



newsLIGHT

Intelligent Lighting Solutions

Dear Customers,
Dear Readers,

Whether it's a case of smartphones, the internet of things (IoT) or the smart home, digitalisation is taking all areas of life and work by storm. But in the main, digitalisation means more convenient applications and easier access to information. In the lighting sector, Vossloh-Schwabe is turning digitalisation into innovative products.

For instance with our brand new LinkRay system. This technology opens up completely new ways of addressing customers since LinkRay turns modulated light into a channel for transmitting information. In connection with the LinkRay app, a smartphone can become a helpful companion for navigating products in a supermarket or a tablet can become an exhibition guide.

But we have also made visions come to life in other areas, too. For instance, with Blu2Light. This open technology is based on Bluetooth® and enables smart lighting solutions that go beyond the previous limits of DALI technology. In connection with the Lighting Innovation app (LiNA), networks consisting of several hundred Blu2Light luminaires can be seamlessly integrated into building systems and conveniently configured and controlled using a smartphone or a tablet. Further innovations promote wellbeing at the workplace, impressively stage products or facilitate the flow of information in the smart city. And as you may expect from Vossloh-Schwabe, new optics, LED modules and drivers ensure all-round perfect lighting systems.

We invite you to enter the digital world of lighting. With the help of LiNA, you can discover the communicative lighting solutions of tomorrow's world.

Yours

A handwritten signature in black ink, appearing to read 'Klaus Bfeisch'.

Klaus Bfeisch

A handwritten signature in black ink, appearing to read 'Patrik Danz'.

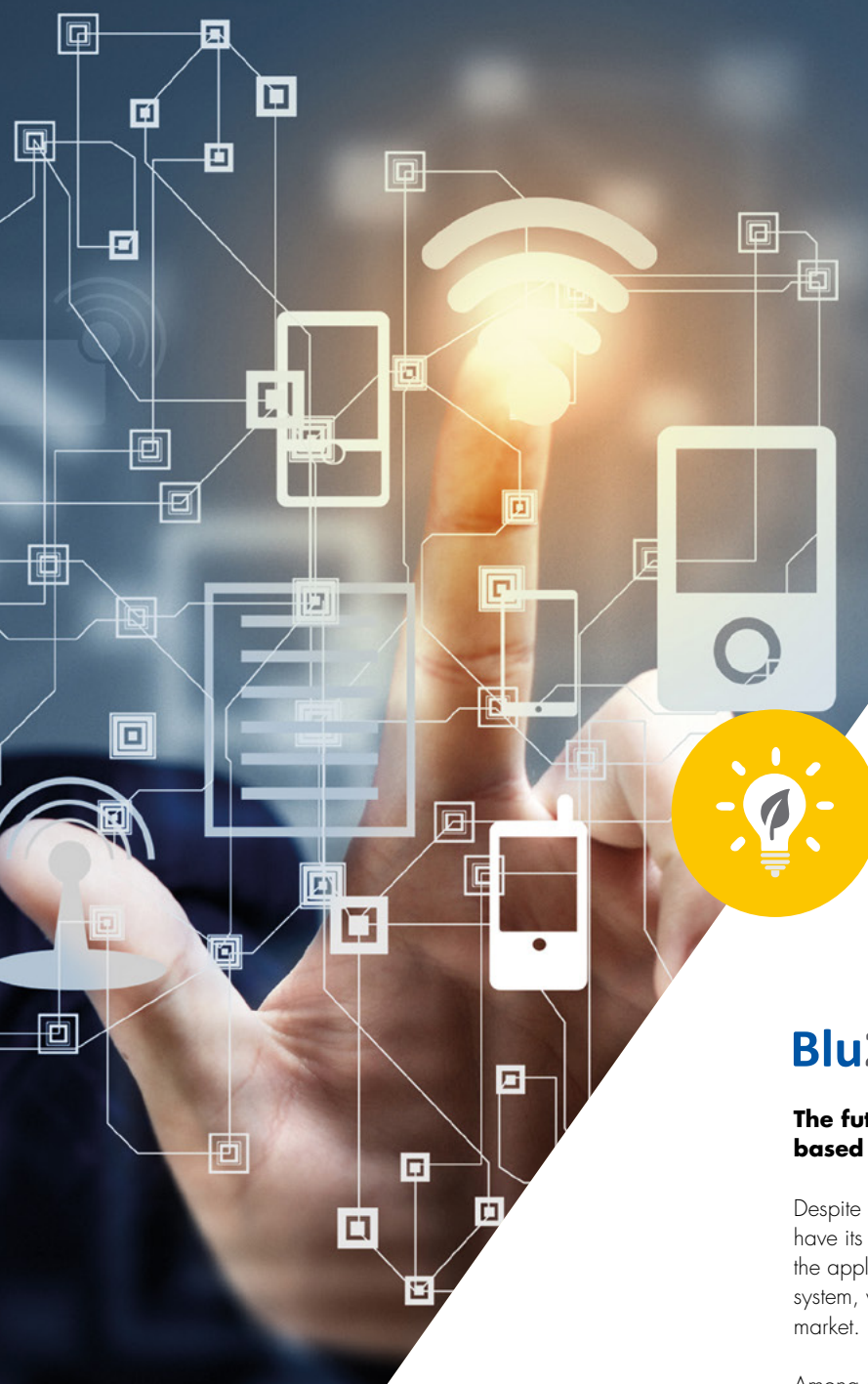
Patrik Danz



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Blu2Light

The future of light management: smart, open and based on Bluetooth®.

