

light sphere

SEE THE WORLD IN A NEW LIGHT

OSRAM



Continuous line of light thanks to T5 SEAMLESS

Information for our partners in the lighting industry

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Claus Regitz

Dear Reader,

Wide-ranging competence and a long experience in lighting engineering are the hallmarks of OSRAM and lay the ideal foundations for market and user-oriented solutions. The "Professional Lighting" Business Unit was reorganised in summer 2010 to boost its ability to cater to customer requirements and further enhance project support.

The objective of the new structure is to concentrate our expertise on focal applications and precisely tailor the product portfolio to the demands in these segments; Indoor/Office, Shop/Retail/Display/Freezer, Outdoor/Street/Sports Venues, Hospitality and Signage.

The teams, which are each responsible for an individual field of application, offer a coordinated product portfolio, from which customers can select the components that yield the best result for their tasks and projects. OSRAM's system competence, i.e. the ability to provide innovative solutions from a single source, is a major advantage in this context.

OSRAM is a dependable partner, providing assistance based not only on traditional lighting approaches, but also on groundbreaking LED technology – meaning both LED modules and complete LED luminaires.

One of the key focuses across all applications is light management, enabling us to do justice to the key topics of energy efficiency and sustainability. Hardly any other light provider has access to such a great breadth and depth of technological experience as OSRAM. Its portfolio of products and solutions is rounded off by the potential of Traxon Technologies, one of the world's leading companies in the field of LED lighting systems, whose focus is on sophisticated RGB and white light applications for architecture, catering and retail. Together with "e:cue", the subsidiary specialising in the professional control of lighting systems, Traxon demonstrates its competence in innovative and creative complete solutions. OSRAM and Traxon thus stand for comprehensive, customer-centric value added.

I hope you find this issue of *light sphere* makes enjoyable and inspiring reading!

Kind regards,

Claus Regitz – Manager Professional Lighting Business Unit



With their "warm comfort light" colour appearance, the DULUX INTELLIGENT energy-saving lamps create an inviting atmosphere in the hotel rooms and suites

The DULUX INTELLIGENT energy-saving lamp, with the new "warm comfort light" colour appearance, combines high energy efficiency with excellent light quality and light comfort for the first time. The colour temperature of 2,500 K makes for a colour appearance similar to that of an incandescent lamp, creating an extremely welcoming atmosphere in the guest rooms and suites (**photo**). Thanks to the "Quick Light Technology" of the DULUX INTELLIGENT, the lamps light up "as bright as day" as soon as they are switched on just like their incandescent predecessors. In addition, the service life of 20,000 h is 20 times longer than that of an incandescent lamp, and energy consumption is significantly reduced at the same time.

Luxurious oasis on Dubai Deira Creek

Light comfort through DULUX INTELLIGENT LONGLIFE energy-saving lamps

For a dream holiday

Dubai has emerged as one of the world's most popular holiday destinations in recent years. Visitors are lured, not only by its white, sandy beaches, but also by the rich culture, superb restaurants and exceptional shopping opportunities in the various malls.

The luxurious Radisson Blu Hotel, Dubai Deira Creek, whose balconies offer a breathtaking view of the legendary bay, is an enticing location during a stay in the up-and-coming metropolis. The five-star hotel in the heart of the bustling business and shopping district boasts 276 guest rooms and suites.

Numerous restaurants, ranging from authentic Chinese cuisine to Dubai's most famous fish restaurant, "The Fish Market", tempts visitors with its culinary delights. The Radisson Blu Hotel is likewise the venue of choice

for conferences or festive events.

Twelve conference rooms, including a ballroom for 1,400 guests, offer the ideal setting for every occasion.

Potential exploited

Even such a luxurious hotel focuses on minimising the operating costs. Initial attempts to cut energy consumption and maintenance costs by replacing the existing lamps failed to meet expectations. The cool colour appearance of customary energy-saving lamps was found to be unpleasant, as was the long time taken to reach the full luminous flux. The professional solution now introduced is based on DULUX INTELLIGENT LONGLIFE 825 energy-saving lamps. OSRAM and Hamak electromechanical of Abu Dhabi performed a joint "Energy Audit" beforehand to determine the energy-saving potential in the hotel rooms.

Worthwhile

The mix of DULUX INTELLIGENT energy-saving lamps and DECOSTAR 51 ECO halogen lamps now installed leads to energy savings of 68%. At the electricity price of €0.07/kWh customary in Dubai, the investment thus pays for itself after just ten months.

It was hence an easy decision for Janet Fitzner, General Manager of the Radisson Blu Hotel, Dubai Deira Creek, to opt for the lamp technology from OSRAM: "We'd already spent a lot of time looking for an energy-efficient solution with a colour appearance that really does match that of incandescent lamps. And we're now highly satisfied with the OSRAM solution, which combines light comfort with energy efficiency and durability." This conversion project was just one step on the way to a modern, particularly energy-efficient hotel business. And the efforts have proven to be worthwhile: the Radisson Blu Hotel, Dubai Deira Creek, was awarded the "Green Globe Certificate" at the end of November 2010.

Mourad Boulouednine,
OSRAM Munich

Outstanding light quality

Exhibits perfectly showcased with low-voltage halogen lamps from OSRAM



Fig. 2. Dramatically illuminated with low-voltage halogen lamps, the staircase almost resembles a work of art itself (photo: Richard Bryant - arcaid.co.uk)

Greater attraction

The Ashmolean Museum of Art and Archaeology in Oxford, UK, has been presenting a thoroughly modern face to the public since its reopening in November 2009. Yet its historical roots date back to 1683, the year in which this first public museum was founded. Affiliated to Oxford University, the museum is not only home to some first-class collections, but also a centre of teaching and research.

The five-storey building is now an extremely representative edifice and received the RIBA Award 2010 of the “Royal Institute of British Architects” for outstanding architectural achievements. It bears the mark of the world-famous architect Rick Mather and is a worthy new home for this internationally renowned museum. The atrium catches a lot of daylight (**Fig. 1**) and gives access to the six floors via a subtly curving staircase. Dramatically illuminated with low-voltage halogen lamps, it almost resembles a work of art itself (**Fig. 2**).

The extension doubles the exhibition space. There are now 39 permanent exhibitions and four temporary exhibitions to draw in the visitors. The London-based Metaphor Design company was commissioned as museum designer.

