



Light is more DALI standard and additional functions

A plus for you in a variety of digital lighting applications

Light is **OSRAM**



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Your interface to the future

DALI devices for intelligent lighting solutions:
powerful, efficient and multifunctional

Creating fascinating settings with light

With the right lighting solution, one can express one's individuality in various ways and perform many different tasks: rooms are brought to life with ease, general safety is increased and the quality of workplace illumination is improved. The sophisticated and reliable solutions from OSRAM meet all these requirements and, thanks to state-of-the-art lighting control, achieve the highest levels of energy efficiency and individuality. Moreover, they also provide an optimum price-performance ratio while covering a wide spectrum – from simple applications to complex installations with light management systems.

DALI standard and much more

Dimmable digital power supplies with DALI interface provide optimum conditions for achieving the highest possible energy efficiency and flexibility. With the second generation of its DALI devices, OSRAM has even surpassed the common DALI standard – with cutting-edge functions that offer unique advantages in a great variety of applications:

- Increase of energy efficiency in storage and production areas in the industrial sector
- Brilliance and individuality in the sales and hospitality sectors
- Flexibility and motivation in office areas
- Multifunctional and flexible wide-area lighting, e.g. in sports halls and parking garages
- Orientation and safety in emergency light applications

With the unique digital functions of OSRAM, you can meet today's standards down to the last detail, thus strengthening your position in the lighting market while being best prepared for the requirements of tomorrow. The functions that will be described in detail on the following pages include:

- Touch DIM® function: Comfortable dimming with standard push-buttons
- Corridor function: Direct use of standard motion sensors
- Emergency light function: Automatic lighting in the case of an emergency
- SMART GRID function: Easy monitoring of lighting systems

Energy saving made easy

Touch DIM® function

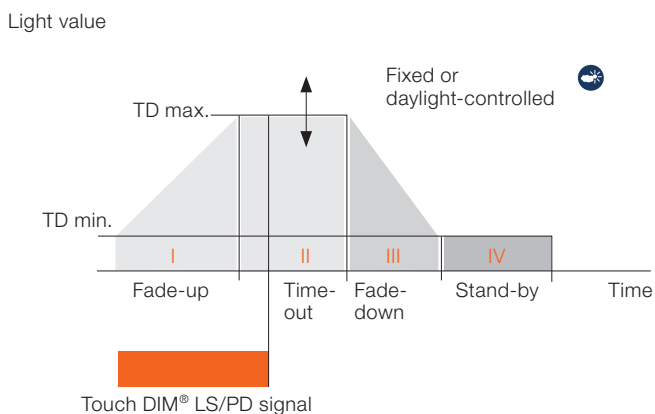


Often it's the easy solutions that save costs and energy. This is also true for the Touch DIM® function: The comfortable dimming of up to 20 power supplies, e.g. in conference rooms or single offices, is controlled via standard push-buttons and therefore keeps investment costs low. Connected to mains voltage, each action is triggered by short and/or long push-button pulses. In combination with a Touch DIM® sensor (see also page 11), daylight can also be used, resulting in an additional energy saving.

The plus of the Touch DIM® function

The Touch DIM® function allows for the free parameterization of the threshold values. In a single office, for example, the lighting can be completely switched off during lunch breaks thanks to the unique stand-by operation. No other DALI device on the market offers this feature.

Touch DIM® function flow chart



Factory settings:

- Fade-up: 0.7 s
- Time-out: 15 min
- Fade-down: 32 s
- Stand-by: 5 s
- TD min.: 1 %

Sensors for the Touch DIM® function

The sensor Touch DIM® LS/PD LI is a light and presence sensor for luminaire integration. It is also available as a light sensor only (Touch DIM® LS LI) or as a presence and motion sensor with sensor extension (Touch DIM® PD LI 2P WOS).