Despite its many advantages, the established DALI technology does have its limits. Blu2Light both substantially broadens and simplifies the application spectrum – thanks to the innovative Bluetooth® mesh system, which was specifically designed for the professional lighting market.

Among other things, Blu2Light is characterised by an open interface technology that permits system partners to develop and offer proprietary devices, software or cloud-based services. And the Blu2Light system makes it possible to integrate well-known systems such as DALI, DMX or 1–10 V interfaces. And it is equally possible to integrate Blu2Light directly into LED drivers or LED modules. The future requirements of luminaire manufacturers with reference to IoT are already covered by Blu2Light today – along with multi-tier system security.

To enable user-friendly configuration and operation via smartphone or tablet, we created the Blu2Light app, which assists users via LiNA in the process of configuration.

For more detailed product information:



Blu2Light / Touch4Light App

Commissioning / user app for all Blu2Light devices.

- Secure commissioning with device QR codes.
- Real Bluetooth mesh for up to 250 devices.
- Open protocol as an industry standard.
- Event-based operating system for scenes.
- LiNA, your personal app assistant.
- Supports full-colour control.

Blu2Light Connect ME

Bluetooth to DALI module for luminaire integration.

- Brings Blu2Light to every DALI luminaire.
- Small casing for easy integration.
- White casing with identification LED.
- Connection of up to 64 DALI drivers.
- Integrated beacon function.
- Complete Blu2Light mesh network device.

