

# Lighting control

Modern project solutions for houses and buildings





# ELKO EP, Holding

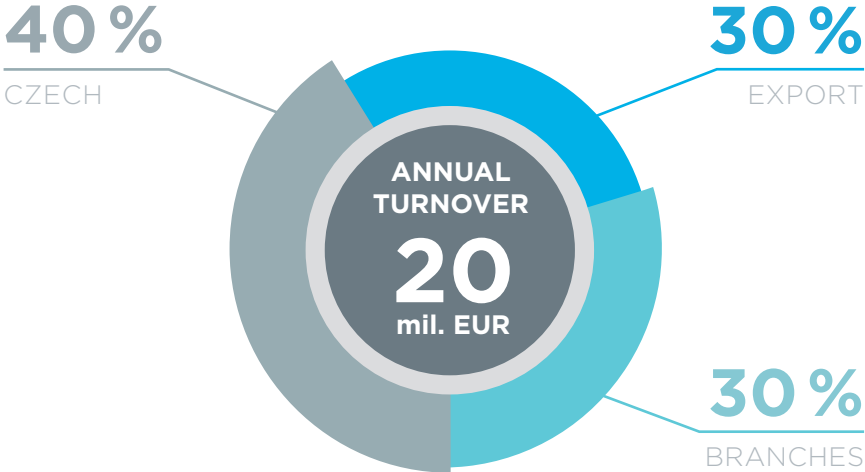
The company ELKO EP has been one of the leading European players in the field of residential and industrial electrical devices for more than 25 years. Since 2007, the company has been developing and producing its own system of Smart Home & Building Solutions called iNELS.

At present, ELKO EP employs nearly 240 people, exports to 70 countries around the world and already has 16 foreign branches. The company is justly proud to produce its own components, and to have its own development and innovation of new products. It is also able to offer its customers instantaneous distribution and rapid, flawless service. The company became the Company of the Year in 2012 and was awarded one of the TOP 100 Czech companies.





# Facts and Stats



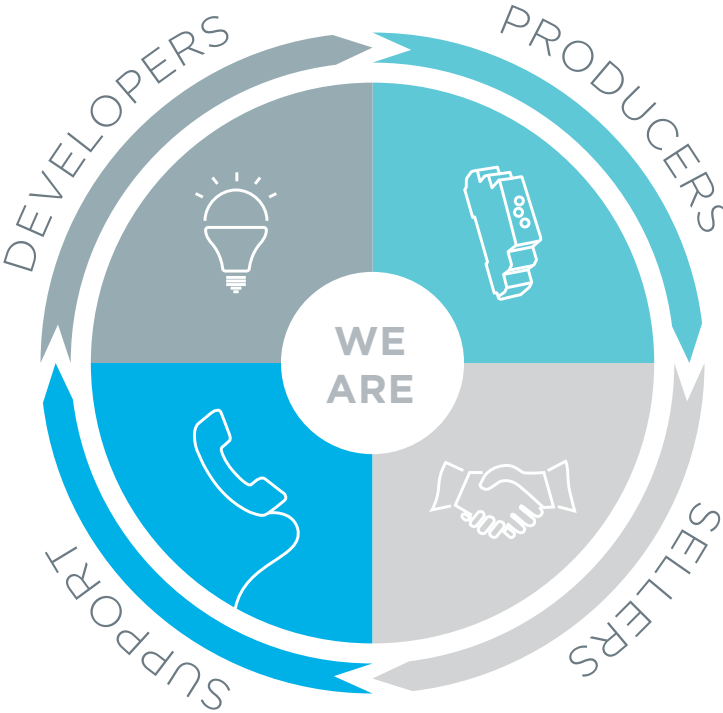
**16**  
BRANCHES  
OVER THE WORLD

**70**  
EXPORTING  
COUNTRIES

**240**  
EMPLOYEES

**5 000**  
INELS INSTALLATION

**12 000 000**  
MANUFACTURED PRODUCTS





# Why control the lights?

**The utilisation of correct lighting (natural, artificial or a combination of the two) is extremely important because all types of lighting impact on a wide range of human actions. Some of which are essential for the physical and mental wellbeing and can greatly affect human health.**

Therefore, in general light can affect and control the biological rhythm of the human body, and subsequently it is extremely important to pay adequate attention to the lighting design. Equally important, however, is the choice of a control system that can respond to various stimuli such as the current intensity of sunlight, the movement of people or a specific time of day.

The iNELS solution has a number of options to adjust the light to achieve the desired level of brightness, to choose the color of light within the RGB color model, choose the correct temperature light (on a scale from cool to warm white). The aim of regulation is to achieve maximum efficiency and to operate the lighting system to achieve comfort and savings simultaneously.



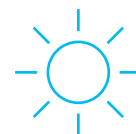
## Savings

Highly energy-efficient operation while achieving maximum light comfort cannot be achieved without the perfectly designed control system. A range of measures also increases the comfort and use of the space which can achieve energy savings in the tens of percent's.



## Comfort

A properly designed control system gives users tremendous comfort control. Some functions are performed completely automatically; sometimes the user is only required to press one key. Another benefit is the possibility to control the system remotely through mobile applications or computers.



## Natural Light

Natural light has a positive effect on human physiology and contributes to energy savings. The control system suppresses the artificial lighting based precisely on the magnitude of the volume of natural light from the exterior. This is achieved by installing the appropriate sensors.





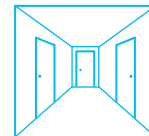
## Brightness control, color and temperature

The lighting control has long since surpassed the inadequate function of just on or off. The iNELS control system allows according to the current user's request to automatically or manually change the intensity of the light, the color of light within the RGB light scale or the temperature range from warm to cool white.



## Scenes and time functions

Whether it is a family home in which you press one button to adjust the atmosphere to watch a movie, or warehouse, in which lighting is suppressed during breaks in order to realise considerable energy savings. iNELS offers these possible solutions. Customization options to the investors requirements are huge.



## Corridor Function

The corridor function reflects the installation of deploying a controlsystem that brings comfort and economy at the same time. It is used e.g. In hallways with a minimum intensity of natural light, warehouses between racks or wherever is appropriate that artificial lighting is not turned off completely.



# Options for Dimming Lights

The iNELS system provides fully comprehensive solutions, which makes it possible to control and dim all kinds of loads, from incandescent light bulbs with tungsten filament to halogen bulbs and up to the increasingly topical LED light sources. Control is made possible thanks to the wide range of dimmers to regulate their own light sources. A full range of units, controlling ballast 0(1)-10 V analogue signal or digitally via DALI or DMX.

You can choose from many dimming or switching components, which are manufactured in various designs. You can use various components, to be installed in an installation box in the wall, DIN rail in a control cabinet or socket.

## Types of light sources (loads):



### R - Resistive

Resistive load, the resistive load is most commonly seen in traditional bulbs. The whole process operates on the principle of heating a thin, typically tungsten filament, which the electrical current flows through.



### L - Inductive

It is an inductive load, which is characterized by particularly low voltage (12-24 V) Halogen lamps (i.e. Halogen), which are controlled by a coil transformer, whose principle is to pass voltage through the coil.



### C - Capacitive

It is a capacitive load, which characterizes particular bulbs, fluorescent or halogen lamps controlled by an electronic transformer. The principle of electronic ballast, with which the lamp is switched on or off.



### ESL - Energy Saving Lamp

Also known as a compact fluorescent lamp. The principle is that of a glass tube with the heating electrodes filled with mercury vapor through which discharge occurs.



### LED - Lighting Emitting Diode

The semiconductor electronic component comprises of a P-N junction that emits light. Recently, a frequently requested type of lighting, which, thanks to low power consumption and easy manageability replaces the previously used conventional light sources.

LED bulbs (in sockets GU10, GU5.3, E27 or E14) / LED strip / Industrial LED Lighting / LED down-light and panels / LED tube.



## Types of Communication (Interface):

### DALI

#### DALI (Digital Addressable Lighting Interface)

Digital communication BUS developed to control lighting. It is an open protocol and international standard, which ensures compatibility with dimming ballasts from different manufacturers. The biggest advantage of DALI solutions is the possibility of individual settings for each light with very simple topology cabling. It is also possible to conduct BUS communication in parallel with power lines.

### DALI dt 8

#### DALI (device type 8)

DALI8 utilizes all the advantages of the standard DALI BUS but also offers far greater opportunities in resource management with adjustable color temperature. Within one address information regarding temperature chromaticity (color temperature) and the desired intensity can be transmitted.

### 0-10V

#### Analog signal 0(1)-10V

Analog control method of ballasts 0(1)-10 V using voltage signals is very reliable solution that is appropriate for smaller installations. In larger installations, this method of management requires an intensive amount of cabling.

### DMX

#### DMX

Analog signal 0-10 V DMX512 (Digital Multiplex) is a protocol for the digital transmission of control information; it is most frequently used for stage lighting and effects. Within the building, due to DMX it is easy to solve problems with color changes such as restaurants, spas, relaxation areas or facades of buildings.

### PWM

#### PWM (Pulse Width Modulation)

Pulse Width Modulation or PWM is a method that utilizes the binary signal (log. 0 and log. 1) to regulate e.g. Brightness of LEDs. Important parameters are the frequency and duty cycle.

### BUS

#### iNELS BUS Installation

Two-wire installation BUS with free topology cabling used to connect peripheral modules iNELS BUS to the central unit. Using these switching and dimming modules produces effective control systems bringing the desired comfort and savings.

### RFIO

#### RFIO Wireless Protocol

ELKO EPs' proprietary wireless protocol. Runs at a frequency of 868-915 MHz (according to regulations and standards in the country). Reliably transmits small data packets at transfer speeds up to 100 kbit/s and is completely free or license free. RFIO protocol can be integrated with other wireless communication protocols and platforms.

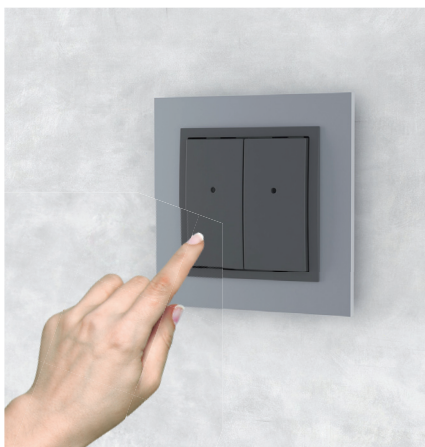


# Different ways to control the lighting

**Lighting control via iNELS can utilize a wide range of options within the wireless and BUS wiring solutions. It is up to the user to choose which concept to use.**

The concept is selected primarily according to the planned scope of wiring and the type of building in which lighting is controlled. Alternatively it is necessary access the lighting design and the access control system in the apartment, restaurant, wellness center, an office building or hotel.

The greatest advantage of the iNELS solution is its flexibility, which allows investors to modify the concept of control without costly and often complicated intervention to the buildings structure. In general, it is possible to control using the following options, which can be combined to create several levels of control from a very simple local control of wall switches or via touch panels e.g. Used in meeting rooms, and then through an application for smartphones or tablets, to web applications giving a truly complete oversight and allowing management of the whole building.



## Wall Controller

Pushbutton controllers are available in wireless and BUS design and allow switching, dimming or the choosing of any lighting scenario. The great advantage is the possibility to change their functions without any building intervention.



## Keychain/ Remote Control

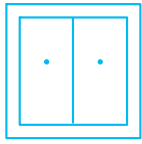
Very popular wireless controller in your pocket is a key fob with four buttons. A more comprehensive device is a remote controller with an OLED display, which can control up to 40 light fittings and 10 scenarios.



## Touch Panel

Touch unit with color 3.5" TFT display is available in wireless and BUS design and as well as pushbutton controllers are part of the LOGUS<sup>90</sup> design series. Graphical interface is customizable.

## iNELS system lighting controllers:



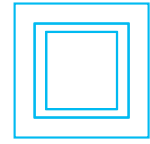
wall controller



keychain



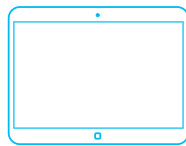
remote control



touch panel



smartphone



tablet



PC



sensors and detectors



### Sensors and detectors

Sensor controls light intensity illumination system automatically based on the contribution of natural light from outside. Motion detectors with the corridor function are also used to increase the comfort.



### Smartphone/ Tablet

iHC applications for smartphones and tablets are used to control the entire lighting system (and possibly all other technologies in the building) both centrally and remotely through Internet. Apps can be downloaded for free at Google Play and App Store.



### Building management system

The communication driver can connect iNELS to BMS platform Niagara and create a truly extensive control system across the building. System management is possible from one place, and the system automatically sends notifications about past events.



# Automatic regulation

Maintaining a constant level of illumination with regards to the volume of natural light in the office or warehouse hall undoubtedly brings many benefits to both the operator of the building, as well as users of the space. Likewise the lighting control is based on information about the movement of people, sunrise or sunset, or using any applicable timetables.

Long ago it was necessary to choose comfort or savings. Modern control system helps achieve both, i.e. maximum comfort while maximizing the most efficient operation. This requires information about the current state of the environment. Information obtained through various sensors and detectors, and on this basis the behavior of the system can be customized so that it is a natural part of the building.

## Control units for lighting regulation

Separate units that are not connected to the system BUS. Their function is selected via potentiometer or DIP switches.



### Twilight and light switch

SOU-3

Twilight and switch light switch is used for switching on or switching off of lights when there is an increase or decrease the intensity of daylight below or above the required level. Thanks to the outdoor design they are often used to control exterior lighting or public lighting.



### Automatic light intensity controller

LIC-1 + sensor SKS

Automatic control maintains the illuminance value set for lighting in the room, thereby significantly contributing to energy savings. It is equipped with direct output for controlling LED, ESL and RLC lighting.



### Automatic light intensity controller

LIC-2 + sensor SKS

Serves as an automatic lighting regulator in the room for dimmers and electronic ballasts with analogue voltage control signal 0-10 V or 1-10 V.



## BUS sensors and detectors

System units that are connected by low-voltage BUS iNELS or DALI. Thanks to the mutual communication the control system is more efficient and brings more possibilities and advantages.



Motion detector

DMD3-1

Motion detector is designed for installation in the ceiling and is also equipped with an illuminance sensor. The device can communicate through BUS DALI or iNELS.



Light intensity sensor

DLS3-1

Illuminance sensor measures the illuminance levels at the site and helps to regulate the lighting intensity of artificial light. The device may communicate through BUS DALI or iNELS and is done with outdoor coverage.



Wireless motion detector

RFMD-100

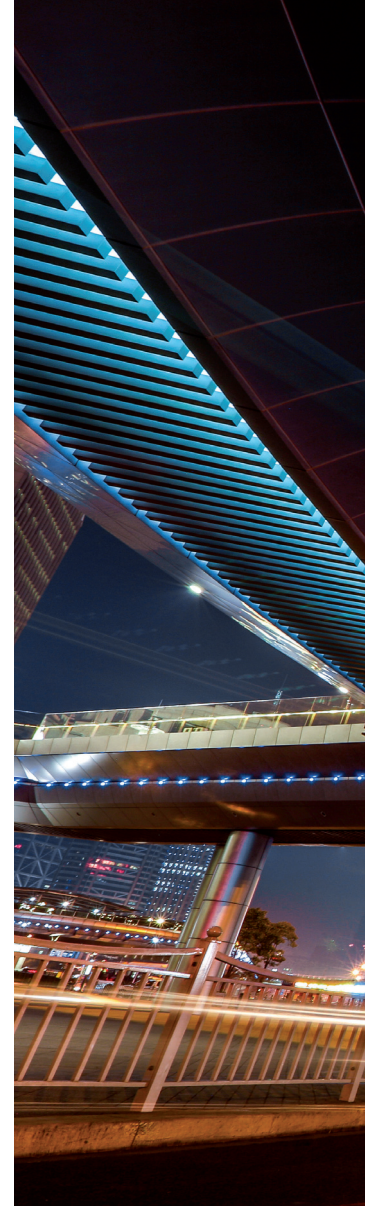
Motion detector RFMD-100 is designed for installation on the wall. It is a battery-powered wireless device equipped with an RF communication module.



# What are building lighting control systems designed for?

**Due to its modularity and topology iNELS is a very flexible solution for every buildings or property from small apartments to large warehouses. All this is possible thanks to the entire spectrum of dimmer components converters for analogue and gateways for managing digital signals.**

iNELS is specifically used in projects located in flats, apartments, family houses and villas, restaurants and bars. iNELS has further proven a solution for wellness centers, museums and galleries, also chateaus as well as commercial premises such as shops, offices, conference rooms or lecture halls. A separate chapter is room solutions, starting from smaller pensions to truly vast complexes. The biggest savings iNELS brings is in the management of warehouses and light industrial buildings.



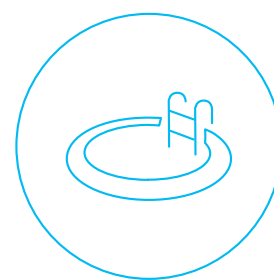
## Home

In the home it provides a simple way of controlling lighting scenarios for various activities via a single button via wall controller or application on your smartphone or tablet.



## Commercial

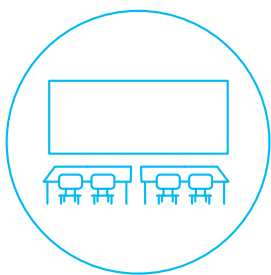
Within the commercial sector it represents a management system automating the processes associated with the right atmosphere not only in terms of opening hours, but also outside. You can also control exterior lighting.



## Wellness

As part of wellness light atmosphere is very important, and therefore it is important that operators have an instant overview of the current scenarios at reception, which can also be fully automated.





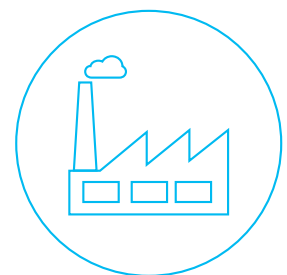
## Schoolroom

In the context of educational lecture rooms system provides an easy way to recall perfect scenario for lectures, presentations or screenings by one touch.



## Office

Long-term employee satisfaction, is amongst other things associated with quality lighting in the workspace. It is a trend to save energy and money through the use of natural light from outside.



## Production halls

In halls it is effective to use DALI communication that brings the best cabling topology and in connection with iNELS allows energy savings thanks to sensors, time schedules and other processes which can be supervised centrally.



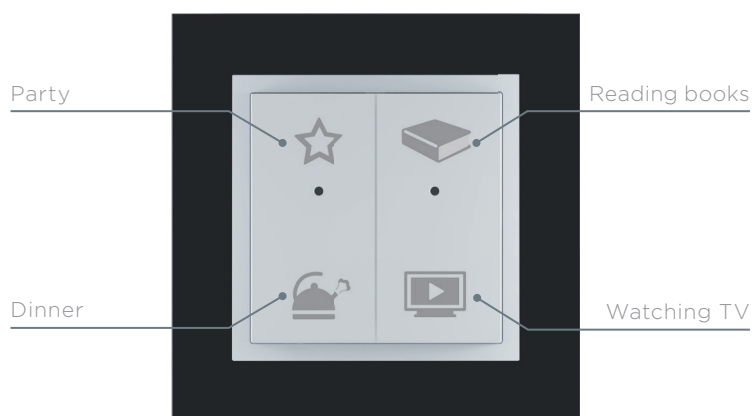


# Apartment

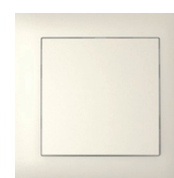
**Different times require different atmospheric lighting. Thanks to modern wiring changes can be made with a single touch.**

From an early morning wake up to after going to bed in the evening and even during the night. Throughout the day, proper lighting is essential in any household, whether it is for reading a book, relaxing, dinner with your family or watching television. Choose the appropriate solution with the help of simple controls e. g. Night corridor for a child going to the bathroom or an exit function, or turn off everything by pressing.

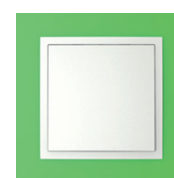




BASE



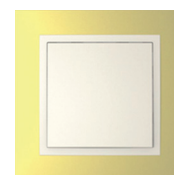
AQUARELLA



ANIMATO



CRYSTAL



METALLO



ARBORE



PETRA

## Switches

Design LOGUS<sup>90</sup>

The design product series LOGUS<sup>90</sup> offers a wide range of flips of different materials and frames of different materials (plastic, metal, glass, wood, granite), which can be combined. On request it is possible to print symbols on the flips for easy control.



# House and garden

**The options for lighting solutions for the interior and exterior of the house are virtually limitless, as well as the control possibilities. iNELS wireless solution is suitable for reconstructions in which you can not excavate into the walls and adapt existing wiring or field BUS solution that is ideal for the implementation in a new house.**

It's up to the user whether to embark on a wireless solution suitable for renovations, during which they cannot hack into the walls and adapt existing cabling, or whether they will choose the BUS solution, which is recommended when installing in their new house. Simple is good. So it is with both types of wiring with the emphasis on a more intuitive operation bringing the desired comfort. One of the most prized customer advantages of modern wireless or BUS wiring is the possibility of controlling the house and how the family gradually adapts and gets used to it. Without having to intervene in the construction.

Take advantage of the features controlled lighting, driveway lighting, scenarios in exterior and interior utilization using white or colored lighting, features the entrance and exit button, choosing the intensity, color temperature and illumination function or presence simulation at a time when no one is at home. INELS system is completely open to every request and desire.



