Light management systems

The future is here: light management systems

MADE IN ITALY

Disano illuminazione offers a wide range of solutions that meet the design requirements of both simple and complex installations which include the concepts of **Smart Building** and **Smart City**, as well as **IoT infrastructure** where data are monitored and the system is analyzed to increase energy savings through personalized control strategies, which can be reconfigured endlessly to enable our lighting fixtures to interface with Building Automation IoT systems.

Simple access and usage are crucial for making the technology available to everyone through smartphones and tablets.

Whether it's for indoor or outdoor areas, public or private offices, commercial or industrial spaces, Disano offers a **WIDE RANGE OF LIGHTING MANAGEMENT SOLUTIONS** that can help increase energy savings, visual comfort and safety.

The global LED lighting market is estimated to reach $94.5 billion by 2024, with an expected compound annual growth rate (CAGR) of 10.4% from 2025 to 2034. Connected lighting solutions are most widely adopted in the professional indoor lighting segment, followed by outdoor lighting. Geographically, the impact of smart lighting on the overall LED lighting market is similar in both Europe and North America, while it is relatively lower in the Asia-Pacific region.

source: GMI

Eliminate energy waste by using lighting only when needed: energy efficiency!

Comfort and visual safety: ensure the right level of lighting everywhere, eliminating risks associated with poorly lit areas and maintaining safety in any working environment.
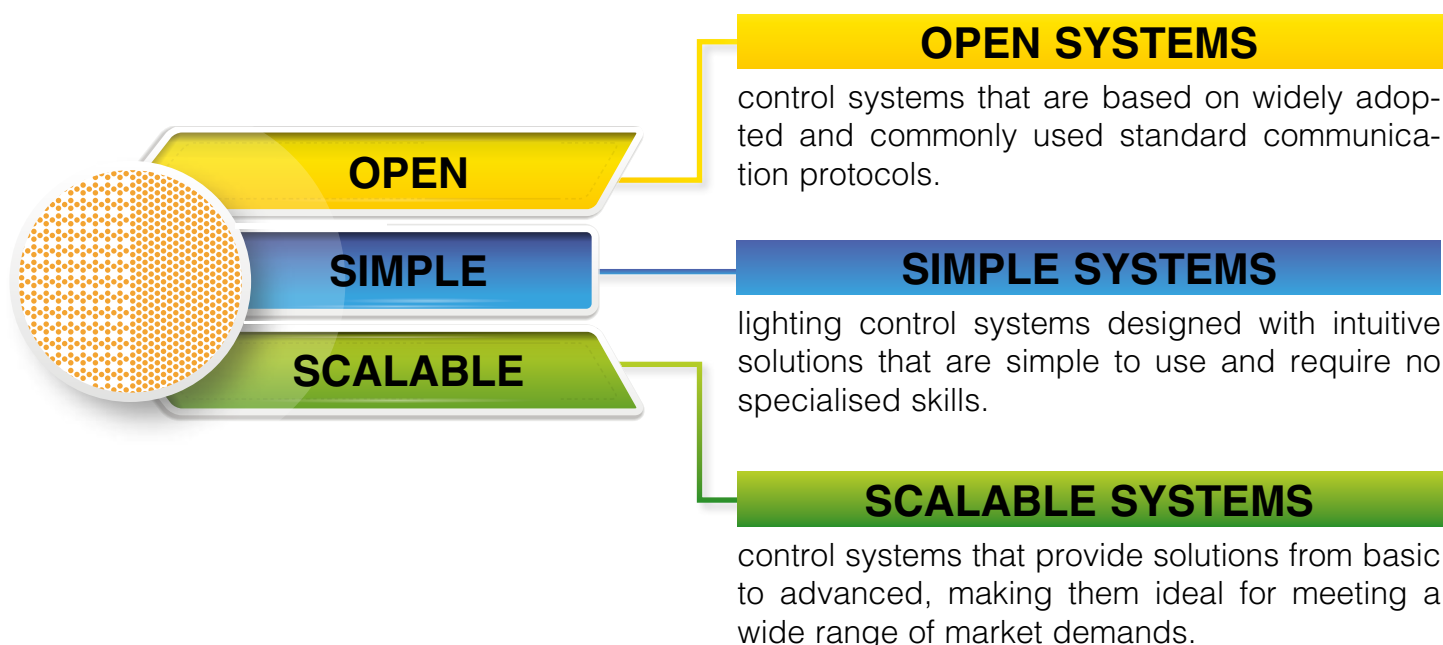
Regulatory compliance: adhere to energy efficiency regulations for both residential and non-residential buildings at the European levels.

Standard UNI EN 15232 (Building Automation and Control Systems)

Standard UNI EN 12464-1 (Work Environments)

European Directive EPBD (Energy Performance of Buildings)

Our philosophy on light management systems:

OPEN

SIMPLE

SCALABLE

OPEN SYSTEMS
control systems that are based on widely adopted and commonly used standard communication protocols.

SIMPLE SYSTEMS
lighting control systems designed with intuitive solutions that are simple to use and require no specialised skills.

SCALABLE SYSTEMS
control systems that provide solutions from basic to advanced, making them ideal for meeting a wide range of market demands.

INDOOR LIGHTING SOLUTIONS

ELEMENTARY SOLUTION
from page 6

PLUG & PLAY systems with on-board sensors:

• Solution with built-in sensors
• Sensors attached to the lighting body and visible
• Programming via app or remote control of sensors or trimmers
• The installer and the user do not require specific skills because the lighting fixture is configured to change lighting levels automatically
• No additional cabling
• No centralized controls
• No programming and commissioning from specialized technicians
• No remote communication

MEDIUM SOLUTION
from page 14

CABLED solutions for DALI dimmable fixtures:

• The lighting fixture is equipped with a DALI PUSH DIM LED driver
• Simple additional cabling and possibility to use a standard NO switch

ADVANCED SOLUTION
from page 22

High-tech WIRELESS solutions to be managed via app:

• System equipped with smart sensors with high level of automation
• Easy-to-use app and software that do not require skills from specialists (e.g. DALI commissioning or software engineer)
• Built-in or external sensors and, if requested, additional cabling that does not require complex circuitry

SMART / IoT SOLUTION
from page 30

COMPLEX solutions requiring lighting management hardware and software:

SMART solution:
• Wired and wireless solutions
• System with all fixtures and sensors are managed with the BUS link (or over the air) with the possibility of a limited, but extremely simple, management
• Possibility to configure via app/smartphone/tablet
• Suitable for medium-small systems: variable complexity, including situations that may require the intervention of specialized workers (e.g. commissioning)
• Scalable

IoT solution:
• Device complete with smart technology and hardware infrastructure with software for remote control

OUTDOOR LIGHTING SOLUTIONS

ELEMENTARY SOLUTION
from page 36

Programmable luminaires:

 The luminaire is equipped with a smart LED driver
• Virtual Midnight: lights can be dimmed in 4 steps (up to 8 steps upon request)

SMART SOLUTION MEDIUM
from page 40

COMPLEX solutions requiring lighting management hardware and software:

The lighting fixture is designed to accept NEMA/ZHAGA socket
• Option to install sensors and remote control at a later time by using the fixture's socket
• No additional cabling is required
• External installation of fixture

SMART (IoT) SOLUTION
from page 48

COMPLEX solutions requiring lighting management hardware and software:

• Fixture complete with smart technology and hardware infrastructure with software for remote control

SPORTING SOLUTION
from page 50

COMPLEX solutions requiring lighting management hardware and software:

• Small and medium-sized sports facilities
• Large-sized sports facilities (stadiums/sport centres/campuses)

DMX for LED RGBW

DMX SOLUTION
from page 58

COMPLEX solutions requiring lighting management hardware and software:

• Device complete with smart technology and hardware infrastructure with software for remote control

HCL

HUMAN CENTRIC LIGHTING
from page 60

COMPLEX solutions requiring lighting management hardware and software:

• Device complete with smart technology and hardware infrastructure with software for remote control

INSTALLATION TIPS *(products equipped with integrated sensor with microwave technology):*

• *Do not install in unstable locations or where subject to vibration*
• *Do not install near metal or glass structures*
• *Do not install near water pipes*
• *Do not install near fluorescent tubes*
• *Follow the instructions for maximum mounting height*
• *Make sure there are no moving or interfering objects within the sensor's range*
• *The sensor's microwaves can pass through glass, windows, doors and walls*

Selection of Disano/Fosnova luminaires
that can be ordered with integrated or external sensors and other management systems

INDOOR LIGHTING SOLUTIONS

Solution	Fixture sub-code	Fixture wiring	Disano/Fosnova fixture
ELEMENTARY	-19 (integrated ON/OFF sensor)	CLD sensor ON/OFF	Minicomfort, Comfortsquare, Disanlens, Oblò 2.0, Oblò 2.0 J, Compact, Ottima, Hydro, Thema, Echo, Dorno, Saturno, Astro Q, Astro Q mini, Cripto mini, MIcro Rodio, Pastilla, Pastilla J 2.0 , Tortuga
	-18 (integrated stepDIM sensor)	CLD sensor stepDIM	Echo
	-1219 (integrated 0/10V sensor)	CLD D sensor 0/10V	Saturno, Astro Q, Astro Q mini, Lucente
	-0061 (integrated DALI sensor)	CLD D-D sensor DALI	Saturno, Astro Q, Astro Q mini
MEDIUM	-0045 / -1245 (DALI PUSH)	CLD D-D PUSH	Minicomfort, Led Panel, Creta, Rodi, Comfortsquare, Sun, Office, Saving, Studio, Luthor, Jet, Panel Tech, Toledo, Liset 2.0
	-0041 / -1241 + external motion/pre-sence sensors	CLD D-D (DALI)	Minicomfort, Led Panel, Creta, Rodi, Comfortsquare, Heron, Ibis, Compact, Compact Dark, Health Dark, Office, Saving, Studio, Luthor, Jet, Panel Tech, Toledo, Liset 2.0 Saturno, Astro Q, Astro Q mini
ADVANCED	-24 (integrated wireless technology)	CLD DISMART	Ottima, Hydro, Thema, Echo, Dorno, Astro Q, Astro Q mini, Rodio, Saturno, Astro, Cromo
	-23 (integrated wireless technology)	CLD basicDIM	Led Panel, Creta, Rodi, Comfortsquare, Heron, Ibis, Compact, Compact Dark, Health Dark Office, Saving, Studio, Panel Tech, Toledo, Liset 2.0
	-0041 / -1241 + basicDIM module + external control wireless device	CLD D-D (DALI)	
SMART	-0054 (Zhaga socket configuration)	CLD ZHAGA	Saturno, Astro Q, Astro Q mini
IoT - STAND ALONE (industrial)	-0041 + external control wireless modules/sensors	CLD D-D (DALI)	Saturno, Astro Q, Astro Q mini
IoT - NETWORKED	-0041 / -1241 + external control wire-less modules/sensors	CLD D-D (DALI)	Minicomfort, Led Panel, Creta, Rodi, Comfortsquare, Heron, Ibis, Compact, Compact Dark, Health Dark, Office, Saving, Studio, Luthor, Jet, Panel Tech, Toledo, Liset 2.0

OUTDOOR LIGHTING SOLUTIONS

Solution	Fixture sub-code	Fixture wiring	Disano/Fosnova fixture
ELEMENTARY	-30 (integrated virtual midnight)	CLD MIDNIGHT	Mini Ischia, Ischia, Iseo, Como, Garda, Loto, Torpedo 2.0, Visconti 2.0, Lucerna, Volo, Torcia, Vista, Polar, Clima, Campana, Monza
	-1219 (integrated 0/10V sensor)	CLD D sensor 0/10V	Mini Ischia, Ischia, Garda, Torpedo 2.0, Visconti 2.0, Clima
SMART MEDIUM	-40 (Nema socket configuration)	CLD NEMA	Iseo
	-0054 (Zhaga socket configuration) + external DALI-2 wireless photocell/motion-light sensor/antennas	CLD ZHAGA	Mini Ischia, Ischia, Iseo, Como, Garda, Loto, Torpedo 2.0, Visconti 2.0, Lucerna, Volo, Mini Giovi, Giovi, Sella, Mini Stelvio, Stelvio, Rolle 2.0, Susa, Denia
SMART (IoT / Smart City)	Fixture complete with SMART technology and hardware infra-structure with software for real-time remote control of urban and street lighting		Mini Ischia, Ischia, Iseo, Como, Garda, Loto, Torpedo 2.0, Visconti 2.0, Lucerna, Volo, Mini Giovi, Giovi, Sella, Mini Stelvio, Stelvio, Rolle 2.0, Susa, Denia
SPORTING BASIC WIRELESS	-0041 + external antenna/wireless controller	CLD D-D (DALI)	Mini Rodio, Saturno, Astro, Radon, Forum, Forum 2.0
SPORTING ADVANCE WIRELESS	-0041 + external antenna/ wireless controller/server/switch/touch panel	CLD D-D (DALI)	Rodio, Cromo, Radon, Forum, Forum 2.0
SPORTING DMX TOP	Fixture equipped with DMX/RDM driver + DMX/RDM controller and software for remote control		Radon, Cromo, Forum, Forum 2.0,

DMX for LED RGBW

Solution	Fixture sub-code	Fixture wiring	Disano/Fosnova fixture
DMX RGBW	Fixture with integrated DMX technology + external control device	CLD DMX/RDM	Cripto, Rodio, Sicura, Microfloor, Midifloor, Floor, Strip neon, Micro Liset Professional

HCL

Solution	Fixture sub-code	Fixture wiring	Disano/Fosnova fixture
HCL (TW BASIC)	-0024 + DALI power supply / BLE module + App remote BT (iOS/Android)	CLD D-D (DALI)	Comfort Panel, Comfortsquare, Compact Dark, Office, Liset 2.0
HCL (WIRELESS)	-89 (integrated HCL/wireless technology)	CLD DW (HCL)	Comfort Panel, Comfortsquare, Compact Dark, Office, Liset 2.0

|				
CLD Electronic power supply with 230/240V - 50/60Hz + LED.	**CLD D** Electronic dimmable power supply with 230/240V - 50/60Hz (1/10V) + LED.	**CLD D-D (DALI)** Electronic digital dimmable power supply with 230/240V - 50/60Hz (DALI) + LED..	**CLD D-D (PUSH)** Electronic digital dimmable power supply with 230/240V - 50/60Hz (PUSH DALI) + LED	

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ELEMENTARY - PLUG & PLAY solutions require no additional wiring or special skills from the installer or end user, who can simply connect the device to the mains power supply. They are commonly used in indoor lighting fixtures.

Fixtures with integrated ON/OFF motion sensor

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RADAR SENSOR

The Disano/Fosnova products with **microwave motion sensor** (with twilight function), integrated into the fixture must be ordered with **subcode-19.**

Example of application: corridors

ø min 4 m
ø max 6 m
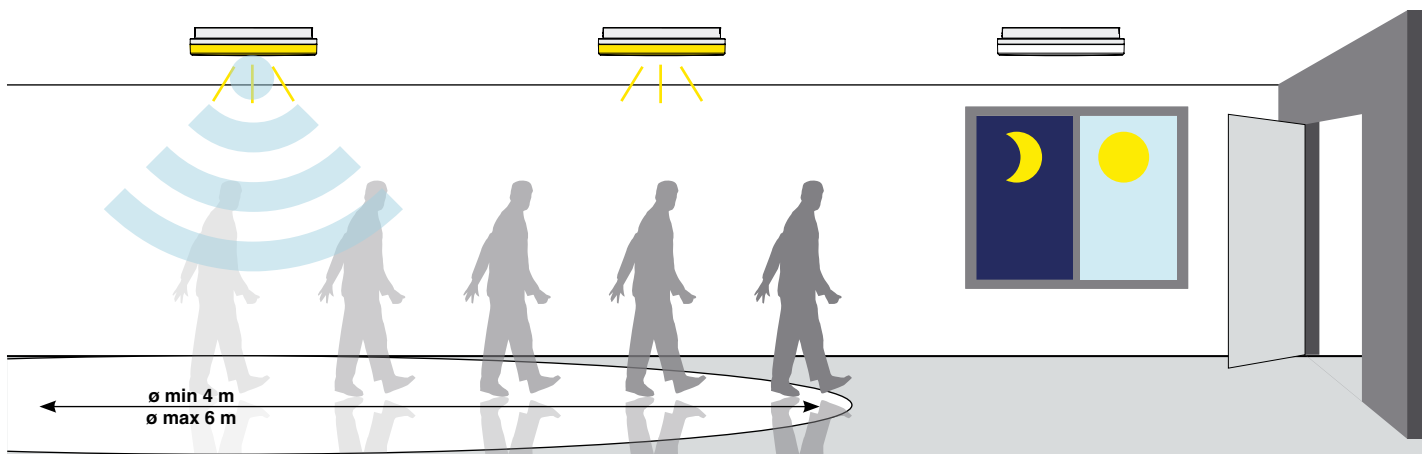
Built-in RADAR SENSOR (sub-code -19): an electronic device that immediately detects any presence entering its range. When the sensor reads motion inside its range, lights will stay on. When it no longer senses motion and based on the lighting level in its range, the sensor will turn off the lights after a pre-programmed time.

ADVANTAGES:

• No additional wiring is needed

• Easy to use

• Low costs

• Little maintenance

• Energy savings

APPLICATIONS:

• Corridors

• Stairs

• Entrances

• Offices

• Service areas/secondary rooms

ELEMENTARY - PLUG & PLAY solutions require no additional wiring or special skills from the installer or end user, who can simply connect the device to the mains power supply. They are commonly used in waterproof fixtures.

The Disano products with **microwave motion sensor** (with twilight function), integrated into the fixture must be ordered with **subcode -18**.

Fixtures with integrated stepDIM motion sensor

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EXAMPLE OF SAFETY MODE OPERATION (PRE-SET LIGHTING LEVEL)

1 Lights stay on at a pre-programmed level (10% or 30%) when no motion is detected.

2 As soon as the sensor detects motion, it will change the lights to their full brightness (100%).

3 Lights will stay on at their full brightness for a previously set hold time (5sec/60sec/3min/5min).

4 When motion is no longer detected and the hold time has elapsed, the sensor will dim the lights to the previously set brightness (10% or 30%).

EXAMPLE OF ENERGY-SAVING MODE OPERATION (LIGHTING LEVEL OFF)

1 Lights stay off when no motion is detected.

2 As soon as the sensor detects motion, it will change the lights to their full brightness (100%).

Lights will stay on at their full brightness for a previously set hold time (5sec/60sec/3min/5min).

3 When motion is no longer detected and the hold time has elapsed, the sensor will dim the lights to the previously set brightness (10% or 30).

4 The sensor will turn the lights off after 10 minutes.

ADVANTAGES:

- No additional wiring is needed
- Easy to use
- Low costs
- Little maintenance
- Safety or energy-saving modes available

max. 6 m

150°

max. 14 m

9

ELEMENTARY - PLUG & PLAY solutions require no additional wiring or special skills from the installer or end user, who can simply connect the device to the mains power supply. They are commonly used in industrial fixtures.
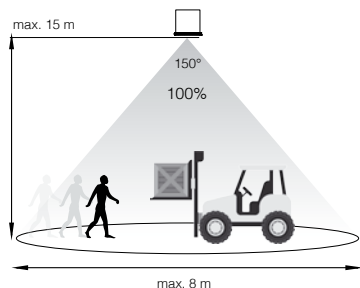
Fixtures with integrated motion sensor
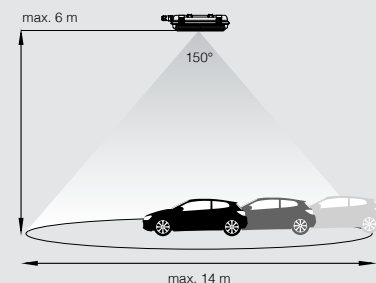
External **ON/OFF** motion sensor:
• radar sensor with microwave technology
• operating modes and parameters can be set with remote control

ON/OFF

The Disano products with built-in **microwave motion sensor** (with twilight function) must be ordered with **subcode -19**.

max. 15 m

150°

100%

max. 8 m

When the sensor reads motion inside its range, light will stay on. When it no longer senses motion and based on the twilight lighting level in its range, the sensor will turn off the light after a pre-programmed time.

External **BI-LEVEL** motion sensor:
• radar sensor with microwave technology
• operating modes and parameters can be set with remote control

0/10V

The Disano/Fosnova products with built-in **0/10V microwave motion sensor** (with twilight function) must be ordered with **subcode -1219**.
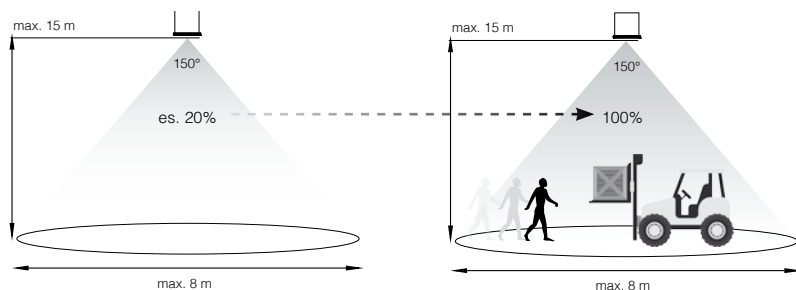
max. 15 m

150°

es. 20%

max. 8 m

max. 15 m

150°

100%

max. 8 m

If the sensor does not detect motion (es 20%), lights stay on constant for a pre-set time. As soon as the sensor detects motion in the scan area, lights will automatically increase to 100%. If no motion is detected after a certain amount of time, the sensor will dim back to the set level.

ADVANTAGES:

• No additional wiring is needed

• Easy to use

• Low costs

• Little maintenance

• Safety or energy-saving modes available

Remote control (cod. **81420019**) to be purchased separately to change parameters after installation, without opening the fixture.

ELEMENTARY
SOLUTION
(INDOOR)

ELEMENTARY - PLUG & PLAY solutions require no additional wiring or special skills from the installer or end user, who can simply connect the device to the mains power supply. They are commonly used in industrial fixtures.

Sensor integrated inside the fixture

Integrated **BI-LEVEL** motion sensor:
• radar sensor with microwave technology
• operating modes and parameters can be set with Dip-switch or remote control (OPTIONAL)

0/10V

The Disano products with **0/10V microwave motion sensor** (with twilight function), integrated into the fixture must be ordered with **subcode -1219**.

max. 15 m

es. 20%

max. 8-14 m

max. 15 m

100%

max. 8-14 m
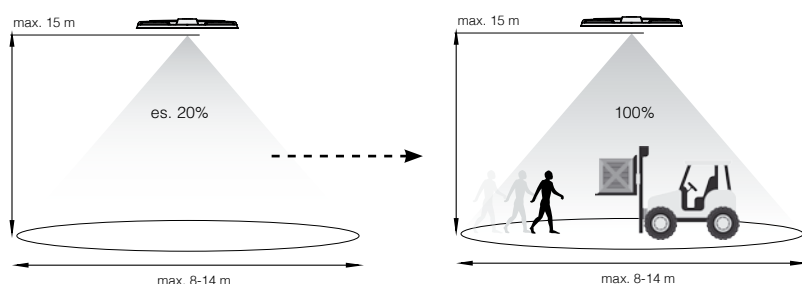
(Optional cod. **81418618**) remote control to change parameters after installation, without opening the fixture

If the sensor does not detect motion (es 20%), lights stay on constant for a pre-set time. As soon as the sensor detects motion in the scan area, lights will automatically increase to 100%. If no motion is detected after a certain amount of time, the sensor will dim back to the set level.

