Light is a smart network
Digital infrastructure with DEXAL®

LED drivers with DEXAL® interface enable the easy and seamless connection of sensors and RF modules as well as the bidirectional exchange of data – opening up entirely new application options. Smart networks can be set up conveniently because the drivers feature an open interface which ensures compatibility with numerous light management systems.

Light is OSRAM

OSRAM

"The future lies in the smart use of buildings."

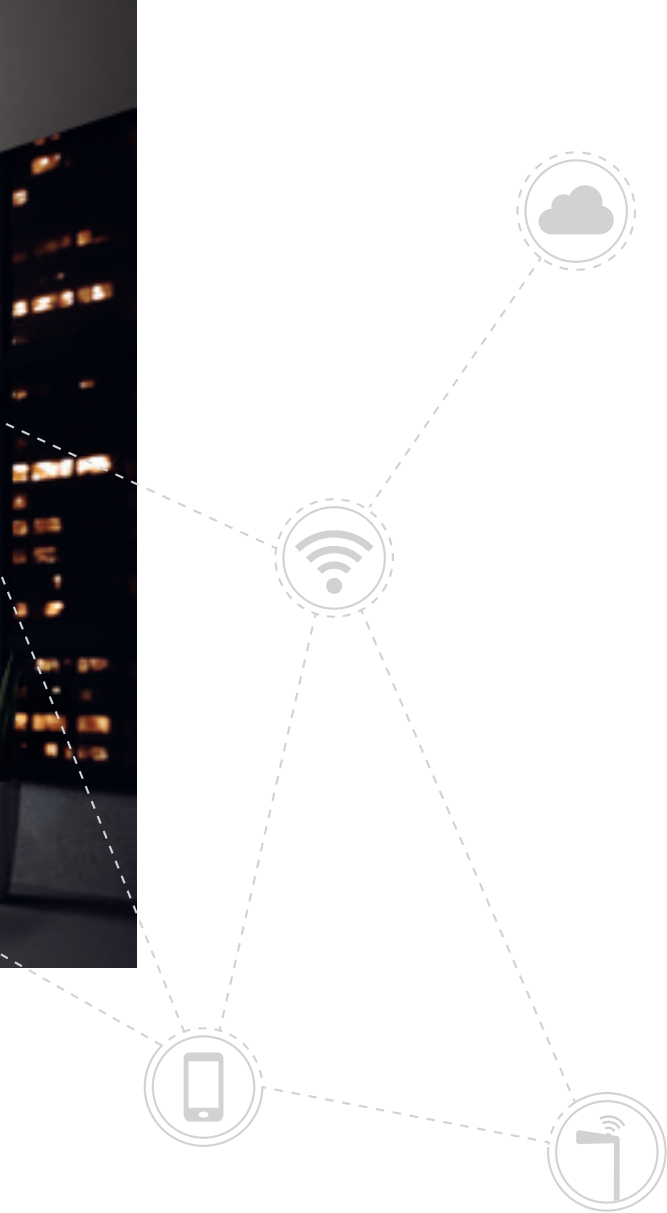# Light is the centerpiece of a smartly connected world

Digitalization changes infrastructure and its use worldwide. On the way to the Internet of Things, IoT for short, lighting will become the driving force in the development of wireless communication networks transmitting all the necessary data for innovative interactions. OSRAM LED drivers with DEXAL® interface make luminaire data available. This valuable information offers efficient possibilities for automated and optimized building utilization, providing the basis for smartly connected luminaire infrastructure in cities.

"Luminaires are everywhere and supply electric power. Simply ideal for IoT infrastructure."

- A luminaire manufacturer reports -

The open DEXAL® interface is ideal for us to manufacture smart, radio-based luminaires – and our luminaires offer real added value thanks to their integrated sensors. Since fewer components must be used, we require less installation space, which means that luminaires can be made much smaller. Our system costs have also been significantly reduced thanks to simplified wiring and perfectly matched components. The low standby consumption of the system is of course another benefit. And finally, we remain flexible: Since the data transfer can be deactivated whenever the need arises, we can now produce both smart and conventional luminaires.