Touch panel

EST3

Touch panel with 3.5" LOGUS<sup>90</sup> display designed to centrally control the whole house from the temperature setting via control blinds, to a complete choice of light scenarios (even in combination with shielding techniques) to induce the necessary atmosphere.



Keychaing

RF Key

Wireless transmitter equipped with four buttons allows you to switch and dim lighting, choose lighting scenarios but also control the irrigation or the entrance gate.











## Hotel room

**The right atmosphere helps create an environment where guests feel comfortable and relaxed. Equally important it also offers guests easy control of the entire room, which is not confusing and which in turn contributes to their overall satisfaction.**

Unfortunately, we probably all know the feeling when on a business trip, after a day full of challenging business negotiations, you finally get into bed with the feeling that the closest switch will turn off all the lights in the room. On the contrary, it turns the wrong light. The only thing left is to get up again and go in search of the right switch. Elegant glass control panels iNELS in various colors enable the customization of the symbols regarding the specific function. It greatly simplifies and helps the guests to find the right buttons.

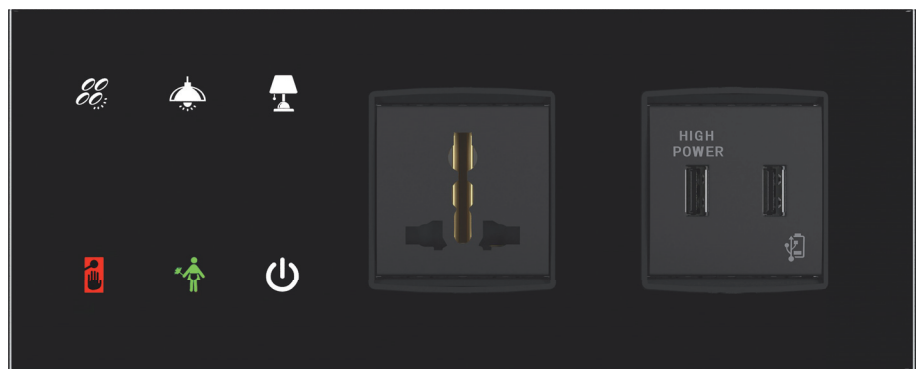




## Touch panel

EHT3

The hotel touch panel with a 3.5 "display, designed specifically for the needs of hotel guests, enabling temperature control, lighting, music and information "Do Not Disturb" and "Make Up Room".



## Glass Bedside Panel

GBP3-60/B, GBP3-60/W

Multifunction controller designed to be installed near the bed for control of predefined functions and scenarios, such as Master OFF. It allows also easy charging for portable devices.

# Commercial

**It is not only the quality of products, the access and service on the part of traders and the environment in which they are presented that attracts customers to the products or services offered – today, all these aspects play an important role in gaining favor with the customers. The illumination color and its intensity directly affect how the customer reacts to the products.**

An appropriate management system helps these relatively complex and at first glance complicated lighting systems to be controlled simply and intuitively, sometimes even interactively. The simplest job in the commercial sector is switching on or off a neon sign on a scheduled basis or at dusk and dawn. The modern solution that iNELS offers goes much further and controls features via the touch unit that allows the operator to simply select the required lighting scenarios from one place.

For an interactive method of selling an invaluable aid is the tablet application iHC intended for lighting control. The controls are very intuitive and interpretation of its use is very natural. Less conspicuous solution can also be a wireless remote control. Especially in areas where there are often changes in interior layout a wireless solution is suitable this allows you to respond to these changes without unnecessary costs.



### Touch panel

RF Touch

Wireless touch unit with 3.5" TFT display. Can control up to 40 lighting circuits. Choice of design according to the interior.



### Wireless controller

RF Pilot

Remote control for controlling up to 40 different wireless components for switching, dimming or choice of colors of light, option to choose scenes on the OLED display.



### Controller RGB strips

RFDA-73M/RGB

Dimmer for either RGB or three monochrome LED strips with PWM control outputs. Control of the dimmer is possible by wireless controllers or analogue voltage signal 0(1)-10 V.









## Boardroom

**The conference room is a space in which the design now has the emphasis on quality interior, but also for technical equipment, including the lighting system.**

Due to the many uses of conference rooms (meetings, presentations, projection, videoconferencing, etc.) this requires specific lighting conditions, it is necessary to create a flexible lighting system with which it is possible to operate, intuitively and naturally. In practice, this means to be able to recall a preset scenario with one click of a button or icon symbol indicating a specific function.

iNELS allows all this while elegantly solving the location of the controller on the glass wall of the room – using the sleekly designed wireless controller.





## Switching actuator

SA3-06M

Multi-channel switching actuators allow easy creation of flexible lighting systems in which the change in a range of scenarios requires only software changes without the need to physically intervene in the cabling.



## Control via tablet

iHC application

The current trend in controlling is the use of the tablet's built-in dock on a wall or desktop, the application also allows control of temperature, projector, screen and other technology in the room.



# Restaurant

**The feeling resulting from visiting the restaurant is influenced not only the food itself but also the overall atmosphere of the interior, to which light and music adds to the natural atmosphere.**

iNELS can be controlled down to the last detail, and so actually both manages and indirectly enlivens the experience of the evening.

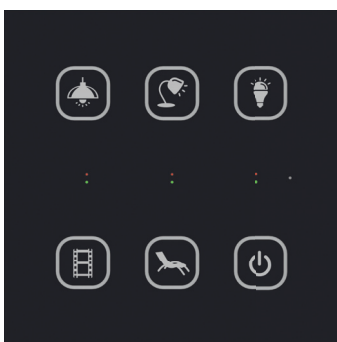
Using a central, highly intuitive and user-friendly operator interface, offers staff an ideal tool to change the atmosphere to suit the different evolving requirements depending on thematic focus of the evening and the chosen music genre. It is also possible to control the music in individual zones.



## Control by tablet

iHC application

Tablet in a docking station located at a suitable location gives staff an easy way to control all scenarios and eliminates the confusing quantity of controllers for the individual circuits.



## Touch panel

GSB3-60

Glass controller different color versions and designs, white and black colors with LED, integrated temperature sensor and a choice of laser printing.



## Dimmer controller

DIM-6

Power dimmer for loads up to 2 kW (expandable up to 10 kW). Can dim RL and RC load and can be controlled by potentiometer or signal 0(1)-10 V.





# Wellness

**Imaginative, enjoyable and intimate lighting, each belongs to the relaxation center. Perhaps no other place offers so much space for creating elegant color scenarios. They contribute greatly to evoke the relaxing atmosphere which visitors are looking for in wellness.**

But a number of different types of light source to control and vary color and intensity? And even within a single script? And how to solve the situation where it is necessary to modify some of the scenarios, without the need to intervene with the cabling?

The INELS solution is a system that can manage all types of light sources. It is able to manage via iHC placed on a tablet, e.g. In reception.





## Dimming actuator

DA3-22M

Universal dimming actuator for two-channel dimming LED, ESL and RLC loads. Maximum power consumption per channel 400 W.



## Dimmer RGB strips

RFDA-73M/RGB

Dimmer for either RGB or three monochrome LED strips with PWM control outputs. Control of the dimmer is possible by wireless controllers or analogue voltage signal 0(1)-10 V.

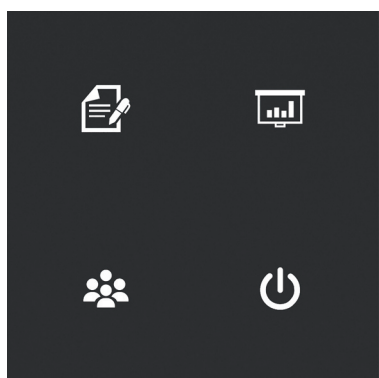


# School room

**Just as in office spaces as well as in classrooms and lecture halls the lighting design emphasis is on compliance with a wide range of parameters, which in turn significantly affects students and their concentration or activity during lessons.**

As for the natural lighting, artificial lighting applies to (and of course is associated with) illumination, different color (or color temperature) and intensities induce in humans various processes. With the appropriate choice, it is possible to promote creativity or vice versa concentration.

In addition, the management system also takes care of the most efficient operation and maximum savings energy. The building manager has a perfect overview of the whole system and can control costs by switching off lights where they are no longer needed, centrally and remotely. The system is supplemented by suitable detectors can even respond to these completely automatically without operator intervention.



Wireless controller

GSB3-40

Wall 4-channel wireless controller, in a glass design with LED display, powered by a 3 V CR2032 battery.



Automatic light intensity controller

LIC-2

Automatic control of light intensity, which maintains the set illumination of light in the interior, depended on exterior light levels.







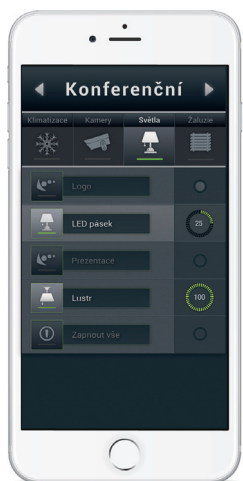
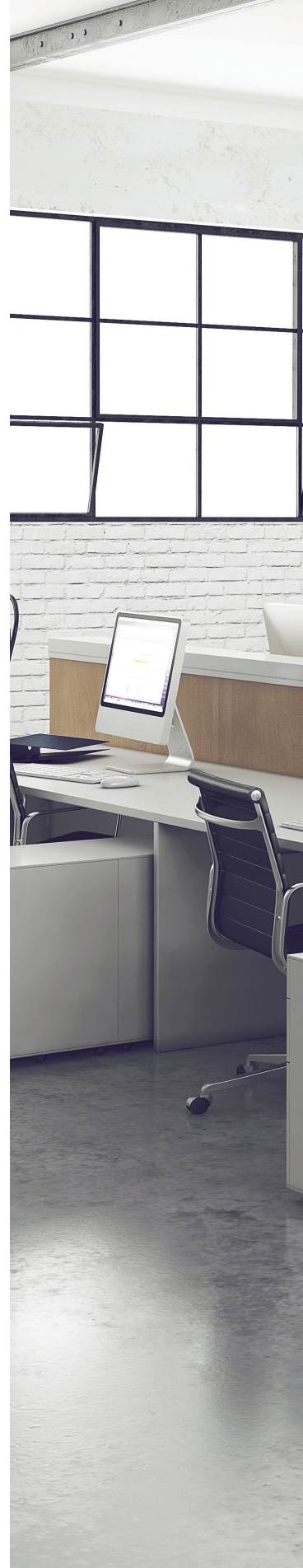


# Office

**Effective control of lighting in office areas plays an important role. As in the case of other areas the main goal is to achieve maximum comfort with the most efficient operation.**

An employee comes to work, signs in with his ID card and the lighting will adjust its luminous atmosphere with regards to the current outdoor and indoor lighting conditions to his requirements to allow him to do his job. Sounds too futuristic?

Today, it is the management of a constant level of lighting cluster, in which the intensity of illumination artificial lighting is adjusted based on the contribution from natural light penetrating windows, a standard deployed in nearly every renovation and the construction of new premises. Along with controlled shielding it can achieve the optimal lighting comfort and optimum thermal comfort, which are two important aspects of employee satisfaction, combined with the most energy-efficient operation.



## Control by telephone

iHC application

The trend in smart office buildings can also give users the option to customize the thermal and visual comfort near their desks from their smartphone.



## DALI light intensity sensor

DLS3-1

The Illuminance sensor is a very important element of providing information about the current illuminance, which is used for the most efficient operation of the entire system.







# Industrial halls

**Given the scale of lighting systems and their intensity energy use, the effective management of warehouse and production halls is a very important contributor factor to exciting energy savings.**

Installing sensors to control light intensity plays a fundamental and pivotal role in achieving savings. They help keep the light at a constant illumination; this involves the system transmitting information about the current contribution of natural light penetrating the exterior windows or skylights. This allows the reduction of the artificial lighting illumination intensity. This function allows the desired energy savings to be made.

In addition the iNELS solution in automatic mode can be combined with different schedules for weekly modes, weekend modes and maintenance etc.



## Control from one location

iHC application

Tablets or panels for the respective application allows easy switching, preset automatic modes or switch to manual control. Of course there is a distinction between user rights.





## Motion sensor

DMD3-1

Ceiling motion detector switches lights based on detecting movement inside. It is also equipped with a illuminance sensor for automatic regulation.



## Light intensity sensor

DLS3-1

The sensor enhanced to the degree of protection IP65 can be installed outdoors. It allows the capture of the current light intensity, thus further enables to solve tasks in order to save energy.



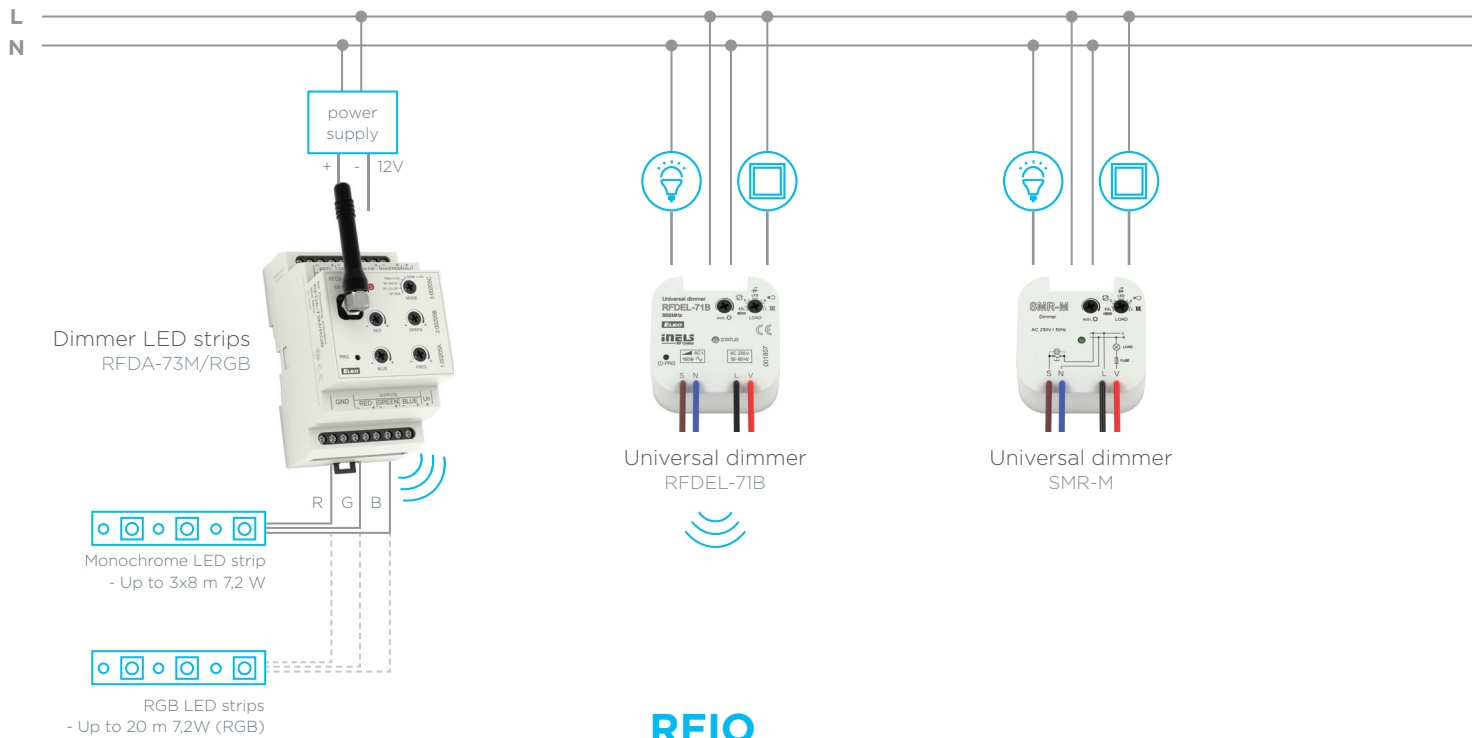
## DALI/DMX Converter

EMDC-64M

Gateway to communicate with the digital lighting ballasts. Up to 64 ballasts can be controlled from one gateway. Unit also supplies ballasts by voltage 16 V DC/250 mA.

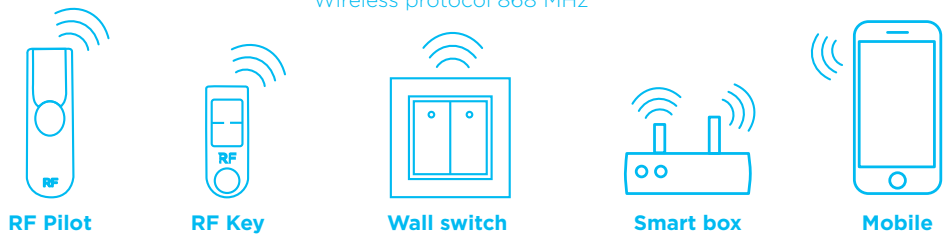


# Apartment



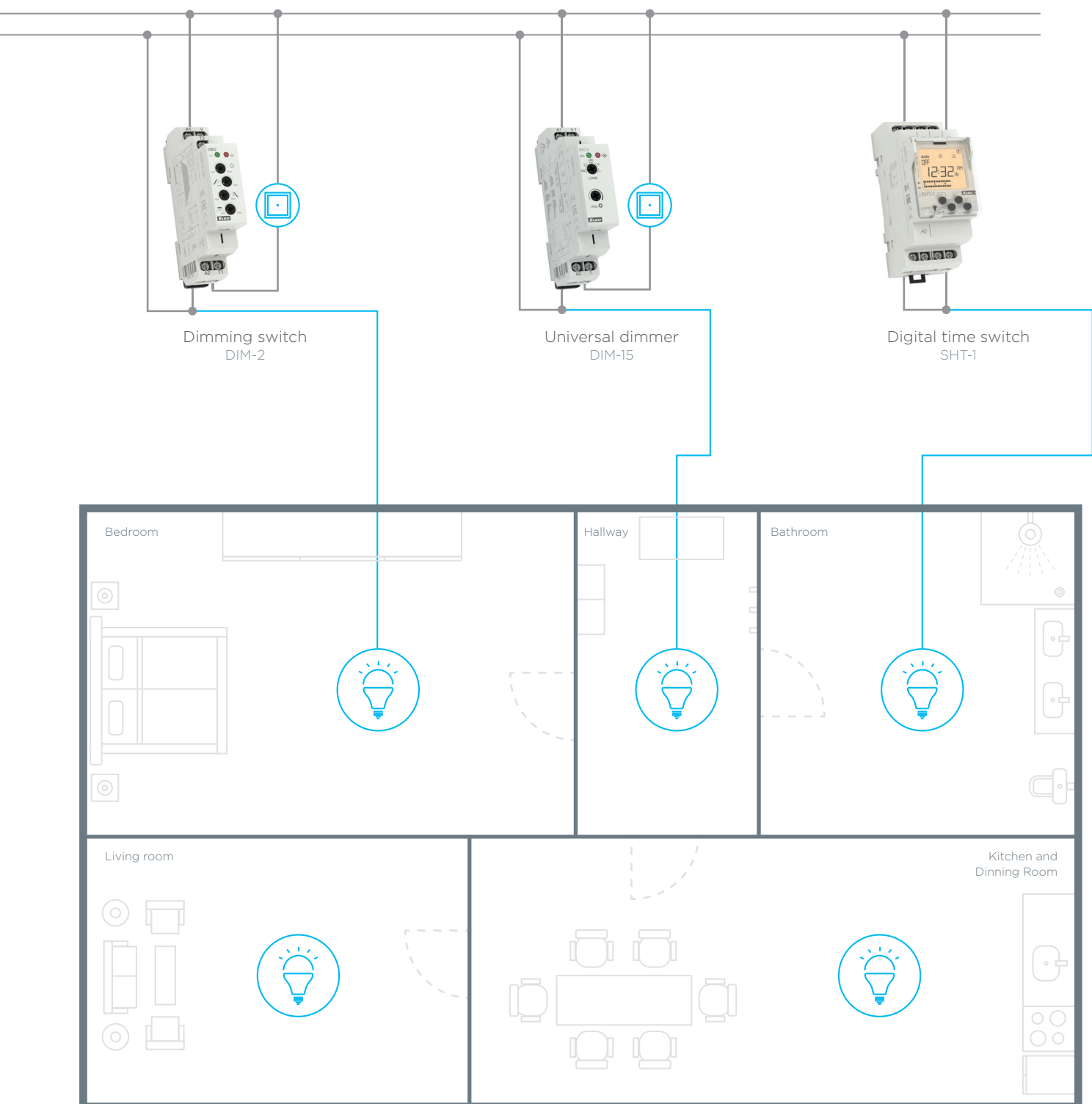
## RFIO

Wireless protocol 868 MHz



Type	Design	Power	R	L	C	ESL	LED	Output component	R	L	C	Dimm ON	Dimm OFF	0-10V / 1-10V
DIM-2	1M-DIN	AC 230V	●	●	X	X	X	triac	10 - 500 VA*	10 - 250 VA	X	●	X	X
DIM-5	1M-DIN	AC 230V	●	●	X	X	X	triac	10 - 500 VA*	10 - 250 VA	X	●	X	X
DIM-14	1M-DIN	AC 230V	●	●	●	X	X	2x MOSFET	500 VA*	500 VA*	500 VA*	●	●	X
DIM-15	1M-DIN	AC 230V	●	●	●	●	●	2x MOSFET	300 VA	300 VA	300 VA	X	X	X
DIM-6	6M-DIN	AC 230V	●	●	●	X	X	4x MOSFET	2 000 VA*	2 000 VA*	2 000 VA*	●	●	X
DIM-6-3MP	3M-DIN	AC 230V	●	●	●	X	X	2x MOSFET	1 000 VA*	1 000 VA*	1 000VA*	X	X	X
SMR-S	BOX	AC 230V	●	●	X	X	X	triac	10 - 300 VA*	10 - 150 VA	X	●	X	X
SMR-U	BOX	AC 230V	●	●	●	X	●	2x MOSFET	500 VA*	500 VA*	500 VA*	●	●	X
SMR-M	BOX	AC 230V	●	●	●	●	●	2x MOSFET	160 VA	160 VA	160 VA	●	●	X
LIC-1	1M-DIN	AC 230V	●	●	●	●	●	2x MOSFET	300 VA*	300 VA*	300 VA*	●	●	X
LIC-2	1M-DIN	AC 100 - 250V	X	X	X	X	X	2x MOSFET	X	X	X	●	●	●
RFDAC	BOX	AC 110 - 230V	X	X	X	X	X	1x 16A (10mA)	X	X	X	●	●	●
DAC3-04M		AC 100 - 250V	X	X	X	X	X	DALI - 64 DMX - 32	X	X	X	●	●	X

