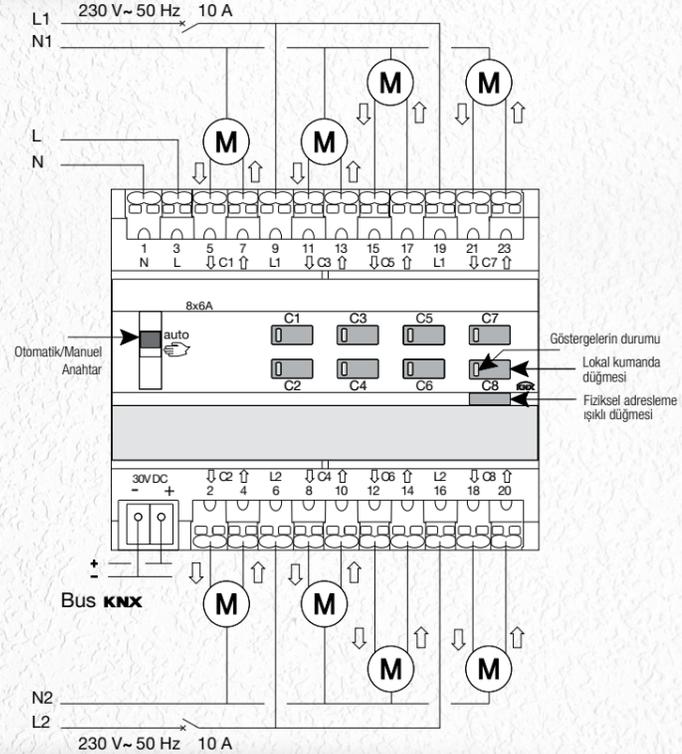
The KNX is a modular part of automation systemKNX protokolü ile kontrol edilen 8 bağımsız kanal.
- 8 independent channels controlled by bus KNX.
- Product of display outputs status and presence of bus and/or power network (250V-)
- This outputs may be with or without the presence bus and/or main supply (220 V-)


Technical Characteristics	
Supply Voltage	30 V DC
Power Dissipation	4 W
Time delay between two opposite directions	600 ms
Dimensions	138x90x56 mm
Protection Class	IP 30
Operation Temperature	-5 °C → + 45 °C
Storage Temperature	- 25 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²
Norm	NF EN 60669-1 NF EN 60669-2-1 EN 50090-2-2

Dimmer Actuator 1 Channel, 300W MSA1300-N

The KNX with single channel dimmer devices can be used to dim halogen, 220V led , fluorescent, incandescent and cfl lamps using the smart system. The device is capable of providing drive for lamps 300 watts 1 channel. These product are universal dimmers with automatic load detection and a built in 'Load teaching' function to control the compact fluorescent 220V LED lamps more efficiently. They are part of the KNX installation system. In order to guarantee correct operation, it is advisable not to mix two different types of lamp on same output.

- 1 dimming channel controlled by KNX bus.Ürun üzerinde kanal durumunun gosterilmesi.
- Display of channel state on the product.
- The manual control of the channel is possible from the product (with or without connected bus).
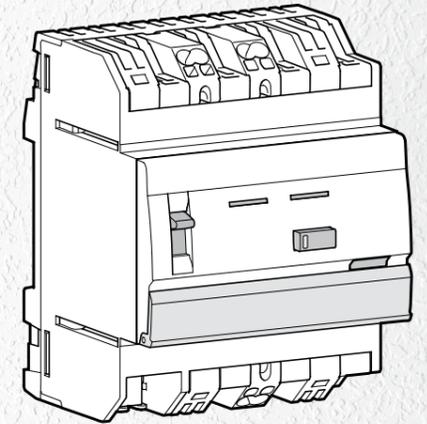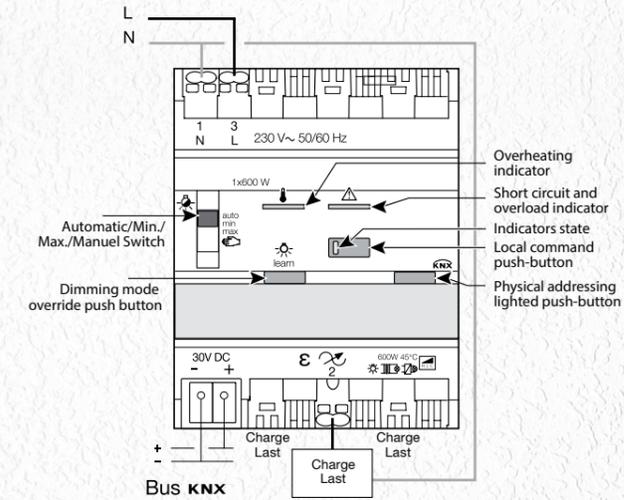
- -Automatic detection of load type These product are universal dimmers with automatic load detection and a built in 'Load teaching' function to control the compact fluorescent 220V LED lamps more efficiently. They are part of the KNX installation system. In order to guarantee correct operation, it is advisable not to mix two different types of lamp on same output.
- 1 dimming channel controlled by KNX bus.
- Display of channel state on the product.
- The manual control of the channel is possible from the product (with or without connected bus).
- Automatic detection of load type
- The specific functions offered by these product depend on their configuration and setup.

Technical Characteristics	
Supply Voltage	30V DC, 230V 50/60 Hz
Bus line consumption	2,3 mA
Power Draw	2,3 W
Consumption without load	3 W
Dimensions	92x90x56 mm
Protection Class	IP 30
Operation Temperature	-5 °C → + 45 °C
Storage Temperature	- 25 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²
Norm	NF EN 60669-1 / NF EN 60669-2-1 EN 50090-2-2

Dimmer Actuator
1 Channel, 600W
MSA1600-N

Dimmer Actuator
1 Channel, 1000W
MSA1000

The KNX with single channel dimmer devices can be used to dim halogen, 220V led , fluorescent, incandescent and cfl lamps using the smart system. The device is capable of providing drive for lamps 600 watts 1 channel. These products are with automatic load detection and manual adjusting, to control the compact fluorescent 220V LED lamps more efficiently.

The KNX is a modular part of automation system

In order to guarantee correct operation, it is advisable not to mix two different types of lamp on same output.KNX veri yolu tarafından kontrol edilen 1 kısıcı kanal.
- 1 dimming channel controlled by KNX bus.
- Display of channel state on the product.
- The manual control of the channel is possible from the product (with or without connected bus).
- Automatic detection of load type
- The specific functions offered by these product depend on their configuration and setup.
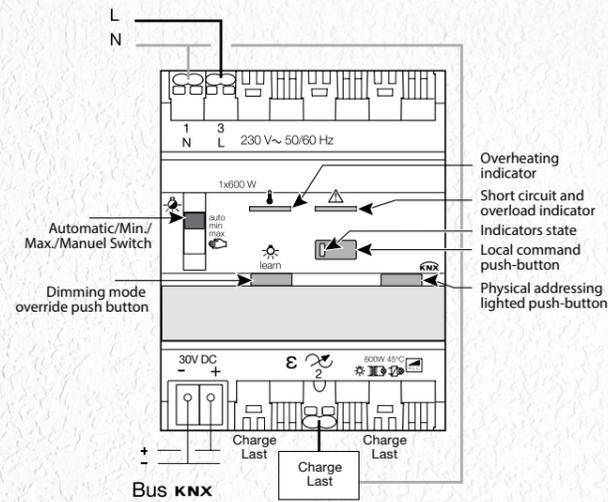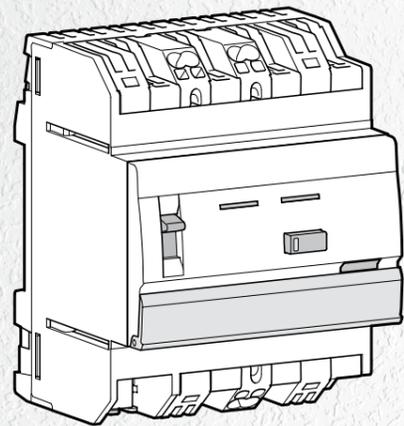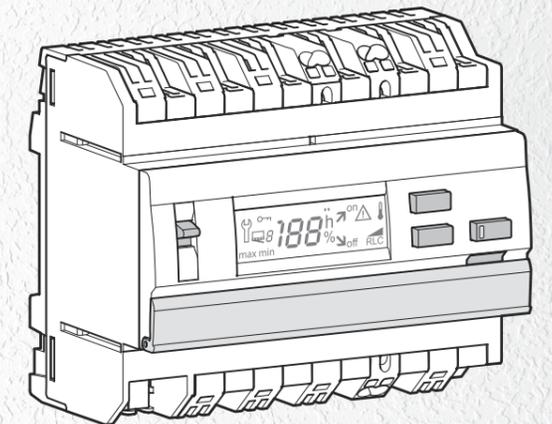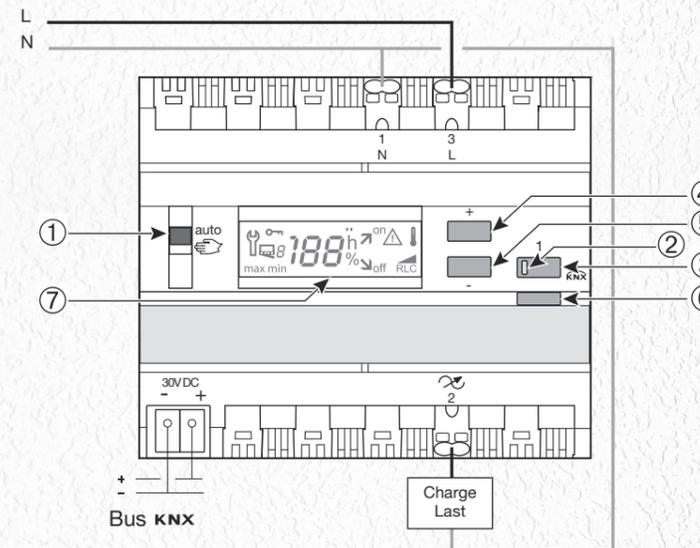
The KNX with single channel dimmer devices can be used to dim halogen, 220V led , fluorescent, incandescent and cfl lamps using the smart system. The device is capable of providing drive for lamps 1000 watts 1 channel.