Blu2Light MultiSensor XS

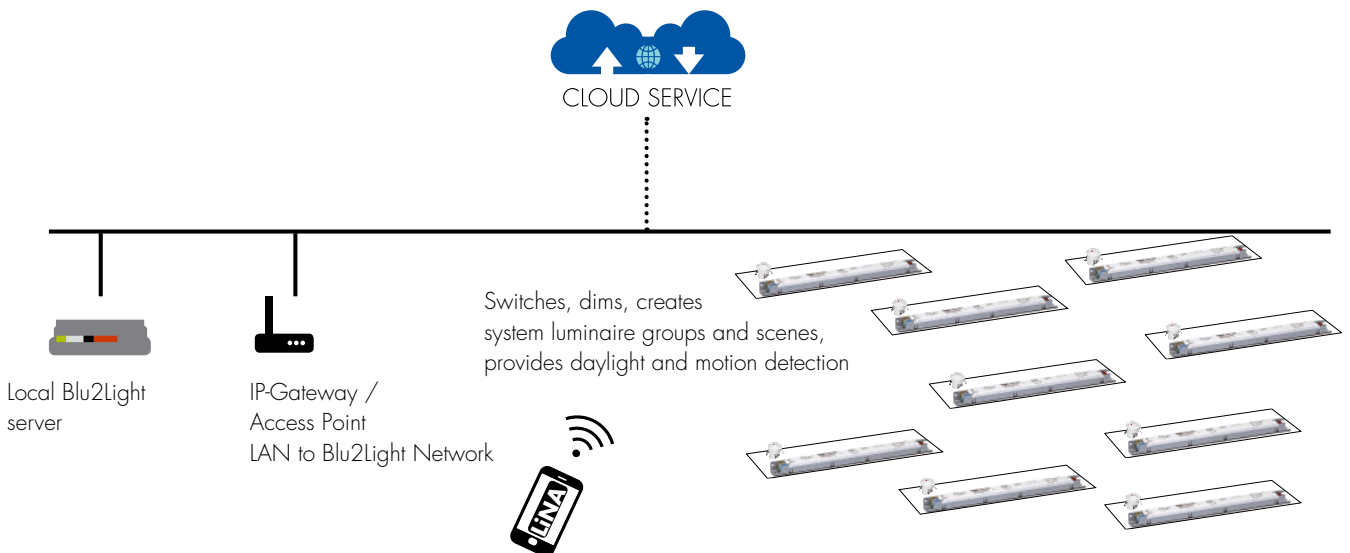
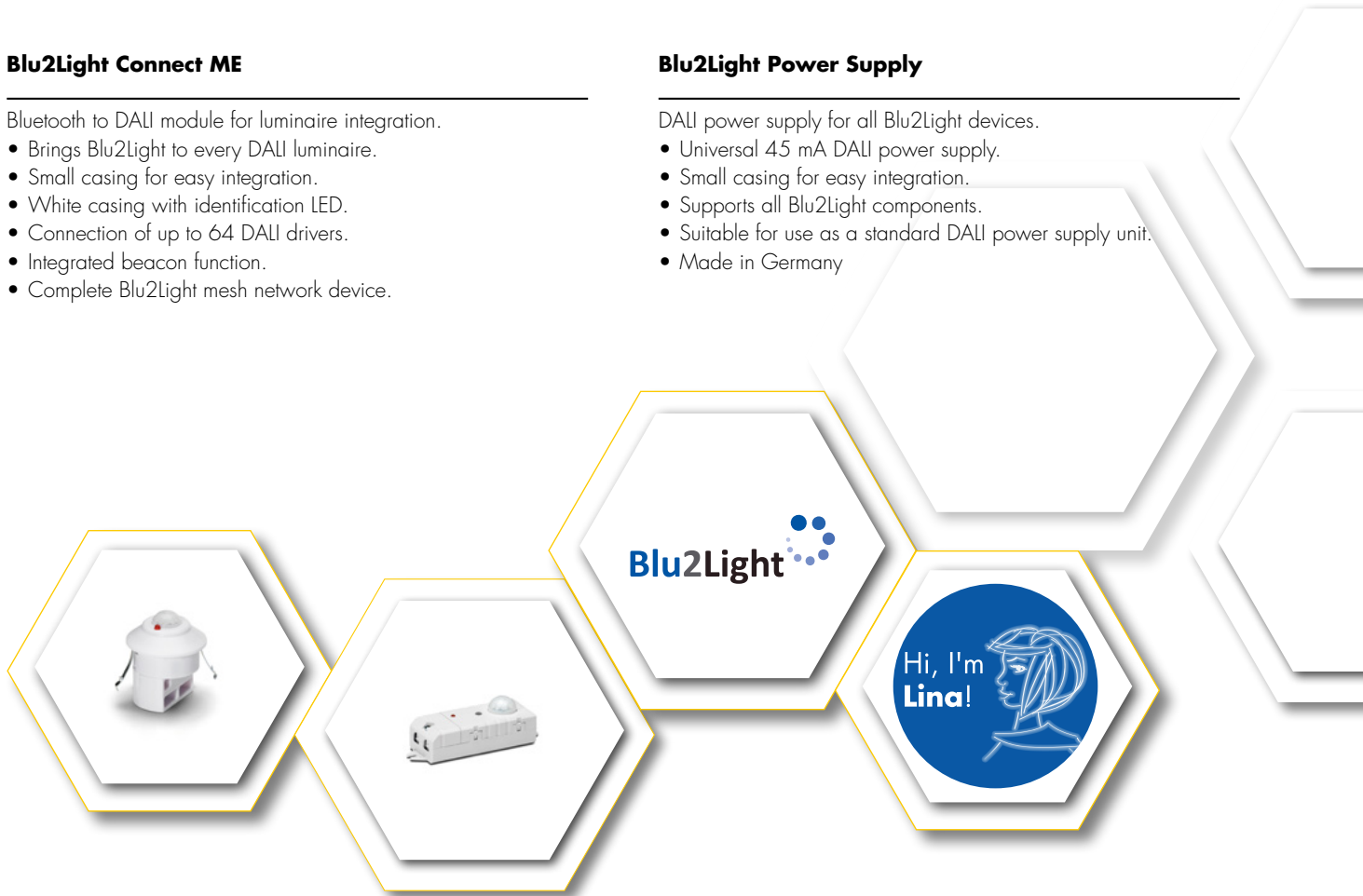
Motion and daylight sensor with Bluetooth DALI connectivity.

- Small all-in-one lighting controller.
- Suitable for ceiling or luminaire integration.
- For all applications up to a ceiling height of 5 m.
- Connection of up to 64 DALI drivers.
- Integrated beacon function.
- Complete Blu2Light mesh network device.

Blu2Light Power Supply

DALI power supply for all Blu2Light devices.

- Universal 45 mA DALI power supply.
- Small casing for easy integration.
- Supports all Blu2Light components.
- Suitable for use as a standard DALI power supply unit.
- Made in Germany





LinkRay

Welcome to a New Age of Communication

The LinkRay system developed by Panasonic is a further milestone in the field of smart lighting. LinkRay enables a totally new form of interaction with customers in a shop or visitors in a museum and provides greater added value – all via your existing lighting system. The innovative technology provides completely new options in the field of marketing for tourism, retail, gastronomy, transportation sector or event management.