To present the art and archaeological exhibits in appropriate style (**Fig. 3**), it was essential to use lamps that offered excellent light quality along with energy-efficient operation. After all, doubling the exhibition space plus the long operating times meant that power consumption would considerably affect the operating costs.

Low-voltage halogen light wins the day

To satisfy the different requirements, Kevan Shaw Lighting Design opted for DECOSTAR 51 ECO and HALOSPOT 111 ECO low-voltage halogen lamps from OSRAM. Hannah Neufeld, Senior Designer, explained why: “We partly chose the ECO versions of these lamps because of their excellent colour rendering properties and dimmability. At the same time, they achieve a longer service life than corresponding standard lamps and have a comparable luminous efficacy, but characteristically lower power consumption. In addition, because there are different versions in terms of output class and angle of the reflected beam, every object can be individually accentuated. That meets our expectations in terms of both sustainability and aesthetics.”

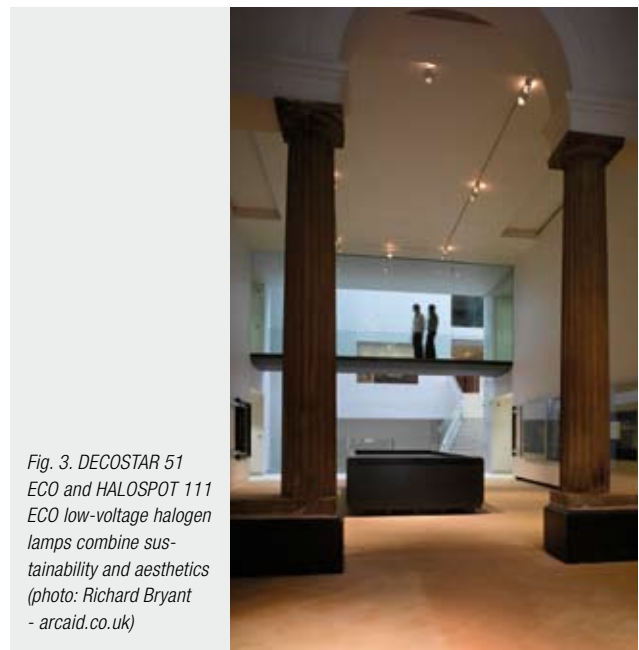


Fig. 3. DECOSTAR 51 ECO and HALOSPOT 111 ECO low-voltage halogen lamps combine sustainability and aesthetics (photo: Richard Bryant - arcaid.co.uk)

Exemplary characteristics

Low-voltage halogen lamps generally have a number of advantages that make them an indispensable light source, such as brilliant light or excellent colour rendering properties. Apart from standard low-voltage lamps, OSRAM also offers a complete range of ECO alternatives (Table).

Thanks to their innovative “Infra-Red Coating” technology (IRC), they achieve a higher luminous efficacy and a service life of up to 5,000 h. That not only makes low-voltage halogen lamps an attractive alternative to other technologies, but also ensures that low-voltage halogen lamps will still fulfil the requirements of the Ecodesign Directive after 2016.

Brilliant variety

The dimmable DECOSTAR 51 ECO low-voltage halogen lamp combines cost-efficiency with outstanding luminous intensity and light quality (Fig. 4). The reflector's special coating makes for an optimum colour impression. Because of its brilliant, directional light, the DECOSTAR reflector lamp is particularly suitable for display lighting, down-lighting or for specific presentation of individual objects. Another dimmable option is the HALOSPOT 111 ECO low-voltage halogen lamp (Fig. 5). Thanks to its large aluminium reflector, which achieves higher reflectance than the standard version, it is eminently suitable for optimum illumination of the exhibits with only little scattered light.

The HALOSTAR ECO is the smallest of the OSRAM low-voltage lamps (Fig. 6). This pin-type socket lamp is again

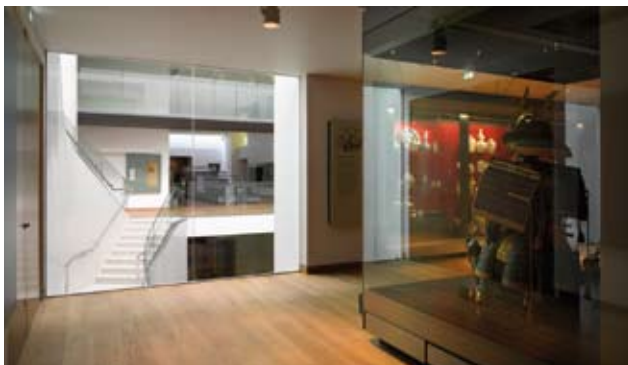


Fig. 1. The Ashmolean Museum of Art and Archaeology takes on a thoroughly modern guise (photo: Richard Bryant - arcaid.co.uk)

HALOSTAR ECO with G4/GY6.35 base

Designation	Standard pin-type socket lamp		HALOSTAR ECO	lm	K
64417 ECO	10 W	→	7 W/G4	105	2800
64423 ECO	20 W	→	14 W/G4	240	2800
64429 ECO	35 W	→	25 W/GY6.35	240	2800
64432 ECO	50 W	→	35 W/GY6.35	860	2900
64440 ECO	75 W	→	50 W/GY6.35	1180	3000
64447 ECO	90 W	→	60 W/GY6.35	1650	3000

DECOSTAR ECO with GU5.3 base¹

Designation	Standard cold-light reflector lamp		DECOSTAR ECO	lm	K
48855 ECO	20 W	→	14 W	480	3000
48860 ECO	35 W	→	20 W	1000	3000
48865 ECO	50 W	→	35 W	2200	3000
48870 ECO	65 W	→	50 W	2850	3100

HALOSPOT 111 ECO with G53 base²

Designation	Standard lamp		HALOSPOT 111 ECO	lm	K
48832 ECO	50 W	→	35 W	4200	2900
48835 ECO	75 W	→	50 W	5500	3000
48837 ECO	100 W	→	60 W	7000	3000

¹ With 36° angle of reflected beam ² With 24° angle of reflected beam

Table. OSRAM offers not just standard low-voltage lamps, but a complete range of ECO versions

dimmable, emits brilliant light and is furthermore ideal for “starry skies”, as well as in furniture luminaires and chandeliers.

All ECO lamps can be used in conjunction with existing control gear and sockets, making it even easier to switch to ECO products.