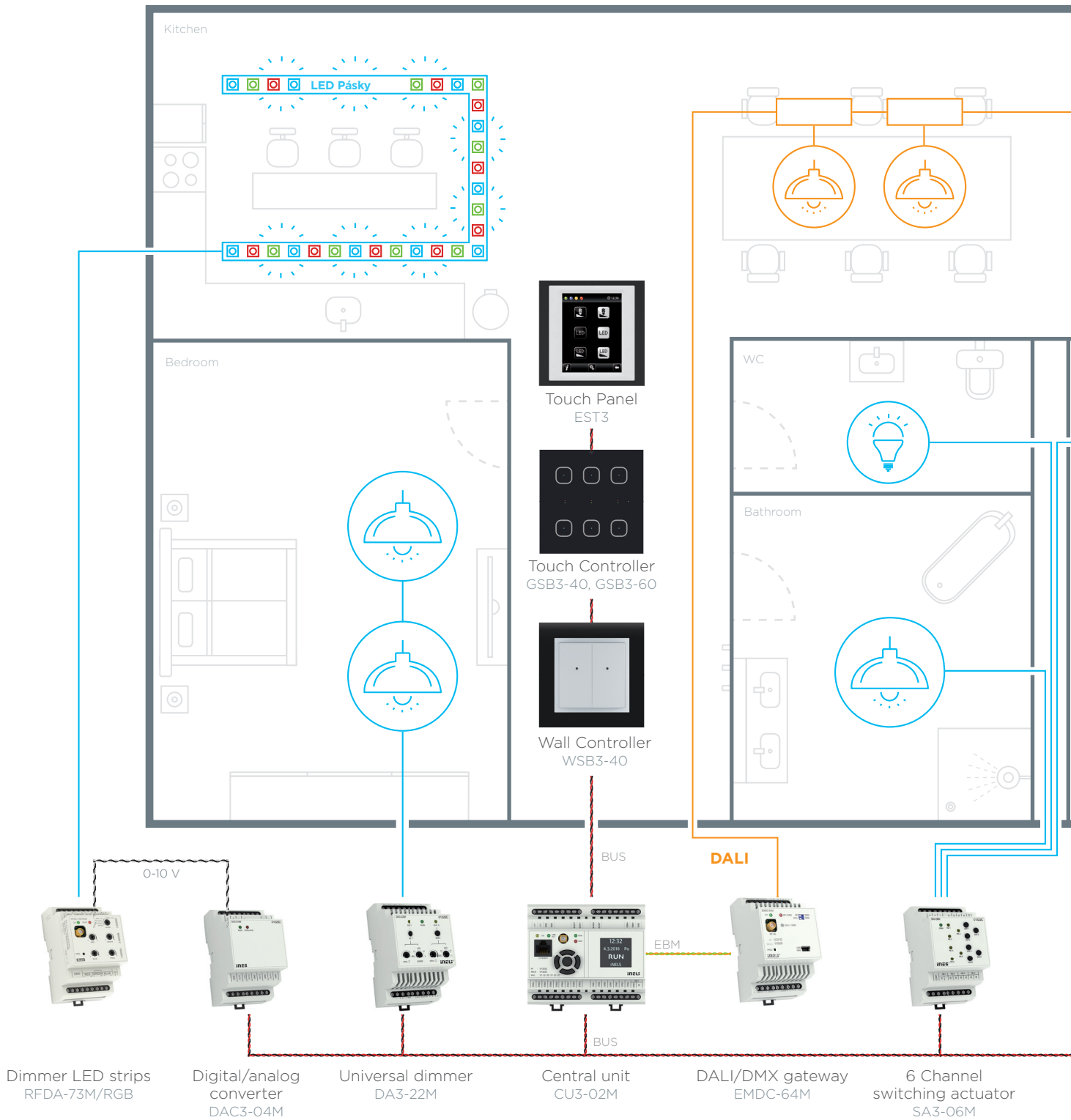
\* When load is above 300 VA it is necessary to ensure sufficient cooling



- control components of wireless applications
- turn off the lights with overrun time
- convenient control of RGB strips
- time switch illuminations on the basis of a set time

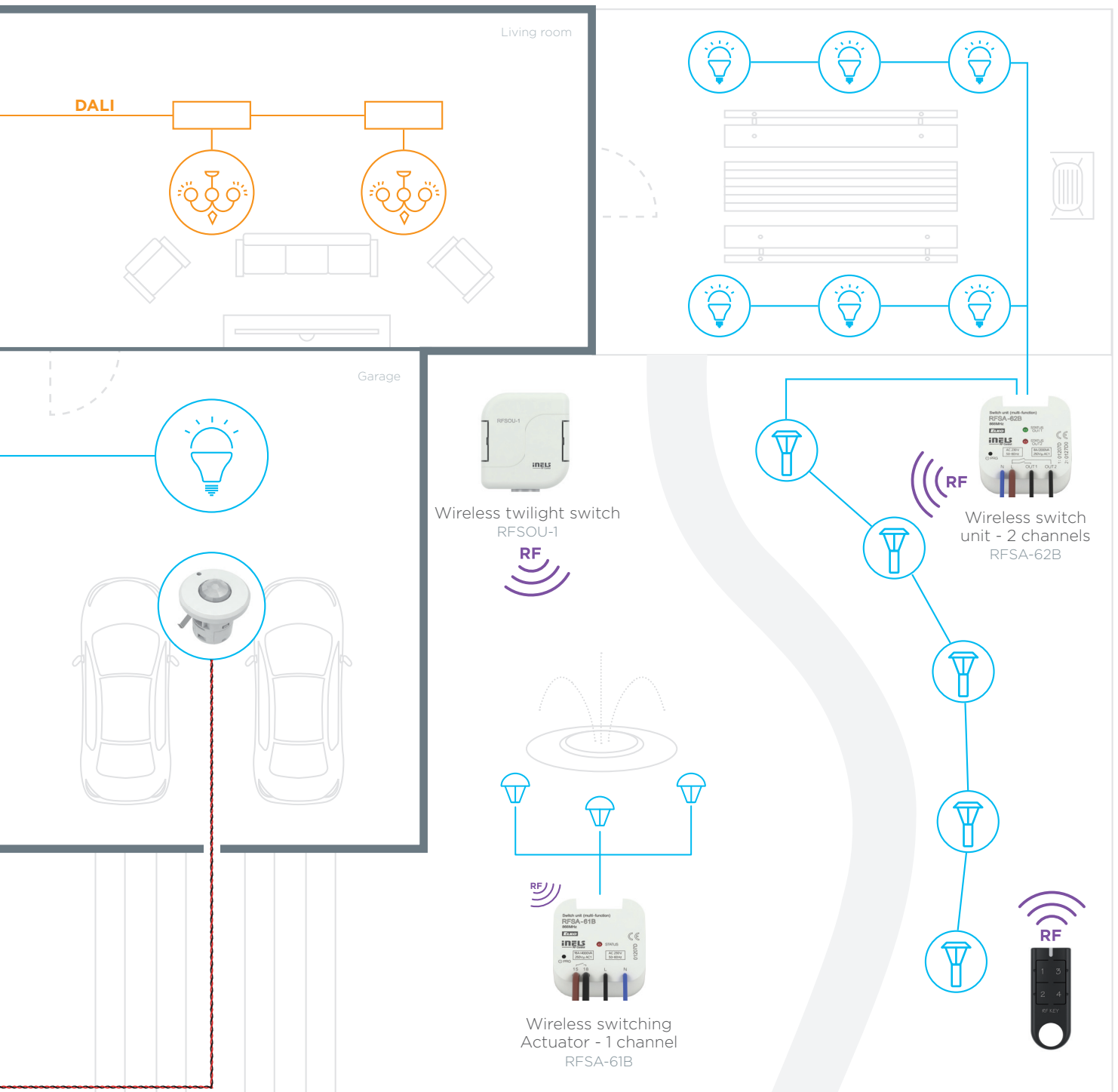


# House



- ability to control lights for DALI ballasts
- the house is divided into several areas according to the type of light switching and dimming requirements
- control RGB LED strips for television viewing and lighting such as kitchen cabinets
- designed Wall actuator to control the lighting around the house or room

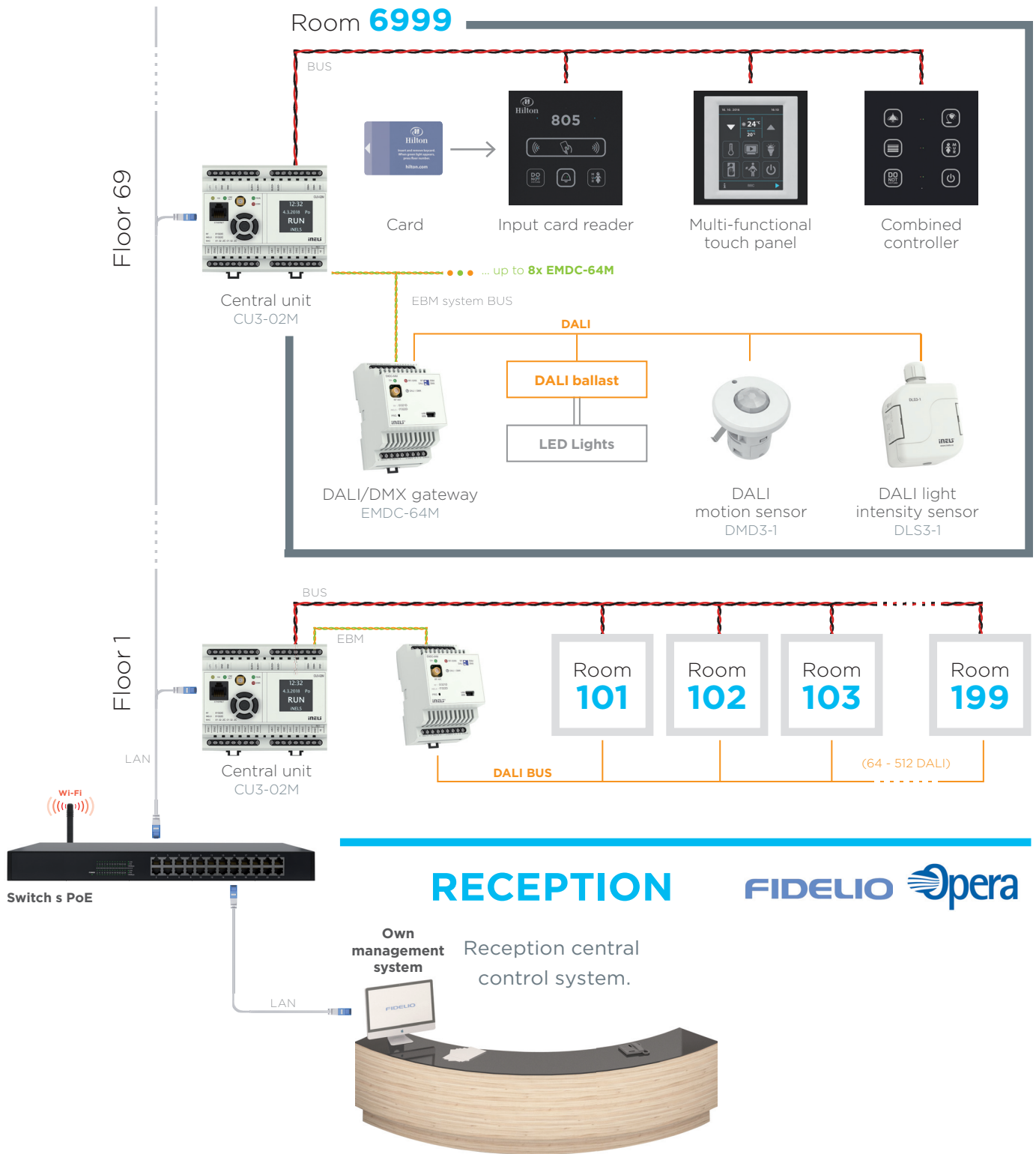
# Garden



- ability to wireless control lamps in the garden
- switching of lighting on the basis of a twilight sensor, with the help of RF Key



# Hotel room



- central supervision of lights from an application or hotel system
- control room design using actuators
- use DALI communication to lighting control