LinkRay uses modulated light to transmit information. For example, if visitors at an exhibition aim the camera of their smartphone at an exhibit illuminated with LinkRay, the LinkRay app delivers additional product information in different languages. In the supermarket, LinkRay turns a smartphone into a shopping guide that leads customers to special products, draws attention to current offers or promotions and directly takes customers to the respective shelves. Unlike a QR code, for instance, LinkRay is site-independent and also works over longer distances.

For more detailed product information:



Make your life simpler, more informative and richer in experience – with LinkRay technology.

■ LinkRay TECHNOLOGY

LinkRay is a unique information distribution technology that uses visible light to transmit information to end users. LinkRay is set to revolutionise communication and marketing in the fields of tourism, retail, gastronomy, transportation and event management.

LED signage and conventional posters illuminated using LEDs can be used to transmit information to smartphones as long as the LinkRay app has been installed.

■ BENEFITS OF LinkRay

By using mobile technologies, LinkRay provides an unparalleled user experience.

- Fast and intuitive.
- Functions in very crowded spaces.
- Even works effectively at a distance.
- Supports several IDs in close proximity.

Perfect for information and entertainment purposes (retail spaces, exhibitions, stations, airports, etc.).

LED spots, indirect transmission function.



LED downlights, direct transmission function.



Light ID signals are transmitted that contain, for instance, information on exhibits or artists.

Prime Light ID drivers – CC and CV

Driver for information distribution technology.

- LinkRay transmission.
- Light ID for customer information services.
- All-in-one drivers for constant current (CC) luminaires up to 24 W or 37 W.
- 24 V converters for constant voltage luminaires up to 50 W.
- Compatible with Panasonic cloud / admin services.

Prime LinkRay modulator

Modulator for information distribution technology.

- LinkRay transmission.
- Light ID for customer information services.
- For 24 V constant voltage drivers up to max. 60 W.
- Compatible with Panasonic cloud / admin services.



OFFICE

Light for the Office of the Future

Office lighting should be eye-friendly, energy-efficient and inspiring. But our products go even further and actually promote wellbeing. As an example, our Tuneable White linear board enables dynamic light control in line with the time of day and supports the circadian rhythm of office workers. But we have also further improved established products. Our one- and three-row SMD LED Line modules are now in their third generation and up to 10 percent more energy efficient. The new W2 optics ensures lower glare values at the workplace and, thanks to its indirect light component, homogeneous illumination. It harmonises perfectly – both technically and optically – with the W2 LED modules and is available with different radiation characteristics and lengths.

A series of new drivers ensures perfectly matched systems. All operating systems comply with the IEEE1789-2015 standard and guarantee nearly flicker-free light. Furthermore, they are highly flexible with regard to the output current. The PrimeLine drivers also include a DALI interface, while the ComfortLine NFC drivers permit tool-free programming via NFC.

For more detailed
product information:



LED Line SMD Kit 1R & 3R Gen. 3

1- and 3-row variants now with even more efficient LEDs.

- Efficiency increased by 5% to 10%.
- The 1-row, L28 W4 variant is now available with a rear-mounted connection option.
- 3-row variant (L28 W5.5) now available with up to 700 mA, 3,500 lm / 280 mm.

LED Line SMD Easy W2 – Economical Type

Perfect value-for-money combination for several standard applications.

- Two lumen classes:
700 lm (12 LEDs), 1,400 lm (24 LEDs)

W2 Optics for LEDLine SMD Easy W2

New 1-row optics for linear illumination.

- Individual lens version for optimised low UGR glare values.
- Tunnelling version for flexible lumen classes.
- Quick installation thanks to clip attachments for optics and PCBs.
- Suitable for metal panels and aluminium profiles.



Linear DALI driver (PrimeLine)

Adjustable current via LEDSet.

- Multiple output currents up to 40 W or 85 W.
- DALI (analogue) / Push
- Very low ripple current (<1% at 100 Hz) in acc. with IEEE1789-2015.
- Max. service life: 100,000 hours.

Linear LED driver Industry HV (ComfortLine)

Adjustable current via LEDSet.

- Multiple output currents up to 120 W or 165 W.
- Slim and robust driver with high wattage.
- Suitable for emergency lighting.
- Very low ripple current (<1% at 100 Hz) in acc. with IEEE1789-2015.
- Protection against mains transients up to 4 kV (L-N-PE).
- Max. service life: 100,000 hours.

LED Line SMD KIT 3R – CSP Tuneable W5.5

Tuneable White linear PCBs based on CSP technology are now also available as 3-row W5.5 PCB size.

- All VS optics are suitable for use with VS CSP Tuneable White modules.
- Various light distributions are possible.

LED Line SMD W2 "SELV"

Linear W2 family (20 mm in width) as a variant for SELV systems with low voltage <60 V.

- Parallel connection of LED PCBs thanks to 4 push-in connectors per PCB.
- Three lumen classes:
700 lm (12 LEDs), 1,400 lm (24 LEDs), 2,100 lm (36 LEDs)

Linear LED driver NFC (ComfortLine)

Selectable and programmable via NFC.