The KNX is a modular part of automation system8 independent channels controlled by bus KNX.
- Product of display outputs status and presence of bus and/or power network (250V-)
- This outputs may be with or without the presence bus and/or main supply (220 V-)

Technical Characteristics (MSA1600-N)

Technical Characteristics	
Supply Voltage	30V DC, 230V 50/60 Hz
Bus Line Consumption	2,3 mA
Power Draw	4,8 W
Consumption without Load	3 W
Dimensions	92x90x56 mm
Protection Class	IP 30
Operation Temperature	-5 °C → + 45 °C
Storage Temperature	- 25 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²
Norm	NF EN 60669-1 NF EN 60669-2-1 EN 50090-2-2

Load Type (MSA1000)

Load Type			
		Incandescent, Halogen 230 V~	20 W ---> 1000 W
		Halogen ELV (12 or 24 V) via ferromagnetic transformers suitable for dimming. The transformer shouldn't be used with less than 75% of its nominal load.	20 VA ---> 1000 VA
		Halogen ELV (12 or 24v) via electronic transformers.	20 VA ---> 1000 VA

Technical Characteristics (MSA1000)

Technical Characteristics	
Supply Voltage	30V DC, 230V 50/60 Hz
Busline Tüketimi	2,3 mA
Power Draw	10 W
Consumption without Load	3 W
Dimensions	138x90x56 mm
Protection Class	IP 30
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 60 °C
Electrical Connection	0,75mm² → 2,5mm² 0,75mm² → 2,5mm²
Norm	NF EN 60669-1 NF EN 60669-2-1 EN 50090-2-2

Dimmer Actuator
3 Channel, 3x300W
MDA3300-N

The KNX with 3 channels dimmer devices can be used to dim halogen, 220V led , fluorescent, incandescent and cfl lamps using the smart system. With a total capacity that reaches 900 Watts, lamps can be maintained at 300 Watts for each of three channels, 300W and 600W for two channels and 900W for a single channel.

MSA3300 N modules:The KNX with 3 channels dimmer devices can be used to dim halogen, 220V Led, fluorescent, incandescent and cfl lamps using the smart system. These products are with automatic load detection and manual adjusting, to control the compact fluorescent 220V LED lamps more efficiently. The KNX is a modular part of automation system

Dimmer Actuator
3 Channel, 1-10V
MSA3010-A

The KNX with 3 channels 1-10V dimmer devices can be used to dim halogen, led and fluorescent lamps using the smart system. The device is capable of providing drive for 1-10 watt bulbs in 3 separate lines.
- 3 dimming channels controlled by bus KNX
- State of channel displayed on product.
- Manual control of channels available locally on the product.
- Existing functions depend on product specific configuration and setup.
- After power On, a 20 sec. delay is required for the dimmer switch to perform the first control operation.

MDA3300-N Load Type

Load Type		1x 900 W	1x 600 W	1x 300 W
Incandescent, Halogen 230V	C1	1x 900 W	1x 600 W	1x 300 W
	C2	-	1x 300 W	1x 300 W
	C3	-	-	1x 300 W
Halogen ELV (12 or 24V)via ferromagnetic transformer for dimming. The transformer shouldn't be used with less than 75% of its nominal load.	C1	1x 900 W	1x 600 W	1x 300 W
	C2	-	1x 300 W	1x 300 W
	C3	-	-	1x 300 W
Halogen ELV (12 or 24v) via electronic transformers.	C1	1x 900 W	1x 600 W	1x 300 W
	C2	-	1x 300 W	1x 300 W
	C3	-	-	1x 300 W
Dimmable fluo compact lamps.	C1	1x 210 W	1x 120 W	1x 60 W
	C2	-	1x 60 W	1x 60 W
	C3	-	-	1x 60 W
Dimmable LED lamps	C1	210 W	1x 120 W	1x 60 W
	C2	-	1x 60 W	1x 60 W
	C3	-	-	1x 60 W

The efficiency of the transformer has to be taken into account to calculate the maximum number of controlled lamps.
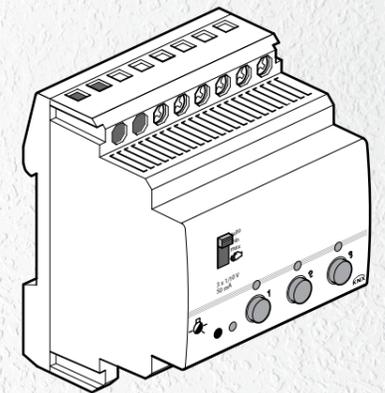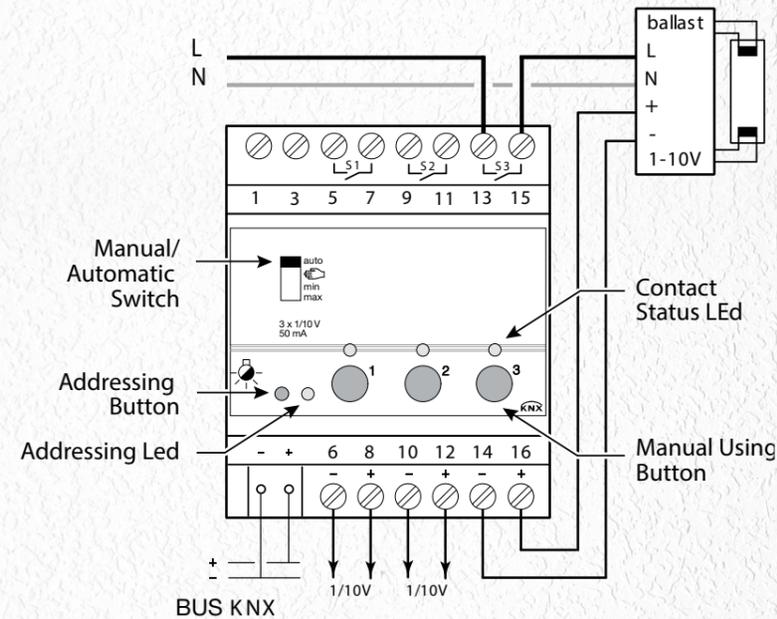Non-dimmable fluocompact and LED lamps are not compatible with this product.

Technical Characteristics (MDA3300-N)

Technical Characteristics	
Supply Voltage	30V DC, 230V 50/60 Hz
Bus Line Consumption	2,3 mA
Consumption without Load	5 W
Power Dissipation	8,9 W
Dimensions	138x90x56 mm
Protection Class	IP 30
Operation Temperature	-5 °C → + 45 °C
Storage Temperature	- 25 °C → + 70 °C
Electrical Connection	0,75mm² → 2,5mm² / 0,75mm² → 2,5mm²
Standartlar	NF EN 60669-2-1 / EN 50491-3 / EN 50428

MSA3010-A Load Type

Load Type				
		230 V ~	Incandescent lamps	2300 W
		230 V ~	Halogen lamps	2300 W
		12 VDC 24 VDC	Conventional transformer	1500 VA
		12 VDC 24 VDC	Electronic transformer	1500 W
		230 V ~	Electronic ballasts	1000 W 50 mA max.
			Dimmer	30 max.