# Shop

Dimmer LED strips  
RFDA-73M/RGB



Dimmer LED strips  
RFDA-73M/RGB



RF Smart Box  
eLAN-RF-WI-003



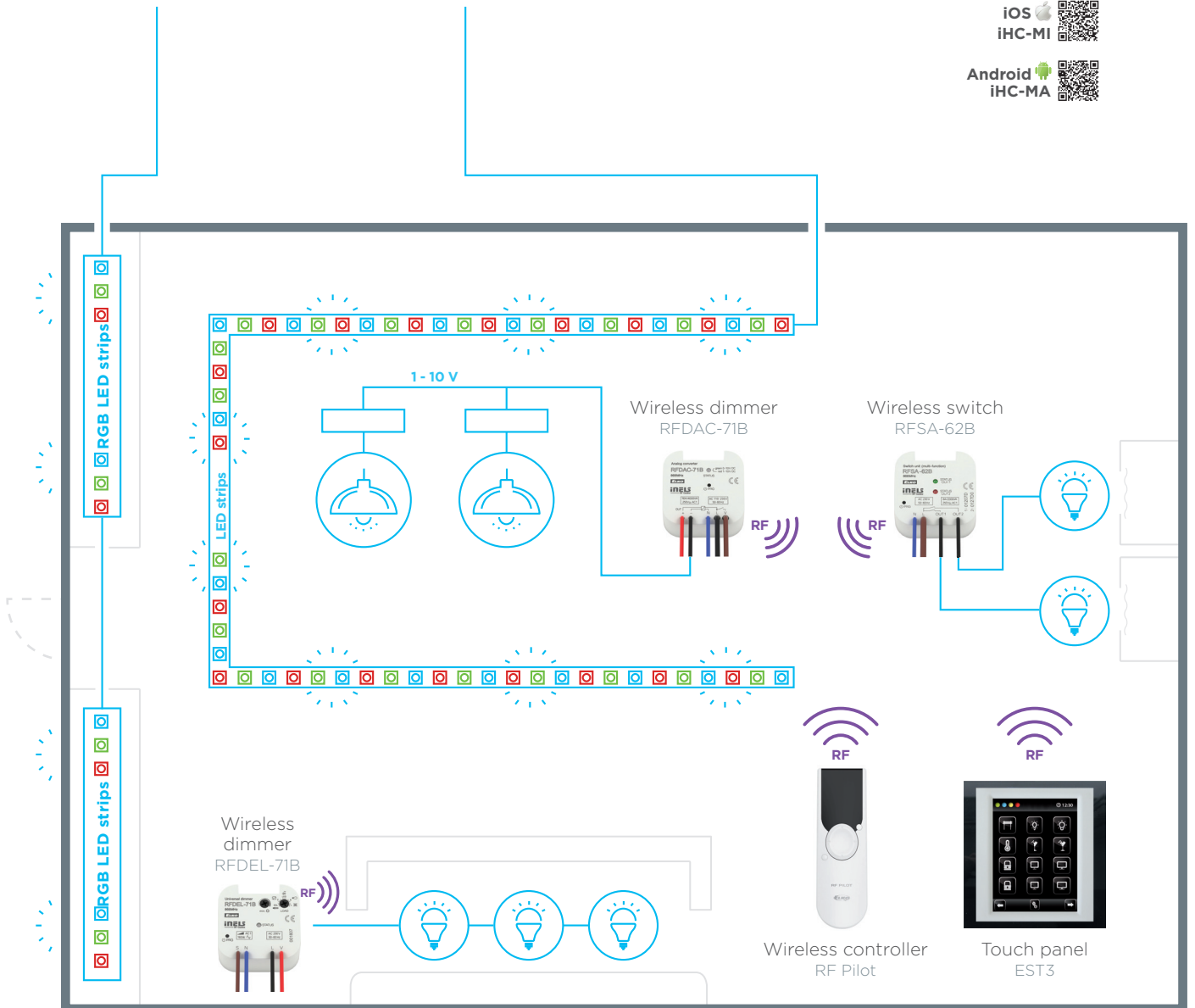
Smartphone



iOS  
iHC-MI



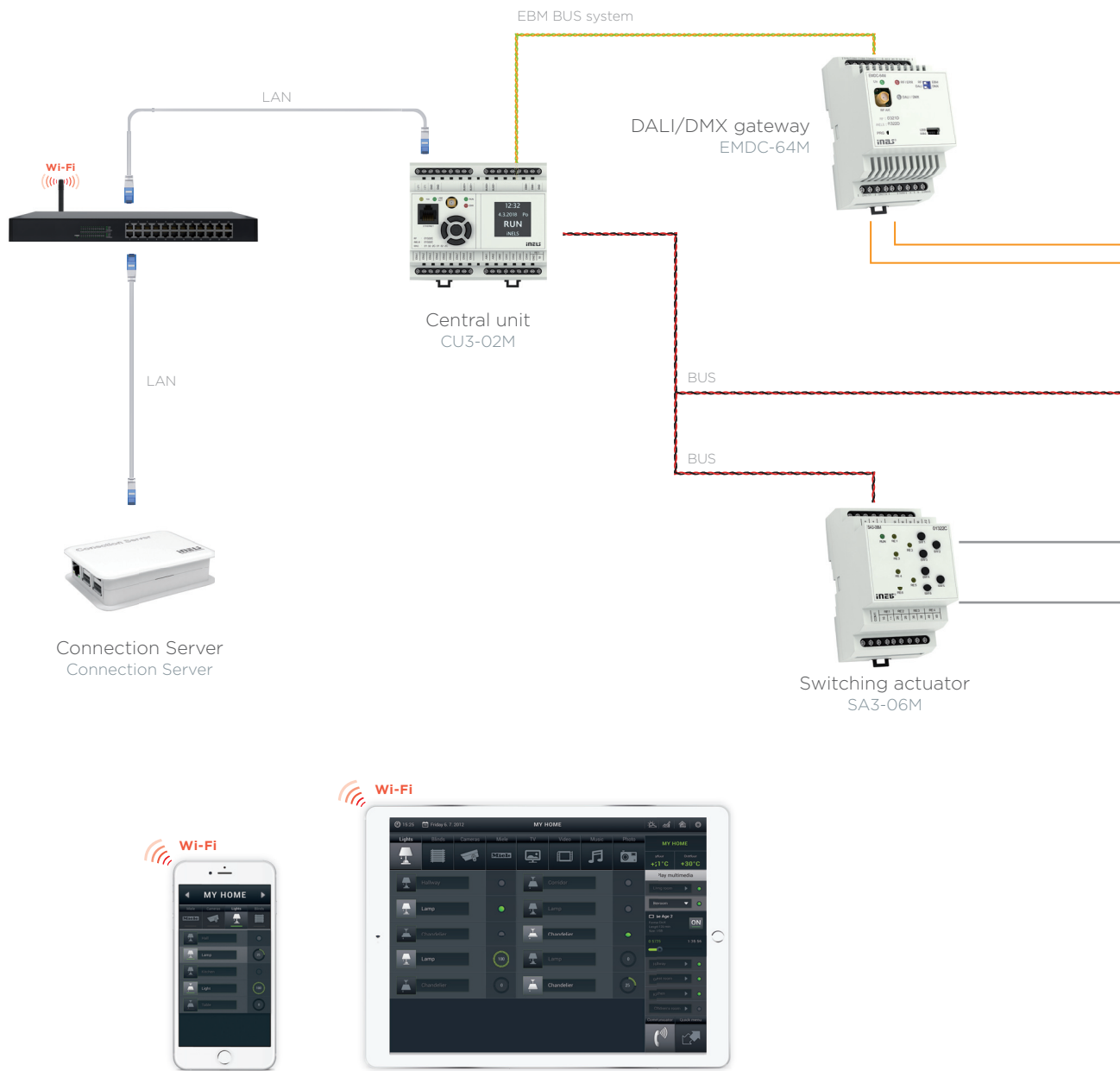
Android  
iHC-MA



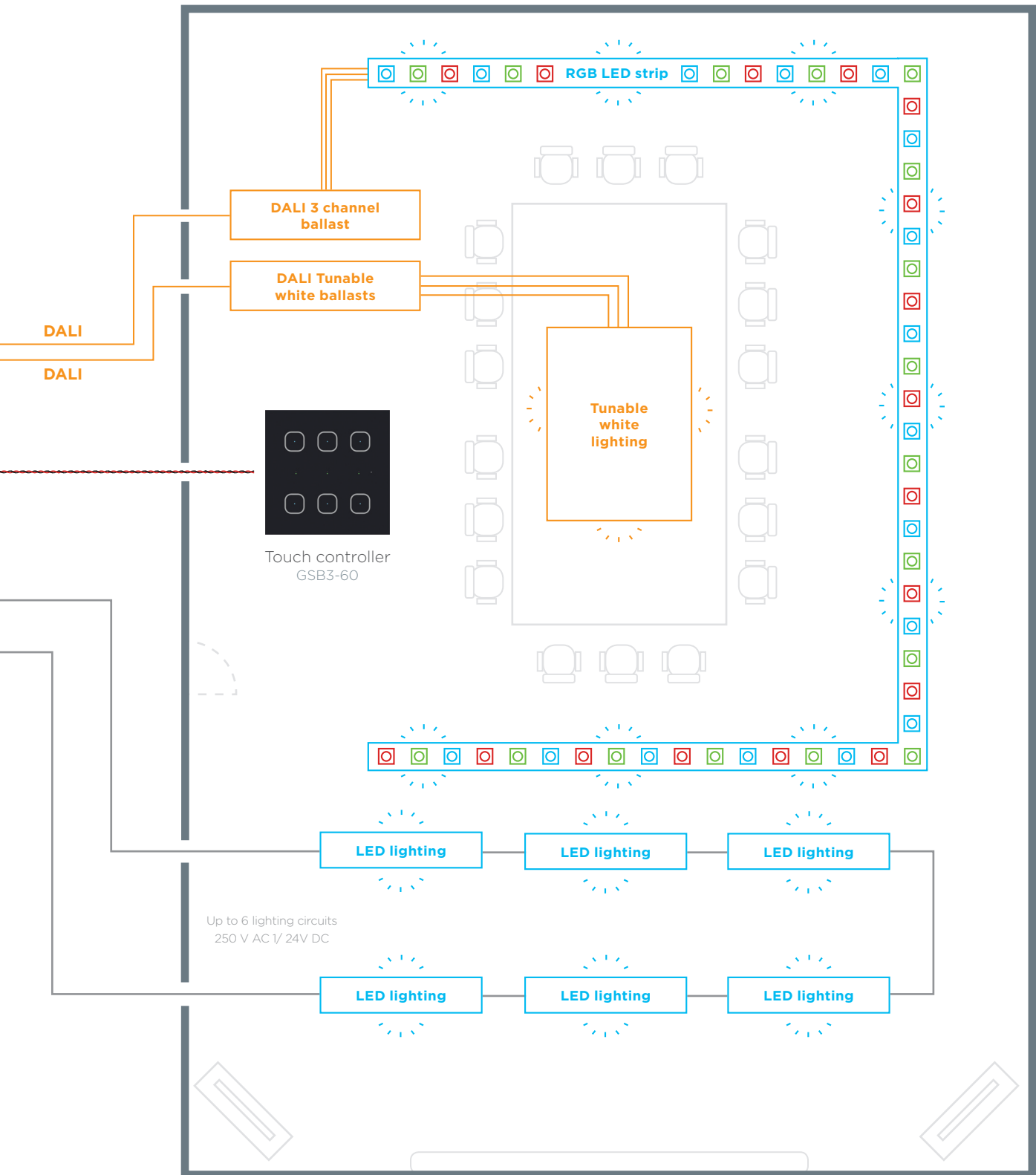
- adjustable lighting scenes
- automatic switching of lighting scenes, changes, day and night mode
- control commercial area with a wireless remote, wall panel or application



# Conference room

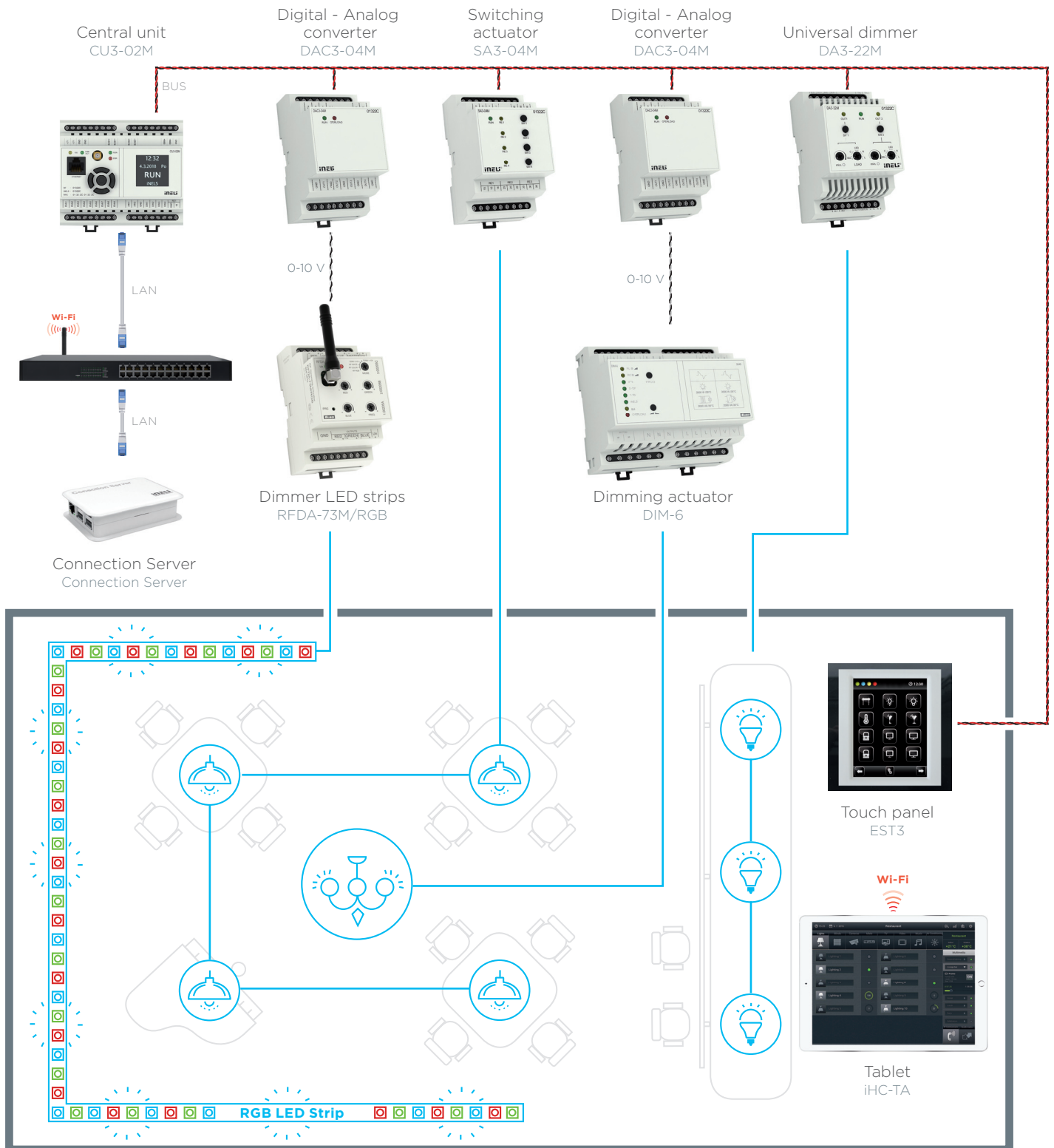


- lighting control using iHC and glass wall controllers with GSB laser etched printed scenes
- control RGB LED strips, panels and downlights, various RLC lighting
- setting the scene, dimming for presentations, negotiations or firm's advice, the ability to change the color temperature of the white light for the selected operating states



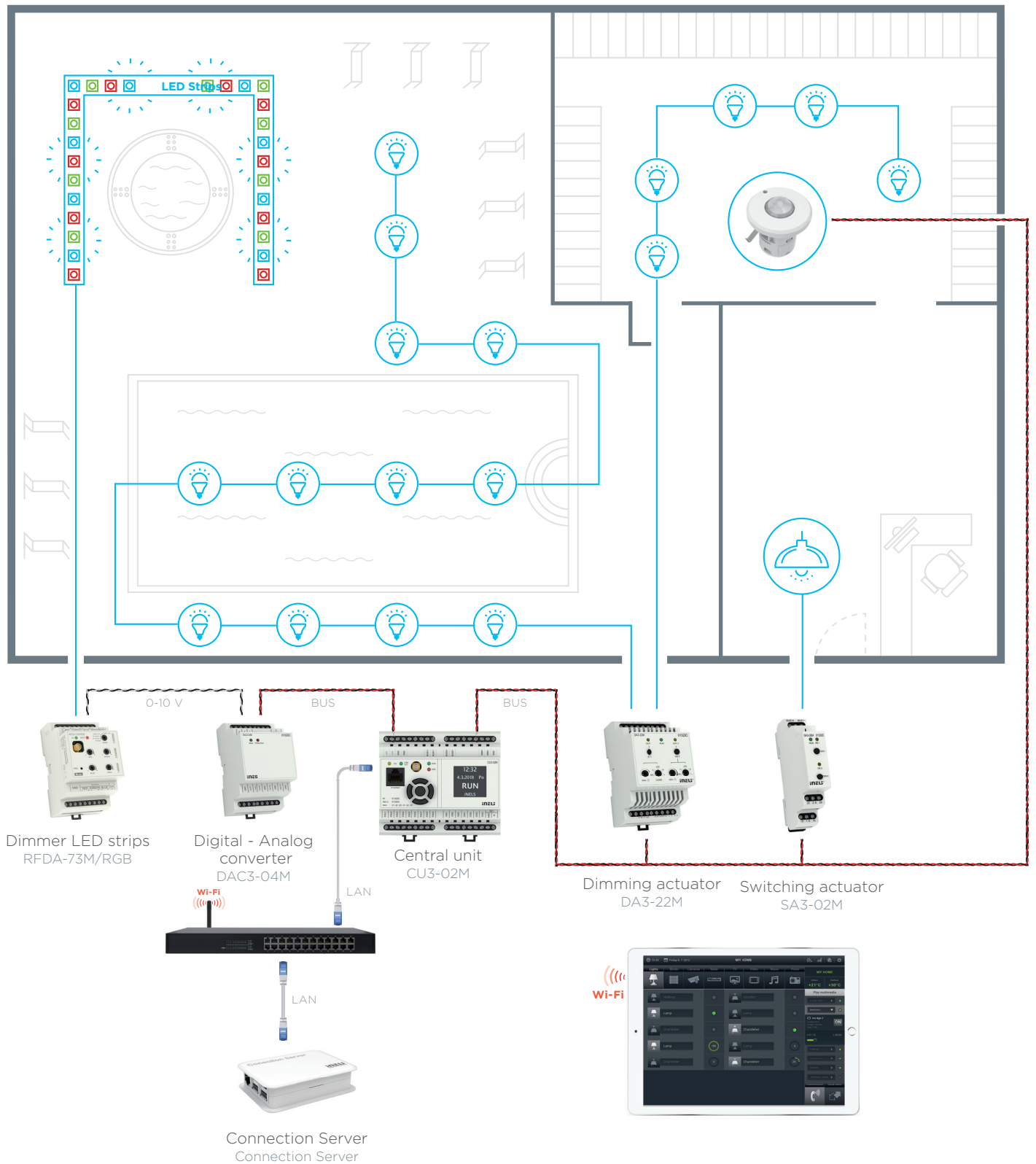


# Restaurant



- control illuminations using designed actuators
- central control of the restaurant from an application on your tablet
- adjustable lighting scenes and time functions
- management of all kinds of loads R, L, C, ESL, LED

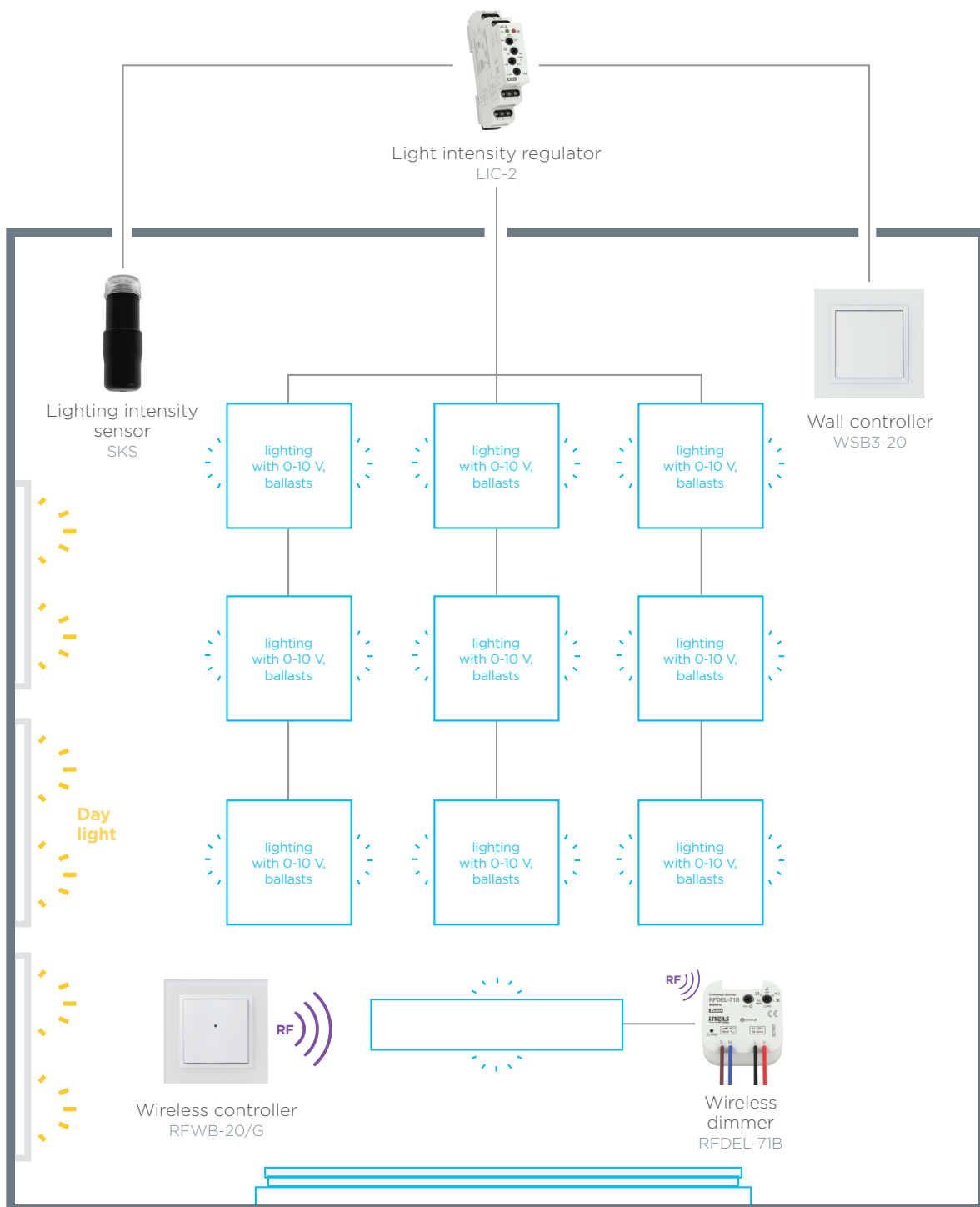
# Wellness



- control and selection of lighting scenes to evoke the atmosphere required
- centralized control of applications on mobile or tablet

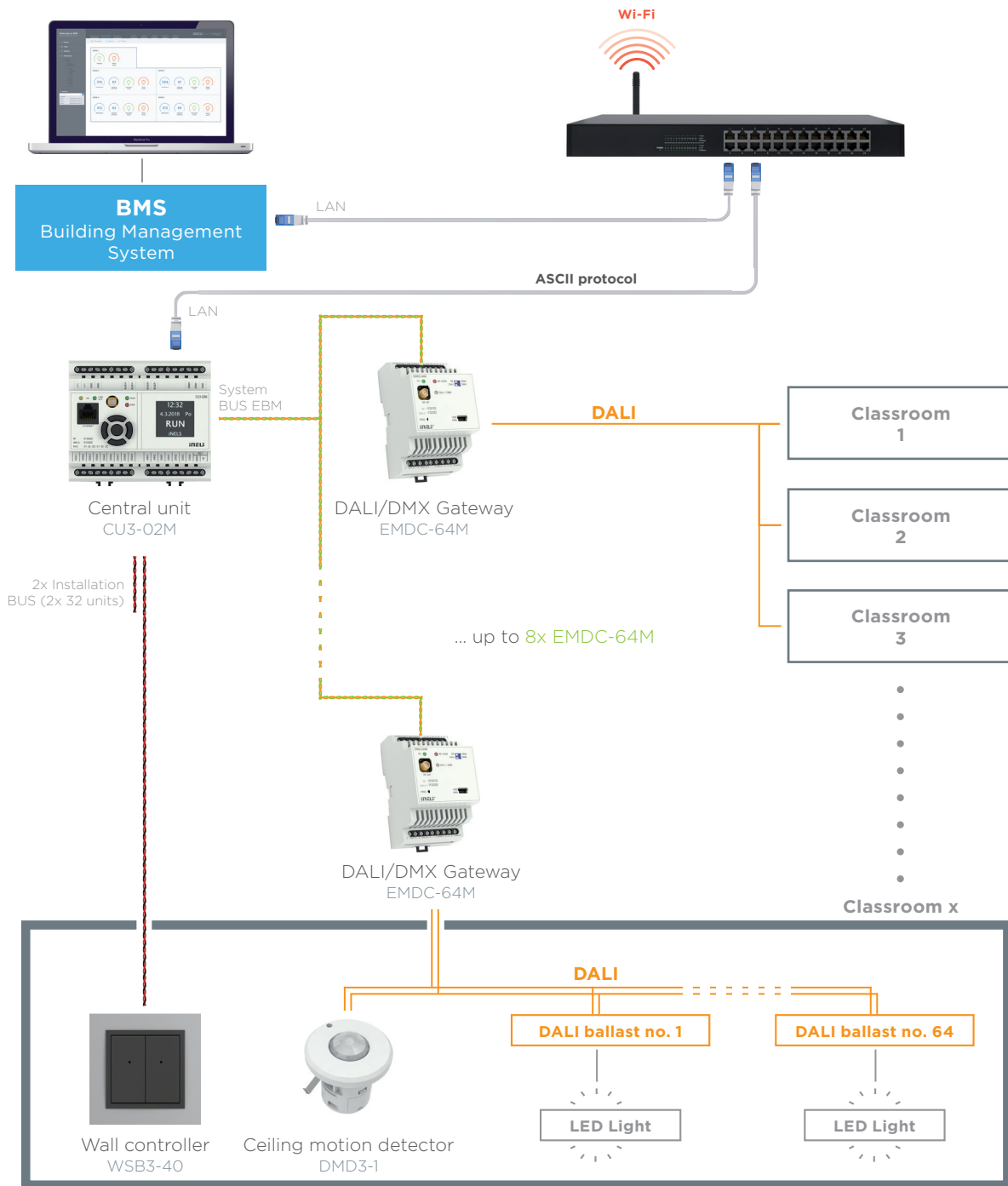


# School room



- economical solution for lighting control
- automatic control of lighting intensity regulator LIC-2
- variable lighting control without major renovations
- constant value of internal light based on external light
- function projection and lighting boards

