



## Light is the efficiency booster

### LED-based industrial lighting

High ceilings in production and logistics facilities call for lighting components with long lifetimes, wide temperature ranges, high light output levels and a high quality of light for effective working. In order to cut costs while providing high-performance lighting, many luminaire manufacturers today rely on robust LED components and intelligent control technology from OSRAM. Our future-proof lighting systems reduce the power consumption as well as the maintenance effort – this pays off, for you as well as for your customers. More information at [www.osram.com/industry-lighting-systems](http://www.osram.com/industry-lighting-systems)

**Light is OSRAM**

**OSRAM**

# Great savings potential thanks to state-of-the-art LED technology and intelligent control

Many industries today operate on a 24/7 schedule. This calls for extremely energy-efficient, durable, low-maintenance and robust lighting components, which help to reduce lighting costs to a minimum. Moreover, high ceilings and special production conditions in the various industries can necessitate a high quality of light with maximum light output and optimal CRI values, so that employees, as well as the machinery, can work flexibly and efficiently. In many cases, the light must also show a low output ripple current, i.e. it has to be “flicker-free,” so that the functionality of modern machines or scanner systems remains unaffected.



## Reducing operational cost permanently

In industrial applications, the failure-free operation of lighting systems is of decisive importance because the luminaires are usually installed at great heights, which makes their maintenance challenging and costly. Often, these luminaires are also subject to heat, cold, dust, humidity or vibrations. This is why very robust luminaires are needed here, and they must also provide a high temperature resistance and a high light output in order to illuminate work areas brightly and evenly. Our extremely reliable and energy-efficient LED system components for the industrial sector save lots of energy and reduce maintenance effort to a minimum. Moreover, systems from OSRAM offer a high product quality, which ensures long guarantee periods as well as a high security of investment.



**LED luminaires for industrial applications**

Light point height up to 16m:  
High-performance high-bay LED luminaires with PrevaLED® BRICK LED modules and OT as well as OT 1DIMA drivers

Light point height up to 12m:  
Linear LED trunking systems with PrevaLED® Linear G4 LED modules and OT IND drivers

Light point height up to 6m:  
Cost-efficient damp-proof LED luminaires with Basic Linear LED modules and OT FIT drivers

**Modern LED solutions**

In order to reduce lighting costs even more, many companies today already rely on robust and intelligent LED drivers and well-thought-out light management systems from OSRAM. These components are also designed to meet the demanding requirements of the industrial and logistics sectors. They offer many opportunities to apply light in a significantly more targeted and efficient way than just a few years ago – from the dimming capability of the LED luminaires and their combination with motion or daylight detection systems to cost-efficient wireless solutions and integration into extensive building management systems. Moreover, thanks to their low output ripple current (below 1 %), our components are perfectly suitable for application with scanner systems. When it comes to industrial lighting, make sure to be on the safe side with durable and perfectly matched LED complete solutions from OSRAM.

**Developing durable and energy-efficient lighting systems is easy – with future-proof technologies from OSRAM!**

# Industrial lighting is becoming more and more intelligent and efficient

An interview with OSRAM product managers Nicolai Heber and Peter Bach

## **OSRAM: A lot has changed in the industrial lighting sector. What are the current trends?**

**Peter Bach:** Most notably, the energy efficiency of LED technology has by now significantly surpassed that of conventional T5 fluorescent tubes. So now it makes sense to think about using LEDs in the industrial sector as well – not only for new installations, but also within modernization projects. Another very important factor is the extreme durability of LED lighting, considering that luminaire maintenance at heights of 8 to 16 meters is very costly, especially if machines have to be stopped in order to carry out the maintenance work. Our goal, therefore, is to avoid maintenance work, preferably altogether, by launching a system of very durable lighting components with very long guarantee\* periods.

## **OSRAM: Does this mean that customers have become more demanding?**

**Peter Bach:** Industrial customers are primarily concerned with economic issues. In many areas, LED technology is superior to traditional industrial lighting, especially in terms of total cost of ownership. Moreover, LED luminaires for the industrial sector have meanwhile become less expensive to purchase. This is why more and more industrial customers are now completely switching over to LED technology – and to a corresponding light management system.