Touch DIM® LS/PD LI sensor

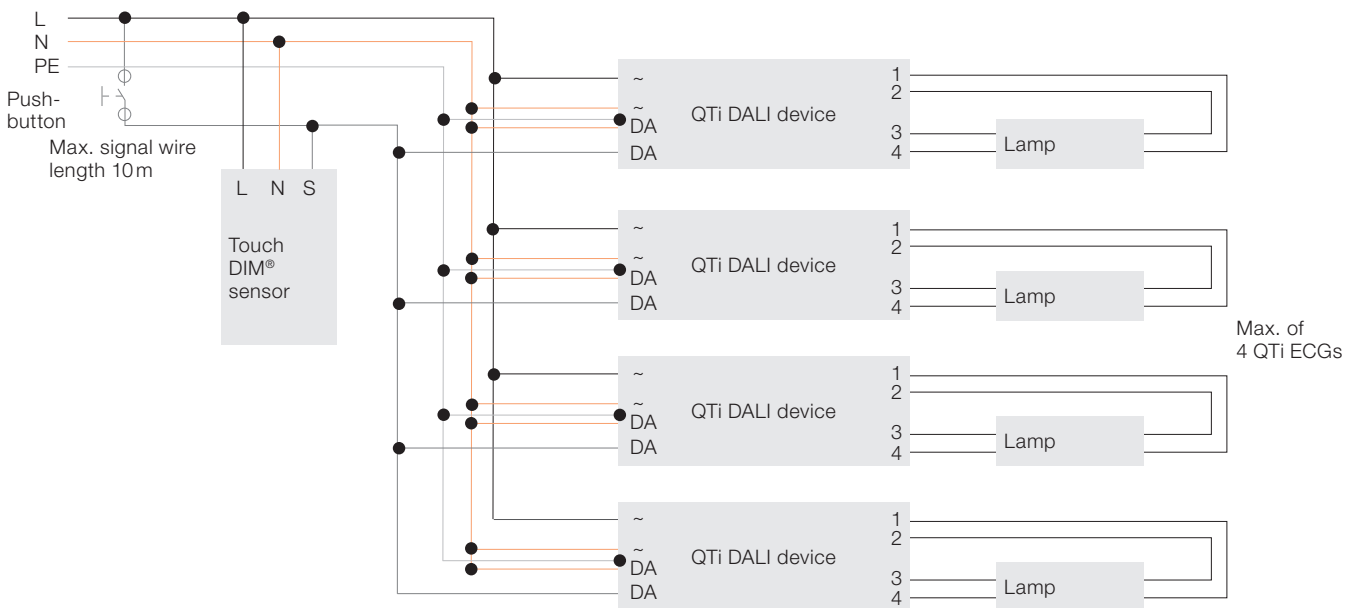


Touch DIM® LS LI sensor



Touch DIM® PD LI 2P WOS sensor

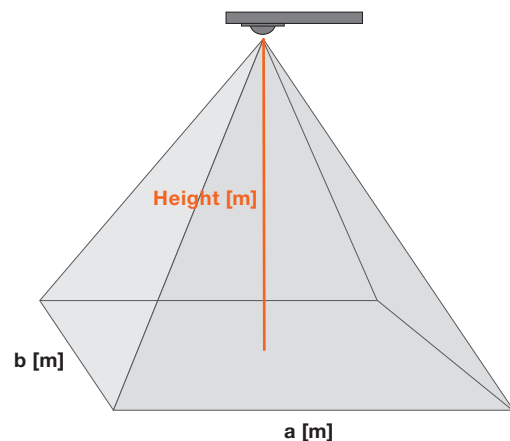
Touch DIM® LS/PD LI sensor wiring diagram



Touch DIM® LS/PD LI sensor detection range

Height [m]	a [m]	b [m]
1.8	4.0	2.7
2	4.4	3.0
2.2	4.9	3.3
2.4	5.3	3.6
2.6	5.8	3.9
2.8	6.2	4.2
3	6.7	4.5
3.2	7.1	4.8
3.4	7.6	5.1

Mounting heights above 3.5m do not lead to any significant extension of the detection range



Your direct connection to modern motion detection

Corridor function



Thanks to the corridor function, DALI devices can also be used in combination with standard motion sensors – e.g. with the OSRAM DUO sensor (see also page 11), which allows switching off the lighting when there is enough daylight. In path and area lighting, e.g. in school corridors, energy saving potentials can thus be fully exploited.