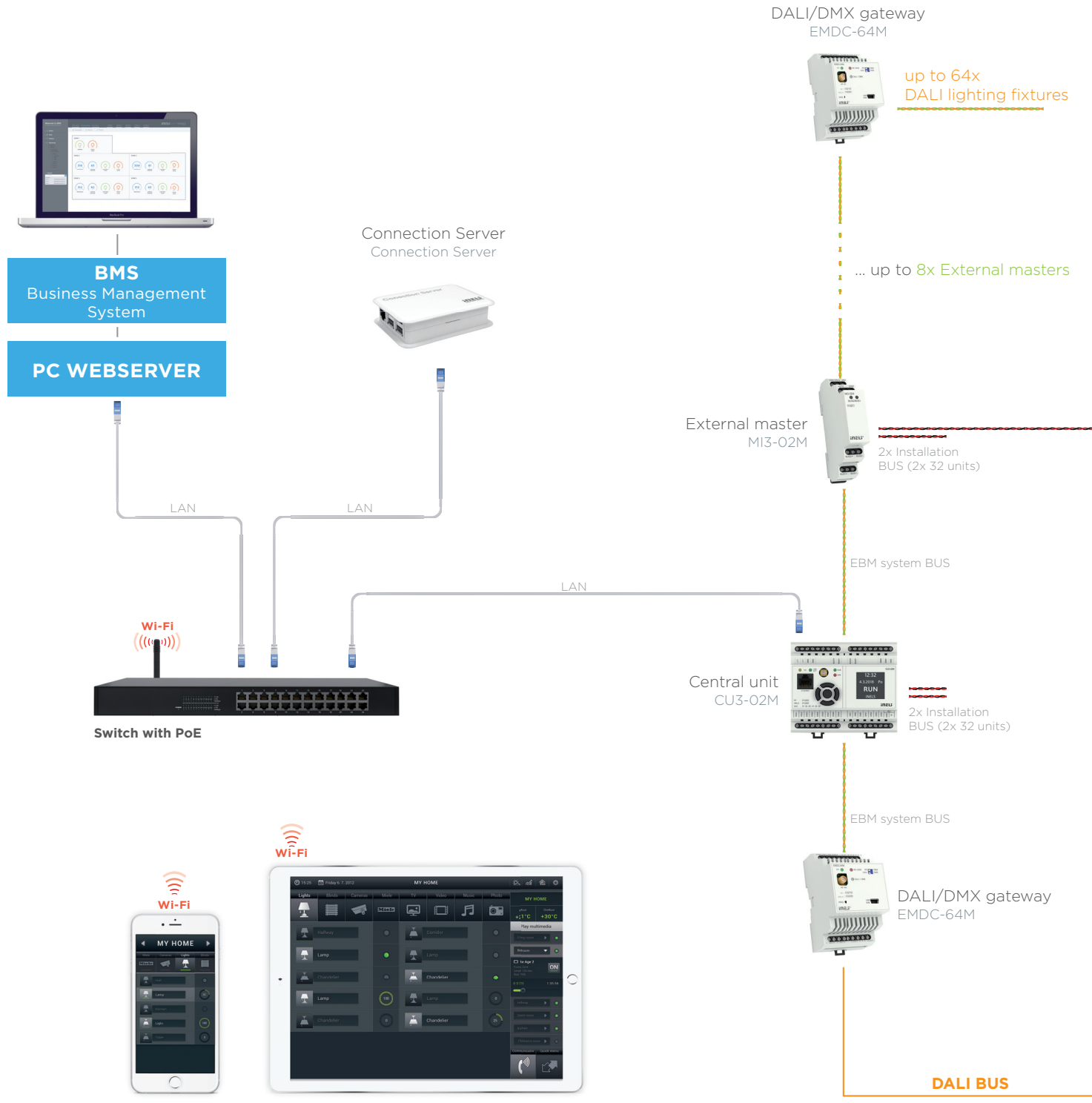
# Auditorium



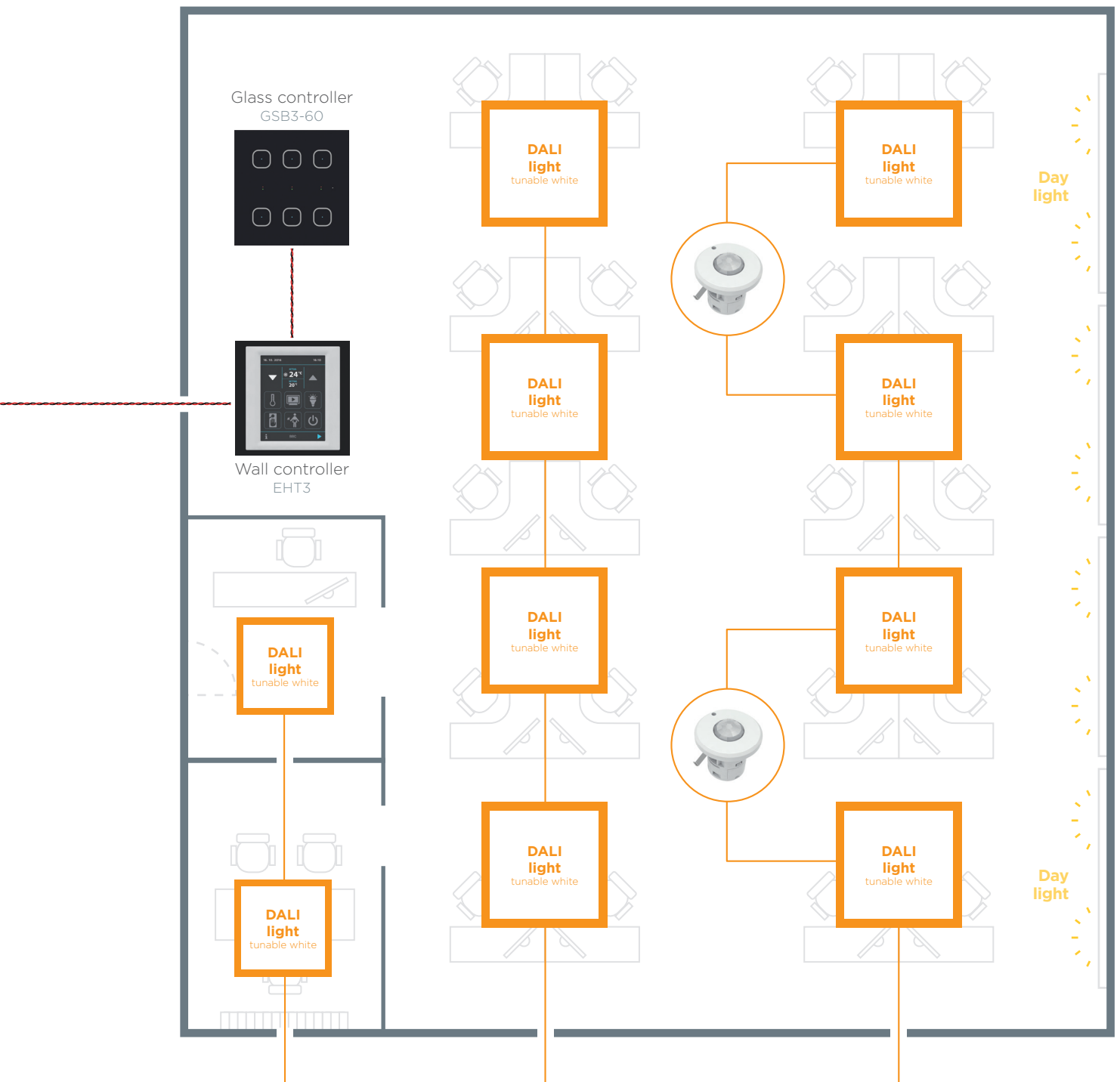
- fully automated School class with central supervision
- supervision by the central computer facility, management of lighting in buildings with a message of inoperative lamps
- control the light intensity of individual lights
- extension of the possibility of controlling blinds
- function, projection and lighting boards



# Office



- use DALI communication for lighting control
- choice of color temperatures through DALI ballasts, Tunable white
- central control using your tablet or building management BMS
- if there is a large number of BUS units, upgradeable to external master MI3-02M

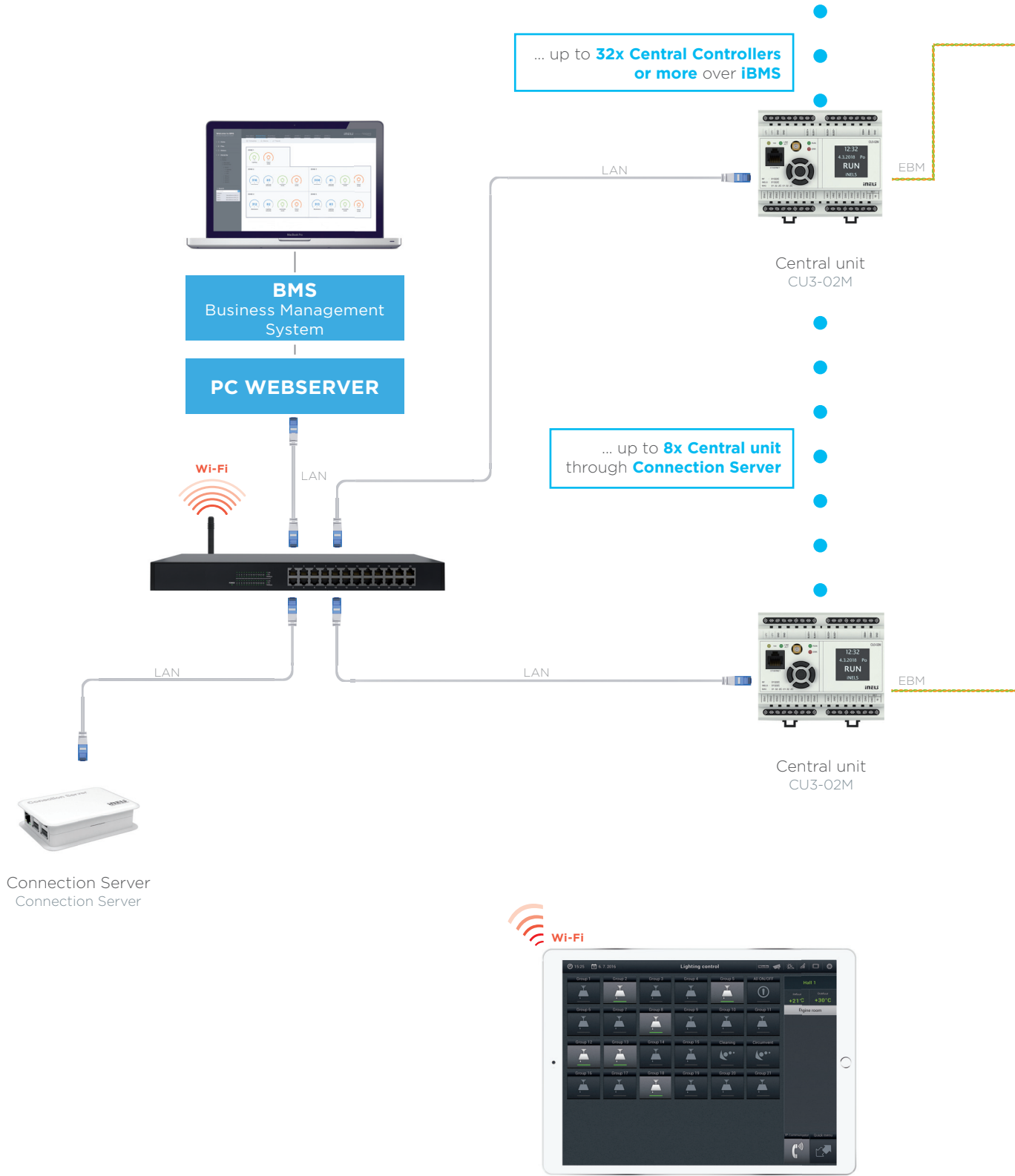


The possibility of extending BUS to include:

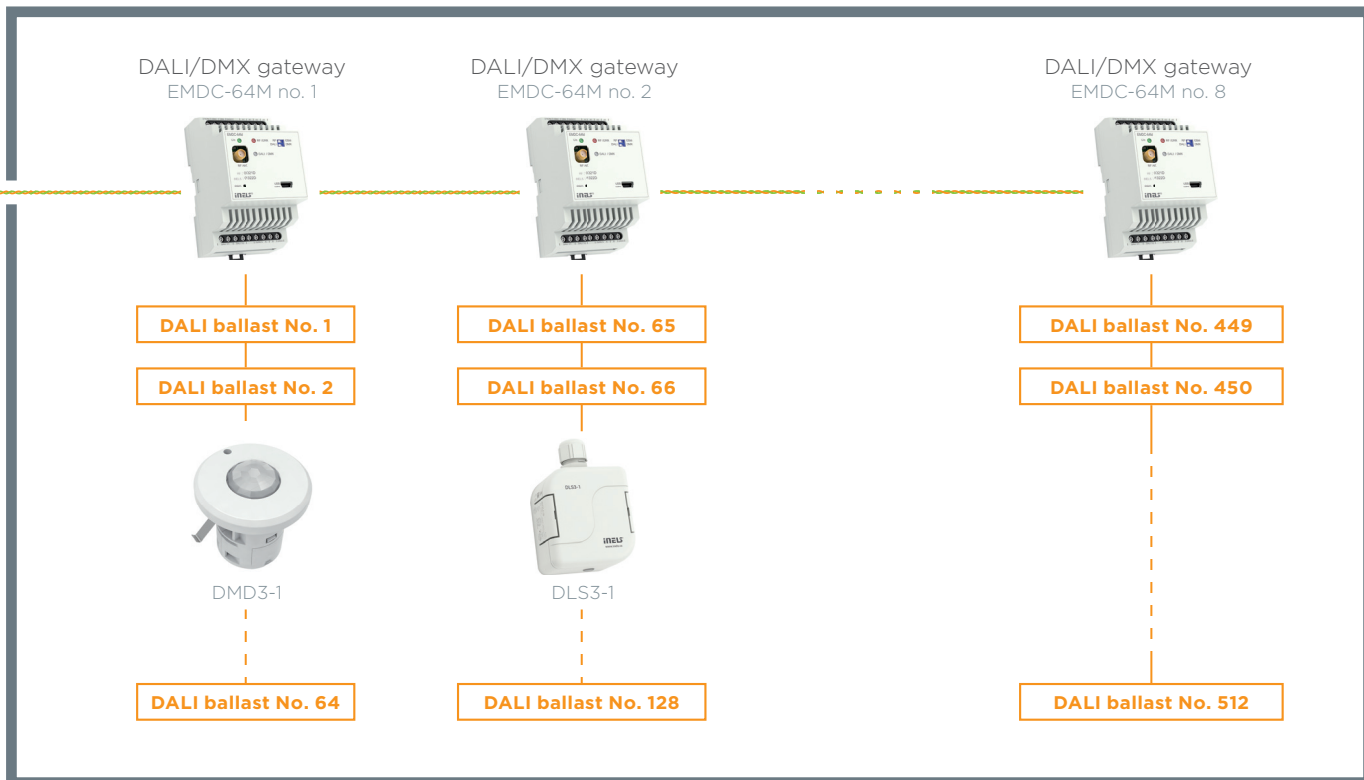
- temperature control
- twitching appliances
- blind control
- intercom
- audio / video zone



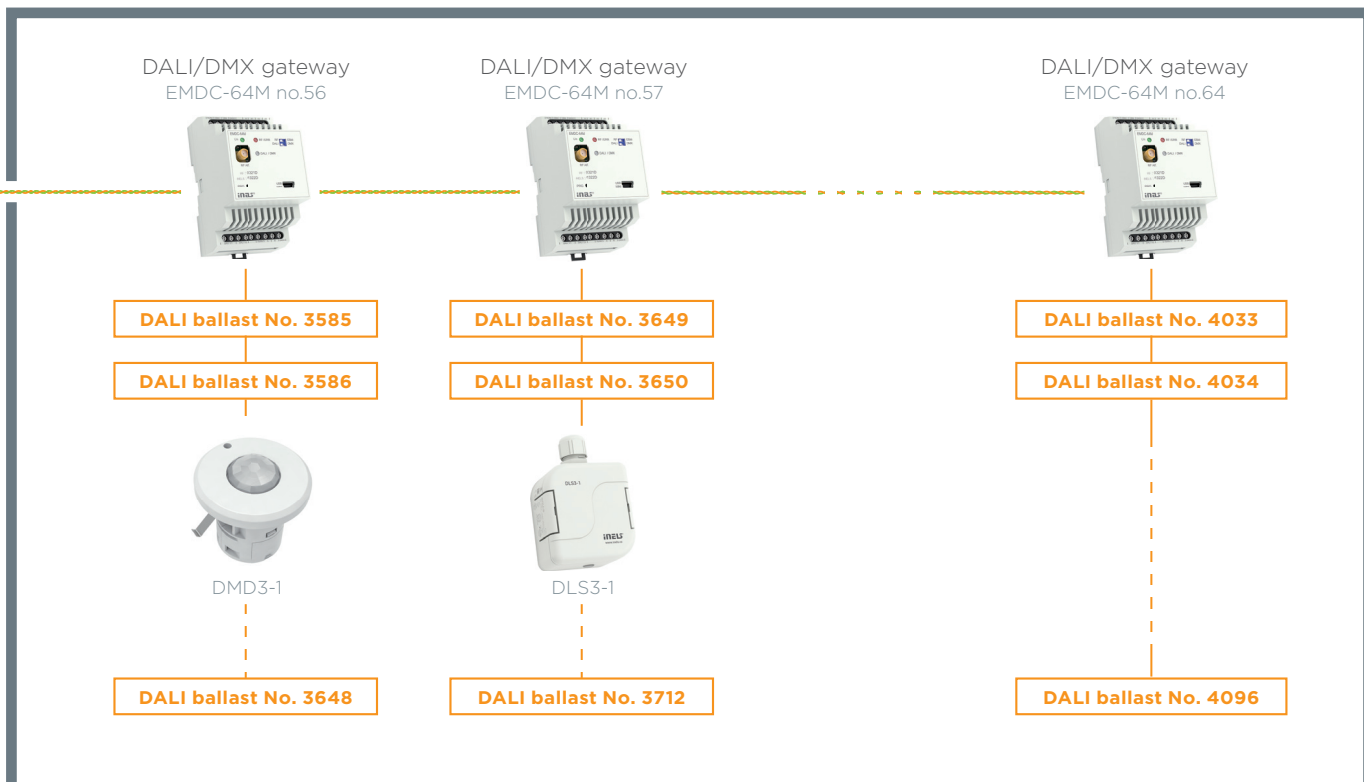
# Manufacturing / stock



## Hall No.: 1



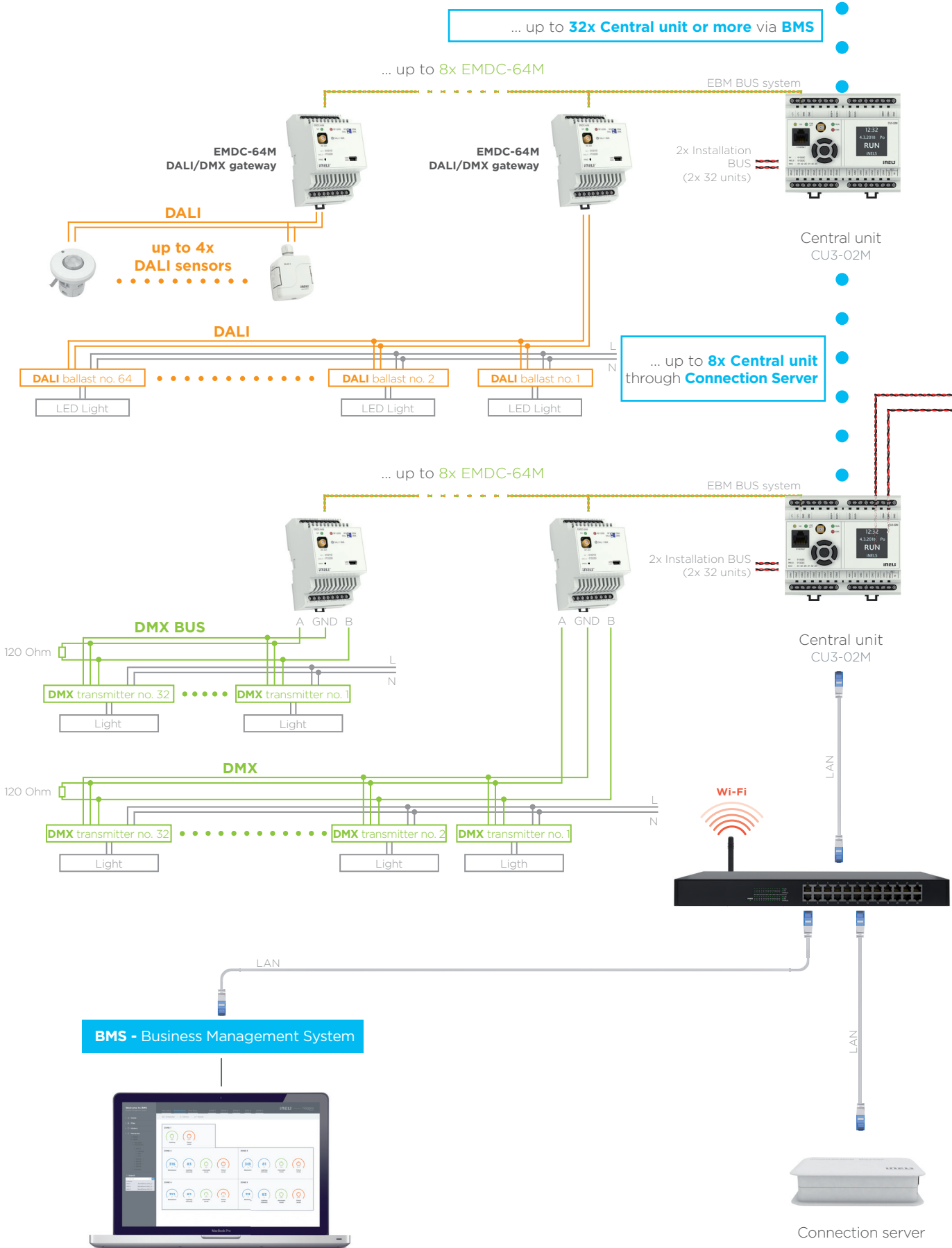
## Hall No.: 8



- remote control lighting fixtures by a computer administrator
- ability to control lighting fixtures using a tablet
- controlling DALI ballasts of up to 4096 through Connection Server or more over BMS
- connection of sensors and detectors via DALI communication