## **OSRAM: So light management systems are required even in rather simple industrial buildings?**

**Nicolai Heber:** In warehouses with high-bay racking, lighting costs can amount to up to 80 percent of the entire energy cost. So it does make sense here to use an intelligent light management system – especially if you consider that the investment for the corresponding technology quickly pays off because you can save a lot of money by applying motion and presence detection systems and special features such as the constant lumen output (CLO) function. But using intelligent control systems also pays off in production facilities, where you can flexibly group and address individual luminaires, luminaire clusters or entire areas via light management or building management systems. Apart from the potential energy savings, this also represents an added value for the end customer. It may even be that several sites are interconnected and maintained via remote access – which, for example, is where our ENCELIUM™ system comes into play.

## **OSRAM: Which product innovations would you point out especially here?**

**Nicolai Heber:** In the industrial sector, the lighting often needs to fulfill special requirements, for instance when high ambient temperatures or, as is the case in refrigerated warehouses, very low ambient temperatures are involved. That is why, this year, we will launch new LED drivers and LED modules which can withstand significantly higher and lower temperatures and which also offer a higher switching capability and robustness, and a longer lifetime. This, in turn, enables us to offer longer guarantee periods. All of this, of course, in combination with corresponding sensor technology, such as our high-bay sensors, which allow daylight and motion detection even in very high buildings, or with HF sensors, which can be integrated into damp-proof luminaires.

“Industrial customers are primarily concerned with economic issues.”

Peter Bach | OSRAM product manager

## **OSRAM: What other options are there in terms of saving energy?**

**Nicolai Heber:** The CLO feature, for example, is very important for intelligent energy management. This is a constant lumen output control function, which we are integrating as a standard feature into our DALI drivers as well as into our switchable industrial drivers. It allows compensating for lumen depreciation over time via the driver and thus saves the light that was formerly overplanned. This means that there is no need for unnecessarily high energy consumption at the beginning of the life cycle, with possible savings of up to 20 percent. OSRAM will soon be the first lighting manufacturer to offer this function as a free feature also for switchable LED drivers, which means that our customers can plan their lighting projects more efficiently.

\* 1. 8 years guarantee for OSRAM industrial LED drivers and 10 years system guarantee for application of OSRAM industrial LED drivers in combination with OSRAM LED modules.  
2. For conditions and detailed information, see [www.osram.com/guarantee](http://www.osram.com/guarantee).



**OSRAM: Lighting in modern industrial facilities must not only be energy-efficient, but also high-quality.**

**Nicolai Heber:** Exactly. This is true, for instance, for the logistics industry, where scanner systems are applied. In this area, the lighting must not only be bright, but its quality must also be high, so that these systems, most of which are very sensitive, can work properly. Our LED drivers ensure a low output ripple current of under 1%. This means that negative effects on scanner systems and other machines can be prevented – at any dimming level.

**“Quality of light is also very important in the industrial sector.”**

Nicolai Heber | OSRAM product manager

**OSRAM: Are industrial customers today more sensitive to comfort factors, such as color temperature?**

**Nicolai Heber:** Quality of light, in fact, is also very important in the industrial sector – in the automotive industry, for example, where people are manufacturing precision parts. It is absolutely essential here to not only have a bright, but high-quality lighting that enables you to concentrate and to work without making mistakes. This is why Human Centric Lighting is also playing an increasingly important role in the industrial sector.

**OSRAM: How do you see the future of industrial lighting?**

**Nicolai Heber:** I believe that, when industrial facilities need to be modernized, we will see more and more customers using dimmable instead of switchable lighting solutions. Moreover, they can now also use a ZigBee gateway to apply a wireless solution, which means that no new wiring has to be installed. On the whole, thanks to LED technology, everything is becoming more intelligent. Therefore, we will also see an increased use of LED driver data, such as energy consumption, dimming level, or remaining lifetime. These data can be applied, for example, for energy efficiency optimization, or for predictive planning and more cost-efficient execution of maintenance work.