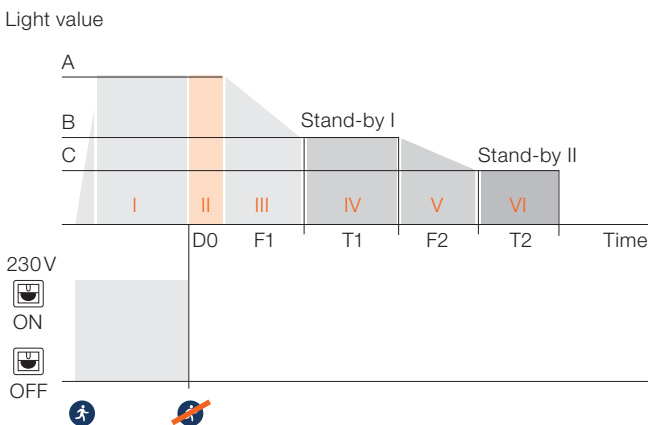
Light is only provided when and where it is actually needed. It is switched on automatically as soon as the line signal is received by the digital interface of the DALI device for more than two minutes. With this function, the lighting can be operated with maximum cost efficiency at locations where light, due to legal or safety reasons, is mandatory around the clock when people are present, e.g. in pedestrian tunnels, parking garages, public buildings and hotels.

The plus of the corridor function

The corridor function is also characterized by the free parameterization of the threshold values. This allows for an individual adjustment to the required lighting solution and a maximum level of energy saving in line with relevant legal regulations.

Corridor function flow charts

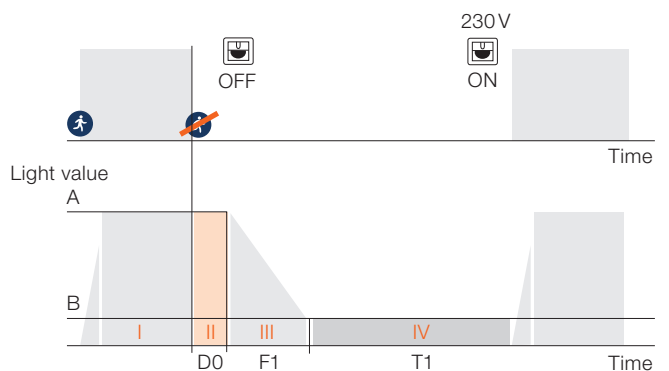
General curve:



Free parameterization:

3 lighting levels (A, B, C)
Time setting (I...VI) via DALI magic

Factory settings:



Factory settings:

