



Innovation at Your Service: Vossloh-Schwabe at the Light+Building 2010

■ **When the Light+Building 2010 opens its doors in Frankfurt from 11 to 16 April 2010, one company is certain to be of particular interest to trade visitors: Vossloh-Schwabe at Stand B60 in Hall 4.0.**

You can look forward to discovering a wealth of innovations in the field of lighting technology. Next to exhibiting new products and an increased number of application examples, we also intend to give you a sneak peek of future developments and trends.

Our competent VS team will be on hand to present our comprehensive range of solutions, with a special focus on our selection of energy-efficient products. Vossloh-Schwabe is aware of the responsibility that comes with being a market leader in this regard and our solutions are therefore all based on intelligent, eco-friendly and above all cost-efficient technology.

Organic Light Emitting Diodes – or OLEDs for short – certainly number among our exhibition highlights and will soon be launched on the market under the Panasonic name of our Japanese parent company.

Numerous new products for street, retail and interior lighting have also been added to Vossloh-Schwabe's LED range. Current trends in this regard are: constantly growing application areas, more efficient and brighter LEDs as well as customised ready-to-use modules.

The VS Light Controller, VS MultiSensor and VS Extender combine to form our new future-proof DALI LiCS system. In conjunction with matching Vossloh-Schwabe components the VS Light Controller can be used to program 16 luminaire groups and 16 lighting scenes.

Discover Vossloh-Schwabe's new LiCS System for DALI Lighting Control.

Vossloh-Schwabe's new emergency lighting modules ensure superior safety in critical situations. Fitted with a self-diagnosis function, these modules are suitable for operation with 6 W – 80 W fluorescent lamps.

On the topic of power reduction, various VS products await you that can deliver energy savings of up to 40% as well as ignitors that will even lower operating and servicing costs.

With regard to our electronic ballasts, we will be exhibiting new and more compact units that not only feature smart functions, but that have also been optimised for even easier installation.

The design of our new "Rotoclic" rotor technology adds an innovative twist to lamp-holders for fluorescent lamps. Among other things, it ensures an audible clicking sound is made on correct insertion or replacement of lamps.

The second stage of the European Energy Efficiency Directive is due to come into effect in 2012. But to ensure VS customers stay ahead of the times, we are already producing ballasts that meet these future requirements. We invite you to explore the possibilities for your company at our stand.

As you can see, a trip to Vossloh-Schwabe at the Light+Building 2010 is definitely worthwhile. The Product News is intended to give you a first idea of what you can expect to discover at the VS stand.

■ **We look forward to seeing you there – Stand B60 in Hall 4.0.**



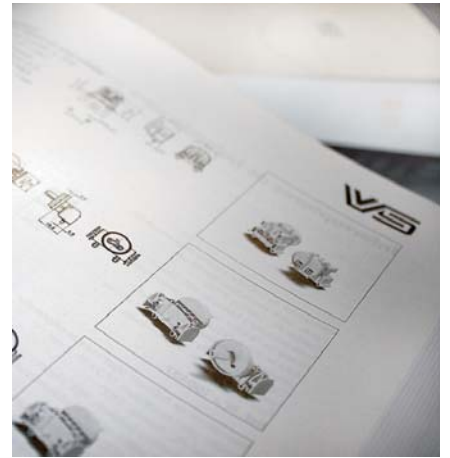
More than (just) a Component Manufacturer...

Vossloh-Schwabe is not merely a manufacturer of top-quality components for the lighting industry, but above all makes a competent and innovative contribution to setting market trends.

Featuring a future-proof component structure that already now satisfies both the requirements of energy-efficient lighting and European standards, VS' unique product range includes magnetic and electronic ballasts, state-of-the-art control systems (Lixos or DALI), LED lighting systems and matching operating devices.

Vossloh-Schwabe: The Visionary Side of Light





■ New Operating Devices for New TC-TEL Lamps 14 and 17 W: Now DALI-capable

When operated in combination with our new ELXd 117.715 and ELXd 217.717 electronic ballasts, the new 14 W and 17 W TC-TEL compact fluorescent lamps can be dimmed via DALI or PUSH within a dimmable range of 3% to 100%. These VS electronic ballasts support full implementation of the DALI standard: addressable, scene and group storage, information feedback, physical and RND selection plus a standardised lamp characteristic. Low-power design further ensures very low power consumption (≤ 0.5 W) during standby, which also goes to ensure this device is sustainable for the future with regard to the ErP Directive. **1**