Low-voltage halogen lamps – both the standard lamps and the ECO versions from OSRAM – are a good choice when brilliant light and excellent colour rendering properties are called for. In addition to which, the ECO versions, in particular, offer an ecological, future-oriented solution and will not be affected by the ban on incandescent lamps, even after 2016.

Verena Ratka,
OSRAM Munich



Fig. 4. The DECOSTAR 51 ECO low-voltage halogen lamp combines cost-efficiency with outstanding light quality



Fig. 5. The HALOSPOT 111 ECO low-voltage halogen lamp achieves extraordinarily high luminous efficacy



Fig. 6. The HALOSTAR ECO low-voltage halogen lamp is the “mini” among the environmentally friendly OSRAM lamps

As if by magic: DALI

DALI magic & wizard is the name of the analysis and diagnosis tool

Simplicity is what counts

DALI light control systems are becoming increasingly popular for enhancing the flexibility and convenience of a lighting installation or creating attractive coloured lighting effects. Ease of operation is one of the key selection criteria in this context.

The DALI magic controller and the associated DALI wizard software cater perfectly to this demand (Figs. 1 and 2). Its unique characteristics make the OSRAM solution a winner. The features include the switching and dimming of DALI control gear,

such as QUICKTRONIC INTELLIGENT DALI control gear, and also the checking of individual luminaires or entire lighting installations.

The DALI wizard software interface is compatible with the Windows XP, Windows Vista and Windows 7 operating systems and moreover greatly simplifies the central control, analysis and programming of DALI systems. For instance, the user can very easily upload and read out DALI device configurations, such as minimum and maximum luminous flux values, system failure levels or address assignments, e.g. also for emergency-

light applications. In addition, the integrated "DALI Spy" function can be used to log the data traffic on the DALI line. It is this which permits an OSRAM Service Team to rapidly identify possible error sources online.

Additional offer

Beyond this, the DALI magic controller can also be used as an interface between a Windows PC and DALI control gear, e.g. in order to configure 3DIM devices from OSRAM. The separate "3DIM Tool" software is designed for this purpose and likewise runs on the controller.

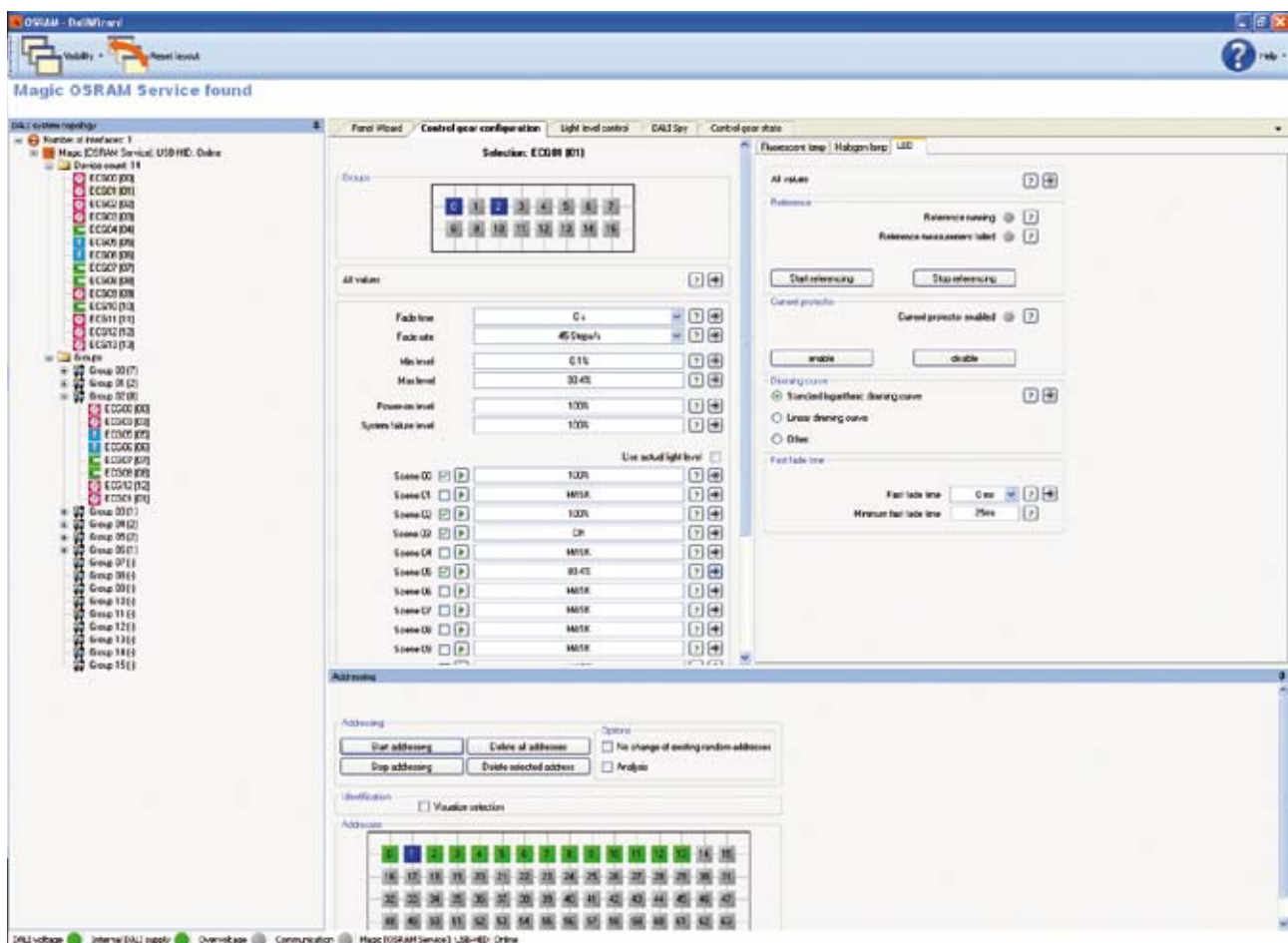


Fig. 1. The user interface of the DALI wizard software features a neatly arranged structure

made easy



Fig. 2. The DALI magic controller makes for simple handling of DALI lighting installations