A: 100%, D0: 120 s, F1: 32 s
B: 10%, T1: infinite

Sensor for the corridor function

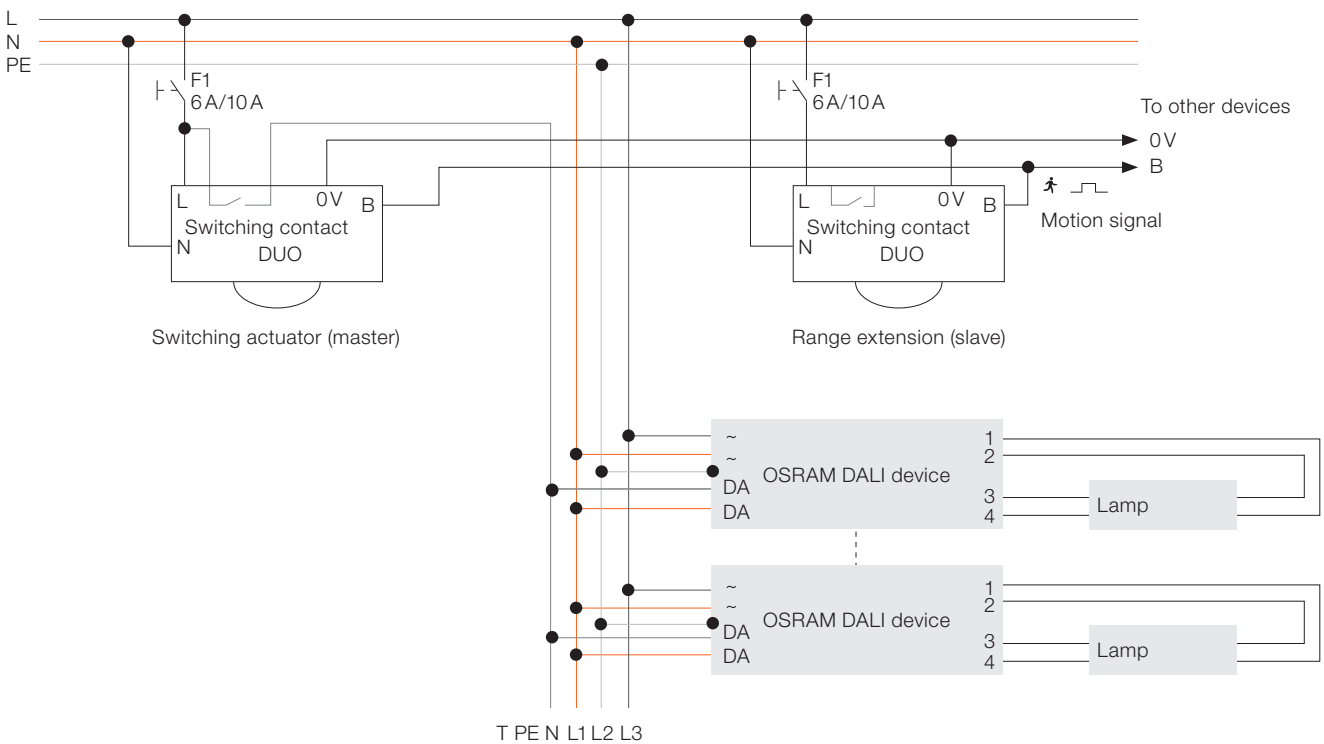
The DUO sensor is a motion detector suitable for ceiling installation. In addition, it can also be used as an intelligent light sensor, i.e. the lighting can be switched off when the amount of daylight increases. In areas where daylight is available, the possible energy savings are therefore significantly higher than with standard motion detectors.



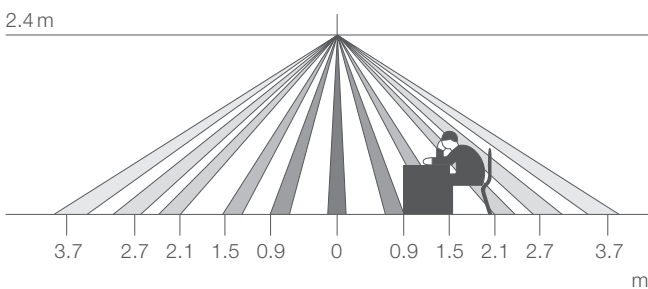
DUO sensor

DUO sensor wiring diagram

Mains 220–240V – 50/60Hz



DUO sensor motion detection range (circular)



Emergency light for orientation and safety in case of danger

Emergency lighting function



During emergencies, buildings must be immediately and safely supplied with emergency light. DALI devices, apart from all other relevant international standards for safety, EMC and operation mode, also meet the requirements of the IEC 61347-2-3 norm, the new standard for emergency lighting.