Technical Characteristics (MSA3010-A)

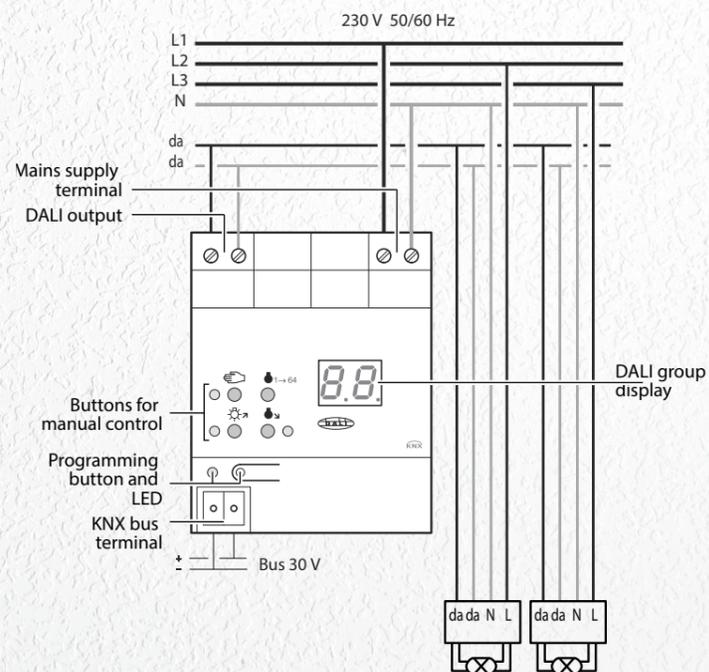| Technical Characteristics	
Supply Voltage	29V DC
Power Draw	9 W
Dimensions	92x90x56 mm
Protection Class	IP 30
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Electrical Connection	1mm² → 10mm² / 1mm² → 6mm²
Norm	NF EN 60669-1 / NF EN 60669-2-1 / EN 50090-2-2

KNX / DALI Gateway
MDG0001
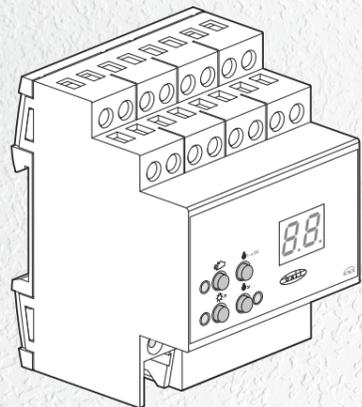
With KNX Dali Gateway device allow you to adjust the electronic ballasts dali in smart system. With one device can monitor up to 64 ballast.

The KNX-DALI gateway MDG0001 allows to interface DALI lighting applications with the KNX system.
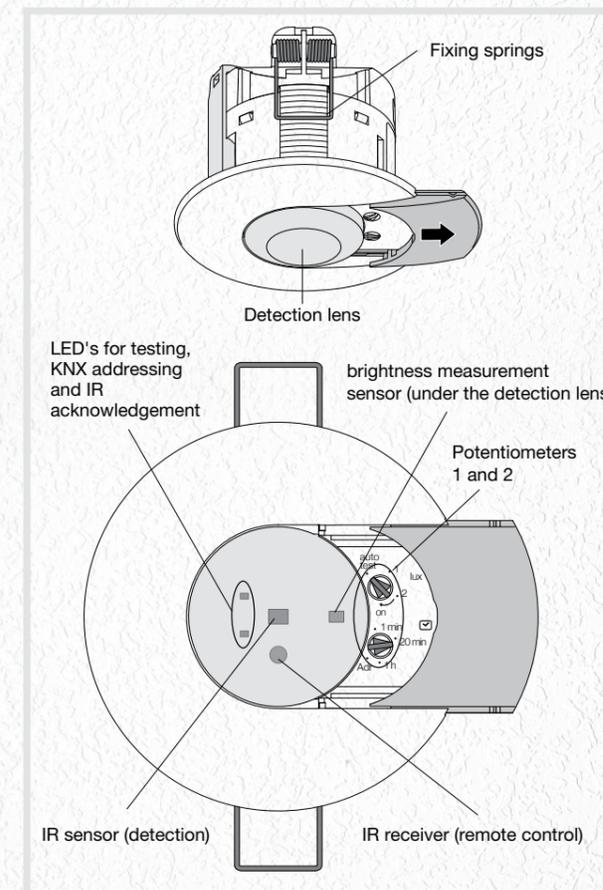- Controlling of 64 DALI devices max. in 32 groups max.
- 16 light scenes.
- Readout of the DALI device status via the KNX, e.g. brightness, luminaire malfunction.
- Manual control of the DALI groups.
- Forced control
- Checkback of switching status and brightness level in bus and manual control mode.
- Central switching function.
- Disabling function for each group.
- Separate ON and OFF delays.
- Staircase lighting application with early warning function
- DALI commissioning with ETS plug-in.
- Short-circuit protection.
- Overload protection
- Over-voltage protection.
- Replacement of a single DALI device in operation possible without software.
- State of delivery:provisional operation, control of DALI groups via keypad possible.
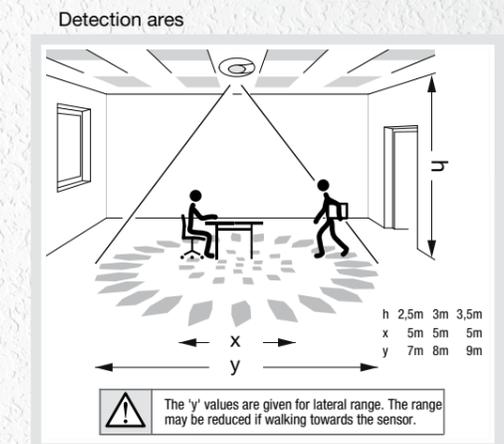- -All DALI devices are controlled in common.

230 V 50/60 Hz

L1
L2
L3
N

da
da

Mains supply terminal
DALI output

Buttons for manual control

Programming button and LED

KNX bus terminal

Bus 30 V

DALI group display

da da N L   da da N L

Celling Type Presence Detector
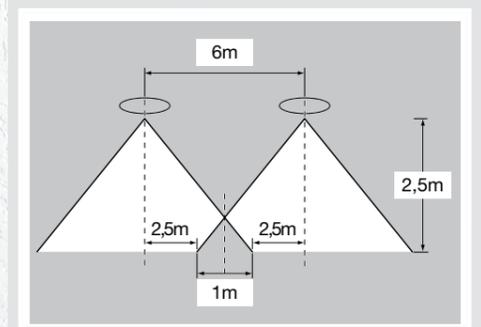# 1 Channel
MPR1000

With the Makel KNX motion and light detectors both motion and presence can be detected so that you can adjust your stage according to the light level and control your devices to ensure the most efficient use. Also this can be used as part of the security systems.

Fixing springs

Detection lens

LED's for testing, KNX addressing and IR acknowledgement

brightness measurement sensor (under the detection lens)

Potentiometers 1 and 2

IR sensor (detection)   IR receiver (remote control)

Occupancy sensors MRP 1000 are presence detector designed to detect low amplitude movements (movements from body or arms). Detection is by means of the pyroelectric IR sensor under detection lens. The occupancy sensor measures the brightness in the room on continuous basis and compares it to the level present on the potentiometer by ETS.
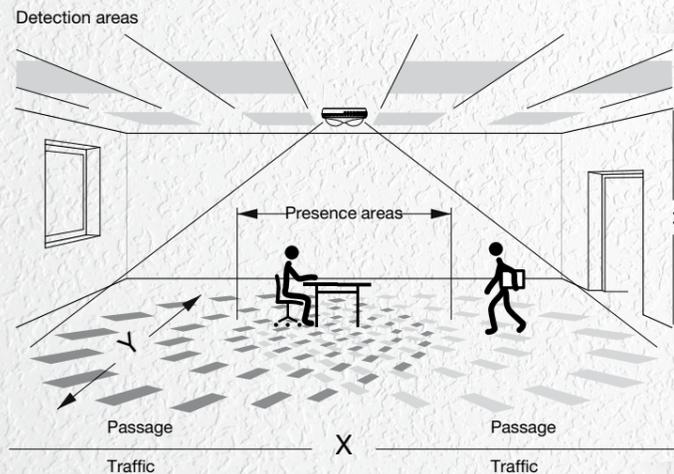
Detection ares

	h	2,5m	3m	3,5m
x	5m	5m	5m
y	7m	8m	9m

The 'y' values are given for lateral range. The range may be reduced if walking towards the sensor.

Overlap

6m

2,5m
2,5m   2,5m
1m

Technical Characteristics	
Supply Voltage	30V DC
Data bus Consumption	10 mA
Lighting Output Operation Period	5 → 1000 Lux
Recommended Assembly Height	2,5 → 3,5 m
Sound off distance	Ø 7 m
Protection Class	IP 41
Operation Temperature	-10 °C → + 45 °C
Storage Temperature	- 25 °C → + 70 °C
Fire Resistance	650 °C
Norm	EN 60669-2-1 / EN 50491-3 EN 50428

Presence Detector
2 Channels
MPR2000

With the Makel KNX motion and light detectors both motion and presence can be detected so that you can adjust you stage according to the light level and control your devices to ensure the most efficient use. Also this can be used as part of the security systems.

MPR2000 devices are 2-channel presence detectors capable of detecting low amplitude movements (e.g. person working in an office). Detection is by means of 2 pyroelectric sensors located under detection lenses. 5. Additionally, a brightness sensor 6. measures room brightness on a continuous basis, matching it against the brightness threshold set by potentiometer 2. The head of the detector is directional at 90° and can be used to adjust the detection area according to the room configuration.

- 2 control channels via KNX bus.
- Time delay adjustment for brightness and presence controls via product potentiometers 1 and 2 or via ETS.
- Brightness threshold adjustment via product potentiometer 2 or via ETS.
- The actual features of these products depend on their respective configuration and setup.