# Industrial lighting today – this is how it works

The requirements for industrial lighting projects are high: Even in large industrial buildings, the light output and the quality of light must enable employees to go about their work without getting tired. The profitability factor is crucial as well: In order to reduce the total cost of lighting to a minimum, it has to be as energy-efficient, durable and robust as possible. On top of that, there is a whole range of special requirements which, depending on the industry that they belong to, can vary widely. This, for example, includes a high temperature resistance or a low output ripple current, which is especially important for the proper functioning of scanner systems also used in conventional production.

## The efficient solution:

### LED modules, LED drivers and lighting control

Cost reduction is one of the most important factors of economic success – especially in the industry sector, where compatibility and efficiency are key issues. Many industrial facilities, however, are still using traditional T5 or T8 fluorescent tubes. In contrast, considerable savings can be achieved by applying perfectly matched LED modules, LED drivers and intelligent light management systems. The investments for the corresponding technology quickly pay off because it not only significantly reduces energy consumption, but also maintenance costs and, in many cases, downtime costs as well.

## LED luminaires for industrial applications:

### With components from OSRAM

In the smaller production and storage hall, modern damp-proof luminaires replace conventional luminaires equipped with T5 fluorescent tubes. Inside these luminaires, our innovative PrevaLED® Basic Linear LED modules and our HF LS LI sensors – in combination with high-quality OPTOTRONIC® Intelligent DALI 100 IND LED drivers – provide extremely energy-efficient lighting. With this solution, the light is only switched on when work is being done in the detection area and/or only if the daylight from outside is not sufficient any more for focussed work. An alternative possibility for saving energy is provided by using a switchable solution with OPTOTRONIC® FIT 100 IND drivers, which are already available with the integrated CLO feature and therefore also save energy.



**Targeted LED application:  
No permanent lighting in high-bay racking areas**

In warehouses with high-bay racking, the corridors between the storage racks have to be optimally illuminated. This can be done by using an LED trunking system equipped with PrevaLED® Linear G4 LED modules from OSRAM. In this area, our OPTOTRONIC® Intelligent DALI 100 or 150W IND LED drivers are used because a higher light output is needed and because, in combination with the LED modules, these drivers can generate a luminous flux of up to 16,000 lm. In high-bay racking, however, operations are not continuous throughout the entire day. This is why using modern sensor technology makes perfect sense here in order to maximize the energy efficiency of the LED installation. Combining the DALI HIGHBAY ADAPTER and the HIGH BAY SENSOR from OSRAM allows daylight-dependent adjustment and motion-dependent control, which means that the lighting is only powered up to 100 % if a person or a machine is moving through the corridor.



**Even in case of alternating use:  
The light must be right**

It's a special challenge for lighting planners: A large industrial building with multipurpose use, where extreme ceiling heights of up to 16m demand the application of especially powerful high-bay luminaires. But that's not all: In addition, individual production and logistics components are often installed at alternating locations throughout the facility and then removed again some time later. The solution: A flexible LED system based on DALI PROFESSIONAL and HIGH BAY SENSOR as well as, for example, PrevaLED® BRICK LED modules and OPTOTRONIC® 1DIMA drivers from OSRAM, which optimally combines artificial lighting with daylight harvesting.

**Trendsetting lighting concepts for the industrial sector**  
LED technology combines present-day energy efficiency with a low maintenance effort and highest levels of comfort and versatility. Therefore, it is the choice for modern industrial lighting.

# Modern light management systems – scalable according to application size

## Easy integration of lighting solutions

### Saving energy with state-of-the-art lighting technology

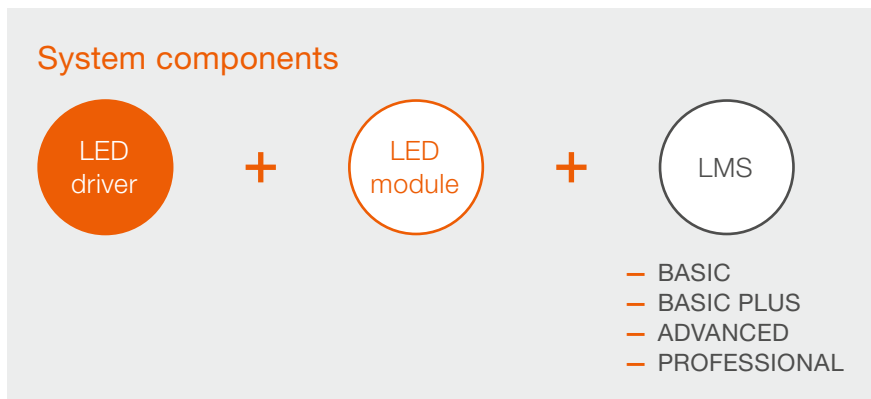
Our light management systems enable various installation sizes. The application of lighting control also pays off in sections of production or storage facilities, such as corridors or workstations, with motion and daylight detection systems, such as the HIGH BAY SENSOR from OSRAM for motion detection in switchable installations – even with additional daylight detection and integration into DALI systems when combined with the DALI HIGHBAY ADAPTER.