DALI

The Disano products with built-in **motion and constant light PIR sensor** must be ordered with **sub-code -0061**.
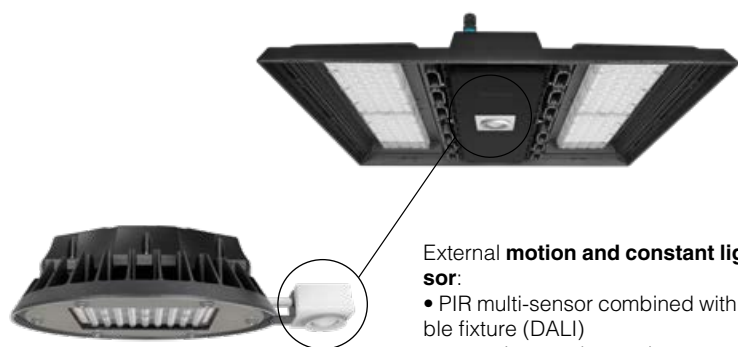
External **motion and constant light sensor**:
• PIR multi-sensor combined with dimmable fixture (DALI)
• operating modes and parameters can be set with remote control (OPTIONAL)

All functions can be set by request or with the (optional cod. **81420111**) remote control

The built-in sensor optimises the luminaire's consumption during operation by combining the detection of motion with the amount of light in the room.
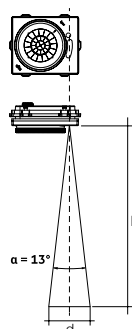
Lights can be dimmed from 100% to 1% (with the option to go completely OFF)

	Default Parameter Motion Detector
A	light-level
1	time delay
B	sec. level
2	if vacant

Light
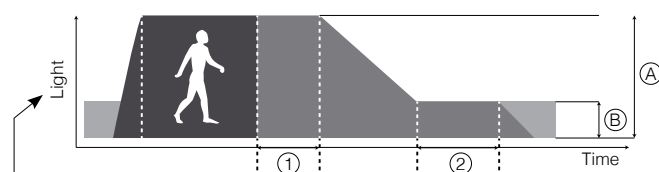
Time

Time can be set from 30 sec. to 60 min.

Recommended height installation: 16m max.

$\alpha = 13°$

h	d
8 m	1.8 m
10 m	2.3 m
12 m	2.7 m
14 m	3.2 m
16 m	3.7 m
18 m*	4.2 m

$\alpha_{high} = 60°$
$\alpha_{low} = 72°$
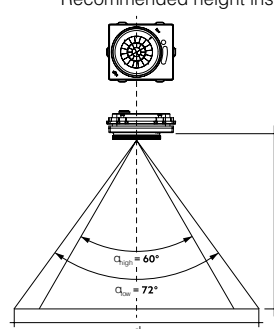
h	Zoom	d
8 m	low	12.0 m
9 m	low	13.5 m
10 m	low	15.0 m
11 m	low	16.5 m
12 m	low	18.0 m
12 m	high	14.0 m
13 m	high	15.2 m
14 m	high	16.4 m
15 m	high	17.6 m
16 m	high	18.8 m
17 m	high	19.8 m
18 m*	high	21.0 m

Upon request with sub-code -0062: version available for 10m max recommended height installation (please contact our customer service when ordering/purchasing the fixture).

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AC - CC

PushDIMM (or switchDIM): light control via N.O. switch.

• The lighting fixture is equipped with a dimmable LED driver **DALI** with **PUSH** function. With a particular connection between the driver and the **DALI** inlet you can enable functions such as power on/power off/dimming.

• The length of the cable and the number of fixtures that can be connected are virtually endless, but in practice, there is asynchrony in the reply to the power ON and dimming command over distances above 25 metres and if many LED drivers are installed. As a consequence, this type of dimming is recommended in installations. such as small offices, small meeting rooms, and generally, where cables are shorter.

PushDIMM - light control via N.O. switch

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The Disano products equipped with **PushDIMM** driver must be ordered with **subcode -0045**.

The Fosnova products equipped with **PushDIMM** driver must be ordered with **subcode -1245**.

These solutions <u>require simple additional cabling and can be used with standard N.O. switch</u> and apply to the families of products for interiors.

Possible operations:
• Lights are powered on and off with a slight pressure of the button
• Lights are dimmed from off to 100% by holding the button down
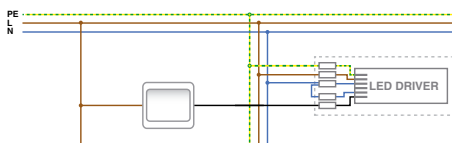
Upon request, to **automatically synchronize all the lights in a system,** use the **DALI - ELECTRONIC SYNCHRONIZATION DEVICE:** control unit with in-built DALI dimmer and manual switching of DALI fixtures with all standard buttons.

cod. 81420033

Main features:
• Possibility to connect up to four parallel devices to setup multiple control points
• Automatic synchronization of control points
• Length of DALI cable: up to 300 m
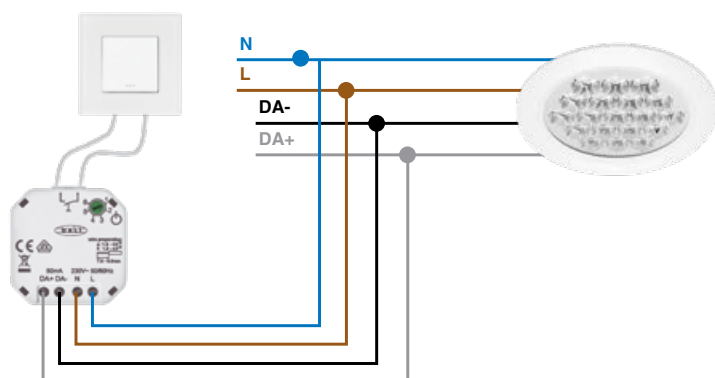
Easy installation in standard flush boxes: only one component is required for the entire light control. After the connection to the mains and DALI wires, the DALI control unit is placed into the flush box and connected to the pushbutton ready.

ADVANTAGES:
• Manual and intuitive dimming and switching
• Individual setting of minimum light level
• Suited for a maximum of 25 electronic drivers

APPLICATIONS:
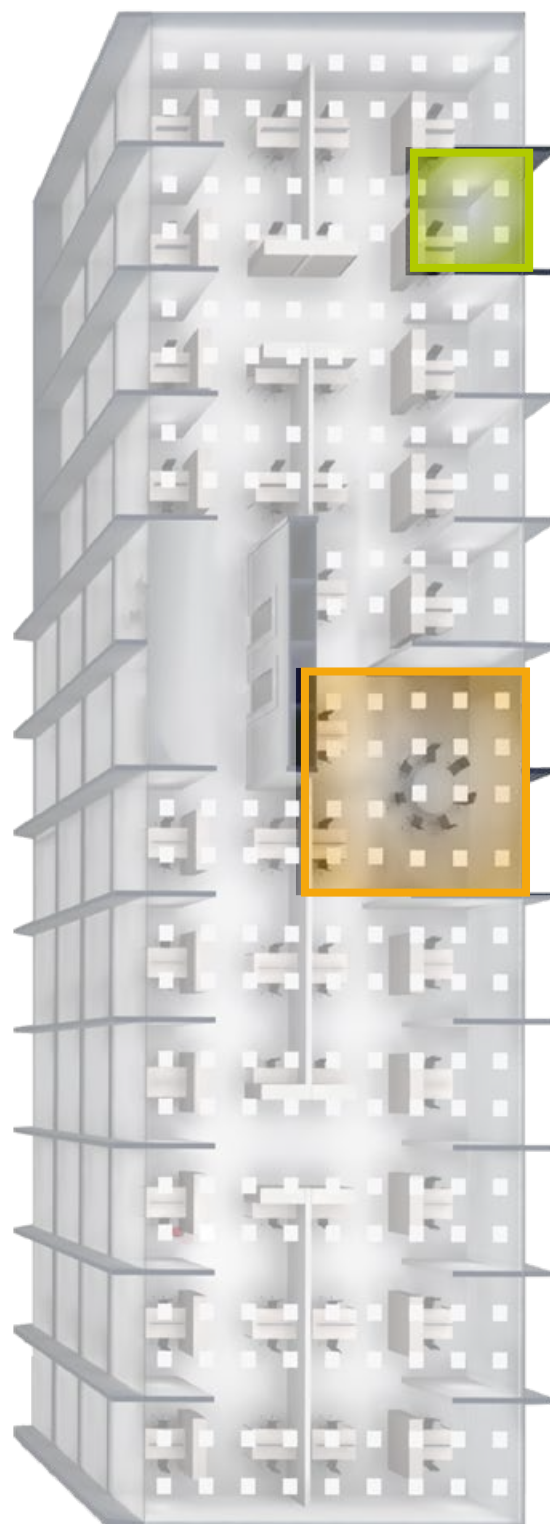• small offices
• small meeting rooms

WHAT TO ORDER:
KIT 1 - example of installation in small offices:
• 4 pcs - art. 842 LED Panel (150205-0045)
• N.O. button

KIT 1 - example of installation in open space:
• 4 pcs - art. 842 LED Panel (150205-0045)
• N.O. button
• DALI - electronic synchronization device (81420033)

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(IR) MOTION/PRESENCE DETECTOR FOR INDOOR APPLICATIONS

The motion/presence detector adjusts the lights to a preset lighting value based on the people occupying a room and the amount of light at that moment. The integrated lighting sensor constantly measures the level of luminosity in the room and compares this value with the value set.

The **DALI** versions of Disano's products with **subcode -0041** and the **DALI** versions of Fosnova's products with **subcode -1241** can be used with the motion/presence detector.

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(IR) infrared sensor:

DALI2 application controller with optimal light management for the lighting of **INDIVID-UAL ROOMS** (schools, shops, offices), including constant light control unit. Setups and networking are easily done via Bluetooth Mesh or App Connect (iOS/Android).

- TouchDIM function and motion sensor
- Dimming to maintain constant light with adjustable fade-out time
- Enlargement of scan area (MASTER or SLAVE) with the same product, configuration via APP

MASTER IR MICRO DALI
up to 5 m ceiling heights (2,8m recommended)

2,8m

4x4m

6x6m

IP20 recessed version

cod. 986620-00

IP20 recessed version for plasterboard

cod. 986621-00

IP20 ceiling version

cod. 986622-00

Google play

Available on the App Store

Bluetooth Low energy mesh network **MESH**
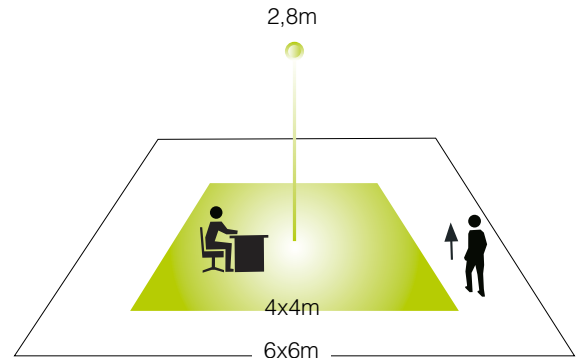
(IR) infrared sensor:

presence detector for **LARGE AREAS** in places that need **special focus on safety** (e.g. schools, pre-schools, nursing homes, public offices) with the adjustment of lights based on daylight levels.

- Further functions can be set with remote control
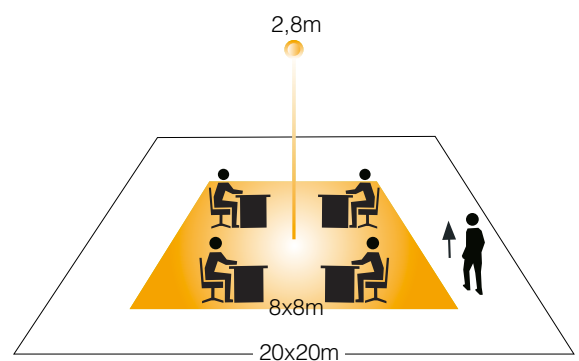- ceiling version with IP54 connection to purchased separately

MASTER IR HD DALI
up to 10 m ceiling heights (2,8m recommended)

2,8m

8x8m

20x20m

IP20 recessed version

cod. 986623-00

Enlargement of scan area with SLAVE unit **cod. 986624-00**

Accessories available on request for MASTER - SLAVE

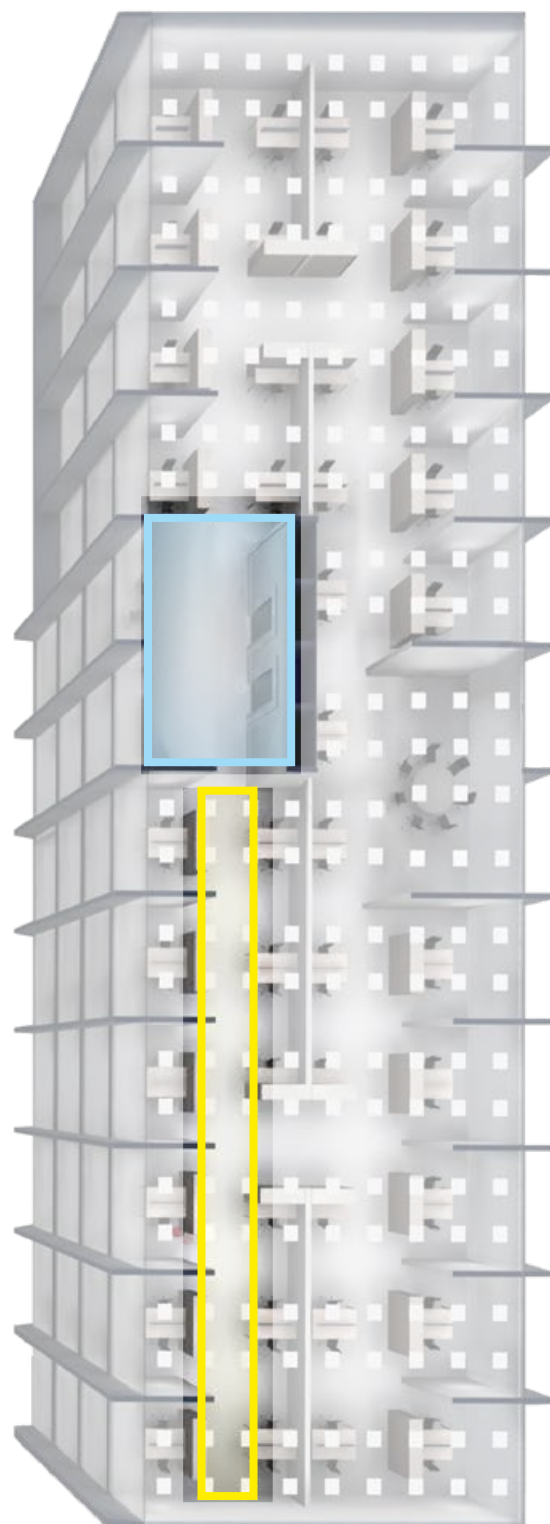| RMD-RC5 USER	RMD-RC8 SERVICE	Protection grid (Ø160 x 98)	IP54 CONNECTION
cod. 986632-00	**cod. 986633-00**	**cod. 986634-00**	**cod. 986625-00**

(HF 5.8Ghz) MOTION/PRESENCE DETECTOR FOR INDOOR APPLICATIONS

The motion/presence detector adjusts the lights to a preset lighting value based on the people occupying a room and the amount of light at that moment. The integrated lighting sensor constantly measures the level of luminosity in the room and compares this value with the value set.

The **DALI** versions of Disano's products with **subcode -0041** and the **DALI** versions of Fosnova's products with **subcode -1241** can be used with the motion/presence detector.

(HF 5.8Ghz) high frequency sensor:
presence detector for **GENERIC SCAN AREAS** to adjust electrical lights based on the available daylight

• Further functions can be set with remote control
• ceiling version with IP54 connection to purchased separately
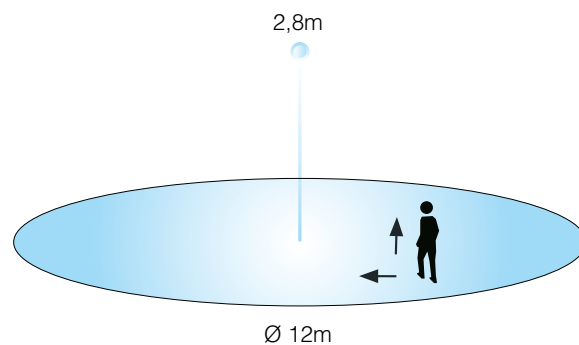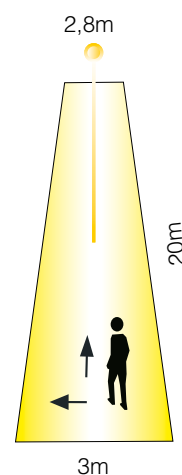
IP20 recessed
version

cod. 986629-00

Enlargement of scan area with SLAVE unit **cod. 986635-00**

MASTER HF DALI
from 2,5m up to 3,5 m ceiling heights (2,8m recommended)

2,8m

Ø 12m

(HF 5.8Ghz) high frequency sensor:
presence detector for **CORRIDORS** to adjust electrical lights based on the available daylight

• Further functions can be set with remote control
• ceiling version with IP54 connection to purchased separately

IP20 recessed
version

cod. 986626-00

Enlargement of scan area with SLAVE unit **cod. 986636-00**

MASTER DUAL HF DALI
from 2,5m up to 3,5 m ceiling heights (2,8m recommended)

2,8m

20m

3m

Accessories available on request for MASTER - SLAVE

RMD-RC5 USER	RMD-RC8 SERVICE	Protection grid (Ø160 x 98)	IP54 CONNECTION
cod. 986632-00	**cod. 986633-00**	**cod. 986634-00**	**cod. 986625-00**

(IR) MOTION DETECTOR FOR INDOOR APPLICATIONS
External light sensor that ensures constant light dimming when mounted on ceilings up to 16 m high. Motion detection was developed especially for applications such as **high-bay warehouses**.

The **DALI** versions of Disano's products can be used with the presence detector by ordering with **subcode -0041**.

(IR) infrared sensor for high ceilings:

HIGH-BAY WAREHOUSES often feature narrow aisles and very high ceilings. The IS MX COR Highbay infrared motion detector was specially designed for mounting heights up to 16 metres and for accurate detection in narrow **AISLES**

IS MX COR HIGHBAY
up to 16 m ceiling heights (12 m recommended)

12m

30m

4m

IP54 **MASTER DALI**
recessed version

cod. 986640-00

IP54 **MASTER ON/OFF**
recessed version

cod. 986641-00

Enlargement of scan area with SLAVE unit
SLAVE DALI   **cod. 986637-00**
SLAVE ON/OFF **cod. 986638-00**
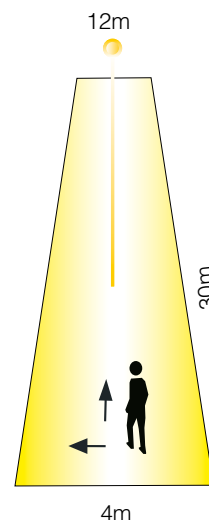
(IR) infrared sensor for high ceilings:

in **FACTORY** or **LOADING AREAS** and **COMMERCIAL SPACES** ceilings are typically very high. The IS MX IND Highbay wide-range motion detector can cover a very large scan area as it can be installed up to 14 meters from the ground.

IS MX IND HIGHBAY
up to 14 m ceiling heights (12 m recommended)

12m

Ø 14m

Ø 36m

IP54 **MASTER DALI**
recessed version

cod. 986642-00

IP54 **MASTER ON/OFF**
recessed version

cod. 986643-00

Enlargement of scan area with SLAVE unit
SLAVE DALI   **cod. 986645-00**
SLAVE ON/OFF **cod. 986646-00**
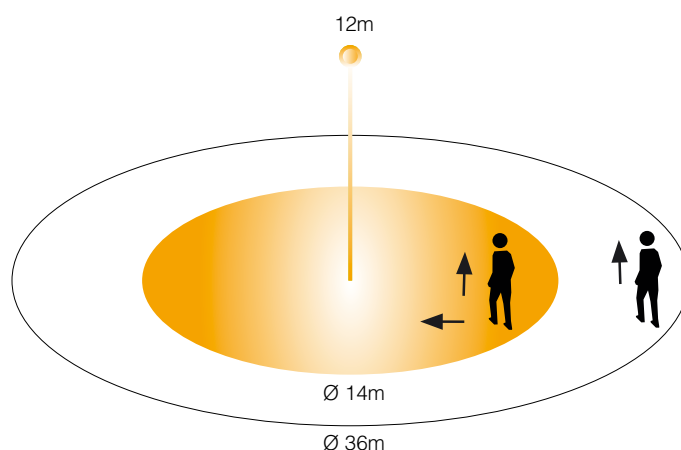
Accessories available on request

RMD-RC5
USER
cod. 986632-00

RMD-RC8
SERVICE
cod. 986633-00

The **DISMART 2.0** control system has been upgraded with the latest technologies, including IoT electronics and innovative features, while complying with the Minimum Environmental Criteria (CAM) and European Green Deal regulations and providing valuable assistance in addressing design challenges across both industrial and civil applications.

Based on BLE 5.0 Mesh and Wi-Fi transmission modules, it is designed to enable notable energy savings in indoor lighting systems by continuously adjusting the luminaire brightness according to ambient conditions and design parameters.

Thanks to the daily scheduling options and the integration of DALI-2 motion and constant light sensors, the system automatically adjusts artificial lighting levels and maintains the desired illuminance by dimming the lights based on natural light levels and room occupancy.

The concept of delivering light only where and when it is needed can result in energy savings of over 80% compared to the same system without light management.