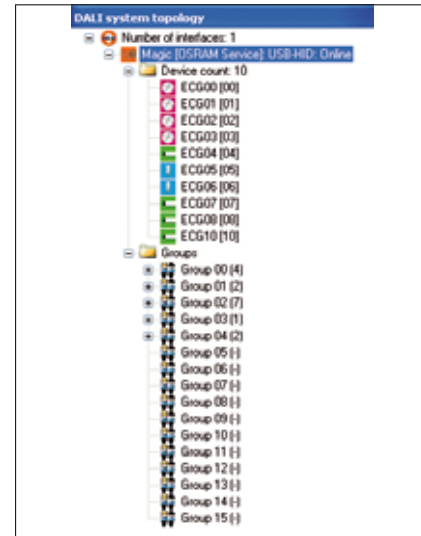


Fig. 4. Visualisation of the DALI lighting installation as a tree structure

The user-friendly graphic visualisation of the installation process in DALI wizard and time-proven Drag&Drop principle permit even fairly inexperienced users in the DALI world to rapidly get to grips with the DALI installation. Specific flashing sequences make it easier to identify devices in the field. All modifications made to the installation are recorded, documented and saved in a log file. As a result, the user can simply copy device or installation settings, thus saving a lot of time and money. The “Recovery Mode” and “Transfer to different installation” commands provide the necessary assistance when doing so.

The benefits at a glance

The combination of the DALI magic controller and the associated DALI wizard 3DIM software is extremely user-friendly due to:

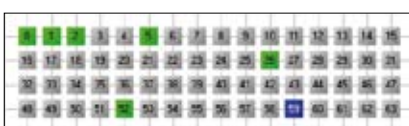


Fig. 3. Address swapping by the Drag&Drop method

- Quick, simple programming of DALI systems and 3DIM control gear from OSRAM;
- Flexible operation with the “DALI wizard” and “3DIM Tool” software packages;
- Straightforward commissioning, analysis and diagnosis of DALI lighting installations;
- Rapid location of errors in the addressing and programming of DALI ECG and simplified analysis on the basis of log files;
- Operation of all DALI settings or use of specific commands (filter function);
- Offline or online configuration of a DALI installation: addresses, groups, scenes, subscribers and graphic visualisation (Read & Write), upload function;
- Recording of data traffic by the “DALI Spy” function;
- Marking of OSRAM-specific commands as functions supplementing the DALI standard.

Operating convenience

For example, it's child's play to swap DALI addresses using the numerical

keypad on the wizard user interface (Fig. 3). A pop-up window automatically gives the user a message in the event of multiple addresses being assigned.

Similarly, all DALI subscribers are displayed in a neatly arranged tree structure (Fig. 4), meaning that group affiliations are instantly visible. The simplicity of DALI magic and DALI wizard from OSRAM will leave you spellbound!

Bernd Miller,
OSRAM Munich

Universal lamps with potential

OSRAM has the right, future-proof lamp for every task

Energy efficiency as an opportunity

The first stage of Regulation (EC) No. 244/2009 entered into force on 1 September 2009, and the second stage on 1 September 2010, when the 75 W incandescent lamp was banned. This Regulation is an implementing measure to Directive 2009/125/EC "Eco-Design Requirements for Energy-related Products" (ErP) – the Ecodesign Directive – and defines the requirements for the environmentally oriented design (ecodesign) of household lamps with non-directional light.

Among other things, this document regulates the gradual phasing-out of incandescent lamps in the next few years. However, special lamps and directional light sources (reflector lamps) are not affected by the ban. OSRAM saw the Ecodesign Directive as an opportunity and swiftly developed corresponding, future-proof alternatives to the incandescent lamps affected. Three product groups, in particular, are suitable candidates in this respect (**Fig. 1**):

- HALOGEN ECO halogen lamps,
- DULUX INTELLIGENT compact fluorescent lamps
- PARATHOM PRO retrofit LED lamps.

Halogen lamps for brilliance

The innovative HALOGEN ECO lamps feature a very pleasant, warm colour appearance and excellent colour rendering properties of Ra 100. Just like incandescent lamps and the previous standard halogen lamps, they can be dimmed and instantly deliver the maximum luminous flux. However, with an average service life of up to 5,000 h, they are far more durable and thus more environmentally

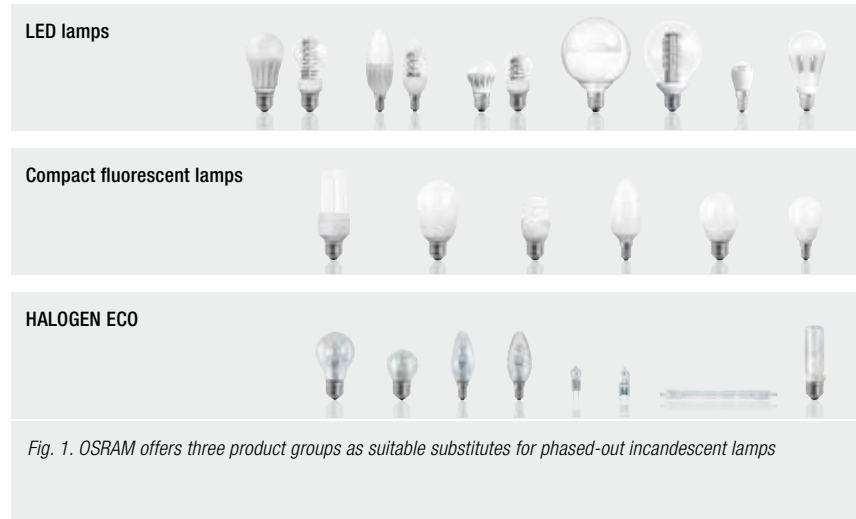


Fig. 1. OSRAM offers three product groups as suitable substitutes for phased-out incandescent lamps

friendly. In addition to which, these halogen lamps can easily be disposed of as normal household refuse. Users have a choice of two product lines when it comes to halogen lamps.

Since the HALOGEN ECO "CLASSIC LIGHT" range is equipped with the generally customary E27 and E14 bases, it is suitable as a straight swap for standard incandescent lamps. Be it a pear-shaped, candle or round bulb: unscrew the old, screw in the new, and climate protection is the watchword!

The HALOGEN ECO "BRILLIANT LIGHT" range is suitable as an efficient substitute for standard halogen lamps with pin-type base (**Fig. 2**). These top-quality, high and low-voltage lamps are simply inserted into the globally standardised luminaire sockets – et voilà! The long-life halogen lamps come in countless versions for luminaires with and without transformer. HALOPIN ECO and HALOLINE ECO, with



Fig. 2. The HALOGEN ECO "BRILLIANT LIGHT" range demonstrates optimum qualities as an efficient substitute for standard halogen lamps with pin-type base

Energy Label C and G9 or R7s base, offer a sensible solution for innovative luminaires – even beyond the year 2016.