- Multiple output currents up to 40 W or 85 W.
- NFC interface.
- Constant luminous flux (CLO) programmable.
- Adjustable DC level.
- Suitable for emergency lighting.
- Very low ripple current (<1% at 10 Hz) in acc. with IEEE1789-2015.
- Max. service life: 100,000 hours.

Linear LED driver Simple Fix (EasyLine)

Single current.

- Single output current from 35 to 65 W.
- Low ripple current (<10% at 100 Hz) in acc. with IEEE1789-2015.
- Max. service life: 50,000 hours.



SHOP

High-quality Solutions for Product Families

The turn of the seasons, new trends, current offers – product presentations in retail outlets are subject to constant change. With our LUGA Shop Tuneable White, already installed lighting can be modified to suit changing requirements. Thanks to a dynamically controllable lighting spectrum – from warm 2,700 Kelvin to cooler 6,500 Kelvin – every mood you like can be created to highlight anything from fashions to foodstuffs. And our LUGA Shop also satisfies the highest standards, which we have evolved for its 7th generation to ensure higher energy efficiency and an LES6 variant for a more concentrated spotlight. The modules are particularly suitable for wall washing purposes or as a spotlight. The LUGA Line High Brightness module was specifically developed for use in product shelves, a module whose high light output draws attention to products on display.

The holder for LED modules of the LUGA Shop series is also new. With a diameter of 35 mm, it is extremely compact. The two-part holder is another highlight and makes it possible to fit modules in the blink of an eye. The matching drivers go to make up a space-saving LED solution for retail environments. In addition, the IEEE 1789-2015 certification guarantees luminous flux free of any fluctuations in brightness.

For more detailed product information:



LUGA Shop Module Gen. 7

The next generation of the LUGA Shop family.

- Increase in efficiency of up to 5%.
- New: light array of 6 mm (DMS 102).
- Impressive service life and high quality standard.
- Special colours for fashion and food lighting.

LUGA Line HB (High Brightness)

COB modules specially developed for wall washing in shops with linear ceramics.

- Up to 7,000 lm.
- Type efficiency: 160 lm/w at 3,000 lm (830).
- Available in different light temperatures: 2,700 to 5,000 K, pearl white.
- CRI >80; CRI >90.
- Impressive service life: <50,000 hours (L90/B10).

Active Plus & Evolve (MR16) – LUGA

The new LED solution with several optical configuration options.

- Lenses and reflectors that are easy to install.
- Improved light guidance.
- Reduced heat sink dimensions.
- CRI 95.

LUGA Shop Holder **Outlook 2018**

New holder (35 mm) for COB LED modules.

- Two-part solution for simple and secure fixation.
- Suitable for Tuneable White LED modules.



Compact DALI driver (Primeline)

Current adjustable via DIP switch, SELV.

- Variable current up to 38 W.
- DALI-2 / Push.
- Very small dimensions.
- Very low ripple current (<1%) in acc. with IEEE1789-2015.
- Service life: 100,000 hours.

LUGA Shop Tuneable White

Tuneable White COB modules.

- Tuneable White from 2,700 K up to 6,500 K.
- Three lumen classes: 1,700 lm, 3,000 lm and 4,000 lm, constant via dimming range.
- Impressive service life and high quality standard.
- Special colours for fashion and food lighting.

LEDspot Evolve 111

Compact dimensions for efficient utilisation of space.

- Reduction of lens height to 35 mm.
- Efficiency up to 145 lm/W.
- Light output up to 4,000 lm.
- Tuneable White version available.

Cover for LUGA holder

Cover with a diffuse structure for Tuneable White modules.

- Simple installation on a VS LUGA Shop holder.
- Highly heat-resistant silicone material.
- Low loss of luminous flux.

Compact LED driver (ComfortLine)

Current adjustable via LEDSet / plug-in terminal, SELV.

- Variable current up to 45 W.
- Very small dimensions.
- Very low ripple current (<1%) in acc. with IEEE1789-2015.
- Lowest possible intrinsic losses.
- Service life: 100,000 hours.



RESIDENTIAL

Light to Promote Wellbeing in the Home

Powerful and stylish spotlights or dynamic light – our new and improved products for home use provide plenty of scope for creativity. For example, our new Active Plus and Evolve solutions can be fitted with several lenses and reflectors that permit flexible luminaire configuration for different applications. And because the topic of human-centric lighting is also playing an increasingly important role for home use, we have developed Revo TWV, a Tuneable White module that is extremely easy to wire. Our performance-improved modules of the ReadyLine series as well as the new and stylish Tiny Kit enable flexible luminaire planning and simple installation since the driver is already integrated ready for connection.