Download the app from Android and Apple stores and get your lighting system up and running in just a few simple and intuitive steps.
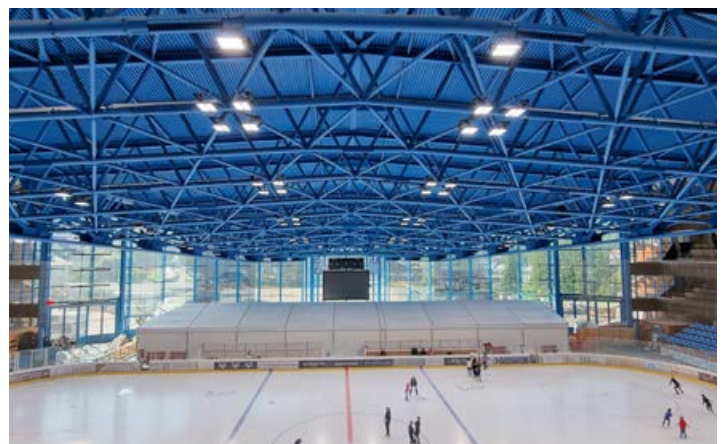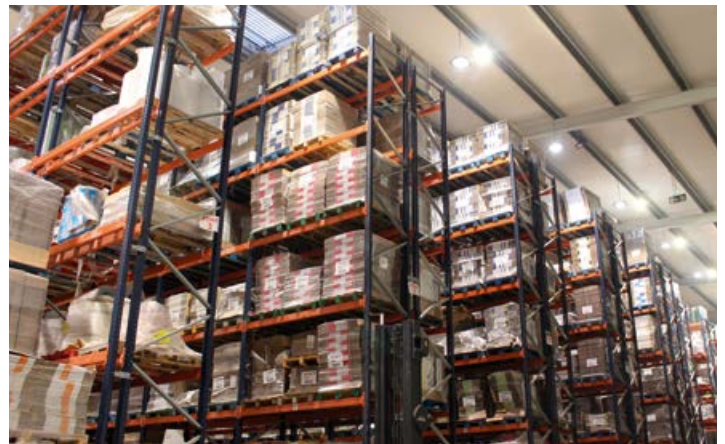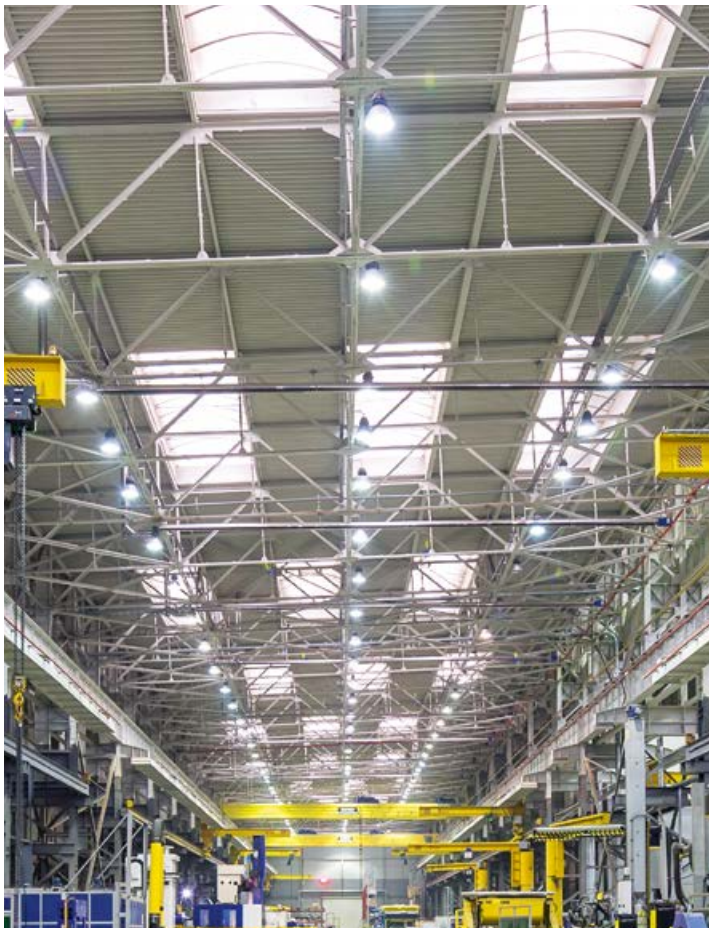
DISMART 2.0 WIRELESS SYSTEM

A wireless lighting management system designed for installers and end users, while also supporting designers thanks to its easy integration into lighting installations and compliance with minimum environment criteria (CAMs) for public spaces.

Simple and intuitive, it lets you set up an entire lighting system in just a few easy steps and applies mostly to the following sectors: **INDUSTRIAL, LOGISTICS, INDOOR SPORTS**.

DISMART 2.0 APP
SIMPLE, RELIABLE AND INTUITIVE

DISMART 2.0 APP: SIMPLE, RELIABLE AND INTUITIVE, Disano presents the **DISMART 2.0 App**, available for free download from our website, offering complete management of the entire system. Once installed, the gateway creates a Wi-Fi local network that you can connect to using your mobile smart device. Through the **DISMART 2.0 App**, you can then programme the luminaires, sensors, and N.O. buttons integrated into the system. The software, developed for system management, enables the programming of illuminance levels on an daily/monthly/annual basis, ensuring the desired lighting in the area where the module is installed. Once the simple programming is done, the system works autonomously thanks to the integrated clock. Using an N.O. button panel, the system can trigger an "event" scenario that temporarily overrides the "hourly programming" for a specified duration, as configured via the app.

CONNECTED AND READY FOR USE IN 3 SIMPLE STEPS

DOWNLOAD:
download the free version of the iOS/Andorid app

SET UP:
connect to the gateway of your mobile phone/tablet, then add lamps/sensors/buttons (via QR code)

MANAGE:
you can create groups and set up control for the lights in each room.

DISMART 2.0 App - The main functions allow you to:
• configure the gateway via Wi-Fi network
• manage luminaires individually or in groups
• define different illuminance levels
• define different time slots to divide the day/week/month/year
• independently associate illuminance levels to each time zone
• associate motion sensors or constant light to the groups created
• set an illuminance level (forcing) via N.O. button

ADVANTAGES OF USE:

The system is reliable, safe and simple to programme thanks to its very intuitive app; quick and easy to install, it does not require commissioning by qualified personnel.

The system enables significant energy savings and a reduction in running costs, because it can be controlled independently.

The system ensures optimal visual comfort by allowing the desired illuminance level to be set and adjusting the luminaires based on the amount of daylight flooding the room.
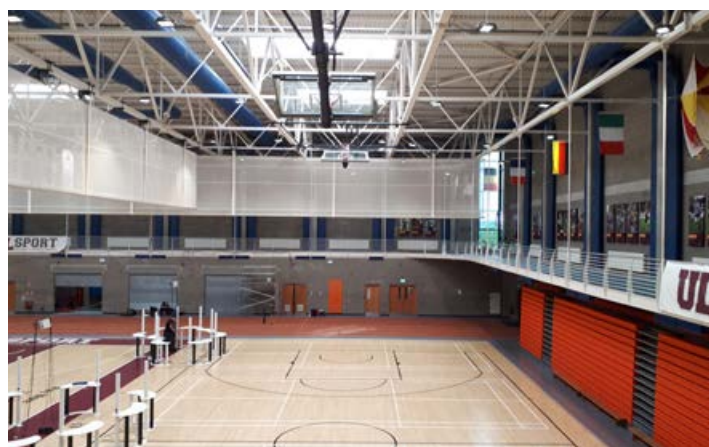
DISMART 2.0 SYSTEM COMPOSITION

The system consists of just **3 elements**, making installation and commissioning easy: a **luminaire** with an **integrated light controller module**, the **gateway**, and the **programming App**.

EXAMPLE OF USE

1) Luminaire in the wireless version complete with **DISMART 2.0 light controller** module with **subcode -24**

2) **GATEWAY DISMART 2.0** code **81410011**

3) **DISMART 2.0 App** for mobile devices, to be used for programming the system

DISMART 2.0 System – Radiofrequency mesh network communication
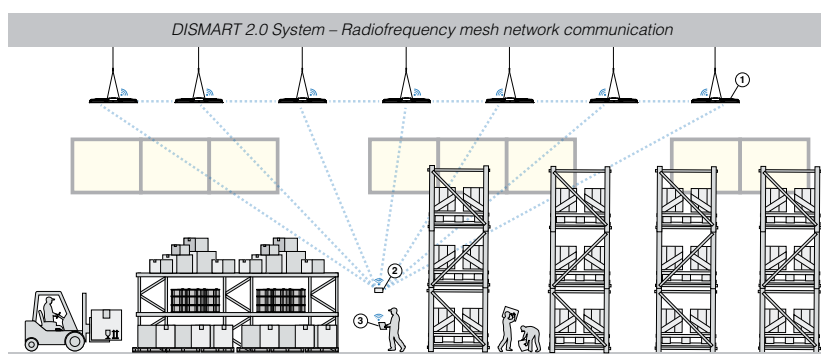
High-tech WIRELESS: DISMART 2.0
REDEFINING THE WAY WE LIGHT OUR SPACES

disano
iluminazione

DISMART 2.0: WIRELESS REMOTE CONTROL SYSTEM

**DISMART 2.0** system was designed to allow notable energy savings in indoor lighting systems.

DISMART 2.0 system solutions currently apply to the weatherproof and industrial high-bay families.

DISMART 2.0

To set up a **DISMART 2.0** system, you will need to order the following products:

1) WIRELESS luminaire complete with **light controller** module with **subcode -24**

2) Gateway module with code **81410011** that will generate the Wi-Fi local network

3) DALI2 sensor interface or N.O. buttons in IP65 box with code **81410014**

4) DIMM DALI/DALI2 luminaire with **subcode -0041,** dwhich will be associated to the **DISMART 2.0** interface in IP65 box with code **81410013**

5) Free App for mobile devices for complete system management and parameter configuration

MAIN FEATURES

- 100% Made in Italy, featuring the latest generation of electronic components
- wireless management system for luminaires, light and presence sensors, **DALI2** type, and N.O. buttons
- mesh radio technology with open **BLE 5**.0 and **Wi-Fi** protocols
- system programming through the app, featuring the latest generation software/firmware architecture, available on both Android and iOS platforms (Q1)

HARDWARE AND SOFTWARE ARCHITECTURE

= cod. 81410014
DALI2 sensor interface/ N.O. buttons

= cod. 81410011
gateway
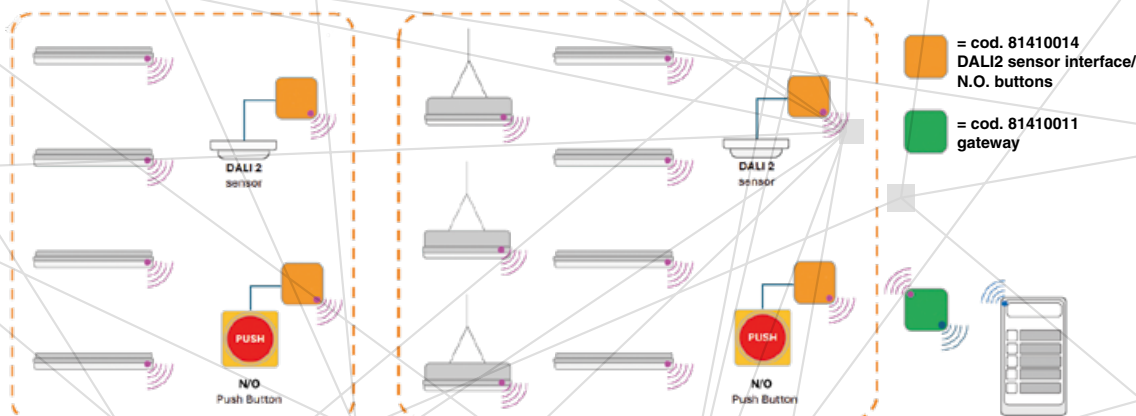
WiFi Gateway programming with DISMART 2.0 APP via Wi-Fi (generated by the gateway itself) with mobile devices (phone+tablet)

Bluetooth Low energy mesh network Mesh radio communication between gateway and lamps/sensors/buttons via BLE 5.0

DALI DALI2 sensors and N.O. buttons of any brand are transformed into *smart wireless things* and join the DISMART 2.0 system adding functionality as well as maximising the system's energy savings

MAIN FUNCTIONS

GROUPS: luminaires can be managed individually or in groups.

BUTTON: an N.O. button can be connected to trigger an event at any time. The physical pushbutton is transformed into a wireless button.

CALENDAR: thanks to the built-in calendar, it is possible to customise daily schedules and manage holidays.

SCHEDULES: thanks to the built-in clock, the system can be programmed for 24-hour time slots.

LIGHT SENSORS: can be integrated and, thanks to the DISMART 2.0 interface, they will be converted into wireless sensors.

PRESENCE/MOTION SENSORS: can be integrated and, thanks to the DISMART 2.0 interface, they will be converted into wireless sensors.

SCALABILITY: can be configured for both small rooms and large facilities.

INDEPENDENT: the system can be used anywhere. No need for local data connection.

Disano
illuminazione

basicDIM WIRELESS SYSTEM FOR INDOOR APPLICATIONS

The wireless lighting management system is made up of the lighting system, the DALI driver and one of the basicDIM Wireless modules. The command profiles are saved at the factory. The lighting can be controlled via 4remote BT app or user interface. The Bluetooth connection allows controlling, in an easy and practical way, up to 250 light points, turning them on, off, dimming their intensity, grouping fixtures and creating lighting scenes.

Advantages for the commissioning technician:

• Starting, programming and control of lighting fixtures in an easy way thanks to the app
• Easy location and wireless assignment of lighting fixtures
• Easy system adjustment

Advantages for the building operator:

• Easy updating
• Reduction of energy consumption
• Possibility of multifunctional use of rooms
• Wireless adjustment of the individual lights

Advantages for the user:

• Individual functioning of the individual lighting fixture
• Easy graphical selection of the lighting fixture
• Intuitive selection of light level and brightness

basicDIM

Disano's products Disano/Fosnova made with the basicDIM system can be ordered according to the following compositions:

• **COMPOSITION A**: order **DALI** fixture version, Disano with **subcode -0041** or Fosnova with **subcode -1241** + **basicDIM wireless** module code **81420072 / 986262-00**.
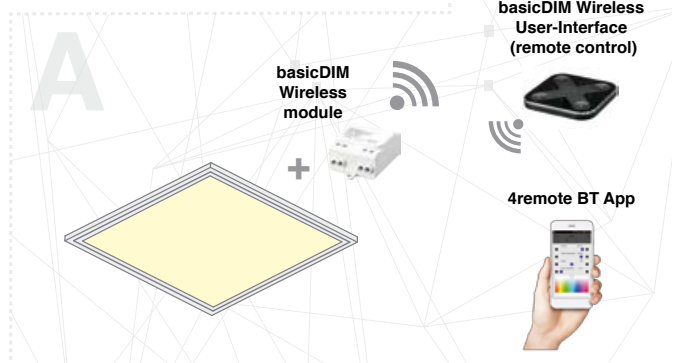
• **COMPOSITION B**: order version **with integrated wireless technology subcode -23**.

For best management of the basicDIM system, order the wireless controllers and app separately.

System composition

COMPOSITION A: order **DALI** fixture version, Disano with **subcode -0041** or Fosnova with **subcode -1241** + **basicDIM wireless** module code **81420072 / 986262-00**.

Users can command the Basic-DIM wireless modules with the 4remote BT app or the user interface to create a wireless communication network.

basicDIM Wireless
radio sensor

basicDIM Wireless
User-Interface
(remote control)

basicDIM
Wireless
module

4remote BT App

A

COMPOSITION B: order version **with integrated wireless technology subcode -23.**

Users can communicate directly with the fixture with the 4remote BT app or from the user interface.

basicDIM Wireless
radio sensor

basicDIM Wireless
User-Interface
(remote control)

4remote BT App

B
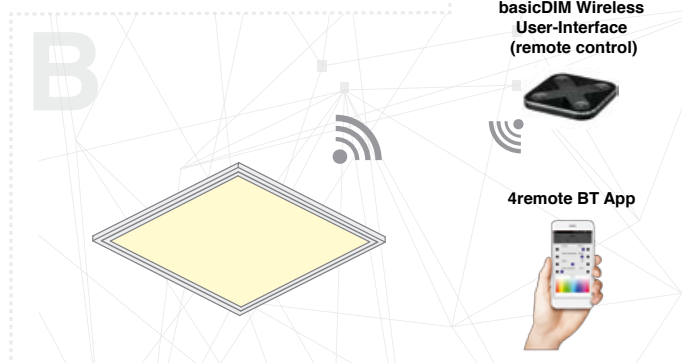
Options for use

Settings selection

Rapid access to the saved settings and adjustments made according to the use expected for the room

Colour temperature adjustment

CCT

Individual adjustment of the light level based on the lighting fixtures used

Dimming option

From 1% to 100%

Presence detection

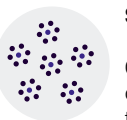Basic lighting according to requirements through the integration of sensors

Planning

Support for planning tasks thanks to internal clocks and calendars

Personalization

Adjustments to adapt to the changing usage requirements or to expand the system

System with group circuits

Control of individual fixtures and groups of fixtures that can be adjusted at any time based on usage requirements through the 4remote BT app. Easy to expand thanks to wireless installation.

BASICDIM WIRELESS SYSTEM - FOR INDOOR APPLICATIONS

System architecture: is made up of hardware and software modules. Communication with fixtures and sensors occurs via BLE - 2.4 GHz radio frequency (wireless) solutions.

basicDIM wireless Module

The basicDIM wireless module allows easy wireless interaction with lighting fixtures, including their configuration, start-up and actual use. The lighting control system can also be managed via the 4remote BT app.

cod. 81420072

• Wireless command with Android/iOS devices
• Automatically creates a wireless communication network with max. 250 nodes
• Possibility to configure analogue/digital output
• Analogue output: 0 – 10 V / 1 – 10 V decreasing/increasing
• Digital output: DALI compatible

FEATURES:
• Power voltage: 220/240 V
• Frequency: 50/60 Hz
• Maximum radio receiver output power: + 4 Dbm
• Ambient temperature: -20 ÷ +50 °C
• Protection class: IP20

G2

cod. 986462-00

• Wireless command with Android/iOS devices
• Automatically creates a wireless communication network with max. 250 nodes
• Digital output: Standalone DALI (compatible)
• *One independent push-button input*
• *Easily implemented RGB and colour temperature controls*

FEATURES:
• Power voltage: 220/240 V
• Frequency: 50/60 Hzz
• Maximum radio receiver output power: + 20 dBm
• Input: 1 momentary-action switch
• Number of DALI addresses: 4
• Max. output current, DALI: 250 mA
• Ambient temperature: -20 ÷ +70 °C
• Protection class: IP20

IP40 (for cod. 81420072/986462-00 and 986441-00/986463-00) and IP66 boxes for remote installation

BOX - IP40

cod. 986447-00

BOX - IP66

cod. 997649-00

Power supply DALI PS3

The DALI PS3 power supply is designed specifically for smaller DALI applications.

cod. 986440-00

FEATURES:
• DALI-2 power supply providing 70 mA for DALI-2 installations
• Power voltage: 220/240 V
• Mains frequency: 50/60 Hz
• Power consumption: 1.75 W
• Ambient temperature: 0 ÷ +50 °C
• Degree of protection: IP20

BLE Passive module

The BLE transmitter (passive module) creates a wireless network by interacting with the luminaires, hence eliminating the need for an additional network line. The lighting control system can also be managed via the 4remote BT app.

cod. 986441-00

FEATURES:
• Automatically forms a wireless communication network with max. 250 nodes (no external gateway is required)
• Digital output: DALI compatible
• Max. DALI bus current: 250 mA
• Ambient temperature: 0 ÷ +50 °C
• Degree of protection: IP20

G2

cod. 986463-00

FEATURES:
• Automatically forms a wireless communication network with max. 250 nodes (no external gateway is required)
• Digital output: DALI compatible
• *4 independent push-button inputs*
• *Easily implemented RGB and colour temperature controls*
• Ambient temperature: -20 ÷ +70 °C
• Protection class: IP20

Example of installation
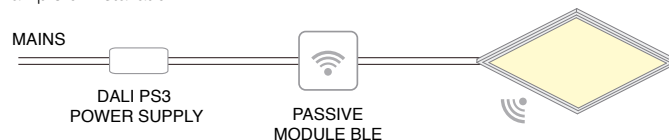
MAINS — DALI PS3 POWER SUPPLY — PASSIVE MODULE BLE

Example of application: classrooms, offices or open spaces
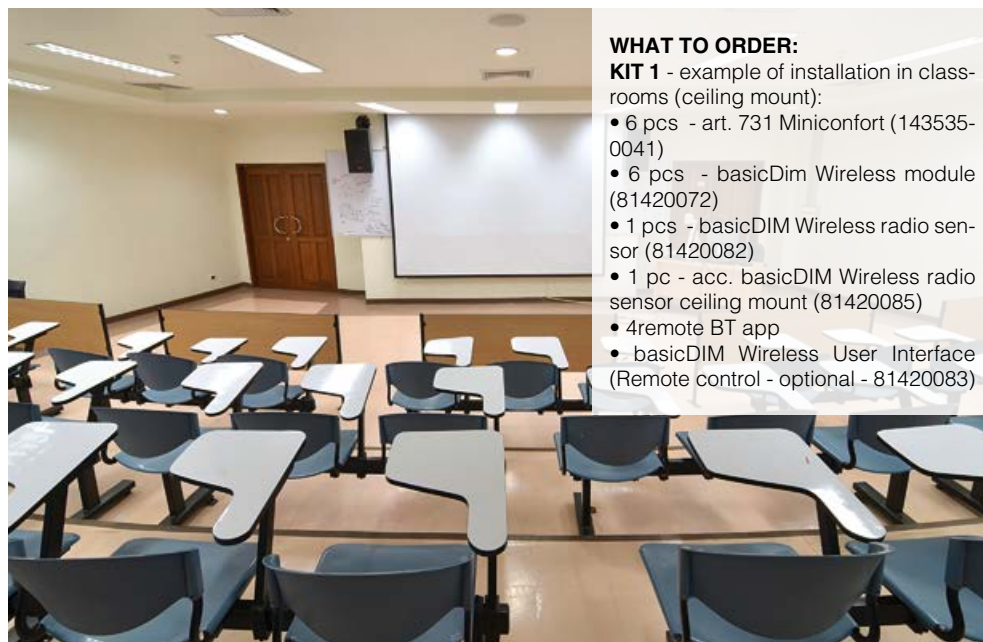
WHAT TO ORDER:
KIT 1 - example of installation in classrooms (ceiling mount):
• 6 pcs - art. 731 Miniconfort (143535-0041)
• 6 pcs - basicDim Wireless module (81420072)
• 1 pcs - basicDIM Wireless radio sensor (81420082)
• 1 pc - acc. basicDIM Wireless radio sensor ceiling mount (81420085)
• 4remote BT app
• basicDIM Wireless User Interface (Remote control - optional - 81420083)

WIRELESS DEVICES AND APPS TO MANAGE THE BASICDIM SYSTEM

basicDIM Wireless radio sensor

cod. 81420082

The wireless sensor allows controlling lights based on the amount of daylight and occupancy level. It was designed for the following applications: open space offices, training/presentation rooms, corridors, transit ways and garages.