Compact with a feel-good factor

Thanks to the great advancements of recent years, even energy-saving lamps and compact fluorescent lamps are today capable of creating a comfortable and inviting atmosphere. After all, the “cold, cheerless light” and the “excessive time it takes to reach full brightness” are arguments of the past. For instance, OSRAM now offers the “Warm Comfort Light” colour appearance with a colour temperature of 2,500 K. The DULUX INTELLIGENT energy-saving lamps from OSRAM emit bright, warm and inviting light, making them suitable for all applications where a cosy, feel-good atmosphere is wanted. OSRAM's “Quick Light Technology” ensures that DULUX INTELLIGENT energy-saving lamps reach their full brightness twice as fast as the standard energy-saving lamp equivalents. Different applications call for different approaches and solutions. Which is why OSRAM has created a range of “high-end” DULUX INTELLIGENT energy-saving lamps whose characteristics are geared to the respective lighting task:

- DULUX INTELLIGENT Facility lamps feature Quick Light Technology and are designed for more than 1.0 million switching cycles, meaning that they are also suitable for DC operation, and therefore



Fig. 3. A wide range of professional PARATHOM PRO LED lamps is available, from the PAR16 35 and PAR16 50 versions with GU10 base, or the MR16 20 and MR16 35, all the way to the Classic A 60 and A 80 designs, which resemble incandescent lamps

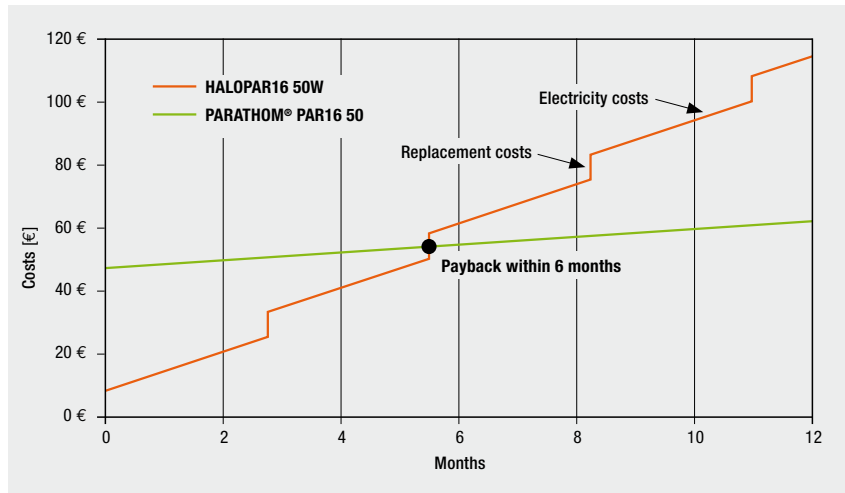


Fig. 4. The replacement of halogen reflector lamps by PARATHOM PRO PAR16 50 LED lamps pays off after just six months. The calculation is based on an electricity price of €0.17/kWh, an operating time of 24 h/d, and replacement costs of €8 each for lamp and manpower

perfect for use in emergency lighting installations.

- The DULUX INTELLIGENT DIM version comes in stick and twist forms, offers uniform dimming from 100% to 7% luminous flux, up to 80% less energy consumption compared to incandescent lamps, and an extra-long average service life of up to 20,000 h (stick versions).

LED retrofitting has potential

Needless to say, the future belongs to LED technology, which will go from strength to strength as prices continue to drop. The PARATHOM product family from OSRAM offers optimum prerequisites in this respect. The PARATHOM PRO LED range covers all professional applications, e.g. in restaurants and hotels, museums and shops. This is where the PARATHOM PRO line demon-

strates its outstanding product characteristics, such as:

- The LED lamps with the highest luminous intensity from the PARATHOM retrofit range from OSRAM;
- No perceptible colour differences between individual lamps owing to the narrow tolerance of just ± 100 K, corresponding to roughly 5 threshold-value units;
- Extremely long average service life of up to 25,000 h;
- Up to 80% energy savings compared to similar, conventional lamps;
- Dimmability;
- 5-year OSRAM manufacturer's guarantee. Full guarantee terms at: www.osram.com/led

The range of PARATHOM PRO LED lamps comprises not only classical incandescent lamp shapes, but also reflector lamps in various forms and with different output classes. Common to all of them is the elegant and futuristic design (Fig. 3).

Owing to the long service life and the low energy consumption, replacing conventional lamps soon pays off, despite the fact that the purchase price of the high-end LED lamps from OSRAM is currently still higher (Fig. 4). Here, user benefits and environmental friendliness go hand-in-hand.

Rudolf Horndasch,
OSRAM Munich

LED lighting: efficient and

Dynamic progress is controllable with PrevaLED light engines



Fig. 1. The LED lighting in the park grounds of the Cardinal Wendel House conference centre in Munich creates a pleasant atmosphere

Responsible

Being closely bound up with our future, energy efficiency and climate protection are issues which dominate more than just the media debates. It is hence little wonder that more and more institutions and business enterprises are starting to face up to their social responsibility in terms of the conservation of resources, opting for energy-saving technologies. The Catholic Academy in Bavaria would like to set a good example and reduce the energy consumption of its properties in the coming years – going beyond the requirements of the statutory specifications. The use of LED-based lighting systems makes an important contribution in this context, and will not mean forgoing pleasant and attractive light design indoors and outside. The Cardinal Wendel House, located directly next to the English Garden, is a good illustration of this approach. The Catholic Academy uses the property as a

conference centre with rooms for up to 400 persons, although it is also available for external events.

The first impression counts

The pergola path in the park grounds of the Cardinal Wendel House in Munich's Schwabing district makes a bright, friendly impression on visitors. For the zonal illumination of the covered path connecting the buildings (Fig. 1), the Markgraf Licht GmbH company developed a luminaire suitable for outdoor use that is based on the PrevaLED light engine from OSRAM. The selected version with a luminous flux of 800 lm is comparable to a 50 W low-voltage halogen lamp – although its power consumption is just 11 W. This is equivalent to energy savings of 78%, meaning that the total savings for the 28 luminaires in the first construction phase add up to almost 1.1 kW, compared to a conventional solution. The energy efficiency of this innovative

solution is further enhanced by the fact that the luminaires are additionally controlled by a time switch and occupancy detectors.