0 ...90°
Signalling indicator light V1
1 — Lighting time delay adjustment potentiometer
4
3 — Min. dimming level adjustment potentiometer
2 — Functioning mode adjustment potentiometer
6 — Detection lenses
5 — Detection lenses

Detection areas

Presence areas
Passage — Traffic — X — Passage — Traffic

⚠ The 'y' values are given for lateral range.
The range may be reduced if working towards the sensor.

	h	2,5m	3m	3,5m
	x	13m	15,5m	18m
	y	7m	8m	9m

Technical Characteristics	
Electrical Specification	30 V DC
Supply Voltage	12 mA
Entering instruction	1 → 30 min
Lighting time delay via potentiometer	30 sn → 60 min
Presence time delay via potentiometer	5 → 1.200 Lux
Recommended installation distance from ground	2,5 - 3,5 m
Operation Temperature	0 ℃ → + 45 ℃
Storage Temperature	- 10 ℃ → +60 ℃
Class of Isolation	II
IK	IK 03
Protection Index	IP 41
Standards	EN 60669-1 / EN 60669-2-1 EN 50090-2-2

Presence Detector,
Light Detector
MPR1000-L

With the Makel KNX motion and light detectors both motion and presence can be detected so that you can adjust you stage according to the light level and control your devices to ensure the most efficient use. Also this can be used as part of the security systems. MPR1000-L devices in association with KNX dimmers, offers lighting control functions. They are designed to detect low amplitude movements (e.g. person working in an office). Detection is by means of 2 pyroelectric sensors located under detection lenses 5.

Additionally, a brightness sensor 6)measures room brightness on a continuous basis, matching it against the brightness threshold set by potentiometer 2). The head of the detector is directional at 90° and can be used to adjust the detection area according to the room configuration.

- 2 regulation channels via KNX bus.
- Brightness threshold, lighting time delay and minimum level adjustment via product potentiometer 1) or 3) via ETS.

0 ...90°
Signalling indicator light V1
1 — Lighting time delay adjustment potentiometer
4
3 — Min. dimming level adjustment potentiometer
2 — Functioning mode adjustment potentiometer
6 — Detection lenses
5 — Detection lenses

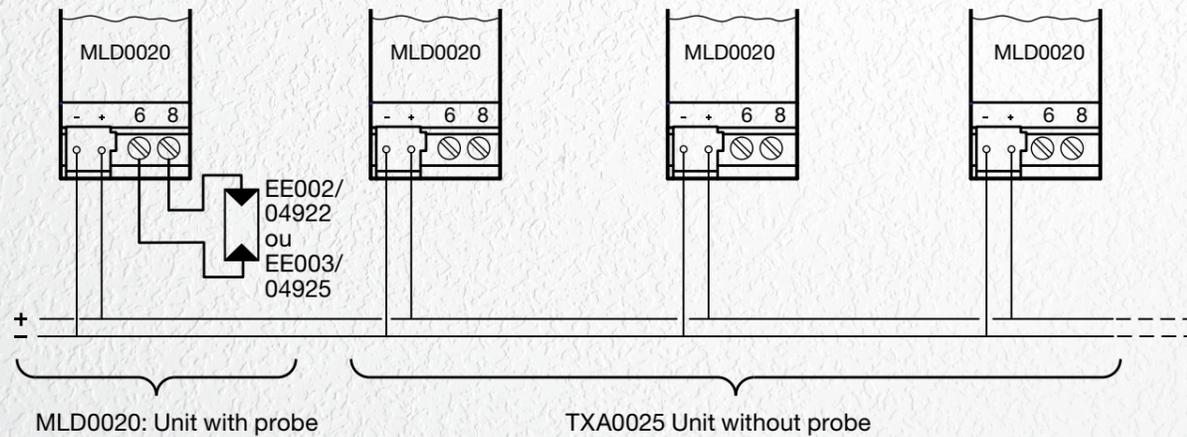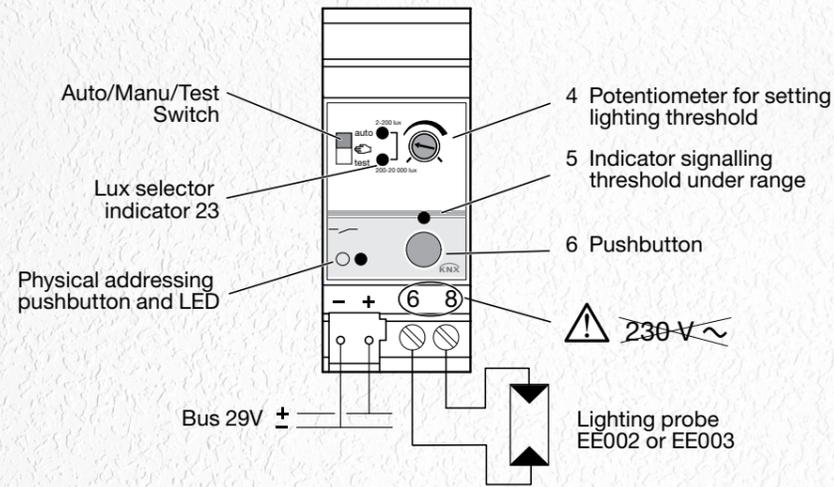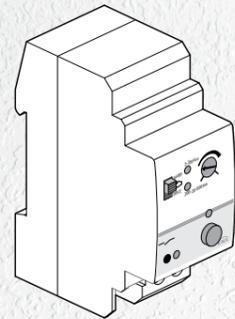**Detection areas**

Presence areas
Passage — Traffic — X — Passage — Traffic

⚠ The 'y' values are given for lateral range.
The range may be reduced if working towards the sensor.

	h	2,5m	3m	3,5m
	x	13m	15,5m	18m
	y	7m	8m	9m

Technical Characteristics	
Electrical Specification	30 V DC
Supply Voltage	12 mA
Entering instruction	1 → 30 min
Lighting time delay via potentiometer	30 sn → 60 min
Presence time delay via potentiometer	5 → 1.200 Lux
Recommended installation distance from ground	2,5 - 3,5 m
Operation Temperature	0 ℃ → + 45 ℃
Storage Temperature	- 10 ℃ → +60 ℃
Class of Isolation	II
IK	IK 03
Protection Index	IP 41
Standards	EN 60669-1 / EN 60669-2-1 EN 50090-2-2

Daylight Sensor 20kLux MLD0020

Motion and Light Detector MMD0001

The KNX daylight sensor can measure the level of light with a prop that is used outside to provide you with the best level of light inside. This product is mainly intended for automatic control of inside/outside lighting circuits (ON/OFF and dimming controls) and blinds or rolling shutters according to ambient lighting level. Associated with an external probe, this light sensitive switch measures natural lighting and controls circuit according to a present threshold range of 2 20000 luxes. Several light sensitive switches may be chained to increase the number of channels. In this case, only one probe is connected to one of the light sensitive switches.
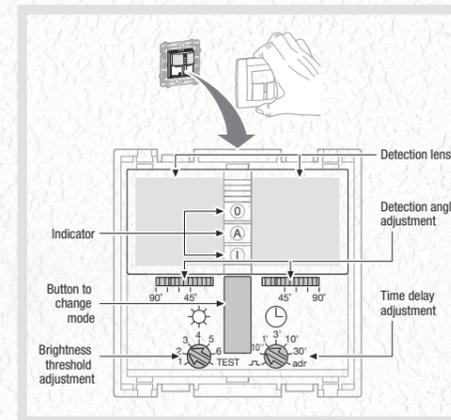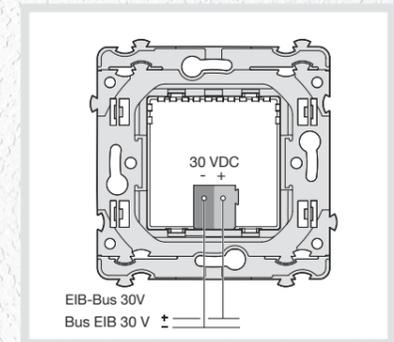
MMD0001 devices detected 180° movements and include built-in light sensitive switch functions. Such detectors are sensitive to infrared radiations associated with heat emitted by moving bodies.
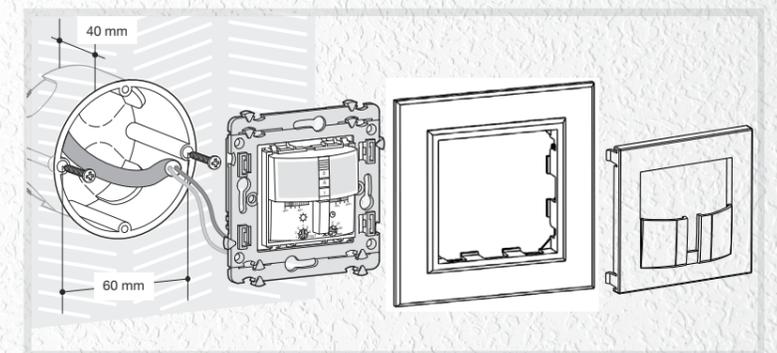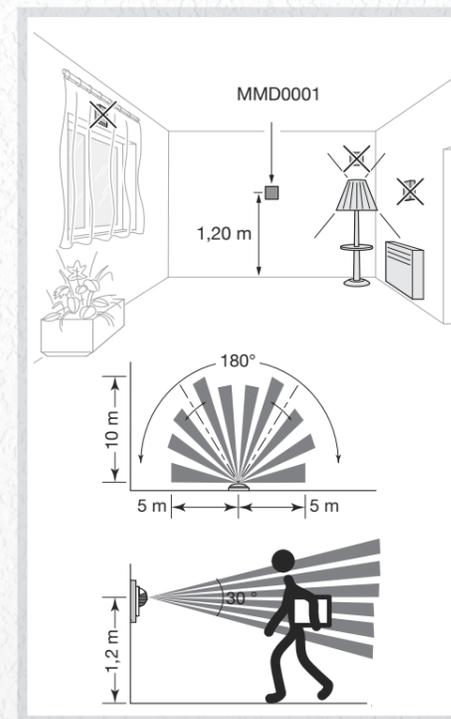
They transmit orders for lighting, heating and shutters and scenarios via bus KNX/EIB. These products are part of Smarthome installation system.

