



newsLIGHT

NEW PRODUCTS – NEW PROJECTS

newsLIGHT

EDITORIAL



Dear Reader,

The lighting market is currently undergoing its biggest technological transformation in the history. The field of LEDs and intelligent lighting systems is characterised by fast-paced developments with ever shorter product lifecycles.

With a view to providing our partners with the best possible support in these changing times, we are evolving into a provider of LED and light management system solutions. We can provide you with active support in respect of the development and certification of customised solutions, including perfectly matching LED modules, drivers, heat sinks, optics, reflectors, control systems or even complete luminaire systems.

As part of this shift, the VS brand will also be given a makeover and the new focus on lighting solutions will be reflected in the brand logo.

Vossloh-Schwabe's LED solutions are manufactured in our own plant in Serbia, which not only ensures our partners benefit from flexible and cost-effective delivery from within Europe, but also guarantees them the outstanding quality standard for which the Panasonic Group is known.

At the same time, we will also continue to be at your disposal as a reliable partner for conventional products.

We look forward to welcoming you in person at the Light+Building (**Hall 4.0, Stand B50**) and presenting our new range of system solutions.

A handwritten signature in black ink, appearing to read 'Setsuo Mizusawa'.

Setsuo Mizusawa

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

Klaus Breisch

CONTENTS

Product Updates

Product updates and modifications	4-7
---	-----

LightingEurope

European industrial association – founded by the merger of the two predecessor institutes, CELMA and ELC	8-9
--	-----

The Mövenpick Wine Cellar

A sensuous experience.....	10
----------------------------	----

Two Minds As One

CHF and Vossloh-Schwabe.....	11
------------------------------	----

The EV Charging Stations of the Future

Vehicle charging at the lamp pole	12
---	----

Giordano Living World Mall

Serpong, Jakarta	13
------------------------	----

Introducing

Tool design and construction in Lüdenscheid	14
---	----

Standardisation and Technology

News	15
------------	----

PRODUCT UPDATES

FOR THE LIGHT+BUILDING



RETAIL LIGHTING



The constantly growing number of visitors and exhibitors from around the world makes the Light+Building the leading international fair for lighting technology and building management systems. A new record was set in 2012 with around 2,300 exhibiting companies and more than 195,000 visitors – reason enough for us to see the 2014 Light+Building as another chance to showcase our new products and systems.

Like last time, we will again be sharing a stand (Hall 4.0, Stand B50) with our parent company, Panasonic, at this year's Light+Building in Frankfurt.

The following pages provide a preview of the new and innovative lighting technology solutions that you can expect to find at our stand.

■ NEW RETAIL LIGHTING PRODUCTS

LUGA Shop Pearl White

Based on the tried-and-tested COB technology with a ceramic PCB, this LED module guarantees brilliant white light.

- Brilliant white light
- Optimised for use in the fashion retail sector
- Colours rendered in a similar way to ceramic discharge metal halide lamps
- Minimal decrease in luminous flux: L90/B10 (after 50,000 h)
- Outstanding efficiency (up to 143 lm/W)

LUGA Shop 2014

More efficient lighting for retail and furniture stores

- Luminous flux values of 2,000 lm to 5,000 lm
- Minimal decrease in luminous flux: L90/B10 (after 50,000 h)
- CRI ≥ 80 or CRI ≥ 90
- 10% efficiency increase

LUGA Shop Food in Zhaga-compliant design

The perfect lighting tool to make freshness the star of the show.

- Now in a round design with Zhaga-compliant bore hole spacing
- 15% efficiency increase



LUGA Shop Food

15% EFFICIENCY



LUGA Shop Food Zhaga



OFFICE LIGHTING



INDUSTRIAL LIGHTING

LUGA Shop 2014 Kit

Frameless LED modules (simple PCB-only versions) can be fitted with a holder for installation/mounting purposes, which can also be used for optical accessories such as reflectors or covers.



LUGA Shop LES III

Replacement for 70 W HIT lamps



- COB technology with a ceramic PCB
- 30% energy savings over a 70 W HIT lamp
- High light output of 110 lm/W (3,000 K, $t_p = 65^\circ\text{C}$)
- Minimal decrease in luminous flux: L90/B10 (after 50,000 h)
- CRI > 80

NEW PRODUCTS AS A REPLACEMENT FOR T5/T8 LAMPS

LED Light Panel SMD

Highly effective and low-cost SMD solution for homogeneous, wide-area lighting. Particularly suitable for installation in louvered luminaires (600x600 mm).