• Command based on surrounding luminosity and presence
• Wireless control with Android/iOS devices
• Passive IR sensor technology
• Including shutter to optimize sensor scanning range

Accessory for radio sensor ceiling connection

cod. 81420085

FEATURES:
• Power voltage: 220/240 V
• Frequency: 50/60 Hz
• Mounting height: max. 4 m
• Scan range (mounting height: 3 m): ø 8 m
• Lighting measurement on the head of the sensor: 1 – 2000 lx (± 20 %)
• Ambient temperature: 0 ÷ +50 °C
• Protection class: IP20

IP40 sensor for high mounting heights

cod. 986448-00

This sensor is ideal for high mounting. It can be installed either on ceilings or walls (indoor/outdoor). It was designed for the following main applications: corridors, passageways and garages.
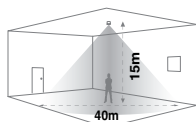
• Command based on surrounding luminosity and presence
• Wireless control with Android/iOS devices
• Passive IR sensor technology

cod. 81420153

Masking shields can be clipped directly onto the sensor to precisely narrow the detection diameter depending on use.

15m
40m

FEATURES:
• Power voltage: 220/240 V
• Frequency: 50/60 Hz
• Max. mounting height: : ceiling 15 m - (20 m max)
• Scan range: ceiling ø 20 m - wall ø 10 m
• Lighting measurement on the head of the sensor: 1 – 1.000 lx
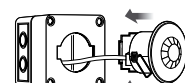• Ambient temperature: -20 ÷ +30 °C

cod. 81420201

IP65 adapter box for ceiling-mounted sensors. The sensor can be easily inserted through the pre-cut hole.

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basicDIM wireless User Interface

cod. 81420083

cod. 81420084

The basicDIM wireless user interface offers great interior design flexibility because furniture can be replaced and walls can be rebuilt without taking into account of the position of cables and switches.

• Control of all basicDIM Wireless devices
• Control of colour temperature
• Control of individual lighting fixture / Control of groups of lighting fixtures / Control of all lamps
• Saving of light scenes / Savings of animations
• Radio signal capacity: up to 60 m

App 4remote BT

The free app comes with a wireless basicDIM solution in all the development phases. Every operation can be done with an extraordinary comfort in an easy and quick way, starting from the installation and commissioning processes of the lighting fixtures to their daily use.

In order to be able to control basic wireless basicDIM lighting fixtures, you will need to connect (associate) them to a network. This is done with the 4remote BT app. All settings, such as names, images, groups, timers, scenes, and switch settings are saved on a network. If a unit is removed (disassociated) from the network, it will no longer have the specific network settings.

Timer - IP20

cod. 81420086

The timer is a device that will let you store lighting scenes data in case of temporary electricity shortage or black-out. Programming and synchronization settings are re-established when power is restored.

• Command: normally open switch that can be programmed via app
• Time memorization to keep the lighting scenes in case of black-out
• 24-hour network time memorization
• Synchronization of lighting scenes and programming settings in case of black-out or temporary electricity shortage
• Synchronization/storage of circadian profile via the App

Example of application: classrooms, offices or open spaces

WHAT TO ORDER:
KIT 2 - example of installation in offices (recess mount):
• 8 pcs - art. 844 LED Panel HE (150225-0041)
• 8 pcs - basicDim Wireless module (81420072)
• 1 pc - basicDIM Wireless radio sensor (81420082)
• 4remote BT app
• basicDIM Wireless User Interface (Remote control - optional - 81420083)

WHAT TO ORDER:
KIT 3 - example of installation in offices (**with integrated wireless technology**):
• 30 pcs - art. 844 LED Panel HE (150225-23)
• 8 pcs - basicDIM Wireless radio sensor (81420082)
• 4remote BT app
• basicDIM Wireless User Interface (Remote control - optional - 81420083)

INDUSTRIAL REMOTE CONTROL SYSTEM
The **ZHAGA** socket provides electrical and mechanical connection between the sensor and the fixture necessary to manage industrial lights effectively and efficiently.

This type of solution is ideal in industrial environments where lights need to adjust constantly to maintain the desired lighting levels based on the amount of daylight inside.

This solution applies to the following families of product:

ZHAGA SOCKET

The Disano products with **Zhaga Socket** must be ordered with **subcode -0054** (wireless controller (to be purchased separately).

Main characteristics of the **Zhaga socket**:
• Standard interface for all wireless networks
• 24V power, not prone to spikes/overvoltage
• Simple and fast installation of wireless controller
• Ready network: the initial wireless installation and successive update through a wireless network controller
• Quick and simple management of the wireless controller
• Sealing cap supplied as standard

Example of application: warehouses or industrial plants
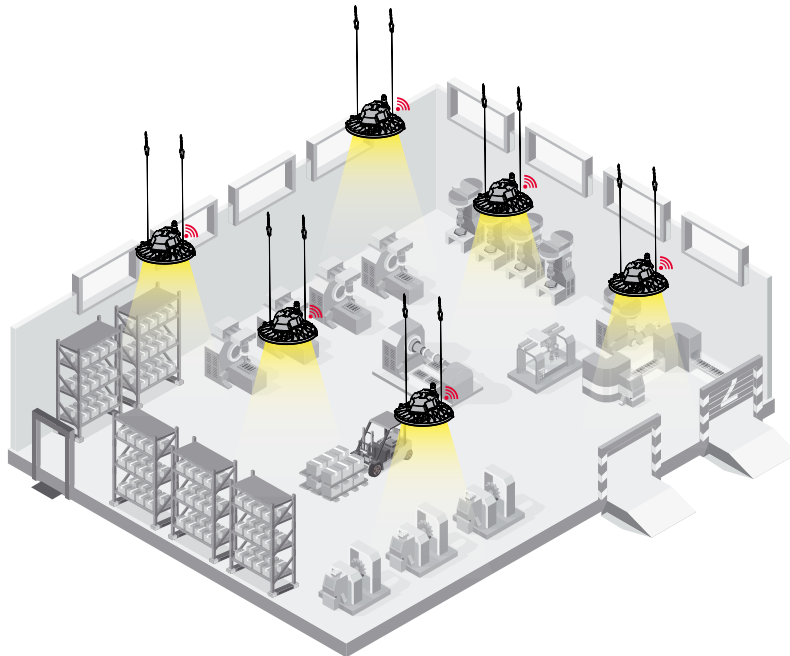
Thanks to the **Zhaga socket**, the end user can easily install any type of wireless controller (to be purchased separately) turning the fixture into a **SMART** fixture and therefore capable of being managed with the most common lighting control systems available on the market.

ADVANTAGES:

• Easy tool-free mounting. The module is attached and secured with a bayonet clamp

• Compact dimensions for greater design flexibility

• The special (push-in) contacts reduce logistics problems arising from the need to use cables with various lengths for different lighting fixtures

• Single built-in seal that protects both the fixture and the modules, minimizing mounting times.
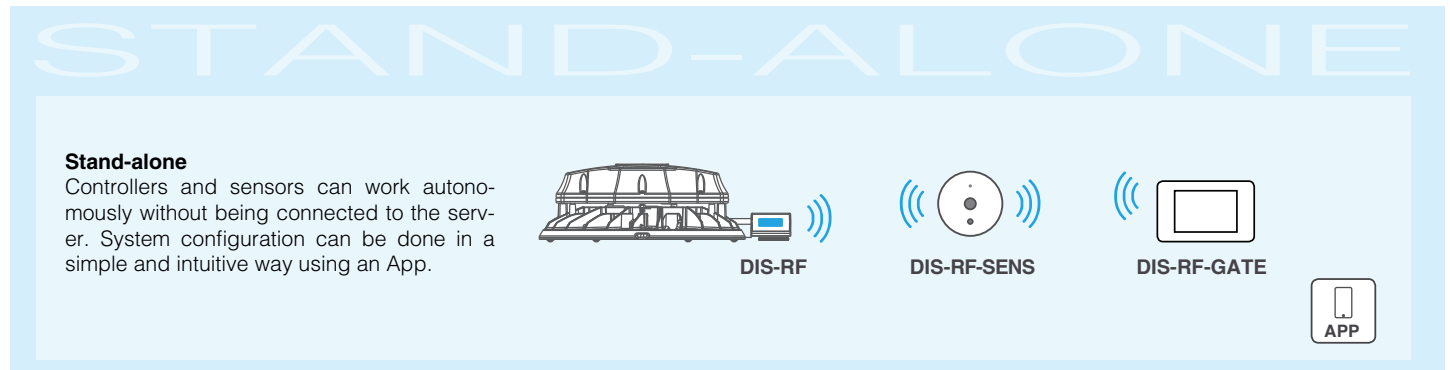
IoT SOLUTION
(INDOOR)

INDUSTRIAL STAND-ALONE SYSTEMS
Thanks to their modular and scalable architecture, **wireless** solutions can be used in **STAND-ALONE** applications. It is therefore possible to meet project requirements with the available budget or the expected return on investment. In stand-alone solutions, systems can be configured through a simple and easy-to-use APP without the need for further assistance from specialized technicians.

System architecture

The system is made up of hardware and software modules. Communication with **DALI sub-code -0041** fixtures and sensors occurs via radio frequency (wireless) solutions.

STAND-ALONE

Stand-alone
Controllers and sensors can work autonomously without being connected to the server. System configuration can be done in a simple and intuitive way using an App.

DIS-RF   DIS-RF-SENS   DIS-RF-GATE

APP

art. DIS-RF
Wireless control module for DALI drivers
The DIS-RF radio module controls a single lighting fixture equipped with **DALI** driver via a wireless network. The module operates in the **2.4 GHz** band and can implement the Mesh Network functionality. The DIS-RF module can also work as a stand-alone controller or through a centralized system.

art. DIS-RF-SENS
Wireless light and motion sensor
The DIS-RF-SENS multi-sensor detects light intensity and the presence of moving people and objects, sending the information in the **2.4 GHz** band via a wireless network. DIS-RF-SENS can be installed at elevated heights (up to 12 m). The sensor must be connected to the mains without having to be cabled to the rest of the system.

art. DIS-RF-GATE
2.4 GHz Bluetooth gateway
DIS-RF-GATE is a portable battery-powered gateway that allows the wireless configuration of systems through App, compatible with Low Energy Android iOS Bluetooth smartphones. The App allows the identification and grouping of 2.4 GHz wireless network nodes, configuring light and motion sensors. DIS-RF-GATE integrates a digital lux meter that can be used to cable light sensors and set the luminous levels to work in the DLR (Day Light Regulation) mode.

GUIDELINES ON HOW TO BUILD A CONTROL SYSTEM

Designing a control system with smart solutions is fast and simple! Thanks to **wireless** technologies and a modular and scalable architecture, it is possible to implement stand-alone and networked systems by developing lighting control devices and adding sensors and all the necessary hardware and software modules to network the system. To select the right technology, you must be aware of the system's intended use and determine whether you should use sensors, pre-setting and/or scheduling solutions.
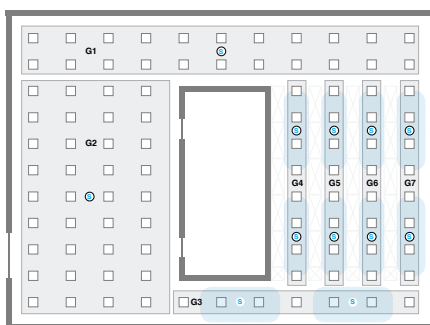
STAND-ALONE SYSTEMS

Point-to-point wireless solution: this solution is used when it is not possible to cable the fixtures' dimmers because each point needs to be replaced and the electrical installation cannot be changed.

Motion/light sensors: motion and light sensors can make you save energy when the area is occupied randomly throughout the day and when the room is illuminated by daylight. The multi-sensor is used when fixtures are installed at heights of up to 12 m above ground. It can be programmed as a motion sensor and/or a light sensor using an App.

Fully wireless system: when the electrical system cannot be changed, each replaced luminaire must be connected to the wireless controller. The system can be connected to standard DALI fixtures (without any modification needed) and then connected only to the power mains. If, instead, the electrical system can be changed or built from scratch as a new installation, it is often useful to implement a control system for one group of luminaires to be connected to each other through a dedicated dimming cable.

Example of application: industrial systems, retailing spaces, garages and similar areas

All these systems illuminate very large spaces and require the fixtures to be divided into dedicated functional groups to control independent zones, each of which can include sensors or require manual commands and scheduling. By way of example, let us consider an industrial area, which includes transiting, production and storage zones.

□ = **DALI sub-code -0041** fixtures

Ⓢ = DIS-RF-SENS

Features required for each zone corresponding to different groups of fixtures:

Group G1 – Main access zone:
The luminaires in this zone must stay ON day and night and are controlled depending on the amount of daylight.

Group G2 – Production zone:
The luminaires in this zone must stay ON day and night and are controlled depending on the amount of daylight.

Group G3 – Transiting zone: the luminaires in this zone must be switched ON only when sensors detect movement inside its scan area. The lighting level must be dimmed based on the amount of daylight. When no motion is detected lights switch ON to a background level corresponding to 10% of its total power and then switch OFF after a few minutes.

Groups G4-G7 – Storage zone: the luminaires illuminate the aisles of a store and behave like the luminaires of Group G3, i.e. depending on the amount of daylight. Each aisle must be independent from the other and the background lighting level must be 20%. Luminaires should never switch OFF completely.
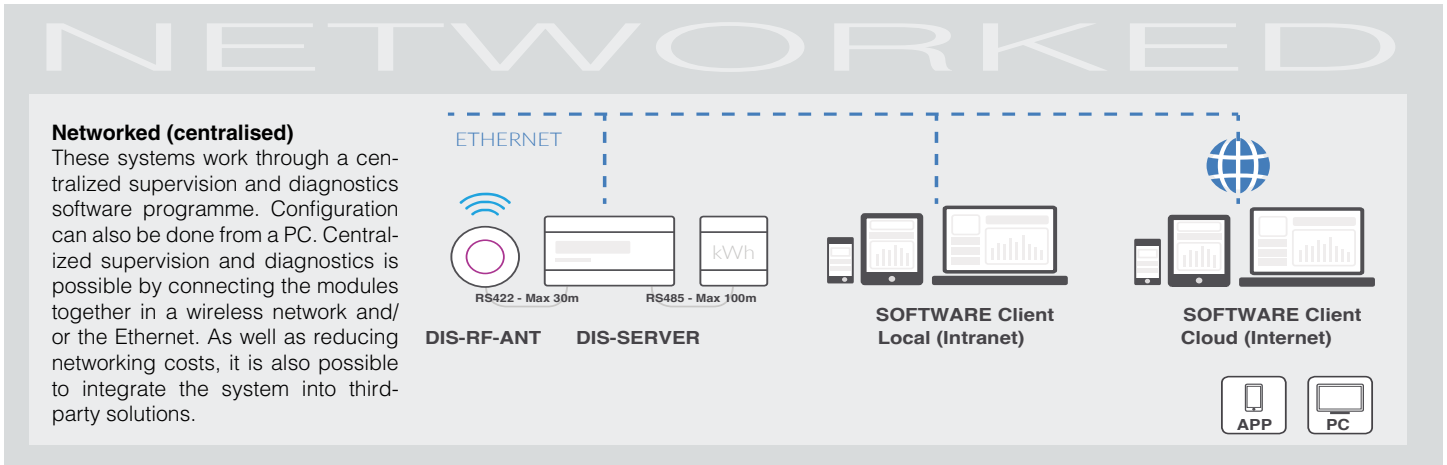
INDOOR AREA NETWORKED SYSTEMS

Thanks to their modular and scalable architecture, **wireless** solutions can be used in **NETWORK** applications. It is therefore possible to meet project requirements with the available budget or the expected return on investment. In networked systems, instead, you can use PCs to also control setup operations.

IoT solutions for indoor areas

System architecture

The system is made up of hardware and software modules. Communication with **DALI** fixtures, Disano with **sub-code -0041** or Fosnova with **sub-code -1241** and sensors occurs via cables (wired) or radio frequency (wireless) solutions.

NETWORKED

Networked (centralised)

These systems work through a centralized supervision and diagnostics software programme. Configuration can also be done from a PC. Centralized supervision and diagnostics is possible by connecting the modules together in a wireless network and/or the Ethernet. As well as reducing networking costs, it is also possible to integrate the system into third-party solutions.

ETHERNET

RS422 - Max 30m   RS485 - Max 100m   kWh

DIS-RF-ANT   DIS-SERVER

SOFTWARE Client Local (Intranet)

SOFTWARE Client Cloud (Internet)

APP   PC

art. DIS-SERVER + DIS-RF-ANT

Ethernet server with modular interfaces - The DIS-SERVER module allows the configuration, control and monitoring of cabled DALI lighting fixtures, wireless devices (controllers and sensors) and energy meters. Thanks to the integrated web server and the Ethernet interface, it can be controlled via web browser, allowing centralization and remote access from the software application. DIS-SERVER integrates a weekly scheduler, 8 opto-isolated digital inputs and 3 modular serial slots for the insertion of plug-in cards dedicated to various communication interfaces. Combined with an DIS-RF-ANT antenna, DIS-SERVER can control up to 250 wireless devices (controllers and sensors).

SOFTWARE

Software for centralized supervision and diagnostics - An application for the local (Intranet) and remote (Internet) control of each automation system integrated into the platform. Thanks to the software modular and scalable architecture it is capable of viewing the contents on each type of device equipped with a web browser, such as PCs, notebooks, tablets and smartphones. With the software it is possible to configure, monitor and command each integrated system and each connected device both through manual operations and through automatic algorithms based on calendar, events and conditional logic.

APP

App for the configuration of wireless devices - With the application, available for Apple and Android smartphones, it is possible to set all operating parameters of wireless systems equipped with RF **2.4 GHz** interface. The simple and intuitive graphical interface allows the selection of various pre-configured usage applications, which will only require fine-tuning such operating parameters as motion timeouts and the desired lighting levels. The Advanced section is used to configure more professional functionalities, typically used in network systems.

GUIDELINES ON HOW TO BUILD A CONTROL SYSTEM

Designing a control system with smart solutions is fast and simple! Thanks to **wireless** technologies and a modular and scalable architecture, it is possible to implement stand-alone and networked systems by developing lighting control devices and adding sensors and all the necessary hardware and software modules to network the system. To select the right technology, you must be aware of the system's intended use and determine whether you should use sensors, pre-setting and/or scheduling solutions.

NETWORKED SYSTEMS

Presetting and scheduling: these functions are particularly useful when the system is required to meet different needs throughout the day or week. For example, you can set lower lighting levels when performing maintenance and cleaning, and higher levels during the workday. To control the system based on preset scheduling times and different work modes you must use a **DIS-SERVER**.

Centralized supervision/diagnostics software: this application is used for the local (Intranet) and remote (Internet) control of each automation system that can be integrated in the platform. With the software, it is possible to configure, monitor and command each integrated system and connected device through manual operations and automatic algorithms using the calendar, events and conditional logic on any device equipped with a web browser, including PCs, notebooks, tablets and smartphones.

Systems with advances functions: to control zones in manual mode and through time scheduling, it is necessary to use **DIS-SERVER**. With additional hardware and software, it will be possible to connect the system to the Ethernet network and control it through an integrated web APP remotely (Internet). The system can be monitored and controlled through graphical maps with the software installed on a PC or pre-loaded on the server. Thanks to this software, it is also possible to control the system remotely through Intranet-based and/or Cloud-based solutions.

Examples of use: offices, meeting rooms, open spaces, entrance halls, corridors and community areas

GROUP 1   GROUP 2
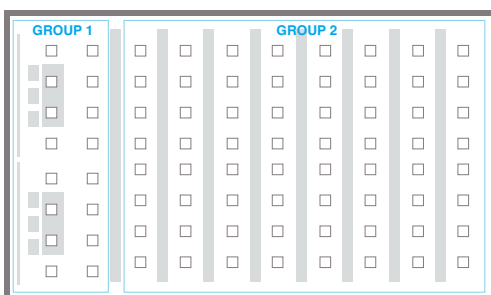
All these systems are made to illuminate spaces in office buildings with mounting heights of up to max. 4 m, typically with false ceilings. The "local" cabling of controllers and sensors is always possible, even in case of relamping solutions. Therefore, we use systems that allow managing independent areas through sensors and manual commands. Thanks to the 868 MHz wireless network, the system can be easily supervised from the software.

Conference rooms

In this type of rooms, lighting control is connected with the need to create static light settings to adjust levels to group of fixtures. We typically use DALI fixtures with systems that allow implementing the several lighting scenes manually through standard buttons or mobile devices.

☐ = **DALI** fixtures **sub-code -0041 / -1241**

VIRTUAL MIDNIGHT, a smart device that saves energy

The **virtual midnight** calculation is based on a mechanism that can be applied to public lights, and more generally to outdoor luminaires, which allow programming a reduction of the luminous flux, when you don't need the luminaire to operate at full power all the time. For example, during the central hours of the night, in areas where vehicle and pedestrian traffic is low, a **reduction of the luminous flux will keep lighting levels within safety standards while saving energy**. Multiply by hundreds or even thousands of street lamps and the savings become significant. This type of device, applied to a LED lighting system, results in considerable energy savings compared to old technology.

VIRTUAL MIDNIGHT - Stand-alone system with automatic luminous flux reduction in **4 steps**

To increase energy savings at night when there are fewer people and vehicles around, a lighting fixture can be programmed according to a specific profile (customizable on request). The fixture reduces its luminous flux through a self-learning process which, depending on the previous switching on and off times, will determine a hypothetical "virtual midnight". This is the average value between the time the fixture is switched on (sunset) and switched off (sunrise). The "virtual midnight" is the reference point for dimming lights according to the desired profile. The device is integrated in the LED driver and therefore does not require any modification to the system.

In order for the system to function correctly, the system must be adjusted by a device that turns the system on and off on a regular basis every day.
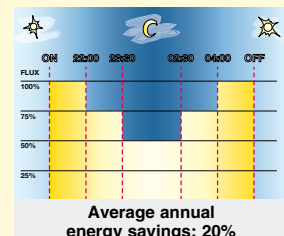
Factory settings	
Time	Flux
on ÷ 22:00	100%
22:00 ÷ 23:30	75%
23:30 ÷ 02:30	50%
02:30 ÷ 04:00	75%
04:00 ÷ off	100%

Average annual energy savings: 20%

Virtual Midnight subcode -30: fixtures are equipped with a device to reduce flux in **4 steps** based on the calculation of the virtual midnight.
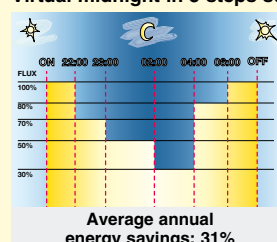
ATTENTION: original settings and time slots for the "virtual midnight" value can be customized in up to 5 steps upon request.