Auto/Manu/Test Switch

4 Potentiometer for setting lighting threshold

Lux selector indicator 23

5 Indicator signalling threshold under range

Physical addressing pushbutton and LED

6 Pushbutton

230 V ~

Bus 29V

Lighting probe EE002 or EE003

MLD0020

MLD0020

MLD0020

MLD0020

EE002/ 04922 ou EE003/ 04925

MLD0020: Unit with probe

TXA0025 Unit without probe

Detection lenses

Detection angle adjustment

Indicator

Button to change mode

Time delay adjustment

Brightness threshold adjustment

Connection

30 VDC

EIB-Bus 30V
Bus EIB 30 V

Installation advice

MMD0001

1,20 m

180°

10 m

5 m   5 m

1,2 m

30°

40 mm

60 mm

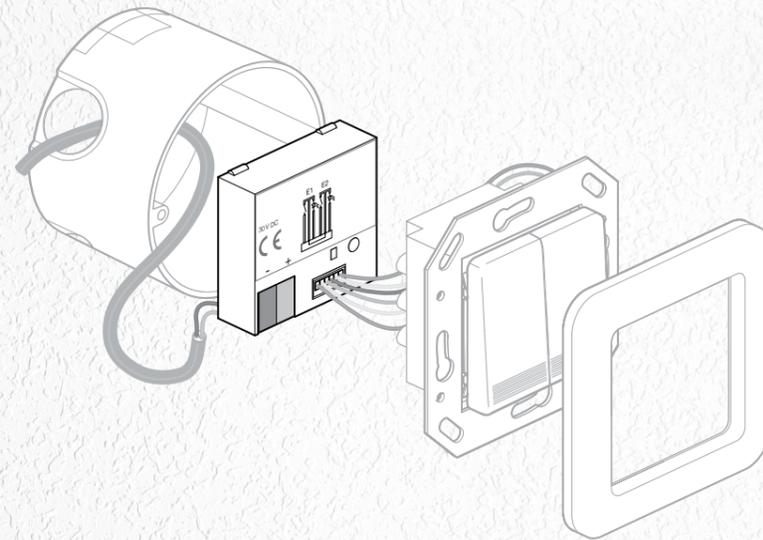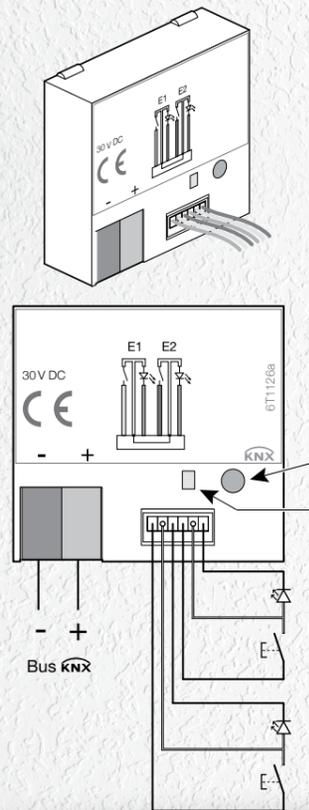| Technical Characteristics	
Supply Voltage	30 V DC
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → +70 °C
Standards	EN 60669-1 / EN 60669-1
Lighting Output Operating Time	10 s → 30 min
Brightness Threshold	5 → 1000 Lux
Busline Max. Consumption	10 mA

Led Output, Input Module 2 Channels MIN0002-L

By using the KNX universal inlet devices, you can make your devices with dry contact outlets or classic switches compatible with your KNX system. It is possible to carry out special functions like HVAC control, stages and timers with these devices. They can easily be place on the back of your products with its small design.

Universal input modules are used to interface contact free of potential with KNX bus, such as pushbuttons, switches or conventional automatisms to make them communicating devices.
- 2 or 4 independent channels
- Power supply by Bus

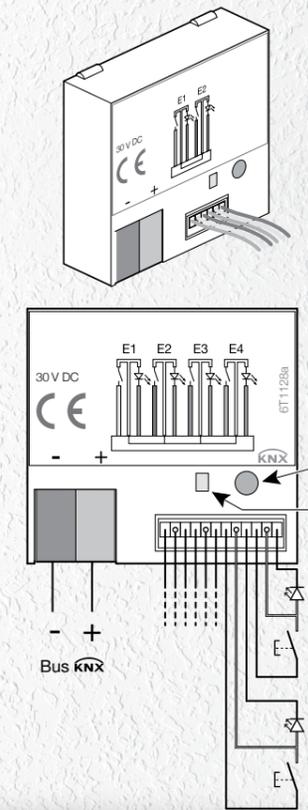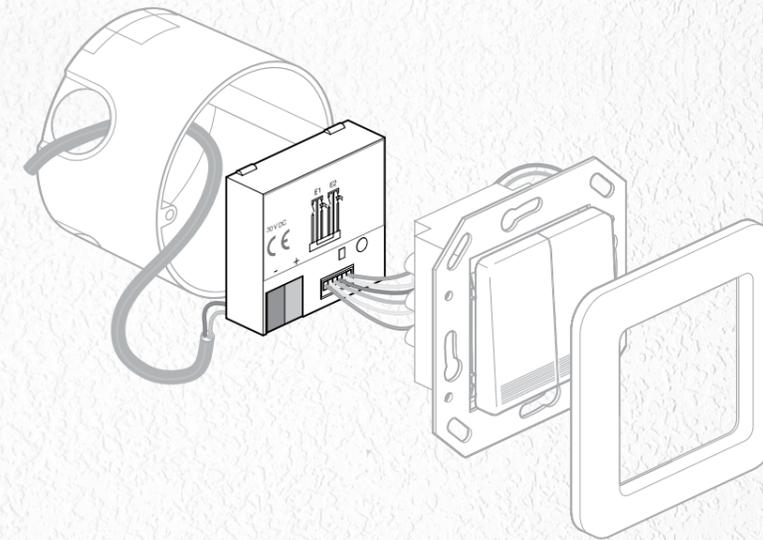| Technical Characteristics	
Contact Current	0,5 mA
Supply Voltage	30 V DC (TBTS, SELV, ZLVS)
Dimensions	38x35x12 mm
Protection Class	IP 30
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Standards	NF EN 60669-2-1 EN 50428

Led Output, Input Module 4 Channels MIN0004-L

By using the KNX universal inlet devices, you can make your devices with dry contact outlets or classic switches compatible with your KNX system. It is possible to carry out special functions like HVAC control, stages and timers with these devices. They can easily be place on the back of your products with its small design. Universal input modules are used to interface contact free of potential with KNX bus, such as pushbuttons, switches or conventional automatisms to make them communicating devices.
- 2 or 4 independent channels
- Power supply by Bus

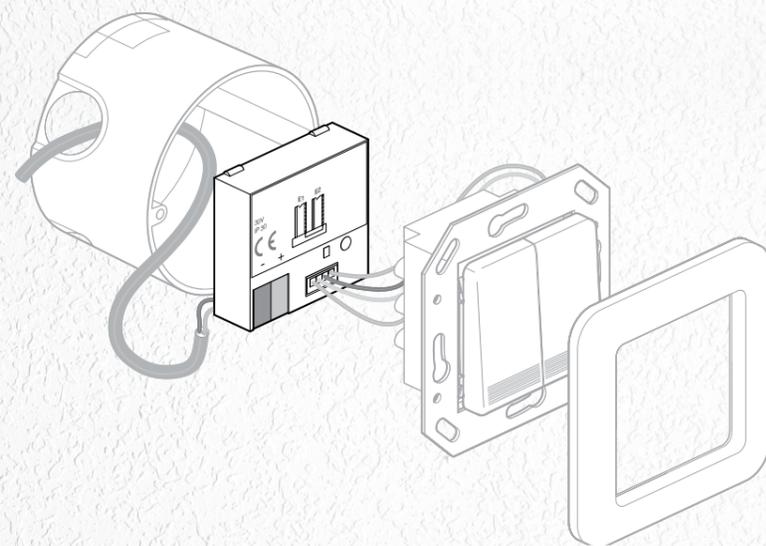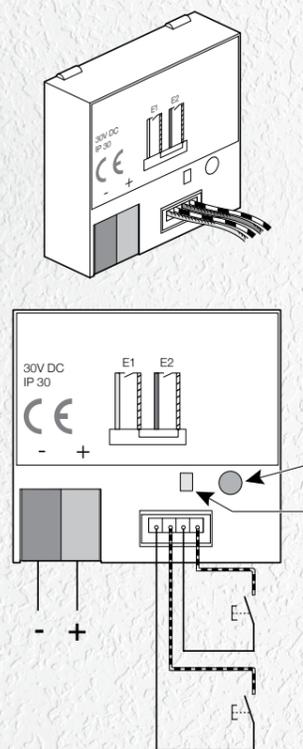| Technical Characteristics	
Contact Current	0,5 mA
Supply Voltage	30 V DC (TBTS, SELV, ZLVS)
Dimensions	38x35x12 mm
Protection Class	IP 30
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Standards	NF EN 60669-2-1 EN 50428

Inlet Module 2 Channels
MIN0002

By using the KNX universal inlet devices, you can make your devices with dry contact outlets or classic switches compatible with your KNX system. It is possible to carry out special functions like HVAC control, stages and timers with these devices. They can easily be place on the back of your products with its small design. Universal input modules are used to interface contact free of potential with KNX bus, such as pushbuttons, switches or conventional automatisms to make them communicating devices.