The plus of the emergency lighting function

The decisive advantage of the emergency lighting function of DALI devices is the recognition of CD voltage or pulsating AC voltage at the mains connections. In this event, the maximum light value (100 %) is set automatically – as far as it hasn't been individually set otherwise during free parameterization. As soon as mains voltage is again detected at the DALI device, the operation of the device goes back to the last-used light value and operating mode.

Moreover, DALI devices can also be integrated into the central emergency light supply in facility management systems. They are ideally suitable for systems from CEAG, Mackwell and INOTEC, for example.

Better maintenance through monitoring

SMART GRID function



With the SMART GRID function, lighting systems can be easily monitored and successfully operated. The function increases the level of service by enabling, for example, the readout of the light sources' operating hours as well as the current operating temperature or the detection of mains overvoltage, thus facilitating the scheduling of service intervals.

Free parameterization according to customer preference

Digital programming with OSRAM DALI magic and DALI Wizard

The easy-to-use DALI magic hardware (in combination with the DALI Wizard 2.1 PC freeware) allows for quick individual parameterization of DALI devices via USB interface.

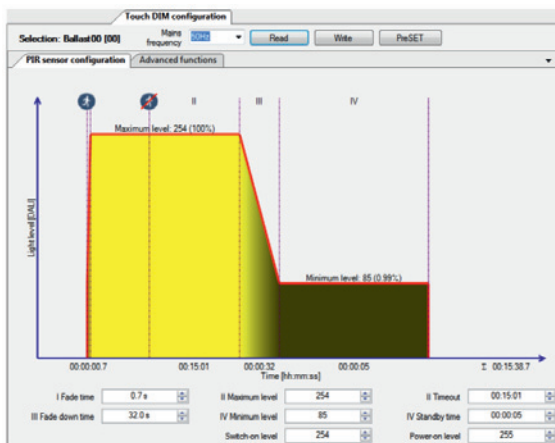
In this way, the following range of functions can be utilized:

- Touch DIM® function
- Corridor function
- Emergency lighting function
- SMART GRID function
- CLO (constant lumen output)
- Readout function: Current power consumption status/ operating hours

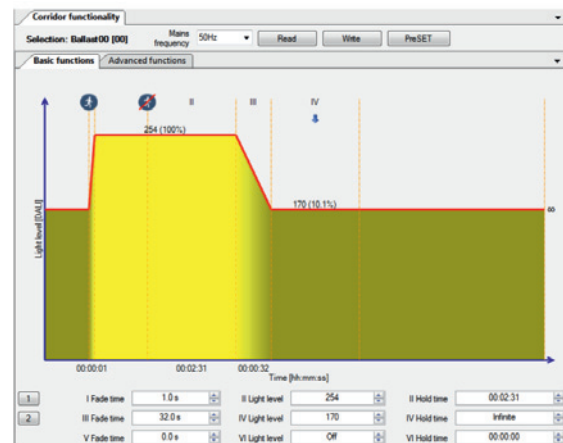
DALI magic also supports the assessment and solution of lighting tasks during diagnosis and analysis applications. The combination of DALI magic and DALI devices thus enables maximum success in the world of digital lighting – with minimum effort for electricians, facility managers and maintenance personnel.

To download DALI Wizard 2.1, please go to:

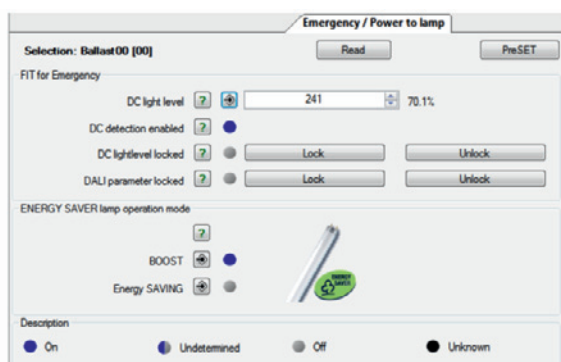
www.osram.com/software



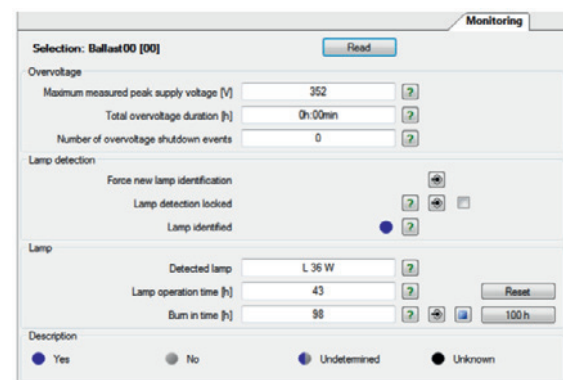
Example of DALI Wizard 2.1: Touch DIM® function



Example of DALI Wizard 2.1: Corridor function



Example of DALI Wizard 2.1: Emergency lighting function



Example of DALI Wizard 2.1: SMART GRID function

Detailed product characteristics

System components and further information

OPTOTRONIC® Intelligent DALI device (SELV/NON-SELV; Compact and Linear/Area)



- Operation of PrevaLED® as well as other LED modules
- Broad operating range: 600 mA to 1.4 A with OPTOTRONIC® Compact; 600 mA to 2.1 A with OPTOTRONIC® Linear
- High output power: up to 90 W (NON-SELV)
- Dimming range: 1...100 % (hybrid dimming: Combination of pulse-width modulation and amplitude modulation)
- Very low stand-by power consumption: < 0.3 W (NON-SELV) or < 0.5 W (SELV) in AC and DC operation
- Lifetime: up to 100,000 h at $T_c = 65^\circ\text{C}$ (max. $T_c = 85^\circ\text{C}$)
- Efficiency: up to 92 % (full load)
- Supply voltage: 220–240 V
- LED module start within < 0.3 s
- Broad operating temperature range (T_a): -30 to $+55^\circ\text{C}$ (depending on device type)
- Intelligent thermal management:
 - Overtemperature protection
- Overload and short-circuit protection
- Safety according to EN 61347-1, 61347-2-3, 61347-2-13, 62384
- Module operation according to EN 60929
- DALI standard according to IEC 62386-101, -102, -207
- RFI requirements according to EN 55015:2006 + A1:2007 + A2:2009 (compliance with 300-MHz requirements)
- Harmonics according to EN 61000-3-2
- Immunity according to EN 61547
- EL (emergency light) according to IEC 61347-2-3/App. J
- Emergency light installations according to EN 60598-2-22
- Suitable for central-battery systems according to EN 50172

QUICKTRONIC® Intelligent DALI device



- Operation of various lamp types (T5/T8, DULUX®, amalgam and energy saver lamps) possible
- Dimming range: 1...100 % (3...100 % with compact fluorescent lamps)
- Very low stand-by power consumption: < 0.2 W (A1 BAT)
- Lifetime: up to 100,000 h at $T_c = 65^\circ\text{C}$ (max. $T_c = 75^\circ\text{C}$)
- Very high switching capability: up to 300,000 switchings
- Supply voltage: 220–240 V
- Lamp start within 0.6 s
- Easy replacement of defective electronic power supplies thanks to available System+ guarantee
- Safety according to EN 61347-1, 61347-2-3, 61347-2-13, 62384
- Lamp operation according to EN 60929
- DALI standard according to IEC 62386-101, -102, -207
- RFI requirements according to EN 55015:2006 + A1:2007 + A2:2009 (compliance with 300-MHz requirements)
- Harmonics according to EN 61000-3-2
- Immunity according to EN 61547
- EL (emergency light) according to IEC 61347-2-3/App. J
- Emergency light installations according to EN 60598-2-22
- Suitable for central-battery systems according to EN 50172