- Highly efficient (up to 152 lm/W)
- Narrow colour tolerances (3 x MacAdam)
- L80/B10 (after 50,000 h)



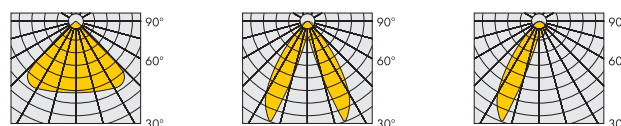
LEDLine SMD Kit

Consists of SMD modules in two lengths and matching optics attachments. Ideal for office, industrial and retail (e.g. super-market) lighting.

- 2 lengths: 280 mm / 560 mm
- Highly efficient (up to 151 lm/W)
- Various optics attachments



LDC for LEDLine SMD Kit



Standard

Retail SYM

Retail A SYM

LUGA Line 2014, 45 Chip

Optimised for use with reflectors, homogeneous light field without visible light points

- Minimal decrease in luminous flux L90/B10 (after 50,000 h)
- Highly efficient (up to 155 lm/W)
- Narrow colour tolerances (3 x MacAdam)
- Operating current up to 1,050 mA



NEW INDUSTRIAL LIGHTING PRODUCTS

SYM I and SYM II – IP20 and IP66 (IP67)

Typical applications for these highly efficient LED modules:

- Industrial facilities (production plants and warehouses)
- Petrol stations
- Sports facilities



- Degrees of protection: IP20 and IP67
- Modular designs:
 - IP20 square with 4, 16 or 64 LEDs
 - IP67 square with or linear, each with 16 LEDs
- Highly efficient (up to 137 lm/W)
- Power surge protection: 4 kV

LUGA 10,000 lm Round LES

- Round COB design
- Improved efficiency (up to 150 lm/W)
- Minimal decrease in luminous flux: L90/B10 (after 50,000 h)
- Narrow colour tolerances (3 x MacAdam)



PRODUCT UPDATES

FOR THE LIGHT+BUILDING



STREET LIGHTING

■ NEW STREET LIGHTING PRODUCTS

Streetlight FlatEmitter LUGA LES I and LUGA LES III

Designed for integration into outdoor and street luminaires, the Streetlight FlatEmitter LUGA is equally suitable for indoor luminaires with larger light point heights.



- Established COB technology (chip-on-board L90/B10, 50,000 h)
- Narrow colour tolerances (3 x MacAdam)
- Lumen packages of 2,500 lm to 10,000 lm
- Zhaga-compliant design

FlatEmitter LUGA	LES I	LES III
Highly efficient	up to 155 lm/W	up to 118 lm/W
Minimal decrease in luminous flux	L90/B10 (after 50,000 hours)	L90/B10 (after 50,000 hours)
Dimensions (LxVxH)	76 x 36.5 x 8 mm	110 x 46 x 8 mm

Modules for Street Lighting and Lighting in Public Areas

Developed to provide standard-compliant street lighting in accordance with EN62031.

Available in IP20 and IP67 versions.

- Available with M, S or Area optics
- Various light colours: 3,000 K, 4,000 K, 5,000 K
- Various shapes and lumen packages: square and linear, 450 lm to 27,000 lm
- Highly efficient (up to 136 lm/W)

The IP20 versions without encapsulation provide the option of creating smaller units by simple (manual) separation of the PCB.





LED DRIVERS



OUTDOOR LIGHTING

■ LED DRIVER NEWS

To go with our innovations in the field of LED modules, we are also presenting new LED driver developments. This serves to guarantee optimised system solutions.

700 mA / 24 and 37 W

Compact casing design with integrated cord grip, optionally available as a built-in version or for independent operation.

- Protection class II, SELV < 60 V
- Degree of protection: IP20
- Power factor: > 0.9
- Operational service life: 50,000 h



Dimmable Versions DALI/PUSH or 1-10 V

DALI-compatible control gear, conventional (PUSH) keys or an analogue 1-10 V interface can be used for driver control purposes.

- Dimming range: 1 to 100%
- 100% brightness without a dimming signal
- Standby losses: < 0.5 W



ECO EffectLine 350 mA / 17 W, 500 mA / 20 and 25 W, 700 mA / 20 and 25 W 1050 mA / 35 W

Compact casing dimensions with integrated cord grip, optionally available as a built-in version or for independent operation.