What's so special is that data can flow through an open interface: DEXAL®

The basis for digital infrastructure

DEXAL® drivers with an RF module interconnect luminaires – with or without an integrated sensor – to form a close-meshed, radio-based network. The information obtained through intra-luminaire data exchange opens up numerous applications that bring essential benefits to luminaire manufacturers, lighting planners and operators, and also to cities and communities.

"The lighting installation becomes the backbone of the IoT."

- A lighting planner states -

Being a lighting and electric planner, the existing infrastructure is the key factor for me. However, I also want to be able to make the data collected available to other systems within the building. The lighting installation thus becomes the centerpiece for data exchange. Until now, setting up a connected installation required a great deal of wiring – but thanks to radio-based systems this is now a thing of the past. DEXAL® now allows me to implement smart buildings – with the management system of my choice. The fact that the sensors are now integrated into the luminaires cuts down my planning workload considerably. And the lighting system can be conveniently re-configured whenever we want to use rooms in a different way – a major benefit especially for open-plan offices.

"Everything is optimized: energy, space utilization, maintenance."
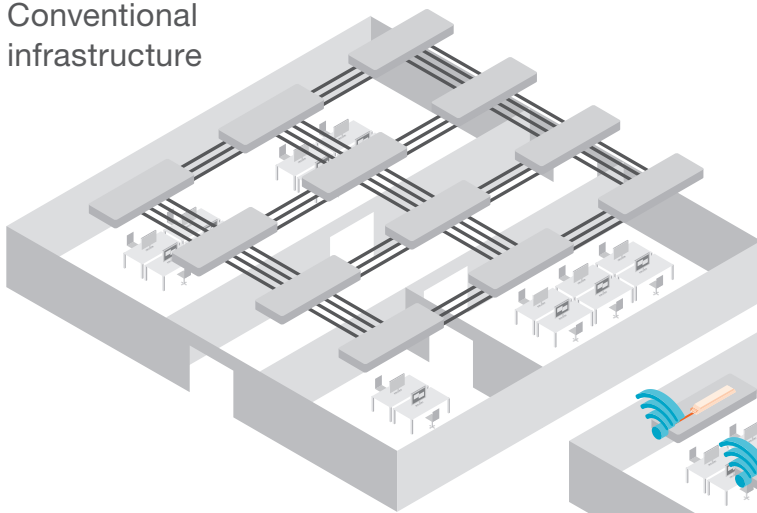
- A building operator comments -

The DEXAL® drivers provide us with a huge amount of luminaire data such as energy consumption, temperature values and operating hours. We make use of this information for many purposes: It helps us to minimize our energy consumption and provides the basis for preventive maintenance in our entire lighting installation – which is now much more efficient. We also monitor the data of other sensors and thus obtain valuable information, for example on temperature, air humidity and CO_2 concentration. The DALI bus transmits all this data to the light management system where it is monitored and managed. So we can precisely analyze usage patterns and adapt all the building systems to optimize them continuously. Furthermore, the sensors are supplied with power via the luminaire – avoiding the need to replace the batteries and reducing maintenance times.
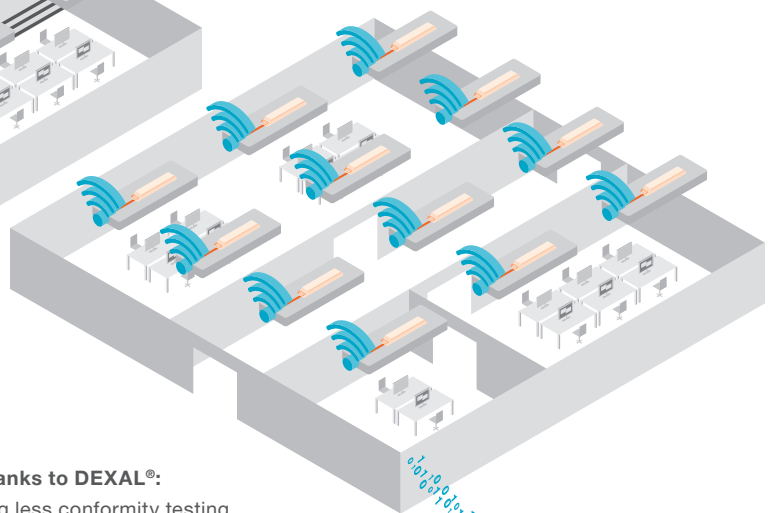
DEXAL®: the interface for future-proof networks

The use of lighting installations in buildings and outdoor applications, such as street lighting, will undergo fundamental change in the years to come. The smart and consistent use of data is the driving force for the digital infrastructure of the future.