### Holistic and visionary lighting design

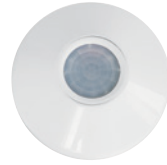
Lighting control with DALI PROFESSIONAL facilitates maximum energy savings as well as future-proof and efficient interior concepts, including flexible grouping and addressing of individual luminaires or areas. Per controller, it allows the easy control of up to 256 LED drivers, including sensors, and up to 16 groups, including daylight and presence detection systems. Moreover, up to four DALI PROFESSIONAL controllers can be interconnected, thus making it possible to expand lighting installations. Via the integrated real-time clock, the lighting conditions can be automatically adjusted to the variations of usage over the course of the day and combined with HCL functions.

### For larger projects: ENCELIUM™

Within large and very large projects, it is possible to interconnect a virtually unlimited amount of light points, because the controllers can be networked. Our innovative ENCELIUM™ light management system allows analyzing all relevant data in order to optimize the efficiency of completely networked installations. The system's innovative software not only allows easy commissioning and operation, but also extensive monitoring and comfortable control of the entire lighting installation. Thanks to remote access, this can be done from anywhere. In addition, there is an entire package of intelligent energy management strategies which offer savings of up to 75 %.



BASIC



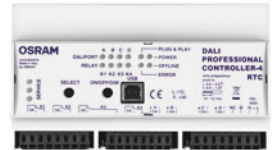
HIGH BAY SENSOR

BASIC PLUS



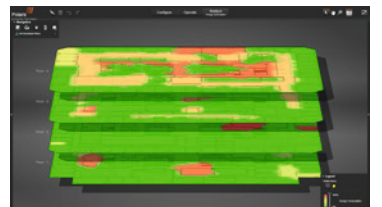
DALIeco BT control  
(comfortable configuration via app)

ADVANCED



DALI PROFESSIONAL (integrated real-time clock, pushbutton and app operation, programming via PC software)

PROFESSIONAL



ENCELIUM™  
(visualization in real time, analysis and optimization of energy savings, remote maintenance)





Smaller and medium-sized production halls and warehouses

## Medium-sized areas

### ON/OFF

Damp-proof luminaires, trunking systems, high-bay luminaires

### Functions

- Constant lumen output (CLO)
- Motion detection
- Switching ON/OFF via mains contact

### DALI dimmable

Damp-proof luminaires, trunking systems, high-bay luminaires

### Functions

- Switching ON/OFF and dimming 1–100 %
- Daylight-dependent control
- Motion detection
- Configuration via smartphone
- Manual control via standard pushbuttons or app

Up to 32 LED drivers



Medium-sized and large production halls and logistics facilities

## Medium-sized and large areas (floors/buildings)

### DALI dimmable

Damp-proof luminaires, trunking systems, high-bay luminaires

### Functions

- Constant lumen output (CLO)
- Switching ON/OFF and dimming 1–100 %
- Daylight-dependent control
- Motion detection
- Flexible addressing and grouping via DALI
- Commissioning via Windows software with USB or LAN connection
- Manual control via standard pushbuttons or app

Up to 256 LED drivers per control device, up to four control devices networkable



Large and very large production halls and logistics facilities, real estate with several buildings on it

## From large areas to several interconnected buildings

### DALI dimmable

Damp-proof luminaires, trunking systems, high-bay luminaires

### Functions

- Constant lumen output (CLO)
- Switching ON/OFF and dimming 1–100 %
- Daylight-dependent control
- Motion detection
- Flexible addressing and grouping via DALI
- 3D software for commissioning, visualization, operation and maintenance
- Analysis and optimization via real-time data and automated logging of operating data of all components
- Wired and wireless luminaire control

Unlimited number of luminaires

# Get it all from OSRAM: The one-stop shop for LED-based industrial lighting

High-performance LED modules, innovative driver technology and modern light management systems offer the best conditions for energy-efficient, cost-saving, durable and low-maintenance industrial lighting.