- Protection class II, SELV < 60 V
- Degree of protection: IP 20
- Power factor: > 0.9
- Operational service life: 30,000 h



Linear LED Driver

2x350 mA / 2x20 W, 2x500 mA / 2x40 W, 2x70 W, 2x700 mA / 2x40 W, 2x70 W

- Protection class I, SELV < 60 V
- Degree of protection: IP20
- Operational service life: 50,000 h



Dimmable Version DALI/PUSH or 1-10 V

- Dimming range: 3 to 100%
- 100% brightness without a dimming signal
- Operational service life: 50,000 h



LED Constant Current Driver 700 mA / 112 W and 1050 mA / 126 W

- Suitable for LED modules up to 10,000 lm
- Built-in and independent devices
- Degree of protection: IP20
- Operational service life: 50,000 h



Dimmable Version DALI / PUSH

DALI-compatible control gear or conventional (PUSH) keys can be used for driver control purposes.

- Suitable for LED modules up to 10,000 lm
- Dimming range: 3-100%
- 100% brightness without a dimming signal

700 mA / 75, 100 and 150 W

Particularly suitable for use in street lighting.

- Power surge protection up to 6 kV
- Voltage supply: 120-277 V ±10%
- Protection class II
- Degree of protection: IP65
- Operational service life: 50,000 h



Dimmable Version 1-10 V

Dimming is effected by applying an analogue dimming signal to the nominal current.

- Dimming range: 10-100%
- 100% brightness without a dimming signal
- Operational service life: 50,000 h

LIGHTINGEUROPE

EUROPEAN INDUSTRIAL ASSOCIATION

Well-known lighting technology companies, both larger and smaller in size, as well as numerous national associations have come together to form the LightingEurope association with the aim of responsibly representing the interests of the lighting sector at political and social level.

LightingEurope is headquartered in Brussels and was founded at the end of 2012 by the amalgamation of the two predecessor institutes, CELMA and ELC.

Panasonic Lighting Europe numbers among the founding members and Klaus Breisch sits on the association's Executive Board.

The following interview was conducted by Sandra Alvera, Panasonic Europe, with Klaus Breisch as part of his visit to Panasonic Europe in Brussels in December 2013.

■ MAIN TOPICS

- Consequences of European legislation for the lighting industry
- Representation of Panasonic's interests at EU government level
- Challenges and opportunities in today's political climate



www.lightingeurope.org

■ WHY DID PANASONIC LIGHTING EUROPE DECIDE TO JOIN THE EUROPEAN INDUSTRIAL ASSOCIATION LIGHTINGEUROPE?

The European political and economic climate continues to remain changeable, now more than ever. Decisions made in Brussels often have a direct impact on our business – and this impact is growing by the day. In addition, the decision-making process in Brussels remains highly complex and difficult to navigate for outsiders. Joining LightingEurope lets us use one strong voice to represent and explain the interests of the European lighting industry at EU policy-maker level and thus provide a basis for informed decisions.

■ CAN YOU DESCRIBE THE PROCESS THAT LED TO THIS DECISION WITHIN THE PANASONIC GROUP?

The decision to join LightingEurope was taken in conjunction with our parent company following discussions, some of which were held in Japan, during which unanimous agreement was reached that we must play an active role with regard to Europe both in Brussels and EU member states.

■ YOU HAVE NOW BEEN A MEMBER OF LIGHTINGEUROPE'S EXECUTIVE BOARD FOR A YEAR. CAN YOU TELL US MORE ABOUT YOUR ROLE?

The members of LightingEurope's Executive Board are elected as part of the General Assembly. My main responsibility lies in helping to define strategic goals and priorities and wording respective stand-point messages. As the association is still very young, the Executive Board has naturally also invested a lot of time into establishing suitable organisational structures and processes.

In addition to this, members of the Executive Board share the task of "sponsoring" the association's various working groups. In this vein, I am responsible for the "Energy Efficiency" working group and act as a direct interface between the working group and the Executive Board.



Klaus Breisch



■ **LIGHTINGEUROPE EQUALLY FUNCTIONS AS A LOBBYING ENTITY. WHAT IS YOUR PERSPECTIVE ON LOBBYING AND THE DECISION-MAKING PROCESS IN BRUSSELS?**

Decision-making processes in Brussels are as complex as the environment in which they take place. My take on lobbying has changed since I joined LightingEurope. In the sense of a responsible representation of interests and as a transparent part of decision-making processes in which differing opinions and requirements have to be balanced, lobbying should not be regarded as something "obscure". Much rather, lobbying delivers clear benefits: for instance, it allows us to receive advance information on planned legislation and take measures to ensure our company satisfies all legal requirements. If necessary, we can even exert influence on draft legislation. And naturally, lobbying also involves making contact with important decision makers at EU and member-state level.