Visual impact

Efficiency was not the only decisive reason behind the award of contract to Markgraf Licht. The visual impact of the lighting solution was also a strong factor.

The PrevaLED light engine (Fig. 2) emits warm light with a colour temperature of 3,000 K and particularly good colour rendering properties of CRI 90. The light is guided by a high-gloss 60° darklight reflector featuring high optical efficiency. This type of reflector does not help to mix the individual points of light that make up the luminous flux of the PrevaLED. Instead, owing to the absence of scattered light, the reflector conceals the origin of the light beam. The different distances of the individual LEDs from the edge of the reflector

future-proof

create an interference pattern in the peripheral area of the light cone. This shadowing can be completely eliminated by inserting a diffuser material in the light outlet area of the luminaire. The first solution consisted of a planar diffuser lens that was fitted in the top third of the reflector. However, this widened the angle of the reflected beam and caused a point



Fig. 2. The energy-efficient PrevaLED light engine offers not only particularly good colour rendering properties, but also a sound, future-proof platform for luminaire manufacturers



Fig. 3. The robust outdoor wall luminaire manufactured by Markgraf Licht is based on the pathbreaking PrevaLED light engine from OSRAM

of light to form on the reflector – a particularly effect with this type of reflector. The option ultimately selected was a diffuse, dome-shaped cap, which is placed directly on the light outlet of the PrevaLED light engine. This preserves both the angle of the reflected beam and the function of the reflector (**Fig. 3**).

Future-oriented and dependable

The consistently future-oriented design and the dependability of the OSRAM system contributed to Markgraf Licht's decision in favour of the PrevaLED light engine. For despite rapid advancements in LED

technology – i.e. when increasingly efficient, brighter LEDs come onto the market in ever-quicker succession – users will continually be offered a compatible system.

The geometry and luminous fluxes of the individual light engines remain constant, and technological advancements can be harnessed to improve the efficiency of the system or reduce the costs. Hence a luminaire designed on the basis of the PrevaLED automatically benefits from development progress, without the need for expensive modifications to the basic design.

Focus on individualised, future-proof luminaire design

The PrevaLED light engine family includes versions with luminous fluxes of 800 lm, 2,100 lm and 3,000 lm and a luminous efficacy of up to 75 lm/W. The round modules with a diameter of 50 mm additionally offer a choice of colour temperatures between 3,000 K and 4,000 K with a colour rendering index of CRI 85 to 90. Active control of the light engines stabilises the colour temperature over the entire service life, guaranteeing optimum light quality in service. Special OPTOTRONIC control gear from OSRAM is available for the PrevaLED light engine. Among other things, this coordinated system is responsible for the durability of the components, which allows OSRAM to give a 5-year guarantee on the system. PrevaLED light engines from OSRAM demonstrate their potential not only in outdoor luminaires but are also eminently suited to use in downlights and spots of different output classes.

Oliver Geißler,
OSRAM Munich



Fig. 1. Control gear with 3DIM functions taps into significant energy-saving potentials in street lighting applications

Added value for control gear

The 3DIM concept for outdoor applications demonstrates user orientation

Growing awareness

The key topics of energy efficiency and sustainability, and EU Framework Directive 2009/125/EC “Eco-Design Requirements for Energy-related Products” (ErP), known as the Ecodesign Directive, are changing the demands on street and outdoor lighting. Local authorities and private operators are becoming increasingly interested in innovative, efficient systems. As one approach for significantly reducing energy consumption and costs, OSRAM has developed the 3DIM concept, a new generation of control gear for outdoor use that combines a wide variety of light management functions (Fig. 1).

Threefold for greater user benefits

3DIM stands for the combination of three control and dimming capabilities in a single control gear unit. In addition to the DALI standard for integration in bi-directional telemanagement systems, the devices have two operating modes StepDIM and AstroDIM. With StepDIM, an external control signal can be used to switch between two output levels. This can serve to reduce the level of street lighting at

night, for example. The corresponding dimming values are preset using the 3DIM software.

The autonomous AstroDIM dimming mode permits night-time lighting level reduction entirely without an external control signal. In this case, the control software executes a dimming profile preset by the manufacturer or specified by the customer.

Thanks to the diverse dimming capabilities, control gear with 3DIM functions can be integrated in existing

infrastructure without any additional outlay (Fig. 2).

OSRAM has implemented the groundbreaking 3DIM concept in two control gear families that cover the main fields of application: POWERTRONIC for high-pressure discharge lamps and OPTOTRONIC for LED modules.

LED modules point the way

The OT 65 3DIM control gear unit from OSRAM's OPTOTRONIC product family is the first LED driver with 3DIM functions. The 24 V constant-voltage power supply unit with an output power of 65 W is specifically designed for operating LED modules for street lighting, such as Streetlight Advanced from OSRAM. Customer-specific dimming values can be set in the range from 10% to 100%. In addition, the OT 65 3DIM is perfectly adapted to the demands of

outdoor applications. With a service life of 50,000 h, it stands for trouble-free (long-term) operation. OT 65 3DIM control gear is designed for a temperature range from -25 °C to +55 °C and therefore operates absolutely reliably, even in the most inclement weather conditions.

The robust, resistant design with full encapsulation additionally offers protection against dirt and damp, as well as against vibration and shocks. Because of its circuitry design, the OT 65 3DIM E is also suitable for Safety Class II luminaires.

In line with the great diversity of innovative LED solutions, OSRAM will shortly be presenting further OT control gear with 3DIM functions for constant current and constant voltage with different output powers.