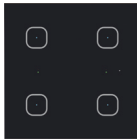
# Complete lighting control system



Wall controller  
WSB3



Touch Controller  
GSB3



Touch panel  
EST3



Motion  
Sensor



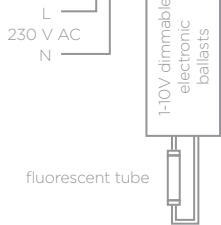
Analog-digital converter  
ADC3-60M



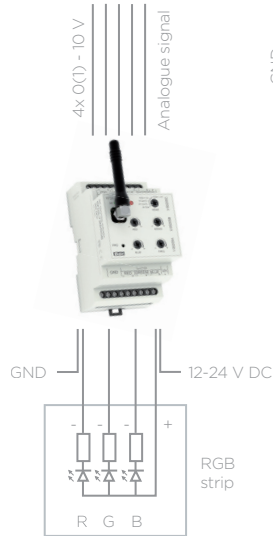
Universal PWM  
dimmer  
DA3-22M



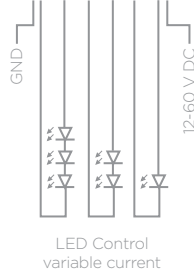
Dimmer 1-10 V for  
fluorescent lamps  
LBC3-02M



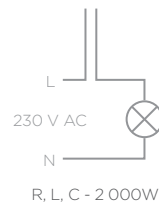
Digital-Analogue  
converter  
DAC3-04M



Dimmer for LED,  
variable current  
DCDA-33M



Digital-analog  
converter  
DAC3-04M

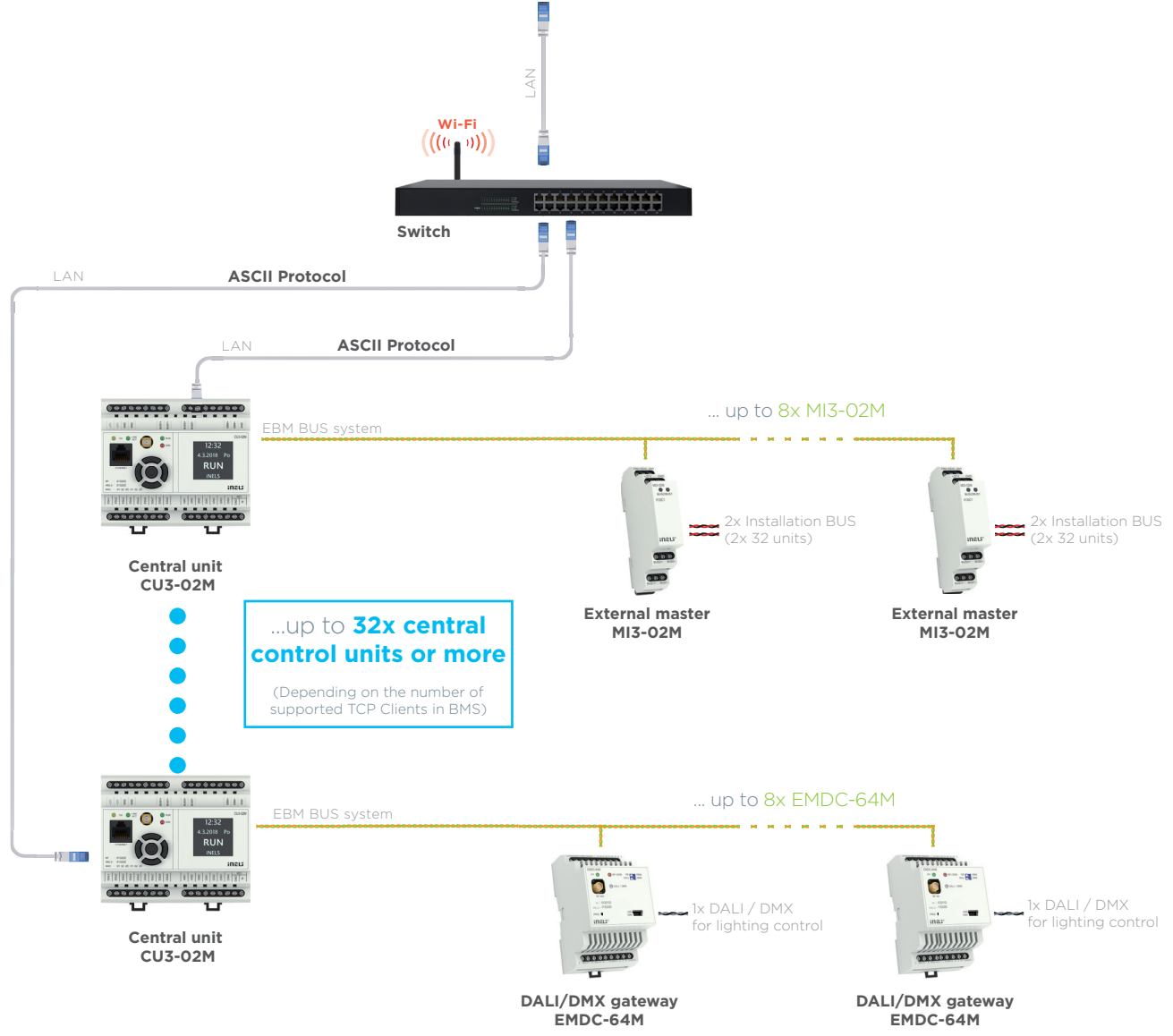
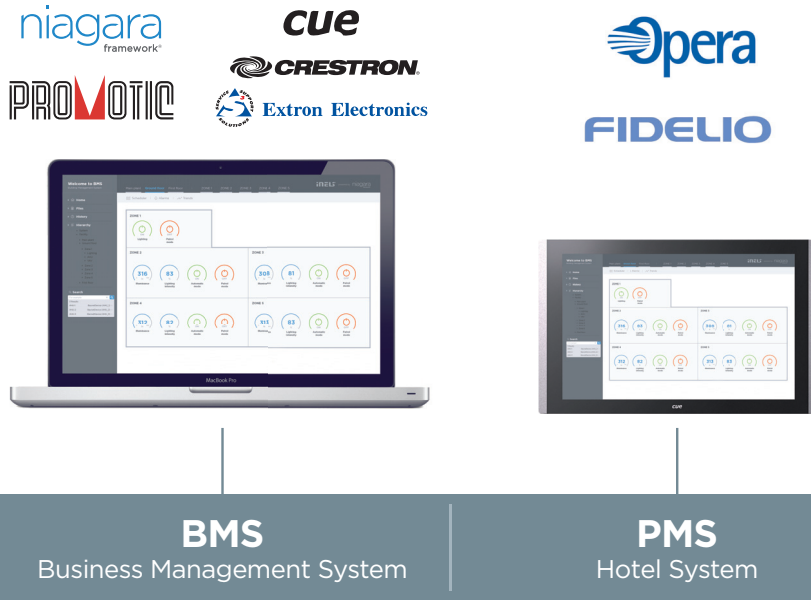


Switching actuator  
SA3-012M

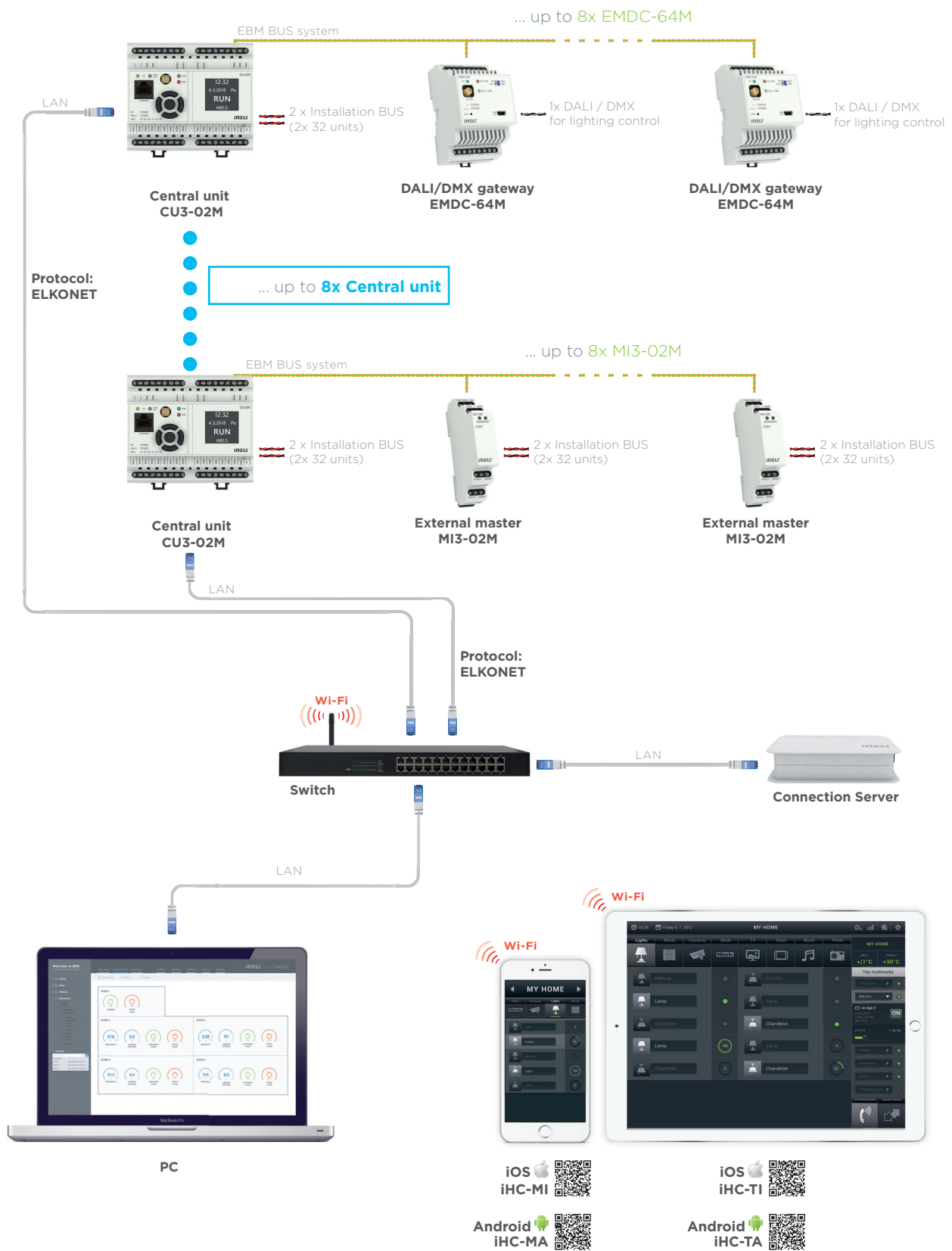




# iNELS integration to BMS

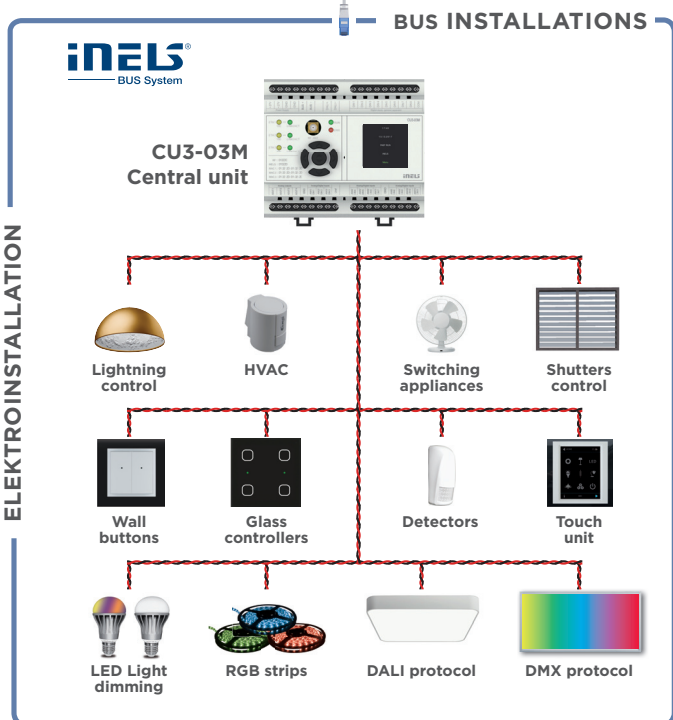
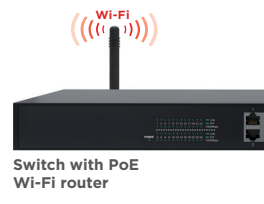
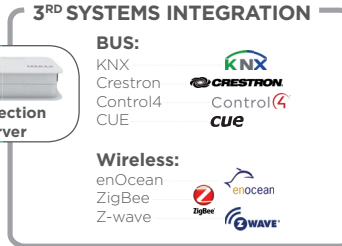
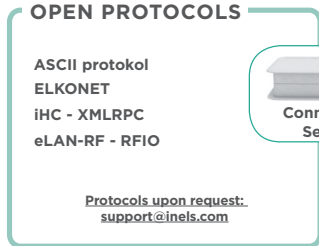
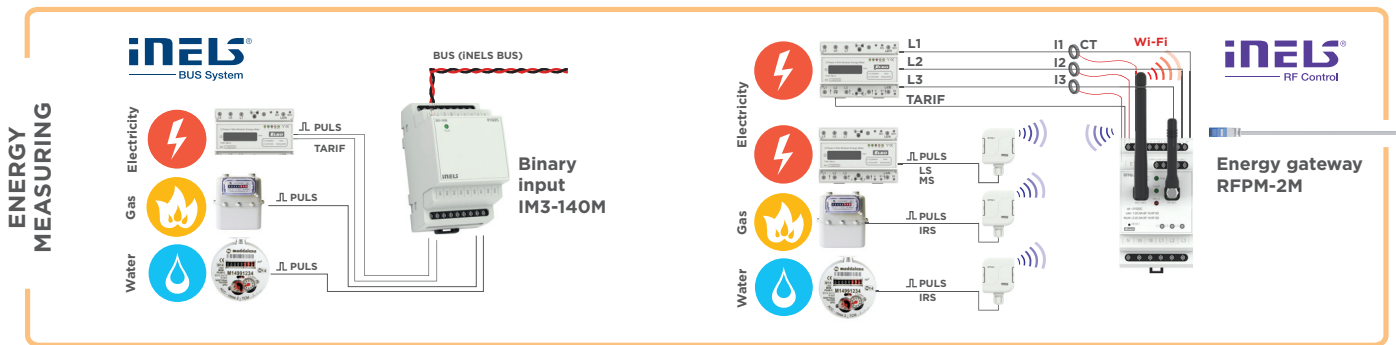


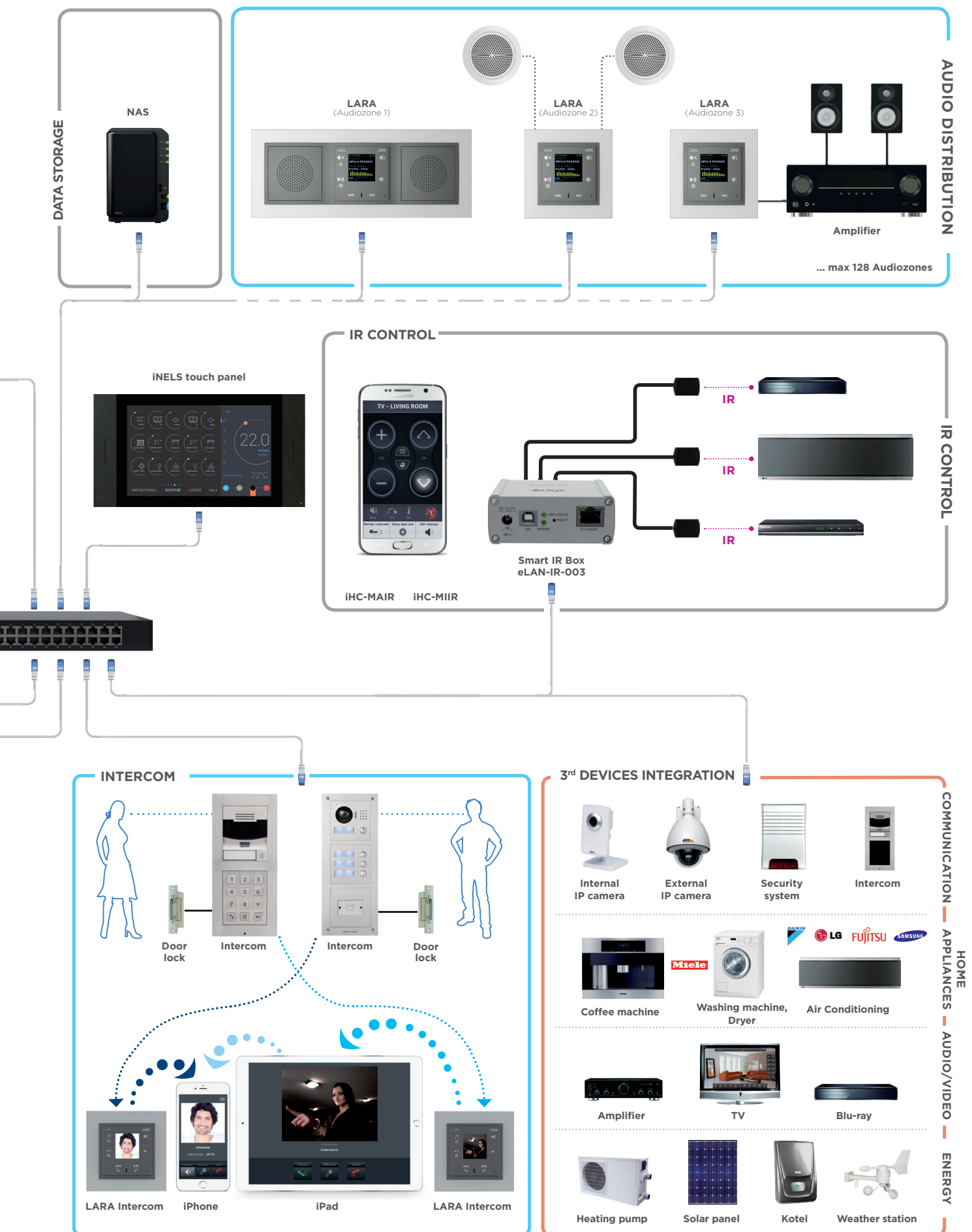
# More central units in one project





# Everything under iNELS control







# Wall controllers – switch

**The control of lighting is possible in various ways, both locally as well as remotely. Conventional wall switches are being superseded by smart controllers with a wide range of options. Apart from functionality, however, emphasis is placed on the implementation of design.**

Wall controllers can be customized to the customers needs, because it is composed of devices (conventional, wireless, BUS) the covers of buttons can be of different colors and frames, where you can choose plastic, metal, glass, wood or granite finish.

There are also extra units with touchscreen controls and glass with very pleasant touch controls. On the controller can be printed any of the buttons or engraved e. g. Company logo.

## DESIGN LOGUS<sup>90</sup>



Plain coating



Metallic coating



Color coating



Color coating



Metal



Wood



Granite

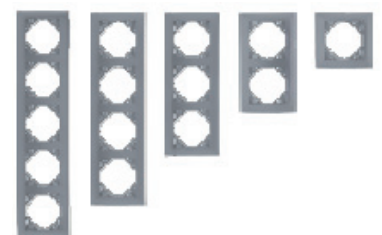


Glass

All of design series are in frame 1 to frame 4.

BASE and SQUARELL series and are in frame 1 to frame 5.

Horizontal or vertical position of the frame is possible thanks due to their systematic shape.



# Examples of wall controllers - panels



Touch panel  
RF Touch, EST3, EHT3



Touch controller with symbols  
GSB3-60



Touch controller  
GSB3-80



Wall controller  
WSB3-40, RFWB-40G



Wall controller  
WSB3-20, RFWB-20G



Wall controller with printing  
WSB3-40



Glass Bedside Panel  
GBP3-60



LAN



USB



Schuko



British



French



US

**Glass controllers are available in a sleek black and white design suitable for any interior.**

# Applications for all

By utilising iNELS Home Control (iHC) you can switch, dim, change color, control individual scenes and keep track of the current time-light scenes. Outside lighting can be controlled, thermal comfort (HVAC - heating, ventilation, cooling) shielding technology and other appliances. For greater security, it is possible to incorporate the access and security system.

## Feature Summary



### iNELS Home Control



Lighting



Blinds



Socket



Garage doors / gates



RGB bulbs / LED strips



Scenes



Heating



Multimedia



Cameras



Air-conditioning



Recuperation



Miele appliances



Weather station



Energy Metering



Intercom



A/V appliances

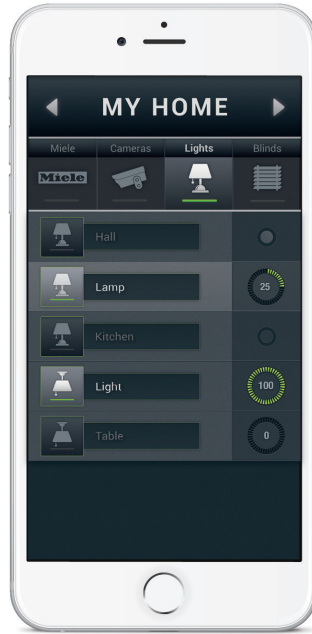






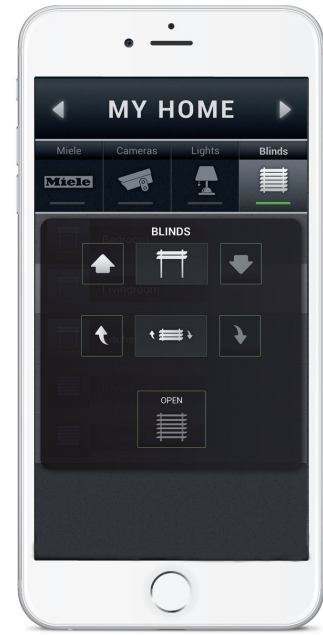
## View

Absolute control over the state of all technologies.