Virtual midnight in 2 steps subcode -35
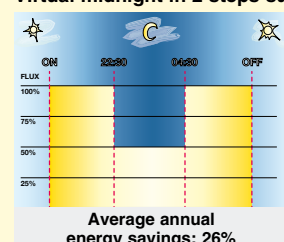
Settings upon request	
Time	Flux
on ÷ 22:30	100%
22:30 ÷ 04:30	50%
04:30 ÷ off	100%

Average annual energy savings: 26%

Virtual midnight in 5 steps subcode -32

Settings upon request	
Time	Flux
on ÷ 22:00	100%
22:00 ÷ 23:00	70%
23:00 ÷ 02:00	50%
02:00 ÷ 04:00	30%
04:00 ÷ 06:00	80%
06:00 ÷ off	100%

Average annual energy savings: 31%

Other configuration examples

Virtual midnight GREEN AREAS subcode -0001
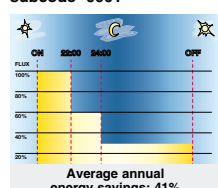
Settings upon request	
Time	Flux
on ÷ 22:00	100%
22:00 ÷ 24:00	60%
24:00 ÷ off	30%

Average annual energy savings: 41%

Ideal for green areas and parks, which are closed to the public at specific hours.

Virtual midnight SAFETY (PRIVATE PROPERTY) subcode -0002

Settings upon request	
Time	Flux
on ÷ 22:00	100%
22:00 ÷ off	25%

Average annual energy savings: 52%
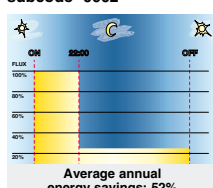
Ideal to maintain safety lights at workplaces, in which people/vehicles are not circulating after work hours.

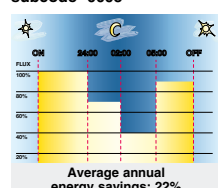**Virtual midnight PRIVATE PROPERTY AND COMMERCIAL subcode -0003**
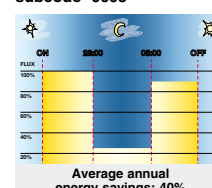
Settings upon request	
Time	Flux
on ÷ 23:00	100%
23:00 ÷ 05:00	25%
05:00 ÷ off	90%

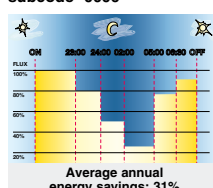**Average annual energy savings: 40%**

Ideal for private property and commercial areas after work hours.

Virtual midnight METROPOLI (500.000 population) subcode -0005

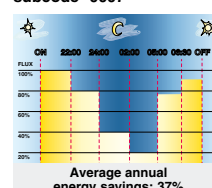| Settings upon request	
Time	Flux
on ÷ 24:00	100%
24:00 ÷ 02:00	70%
02:00 ÷ 05:00	40%
05:00 ÷ off	90%

Average annual energy savings: 22%

Virtual midnight BIG CITY (200.000 population) subcode -0006

Settings upon request	
Time	Flux
on ÷ 22:00	100%
22:00 ÷ 24:00	80%
24:00 ÷ 02:00	50%
02:00 ÷ 05:00	30%
05:00 ÷ 06:30	75%
06:30 ÷ off	90%

Average annual energy savings: 31%

Virtual midnight CITY (50.000 population) subcode -0007

Settings upon request	
Time	Flux
on ÷ 22:00	100%
22:00 ÷ 24:00	80%
24:00 ÷ 02:00	40%
02:00 ÷ 05:00	20%
05:00 ÷ 06:30	75%
06:30 ÷ off	90%

Average annual energy savings: 37%

Virtual midnight TOWN (5.000 population) subcode -0008
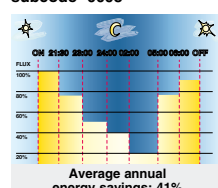
Settings upon request	
Time	Flux
on ÷ 21:30	100%
21:30 ÷ 23:00	75%
23:00 ÷ 24:00	50%
24:00 ÷ 02:00	40%
02:00 ÷ 05:00	20%
05:00 ÷ 06:00	75%
06:00 ÷ off	90%

Average annual energy savings: 41%

Virtual midnight VILLAGE (2.000 population) subcode -0009
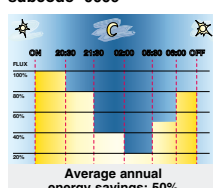
Settings upon request	
Time	Flux
on ÷ 20:30	100%
20:30 ÷ 21:30	80%
21:30 ÷ 02:00	40%
02:00 ÷ 05:00	20%
05:00 ÷ 06:00	50%
06:00 ÷ off	80%

Average annual energy savings: 50%

Virtual midnight HIGH SEASONS subcode -0010
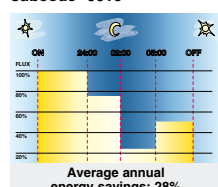
Settings upon request	
Time	Flux
on ÷ 24:00	100%
24:00 ÷ 02:00	75%
02:00 ÷ 05:00	25%
05:00 ÷ off	50%

Average annual energy savings: 28%

Ideal for tourist resorts during peak season periods (sea-summer; mountain-winter).

Virtual midnight LOW SEASONS subcode -0011
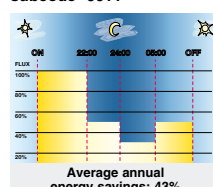
Settings upon request	
Time	Flux
on ÷ 22:00	100%
22:00 ÷ 24:00	50%
24:00 ÷ 05:00	30%
05:00 ÷ off	50%

Average annual energy savings: 43%

Ideal for tourist resorts during low season periods.

Virtual midnight FOUR SEASONS subcode -0012
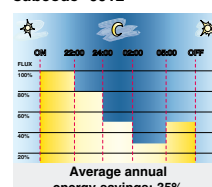
Settings upon request	
Time	Flux
on ÷ 22:00	100%
22:00 ÷ 24:00	80%
24:00 ÷ 02:00	50%
02:00 ÷ 05:00	30%
05:00 ÷ off	50%

Average annual energy savings: 35%

Ideal for tourist resorts that do not need to reschedule their lighting times (compromise between high and low season).

LIGHTING FIXTURES COMPLETE WITH MOTION SENSORS

You can make your lighting system **SMART** by integrating sensors into the fixture so that it can detect the movement of people within a given detection area and automatically adjust light intensity according to previously established light levels and delay times. You will also achieve high **energy savings** without affecting the safety and visual comfort of pedestrians.

Amenities fixture luminaires
with integrated 0/10V motion sensor

disano
illuminazione

TECHNICAL SPECIFICATIONS

Frequency	5.8GHz±75MHz
Stand-by power	≤1W
Setting	telecomando
Hold time (adjustable)	5s / 30s / 1min / 3min / 5min / 10min / 20min / 30min
Ambient light (adjustable)	2lux / 10lux /30lux / 50lux / OFF
Stand-by time (adjustable)	0s / 10s / 30s / 1min / 5min / 10min / 30min /+ ∞
Stand-by dimming level (adjustable)	20% / 30% / 50%
Detection area	50% - 75% - 100%
Detection angle	30° - 150°
Technology	Microwave

Remote control cod. **81418618** (to be purchased separately) that **allows changing the parameters even after installation is complete** and without the need to directly access the fixture.

0/10V

The lighting fixtures with **sub-code -1219 complete with motion sensors** integrated inside the fixture are a functional lighting solution for public spaces. The ability to control the light flux without people moving in a space will let you **optimize operating costs**, while achieving notable **economic savings**. This lighting solution is best suited for public or private streets, cycle lanes, private roads, parks and, in general, for any installation where smart lighting control is required.

Sensor integrated inside the fixture

DEFAULT SETTINGS

The fixtures is supplied as standard with the following parameters

Detection area	100%
Hold time	5s
Ambient light	OFF
Stand-by time	0s
Stand-by dimming level	10%

NOTE: when placing your order, it is possible upon request a customized configuration that you need to set.

SENSITIVITY
— 50%
— 100%

NO DETECTION AREA AT 50% SENSITIVITY

2m 3m 4m 5m 6m 7m 8m

v=0.5-1.0m/s

MAX=6m
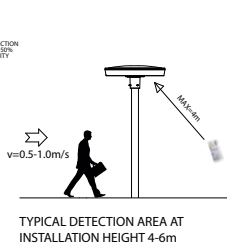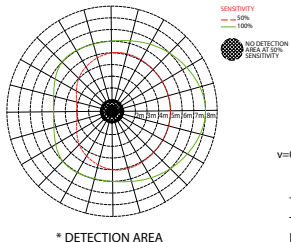
* **example of detection area** (varies depending on the available versions). For further information, please contact our customer service.

* DETECTION AREA

TYPICAL DETECTION AREA AT INSTALLATION HEIGHT 4-6m

A) Detection area: the sensor will turn the lights on when it detects motion in this area; with a 100% detection area the sensitivity level is high.

B) Hold time: the period of time during which lights stay on at full brightness after a person or object has left the detection area.

C) Ambient light: when the level of light inside a room is below a pre-determined threshold, the sensor will trigger the lights on; when set to 'disable', the sensor will operate whenever it detects movement regardless of the amount of light in the room.

D) Stand-by time: refers to the time the sensor keeps the lights at a dim level after the hold time.

E) Stand-by dimming level: is the lights' dimming level during the stand-by time.

EXAMPLE OF OPERATION

The lighting fixtures with **sub-code -1219** complete with motion sensors will adjust the light flux in the presence of moving people by varying the brightness value according to pre-determined levels based on certain times:

1) when there is no motion, the fixtures will keep a certain level of light intensity for a specific period of time
2) when motion is detected in the monitoring area, the luminous flux will dim to 100% of light level
3) if no motion is detected after a certain period of time, the sensor will reset the light level to the pre-set value

① ② ③
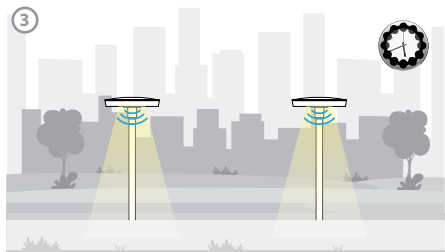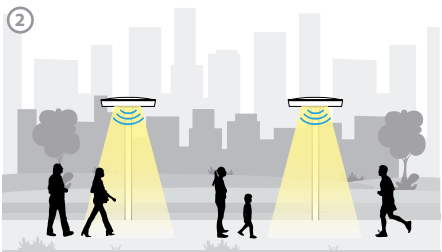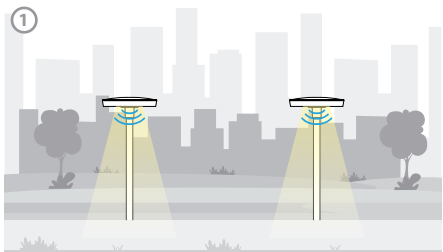
A lighting fixture equipped with a radar-type motion sensor may be affected by wind. Therefore, for particularly windy areas, PIR presence sensors are available upon request and for an additional cost.

FIXTURES WITH THE NEMA / ZHAGA SOCKET CONFIGURATION
To monitor and manage public lighting centrally, lighting fixtures will always be more equipped with wireless controls that will allow their integration with the IoT. Today the market offers two solutions: **NEMA and ZHAGA**. Both solutions offer an electrical and mechanical connection between the control antenna and the lighting fixture.

APPLICATIONS: ideal for use in public or private street lights, car parks, cycle and pedestrian lanes, corridors within hospitals, schools and industrial plants and urban amenities and generally in any area where you need a "smart" control of lighting fixtures.

The **Nema Socket** is made in plastic material and is complete with a gasket to ensure perfect IP protection; moreover, thanks to its removable structure, it can be installed directly onto the luminaire's body (without accessing any internal parts) and **without using tools**, hence facilitating future maintenance; **upon request**, the sealing cap can be installed. The Nema Socket can be adapted to **5/7 poles**: 3 for the electrical connection, and the remaining 2/4 to carry 1/10V or DALI signals; it is also perfectly suited to integrate all "smart" devices for remote lighting control.
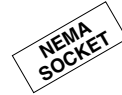
NEMA SOCKET

Disano's luminaires with **subcode -40** come with the **Nema Socket** to enable the electrical and mechanical connection between the sensor and the light fixture.

Upon request, the
sealing cap can be installed

ADVANTAGES:

• Easy installation without tools

• Up to 355-degree rotation

• Robust twist-lock contacts for reliable power interconnection

• The socket is pre-terminated with wire conductors to facilitate the integration into new and existing lighting systems

• It accepts DIMM dimmable photocells (ANSI standard) to enable connection between the photocell and the lighting fixture

• Available with two or four dimming contacts to support dimming protocols over one or two channels

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The **Zhaga Socket** consists of a standard interface between the receptacle on the fixture and its basic components and cover that, together, form the housing of the control module. The built-in low friction seals, that can be coupled together, protect both the fixture and the module. UV-resistant and strong materials complete the features of this reliable connector.

ZHAGA SOCKET

Disano's fixtures with **subcode -0054** come with the the **Zhaga Socket** that ensures an electric and mechanical connection between the sensor and the luminaire.

Sealing cap
supplied **as standard**

ADVANTAGES:

• Easy tool-free mounting. The module is attached and secured with a bayonet clamp

• Compact dimensions for greater design flexibility

• The special (push-in) contacts reduce logistics problems arising from the need to use cables with various lengths for different lighting fixtures

• Single built-in seal that protects both the fixture and the modules, minimizing mounting times.
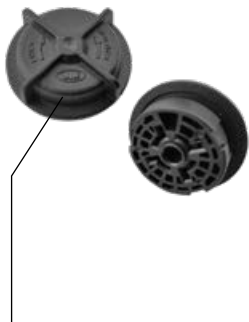
The Zhaga-D4i mark certifies the fixture's compliance with Zhaga Book 18 version 2 specifications for outdoor luminaires and DiiA's D4i specifications for intra-luminaire DALI interface. This joint certification covers all critical features including mechanical adaptation, digital communication, data reporting and power requirements within a single luminaire, ensuring "plug & play" interoperability of luminaires (drivers) and peripherals, such as connectivity nodes.

The fixture is designed to accept Zhaga socket, projecting public lighting into the future. You can create a 'smart' Plug-and-Play solution featuring maximum interoperability. The Zhaga D4i certification means that a product has a Zhaga Book 18 interface and is compliant with DALI-2 and D4i standards.

Nema Socket order with subcode -40 (sealing cap to be ordered separately)	Mounted directly on the fixture's body, ideal for remote lighting management applications.
Zhaga Socket order with subcode -0054 (complete with sealing cap)	

Example of fixtures with ZHAGA and NEMA SOCKETS

* ISCHIA	ISEO	COMO	GARDA	LOTO	TORPEDO 2.0	VISCONTI 2.0	VOLO

* MINI GIOVI - GIOVI	SELLA	MINI STELVIO - STELVIO	ROLLE 2.0	SUSA	* DENIA PRO

* The fixtures of the ischia, Mini Giovi and Giovi range have the Zhaga D4i certification.
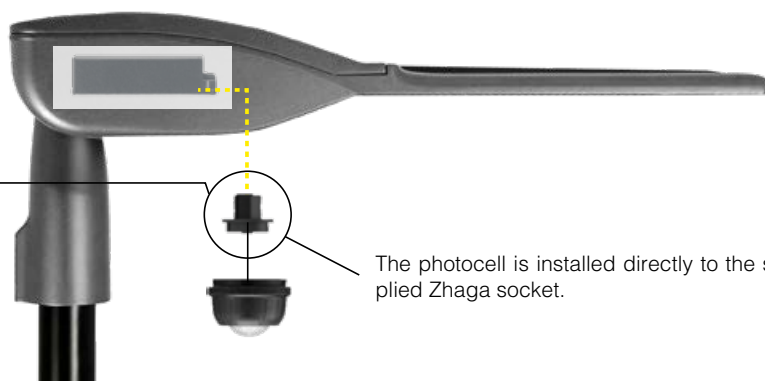
Zhaga socket -0054 (standard configuration)

Fixture designed to accept Zhaga socket, which is found on the **top part of the lighting fixture**, electrically connected to the lighting fixture's driver.
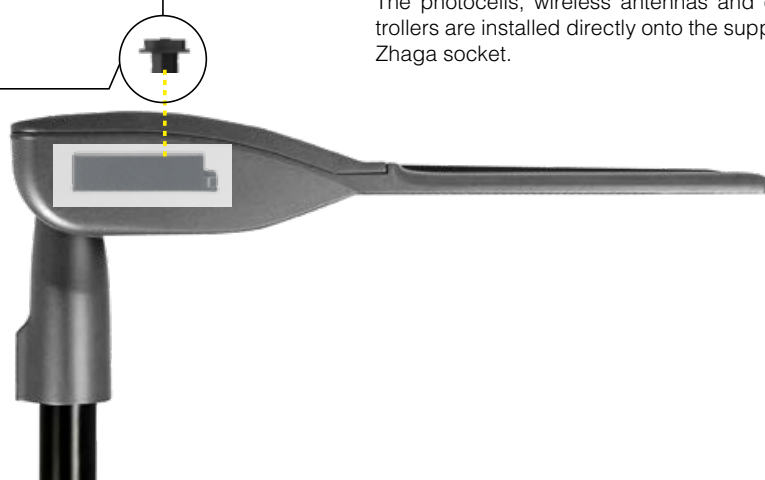
The photocells, wireless antennas and controllers are installed directly onto the supplied Zhaga socket.

**Zhaga socket (bottom configuration - upon request)**

Fixture designed to accept the Zhaga socket, which is found in the **lower part of the lighting fixture**, electrically connected to the lighting fixture's driver.

The photocell is installed directly to the supplied Zhaga socket.

Zhaga socket (double configuration - upon request)

Fixture designed to accept the Zhaga socket, which is found on **both the top and lower part of the lighting fixture**, electrically connected to the lighting fixture's driver.
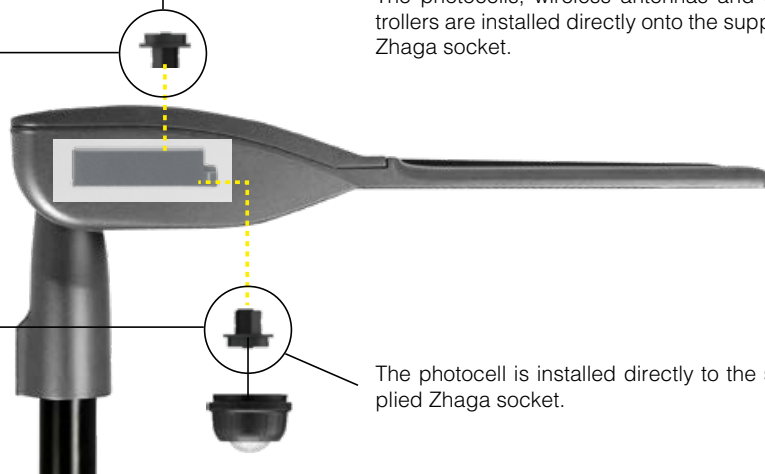
The photocells, wireless antennas and controllers are installed directly onto the supplied Zhaga socket.

The photocell is installed directly to the supplied Zhaga socket.

PHOTOCELL AND LIGHTING-MOTION SENSOR

Luminaires compatible with Zhaga receptacles may be equipped with photocells or light/motion sensors. In this way, the luminaire will have the necessary "intelligence" to adjust to specific needs.
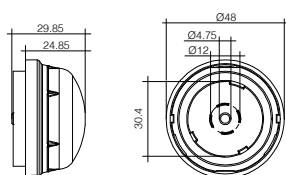
PHOTOCELL for DALI-2 street lighting

cod. 986450-00

bottom view

29.85
24.85
Ø48
Ø4.75
Ø12
30,4

Main features:
- Monitoring of ambient lighting for stand-alone or network applications
- Ready for Zhaga receptacles for quick installation to the luminaire
- Precise light measurement from 0.2 to 20,000 Lux
- Detection angle for light measurement: 150° - Start time: ≤ 5 s
- Designed to be installed to the upper side of the luminaire
- Service life up to 100,000 h at a TC of 60 °C

ADVANTAGES:
- Innovative: simple start-up for stand-alone applications, Plug & Play interface
- Flexible: luminaire switches on/off depending on ambient light
- Reliable: tested for critical outdoor conditions

STRUCTURAL FEATURES:
- Body: grey plastic
- Lens: plastic, smoked grey
- Protection up to IP66
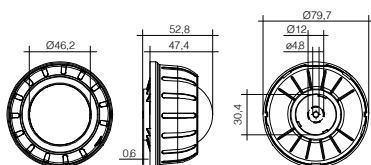- Impact resistance ≤ IK09

MOTION AND LIGHT SENSOR for DALI-2 street lighting

cod. 986451-00

bottom view

Ø46,2
52,8
47,4
Ø79,7
Ø12
ø48
30,4
0,6

Main features:
- Monitoring of ambient light and presence detection
- Integrated temperature measurement
- 2 PIR sensors with extended features such as detecting objects with side orientation
- Ready for Zhaga receptacle for quick installation to the luminaire
- Rectangular detection range, ideal for street applications - Start time: 30 s
- Detection angle for light measurement: 76°
- Precise light measurement from 1 to 4,000 Lux
- Integrated pressure equalizing membrane
- Service life up to 100,000 h at a TC of 60 °C

ADVANTAGES:
- Innovative: first DALI-2 asymmetric motion sensor based on Zhaga socket
- Flexible: adjustment of parameters with configuration software
- Reliable: tested for critical outdoor conditions

STRUCTURAL FEATURES:
- Body: dark grey (RAL 7040)
- Protection up to IP66
- Impact resistance IK08 (without lens)

Motion detection: the motion sensor detects moving objects that radiate warmth (mainly pedestrians) thanks to PIR technology that reacts to heat changes within a rectangular coverage area (part of a street). The entire coverage area is rectangular, while the highlighted area is the one optimised for the detection of pedestrians. The sensitivity of the sensor can be adjusted via the application.

Brightness detection: the detection angle for light measurement is 76°.
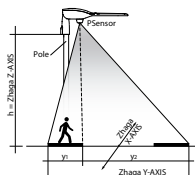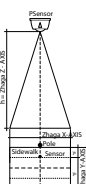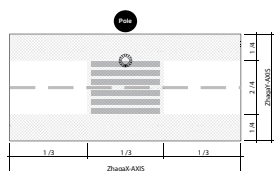
Height	Detection area				Covered area
h	x	y	y1	y2	–
4.0 m	17.0m	8 m	2.0 m	6.0 m	136 m²
4.5 m	19.3m	9 m	2.3 m	6.8 m	173 m²
5.0 m	21.5m	10 m	2.5 m	7.5 m	215 m²
5.5 m	23.8m	11 m	2.8 m	8.3 m	261 m²
6.0 m	26.0m	12 m	3.0 m	9.0 m	312 m²
6.5 m	28.3m	13 m	3.3 m	9.8 m	367 m²
7.0 m	30.5m	14 m	3.5 m	10.5 m	427 m²
7.5 m	32.8m	15 m	3.8 m	11.3 m	491 m²
8.0 m	35.0m	16 m	4.0 m	12.0 m	560 m²
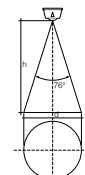
Height	Detection area	Covered area
h	d	–
4.0 m	6.2 m	31 m²
4.5 m	7.0 m	39 m²
5.0 m	7.8 m	48 m²
5.5 m	8.6 m	58 m²
6.0 m	9.4 m	69 m²
6.5 m	10.2 m	81 m²
7.0 m	10.9 m	94 m²
7.5 m	11.7 m	108 m²
8.0 m	12.5 m	123 m²

WIRELESS ANTENNAS WITH REMOTE CONTROL

Thanks to Zhaga compatibility, remote communication modules can now be effectively used for lighting control and data transmission. Each RF node has the necessary "intelligence" to control multiple DALI devices while simultaneously setting up a stable wireless network.