■ **IN YOUR OPINION, WHAT CURRENT CHALLENGES IS THE LIGHTING INDUSTRY FACING AND WHICH OPPORTUNITIES CAN BE TAPPED WITHIN THE EUROPEAN LEGISLATIVE FRAMEWORK?**

The lighting industry is facing multiple challenges. First and foremost, the industry itself and its importance for Europe have yet to be properly understood by policy makers. However, both the EU-wide ban on incandescent lamps and new opportunities arising from LED technology have increased the visibility of lighting topics in Brussels. But lighting often continues to be seen as just a commodity, and one that is equated with energy consumption.

Our second challenge is therefore to make decision makers understand that we are not the problem, but much rather part of the solution and that a coordinated approach will help Europe to meet its energy-efficiency targets.

Finally, we need to ensure that new technologies and business models in which Europe could play a leading role are promoted by decision makers. An example are lighting solutions that not only fulfil purely visual requirements, but can also take the biological effect of light on the human organism into consideration. Applications of this kind have been proved to have a positive effect on human health and wellbeing, to improve attentiveness and the ability to learn as well as to reduce the risk of accidents at work.

■ **DO YOU HAVE A FINAL MESSAGE THAT YOU WOULD LIKE TO SHARE WITH YOUR READERS AND COLLEAGUES?**

I would like to reiterate how important it is that Panasonic plays an active role in LightingEurope. But shaping our industrial environment not only lies in the hands of management, but equally in those of the many employees who provide invaluable support in areas such as standardisation, market surveillance and environmental protection. Ensuring these different activities are well coordinated at company and at group level will yield the best results, not only with industrial associations and decision makers in Brussels, but also in the EU member states, and will allow us to respond efficiently to new laws and directives in a timely manner.

Further information on LightingEurope is available at: www.lightingeurope.org

THE MÖVENPICK WINE CELLAR

A SENSUOUS EXPERIENCE



Mövenpick Wine Cellar, Winterthur



The international Swiss Mövenpick Group is subdivided into four distinct areas of operation: hotels, restaurants, fine foods and wine. The company's success story began when the first Mövenpick restaurant was opened in Zürich in July 1948. Today, the Mövenpick Group employs some 19,000 people.

One of the highlights of the premium brand are the Mövenpick wine cellars. And the first of now 12 wine cellars was opened in Germany more than 50 years ago. At the Mövenpick wine cellar in the Swiss town of Winterthur, for instance, modern lighting helps to present centuries of viniculture for guests to enjoy.

To complement the cosy ambience of the wine cellar, spotlights made by the company Monolight featuring Vossloh-Schwabe COB LED modules serve to bathe these top-quality wines in atmospheric light. At a colour temperature of 4,000 K, sampling these excellent wines turns into a truly multisensory experience.

The impressive product features of VS LED modules at a glance

- Long service life 50,000 hours
- Minimal decrease in luminous flux: L90/B10
- High colour rendering index: CRI > 80
- Narrow colour tolerances: (3 x MacAdam)
- Various shades of white: 2,000 K to 4,000 K

Photos: © Monolight GmbH
Mövenpick Wine Cellar, Winterthur

TWO MINDS AS ONE

VS AND CHF



CHF
lighting solutions



LED Profile for Architectural Lighting

■ A NEW TAKE ON PRODUCT DEVELOPMENT

Recognising market requirements, splitting the development work and then jointly making the product come together – those were the steps of a parallel development project, during which individually produced elements were then combined to form a single successful product.

Axel Wallaschek (CHF) and Hartmut Friedrich (Vossloh-Schwabe) tackled the project in a clearly structured manner and with short decision-making processes to create a future-pointing product family for furniture and architectural lighting.

The new product is made up of two elements that were independently developed using matching dimensions, a process that resulted in an impressive symbiosis in the interest of lighting efficiency. Slim-line dimensions and high light output are the successful result of the cooperation between Vossloh-Schwabe and CHF Lichttechnik.

- ➔ Linear LED modules made by Vossloh-Schwabe with CHF profile and diffuser technology.
- ➔ COB technology with the highest light output and a highly effective aluminium profile for efficient thermal dissipation and several installation/mounting options.