■ Intelligent Lamp Recognition: Ballasts for T5 Lamps

Vossloh-Schwabe's new builtin electronic ballasts for T5 lamps include a lamp recognition function with which the device can detect whether it is connected to an High-Output or an HighEfficiency T5 lamp. By ensuring the filament is preheated to an optimum temperature, the lamp ignites within 1 second. But preheating the filament not only ensures fast lamp ignition, but is also prerequisite for prolonging its service life. The new VS ballasts are available for wattages of 14 W to 80 W as well as for one- and two-lamp operation. **3**

■ High Performance for Shop Lighting: K36 Casing with integrated Connectors for 35 W and 70 W HID Lamps

Vossloh-Schwabe's independent electronic ballasts are pre-fitted with connectors to facilitate easy electrical connections. With a view to enabling fast and cost-optimised installation, the primary side features a black GST18 1-coded lockable connector and the secondary side an ST18 0-coded connector. In addition, the electronic ballast comes with protection against transient mains peaks up to 2.5 kV, intelligent protection against overheating including an automatic reset and a defined cut-out function to ensure the electronic ballast is switched off should lamp voltage exceed 120 V. **5**

■ Brand New Vossloh-Schwabe 2010/11 Product Catalogue

Vossloh-Schwabe's 2010/11 product catalogue is hot off the press: new, concise and inspiring. Product details and technical information on our entire range are clearly presented on nearly 600 pages.

To make it easy to spot new additions to our portfolio, each new product has been given a "New" label. The first few pages also showcase selected reference projects that were implemented using lighting components made by Vossloh-Schwabe. The small selection of UL-tested products for the NAFTA market is another new catalogue feature.



■ More Compact: Electronic HID Ballasts for 20 W and 35 W Mini Lamps

Vossloh-Schwabe's new electronic ballasts with heat-resistant, polyurethane-encapsulated polyamide casings were especially developed for use with 20 W and 35 W discharge lamps with a GU6.5, PGJ5, G8.5, GX8.5, GX10, G12 or E27 base. With casing dimensions of only 96x50x31.5 mm or 127x50x31.5 mm, these very compact ballasts are available both as models for integration into luminaires and independent operation. These new devices are not only characterised by a high power factor (> 0.96) and a constant rate of power consumption, but in particular by their compact dimensions plus the numerous application options these enable. **2**

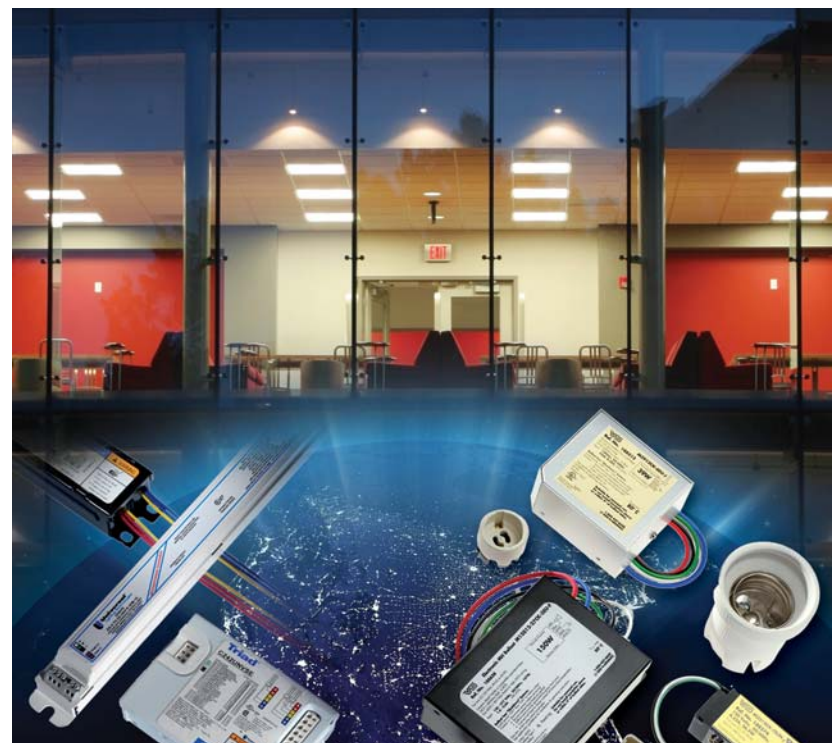
■ Dimmable: Ballasts for 250 W HS and HI Lamps

These new ballasts make it possible to dim 250 W metal halide lamps and high-pressure sodium lamps that are approved for dimmed operation by the lamp manufacturer. The dimmable range lies between approx. 55–100% of the lamp's output and a 1–10 V DC interface fitted with conventional control devices is used for dimming purposes. **4**