WIRELESS ANTENNAS for DALI-2 street lighting

Bluetooth™
Low energy mesh network

cod. 986445-00   **cod. 986446-00**

Main features:
• Each control unit stores information about its own configuration and the configuration of the rest of the controls installed in the same network.
• Configuration and control can be done from a mobile phone or a tablet using the free CASAMBI APP (available for iOS and Android).
• Remote control of the installation is also possible via cloud through a Casambi router connected to the Internet.
• Electrical connection and mechanical fixing are done through standard ZHAGA Book 18 compatible socket by twisting and locking into place, without tools.
• No need for hubs, master devices, computers or programmes. Communication is via a Bluetooth BLE mesh network.

FEATURES	
Nominal input voltage	24 VDC SELV
Energy consump. in standby mode	0,5W
Energy consump. in operating mode	0,6W
Control interface	DALI/DALI2
DALI output current	40mA max.
Dimming	0-100%
RF communication interface	Bluetooth BLE
RF communication protocol	Casambi
Wireless class	Class 2
Firmware update	OTA (Over the air)
Casing material	PC con trattamento UV
IP - IK	66 - 09
Connectors	ZHAGA Book 18
Dimensions (diameter - height)	986445-00 Ø48mm. H 44mm
	986446-00 Ø80mm. H 50mm

Operation and configuration:
From the **CASAMBI APP** it is possible to group luminaires by street, set dimming levels according to time, schedule special events for particular days, etc. The communication range between controllers is up to **200m** outdoors. Since devices are operating on a mesh network, controllers communicate with each other until the information reaches the controller for which it was intended, even if it is far away. During setup it is sufficient to be located in the range of one of the controllers.

CASAMBI
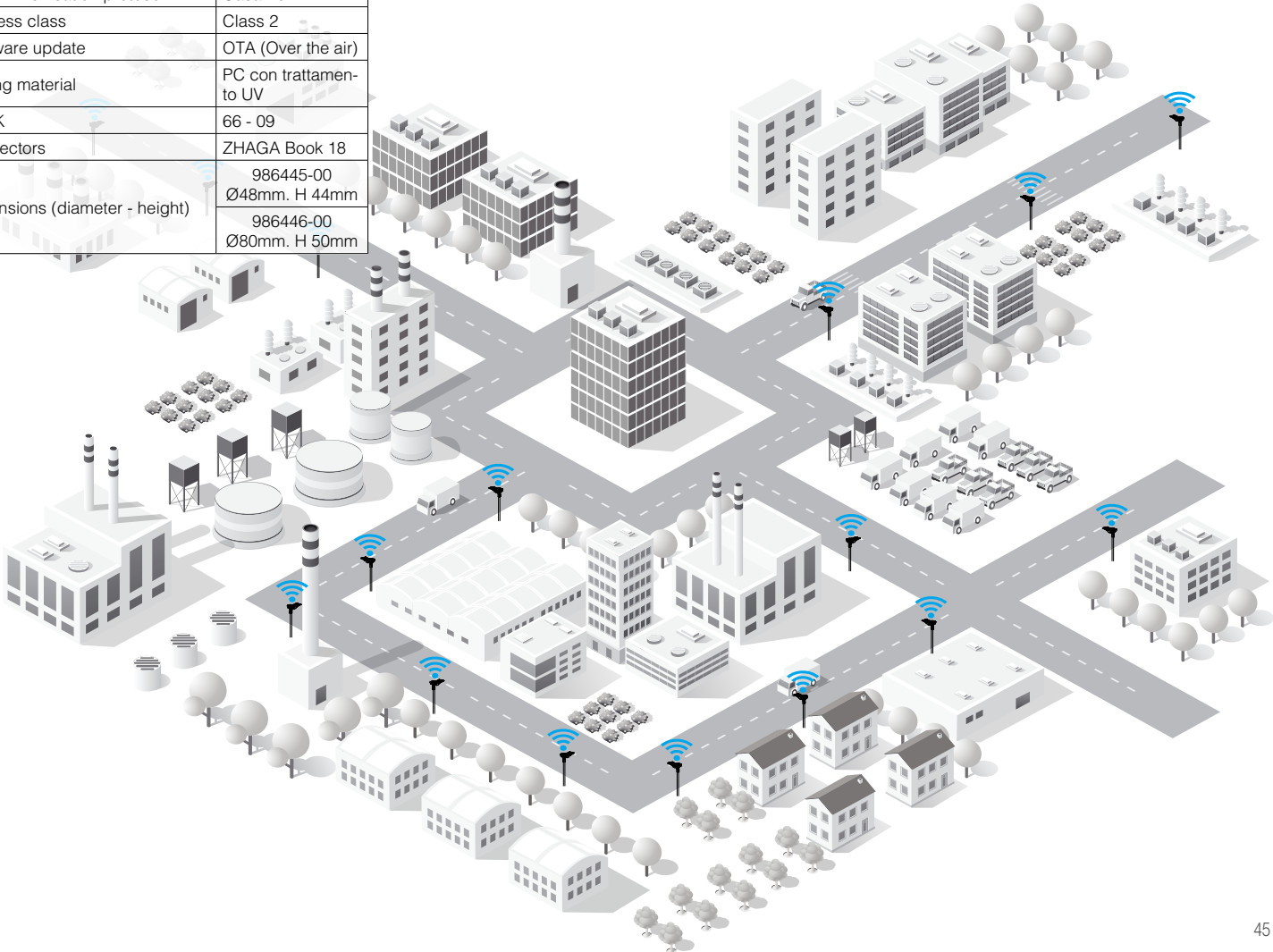
THE "CONTROL-GROUP PROG" SYSTEM - for DALI-2 street lighting (upon request)

The CONTROL-GROUP PROG solution allows managing the lighting system through local and autonomous dimming programmes based on the data supplied by motion and light sensors. The CONTROL-GROUP PROG is ideal for automating the lighting of roads, pedestrian routes and cycle lanes, residential neighbourhoods, parks, car parks, road junctions, marinas and much more.

System architecture
The system is made up of a PROGRAMMER for the on-site management/programming of the light points through the CONTROLLERS installed on the fixtures.
• Management of wireless mesh installations divided into groups of up to 60 nodes
• Dynamic point-to-point management, with integration of sensors
• Easy to use, both at the hardware and software level
• Multi-channel DALI support up to 8 power suppliers
• Real-time clock, and access to satellite clock in case of power outages lasting longer than 48 hours
• Light sensor integrated in the RF node
• 868 MHz signal that guarantees reliable communication and node-to-node distances of up to 100 metres

Control-Group Programmer:
• Programmer for on-site commissioning
• Control via smartphone / tablet (android and iOS) and laptop with dedicated WEB app
• Local autonomous management of groups of luminaires via RF mesh
• Groups of luminaires, small installations of up to 60 network nodes
• Standard-based solution (ZD4i) can be applied directly to a smart city solution via IoT
• Built-in battery for offline operation, including power supplier and an additional 12V charger
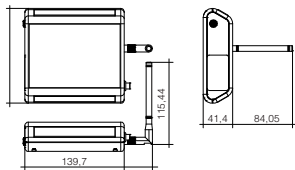
ADVANTAGES:
• Innovative: integrates sensors, schedules and scenes for customized outdoor lighting
• Intuitive: user-friendly interface display with map support and live test function
• Reliable: creates a network built on self-healing mesh technology for stable and long-lasting operation
• Safe: hardware components tested for outdoor use

STRUCTURAL FEATURES:
• Housing: Black ABS
• IP40 protection
• Radio range: 100 m max
• Life: up to 50,000 h

Controller:
• *RF DALI Controller* with built-in light sensor: controls up to 8 DALI DT6 channels and 1 motion sensor, it automatically sets the driver to DALI mode; compatible with 868 MHz narrow frequency band

• *Controller GPS* version for quick commissioning with user interface display and acting as master clock
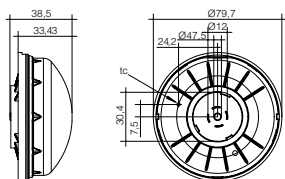
ADVANTAGES:
• Innovative: RF Multi Master controller based on Zhaga interface with IPv6 6LoWPAN mesh technology
• Intuitive: fast and easy connectivity update of the luminaire with Zhaga Book 18 Ed. 2 interface
• Reliable: self-healing mesh network for stable and safe operation
• Safe: pressure equalization membrane to withstand quick outdoor temperature changes

STRUCTURAL FEATURES:
• Body: grey plastic
• Lens: plastic, smoked grey
• Protection up to IP66
• Impact resistance ≤ IK09

COMPLEX solutions: control-group prog DALI-2 (upon request)

The **CONTROL-GROUP PROG** is based on the most advanced industry standards, such as ZD4i, ensuring future-proof operation, interoperability and easy maintenance. The system integrates directly into a cloud-connected IoT solution. All you need to do is to add a gateway and connect it to the Internet.
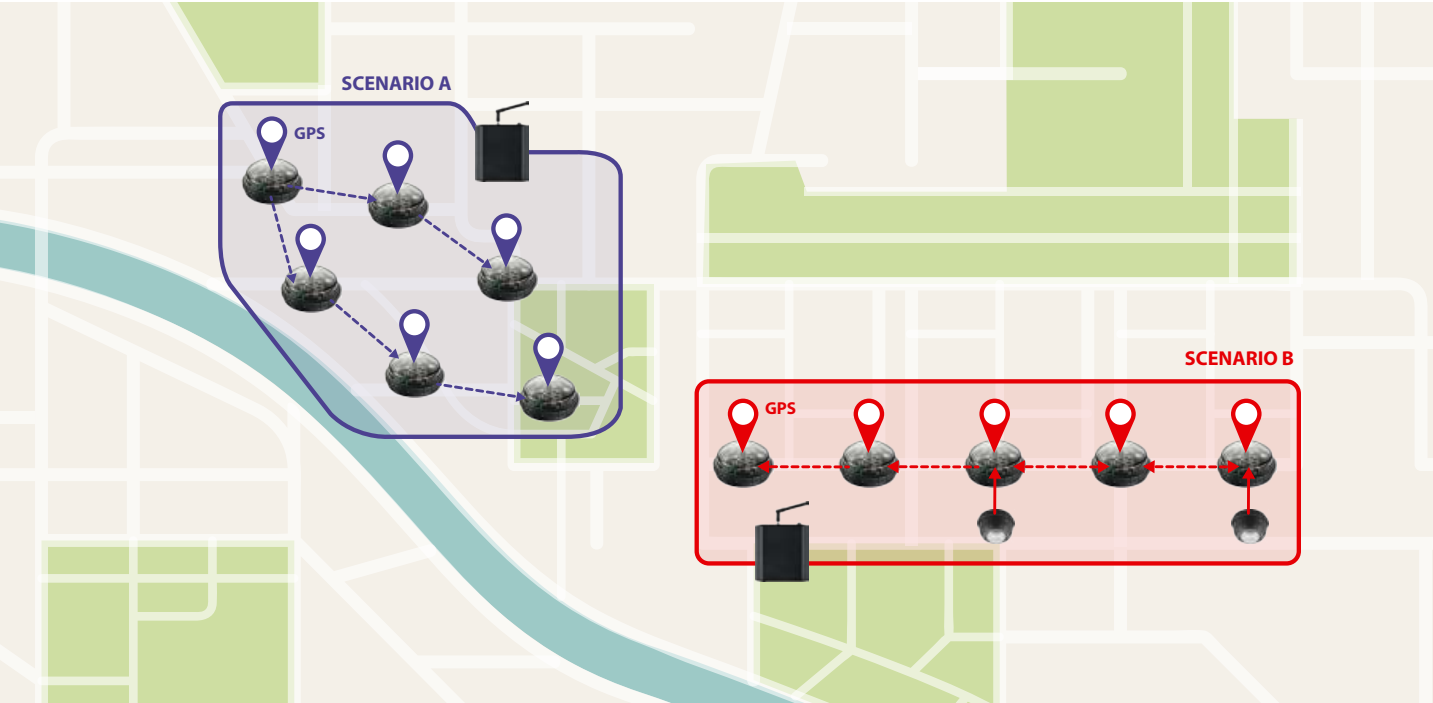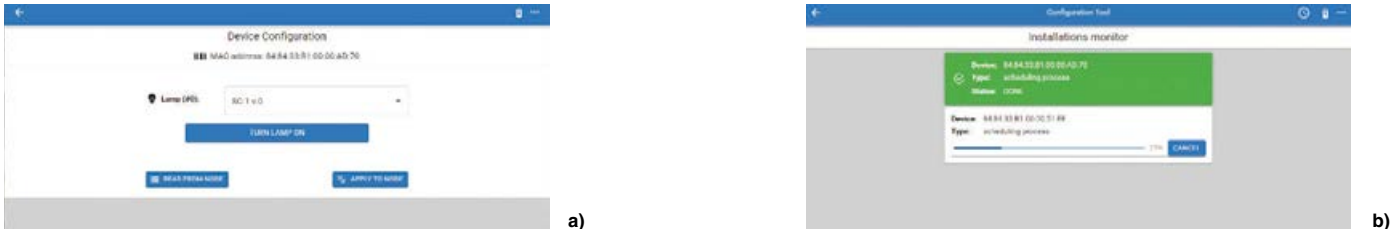

*Example of possible installations*

- Map support for device location

- Schedule definition and weekly programming

- Contextual submenus for detailed programming

- Identification of on-site fixtures (fig. a) and confirmation of information upload (fig. b)

a)

b)

- Selection of the luminaires that make up the motion path (fig. c) and checking of onboard controllers (fig. d)

c)

d)

IoT SOLUTION
(OUTDOOR)
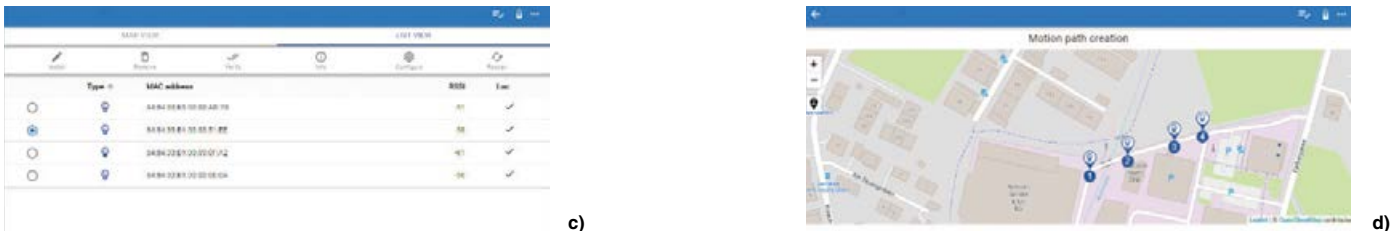
What is a SMART CITY?

A smart city is a city where there is a better quality of life and where public spaces can help citizens achieve their full potential and move more freely, while saving time and respecting the environment. The intelligence of a «Smart City» is a distributed, shared, horizontal and social intelligence. It is an intelligence that promotes the participation of citizens and the organization of the city towards a greater optimization of resources and results. Energy consumption, public resource use and time are all optimized.

The fixture can be equipped with a **control system which provides lighting managers with the ability to improve the performance of urban and street lighting** installations while saving costs by lowering energy usage, optimizing operation and reducing CO2 emissions. The system incorporates the latest technologies in power electronics, communications and IoT.

This makes possible, among other features, an on/off scheduled switching, a dynamic programming of lighting levels, map-based visualizations, automatic alarm reports, real-time fixture monitoring and maintenance scheduling of every single luminaire of multiple installations at once. The system has a friendly and secure web-based user interface which can be operated anywhere and anytime from any web-connected device such as computers, smartphones and tablets providing real time and accurate control of the lighting infrastructure.

System Highlights

- Flexible solution
  - Valid for new installations as well as for lighting renovation
  - Autonomous system but integrable with other city services platforms
  - Valid worldwide
  - Compatible with most Smart City services platforms

- Values and revenues
  - Better lighting performance
  - Money savings
  - Energy costs reduction
  - Operation costs reduction

- Users
  - Municipalities and County Councils
  - Smart City platforms operators
  - Managers of large infrastructure

- Applications
  - Street and residential lighting (streets, roads)
  - Urban & architectural lighting (monuments, public spaces)
  - Large infrastructure lighting (airports, ports)
  - Large areas and sport lighting (car parks, stadiums)
  - Urban events lighting (celebrations, demostrations)

System Architecture & Components

- System architecture
  - Smart power electronics: LED drivers
  - Wireless network hardware
  - RF Nodes and GSM Gateways
  - Cloud-based data acquisition and network management
  - Management software suite (Network & data management)
  - Web-based multi-device user friendly interface

- Technical aspects
  - Fully programmable electrical parameters and functionalities
  - Connectivity of sensors
  - Self-diagnosis, notification of alarms
  - Mains voltage and frecuency monitoring
  - High efficiency

- Lighting network nodes
  - Multi-hop wireless mesh network
  - IP-based protocol, broad coverage
  - Automatic neighbour discovery, self-organization, ad hoc configuration
  - Extensibility, interoperability, open standards
  - Robust link, reliable and high-performance network
  - Additional sensor data acquisition (optional)

- Gateway
  - Mesh network concentrator
  - 2G/3G/LTE network gateway

- Time and date precise synch
- Central host and database
  - Local or cloud hosting available
  - End-to-end secured system
  - Smart City and other horizontal management platforms integrability
  - Multi-level data interchange capabilities, app interfaces
  - Business Intelligence and data analytics

- Management Software Suite
  - Lighting configuration, management and maintenance
  - Easy installation, test capabilities
  - Data network management and configuration
  - Reports, statistics and data visualization tools

- Fast commissioning
  - Ease of installation
  - Assembling outside fitting
  - Remote configuration
  - Reliable, outdoor-proof

- Accuracy
  - GPS accurate location
  - Point-to-point management
  - Real-time operation

SMART CITY
SMART LIGHTING

Smart City Lighting

- Flexible and avant-garde lighting
  - Programmable lighting
  - Dynamic lighting
  - Reactive to events
  - Makes possible a human centric lighting
  - Increases citizen satisfaction
  - Helps to improve safety on streets
  - Compatible with most existing Smart City & urban services management platforms and easily adaptable thanks to its open architecture

- Environmental sustainability
  - Energy savings
  - Reduction of CO2 footprint
  - Lower lighting pollution

- Data-enabled lighting
  IoT technology enables scalable, site-based or cloud-based street lights connectivity through a robust, self-healing, wireless mesh network

User Friendly Web-based Interface

- Main functionalities
  - Easy lighting levels & timing configuration
  - Creation of customized lighting schedules
  - Energy consumption monitoring
  - Power supply monitoring
  - Alarms and events reporting
  - Operation time recording
  - Geolocation and mapping of luminaires (multiple map choice)
  - Easy allocation of luminaires by town, street, coordenates, type
  - Manteinance planning
  - Multiple users administration

- Optimum lighting maintenance
  - Possibility of preventive maintenance
  - Optimization of reactive maintenance

- Privacy and security commitment
  - Encrypted communications
  - Safe communications exchange through highest encryption levels
  - Database access security
  - Secure hosting
  - Cloud protection and data confidentiality
  - Safe access with authentication
  - Highest protection against unauthorized access
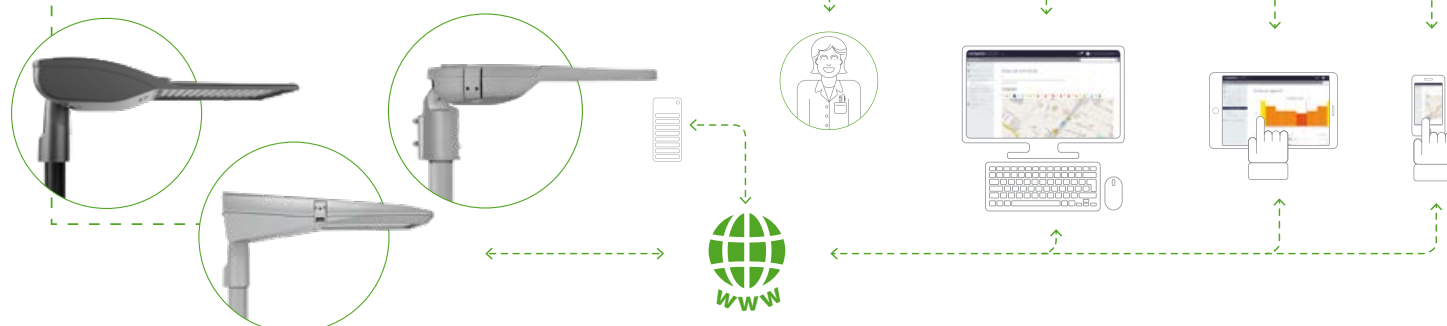
disano
illuminazione

BASIC WIRELESS SPORTING SOLUTION

It's a wireless control system designed to manage lighting in small to medium-sized, non-professional sports facilities. It enables significant energy savings without requiring additional electrical wiring.

BASIC WIRELESS sporting solution

This solution applies to the following families of product:

RODIO	SATURNO	ASTRO	RADON	FORUM - FORUM 2.0

antenna
cod. 81420161

Wireless controller
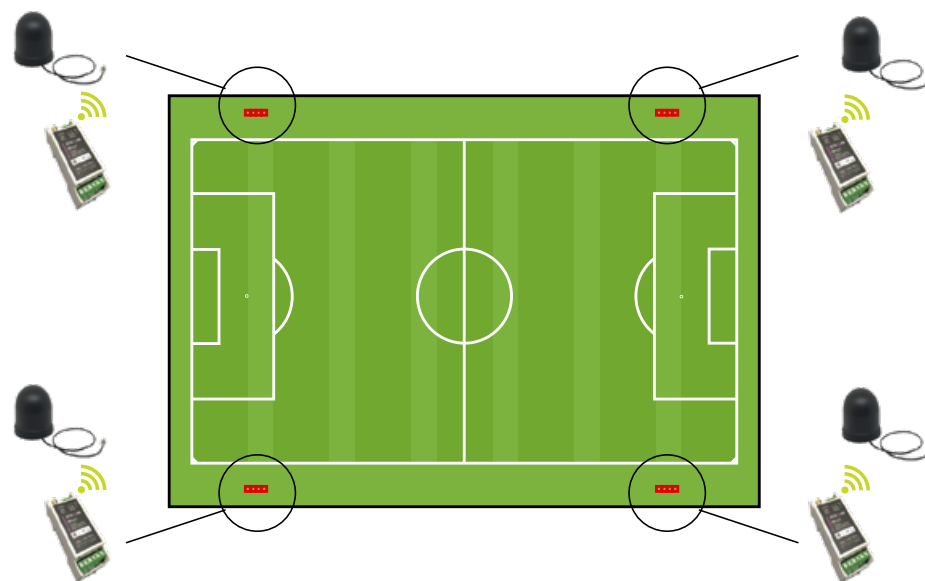**cod. 81420160**

System architecture
The system is made up of hardware, software modules and App. The communication with the lighting fixtures occurs via a **wireless controller** (that can control up to 32 DALI drivers) to be installed in an electrical board and that can be easily configured with the **gateway** or via App (iOS-Android).