■ USED AS FURNITURE LIGHTING

- Accent lighting for integration into furniture; serves to highlight decorative features and illuminate the direct vicinity.
- Energy-efficient lighting with a high light output and defined colour temperatures.
- Highly versatile linear shape with homogeneous light distribution.
- System solution: Planar luminaire family fitted with VS LUGA Line COB modules.

■ USED AS ARCHITECTURAL LIGHTING

- Suitable for use in false ceilings for general lighting purposes.
- High light output and slim-line casings with broadly distributed light for uniform illumination.
- The new product blends into ceiling systems to form a single unit that can be variably and flexibly fitted.
- Suitable for integration into light control systems.

THE EV CHARGING STATION OF THE FUTURE

VEHICLE CHARGING AT THE LAMP POLE



■ STREETLIGHT MANAGEMENT SYSTEM AND EV CHARGING STATION

Street lighting systems are mostly powered using their own separate supply grid, with lighting being centrally switched on or off at a distribution board in response to signals received from an astronomical-clock timer or a light sensor. Attaching a charging station for electrically powered vehicles to such a network would mean that power would only be available when lighting is switched on. However, using the VS Smart Night controller coincidentally solves this problem since its powerline controller activates lighting at every single lamp pole. As a result, the lighting network can be supplied with power on a permanent basis, thus removing any limitations for also using it to provide charging stations for e-vehicles.

The combination of both systems enables huge energy savings in street lighting and at the same time makes it possible to use existing infrastructure for the purpose of charging electrically powered cars in the future – and without the need for major investment.

■ ADVANTAGES

Light Management

Efficient control for all outdoor lighting systems.

Infrastructural Synergy

Integrating cost-effective ubitricity system sockets straight into lamp poles also makes it possible to create a widespread public network of EV charging stations at an affordable price.

Electricity Meter

The mobile electricity meter contained in the ubitricity charging cable serves to gauge the power drawn to recharge a car's batteries and transfers the gathered data to a standardised billing system.

Settling Power Bills

The data transferred by ubitricity are then used as a basis for the invoice the respective user receives from the power utility company of their choice.

Load Management

Optimal use of the cable grid with a network of EV charging stations that is dimensioned to satisfy actual needs.



GIORDANO LIVING WORLD MALL

SERPONG, JAKARTA



The entire Living World Mall is illuminated using only LEDs. The shopping centre is situated in Jakarta's Serpong industrial park and is home to a large selection of international brands, including the fashion boutique Giordano.

Due to rising energy costs in Indonesia, retailers and tenants in the Living World Mall were encouraged to opt for LED lamps and with that to ensure a reduction in power consumption. The highly efficient plug-and-play PAR38 lamps made by VS – with a long service life of up to 45,000 hours and low maintenance needs – were ideal for the project. Thanks to the E27 base and 38° radiation angle of the PAR38 lamps, exchanging the previously installed 70 W HID lamps required only minimal effort. Apart from the expected energy savings, the mall operators also welcomed a noticeable reduction in power costs.

Available in different colour temperatures and with various angles of radiation, these dimmable mercury-free LED lamps both save energy and will not impair products (IR- and UV-free). In addition, they result in a decisive reduction in CO₂ output and will therefore help to counter global warming. These energy-efficient, eco-friendly lamps with high light output have also set standards for other Giordano stores, where LED lamps are now set to feature in the future. Vossloh-Schwabe's PAR38 LED lamps with an integrated dimmable driver are suitable for most standard E27 bases, with brightness control achievable using leading- and trailing-edge phase-cutting dimmers. Typical fields of application include lighting for commercially used product display cases, shop windows and car showrooms, accent lighting of all kinds and lighting for residential purposes.

Pt. Tridaya Dinamika Elektrindo is a technically orientated partner of Vossloh-Schwabe. The company's numerous activities, especially in the project business, make it a provider of high-quality turnkey solutions and first-class customer services in the field of lighting technology.

Project: Living World Mall, Serpong, Jakarta, Indonesia

Customer: Giordano

Luminaire provider: Pt. Tridaya Dinamika Elektrindo

Lighting technology: Vossloh-Schwabe

Photos: Giordano, Serpong, Jakarta, Indonesia

INTRODUCING

TOOL DESIGN AND CONSTRUCTION IN LÜDENSCHIED



We can only hope to satisfy customer expectations with regard to consistently high product quality by fitting our manufacturing systems with optimised machine tools. As a result, tool design and construction is one of the company's core areas of activity.