■ Great New Merger: Lighting Components for the UL Market

Vossloh-Schwabe's US American sales office, Vossloh-Schwabe Inc., was merged with Universal Lighting Technologies, Inc., a further Panasonic subsidiary, at the beginning of 2010. Universal Lighting Technologies is the second-largest manufacturer of ballasts in the USA. As a result of the merger, the company has extended its product portfolio with electronic ballasts for discharge lamps, a very extensive range of lamp-holders for all common lamp systems as well as an excellent LED module system. Yet despite all these changes, your contact partners have all remained the same. The merger of these two Panasonic subsidiaries has given rise to powerful synergies in terms of technological innovations and market presence.

Please visit www.unvlt.com to browse the complete range of ULT and VS products for the NAFTA market.





■ Integrated Safety: VS' New Emergency Lighting Modules

Vossloh-Schwabe's new emergency lighting modules (EMXs) are suitable for installation in luminaires fitted with 6–80 W fluorescent lamps and additionally feature a self-diagnosis function. EMXs are compatible with all VS ballast families, both electronic and electromagnetic, that are suitable for fluorescent lamps. Next to enabling circuits with up to 4 lamps, both "maintained" and "not maintained" modes are possible. The electronic ballast phase is switched off during emergency operation.

EMXs are protected against short-circuiting, RoHS-compliant (except for the rechargeable batteries) and fitted with five-pin technology, which means they also comply with EMC regulations during emergency operation.

In addition, the operating period is tested every 12 months plus subsequent battery re-activation. An external LED serves to indicate the operating state. This LED is green during normal operation, but goes off during emergency operation or for as long as the battery is fully discharged. The LED will flicker if the battery is either not or incorrectly installed. Two rechargeable battery types (NiCd and NiMH) providing power for one hour and three hours of operation, respectively, are available for use with VS EMXs. The system is rounded off by matching battery holders.

The LiCS system – short for Lighting Control Solutions – made by Vossloh-Schwabe can be used to achieve substantial energy savings by combining movement and daylight sensors with intelligent lighting control functions. In addition, the VS LiCS system, which consists of perfectly matched components, makes it possible to set individual lighting scenes and moods. As a result, ideal lighting conditions can be created that suit specific personal needs and help to boost both well-being and productivity – be it at home or at work. And if requirements change, DALI can simply be reprogrammed without any need for rewiring.

Standard push-button switches designed for use in buildings can be used for lighting control purposes. They can then be freely and flexibly assigned to the respective groups. The specific function of the switch can also be chosen to suit, e.g. as a dimmer, to call up lighting scenes or as a timer switch. By adding EnOcean wireless technology to the system, further switches can be added and configured in the same way as the standard switches. Furthermore, stand-by losses are substantially reduced thanks to an integrated relay that ensures system units are disconnected from the mains when all units are in lights-out mode. If necessary, the system can also be protected with a password.



These modules are suitable for Protection Class I luminaires and fulfil the requirements of EN 61347-1 and EN 61347-2-7. While EMXs are suitable for installation in systems that comply with VDE 0108 or EN 50172, they cannot be used with lamps featuring an integrated starter. Cyclic recharging of the NiMH battery is controlled by a microprocessor, which helps to prolong battery service life by 30%.

VS emergency lighting modules feature an automatic self-diagnosis system. Every seven days, the system automatically performs a two-minute function test during which the device, the lamp and the battery are checked.

■ Programmed for the Future: DALI by Vossloh-Schwabe

Standing for Digital Addressable Lighting Interface, DALI is the international standard for connecting and operating DALI-compatible operating devices produced by different manufacturers. The fact that DALI does not require a separate bus conductor makes system installation particularly simple and low in cost. Standard installation cables can be used and if required, the mains line can be laid together with the DALI bus line if an installation cable with five conductors is used. While tree, star or line bus topologies are possible, ring topologies should be avoided. Furthermore, as there is no need to observe any polarity restrictions with regard to the DALI bus, the interface makes a valid contribution to freeing up the light design process.

■ VS Light Controller: 64 DALI Operating Devices + 16 Lighting Groups + 16 Lighting Scenes

Designed for installation in junction boxes the VS Light Controller enables direct configuration of entire DALI systems via its integrated display screen and rotary push button. An external DALI bus supply line is not required since this is already built into the VS Light Controller. Moreover, the unit can be operated in either German or English. The VS Light Controller also features a DALI interface that can be connected to any DALI-compatible lamp control gear, thus enabling individual group assignment (of up to 16 groups) and scene programming (of up to 16 scenes).