- 2 independent channels
- Power supply by Bus

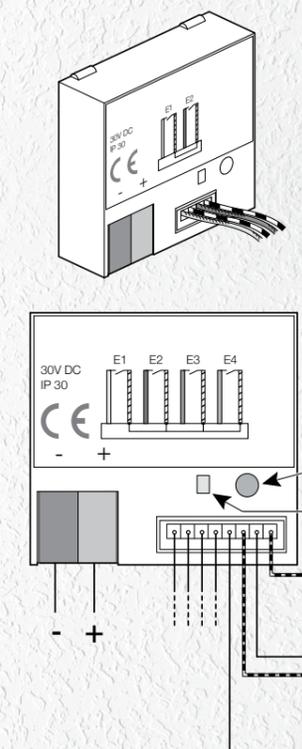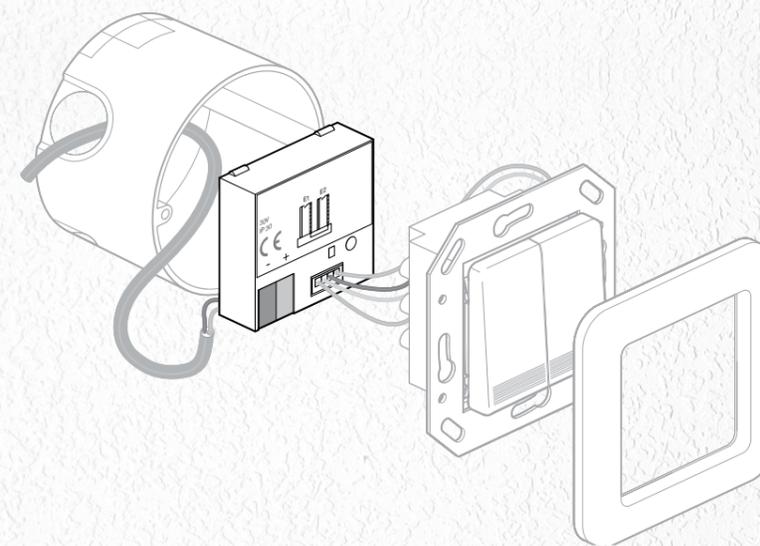| Technical Characteristics	
Contact Current	0,5 mA
Supply Voltage	30 V DC (TBTS, SELV, ZLVS)
Dimensions	38x35x12 mm
Protection Class	IP 30
Operation Temperature	0 ℃ → + 45 ℃
Storage Temperature	- 20 ℃ → + 70 ℃
Standards	NF EN 60669-2-1 EN 50428

Inlet Module 4 Channels
MIN0004

By using the KNX universal inlet devices, you can make your devices with dry contact outlets or classic switches compatible with your KNX system. It is possible to carry out special functions like HVAC control, stages and timers with these devices. They can easily be place on the back of your products with its small design. Universal input modules are used to interface contact free of potential with KNX bus, such as pushbuttons, switches or conventional automatisms to make them communicating devices.

- 4 independent channels
- Power supply by Bus

Technical Characteristics	
Contact Current	0,5 mA
Supply Voltage	30 V DC (TBTS, SELV, ZLVS)
Dimensions	38x35x12 mm
Protection Class	IP 30
Operation Temperature	0 ℃ → + 45 ℃
Storage Temperature	- 20 ℃ → + 70 ℃
Standards	NF EN 60669-2-1 EN 50428

Smart Switch With LED
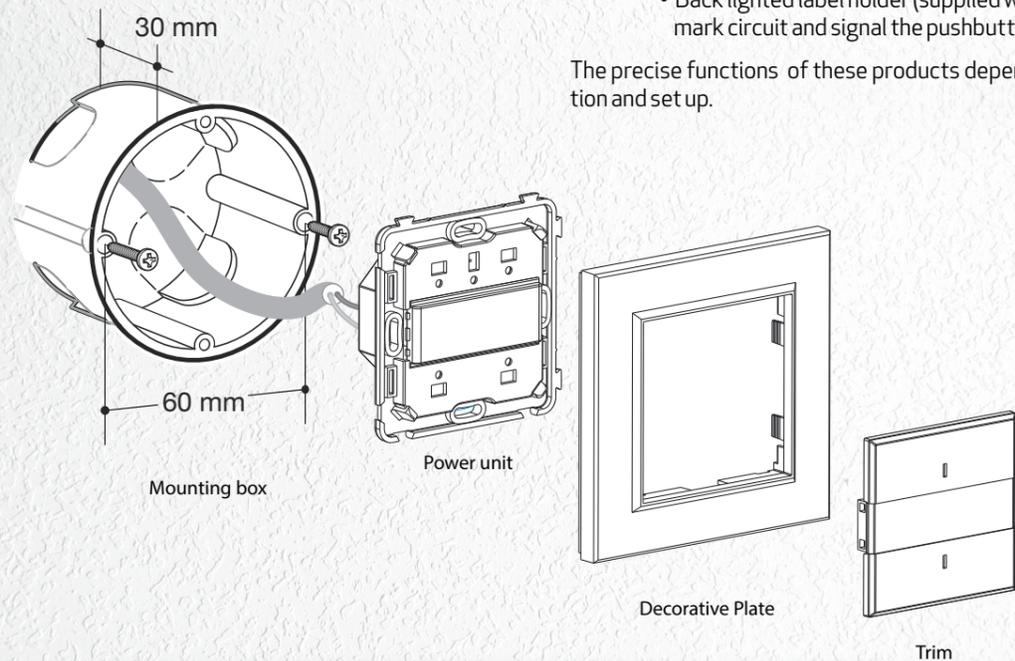## 2 button
MSW0002-PL

With the Makel KNX switches you can experience the comfort of a smart home. Makel KNX switches have a wealth of application features like classic switching, dimming, blind and curtain control, HVAC, alarm features, stage and priority selections and jamming. The system is available with selection of 2 to 8 channels, status indicators with led and label lighting.

MSW0002 PL pushbuttons are transmitters designed to control Smarthome output modules. They transmit orders for lighting, heating, shutters and scenarios via bus KNX/EIB.

They are used in conjunctions with trims MT0001-XX and in association with decorative plates Smarthome.

- 2 independent channels
- 2 indicator lights
- Back lighted label holder (supplied with the trim) to mark circuit and signal the pushbuttons.

The precise functions of these products depend on configuration and set up.

30 mm

60 mm

Mounting box

Power unit

Decorative Plate

Trim

Technical Characteristics	
Supply Voltage	30 V DC
Number of İnlets	2
Dimensions	73x73x20 mm
Protection Class	IP 30
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Busline Consumption	10,5 mA
Busline Connection	TG 08
Standards	NF EN 60669-2-1 NF EN 60699-1

Note:The shown frames are not included in the specified code.