With regard to LED control gear, the Easy Compact series provides a value-for-money and compact solutions with fixed current for 10 and 12 Watts as well as phase and analogue dimming. Our LED constant current driver works in various output classes and is thus available in several wattages, inclusive of an optimised dimming function. Both drivers work with safety voltage and are therefore perfectly suited for use in luminaires within a home setting.

For more detailed
product information:



Active Plus & Evolve (MR16) – LUGA

The new modular LED solution with several optical configuration options.

- Lenses and reflectors that are easy to install.
- Improved light guidance.
- Efficiency of up to 120 lm/W.
- Dimmable: from cold to warm white (halo).
- Reduced heat sink dimensions.

Tiny Kit

The LED luminaire kit to upgrade your shelves with style.

- Plug-and-play.
- Kit available with 3 to 5 spots.
- Minimalist design.

Revo S

A new outstanding design for a powerful LEDSpot.

- Homogeneous light distribution.
- Voltage-powered for simple connection options.

ReadyLine DL

The modified DoB module with improved performance.

- Efficiency up to 105 lm/W.
- Greater protection against overheating.
- Compact form.

ReadyLine C07 C

The improved DoB module with higher, flicker-free performance.

- Flicker: < 30 %
- Efficiency up to 105 lm/W.
- Compatible with existing C07 modules.

Revo TW

A new outstanding design for a Tuneable White LEDSpot.

- Low-cost system.
- Voltage-powered for convenient connection options.



Compact LED driver (EasyLine)

Fixed current.

- Fixed current for 10 W and 12 W.
- Phase-cutting dimmer.
- Small, compact design.
- Suitable for independent installation.
- Service life: 50,000 hours.
- SELV

LED Converter for Constant Voltage

Constant current for architectural and home applications.

- Constant voltage 12/24/48 V.
- Available with low and high wattages (up to 200 W).
- IP20 and IP65 version.
- Independent installation possible.
- Accessories for DALI and 1-10 V available.
- Service life: 50,000 hours.
- SELV



STREET & INDUSTRY

Versatile Lighting for Public Spaces

Our modern LED solutions for street and industrial use make it possible to tap into potential both quickly and easily. This is because they not only offer luminaire manufacturers a lot of freedom for configuration and design purposes, but also guarantee impressive performance.

For instance, with our new, modular LED Industry KIT, which makes it possible to reliably illuminate production and storage spaces with high ceilings. The integrated optics, which needs no glass cover, ensures brilliant light distribution and impressive optical efficiency. Our new and modular LED Square also provides much great freedom of choice when it comes to planning luminaires. With a size of 120 x 120 mm, the robust LED module ensures truly impressive illumination of streets or squares.

And just as high in quality are the new silicone optics for LUGA COB modules. Self-sealing against dust, dirt and moisture, they are capable of withstanding even the highest temperatures. In terms of light distribution, there is also a large selection, which makes it suitable for numerous applications.

For more detailed product information:



LED Industry Kit – LED Module & Optics IP65

LED illumination solution for demanding environments and numerous application options.

- Suitable for illuminating large rooms with ceiling heights of more than 13 metres.
- Efficiency: >180 lm/W.
- 4-row optics ensures brilliant light distribution.
- High optical efficiency: up to 92%.
- Available with three light distributions: 60°, 90°, high-rack (oval).

Silicone Optics for LUGA modules

High-quality silicone optics with IP protection thanks to self-sealing ability.

- Optical efficiency: up to 97%.
- Highest thermal stability (up to 150 °C).
- Light distributions available for street and industrial applications.