■ VS MultiSensor: Automatic Detection of Movement and Light

While the VS MultiSensor is available in three versions for installation in ceilings (optionally with strain relief), mounting on walls and installation in luminaires, it can only be operated in combination with a VS Light Controller. Since the necessary power is supplied via the DALI bus, neither a mains connection nor a battery are required. The sensor also features its own DALI address, which makes it identifiable and configurable during the set-up process. The VS MultiSensor combines a movement sensor and a daylight sensor in a single unit. Depending on the specific area of application, either part can be deactivated as needed and a constant light setting is naturally also possible.



Configuring constant lighting levels, setting the deactivation time of the movement sensor as well as group assignment can all be undertaken via the user-friendly VS Light Controller. An integrated status LED indicates that the respective sensor has been activated when in programming mode. The movement sensor can be configured to function as an on/off switch (standard movement detection) or just as an off switch, for instance to deactivate a scene and thus switch the lighting group off if no movement is detected.

■ DALI Extension Options: Remote Controlled Convenience

EnOcean technology is used to create remote-controlled solutions in combination with Vossloh-Schwabe's DALI components. To this end, the VS Light Controller is optionally available featuring an integrated EnOcean receiver module. This wireless technology uses a frequency of 868.3 MHz and enables a transmission range of 300 m outdoors and 30 m in buildings, which can be extended still further by adding a repeater. Control commands are remotely transmitted to the receiver at the touch of a push button. Moreover, this push-button switch functions without batteries because it is designed to generate the power it needs from energy released whenever the button is pressed.

■ OLED – Light Source of the Future

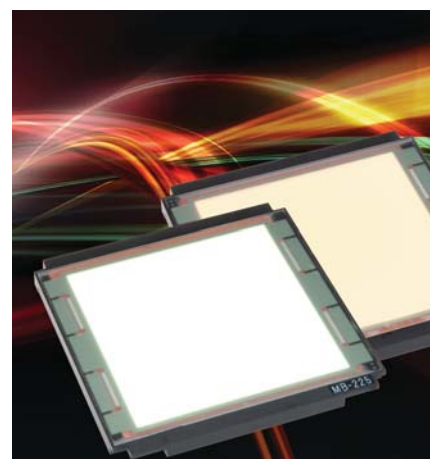
The pace of progress in the development of OLEDs (short for Organic Light Emitting Diodes) is brisk. At present, the organic light source is mainly used in electronic displays.

At Panasonic – the Japanese parent company of Vossloh-Schwabe – work on developing OLEDs for use in general and effect lighting has reached fever pitch.

Initially set to retail in various colours and shapes, these extremely thin OLEDs will also become available as transparent and flexible units in the more distant future. But at present, development work is focused on producing daylight white and warm white 8 x 8 cm framed OLED modules plus integrated or external drivers.

■ Clever New Rotoclic Lamp-holders for Fluorescent Lamps

Vossloh-Schwabe lampholders for tubular T8 and T12 fluorescent lamps come with numerous technical characteristics that ensure a high degree of reliability and safety. The heat-resistant PBT rotor that most VS lampholders are fitted with is a recognised trademark. In addition to lampholders fitted with this tried-and-tested big rotor, VS now provides a new generation boasting its clever "Rotoclic" rotor technology. This new VS innovation constitutes a further milestone in the development of highly heat-resistant rotor systems. Among the special features of this new system is a T140 temperature rating thanks to a front plate made entirely of PBT as well as a clearly audible click when lamps are inserted or replaced, thus providing acoustic confirmation of the



■ VS Extender for Easy Connections and Extensibility

The VS Extender serves to increase the number of DALI operating devices that can be connected to a VS Light Controller and is suitable for independent installation, e.g. in a suspended ceiling. This unit is perfect for combining numerous operating devices to form groups of up to 64. On its primary side, the VS Extender is equipped with a DALI address via which all DALI devices connected to its secondary side can be uniformly controlled. A VS MultiSensor cannot be connected in this case. The VS Extender can also be used for creating cascading circuits.

In addition, a so-called hand-held transmitter can also be made available for remote control purposes with the same configuration options. This hand-held transmitter equally functions without batteries since it also uses the principles of electrostatics to generate the requisite power from the action of pressing the buttons.