Touch DIM® LS/PD LI sensor

- One-piece combined light and presence detector for installation into luminaires and direct connection to QTl/OTi DALI devices
- Daylight and motion-dependent control of up to four power supplies
- Integrated mains supply
- Operation and setpoint setting via standard external push-button with a make contact
- Automatic interruption of control in case of manual override until the light is switched on again
- Suppression of presence detection after manual off for 30 seconds
- Manual deactivation of the control and transition to mere control operation by deleting the setpoint
- Holiday mode (deactivation of the presence detection)
- Operating range: 0–300lx (measured at the sensor)
- Mounting height: 2...4 m
- 15 minutes of switch-off delay after the last motion detection
- Protection class II; type of protection: IP20
- Ambient temperature range: 0...+50 °C
- Housing for luminaire integration
- Dimensions: 63x29x21 mm (LxWxH), plastic housing
- Order name: Touch DIM LS/PD LI

Touch DIM® LS LI sensor

- One-piece light sensor for installation into luminaires and direct connection to QTl/OTi DALI devices
- Daylight-dependent control of up to four power supplies
- Integrated mains supply
- Operation and setpoint setting via standard external push-button with a make contact
- Automatic interruption of control in case of manual override until the light is switched on again
- Deactivation of the control and transition to control operation by deleting the setpoint
- Operating range : 0–300lx (measured at the sensor)
- Mounting height: 2...4 m
- Protection class II; type of protection: IP20
- Ambient temperature range: 0...+50 °C
- Dimensions: 63x29x21 mm (LxWxH), plastic housing
- Order name: Touch DIM LS LI

DUO sensor

- Daylight and presence sensor for energy-saving solutions in non-dimmable luminaires and lighting systems, suitable for individual and open-plan offices as well as common rooms
- Various operating modes selectable: Daylight or presence detection or daylight and presence detection
- Up to 20 power supplies connectable
- All operating modes can be set on the front of the sensor
- Energy saving potential of up to 45 % in comparison to conventional solutions
- Ceiling or wall surface mounting or “clip-on” installation for T5 and T8 lamps
- Interconnection of several sensors possible
- Stand-by power consumption: max. 0.7 W
- Detection range: Ø 12 m
- Mounting height: max. 5 m
- Time-out range: 1...60 min
- Operating voltage: 220...240V AC/50–60 Hz
- Operating temperature: 0...+50 °C
- Protection class II; type of protection: IP20
- Dimensions: 71 x 58 x 47 mm (LxWxH)
- Order name: DUO

Utilize the versatility of OSRAM DALI devices

Application examples and references

Offices

DALI devices perfectly combine lighting comfort with energy efficiency. In this way, various types of lighting concepts for a wide range of room dimensions can be individually and flexibly realized, creating a pleasant atmosphere in offices or classrooms that makes people feel comfortable. Moreover, the fact that illumination levels can be individually adjusted adds motivation and makes working and studying more ergonomic.



Reference project: Süddeutscher Verlag, Munich, Germany

The effect of energy-efficient lighting technology components such as prismatic louvers, modern T5 lamps and power supplies is additionally supported by intelligent light control. Depending on the level of daylight and the presence of people, the system controls the complex interaction of artificial light and internal sunblinds. DALI devices enable the demand-dependent creation of luminaire clusters as well as their switching and control. The DALI control is connected to the central building control systems (KNX, LON etc.) via a gateway. User interfaces enable operators to set the parameters in the individual rooms according to their preferences.

Industrial facilities

In the manufacturing industry, light represents a safety factor. Moreover, being able to work safely and with concentration means that employees can optimize their performance. And through the combination of dimmable DALI devices and modern light management with light sensors, for example, natural light coming in through windows can be utilized to save energy and reduce manufacturing costs.