## Lighting control

Easy setup of light scenes with one press - switching, dimming, color.



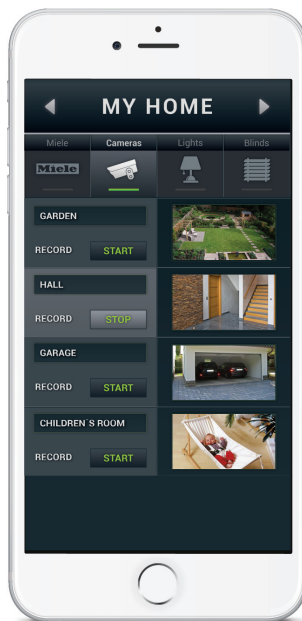
## Blinds/Shutters

Optional individual or joint control of shading techniques.



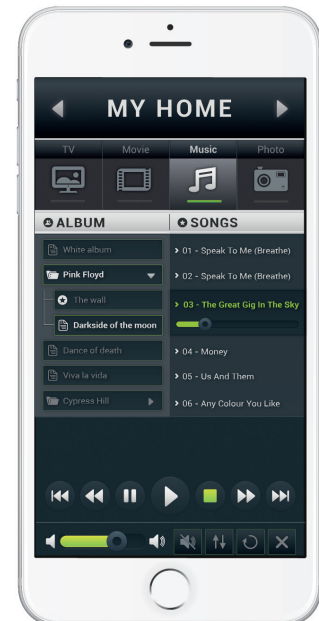
## Control HVAC

In each room you can set up the preferred temperature.



## IP Camera

You can watch/monitor the security of your house from anywhere in the world.



## Audiozone

Quickly and easily you can turn on music in the desired zone.

# Reference iNELS

**Customer satisfaction is our primary goal and a positive reference the greatest reward. Since we began supplying iNELS, we have performed over 3,000 installations in residential and commercial buildings.**

Hundreds of diverse but standardized solutions for apartments, houses and villas in dozens of countries around the world, fully remote-controlled squash centres in Hungary, restaurants in Prague, Bratislava (Slovakia), Moscow (RU), Istanbul (TR) or Sopron (HU), and a discotheque in Kiev (UA), a summer residence on Mallorca (ES), and wellness centres in Petrovice (CZ) and Buddha Palace in Bhutan or Hotels in Istanbul (TR), Dubai (UAE) or Cyprus. You can find our systems installed and implemented in hundreds of locations across the globe.

We can introduce the iNELS system to various projects, whether it concerns the residential sector or commercial space.

## Smart Home & Building Solutions for



Commercial



Wellness



Schoolroom



Offices



Industrial Halls

[www.inels.com](http://www.inels.com)



## Hotel Kempinski Bayterek

Almaty / Kazakhstan

- 5 star hotel
- lighting control in the public space
- more than 15 000 lights are controlled via DALI protocol
- lights scenes



## Jamie's Italian Restaurant

Budapest / Hungary

- iNELS BUS System is controlling lighting and terrace-cooling/heating
- high voltage neon signs, lighting control



## Badorka Balaton Aquarium

Balatonfüred / Hungary

- iNELS controls all the lighting, for example the illumination of the aquariums
- speciality: there are no switches on the walls at all. Every light can be controlled via the 2 mounted tablets



## Pest-Buda Bistro & Hotel

Budapest / Hungary

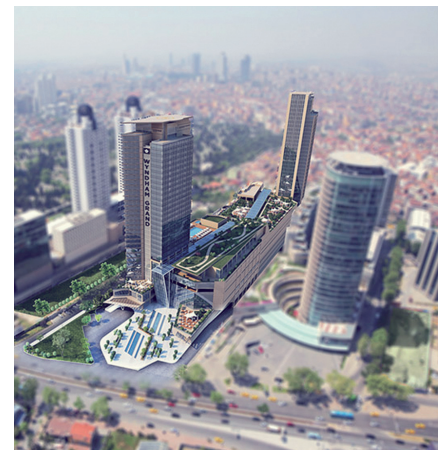
- The oldest hotel of Hungary, which was built in 1696
- 10 rooms with unique luxury equipment with heating & air-condition
- Furniture & equipment has been renovated a few years ago



## Vila

Beskydy/Polsko

- iNELS bus system
- meteor station
- lighting scenes
- using by tablet, smart phones and EST3



## Hotel Wyndham

Istanbul / Turkey

- more than 3000 lighting circuits are controlled through the DALI protocol
- another thousand lighting circuits are controlled via DA3-22M units



# Dimmers for all kind of loads

	LED bulb		LED spotlights				LED panels							
	DLB-E27-806-2K7	DLB-E27-806-5K	DLSL-GU10-350-3K	LSL-GU5.3-280-3K	LP-3030-3K	LP-6060-3K	LP-6060-6K							
	yes/no	number	yes/no	number	yes/no	number	yes/no	number	yes/no	number	yes/no	number	yes/no	number
 SMR-M	✓	11	✓	11	✓	25	-	-	-	-	-	-	-	-
 LIC-1	✓	21	✓	21	✓	45	-	-	-	-	-	-	-	-
 DIM-14	✓	36	✓	36	✓	74	-	-	-	-	-	-	-	-
 DIM-15	✓	21	✓	21	✓	45	-	-	-	-	-	-	-	-
 DIM-6	✓	50	✓	50	✓	50	-	-	-	-	-	-	-	-
 RFDSC-11 / RFDSC-71	✓	21	✓	21	✓	45	-	-	-	-	-	-	-	-
 RFDEL-71B	✓	11	✓	11	✓	25	-	-	-	-	-	-	-	-
 RFDA-73M/RGB	-	-	-	-	-	-	✓	3x10	-	-	-	-	-	-
 DA3-22M	✓	2x29	✓	2x29	✓	2x60	-	-	-	-	-	-	-	-
 RFDAC-71B	-	-	-	-	-	-	-	-	✓	50	✓	50	✓	50
 LBC3-02M	-	-	-	-	-	-	-	-	-	-	✓	50	✓	50

## LED downlight

## LED / RGB strips

DL-155-950-3K

DL-205-1200-3K

LED strips 7,2W

LED strips 14,4W

LED strips 19,2W

LED strips 28,8W

RGB strips 7,2W

RGB strips 14,4W



yes/no    number

yes/no    number

yes/no    number

yes/no    number

yes/no    number

yes/no    number

yes/no    number

yes/no    number

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✓    50    ✓    50    -    -    -    -    -    -    -    -    -    -    -

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# LED light sources that save





Nowadays we see a lot of light sources and confess distinguishing between them is quite difficult for the layman. Therefore, in the following lines we will try to explain how light sources on the market work and show you how you can control / dimmer them. Dimming can save up to 20% of the cost of the energy consumption for lighting. Moreover, thanks to dimming you can enjoy the magical atmosphere -whether it's for partying, reading, or watching film ...

Individual light sources differ from each other and that the principle on which they operate - we call it a „burden.“ Information about burden is important to enable you to select the right dimmers for your lights.







Member of Elko Holding

## LED bulbs classic shape

<p><b>LED eco</b> LB-E27-400-2K7 / LB-E27-400-5K</p> <p>WARM WHITE 2700 K   COLD WHITE 5000 K   EQUIVALENT 35 W BULB</p>  <p><b>Up to 80 % energy saving</b></p> <p>Cap: E27 Consumption: 5.3 W Luminous flux: 400 Lm</p>	<p><b>LED profi</b> LB-E27-470-2K7 / LB-E27-470-5K</p> <p>WARM WHITE 2700 K   COLD WHITE 5000 K   EQUIVALENT 40 W BULB</p>  <p><b>Up to 80 % energy saving</b></p> <p>Cap: E27 Consumption: 7.5 W Luminous flux: 470 Lm</p>	<p><b>LED dimm</b> DLB-E27-806-2K7 / DLB-E27-806-5K</p> <p>WARM WHITE 2700 K   COLD WHITE 5000 K   EQUIVALENT 60 W BULB</p>  <p><b>Up to 80 % energy saving</b></p> <p>Cap: E27 Consumption: 11 W Luminous flux: 806 Lm</p>	<p><b>LED max</b> DLB-E27-1060-2K7 / DLB-E27-1060-5K</p> <p>WARM WHITE 2700 K   COLD WHITE 5000 K   EQUIVALENT 75 W BULB</p>  <p><b>Up to 80 % energy saving</b></p> <p>Cap: E27 Consumption: 13 W Luminous flux: 1060 Lm</p>
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## Special bulbs

<p><b>LED candle / ball</b> LC-E14-350-3K / LMB-E14-250-3K</p> <p>WARM WHITE 3000 K   EQUIVALENT 25 W BULB</p>  <p><b>Up to 80 % energy saving</b></p> <p>Cap: E14 Consumption: 4 W Luminous flux: 250 Lm</p>	<p><b>LED wide profi</b> LBWB-E27-530-2K7</p> <p>WARM WHITE 2700 K   EQUIVALENT 40 W BULB</p>  <p><b>Up to 80 % energy saving</b></p> <p>Cap: E27 Consumption: 7 W Luminous flux: 530 Lm</p>	<p><b>LED globus</b> LBG-E27-806-2K7</p> <p>WARM WHITE 2700 K   EQUIVALENT 60 W BULB</p>  <p><b>Up to 80 % energy saving</b></p> <p>Cap: E27 Consumption: 11 W Luminous flux: 806 Lm</p>	<p><b>LED G9</b> LL-G9-100-4K</p> <p>WHITE 4000 K   EQUIVALENT 7 W BULB</p>  <p><b>Up to 80 % energy saving</b></p> <p>Cap: G9 Consumption: 1.5 W Luminous flux: 100 Lm</p>
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## LED spotlights

### LED spot dimm

DSSL-GU10-250-3K



**Up to 80 %  
energy saving**

Cap: GU10  
Consumption: 6W  
Luminous flux: 250 Lm

### LED tube

LSL-GU10-350-3K/LSL-GU10-350-5K



**Up to 80 %  
energy saving**

Cap: GU10  
Consumption: 6W  
Luminous flux: 350 Lm

### LED spot wide

LSWL-GU10-200-3K



**Up to 80 %  
energy saving**

Cap: GU10  
Consumption: 3.5 W  
Luminous flux: 200 Lm

### LED spot

LSL-GU10-280-3K



**Up to 80 %  
energy saving**

Cap: GU10  
Consumption: 5 W  
Luminous flux: 280 Lm

## LED spotlights

### LED spot 12V

LSL-GU5.3-280-3K



**Up to 80 %  
energy saving**

Cap: GU5.3  
Consumption: 5 W  
Luminous flux: 280 Lm

## LED downlight

### LED downlight

DL-105-850-3K/DL-105-880-4K



**Up to 80 %  
energy saving**

Cap: -  
Consumption: 10,5 W  
Luminous flux:  
850 Lm (3K), 880 Lm (4K)

### LED downlight

DL-155-1200-3K/DL-155-1250-4K



**Up to 80 %  
energy saving**

Cap: -  
Consumption: 14 W  
Luminous flux:  
1200 Lm (3K), 1250 Lm (4K)

### LED downlight

DL-200-1800-3K/DL-200-1850-4K



**Up to 80 %  
energy saving**

Cap: -  
Consumption: 22 W  
Luminous flux:  
1800 Lm (3K), 1850 Lm (4K)

## LED tube

### LED tube

LT-G13-120-3K/4K/6K



**Up to 80 %  
energy saving**

Cap: G13  
Consumption: 20 W  
Luminous flux:  
1800 Lm / 2000 Lm / 2600 Lm

### LED tube

LT-G13-150-3K/4K/6K



**Up to 80 %  
energy saving**

Cap: G13  
Consumption: 30 W  
Luminous flux:  
2700 Lm / 3000 Lm / 4000 Lm

## LED panels

### LED panel

LP-3030-3K/6K



**Up to 80 %  
energy saving**

Cap: -  
Consumption: 13 W  
Luminous flux:  
900 Lm (3K), 1000 Lm (6K)

### LED panel

LP-6060-3K/4K/6K

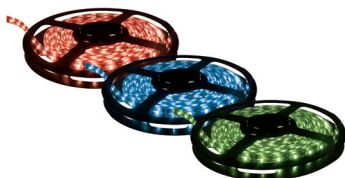


**Up to 80 %  
energy saving**

Cap: -  
Consumption: 48 W  
Luminous flux: 3690 Lm (3K),  
4018 Lm (4K), 4100 Lm (6K)

### LED A RGB strips

Number of LEDs/m - 30, 60, 120, 240  
Color - white, warm white, red,  
yellow, blue, green, RGB.



### Aluminium profiles for LED strips



### Blind



### Assembly materials



### Diffusers





## System units



Central unit

CU3-01M

- essential element of the system
- 2x BUS, 1x EBM BUS
- Ethernet 100 Mbps
- AI 2x, 4x DI, 1 DO



Central unit

CU3-02M

- essential element of the system
- 2x BUS, 1x EBM BUS
- Ethernet 100 Mbps
- AI 2x, 4x DI, 1 DO
- RF submodule



External master

MI3-02M

- allows for system expansion
- 2x BUS
- communicates with the central unit over EBM



DALI/DMX gateway

EMDC-64M

- controls up to 64 DALI or DMX lighting ballasts
- communicates with the central unit over EBM



## Switching actuators / Wireless switching actuators



Switching actuator

SA3-02M

- 2 changeover contact 16 A/AC1
- switching voltage 250 V AC1, 24 V DC
- control plugs, blinds, lights, appliances, etc.
- nominal current of 50 mA through the BUS



Switching actuator

SA3-04M

- 4x changeover contact 16 A/AC1
- switching voltage 250 V AC1, 24 V DC
- control plugs, blinds, lights, appliances, etc.
- nominal current of 70 mA through the BUS



Switching actuator

SA3-06M

- 6x changeover contact 8 A/AC1
- switching voltage 250 V AC1, 24 V DC
- control thermo-regulation, lights, appliances, etc.
- nominal current of 60 mA through the BUS



Switching actuator

SA3-012M

- 12x switching contact 8 A/AC1
- switching voltage 250 V AC1, 24 V DC
- control thermo-regulation, lights, appliances, etc.
- nominal current of 20 mA/230 V AC



Switching actuator - 6 ch.

RFSA-66M

- power supply: 110-230 V AC/50-60 Hz
- load: 6 x 8 A
- six independent channels
- time function (2 s-60 min)
- control up to 32 channels (or control)
- external antenna option



Outdoor switching act.

RFUS-61

- power supply: 230 V AC/50-60 Hz, 120 V AC/60 Hz,
- 12-24 V DC
- load: 12 A
- time function (2 s-60 min)
- control up to 32 channels (or control)
- IP 65 protection



Switching actuator

RFSA-11B

- power supply: 230 V AC/50-60 Hz, 120 V AC/60 Hz,
- 24 V DC
- load: 16A
- ON / OFF function
- control up to 32 channels (or control)
- manual control via built-in buttons



Switching actuator

RFSAI-61B

- power supply: 230 V AC/50-60 Hz, 120 V AC/60 Hz, 24 V DC
- load: 16A
- time function (2 s-60 min)
- control up to 32 channels (or control)



### GSM communicator

GSM3-01M

- the GSM gateway communication iNELS between a GSM mobile phone
- supports up to 512 numbers
- communicates with the central unit over EBM



### BUS separator

BPS3-01M / BPS3-02M

- used for impedance separation between BUS networks
- supports 1x/2x BUS



### Power supply

PS3-100 / iNELS

- 100 W
- supply voltage 100-250 V AC
- output 1: 27.6 V / 3.6 A
- output 2: 12.2 V / 0.35 A



### Smart RF Box

eLAN-RF-003

- RF Control Box for control of units
- thanks to RF smart box you can control appliances from iHC smartphone applications
- LAN connection



### Switching actuator

SA3-01B

- 1x switching contact 16 A / AC1
- switching voltage 250 V AC1, 24 V DC
- control of sockets, lights etc.
- nominal current of 30 mA through the BUS



### Switching actuator

SA3-02B

- 2x switching contact 8 A / AC1
- switching voltage 250 V AC1, 24 V DC
- control blinds, lights, appliances, etc.
- nominal current of 50 mA through the BUS



### Switch socket

RFSC-61

- power supply: 230-250 V / 50-60 Hz, 120 V AC / 60 Hz
- load: 16 A
- time function (2 s-60 min)
- control up to 32 channels (or control)



### Switching actuator

RFSA-61M

- power supply: 110-230 V AC / 50-60 Hz, 12-24 V DC
- load: 16A
- time function (2 s-60 min)
- control up to 32 channels (or control)
- external antenna option



### Switching actuator - 2 ch.

RFSA-62B

- power supply: 230 V AC / 50-60 Hz, 120 V AC / 60 Hz, 24 V DC
- load: 2 x 8 A
- 2 independent channels
- time function (2 s-60 min)
- control up to 32 channels (or control)





# Dimming actuators / Wireless dimming actuators



Dimming actuator

DA3-22M

- dual-channel universal dimming actuator
- load type: LED, ESL, resistive, inductive, capacitive
- maximum load: 400 VA for each channel
- nominal current of 10 mA through the BUS



Dimming actuator

LBC3-02M

- two-channel dimming actuator for fluorescent lamp ballasts
- analog output switches automatically relay contact
- 2 O (1) -10 V, 2x switching contact 16 A/AC1
- nominal current of 60 mA through the BUS



Dimming actuator

DCDA-33M

- dual-channel actuators for dimming LEDs with variable shock
- component Power 12-24 V DC
- control over BUS, DALI or DMX



Dimming actuator

RFDA-73M/RGB

- dimmer (RGB) LED strips
- component Power 12-24 V DC
- maximum load 3x 5 A
- control signal 0 (1)-10 V (drive DAC3)
- ability to control RF or BUS



# Transmitters



Universal dimmer

RFDEL-71B

- the supply voltage (power): 230 V AC/50 Hz (160 VA) 120 V AC/60 Hz (80 VA)
- load type: R, L, C, LED, ESL
- control external button
- function of lighting scenes
- set minimum brightness
- protection against overheating
- control up to 32 channels



Twilight switch

RFSOU-1

- power: 2x 1.5V AAA batteries
- range: 1 - 100 000 lx
- twilight function/light switch
- timing (0-2 min)
- IP 65



A/D converter

ADC3-60M

- analog-to-digital
- 6x analog input
- supports voltage, current and resistance signal
- nominal current of 100 mA through the BUS



A/D converter

DAC3-04B

- converts into an analog voltage signal
- 4x analog output
- management instance. RFDA-73m/RGB
- nominal current of 50 mA through the BUS



# Relays



Transmitter module

RFIM-20B / RFIM-40B

- for installation under existing switch, switching to wireless
- power supply: 1x 3 V battery CR 2477 2x 3 V battery CR 2032
- 2 channel/4 channel



Lighting intensity regulator.

LIC-1

- automatically regulates the intensity of lighting in the room
- controls the R, L, C, ESL, LED load
- settings by potentiometers
- supply voltage 230 V AC
- maximum load: 300 W



Lighting intensity regulator.