■ OLED Advantages

- large illuminated surfaces producing diffuse light
- large-area illumination, all colours possible
- extremely thin, low weight
- easy installation because of pre-assembled connectors, wire guide and plastic frame
- free choice of shape in the future
- maximum luminous flux, no time delays
- mercury-free and therefore eco-friendly (no special waste disposal requirements)

correct positions. This new generation of VS Rotoclic lampholders features push-in connectors, located either on the underside or on the side of the lampholder. Models equipped with side-mounted push-in connectors additionally permit "Top Testing" of luminaires. Our range of push-fit lampholders has now been supplemented by models providing a light-point height of 18 mm. Furthermore, VS also provides length-compensating, spring-loaded lampholders – featuring corrosion-resistant steel springs – that respond to any thermally induced material expansion and so ensure the lamp stays properly connected at all times.



■ Get Connected: New 405/406 Terminal Series

With a view to ensuring safe electrical connections and extending component service life, all plastic and metal parts found within VS connection terminals are manufactured using only top quality materials. Naturally, these features also apply to the new 405/406 series of all-in-one connection terminals, which are available with push-in connectors, but also – to enable automated luminaire wiring – with screw terminals on the primary side and IDC terminals on the secondary side. With useful information printed on the casing for easy handling, these three-pin terminals can be made available with or without a fuse holder, with a grounding clip or grounding finger or even without any possibility to earth any connected devices.



■ Dimmable: ECXd 700 DALI LED Constant Current Driver

The ECXd 700 mA DALI constant current driver delivers 700 mA and features a dimming range from 0.1% to 100%. The driver can be controlled using a DALI-compatible controller and a conventional PUSH button light switch.

The dimming function is achieved by applying a PWM signal over the 700 mA output current. Lamp brightness will remain at 100% should no signal be applied. With output voltages ranging between 9 and 48 V, the driver can be used to operate between 3 and 11 typical high-performance LEDs at 700 mA. [2](#)

■ IP67 LED Frames (optionally with DMX)

For outdoor LED lighting projects, Vossloh-Schwabe provides aluminium frames featuring our tried-and-tested IP67-encapsulation, which provides particularly reliable protection against environmental factors like water, dust and temperature fluctuations. The aluminium frame not only ensures greater stability for the installation of VS' well-known LEDLine Flex SMD modules in all versions (white, warm white, RGB and HighBrightness), but also makes handling easier. Up to a maximum segment length of 2 m, the respective frame sections are dimensioned and encapsulated to suit the specifications of each given project. In addition, Vossloh-Schwabe provides a 900 mm, IP67 frame with a built-in DMX interface.

■ Very Versatile: XP/HC LED Modules as Line, Spot and Mini

The new XP and HC Line, Spot and Mini modules combine compact dimensions with numerous mounting options, which makes them ideal for a large range of luminaire types and brightness levels.

Our Line (8 LEDs, 200x15 mm), Spot (4 LEDs, Ø 45 mm) and Mini (4 LEDs, 50x10 mm) LED modules are all available with Cree LEDs of the XP-C, XP-E and XP-G series. Furthermore, the R_a 85 value ensured by our warm white HC (High CRI) LED modules is another key feature worthy of mention. [6](#)



On request, terminals can be delivered with a pre-fitted fuse. The new 40560 to 40577 and 40660 to 40677 series of connecting terminals replace the current 40501 to 40531 and 40650 to 40658 series.

■ Highly Efficient: New ECXe 350mA/42W LED Constant Current Driver

VS' highly efficient (89–92%) new ECXe 350mA/42W driver was specifically designed to satisfy the requirements of LED street lighting. It can be used to operate between 12 and 30 high-performance LEDs (secondary voltage range of 40–115 V) at 350 mA. The driver is not only protected against short-circuiting and overloading, but also against transient mains peaks of 4 kV between L, N and PE as well as 3 kV between L and N. [1](#)

■ Emergency Power Mode: LED Constant Current Drivers of the ECXe Series

The constant current drivers of the ECXe series made by Vossloh-Schwabe are now DC-capable. All 350 mA (except for the 42 W model), 500 mA, 700 mA and 1050 mA drivers can now be operated both with AC and DC voltages of 198 V to 264 V, which makes them suitable for installation in emergency lighting systems. The new EMC directives (up to 300 MHz) governing AC and DC voltage operation are naturally satisfied by these VS converters. The old ECXe 350mA/6W driver will be replaced by the new ECXe 350mA/8W driver, which equates to a 2 W rating increase. [3](#)



Available in white, warm white and RGB, these modules can be mounted end-to-end and individually controlled via the DMX interface, which makes it easy to create linear effect lighting. [4](#)