Conventional infrastructure

DEXAL®-based infrastructure

Benefits of connecting intra-luminaire components thanks to DEXAL®:
– Reduced amount of cabling within the luminaire, requiring less conformity testing
– Convenient connection to various control systems of partners
– Less components, smaller luminaires
– Reduced system costs
– Luminaire operating data for preventive maintenance and energy consumption data for optimizing efficiency
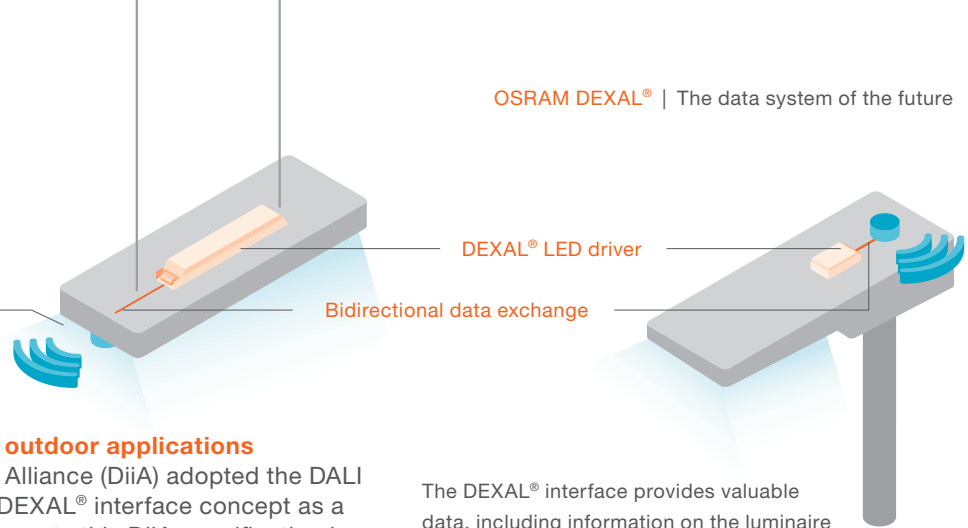
**Conventional infrastructure –
wired, complex and inflexible**
In the past, numerous cables had to be laid in walls and ceilings to set up a comprehensive network of integrated luminaire systems – and controlling and interconnecting luminaires and luminaire groups was extremely time-consuming. In addition, subsequent adaptations to a new room layout or changed user patterns were hardly possible without having to spend considerable amounts of time and money. The same was the case for street lighting: For example, the implementation of modified luminaire configurations on a large scale proved almost impossible.