LIC-2

- automatically regulates the intensity of lighting in the room
- serves as a control unit for dimmers and electronic ballasts 0-10 V/1-10 V
- settings by potentiometers



Digital time switch

SHT-1

- lighting switches automatically based on preset time
- setting by buttons
- switching voltage 250 V AC/24 V DC
- maximum switching capacity 4000 VA/AC1, 384 W/DC



### Control dimmer

DIM-6

- controls RL, RC load
- ability to control signal 0-10 V, 1-10 V
- maximum switching capacity: 2000 VA
- upgradeable 8 DIM-6-P 3M



### Expansion module

DIM-6-3m-P

- expansion Module DIM-6
- controls the R, L, C load
- maximum switching capacity: 1000 VA
- maximum extension DIM-6 up to 10 000 VA



### Universal dimmer

RFDEL-71M

- the supply voltage (power): 230 V AC/50 Hz (600 VA) 120 V AC/60 Hz (300 VA)
- load type: R, L, C, LED, ESL
- 0-10 V control signal or potentiometer
- control external button
- function of lighting scenes
- set minimum brightness
- control up to 32 channels



### Socket dimmer

RFDSC-71

- supply voltage (power): 230-250 V/50-60 Hz (300 VA) 120 V AC/60 Hz (150 VA)
- load type: R, L, C, LED, ESL
- function of lighting scenes
- set minimum brightness
- control up to 32 channels

## Input units



### A/D converter

DAC3-04M

- converter into an analog voltage signal
- 4x analog output
- management instance. RFDA-73m/RGB
- nominal current of 50 mA through the BUS



### Binary inputs

IM3-140M

- input module for the connection of other designed buttons, detectors, etc.
- 14x digital input
- nominal current of 25 mA through the BUS



### Binary inputs

IM3-20B / IM3-40B

- input module for the connection of other designed buttons, detectors, etc.
- 2x/4x digital input
- nominal current of 20 mA through the BUS



### Binary inputs

IM3-80B

- input module for the connection of other designed buttons, detectors, etc.
- 8x digital input
- nominal current of 20 mA through the BUS



### Staircase dimming switch

DIM-2

- gradual switching on and dimming of incandescent lamps
- dimming R, L load
- settings by potentiometers
- maximum load 500 W



### Controlled dimmer

DIM-15

- dimmer R, L, C, ESL, LED load
- settings by potentiometers
- voltage 230 V
- maximum load: 300 W
- 1 module design



### Controlled dimmer

SMR-M

- dimmer R, L, C, ESR LED load
- settings by potentiometers
- voltage 230 V
- maximum load: 160 W
- box design



## Controllers



Wireless control panel

RF Touch

- Touch panel with 3.5" display
- temperature control, lighting, dimming, scenes
- LOGUS<sup>90</sup> design
- nominal current of 150 mA through BUS



Remote Controls

RF Pilot

- 4 and 6 touch buttons
- integrated temperature and light intensity sensor
- option Icon
- nominal current of 25-40 mA through the BUS



Wireless Keychain

RF Key

- 8 touch buttons
- integrated temperature and light intensity sensor
- nominal current of 25-40 mA through the BUS



Touch panel

EST3

- touch panel with 3.5" display
- temperature control, lighting, dimming, scenes
- LOGUS<sup>90</sup> design
- nominal current of 150 mA through the BUS



Wireless switch

RFWB-20/G

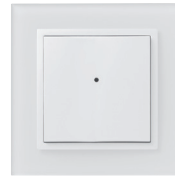
- RFID card reader 13.56 MHz
- 6 touch buttons
- nominal current of 60 mA through the BUS



Wireless switch

RFWB-40/G

- 2 buttons, design LOGUS<sup>90</sup>
- integrated temperature sensor
- 20H version also equipped with humidity sensor
- 1 two-color LED indication
- nominal current of 25 mA through the BUS



Wall controller

WSB3-20, WSB3-20H

- 2 buttons, design LOGUS<sup>90</sup>
- integrated temperature sensor
- 20H version also equipped with humidity sensor
- 1 two-color LED indication
- nominal current of 25 mA through the BUS



Wall controller

WSB3-40, WSB3-40H

- 4 buttons, design LOGUS<sup>90</sup>
- integrated temperature sensor
- 40H version also equipped with humidity sensor
- 2 bi-color LED indication
- nominal current of 25 mA through the BUS



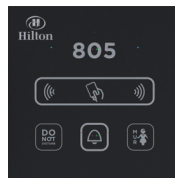
## Control for Hotel rooms



Touch panel

EHT3

- Hotel touch panel with 3.5" display
- HVAC control, lighting scenes, audio
- information button "DND" and "MUP"



Input card reader

GHR3-11

- panel indicating the status of the room
- RFID card reader 13.56 MHz
- signaling "DND" and "MUP"
- touch button for bell



## Detectors and sensors



Wireless motion detector

RFMD-100

- power: 1 x 1.5 V AAA batteries
- detection angle of 120°
- radius: 12 m



Light intensity sensor

DLS3-1

- BUS supply BUS or DALI
- detection range: 1-100000 lux
- IP65

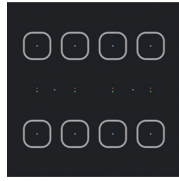




### Touch controller

GSB3-40/GSB3-60

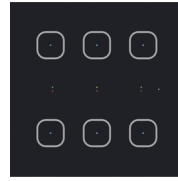
- 4 and 6 touch buttons
- integrated temperature and light intensity sensor
- option Icon
- nominal current of 25-40 mA through BUS



### Touch controller

GSB3-80

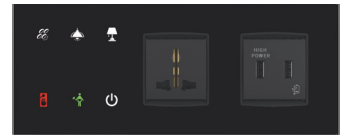
- 8 touch buttons
- integrated temperature and light intensity sensor
- nominal current of 25-40 mA through the BUS



### Glass card reader

GMR3-61

- RFID card reader 13.56 MHz
- 6 touch buttons
- nominal current of 60 mA through BUS



### Glass Bedside Panel

GBP3-60/B, GBP3-60/W

- multifunction control unit
- lighting control from bed
- ability to connect multiple devices to the network



## Third party



## iNELS Accessories



### Connection Server

Connection Server

- communication with third-party devices
- allows control of units from iHC applications



### iNELS BUS Cable

- the BUS cable is designed specifically for iNELS
- has the best parameters for BUS wiring installation
- pair of solid copper wires with dimensions of AWG20 wires

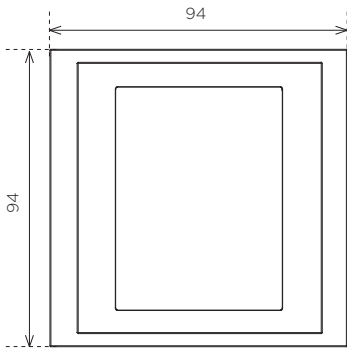


### Motion detector

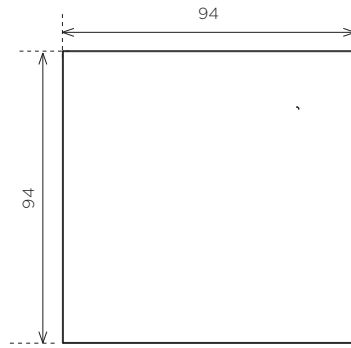
DMD3-1

- BUS supply BUS or DALI
- integrated light sensor
- interior design
- scanning angle of 100°

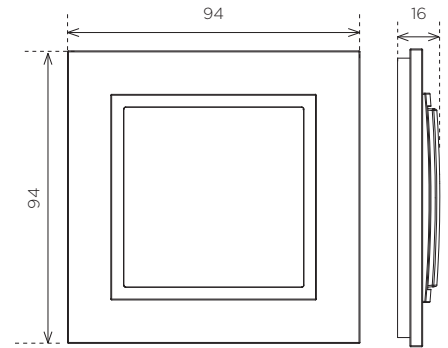
# Product dimensions



EST3  
EHT3

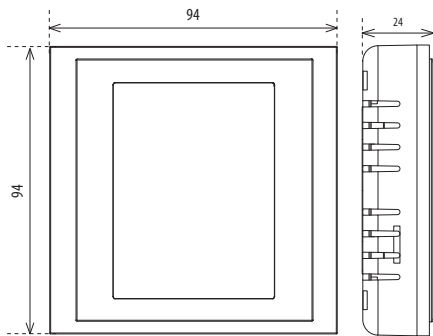


GSB3-40 GMR3-61  
GSB3-60 GHR3-11  
GSB3-80

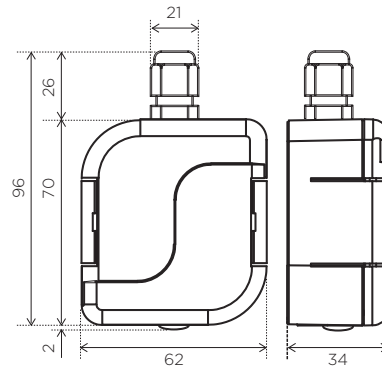


RFWB-20/G WSB3-20H  
RFWB-40/G WSB3-40H  
WSB3-20 IDRT3-1  
WSB3-40

## IP65

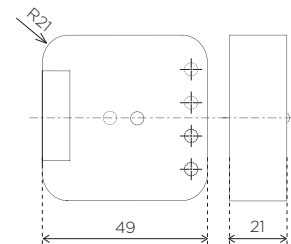


RF Touch



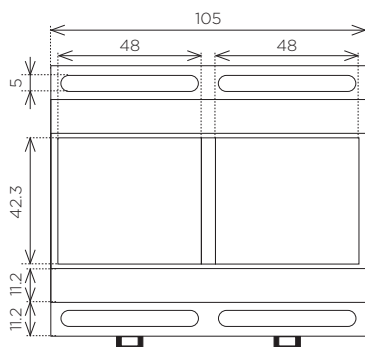
DLS3-1  
SOU-3  
RFSOU-1

## MINI



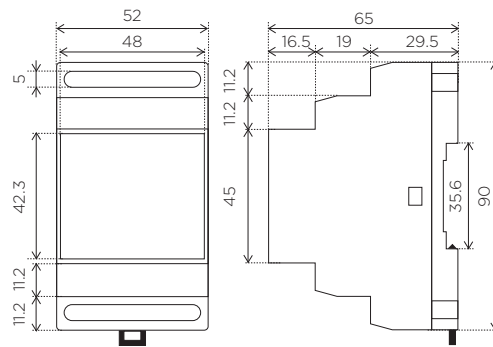
RFSA-11B SA3-02B  
RFSAI-61B SMR-S  
RFSA-62B SMR-U  
RFDEL-71B SMR-M  
SA3-01B

## 6 Modul



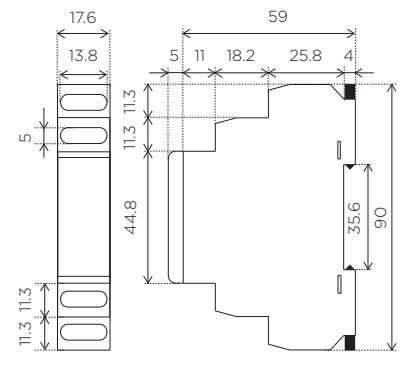
DIM-6

## 3 Modul



EMDC-64M SA3-06M RFDA-73M/RGB  
IM3-140M DA3-22M RFSA-66M  
DAC3-04M LBC3-02M RFDEL-71M  
SA3-04M DCDA-33M

## 1 Modul



M13-02M SA3-02M  
BPS3-01M RFSA-61M  
BPS3-02M

# Installation options



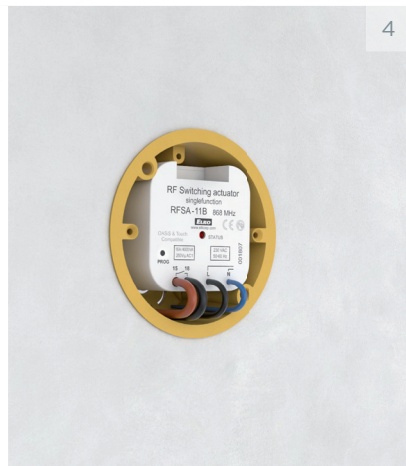
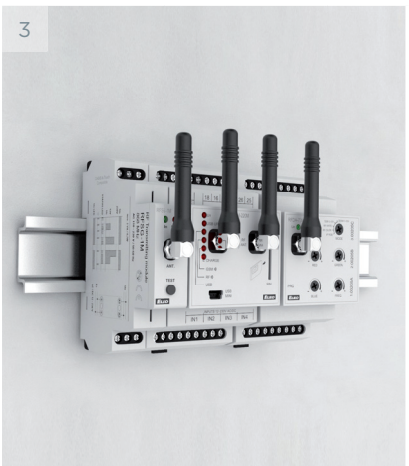
## 1) Wall mounting

Wall mounting or installation in the installation box with a spacing of 65 mm.

RFWB-20/G	EST3
RFWB-40/G	EHT3
WSB3-20	GSB3-40
WSB3-40	GSB3-60
WSB3-20H	GSB3-80
WSB3-40H	GMR3-61
IDRT3-1	GHR3-11
RF Touch	

## 2) Prebuilt storage in the wall

RF Touch



## 3) Installation on DIN rail

DIN rail according to EN 615.

CU3-01M	DAC3-04M	RFSA-66M
CU3-02M	SA3-04M	RFDEL-71M
PS3-100/	SA3-06M	MI3-02M
iNELS	DA3-22M	BPS3-01M
SA3-012M	LBC3-02M	BPS3-02M
DIM-6	DCDA-33M	SA3-02M
EMDC-64M	RFDA-73M/	RFSA-61M
IM3-140M	RGB	

## 4) Installation into the installation box

Mounted in an installation box or built into the device.

RFSA-11B	SA3-02B
RFSAI-61B	SMR-S
RFSA-62B	SMR-U
RFDEL-71B	SMR-M
SA3-01B	



## 5) Installation in the housing

RFSA-11B	SA3-02B
RFSAI-61B	SMR-S
RFSA-62B	SMR-U
RFDEL-71B	SMR-M
SA3-01B	

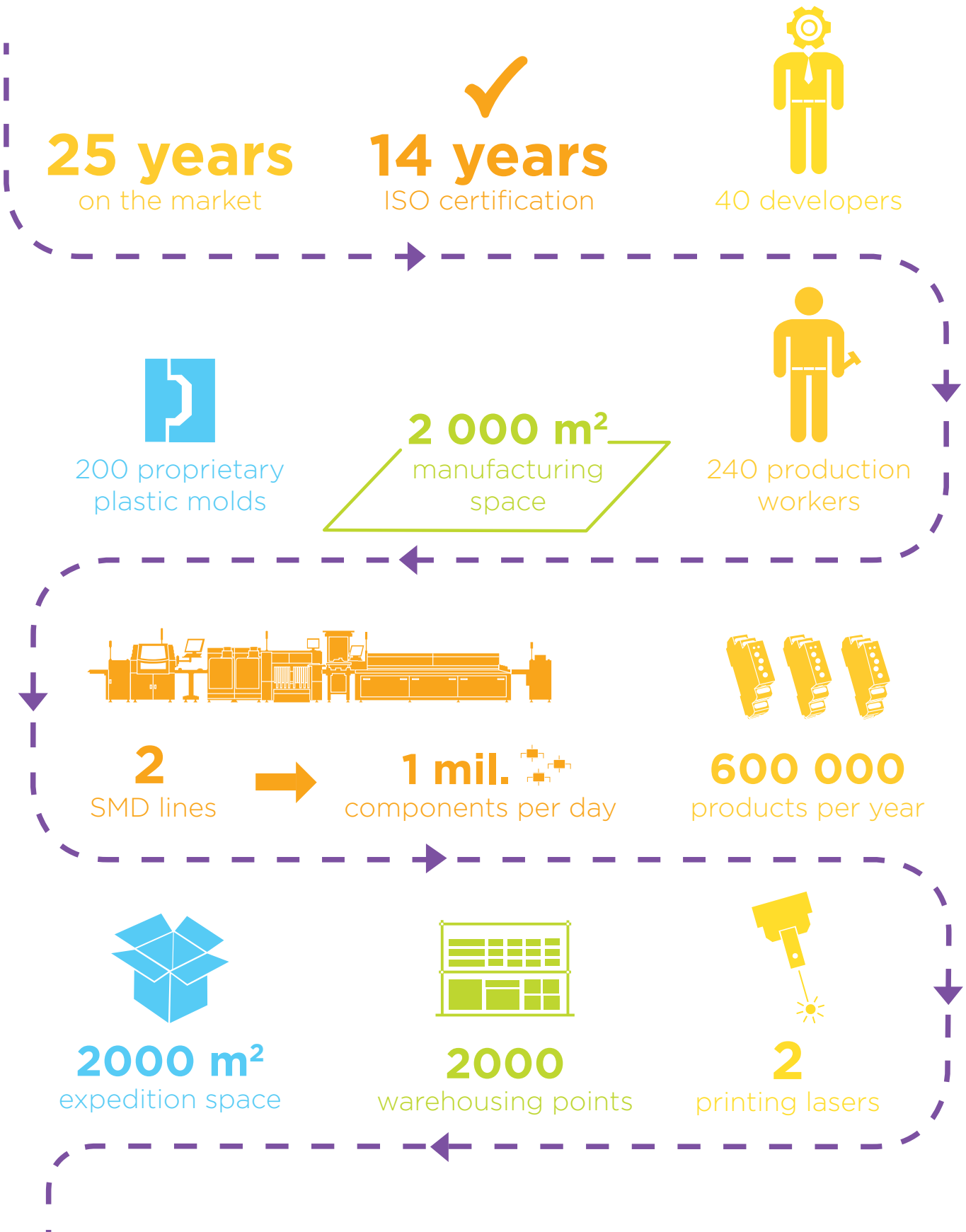
## 6) Wall mounting

DLS3-1  
SOU-3  
RFSOU-1

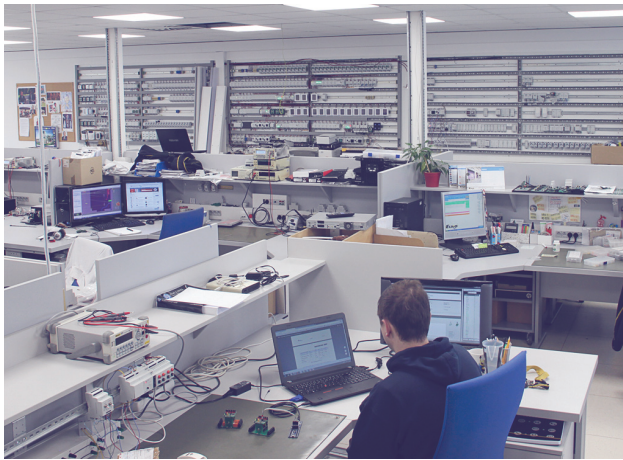


Others just resell

HOWEVER, WE DEVELOP AND MANUFACTURE PRODUCTS OURSELVES!



R & D overall view



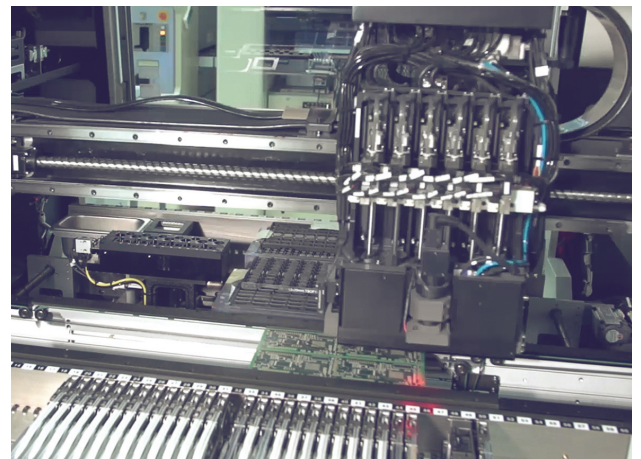
Internal lab



SMD production line



Chip placing



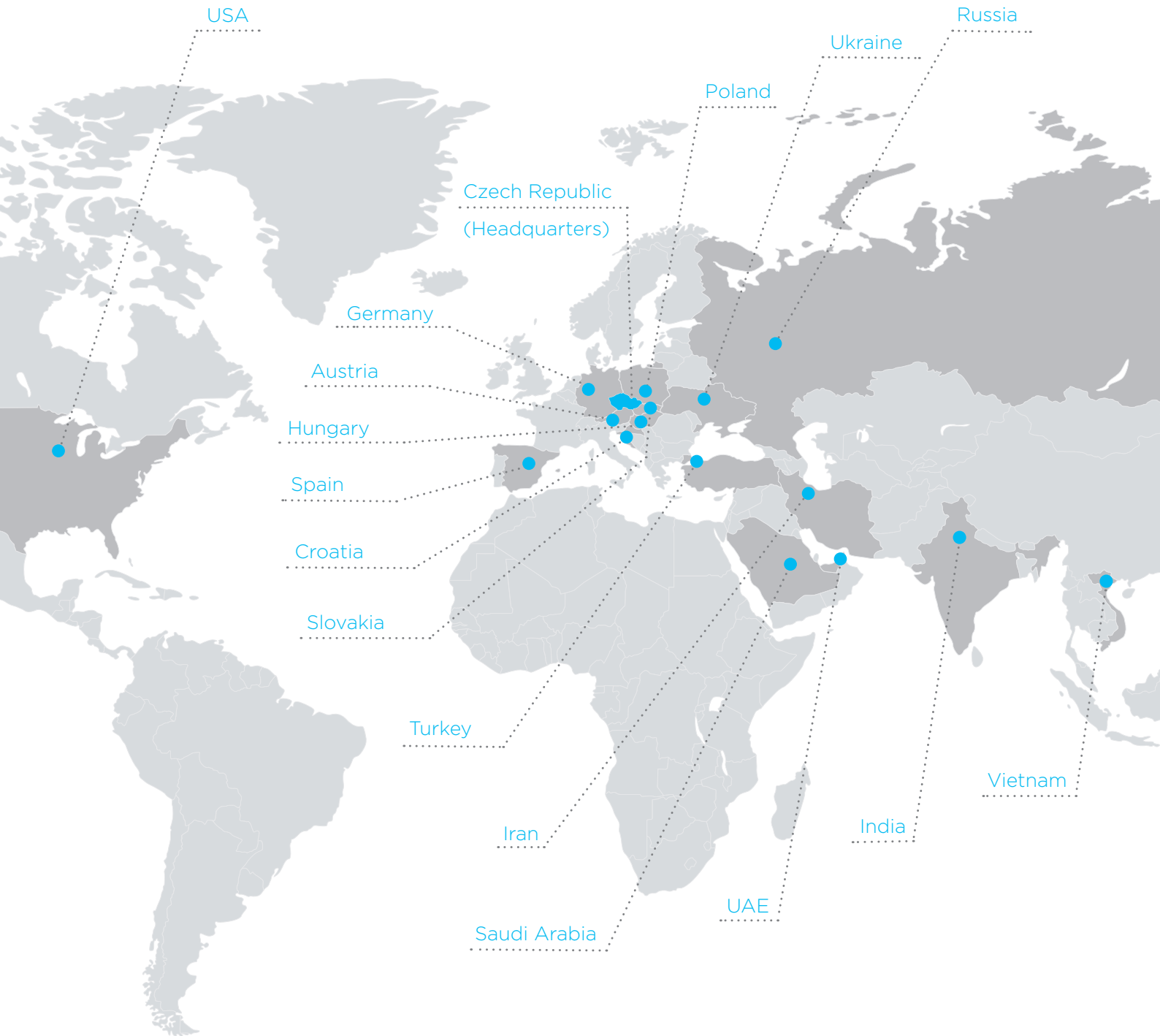
Production hall



Testing



# ELKO EP Holding



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