

Future Lighting Solutions provides LED technology for Leipzig's historical lamps



Braun Lighting Solutions of Berlin and solid-state lighting experts Future Lighting Solutions have equipped the historic Schinkel street lights in the city of Leipzig with modern LED technology as part of a project to install intelligent lighting in the city. The last of the 360 LED lights was commissioned at the end of August 2011. Braun Lighting Solutions implemented a multi-year development process in order to ensure that the LED lighting fixtures came as close as possible in colour temperature and appearance to the original lights. Future Lighting Solutions supported this process.



The appearance of the historical lamps was conserved

The brief from the city's civil engineering department was to renovate the lights in the historic centre of Leipzig without changing their appearance. The Schinkel lamps have been a fixture in the city since the industrial revolution in the mid-19th century, and the gas light with its warm atmosphere was characteristic of the city at night.

The models for the Braun Lighting Solutions project were the last three original gas lamps in front of the famous St Thomas church, the home of Johann Sebastian Bach. By converting the lamps to LED technology, it was hoped to retain the appeal of the historic incandescent lamp while gaining the energy efficiency, durability and low maintenance costs of LED lighting.

Energy efficient and going along with guidelines for protection of historical monuments

By equipping the 360 Schinkel lights around St Thomas church with the latest LUXEON® Rebel LEDs, the city can save €20,000 a year in energy

“In Leipzig, the LED technology of the future meets the past of city lights which are more than 150 years old. Our approach delivers on the goals for energy efficiency and environmental protection at the same time as meeting the requirements to preserve a historical artefact.”

André Braun, CEO Braun Lighting Solutions e.K.



360 Schinkel lamps shine at night with modern LED technology

costs. The LED lamps consume only 22W, by comparison with the 85W power consumption of the lamps they replace. This 73.3% reduction in the power load provides a total reduction in power use of 89,369kWh per year, and reduces CO2 emissions by 60.8 tonnes per year. Thus, the project is an important contribution to the implementation of urban climate protection goals in Germany.

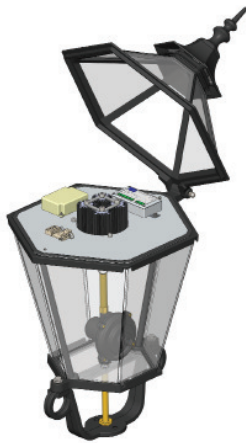
An important task for Braun Lighting Solutions was to package the LED technology in such a way that the historic appearance of the gas light was maintained. Accordingly, the original parts of the historic light were supplemented with a patent-pending technology that mimics the size and arrangement of the mantle. The four mantles are replaced by four LED modules covered by satined glass. This gives the impression of mantle lamps actually hanging in the lights. The difference between the LED lamps and the gas light originals can only be seen on close inspection. A single 1.2W LED in the roof of the lamp provides a subtle light for the opal glass at the top of the unit.

The system switching and control unit is a Maxidimm3000 developed by Braun with a 1-10V control interface and a 230V power connection, allowing various modes of operation for greater energy efficiency. The LEDs can be alternately switched on and off, and dimming functionality is provided, as well as the ability to choose between twilight and asymmetrical light distribution.

‘In Leipzig, the LED technology of the future meets the past of city lights which are more than 150 years old,’ said Andre Braun, CEO of Braun Lighting Solutions e.K. ‘Our approach keeps the traditional form of the lamps but lets them shine in a new light through advanced LED technology. We have been able to deliver on the goals for energy efficiency and environmental protection at the same time as meeting the requirement to preserve a historical artefact.’



Before the start of the reconstruction, the lamp was completely captured with modern CAD software



The LED technology is located under the roof of the lamp

Design support from Future Lighting Solutions

The groundwork for the successful project was laid three years ago. Replacing the existing lights with LEDs was a highly complex engineering challenge, and Braun Lighting Solutions was very well supported by Future Lighting Solutions, the exclusive solutions partner of the renowned LUXEON family of LEDs from Philips Lumileds.