Reference project: Adelholzener Alpenquelle, Siegsdorf, Germany

In 2007, Adelholzener built a new filling hall for its Active O₂ beverages. The hall was equipped with linear luminaire systems made of 2x80-watts fluorescent tubes. The luminaires were additionally fitted with special covers, which insurance companies rate very highly because of their exceptional level of protection against fire. Moreover, controllable DALI devices were installed which can set the luminous intensity of each individual light point between 10 and 80 percent. In addition, the system enables the operators to program different types of lighting scenarios with varying luminous intensities and light points.

Storage halls and staircases

Storage halls and staircases are temporarily used areas of buildings that nevertheless require safe orientation at any given time of day. That's why it's important that, if required, light is reliably available. Through the application of DALI devices, the luminous intensity can be increased exactly when it is needed by using the corridor function. If no one's around, the light is automatically dimmed in order to save energy and costs.

Reference project: Zalando Picktower, Erfurt, Germany

Thanks to the integrated light management system, the light in the corridors of the Picktower is dimmed down to 10 percent when there's nobody present. But as soon as an employee steps into the corridor, the light is powered up within seconds. Compared to a solution without a light management system, Zalando thus saves 60% of the previous energy costs.



Hospitals

Hospital rooms need a flexible lighting concept that can be adjusted to the respective situation. On the one hand, the room should have a homelike, pleasant atmosphere. On the other hand, a high level of illumination must be possible in order to examine the patients. With a range of lighting scenario storage functions, DALI devices enable comfortable and individual light settings in the room. In combination with special daylight sensors, the Touch DIM® function creates comfortable lighting conditions in the room while achieving high levels of energy efficiency.



Showrooms

In order to be successful, product presentations need individual and attractive lighting concepts. With DALI devices, various lighting scenarios can be set to create the desired atmosphere in the showroom. Specific areas in the showroom can be highlighted with special lighting accents, grabbing the customers' attention and directing it towards individual products.



Reference project: Heraldi for Men, Zagreb, Croatia

In the "Heraldi for Men" store, OSRAM LEDVANCE® DOWNLIGHTs take care of basic illumination while Lunis SL-T LED spotlights focus on individual shelves. Due to the fact that the different areas within the store have varying ceiling heights (2.6 to 4 meters), different luminaire sizes and wattages are employed. All downlights have a DALI interface and can be controlled by an OSRAM DALI BASIC controller and a 5-scenario operating panel. That's how areas with varying ceiling heights can be individually dimmed, for example. By means of a night setting, all downlights are dimmed down to 30 percent of the luminous flux in order to save energy.



Kempinski Hotel Corvinus Budapest/MKV Design LTD. UK

Hospitality

In the hospitality business, for example in hotels and restaurants, it is very important that guests feel welcome in an atmosphere of relaxation and friendliness. Thanks to programmable lighting scenarios and grouping of various light sources, DALI devices enable operators to meet a broad range of lighting requirements. In hotels, for example, it is possible to create a bright, lively atmosphere during the day while in the evening, thanks to the 1...100 % dimming function of the DALI devices, the light can be set to reflect a rather laid-back, stress-free mood.



Traffic and parking garages

In terms of lighting systems, areas of traffic have special requirements. On the one hand, the right illumination improves road safety. On the other hand, it helps drivers to find their way, e.g. in parking garages. Thanks to the corridor function, DALI devices meet these varying requirements with ease and efficiency – for example by providing full illumination in order to ensure safety when there is traffic and by dimming the light in order to increase energy efficiency when there is no traffic in the building.

Sports and recreation

Depending on their respective usage, modern sports halls and recreation centers have to meet a multitude of demands. For successful sports events as well as for any other recreational usage, a perfect illumination is key. With the multifunctional DALI devices, the light can be adjusted to exactly fulfill the respective requirements. For this task, DALI is essential because it integrates ambient light and adjusts the hall lighting to the actual conditions. That way, energy consumption and costs can be significantly reduced.



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