Perfected for high-pressure discharge lamps

By launching its POWERTRONIC PTo 3DIM control gear, OSRAM is expanding its time-proven ECG portfolio for operating high-pressure discharge lamps to include a family that has been specifically developed for outdoor use. Robustness and protection against the ingress of moisture and foreign bodies is ensured by a closed housing in combination with complete encapsulation. The increased resistance to transients up to 4 kV and the long service life of 60,000 h underline the high

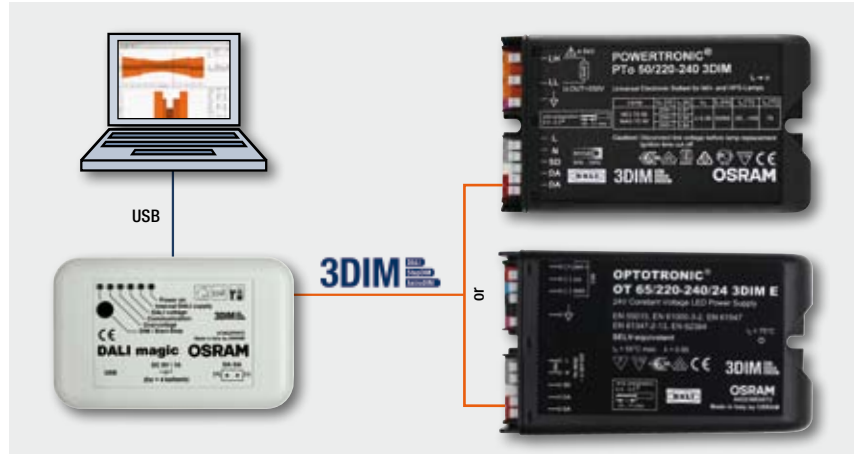


Fig. 3. Together with the DALI magic controller and the 3DIM Tool software, OT 65 3DIM and PTo 3DIM control gear forms an innovative, complete package for outdoor and street lighting

demands on durability and low failure rates. The PTo 3DIM devices can be dimmed in the output range from 100% to 60%, corresponding to half the luminous flux in high-pressure discharge lamps.

PTo 3DIM control gear is generally suitable for operating both high-pressure sodium lamps and metal halide lamps. Thanks to their outstanding design and intelligent 3DIM control, POWERTRONIC PTo 3DIM control gear demonstrates a future-oriented approach to outdoor lighting based on HID technology.

Software for greater individuality

The innovative 3DIM control gear units are parameterised using the "3DIM Tool" PC software in combination with the "DALI magic" hardware

interface. This makes it possible – above and beyond the preset parameters – to realise StepDIM and AstroDIM configurations that are optimally adapted to the installation site of the ECG. Once the connection between the Windows PC and the 3DIM control gear unit has been established via "DALI magic" (Fig. 3), the software features rapid, intuitive programming and clear visualisation. The "3DIM Tool" can be downloaded free of charge from the OSRAM website at www.osram.com/3dim. With the "3DIM Tool" as the finishing touch, the 3DIM concept from OSRAM has all the necessary prerequisites for covering a wide range of customer requirements.

Wolfgang Mayershofer,
Tobias Pfaffenbauer and
Johannes Schäffler,
OSRAM Munich

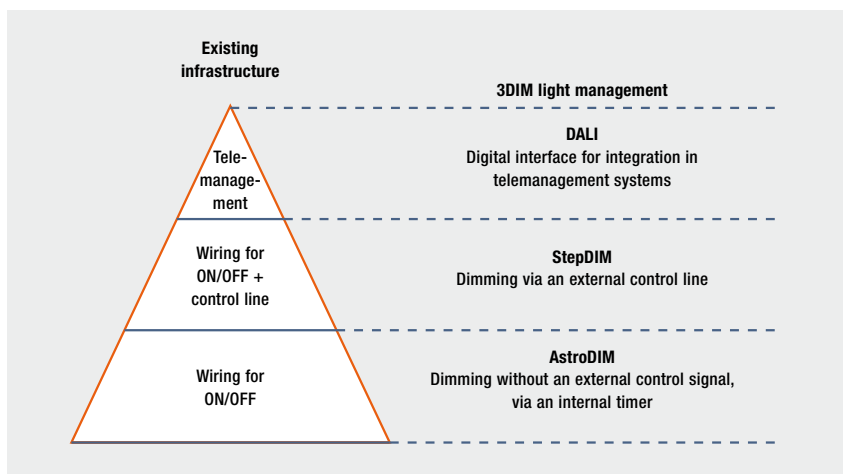


Fig. 2. OT 65 3DIM and PTo 3DIM control gear offers various dimming capabilities in combination with existing infrastructure

More than just light control

The user-friendly EASY Touch Panel combines diverse functions

Successful symbiosis

The EASY Touch Panel from OSRAM is an extremely elegant combination of DALI controller and operating element. The elements on the touch-screen user interface with resistive sensing can be labelled and positioned individually, and can be used not only for classical light control, but also for integrating additional room functions (**Fig. 1**).

Four DALI broadcast channels for direct connection of up to 32 luminaires make the panel a fully fledged, room-specific light control unit that can be expanded at will via DALI repeaters. Be it for controlling a projection screen or the ventilation system, four integrated relay contacts can be universally used to operate devices running on mains or extra-low voltage (**Fig. 2**).

The number of DALI channels can be increased to as many as 16 by connecting additional EASY controllers. However, dynamic RGB elements or

luminaires with variable colour temperature can also be controlled separately from the normal room lighting in this way.

Built-in intuitive operation

One particularly noteworthy feature is the ease of commissioning directly via the panel, without using a PC. Three simple steps are all it takes for a user to add new functions at any time:

- Select and position the element,
- Label the element,
- Specify the function.

Up to three interface pages can be created in this way, and later modified, as and when the need arises. The user can switch between different languages for labelling, this being particularly advantageous for rooms with users of different nationalities.

All settings can be conveniently saved on an SD card and then restored at any time or easily transferred to other Touch Panels.

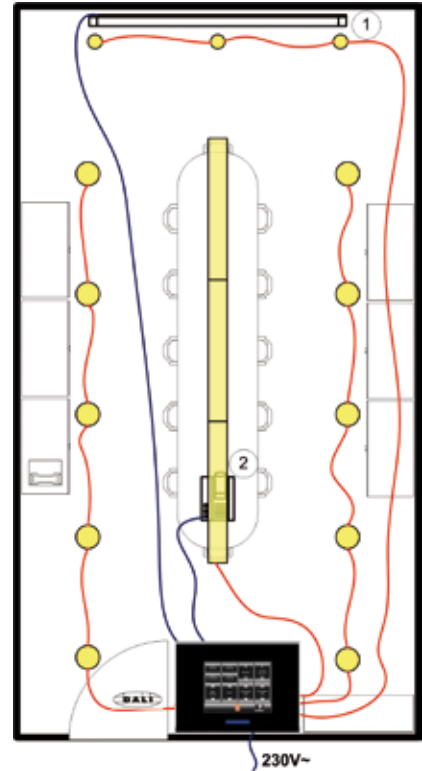


Fig. 2. In a conference room, the EASY Touch Panel can be used to control four luminaire groups, a screen (1) and a projector (2), for example



Fig. 1. The EASY Touch Panel with 5.7" colour display has a particularly stylish look

The durable, efficient LED backlighting makes for good legibility of the full-colour display. To save energy, the display's backlighting is switched off after a certain time and then reactivated automatically when the panel is next touched.