## OPTOTRONIC® Intelligent DALI 100 IND/150 IND and OPTOTRONIC® FIT 100 IND/150 IND

- 100 W and 150 W versions, DALI and ON/OFF
- CLO integrated in DALI and ON/OFF drivers
- Programming with Tuner4TRONIC® via DALI (OTi DALI IND), NFC or LEDset (current)
- DALI-2 amplitude dimming 1...100 % (OTi DALI IND)
- Wide ambient temperature range of up to  $t_a$ : -40...+70 °C
- Very low LF and HF ripple current – no disturbance of machines or scanners
- Improved overvoltage protection, low inrush current
- Lifetime: up to 100,000 hours at  $t_c = 75$  °C
- Very high efficiency of up to 96 %

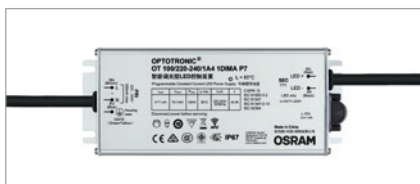


### OPTOTRONIC® Intelligent DALI 100 IND/150 IND and OPTOTRONIC® FIT 100 IND/150 IND

Product name	Product code	Operating frequency	Output power	Nominal output current	Output voltage	Ambient temperature range	Dimming range	Dimensions (l x w x h)	Protection rating
OTi DALI 100/220-240/700 D NFC IND L	4052899559516	0 / 50 / 60 Hz	100 W	200–700 mA	64–300 V	-40...+70 °C	1–100 %	360 x 30 x 21 mm	IP20
OTi DALI 150/220-240/1A0 D NFC IND L	4052899559530	0 / 50 / 60 Hz	150 W	250–1000 mA	64–300 V	-40...+65 °C	1–100 %	425 x 30 x 21 mm	IP20
OT FIT 100/220-240/700 D NFC IND L	4052899990128	0 / 50 / 60 Hz	100 W	200–700 mA	64–300 V	-40...+70 °C	-	360 x 30 x 21 mm	IP20
OT FIT 150/220-240/1A0 D NFC IND L	4052899990142	0 / 50 / 60 Hz	150 W	250–1000 mA	64–300 V	-40...+65 °C	-	425 x 30 x 21 mm	IP20

Available in mid-2018

1. 8 years guarantee for OSRAM industrial LED drivers and 10 years system guarantee for application of OSRAM industrial LED drivers in combination with OSRAM LED modules.  
 2. For conditions and detailed information, see [www.osram.com/guarantee](http://www.osram.com/guarantee).



## OPTOTRONIC® 1DIMA

- Output current adjustable via NFC
- Surge protection up to 6 kV (L/N) and 6 kV (L-N/PE)
- IP rating: IP67
- Independent installation



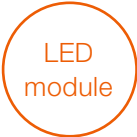
### OPTOTRONIC® 1DIMA

Product name	Product code	Operating frequency	Output power	Nominal output current	Output voltage	Ambient temperature range	Dimensions (l x w x h)	Protection rating
OT 60/220-240/1A4 1DIMA P7	4052899495012	50 / 60 Hz	60 W	400–1400 mA	36–86 V	-40...+55 °C	138 x 82 x 37 mm	IP67
OT 100/220-240/1A4 1DIMA P7	4052899495036	50 / 60 Hz	100 W	400–1400 mA	61–144 V	-40...+55 °C	174.4 x 68.6 x 37 mm	IP67
OT 150/220-240/1A4 1DIMA P7	4052899495050	50 / 60 Hz	150 W	400–1400 mA	91–214 V	-40...+55 °C	214.4 x 68.6 x 37 mm	IP67
OT 200/220-240/1A4 1DIMA P7	4052899495074	50 / 60 Hz	200 W	400–1400 mA	121–286 V	-40...+55 °C	226.2 x 68.6 x 37 mm	IP67