■ Easy Indoor Assembly: VS' LED Installation Kit

The LED Installation Kit is particularly suitable for installing indoor LED systems (IP20) and makes it possible to mount monochrome and RGB LEDLine Flex SMD and EasyLED modules in frames of either 1 or 2 m in length. The cover can be either transparent or opaque, with the latter creating a diffuse effect without individually discernible light points. [5](#)

■ High Brightness: HeliosLine and HeliosFlood

The modules of Vossloh-Schwabe's HeliosLine and HeliosFlood series have set a new brightness standard for the VS range. Fitted with 8 Helios-series Nichia LEDs, these modules achieve brightness values of up to 3000 lm at an operating current of 350 mA. This degree of brightness makes these modules perfect for use in general or LED street lighting. Helios LED modules can be operated with VS' new 350mA/42W constant current driver. [7](#)



Optimised Protection: IP67 LED TriplePowerEmitter
 Vossloh-Schwabe's TriplePowerEmitter is now also available as an IP67-compliant version. At the same time, VS' range of pre-mounted optics was also extended to include attachments with a 15°, 20° and 40° angle of radiation. This opens up new opportunities when designing luminaires requiring a special degree of protection. **8**

HID Ballasts already satisfy European Directives effective from 2012
 In addition to being the world's largest manufacturer of magnetic ballasts, Vossloh-Schwabe is always a step ahead of the times.



New Generation: Compact HID Ballasts (53x66 mm)
 Vossloh-Schwabe is known for its eco-friendly and market-orientated product developments. The new compact ballasts measuring 53x66 mm for 35–150 W HS and HI lamps are produced using a manufacturing process that makes extremely sparing use of natural resources. Luminaire manufacturers can therefore produce very compact luminaires at a competitive price. While the new devices are fitted with state-of-the-art push-in connectors, they can also be made available with screw terminals on request. And these new compact ballasts naturally all ensure compliance with EEI=A3 energy-efficiency requirements far in advance of becoming mandatory in 2012. **2**

The new VS units are also ideal as conversion sets for replacing high-pressure mercury vapour lamps with more energy-efficient high-pressure sodium lamps. **3**

New Opportunities: VS Ballasts with Higher Maximum Coil Temperature

All standard VS ballasts are now available as versions rated for a higher max. coil temperature of tw 140. The ballast's higher maximum coil temperature allows luminaire manufacturers to dimension luminaires to operate at a 10°C higher temperature. VS ballasts with a tw 140 rating are retailed under the same type designation as the standard devices rated at tw 130.

Featuring an integrated ballast, digital timer ignitor and Type B capacitor, the new temperature-protected units are designed for used with cable lengths of up to 10 m to the lamp. Compact dimensions make these units ideal for direct installation in lamp-posts. On request these units can also be made available as IP65 versions. **5**

Future-Proof and Ready for 2017: VS Electromagnetic Ballasts

For luminaires exposed to critical thermal or aggressive environments, Vossloh-Schwabe will continue to retail super-low-loss devices that satisfy the A2 energy-efficiency rating that will become mandatory for electromagnetic ballasts operating fluorescent lamps 36 W and 58 W as of 2017.



To strengthen its leading position and further extend its market share, VS has modified all standard ballasts to ensure advance compliance with the energy-efficiency requirements (EEI=A3) that will come into force with effect from 2012. In addition, VS will be launching new products for all wattages at the Light+Building that already comply with A2, which will only come into force as of 2017. Vossloh-Schwabe has worked closely with all material suppliers for many years and these partnerships have, for instance, given rise to new, lower-loss electrical steel grades which have been key to developing ballasts that comply with the third energy-efficiency step (A2). Vossloh-Schwabe will continue to invest its potential for innovation into R&D with a view to producing further low-loss devices. **1**



New System Solution: Assembly Units and Power Reduction Units

The development of these new compact units amply demonstrates Vossloh-Schwabe's unique position within the sector as a system supplier. Next to producing all system components in house, Vossloh-Schwabe also draws on its 90-year experience in combining matched components for the new units. A complete VS product range for 35–400 W HS and HI lamps is available with immediate effect. The new systems retail as standard assembly units consisting of a ballast, ignitor, capacitor and connection terminals, but can also be made available as power reduction units with an additional power switch. VS customers can now choose from more than 60 different product versions.

Furthermore, all VS devices are naturally ENEC-/VDE-approved. Thanks to this new series of tw 140 HID ballasts, luminaire manufacturers can now use the same basic type in thermally critical luminaires, thus saving time and removing the need for costly measuring and approbation procedures. **4**

New IP54 Control Gear Units in an Aluminium Casing

With a view to further expanding its position as a leading manufacturer of control gear units, Vossloh-Schwabe is launching these new and extremely compact IP54 control gear units for 250–400 W discharge lamps designed for outdoor lighting applications.