Example of use

WHAT TO ORDER:
example of installation for a playing field with up to 8 luminaires per pole (32 in total):
• 4 pz - antenna (81420161)
• 4 pz - Wireless controller (81420160)
• Gateway (81410050) + Free app (iOS-Android)

GATEWAY
cod. 81410050

App

button configuration

MATCH CLASS I

1	2
3	4

100% 100%
100% 100%

TRAINNING

1	2
3	4

50% 15%
50% 15%

MATCH CLASS II

1	2
3	4

50% 50%
50% 50%

OFF

1	2
3	4

OFF OFF
OFF OFF

disano illuminazione

ADVANCE WIRELESS SPORTING SOLUTION

It's a wireless control system designed to manage lighting in medium to large non-professional sports facilities. Through a virtual touch panel, it is possible to create and activate customised lighting scenarios based on specific needs.

ADVANCE WIRELESS sporting solution

This solution applies to the following families of product:

RODIO **CROMO** **RADON** **FORUM - FORUM 2.0**

**antenna
cod. 81420161**

**Wireless controller
cod. 81420160**

System architecture
The system is made up of hardware and software modules. The communication with the lighting fixtures occurs via a **wireless controller** (that can control up to 32 DALI drivers) to be installed in an electrical board at the base of the light post and that can be easily configured with a **server** with a wireless interface connected to a **switch** (not included). Lights are managed via a **touch panel**.
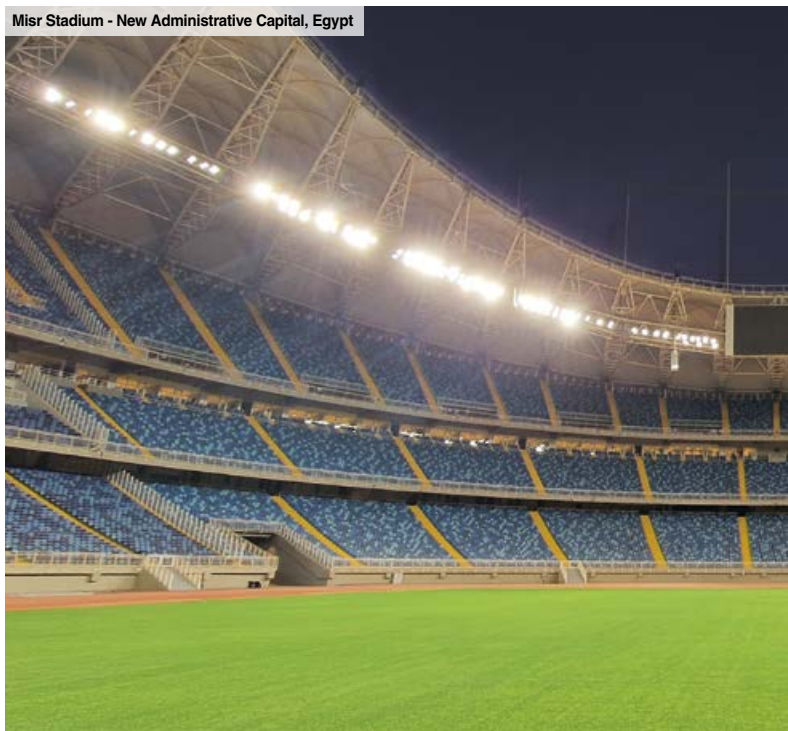
Example of use

TOUCH PANEL

SWITCH DI RETE

existing ethernet network

antenna2

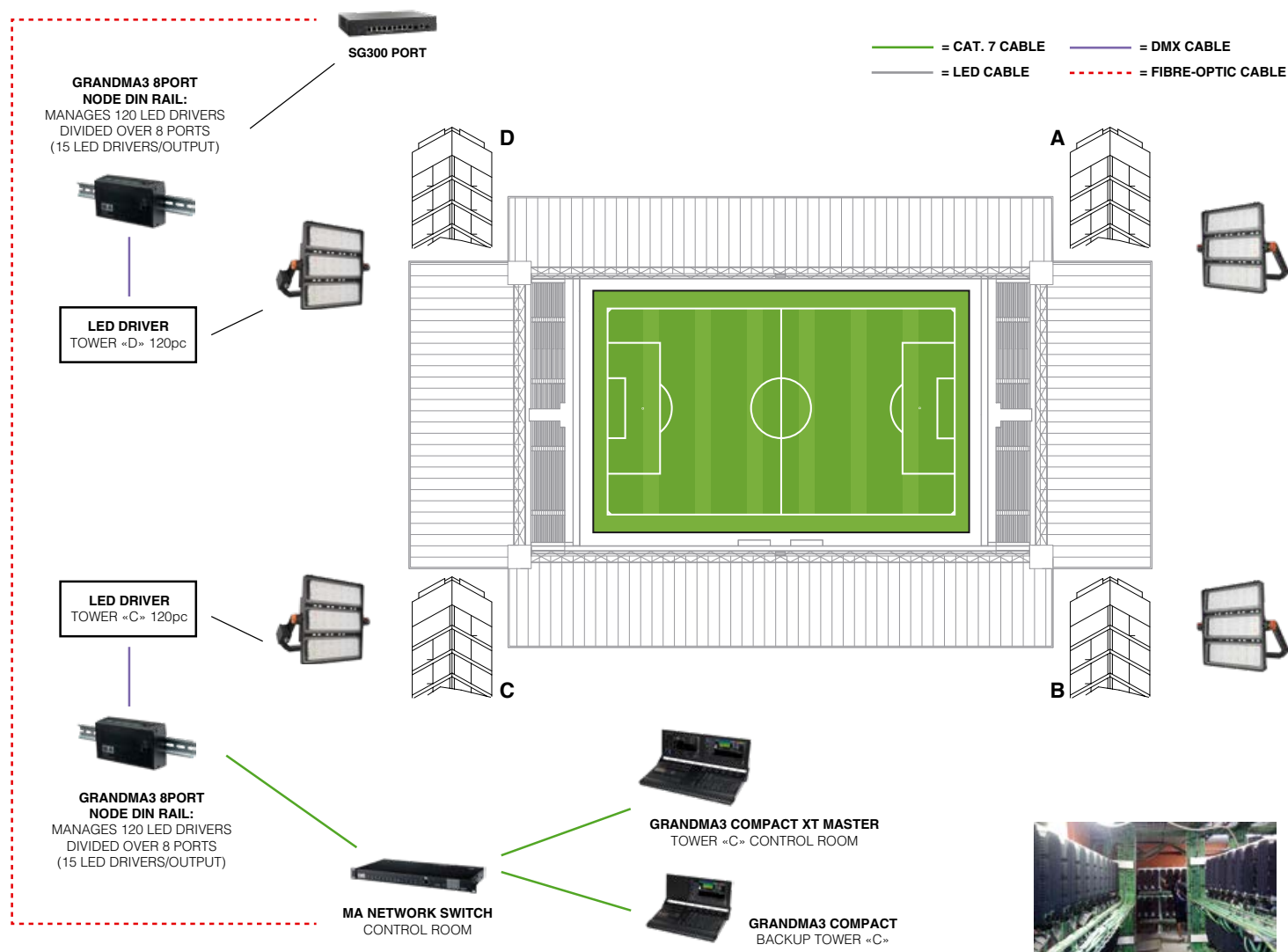**CONFIGURATION EXAMPLE** **SERVER - LTE** **CONTROLLER**

The **Disano floodlights** are equipped with **DMX compatible drivers**. DMX protocol is needed for dynamic light thanks to its immediate reaction time and virtually unlimited number of addresses. DMX can also be used in functional dimming using simple lighting controls in high-end sports installations. DMX allows all range of scenic effects, as well as the monitoring of each luminaire and ease of configuration thanks to the self-addressing DMX-RDM functions.
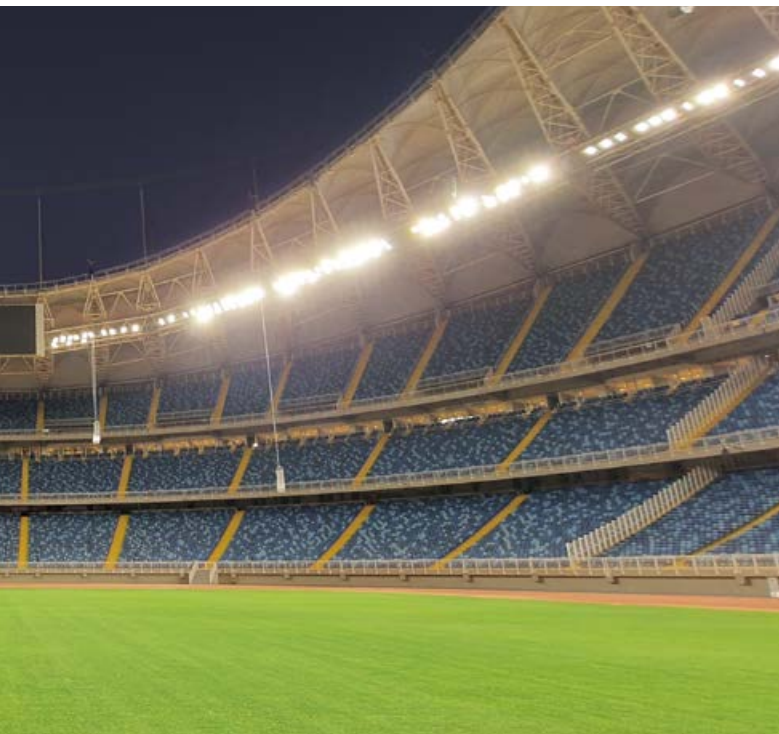

Misr Stadium - New Administrative Capital, Egypt

Example of use

SG300 PORT

GRANDMA3 8PORT NODE DIN RAIL:
MANAGES 120 LED DRIVERS DIVIDED OVER 8 PORTS
(15 LED DRIVERS/OUTPUT)

LED DRIVER
TOWER «D» 120pc

LED DRIVER
TOWER «C» 120pc

GRANDMA3 8PORT NODE DIN RAIL:
MANAGES 120 LED DRIVERS DIVIDED OVER 8 PORTS
(15 LED DRIVERS/OUTPUT)

= CAT. 7 CABLE
= DMX CABLE
= LED CABLE
= FIBRE-OPTIC CABLE

D

A

C

B

GRANDMA3 COMPACT XT MASTER
TOWER «C» CONTROL ROOM

MA NETWORK SWITCH
CONTROL ROOM

GRANDMA3 COMPACT
BACKUP TOWER «C»

DMX TOP sporting solution

Stožice Stadium - Ljubljana, Slovenia

Félix Houphouët-Boigny Stadium - Abidjan, Ivory Coast

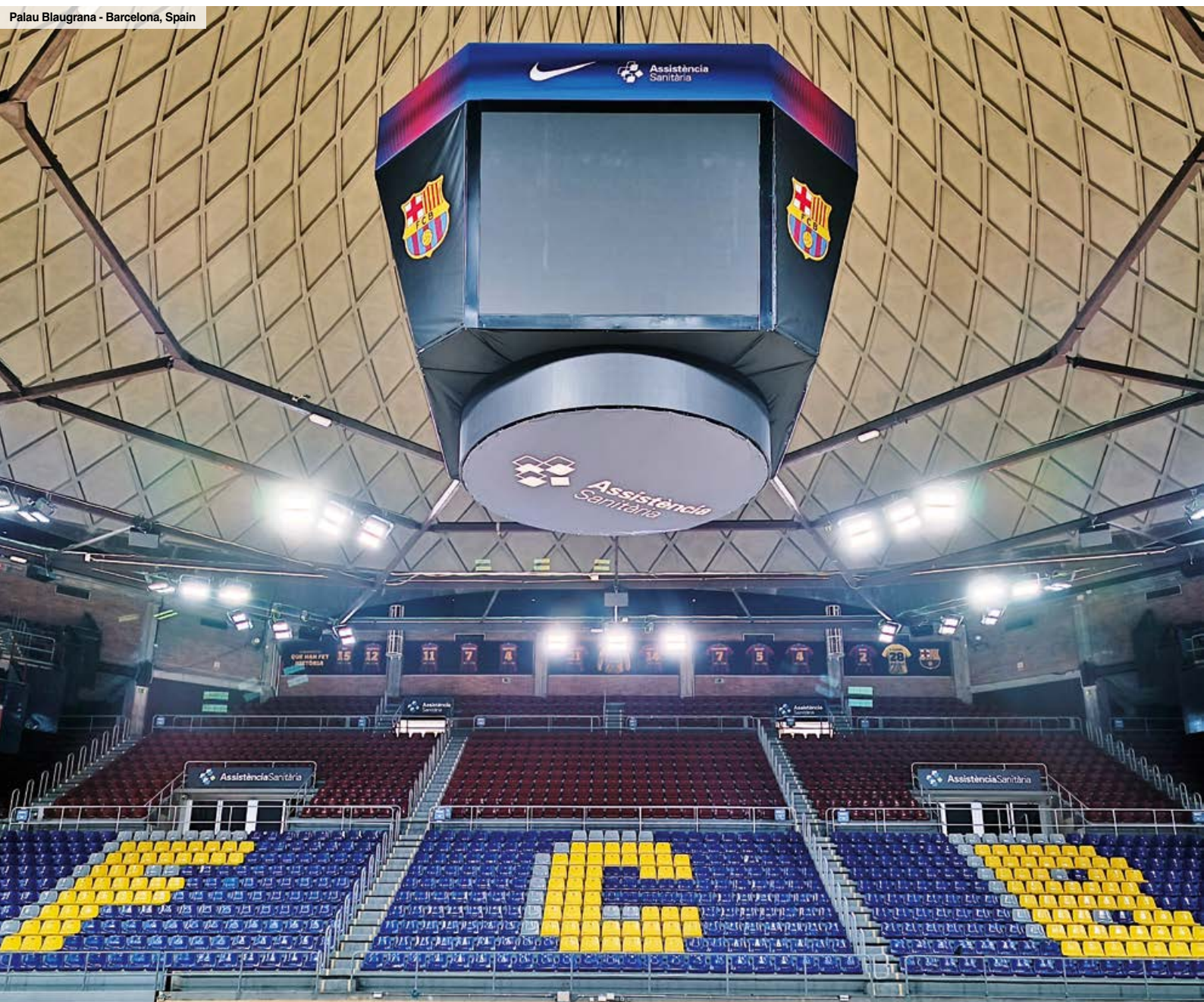Luigi Ferraris Stadium - Genoa, Italy

Joan Gamper Sports City - Barcelona, Spain

Gamla Ullevi - Göteborg, Sweden

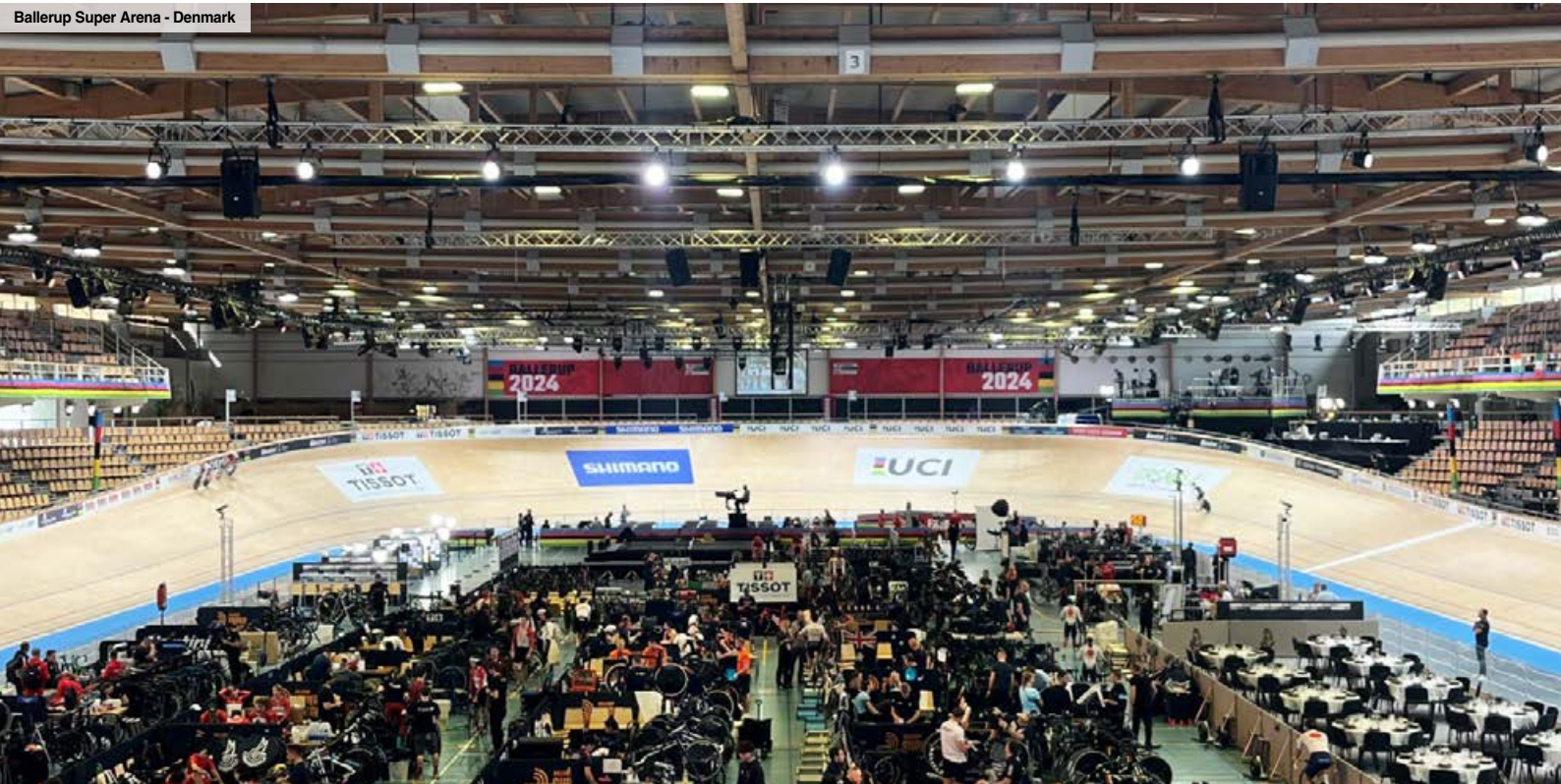**Palau Blaugrana - Barcelona, Spain**

Cortina d'Ampezzo Olympic Ice Stadium - Belluno, Italy
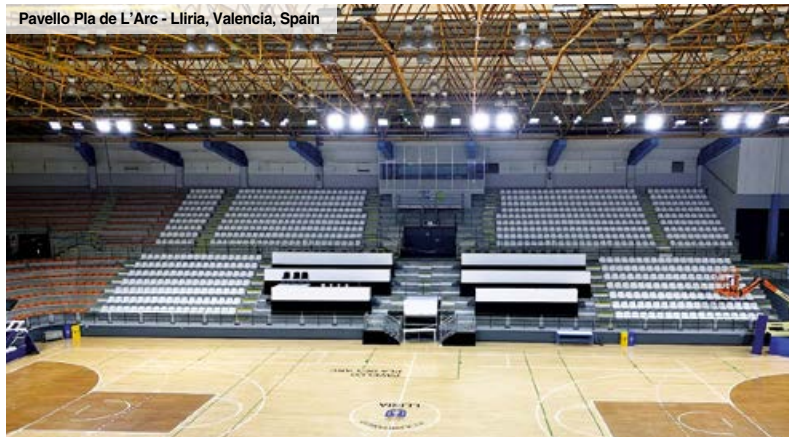
DMX TOP sporting solution

Ballerup Super Arena - Denmark

Palasport Arena (Levante Waterfront) - Genoa, Italy

Pavello Pla de L'Arc - Lliria, Valencia, Spain

Pabellón Olivo Arena - Jaén, Spain

Arena Stožice - Ljubljana, Slovenia

To create ambience lighting that highlights important architectural structures and gives otherwise anonymous buildings an unimaginable aesthetic value. The possibilities offered by coloured lights can be further enhanced with an additional element: dynamism.

This type of solution applies to the following products:

MICROFLOOR

MIDIFLOOR

CRIPTO   **RODIO**   **ELFO**   **SICURA**   **FLOOR**

Disano offers different solutions depending on the complexity of the setting and the number of lighting fixtures to be controlled:

• DOP CONTROLLER:
Ideal for less complex settings with luminaires that change colour simultaneously. For users who are unfamiliar with the technology, there is a simple rotary potentiometer that can easily create colour-changing scenes.

• DMX MINI CONTROLLER:
Ideal for medium-complexity sets, it comes with 10 pre-set scenes that can be simply recalled using a special button on the controller (e.g. single fixed colour, continuous colour sequence, Italian flag). A computer or smartphone is required for programming customised scenes.

• BLE DMX CONTROLLER:
Controller featuring IP66 protection and CASAMBI Bluetooth technology to programme and control a simple DMX installation in broadcast mode via free APP available for mobile devices.

• DMX/RDM CONTROLLER:
Ideal for installations with a large number of luminaires and complex set designs. The RDM technology allows creating extremely flexible systems that can be managed with special software and recalled via Apps for smart devices.

RDM type: RDM stands for Remote Device Management and is a communication protocol (based on DMX) whose purpose is to enable two-way communication between a DMX controller and a luminaire. The purpose is to communicate remotely with RDM luminaires without having to open the fixture itself. It is sufficient to simply connect the luminaires to the DMX controller with RDM function to detect them and assign the desired address once the installation is complete.

Disano RGBW DMX/RDM products with built-in driver are equipped with this technology.
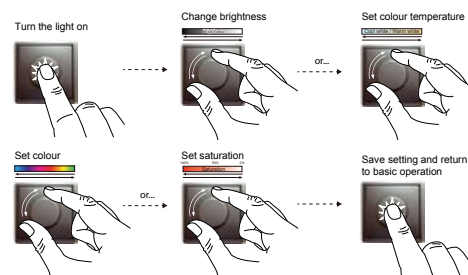
DMX controller

DOP controller - IP20

cod. 986563-00

Recessed rotary DMX controller to set colour, dimming level and rotating programmes for RGB and RGBW luminaires with DMX technology.