### PrevaLED® Linear G4

- Efficiency of up to 195 lm/W
- Wide selection of light colors (2700 K, 3000 K, 4000 K, 5000 K and 6500 K)
- Different lengths of 140 mm, 280 mm, 560 mm, 1120 mm and 1400 mm
- Color rendering index > 80 and CRI > 90
- Cut-out for shadow-free wiring
- Average lifetime (L80B10): 50,000 h



### PrevaLED® Linear G4

Product name (portfolio excerpt)	Product code	Nominal power	Color temperature	Usable total luminous flux	Luminous efficacy	Nominal current	Construction length
<b>20 mm LED module, CRI ≥ 80</b>							
PL-LIN-Z4 550-840 140X20	4052899984745	2.9 W	4000 K	564 lm	194 lm/W	87.5 mA	140 mm
PL-LIN-Z4 1100-840 280X20	4052899984844	5.8 W	4000 K	1128 lm	194 lm/W	175 mA	280 mm
PL-LIN-Z4 2000-840 280X20	4052899985049	11.7 W	4000 K	2235 lm	190 lm/W	300 mA	280 mm
PL-LIN-Z4 2200-840 560X20	4052899985223	11.6 W	4000 K	2257 lm	194 lm/W	350 mA	560 mm
PL-LIN-Z4 4000-840 560X20	4052899985421	23.5 W	4000 K	4469 lm	190 lm/W	600 mA	560 mm
PL-LIN-Z4 4400-840 1120X20	4052899985605	22.1 W	4000 K	4313 lm	195 lm/W	250 mA	1120 mm
PL-LIN-Z4 5500-840 1400X20	4052899985803	27.6 W	4000 K	5391 lm	195 lm/W	250 mA	1400 mm
<b>20 mm LED module, CRI ≥ 90</b>							
PL-LIN-Z4 1100-940 280X20	4052899984905	8.6 W	4000 K	1188 lm	139 lm/W	250 mA	280 mm
PL-LIN-Z4 2000-940 280X20	4052899985094	16.1 W	4000 K	2202 lm	137 lm/W	400 mA	280 mm
PL-LIN-Z4 2200-940 560X20	4052899985285	17.1 W	4000 K	2375 lm	139 lm/W	500 mA	560 mm
PL-LIN-Z4 4000-940 560X20	4052899985476	32.2 W	4000 K	4404 lm	137 lm/W	800 mA	560 mm



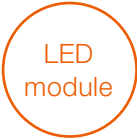
LED modules available in various light colors (2700 K, 3000 K, 4000 K, 5000 K and 6500 K).

For further products from this line, please visit our online catalogue: [www.osram.com/prevaled-linear](http://www.osram.com/prevaled-linear)



### PrevaLED® BRICK

- Dedicated versions for industrial and outdoor applications
- Efficiencies of up to 182 lm/W
- Lifetime (L80B10) of up to 100,000 hours
- Perfectly matched with OPTOTRONIC® LED drivers, e.g. OPTOTRONIC® 1DIMA

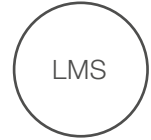


### PrevaLED® BRICK

Product name (portfolio excerpt)	Product code	Nominal power	Color temperature	Color rendering index	Usable total luminous flux	Luminous efficacy	Nominal current
<b>BRICK HP for high-bay and outdoor applications</b>							
PL-BRICK HP 3800 - 730 2x8	4052899576292	23.5 W	3000 K	70	3810 lm	162 lm/W	530 mA
PL-BRICK HP 3800 - 740 2x8	4052899576315	23.5 W	4000 K	70	3890 lm	166 lm/W	530 mA
<b>BRICK MP for high-bay applications</b>							
PL-BRICK MP 5000 - 840 16x4	4052899576773	23.5 W	4000 K	80	4280 lm	182 lm/W	530 mA
PL-BRICK MP 5000 - 850 16x4	4052899576797	23.5 W	5000 K	80	4280 lm	182 lm/W	530 mA

# More productive, more efficient: Lighting control with sensors

People who work in industrial facilities often need artificial light in order to illuminate their workstations. This, of course, calls for a type of lighting that should be as natural and as glare-free as possible. With the right light management system as well as with integrated daylight and motion detection sensors, the addition of artificial light can be controlled intelligently and energy-efficiently.