These VS electromagnetic ballasts already comply with the European limits that will come into effect in 2017. Luminaire manufacturers can therefore trust Vossloh-Schwabe to continue being a reliable supplier of electromagnetic ballasts for fluorescent lamps in 2017 and beyond. **6**



Global Innovation: Ignitors with Push-in Connectors

Ignitors featuring push-in connectors are a global innovation – made by Vossloh-Schwabe. Rated for use with lamp outputs of up to 400 W, push-in models have been added to our range of ignitors, both standard models and ones fitted with an intelligent automatic cut-out function. These push-in connectors are dimensioned for use with rigid and flexible conductors with wire-end sleeves measuring up to 2.5 mm². VS' installation-friendly connectors not only ensure safe electrical connections, both within luminaires and during luminaire production, but also help to substantially reduce associated installation costs. **1**

Designed for use all over the world (all regions), the power switch can be set to reduce power for between 6 and 10 hours. Moreover, this smart PR 12 K LC power switch does not require a separate control line to reduce lamp power as it simply draws on the ballast's tapping point. **2**

Further Advantages of the PR 12 K LC

- smart, self-learning concept
- energy and cost savings of up to 40%
- reduction of CO₂ emissions
- simple programming using a rotary coding dial
- no additional control line needed
- ideal for subsequent installation in existing luminaires
- suitable for use in Protection Class I and II luminaires



In addition to favouring the further miniaturisation of luminaires, this space-saving solution will also serve to lower installation costs. **3**

User-Friendly and Versatile: Lixos Ups the Ante

Lixos PCS is a control system that enables operators of street and architectural/monument lighting to provide citizens with optimum levels of energy-efficient light. This modern style of lighting control can also be installed in places that are not equipped with conventional technical features (such as control lines or a ripple control transmitter) without having to obtain permits for or commission expensive and time-consuming subsequent cable laying work.

LIXOS in a Nutshell:

- suitable for use in separate lighting networks
- no additional control line required
- no ripple control transmitter required
- no range restrictions
- patented data transmission protocol (for when the lighting system is switched off)
- available in two versions: Basic + Advanced
- user-friendly software
- 3-year VS product warranty extendable to 5 years



Save up to 40% in Energy and Costs with the PR 12 K LC Power Switch

Reducing the power required by street lighting systems fitted with high-pressure discharge lamps is becoming increasingly important both with a view to lowering the energy outlay of municipal authorities and to saving natural resources. The new VS PR 12 K LC power switch therefore makes it possible to program both the starting time and period of power-reduced operation over the measured operating time of a lighting system. The time-intensive process of constantly readjusting the starting time and period of power-reduced operation to suit the ever-changing day-night cycle is therefore removed. Manual adjustments to keep in step with periods of daylight-saving time (DST) are equally unnecessary.

ZPU Series now with Push-in Connectors

Vossloh-Schwabe's ZPU modules – consisting of a superimposed ignitor with an automatic cut-out and IPP technology as well as an integrated smart power switch – are now also available as push-in connector versions. Two brand new devices fitted with push-in connectors have just been added to Vossloh-Schwabe's ZPU series. Apart from being suitable for numerous application areas – HS lamps from 50 W to 250 W – these clever units now also provide the benefits of quick-fitting rigid and flexible conductors with wire-end sleeves measuring 0.75–1.5 mm².



Energy savings of up to 40% can be achieved by using Lixos to set the operating period of each individual luminaire so as to achieve lighting levels that let citizens feel safe and conform to prevailing EU standards.

With a view to reducing maintenance costs, Lixos PCS comes with an integrated diagnosis tool that lets system operators use their PC screen to pinpoint defective luminaires for lamp replacement. **4**

Energy-Efficiency Classification

THE COMMISSION'S REGULATION (EC) No. 245/2009 dated 18 March 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to defining ecodesign requirements for fluorescent lamps without integrated ballast, high-pressure discharge lamps and for ballasts and luminaires needed for their operation, and repealing Directive 2000/55/EC of the European Parliament and of the Council (official title), has created a legal framework in the EU that defines fundamental requirements for operating efficient lighting technology products.

Although the Regulation predominantly applies to general lighting, it is also product-orientated and thus independent of any specific application. The efficiency and performance requirements (specifications governing performance features) apply to fluorescent lamps without integrated ballast, high-pressure discharge lamps as well as ballasts and luminaires needed to operate these lamps. A brief overview of the requirements is provided in the following table (excerpt from the CEIMA guide).