LED Square IP67/IK08 Gen. 3

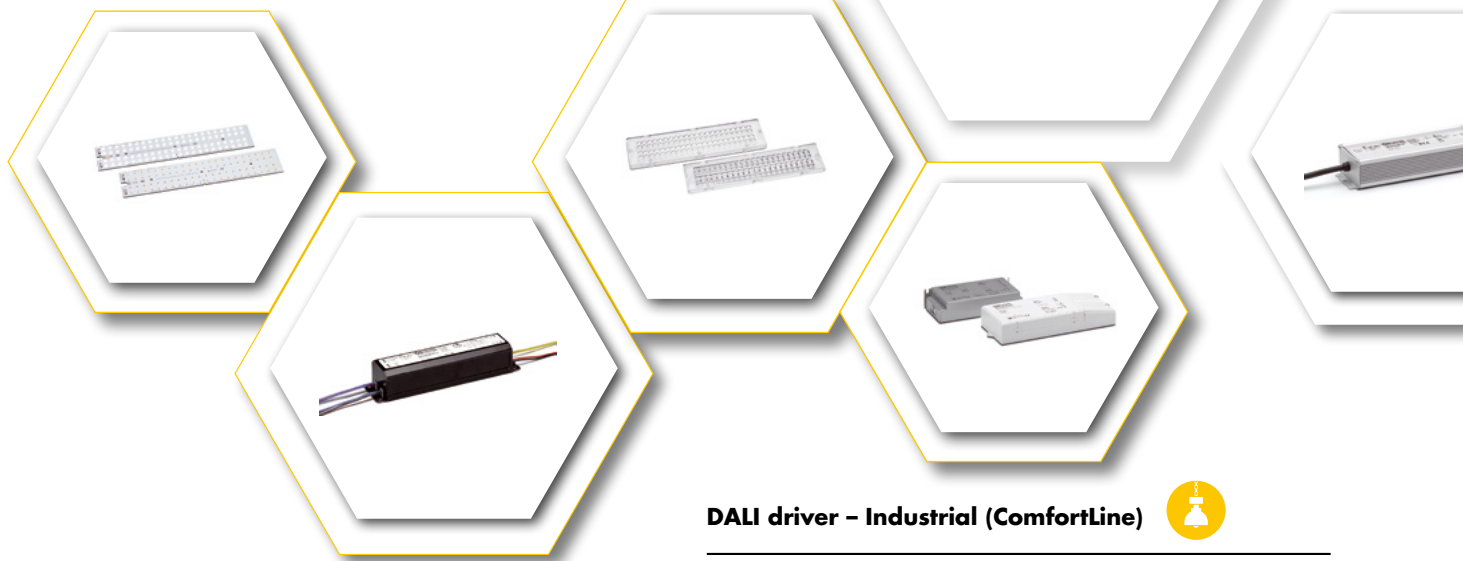
Modular luminaire design for a highly efficient, open luminaire concept.

- Outstanding homogeneous illumination.
- Efficiency: > 170 lm/W.
- Light distribution available for street and industrial applications.
- Service life: >60,000 hours (L80/B10).

LED Linear Allround Gen. 3

Modular LED system that provides maximum flexibility with simple optical control and endless configuration potential.

- Outstanding homogeneous illumination.
- Efficiency: >170 lm/W.
- Light distribution available for street and industrial applications.
- Service life: >60,000 hours (L80/B10).



LED driver – Street (PrimeLine)



Dimmable (1-10 V) with selectable current via DALI.

- 350 – 1,050 mA / max. 150 W.
- Standalone control functions.
- Step-wise dimming.
- Constant luminous flux.
- Degree of protection: IP65
- Ambient temperature: up to 60 °C.
- Protection against mains transients up to 6 kV.
- Max. service life: 100,000 hours.
- SELV.

DALI driver – Industrial (ComfortLine)



Fixed current, DALI

- High output: up to 126 W.
- Compact design.
- Powered by constant voltage.
- 12 V and NTC interface.
- Max. service life: 100,000 hours.

LED driver – Industrial (EasyLine)



Fixed current, SELV.

- High output: up to 200 W and up to 2.8 A possible.
- Parallel LED connection possible.
- Degree of protection: IP67.
- Ambient temperature: up to 60 °C.
- Protection against mains transients up to 4 kV.
- Max. service life: 50,000 hours.



OUTDOOR LIGHT CONTROL

On the Way to the Smart City

Just a few years ago, outdoor lighting was primarily expected to provide light in the most efficient way possible, but today they are key components of an intelligent, urban infrastructure. Their dense network makes them important nodal points of a smart city, in which luminaires become data hubs for smart metering, hotspots for city-wide WLAN or distribution points for the coming 5G mobile phone network. But that's not all: luminaires can also include sensors for traffic or emission monitoring purposes.

Vossloh-Schwabe's intelligent products are driving the smart city forward. For instance with interoperable lamppost controllers that can be interlinked – either wirelessly or wired – to form networks that can then capture and transmit data and measured values. Best of all, open standards are used throughout, which gives users complete freedom of choice when it comes to selecting further hard- and software.

On the same technological basis, intelligent solutions can also be put in place for industrial applications.

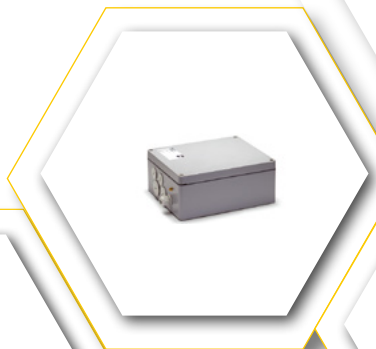
For more detailed product information:



iPC-HD-PLC

Interoperable light controller with LON and IP communication interface for integration into the lamppost.

- Interoperable in acc. with EN14908.7 (provisional).
- In acc. with OLC LonMark® specification.
- 2.5 Mbit LON communication speed.
- Up to 240 Mbit communication speed.
- Illumination interface and functions:
ON/OFF, DALI, 1–10 V, PWM.
- Automatic signal repetition, up to 10 repetitions.
- Up to 1,000 devices in a single channel.
- Optional Ethernet connection RJ45.



iDC-HD-PLC

Interoperable data concentrator to control outdoor and industrial luminaires.