### HIGH BAY motion sensor

- Motion sensor with switching contact
- 3 to 10 m: Detection of human walking motion
- 3 to 13 m: Detection of driving movement (e.g. forklift)
- Adjustable delay time: 30 s to 20 min
- Maximum power consumption in standby mode: 0.25 W
- DALI connection via DALI HIGHBAY ADAPTER (EAN 40083213774132)

### HIGH BAY motion sensor

Product name	Product code	Voltage	Dimensions (l x w x h)	Mounting method	Protection rating	Ambient temperature range
HIGH BAY SENSOR	4008321410078	120...277 V	116 x 116 x 40 mm	Ceiling mounting	IP20	-10...+70 °C



### DALI HIGHBAY ADAPTER

- Adapter for easy snap-on mounting of the HIGH BAY SENSOR
- Connection of standard motion detectors possible with "make contact"
- Daylight detection at mounting heights of up to 13 m
- Compatible with control devices from different manufacturers
- Supply via DALI line

### DALI HIGHBAY ADAPTER

Product name	Product code	Dimensions (l x w x h)	Mounting method	Protection rating	Ambient temperature range
DALI HIGHBAY ADAPTER	4008321774132	139 x 118 x 37 mm	Luminaire integration/ ceiling mounting	IP20	0...+50 °C



**DALI LS/PD LI Sensor**

- Direct connection to DALI
- Light and presence sensor for luminaire integration
- Presence detection via passive IR element
- Operational range of the light sensor: 20–800 lx (measured at the sensor)
- Function indicator with two-color LED
- Mounting height: 2–5 m



**HF LS LI Sensor**

- Light and presence sensor for luminaire integration or independent mounting
- Presence detection via active radar sensor element
- Function indicator with two-color LED
- Motion detection range adjustable
- Mounting height: 2–13 m
- Operational range of the light sensor: 20–800 lx (measured at the sensor)
- Integrated infrared remote control receiver
- Connection via polarity-reversal-protected 4p4c socket (RJ 10)

**HF LS LI and DALI LS/PD LI Sensor**

Product name	Product code	Light sensor operational range	Dimensions (l x w x h)	Mounting method	Protection rating	Ambient temperature range
HF LS LI	4052899921481	20...800 lx	56 x 28 x 21 mm	Luminaire mounting/ integration	IP20	-20...+50 °C
DALI LS/PD LI	4052899043954	20...800lx	48 x 15 x 17 mm	Luminaire mounting/ integration	IP20	-20...+50 °C

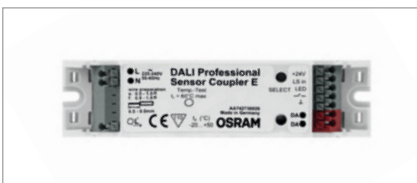


**DALI Sensor Coupler HF LS LI**

- Coupler for connection of the HF LS LI sensor to DALI systems
- Ceiling integration or independent mounting possible via ECO CI KIT

**DALI Sensor Coupler HF LS LI**

Product name	Product code	Light sensor operational range	Dimensions (l x w x h)	Mounting method	Protection rating	Ambient temperature range
DALI Sensor Coupler HF LS LI	4052899141728	20...800 lx	118 x 30 x 21 mm	Luminaire/ceiling integration	IP20	-20...+50 °C



**DALI Sensor Coupler E**

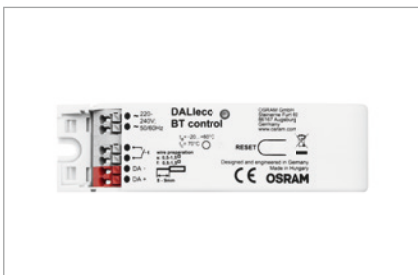
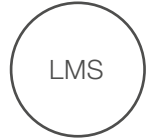
- Coupler for connection of standard motion detectors or analogue light sensors to DALI
- Ceiling integration or independent mounting possible via ECO CI KIT