Stage	Requirements governing	For Fluorescent Lamps	For High-pressure Discharge Lamps
1 13.04.2010	Ballasts	<ul style="list-style-type: none"> Non-dimmable ballasts: minimum EEI = B2 Dimmable ballasts: minimum EEI = A1 Stand-by losses: ≤ 1 W Non-dimmable ballasts for new lamps not designed for use with existing ballasts: minimum EEI = A3 Ballasts must be labelled (for instance: EEI = A2) 	<ul style="list-style-type: none"> No special requirements.
Interim Stage 13.09.2010	Luminaires	<ul style="list-style-type: none"> Luminaire stand-by losses = sum of ballast limiting values (No. of installed ballasts) After 18 months: technical information must be made available, both online and in luminaire documentation (for luminaires > 2,000 Lumens). 	<ul style="list-style-type: none"> After 18 months: technical information must be made available, both online and in luminaire documentation (for luminaires > 2,000 Lumens).
2 13.04.2012	Ballasts	<ul style="list-style-type: none"> Stand-by losses: ≤ 0.5 W 	<ul style="list-style-type: none"> Introduction of minimum energy-efficiency index values for HID ballasts and their labelling: <ul style="list-style-type: none"> P < 30 W - η ≥ 65 % 30 < P < 75 W - η ≥ 75 % 75 < P < 105 W - η ≥ 80 % 105 < P < 405 W - η ≥ 85 % P > 405 W - η ≥ 90 % HID ballasts to be labelled: EEI=A3
	Luminaires	<ul style="list-style-type: none"> Luminaire stand-by losses = sum of ballast limiting values (No. of installed ballasts) Luminaire designs must permit integration of 3rd-stage ballasts. Exceptions: luminaires > IP4X 	<ul style="list-style-type: none"> Luminaire designs must permit the integration of 3rd-stage ballasts. Exception: luminaires > IP4X
at the latest by 13.04.2014			
Revision of the Regulation Technological progress as well as the sum of the experience gained during the implementation of the Regulation will be taken into consideration during the revision process.			
3 13.04.2017	Ballasts	<ul style="list-style-type: none"> New ballast limiting values calculated using specified formula. That constitutes a ban on EEI = A3, B1 and B2 ballasts (magnetic ballasts can only be produced for higher lamp ratings – permitted classes are A2, A2 BAT and only A1 BAT for dimmable ballasts). Ballasts labels shortened to A2, A2 BAT or A1 BAT ("EEI =" will be dropped; this means labelled ballasts can be clearly dated). 	<ul style="list-style-type: none"> Minimum energy-efficiency index values will be raised: <ul style="list-style-type: none"> P < 30 W - η ≥ 78 % 30 < P < 75 W - η ≥ 85 % 75 < P < 105 W - η ≥ 87 % 105 < P < 405 W - η ≥ 90 % P > 405 W - η ≥ 92 % HID ballasts to be labelled: A2
	Luminaires	<ul style="list-style-type: none"> All luminaire designs must permit the integration of 3rd-stage ballasts. 	<ul style="list-style-type: none"> All luminaire designs must permit the integration of 3rd-stage ballasts.



EMC – Change in Regulations governing Luminaires

In conjunction with the second revision of the seventh edition of CISPR 15, the frequency range for EMC assessments of luminaires has been extended to 300 MHz by the IEC. This extension applies to luminaires operated with electronic ballasts and covers electromagnetic disturbance in the 30 MHz to 300 MHz frequency range. In addition, a new test method was developed and new limiting values were set.

For the European market these changes have been included in EN 55015 and apply to luminaires retailed as of 01.05.2010. Compliance with the respective limiting values is dependent on the use of electronic ballasts that are designed to satisfy the requirements of the 30 MHz to 300 MHz frequency range.

Electronic ballasts made by Vossloh-Schwabe have been developed or revised in accordance with the new provisions of the standard. When using Vossloh-Schwabe electronic ballasts, luminaire manufacturers can therefore feel safe in the knowledge that their equipment conforms to the letter of the law.



LED Lighting, from the Earth to the Space

LED lighting of Panasonic Electric Works was chosen for the lighting in the HII Transfer Vehicle (HTV), which the Japan Aerospace Exploration Agency (JAXA) developed to deliver equipment and goods for the International Space Station (ISS).

By LED lighting, Panasonic Electric Works aspires to deliver comfortable and environment-friendly living worldwide.