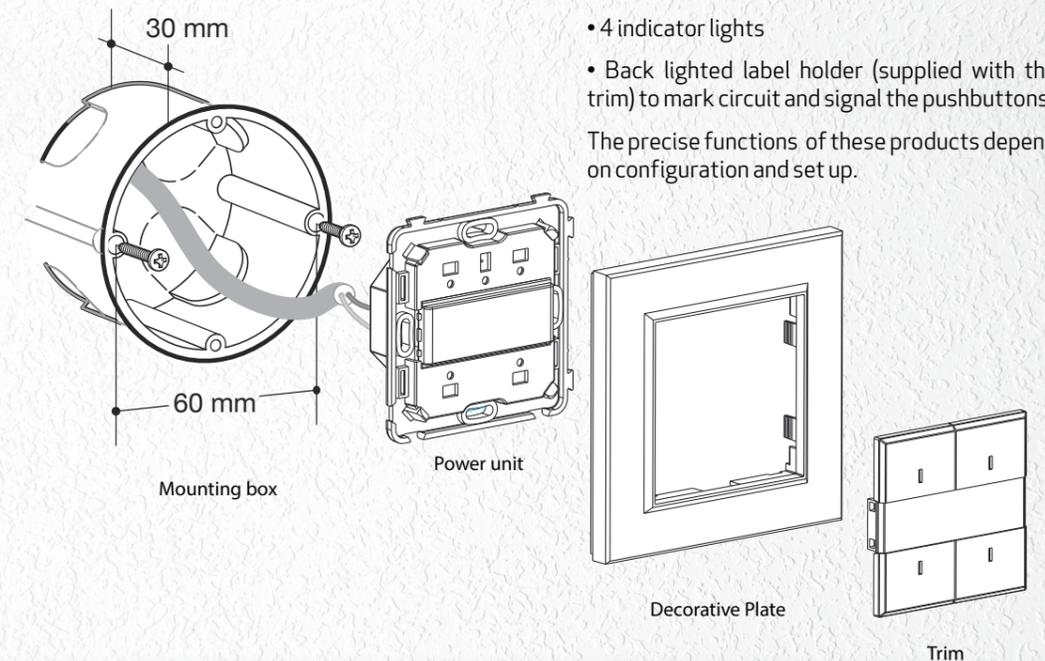# Smart switch with LED
4-button
MSW0004-PL

With the Makel KNX switches you can experience the comfort of a smart home. Makel KNX switches have a wealth of application features like classic switching, dimming, blind and curtain control, HVAC, alarm features, stage and priority selections and jamming. The system is available with selection of 2 to 8 channels, status indicators with led and label lighting.

MSW0004 PL pushbuttons are transmitters designed to control Smarthome output modules. They transmit orders for lighting, heating, shutters and scenarios via bus KNX/EIB.

They are used in conjunctions with trims MT0001-XX and in association with decorative plates Smarthome.

- 4 independent channels
- 4 indicator lights
- Back lighted label holder (supplied with the trim) to mark circuit and signal the pushbuttons.

The precise functions of these products depend on configuration and set up.

30 mm

60 mm

Mounting box

Power unit

Decorative Plate

Trim

Technical Characteristics	
Supply Voltage	30 V DC
Number of İnlets	4
Dimensions	73x73x20 mm
Protection Class	IP 30
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Busline Consumption	12,5 mA
Busline Connection	TG 08
Standards	NF EN 60669-2-1 NF EN 60699-1

Note:The shown frames are not included in the specified code.
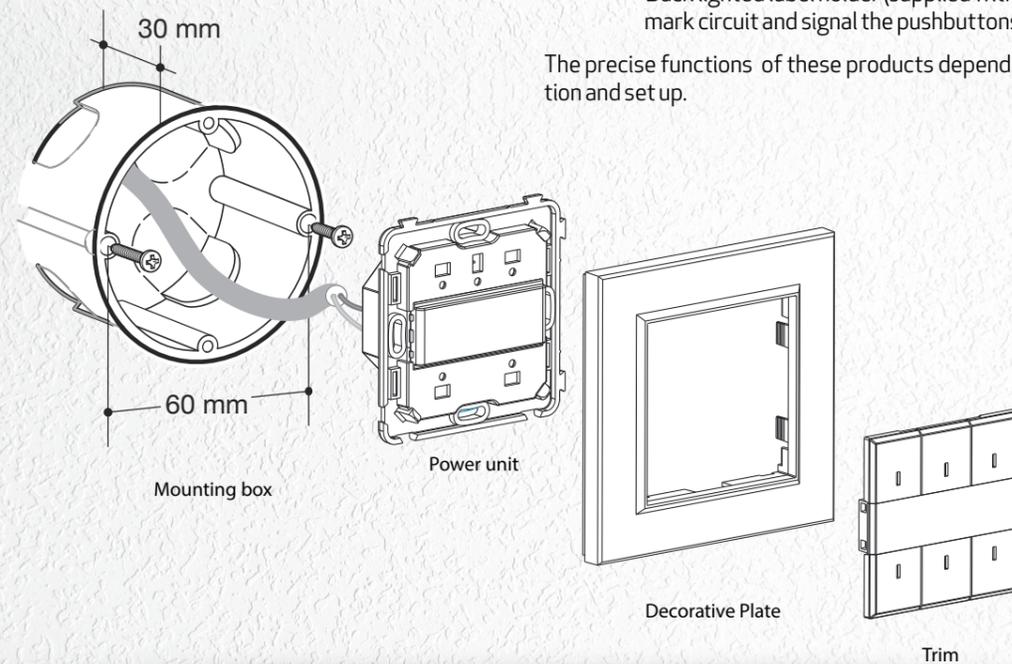
Smart Switch with LED
6-button
MSW0006-PL

With the Makel KNX switches you can experience the comfort of a smart home. Makel KNX switches have a wealth of application features like classic switching, dimming, blind and curtain control, HVAC, alarm features, stage and priority selections and jamming. The system is available with selection of 2 to 8 channels, status indicators with led and label lighting.

MSW0006 PL pushbuttons are transmitters designed to control Smarthome output modules. They transmit orders for lighting, heating, shutters and scenarios via bus KNX/EIB.

They are used in conjunctions with trims MT0001-XX and in association with decorative plates Smarthome.

- 6 independent channels
- 6 indicator lights
- Back lighted label holder (supplied with the trim) to mark circuit and signal the pushbuttons.

The precise functions of these products depend on configuration and set up.

30 mm

60 mm

Mounting box

Power unit

Decorative Plate

Trim

Technical Characteristics	
Supply Voltage	30 V DC
Number of İnlets	6
Dimensions	73x73x20 mm
Protection Class	IP 30
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Busline Consumption	14,5 mA
Busline Connection	TG 08
Standards	NF EN 60669-2-1 NF EN 60699-1

Smart Switch With LED
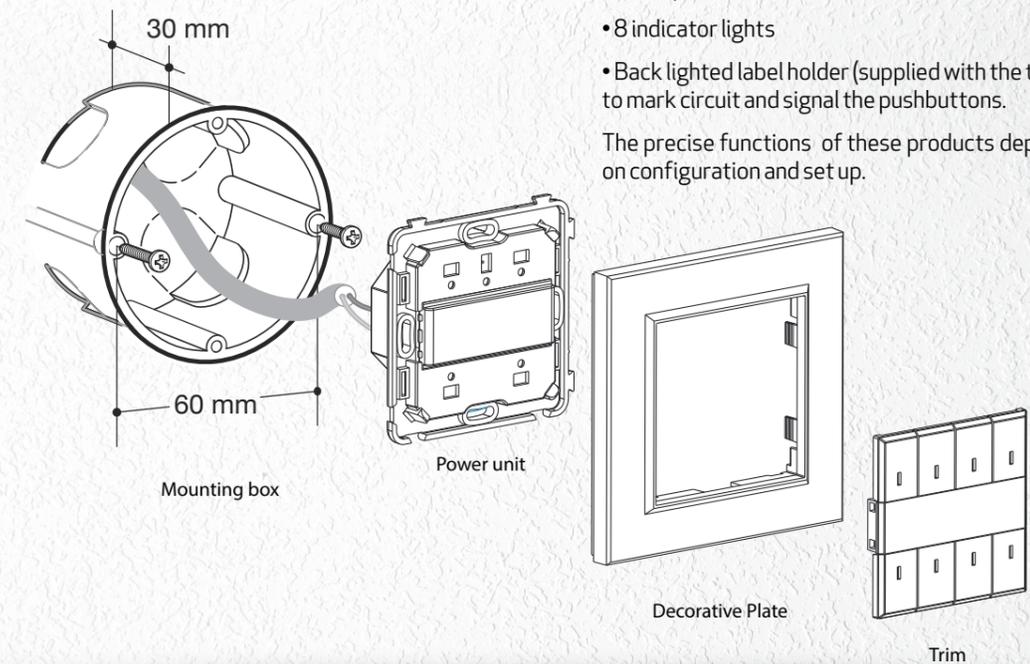# 8 button
MSW0008-PL

With the Makel KNX switches you can experience the comfort of a smart home. Makel KNX switches have a wealth of application features like classic switching, dimming, blind and curtain control, HVAC, alarm features, stage and priority selections and jamming. The system is available with selection of 2 to 8 channels, status indicators with led and label lighting.

MSW0008 PL pushbuttons are transmitters designed to control Smarthome output modules. They transmit orders for lighting, heating, shutters and scenarios via bus KNX/EIB.

They are used in conjunctions with trims MT0001-XX and in association with decorative plates Smarthome.

- 8 independent channels
- 8 indicator lights
- Back lighted label holder (supplied with the trim) to mark circuit and signal the pushbuttons.

The precise functions of these products depend on configuration and set up.

30 mm

60 mm

Mounting box

Power unit

Decorative Plate

Trim

Technical Characteristics	
Supply Voltage	30 V DC
Q-nty of Inlets	8
Dimensions	73x73x20 mm
Protection Class	IP 30
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Busline Consumption	16,5 mA
Busline Connection	TG 08
Standards	NF EN 60669-2-1 NF EN 60699-1

*Note:The shown frames are not included in the specified code.*

Note:The shown frames are not included in the specified code.