**DALI Sensor Coupler E**

Product name	Product code	Light sensor measured value	Dimensions (l x w x h)	Mounting method	Protection rating	Ambient temperature range
DALI Sensor Coupler E	4052899230491	0...10 V	118 x 30 x 21 mm	Luminaire/ceiling integration	IP20	-20...+50 °C

# For installations of any size: Lighting control and light management

With the innovative light management systems from OSRAM, lighting control now is as easy, modern and versatile as never before. DALIeco BT control, for example, allows comfortable configuration and control of diverse lighting parameters via app. There are even more options to discover with DALI PROFESSIONAL and the DALI PRO Control app: This combination allows designing complex lighting scenarios and then controlling them individually via smartphone. And finally, if you're looking for highest levels of flexibility and performance, there is ENCELIUM™: This system is perfectly suitable for light management within large and complex networks and supports its users effectively in reducing energy costs for lighting by up to 75 %.



### DALIeco BT control

- Control and configuration via app
- Dimming and switching via standard pushbutton
- Connection of DALI light and presence sensors
- Connection of up to 32 LED drivers (standard white or Tunable White)

### DALIeco BT control

Product name	Product code	Supply voltage	Protection rating	Mounting method	Dimensions (l x w x h)	Ambient temperature range
DALIeco BT control	405289988781	230 V	IP20	Luminaire/ceiling integration	108 x 30 x 21 mm	-20...+60 °C

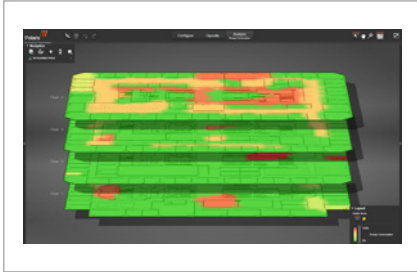


### DALI PROFESSIONAL

- Easy and intuitive control via app or standard pushbutton
- Networking of up to four DALI PROFESSIONAL control devices via Ethernet
- Daylight simulation with real-time control
- Control of up to 256 standard DALI or TW LED drivers
- Connection of DALI light and presence sensors
- Four integrated multifunction relay contacts

### DALI PROFESSIONAL

Product name	Product code	Voltage	Dimensions (l x w x h)	Mounting method	Protection rating	Ambient temperature range
DALI PRO Cont-4 RTC	4008321710871	100...240 V	90 x 160 x 62 mm	DIN rail mounting	IP20	0...+40 °C



### ENCELIUM™ light management system

- Extensive control from everywhere via web access with Polaris 3D™ software
- Easy control of a practically unlimited number of light points
- Control of standard and Tunable White LED drivers
- Extensive analysis functions: Energy savings and energy consumption
- Six strategies for optimized energy savings
- Integration of emergency lighting systems

### ENCELIUM™ light management system

Product name	Product code	Dimensions (l x w x h)	Mounting method	Ambient temperature
DALI ECU control device	4052899016842	160 x 90 x 63 mm	DIN rail mounting	0...+40 °C
SSU server	4008321791535	395 x 483 x 43 mm	Rack mounting	+10...+35 °C
Wireless control device	4052899957336	72 x 20 x 118 mm	Surface mounting/ceiling integration	0...+40 °C
Wireless user interface	4052899957367	70 x 13 x 114 mm	Surface mounting	-10...+40 °C
Radio-based light and presence sensor	4052899957343	86 x 86 x 29 mm	Ceiling mounting	0...+40 °C
Wireless control module	4052899957350	189 x 30 x 21 mm	Luminaire/ceiling integration	0...+40 °C

## Realize your projects with OSRAM

### Tailormade LED solutions for industrial applications

The industrial sector needs special lighting concepts. This is why, in addition to our broad product portfolio, we offer tailormade LED solutions designed to support you in meeting the requirements of industrial customers from a broad range of business areas. Plus, of course, we always keep an eye on the costs. Find out more about our ideas for your individual industrial lighting projects at [www.osram.com/tailormade](http://www.osram.com/tailormade)

Just tell us what you need, and we'll develop a perfect solution for your project. We're looking forward to your call. Or get in touch with us by sending an e-mail to [contact@osram.com](mailto:contact@osram.com)

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