Manufacturing, maintaining and converting the most diverse tooling equipment are tasks entrusted to the 25 skilled staff and 8 trainees from the field of tool and process engineering at our plant in Lüdenscheid. Per year, up to 40 precision tools are built in Lüdenscheid, most of which are follow-on composite and injection moulding tools. In addition, more than 150 repairs, maintenance jobs and modifications are handled by workshop staff every month. At present, the inventory is made up of 780 tools that are coordinated for use in the various manufacturing lines with the help of an operating data capture system.

This core competence forms the basis for ongoing development of new tool technologies, resulting in equipment used for compression moulding for the production of precise optics in the field of light guidance as well as tools for moulding technology on the basis of a process in which the tools are heated and cooled again. This serves to reduce the deformation risk in respect of moulded parts and at the same time improves dimensional accuracy.

We manufacture these tools using state-of-the-art 3D CNC technology, a process in which tool design and construction are closely coordinated and work hand in hand. The 3D computer-generated tool design data guarantee that individual machine tool components can be manufactured in both a highly precise and reproducible manner. And these machine tools can reach dimensions of up to 800x500 mm and a weight of more than 1.5 tonnes.

Constantly extending the use we make of CNC technology serves to increase the degree of automation and make the process more cost-effective.

STANDARDISATION AND TECHNOLOGY

NEWS



The shift towards generating light using semi-conductor light sources and the associated, almost limitless control options is also reflected in global standards.

- Mention will now only be made of the activities of
- the Zhaga consortium for the interchangeability of LED light sources
 - "The Connected Lighting Alliance" for wireless control of light sources for various applications (first step: residential lighting) and
 - those of the IEC for laying down performance standards for LED luminaires and LED modules.

The following standards are expected to be published this year

- IEC 62722-1: General Requirements for Luminaires
- IEC 62722-2-1: Special Requirements for LED Luminaires
- IEC 62717: Requirements for LED Modules

These standards will then supersede the publicly available specifications (PAS) for the named applications and stipulate testing procedures to assess performance features of luminaires and modules. With regard to IEC standards, reference must also be made to the commission regulation EU 1194/2012 "Ecodesign requirements for directional lamps, light emitting diode lamps and related equipment". A special feature of this regulation is that LED lamps are understood to mean all LED light sources (including modules), regardless of whether or not they are fitted with a lampholder system, are permanently integrated into a luminaire or are exchangeable. The regulation defines the specifications of the various performance features. Against the background of the rapid pace of development in the field of LED lighting, the publication of IEC standards and EU regulations, the ZVEI association has drawn up a guideline that provides a uniform set of standardised and thus comparable quality criteria for evaluating technical data.

Further IEC activities have also begun to specify safety requirements for so-called retrofit lamps (LED lamps that can be used with existing lampholder systems) and newly created LED lamp systems for new lampholder systems.

In addition, mention must also be made of the fact that immunity to radio interference with LED lighting is also being reconsidered and discussed with regard to electromagnetic compatibility. In this respect, the publication of a technical report (IEC/TR 61547-1: Equipment for general lighting purposes – EMC immunity requirements; Part 1: An objective method for testing radio immunity requirements in the event of voltage fluctuations) is planned for the near future.

Once experience has been gained with the new test method, this technical report is to be integrated into the immunity standard for luminaires and luminaire components. In addition, the latest version of CISPR 15/EN 55015 also formally specifies its applicability to LED lighting, in which regard special mention is made of the test conditions for lamps with built-in electronics.

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.

Whether cost-effective standard components or tailor-made product developments are needed, Vossloh-Schwabe can satisfy even the most diverse market and customer requirements. Vossloh-Schwabe's extensive product portfolio covers all lighting components: LED systems with matching control gear units, OLEDs and state-of-the-art control systems (LiCS) as well as electronic and magnetic ballasts and lampholders.

A member of the Panasonic group **Panasonic**

Vossloh-Schwabe Deutschland GmbH

Hohe Steinert 8 · 58509 Lüdenscheid · Germany
Phone +49 23 51/10 10 · Fax +49 23 51/10 12 17

newsLIGHT@vsv.vossloh-schwabe.com
www.vossloh-schwabe.com



All rights reserved © Vossloh-Schwabe
Photos: istock.com, shutterstock.com
Specifications are subject to change without notice
newsLIGHT EN 04/2014