Great flexibility, simple configuration and modular expandability are what set the EASY Touch Panel control and operating unit apart. Its excellent price/performance ratio makes this elegant OSRAM component a modern and attractive alternative to existing project solutions involving a combination of controllers and conventional operating elements.

Axel Pilz,
OSRAM Munich

A continuous line of light

LUMILUX HO and HE SEAMLESS T5 tubes promote creativity

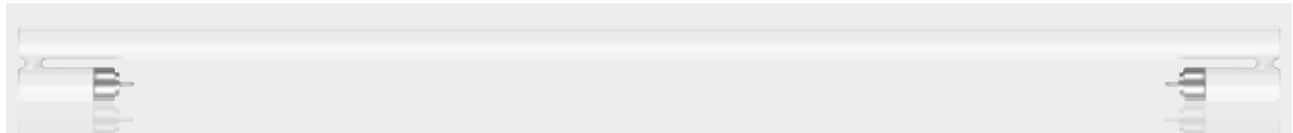


Fig. 2. The geometry of LUMILUX SEAMLESS T5 fluorescent tubes permits lighting solutions without disruptive shadows

Stylish lines of light

Continuous lines of light are a popularly used design element in architectural lighting (Fig. 1). However, they only produce the desired effect if there are no visible dark spots, shadows or overlaps. Up to now, conventional fluorescent tubes have been unable to meet this requirement. A solution is on hand with the new tube generation from OSRAM: LUMILUX T5 HO and HE SEAMLESS overcome these limitations and permit lighting solutions without disruptive breaks and shadows. This is possible thanks to an innovative and precise geometry of the SEAMLESS T5 tubes (Fig. 2) in conjunction with new, optimised sockets from various manufacturers.



Fig. 1. Continuous lines of light are used as a design element in architectural lighting, as illustrated by the example from Lighting Design Lumen³ (photo: eberhardfranke.de)



Boundless creativity

The new tube geometry presents luminaire manufacturers and light designers with a host of new design options. And the market is delivering proof that the system comprising SEAMLESS T5 fluorescent tubes and matching QUICKTRONIC INTELLIGENT GII electronic control gear – on which OSRAM give the System+ guarantee (www.osram.com/system-guarantee) – promotes creativity. Several luminaires have already been designed and have won various awards. The SEAMLESS tubes often become a key element of the design, demonstrating their qualities not only in demanding buildings, but also in effect lighting.

However, this system is not only deemed the best choice for achieving a modern language of forms but also in terms of the energy-efficient operation which QUICKTRONIC INTELLIGENT control gear from OSRAM naturally offers, having benefitted from specialist expertise and long-standing experience. As a result, LUMILUX HO and HE SEAMLESS T5 tubes also prove their worth in applications requiring high quality lighting which is economical, too, e.g. in hotels, restaurants or shopping centres.

Design and exceptional cost-efficiency combined

The dimmability of the system comprising T5 SEAMLESS and QT i DIM/DALI can be put to excellent use to create a wide variety of lighting effects and further improve energy efficiency.

Because the luminance of all HE SEAMLESS tubes is identical, a uniform appearance with an excellent colour impression is obtained even when versions with different output classes are fitted in the same installation. At the same time, the HE version is designed for cost effectiveness: the system with QT i GII control gear offers outstanding economic efficiency, quality and dependability.

LUMILUX T5 HO SEAMLESS tubes, on the other hand, are primarily characterised by a very high luminous flux, making them suitable for such applications as cove lighting. In this way, OSRAM's competence promotes outstandingly creative design approaches.

Luciana Hien,
OSRAM Munich

Lighting components from OSRAM for Princess Noura University

A vast construction site is currently located in the north of the capital of Riyadh. This is where the world's largest university is being built. The "Princess Noura bint Abdulrahman University" – the first women-only university in the kingdom of Saudi Arabia – is scheduled for completion by the end of 2011.

The campus will accommodate more than 50,000 students, as well as 15 scientific faculties, various research centres and laboratories, a hypermodern hospital with 700 beds, and residential accommodation.

Innovative technology is a matter of course here, since the university is to be Saudi Arabia's first "Green Building" campus. It is thus hoped that the use of KNX building systems technology will more than double the energy efficiency of the overall complex versus a comparable building. The KNX-controlled shading and lighting system makes an important contribution in this respect. In addition to this, only electronic control gear and energy-efficient lamps are allowed. As a result, OSRAM had supplied 240,000 LUMILUX T5 fluorescent tubes and 100,000 DULUX compact fluorescent lamps, 50,000 QUICKTRONIC control gear units, 20,000 HALOSTAR low-voltage halogen lamps in combination with 20,000 HALOTRONIC electronic transformers, 10,000 POWERBALL HCl metal halide lamps and POWERTRONIC control gear by February 2011 alone. The lighting is not only energy-efficient, but also offers high light quality, making for pleasant learning conditions at Princess Noura University in Riyadh.



A tornado with energy-saving technology as a landmark



The little emirate of Qatar on the Arabian Gulf successfully masters the difficult balancing act between modernisation and the preservation of traditions. The capital of Doha is an impressive sight, with its distinctive blend of Oriental, Indian, Turkish and Arabian architecture and striking modern buildings on wide boulevards. The unique skyline has an attraction all of its own, featuring many skyscrapers with oriental attributes. The Tornado Tower looks completely different, offering a spectacular view of the city and the famous seafront road, the Corniche. The tower has a height of 200 m, 52 storeys and is one of the famous skyscrapers on the West Bay, Doha's business district. Modern technology is integrated on the inside, such as the Building Management System (BMS) from Siemens, which mo-

nitors 12,000 data points. The lighting solution is linked up via a KNX gateway. The dimmable QUICKTRONIC control gear from OSRAM is then controlled using 1 ...10 V technology. The LED-based facade lighting is more unusual. Its light is controlled by a Lighting Control Server (LCS1), a Butler and an e:com user terminal from e:cue. The individually controllable LED modules are installed at the nodes of the diamond-shaped steel framework and illuminate the dynamic shape of the building with 35,000 colour combinations. As a result, the monumental building is also impossible to overlook at night, making the Tornado Tower a landmark of the desert state that can be seen from near and far, by day and by night.