The simulation of the first LED lighting concept was implemented at the Lighting Resource Center of Future Lighting Solutions. This original design was then gradually refined at Braun Lighting Solutions, which simulated the LED light distribution in an effort to match the historic gaslight original as closely as possible. Future Lighting Solutions also helped with the selection of electronic lighting components and connectors. Since the lights' control units, LED modules and drivers come from a single source, there is only one contact for the project implementation.

'Where there is light, there is also heat. The main achievement in the design is thermal management – dissipating heat from the LEDs. To help us meet the requirements, we gained valuable advice from Fraunhofer IZM Institute in Berlin. With this help we were well set to produce a successful design,' adds Braun.

As the exclusive partner of LUXEON Rebel LEDs, Future Lighting Solutions was responsible for ensuring consistency of light output at a colour temperature of 2700K across all the LEDs supplied in the production shipments to Braun Lighting Solutions. 'At Future Lighting Solutions, it is our mission to deliver such a limited LED colour gamut for just-in-time delivery, so that there is no perceptible colour difference across the manufactured units. The supply chain for the entire lighting system for the conversion of Leipzig's city lights was handled out of our Europe, Middle East and Africa Distribution Centre in Leipzig,' said Alexander Müller, Head of Sales for Central Europe at Future Lighting Solutions. The LED supplier is furthermore considering all aspects of the project: Subsequent deliveries of the specific LEDs for Leipzig's city are possible.

The city of Leipzig participated in 2009 in a national competition for energy-efficient city lighting, sponsored by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, with its 'intelligent city lighting' entry. It finished third in the category for cities with more than 500,000 inhabitants. The funding it received was invested in the

implementation of an extensive renovation project. “We are very pleased with the execution of this project. And the citizens of Leipzig have responded very positively to the improved night-time environment. This is confirmed by the numerous calls and emails we have received,” said the city’s chief lighting planner, Rainer Barth.

Well-advised - Conversion versus building new

Through the quest to save energy, the reconstruction of the historical Schinkel lamps in Leipzig’s city demonstrates successfully, that existing light installations can be converted to modern LED lighting sources whilst keeping the patina of history. The conversion kit from Braun was developed specifically for historical lamps and upgrades existing infrastructure seamlessly. The life expectancy of the LED system exceeds 90.000 hours and lays the foundation for sustained budget improvements for the city. Existing lamp posts and luminary housings continue operation and do not have to be exchanged at significant expense. Municipal administrations considering an energy efficient renovation are well-advised to check, whether existing infrastructure can be conserved through the use of appropriate modern technology.

About Future Lighting Solutions

Future Lighting Solutions is a leading provider of solid-state lighting technologies, engineering expertise and online simulation and design tools to facilitate application development and accelerate customers’ time to market. Our comprehensive portfolio includes a broad selection of LED system components, as well as integrated or customized solutions to enable cost effective, energy efficient lighting applications. From retrofitting bulbs to building LED systems from the ground up, we offer industry leading LEDs, optical solutions, power modules and ICs, passive and active thermal solutions, light engines, modular systems, planar lighting and remote phosphor technologies. The company is a division of Future Electronics. For more information visit: www.FutureLightingSolutions.com.

About Braun Lighting Solutions

Braun offers system solutions for the renovation of lighting systems to LED mode - always on the cutting edge of technology. Braun is the market leader for LED gas light replacements, the conservation practice for historical lights in towns, castles, palaces and gardens. The product range includes high quality LED kits for technical and historical lighting, switchgear and control gear for LED modules, LED spotlights and LED solutions for specific high-quality lighting projects. Next to LED serial products, Braun individually manufactures tailor-made LED lighting solutions. Replicas of historic lighting fixtures and poles complete the programme.

Contact information

North America:
1-888-LUXEON2
Americas@futurelightingsolutions.com

Europe:
00-800-44FUTURE
Europe@futurelightingsolutions.com

Asia:
+800-LUMILEDS
Asia@futurelightingsolutions.com

Japan:
+81-0120-667-013
Japan@futurelightingsolutions.com

www.FutureLightingSolutions.com

Philips Lumileds
370 W. Trimble Road
San Jose, CA 95131
www.PhilipsLumileds.com