Smart Switch With LED Thermostat 6 button
MTH0006

- ou can find all of the features of a thermostat with a 6 channel switch and temperature control in the Makel thermostat switch. The stylish useful screen allows you to see the temperature of your room instantly and keep it under control.
- The WTH0006 multifunction thermostat with display allows the inside temperature to be regulated and other applications to be controlled in various modes.
- Room thermostat for heating and cooling installation
- PID regulations
- Back lighted LCD display
- Display of room temperature, current mode and its set-point.
- 4 or 6 pushbuttons and 6 indicator lights 8depending on use) that can be used to control lighting circuits, shutter control, scenarios.
- Backlighted label holder
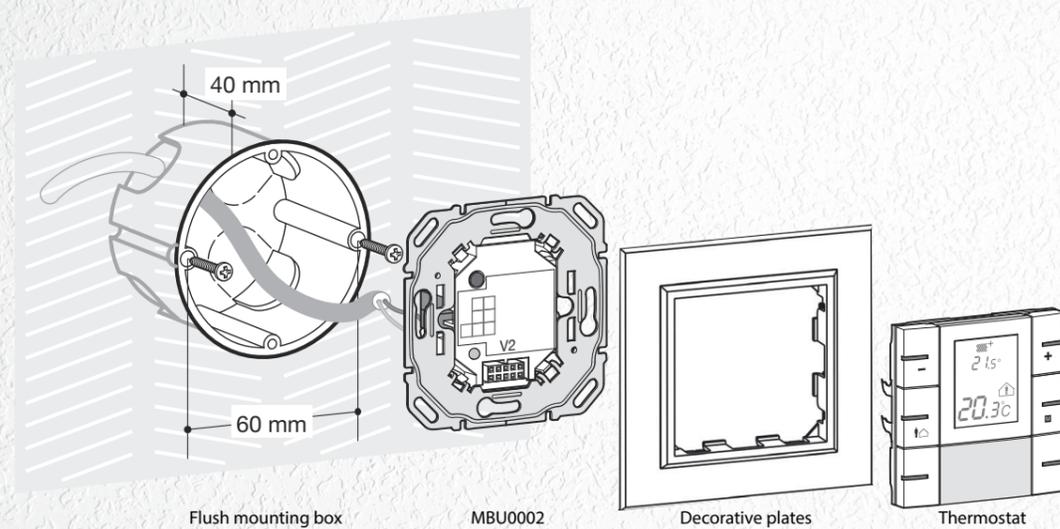
Flush mounting box	MBU0002
Decorative plates	Thermostat

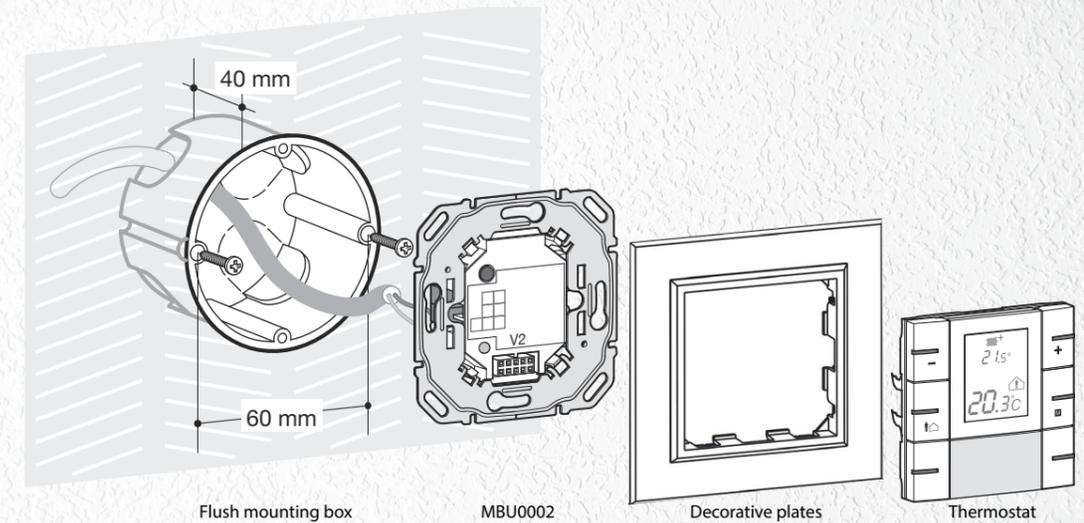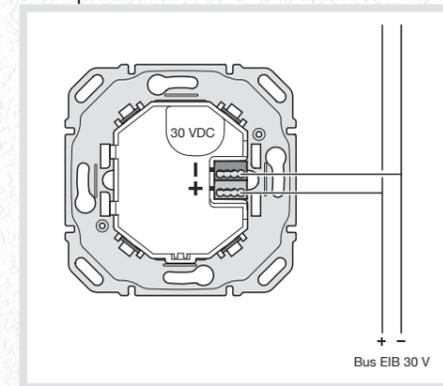| Technical Characteristics	
Heating set-point setting range	5 → 30 °C
Cooling set-point setting range	10 → 40 °C
Room T° display range	0 → 45 °C
Supply Voltage	30 V DC
Bus Line Consumption	9,5 mA
Operation Temperature	-20 °C → +70 °C
Storage Temperature	-20 °C → +70 °C
Protection Class	IP 20
Standards	NF EN 60730-1 NF EN 60730-2-9

Note:The shown frames are not included in the specified code.

Makel Termostat BCU
MBU0002

Makel Thermostat BCU units are installed under Makel Thermostat products to connect the products to the KNX system.

Mechanism MBU0002 is component basic system of Smarthome installation. ıt is connected on bus EIB/KNX via its connector (red/grey) and is interfaced with a module of application using a connector '10 point'.

Bus EIB 30 V

Flush mounting box	MBU0002
Decorative plates	Thermostat

Technical Characteristics	
Supply Voltage	30 V DC
Operation Temperature	0 °C → + 45 °C
Storage Temperature	- 20 °C → + 70 °C
Standards	NF EN 60669-2-1 NF EN 60699-1

MAKEL

SMARTHOME

A.Ç. VİLLA
(GAZİANTEP)

T.T. EVİ (ALANYA)

KILIA ŞILE
MANSIONS
(ISTANBUL)
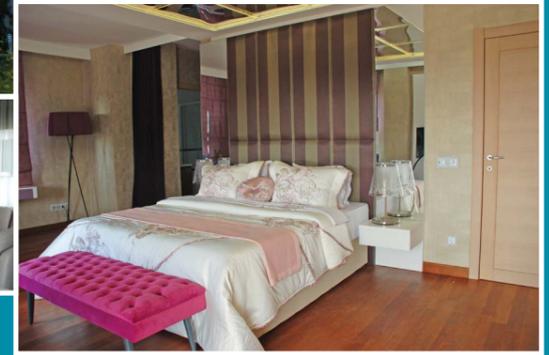
BEYOĞLU
MUNICIPALITY
(ISTANBUL)

DEMİR LA VİDA
(ISTANBUL)

REFERENCES

MAKEL

SMARTHOME

MAYAVERA VİLLALARI S.C.
VİLLA (ISTANBUL)

M.K. VILLA
(KONYA)

SULTANBEYLI STATE HOSPITAL
(ISTANBUL)

ANTALYA COURT HOUSE

MURATBEY CUSTOMS OFFICE (ISTANBUL)

WYNDHAM GRAND KALAMIŞ MARİNA HOTEL (ISTANBUL)
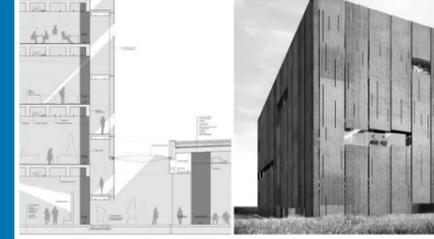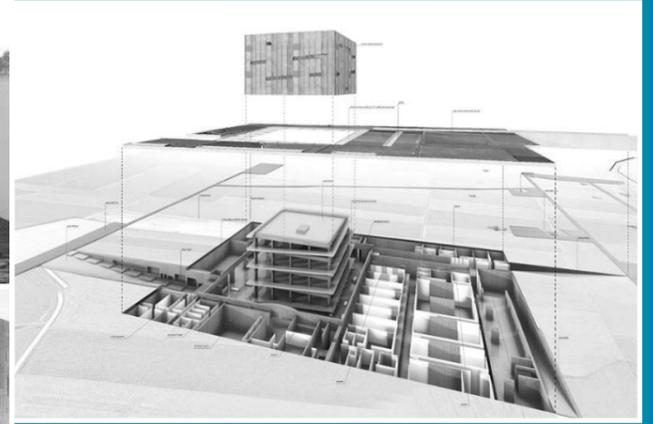

SULTANBEYLİ SHOPPING CENTER (ISTANBUL)

REFERENCES

A.Ü. VILLA
(İZMİR)

TRON MUSEUM
(ÇANAKKALE)

LMR YACHT
(İSTANBUL)

S.M. VILLA
(ISTANBUL)

MAKİSSOS TERMAL
OTEL & SPA
(KIRŞEHİR)

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