- XML SOAP interface for reading and writing of data and to set parameters for the applications.
- VPN 3G, IP, 3G GSM, single, multimode LWL interface.
- Optional Ethernet connection RJ45.

iLC RF

Interoperable light controller with LON for luminaire installation.

- Interoperable in acc. with EN14908.8 (preliminary).
- In acc. with OLC LonMark® specification.
- Up to 100 kBit LON P2P communication speed.
- Communication band ISM 868 MHz.
- Decentralised Mesh technology with 20 kBit communication speed and up to 255 hubs.
- Up to 10,000 devices within a single network.

iPC RF

Interoperable light controller with LON for integration into a lamppost.

- Interoperable in acc. with EN14908.8 (preliminary).
- In acc. with OLC LonMark® specification.
- Up to 100 kBit LON P2P communication speed.
- Communication band ISM 868 MHz.
- Decentralised MESH technology with 20 kBit communication speed and up to 255 hubs.
- Up to 10,000 devices within a single network.

iDC RF

Interoperable data concentrator for control of outdoor and industrial luminaires.

- XML SOAP interface for reading and writing of data and to set parameters for the applications.
- VPN 3G, IP, 3G GSM, single, multimode LWL interface.
- RF communication band ISM 868 MHz.
- Control of up to 10,000 iLCs/iPCs.
- Records up to 200 iLCs/iPCs.

iMCU / iMCU IP67

Decentralised light management system for luminaires.

- The new firmware upgrade enables remote parameter setting by switching the supply cable.
- Ability to set parameters for 12 applications.
- Parameter setting via USB, hand-held device or by switching the lighting cable on and off.
- Records operating hours, switching cycles, overheating detection and time of overheating.
- All previous iMCUs can be upgraded.



GREENHOUSE & POULTRY FARMING

Optimum Growth in every Phase

Whether aroma, bloom development or resistance – with VS' full-spectrum LED modules for greenhouses, plants can flourish on point. The systems cover the entire photobiologically effective lighting spectrum. As a result, morphological and physiological growth processes can be supported, controlled and triggered in a targeted manner.

When it comes to poultry farming, our four-channel solutions ensures ideal lighting in every phase of growth. The individually controllable channels make it possible to perfectly adjust light to suit various animal needs such as activity and rest periods. The solution also lets feeding behaviour and laying activity be influenced and optimised in a targeted manner. These robust modules were specifically developed for use in breeding facilities.

For more detailed product information:



■ MAKING TARGETED USE OF SPECTRAL LIGHT

Every kind of plant needs a special light spectrum to optimise growth or fruit development. Thanks to the combination of selected wavelengths and special phosphorous formulae, the options for a targeted spectral illumination of plants are endless.

“Leaf” Spectrum.

- Full spectrum (white light with a colour rendering index of >80).
- For optimised vegetative growth.

“Bloom” Spectrum

- Full spectrum with a focus on the blue and red spectral range.
- Optimised effect on decorative plants and young plants (bloom development).

LED system solution for greenhouses

Linear 4 channel solution.

- 4 light channels, individually controllable via DALI.
- Optimised light spectrum.
- Long service life: up to 50,000 hours.
- Protection class I.
- Degree of protection: IP65.

Linear LED modules

Optimised and efficient COB technology.

- Optimised light spectrum for vegetative and generative growth.
- Very long service life: up to 63,000 hours (L90/B10).
- High photon flowrate: up to 141 $\mu\text{mol/s}$.
- High photon efficiency: up to 2.4 $\mu\text{mol/J}$.
- Also available as a high-brightness model.

Compact LED modules

1-channel built-in LED module.

- Optimised light spectrum for vegetative and generative growth.
- Very long service life: up to 85,000 hours (L90/B10).
- High photon flowrate: up to 143 $\mu\text{mol/s}$.
- High degree of photon efficiency: up to 2.42 $\mu\text{mol/J}$.



LED system solution for poultry farming

4 channel solution.

- 4 light channels, individually controllable via DALI.
- Optimised light spectrum.
- Long service life: up to 40,000 hours.
- DLG approved (ammonia-resistant).
- Degree of protection: IP65.

Whenever an electric light goes on around the world, Vossloh-Schwabe is likely to have made a key contribution to ensuring that everything works at the flick of a switch.

Headquartered in Germany, Vossloh-Schwabe has been a member of the global Panasonic group since 2002 and counts as a technology leader within the lighting sector. Top-quality, high-performance products form the basis of the company's success.

Vossloh-Schwabe's extensive product portfolio covers all lighting components: LED systems with matching control gear units, highly efficient optical systems, state-of-the-art control systems (LiCS) as well as electronic and magnetic ballasts and lampholders.

The company's future is Smart Lighting.

A member of the Panasonic group **Panasonic**

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