FEATURES:
- One rotary button for On-Off/dimming/colour/animation control
- Required power supply: 12 - 32Vdc; min. power 2W
(power supplier not included)
- Configuration mode via Dip-Swich
- Device control in broadcast mode
- Suitable for recessed mounting in 502 box

Turn the light on   Change brightness   Set colour temperature   or...

Set colour   or...   Set saturation   Save setting and return to basic operation

DMX mini controller - IP20

cod. 986460-00

The solution for simple DMX installations where standalone control is sufficient. Equipped with a DIN rail adapter, it can be easily mounted in an electrical control cabinet. It is possible to create your own static or dynamic lighting scenes with the ESA2 software or via a free app from any smart device and upload them to the DMX MINI CONTROLLER via the supplied USB connector. Mini DMX **does not** support group addressing through the RDM protocol. When ordering, please specify if you need a system with multiple addresses.

FEATURES:
- Supplied with 10 pre-set scenes that can be recalled using a front button - 60 channels
- Configuration mode via ESA2 software (free download) and via smartphone with OTG function, with Arcolis APP (free download)
- DIN rail adapter and USB cable included
- Necessary power supply: 5 - 5.5Vdc via micro USB (power supplier not included)
- DMX connection (screw terminals)
- Compact dimensions (52 x 29 x 24 mm

App

BLE DMX controller

cod. 81420057

Wireless DMX controller with CASAMBI technology. It programmes and controls a simple DMX installation via APP from any smart device. It can be integrated into existing CASAMBI networks.

FEATURES:
- Programming and scene recall with CASAMBI technology
- Device control via broadcast mode
- Necessary power supply: 230V
- DMX connection screw terminals
- Compact dimensions (115 x 123 x 62 mm)
- Suitable for indoor and outdoor applications (IP67 enclosures)

CASAMBI

App

DMX/RDM controller

IP20
cod. 986562-00
BOX-IP65
cod. 986557-00

DMX controller with RDM addressing function. Built-in Wi-Fi connection for wireless management. Suitable for highly complex semi-professional DMX installations. Connected via USB cable to a PC, it turns it into a DMX console (with software installed and running). Stand Alone function by uploading the programmes created with dedicated software to the internal memory.

FEATURES:
- Up to 99 settable scenes via front micro-buttons - 512 channels expandable to 1024
- Configuration mode via ESA2 software (free download)
- USB cable included
- Necessary power supply: 5 - 5.5Vdc via micro USB Type C (power supplier not included)
- DMX cannon connector
- Compact dimensions (77 x 87 x 40 mm)

**App**

DMX accessories

DMX/RDM splitter

IP20
cod. 986461-00

BOX-IP65
cod. 986513-00

If the system has more than 32 luminaires and/or the DMX line has an extension of more than 250 m, a splitter must be inserted. This will amplify, regenerate and branch the signal, distributing it to 4 outputs for a maximum of 128 luminaires (32 for each output).

FEATURES:
- Necessary power supply: 12 - 24 - 48Vdc; max. current 500mA (power supplier not included for IP20 version)
- 4 outputs for up to 128 luminaires (32 for each output)
- Adapter for installation on 4 DIN rail modules
- Dimensions (72 x 92 x 71 mm

VISUAL EFFECTS

EMOTIONAL EFFECTS

HCL

BIOLOGICAL EFFECTS
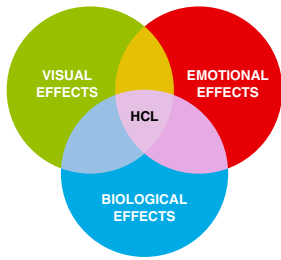
WHAT IS HUMAN CENTRIC LIGHTING AND HOW CAN WE ACHIEVE IT?

Human Centric Lighting (HCL) is a concept that represents a deep cultural change that aims to achieve a healthier and more balanced relationship with the spaces we live in. It follows criteria that show the beneficial and positive effects of natural and artificial lighting on our health, wellbeing, quality of life and daily activities in both the long and short terms.

Our modern lifestyle is not aligned with nature's rhythms. We spend most of our time indoors where artificial lighting has virtually abolished the difference between day and night. Over the last decades, however, scientific research has made it clear that light isn't just for seeing, but also for governing how our body works from both the biological and psychological points of view.

And this is precisely the basic goal of Human Centric Lighting: **to design lights that don't take into account only of the visual effects, but also of the biological and emotional impact on humans**.
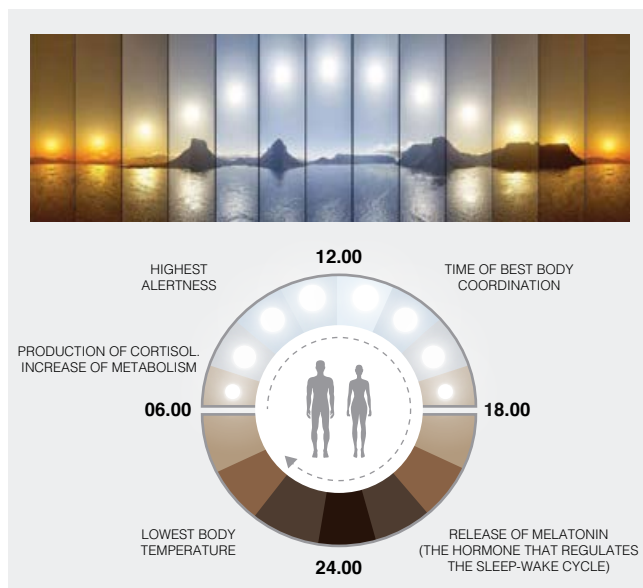
The biologic clock (circadian rhythm)

We use the definition of "**biological clock**" because, over the course of the day, the variations of light, from dawn to dusk, up to the dark of the night, send precise signals to our body, triggering specific psychological responses. **Blood pressure**, **body temperature** and the production of **specific hormones** vary over the course of 24 hours.

When we wake up, the morning light triggers processes that stimulate attention span, which reaches its peak during the central hours of the day, to then decline with the arrival of the evening in order to prepare our body for night-time rest. This mechanism, which varies according to seasons and individual characteristics, is necessary for our body to work properly.

HIGHEST ALERTNESS

12.00

TIME OF BEST BODY COORDINATION

PRODUCTION OF CORTISOL. INCREASE OF METABOLISM

06.00

18.00

LOWEST BODY TEMPERATURE

24.00

RELEASE OF MELATONIN (THE HORMONE THAT REGULATES THE SLEEP-WAKE CYCLE)

A systematic disruption of our biological clock is harmful for our health

Numerous studies prove that the disruption of our sleep-wake cycle provokes **fatigue and sleeping disorders**, it has a negative impact on mood and on our psychological wellbeing, it can cause **anxiety or depression**, as well as **gastro-intestinal disorders** and, if prolonged over time, it increases the risk of **cardio-vascular diseases** (strokes and heart attacks) and **metabolic disorders** (such as obesity and diabetes). Lastly, it can weaken the immune system favouring the outburst of some cancers.

Therefore, according to research, it is important that **our body** receives the signals from **natural light** and its evolution **throughout the day**. Natural light has a different light spectrum with different wavelengths based on the time of the day:

**DAWN 4000K**

NOON 5000K

DUSK 2700K
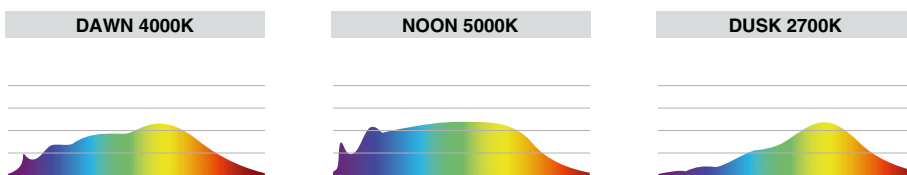
LED sources generally emit light in the blue wavelength spectrum, which is potentially harmful for our eyes and our health because they can influence the production of melatonin that may in turn impact our biological clock and alter our sleep-wake cycle.

Using lighting sources like **LED Tunable White** that can mimic the quality of natural light is key.

LED Tunable White for HCL applications

It is a latest generation LED technology that allows adjusting colour temperatures from 2700K to 6500K, from a warm light to a cold light. LED Tunable White modules for HCL applications contain two adjacent diodes that emit light at 2700K and 6500K, as well as intermediate colours by mixing colour temperatures.

2700K   3000K   4000K   5000K   6500K

increases **RELAXATION**   increases **ENERGY LEVEL**
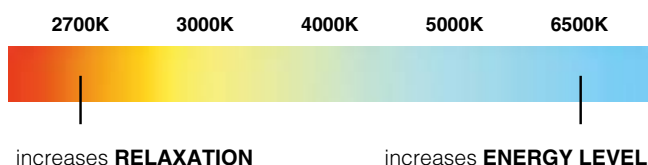
Researchers have demonstrated that our brain is stimulated:
- by the **warm light** of morning and evening hours (2700K) increasing our sense of relaxation;
- by the **cold light** of daylight (6500 K) making us feel more energetic and concentrated.

This concept offers excellent visual and working conditions, but above all, it focuses on our **circadian rhythm**, which governs our biological clock. Our biorhythms depend on the signals deriving from the **amount and quality of natural light** and from the environmental **colour temperature**. In this way, Tunable White creates an environment capable of helping us in a natural way, just like daylight would do.

TECHNICAL CHARACTERISTICS AND FUNCTION OF TW BASIC FIXTURES VERSION (subcode -0024):
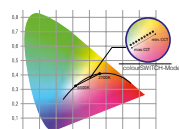
- Colour temperature adjustment range from 2700K to 6500K on a linear scale / Constant luminous flux
- MacAdams 3 / ≤4% flicker
- Full 3% to 100% dimming range
- Constant colour temperature over the entire dimming range

colourSWITCH function: a conventional **pushbutton** can be used to control the system via colourSWITCH. Use of pushbutton with indicator lamp is not permitted. If the device is controlled via DALI/DSI, colourSWITCH is not available. For control via a pushbutton different settings can be made: **short press** - setting the colour temperature via colourSWITCH mode with 9 values between 2,700 and 6,500 K; **long press (> 1 s)** - stepless setting of colour temperature.
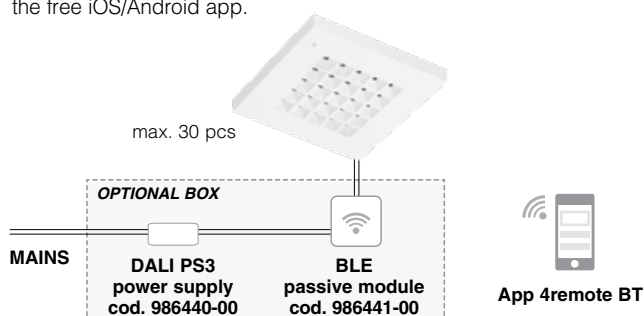After completion the colour temperature direction will be inverted. In installations with LED Drivers with different colour temperature or opposite colour temperature directions (e.g. after a system extension), all LED Drivers can be synchronized to 4,500 K by a 10 s push.

switchDIM function: integrated switchDIM function allows a direct connection of a **pushbutton** for dimming and switching. Brief push (< 0.6 s) switches LED Driver ON and OFF. The dim level is saved at power-down and restored at power-up. When the pushbutton is held, LED modules are dimmed. After releasing and pushing the LED modules are dimmed in the opposite direction. In installations with LED Drivers with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED Drivers can be synchronized to 50 % dimming level by a 10 s push. Use of pushbutton with indicator lamp is not permitted.

EXAMPLE OF TW BASIC INSTALLATION AND HCL VERSION OPTION (with ADDITIONAL COMPONENTS)

Disano/Fosnova products with **subcode -0024** come equipped with drivers featuring colourSWITCH-switchDIM functions that can be controlled via a simple button, allowing manual selection of the light colour between 2700K and 6500K (without circadian rhythm feature).

For operation with a preset circadian rhythm feature, the following additional components must be purchased separately: **DALI PS3 power supply** code **986440-00** + **BLE passive module** code **986441-00** (does not require a control line) and should be installed upstream of the system to manage up to 30 fixtures. The fixture can be controlled via smartphone or tablet using the free iOS/Android app.

max. 30 pcs

OPTIONAL BOX

MAINS

DALI PS3 power supply cod. 986440-00

BLE passive module cod. 986441-00

App 4remote BT

TECHNICAL CHARACTERISTICS AND FUNCTION OF HCL WIRELESS FIXTURES VERSION (subcode -89):

- Colour temperature adjustment range from 2700K to 6500K on a linear scale
- CRI 90 MacAdams 3
- Full 3% to 100% dimming range
- Switch-off fading
- <4% flicker
- Constant colour temperature over the entire dimming range • LED driver that automatically adjusts lights to the desired colour temperature and the required luminous flux

The Dynamic White function allows adjusting the colour temperature from 2700K to 6500K to create a sense of the passing of time (circadian rhythm) and to set the mood and ambiance of a space according to our daily activities. Circadian lighting obtained with the Dynamic White function is the best solution to implement Human Centric Lighting (HCL) in classrooms, university campuses, offices and hospitals where lights can mimic the natural trend of daylight throughout the entire day.

HCL WIRELESS INSTALLATION EXAMPLE (POINT-TO-POINT)

Disano/Fosnova products with the **subcode -89** feature a wireless driver integrated directly into the luminaire, eliminating the need for additional accessories. The luminaire can be easily controlled via a smartphone or tablet using the free iOS/Android app.

max. 100 pcs

App 4remote BT

In addition to the Tunable Light technology, the fixtures can be equipped with presence and lighting sensors that allow adjusting artificial lighting, while keeping the lumen value set according to the room's occupancy and the contribution of natural light.

THE NEW FRONTIER OF HUMAN CENTRIC LIGHTING

As we spend most of our time working or living indoors, we are forced to compensate for the lack of daylight with artificial lighting. Below are some examples of why it is important to achieve HCL in our common living spaces and workplaces.
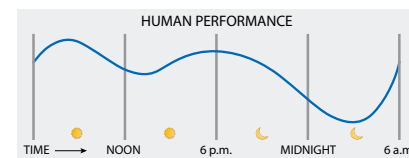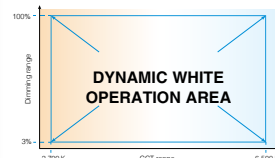

Why choose HCL in the workplace? High quality lighting, together with good interior design and an adequate ventilation/air conditioning of spaces are key elements of the ideal office. In particular, a lighting system that applies, even if only partly, the principles of Human Centric Lighting (HCL) allows building a space that facilitates work, improves concentration and protects the health of workers.

Why choose HCL in education institutions? The possibility to study in a comfortable, pleasant and well-illuminated environment increases academic performance. This means that fixtures installed in classrooms, laboratories and corridors should be chosen not only to meet viewing needs, but also to create a study and work environment that is pleasant and functional, while also being energy-efficient and low-cost.


Why choose HCL in healthcare facilities? With the right fixtures and the correct Human Centric Lighting approach it is possible to choose different colour temperatures and light levels for different rooms based on the amount of daylight entering the room at specific hours of the day, with pleasant and soothing results.

Why choose HCL in industrial plants? Safety, health and productivity are the keywords that summarize the benefits of a technologically up-to-date lighting system in an industrial environment. These benefits are also at the basis of the revolutionary Human Centric Lighting approach that puts people and their wellbeing at the centre of lighting design.
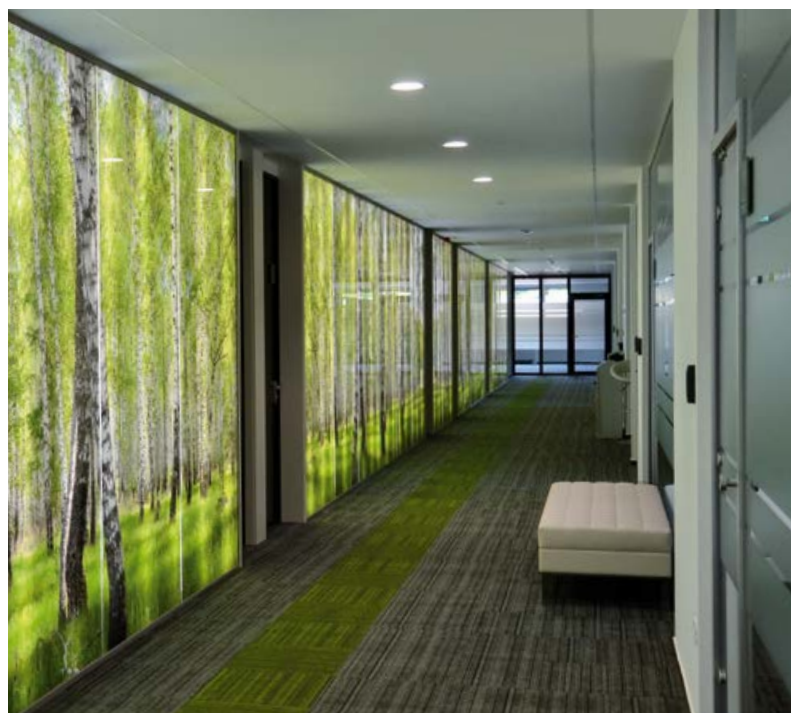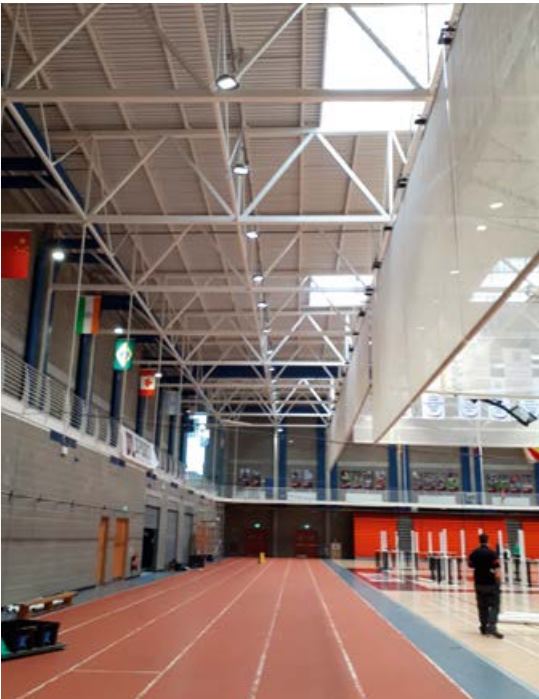
FOLLOW US
on our social networks
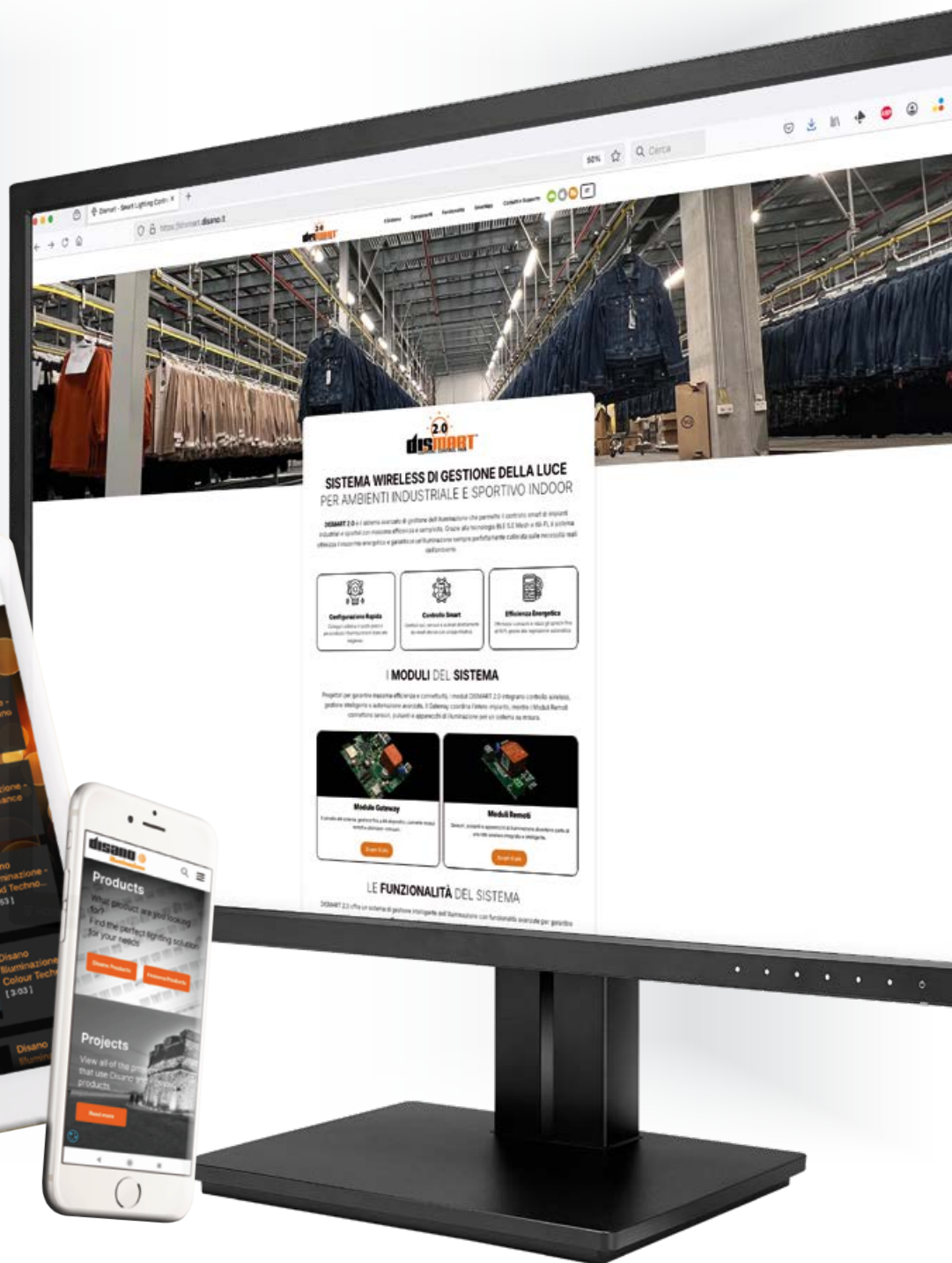
DISMART 2.0 WIRELESS SYSTEM:
SIMPLE, RELIABLE AND INTUITIVE

Disano presents **DISMART 2.0**, a wireless lighting control system that can be managed through a free app available to download from all app stores (iOS/Android).

Thanks to its straightforward, user-friendly app, **DISMART 2.0** requires no qualified personnel for setup, optimising energy savings and enhancing visual comfort.

What are you waiting for? **Discover our app now**

www.disano.it

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