**DEXAL®-based infrastructure –
cost-optimized, wireless, connected and variable**
Luminaires equipped with DEXAL® drivers can function as network nodes able to communicate wirelessly with each other. The open interface is compatible with various light management systems and can be conveniently scaled to the building level. This smart building infrastructure generates added value: The lighting infrastructure collects and distributes useful information, for example about space utilization, as well as data for preventive maintenance and indoor climate monitoring.
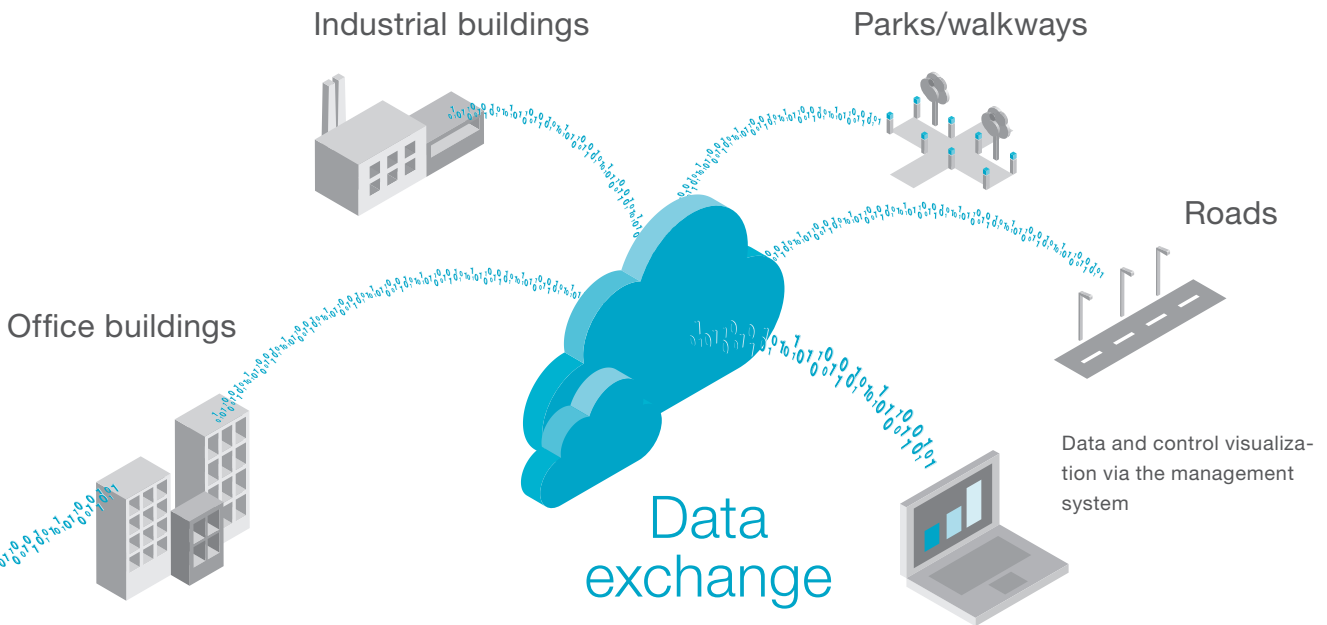
Intra-luminaire LMS components
from various partners – with
DEXAL® interface

DEXAL® LED driver

Bidirectional data exchange

Flexible system for indoor and outdoor applications

The Digital Illumination Interface Alliance (DiiA) adopted the DALI communication protocol-based DEXAL® interface concept as a new specification. OSRAM implements this DiiA specification in all of its Generation 2 DEXAL® drivers. Sensors and RF modules from numerous providers can thus be supplied with power and data can be made available to downstream systems. The RF module transmits the data to the management system, where it is processed and analyzed. The open interface ensures the compatibility of the luminaires with numerous system components. Thanks to the mechanical interface standardized in Zhaga Book 18, the luminaires can be adapted to upgrades or new wireless technology standards at any time – without the need to replace or open them. For a list of manufacturer components compatible with DEXAL® drivers, refer to the partner program "Works with OSRAM DEXAL®".

The DEXAL® interface provides valuable data, including information on the luminaire type and operation, as a basis for preventive maintenance, as well as power consumption data for energy optimization. In addition, the fault memory enables efficient remote maintenance.
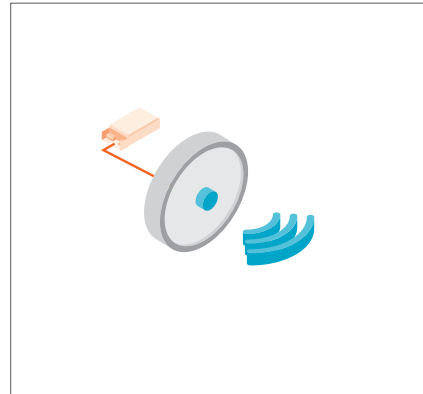
Industrial buildings

Parks/walkways

Roads

Office buildings

Data exchange

Data and control visualization via the management system

Data optimize the use of infrastructure

The sensors connected to the DEXAL® interface can collect numerous types of data – including, for example, room occupancy and building utilization, the flow of road traffic, lighting levels, temperature, as well as air humidity and air quality. The management system stores and processes this data – also in the cloud as required.

The data can be used for many different purposes – from simple luminaire identification right up to higher-level IoT applications, integrating numerous individual systems into a comprehensive building management system. This also applies to outdoor lighting systems used for street lighting and industrial lighting installations.

Broad spectrum of applications, efficient implementation

DEXAL® drivers offer you maximum freedom for the design of efficiently connected lighting systems, ideally covering a wide range of applications. Prepare the ground today for the lighting concepts of the future – with cutting-edge technology from OSRAM.
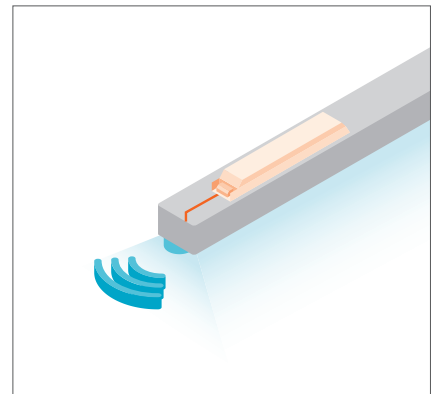

COMPACT

Downlights and recessed ceiling spotlights for connected buildings

Create optimized network solutions with compact luminaires and benefit from our indoor LED drivers to seamlessly integrate them into the building architecture – in offices, shops or educational institutions.

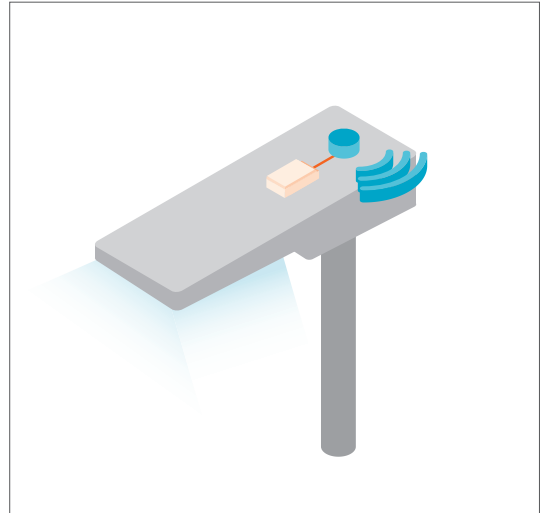### Smartly connected luminaires for linear lighting systems

The slim Linear DEXAL® LED drivers fit perfectly into small recessed or pendant luminaires. Digitally con-nected luminaire systems in office buildings offer an immense choice of wide-ranging IoT applications.
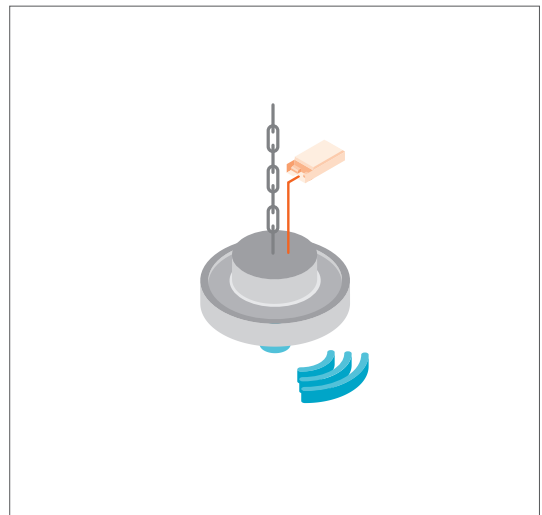
LINEAR

STREET

The street lighting of the future is ready for smart city infrastructure

In the future, connected infrastructure will play an ever more important role in urban lighting. DEXAL® Outdoor LED drivers lead the way to the future – with unprecedented efficiency, flexibility and innovation.
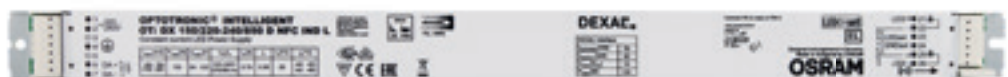
Efficiently connecting industrial and production areas

Whether in warehouses, logistic centers or production facilities: Our outdoor drivers enable highly efficient high-bay luminaire systems opening up entirely new dimensions – not only in terms of energy consumption, quality of light and variability, but also in communication.

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Our partners for indoor applications

The following list is only a selection of our partners. For a complete overview, go to www.osram.com/dexal

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