

## PRESS RELEASE

### **Gothic architecture bathed in light**

#### **LED Drivers for the special luminaires in Ulm Minster**

Dornbirn, 14<sup>th</sup> December 2017. **Ulm Minster in Germany has the highest steeple in the world at 161.53 metres, and an interior boasting vast dimensions. The planning office Bamberger has developed a new lighting solution for this grand setting. The lighting effect is outstandingly precise and effective. The luminaires themselves remain discreetly in the background and allow the magnificent architecture to take centre stage. LED Drivers from Tridonic are an important element of this sophisticated solution. On the one hand, they allow for large distances between control gear elements and LED light sources, and therefore a slim luminaire design. On the other hand, they ensure efficient operation of the luminaires and enable them to be controlled with many variants.**

How exactly should a building be illuminated when electric light did not even exist back when it was originally built? How can respect for the historic essence and ancient master builders be accorded on the one hand, and high contemporary functionality be achieved on the other hand?

#### **Natural and artificial light in perfect harmony**

These were the very questions facing the planning office Bamberger when developing a new lighting concept for Ulm Minster in Germany. The planners, with their comprehensive expertise in the area of church lighting solutions, responded to these challenges with new special luminaires, which provide functional light as well as illuminate the architecture.

In keeping with the Minster's Gothic architecture, vertically suspended 3.20 m-long tubes stretching skywards each hold 20 / 24 small LED lighting heads. Each lighting head is individually aligned according to its task and provided with the corresponding optics – some emit light downwards onto the church pews and the ground, while others skilfully place the architecture in the spotlight way up to the vault. "The clerestory provides the nave with daylight. This light allows onlookers to grasp the vast dimensions of the area and creates a

formidable sense of space. We wanted to reinforce this effect with the artificial lighting, too,” explains Walter Bamberger.

## **Puristic luminaires, powerful electronics**

The pendant luminaires provide the entire lighting solution for the nave and the aisles. Despite the diverse lighting tasks, they have an outstandingly filigree design. They were placed inconspicuously in the pointed arches between the nave and aisle. The lines of sight along the aisle remain free and the view into the vault is unobstructed. This minimalist design could only be achieved thanks to the spatial separation of LED light sources and LED Drivers. Against the backdrop of a long-standing, proven collaboration, the planning office Bamberger contacted Tridonic to supply the control gear elements for the LED luminaires. Together, the specialist in lighting technology, lighting planners and manufacturer of special luminaires, Metallbau Böhm, found the ideal solution in the dimmable constant-current LED Drivers from the premium (PRE) series.

A total of 360 LED Drivers supply and control the 500 or so LED lighting heads. The premium (PRE) Driver is impressive in this project with its various technical features. On the one hand, its between 900 mA and 1,800 mA adjustable output current offers flexibility during (combined) connection of the LED lighting heads with a power of 32 W / 18.5 W. The configuration was such that only SELV voltage is present at the luminaires and no additional protection against accidental contact is therefore required.

The high-quality electronics along with the fact that the Drivers work from 1 to 100% with amplitude dimming rather than pulse width modulation (PWM) are further advantages. As a result, the control gear elements are located at a distance from the luminaires in collective housing under the roof of an aisle. Thanks to amplitude dimming, no problems with electromagnetic compatibility (EMC) arise. In the case of LED dimming using PWM, this would have proven problematic due to the large distance between driver and LED module. Tridonic verified the fact that the installation met all EMC requirements using measurements in its own laboratory. Such services are provided for luminaire manufacturers, lighting planners and other customers as part of the so-called design-in process. For this purpose, Tridonic tests the technology to ensure it operates safely and in compliance with regulations including under non-standard operating conditions.

## **The right light for every occasion**

The drivers also expertly fulfil lighting management requirements. In Ulm Minster, the DALI protocol is used by the various integrated interfaces. Almost all of the LED lighting heads are dimmable and switchable. This enables various light scenarios to match the different uses of the church interior. Whether a small-scale church service or a concert in front of a packed hall, the lighting can be adjusted to meet the requirements of every occasion. The modern LED Drivers provide further benefits. They work at an extremely high efficiency of 91% and a power consumption in stand-by of less than 0.15 W. The devices integrate numerous protective functions, for example against overtemperature, short circuit and overload, with a nominal service life of up to 100,000 hours. Tridonic offers a five-year warranty.

## **The project**

- Main contractor: Evangelical parish of Ulm
- User: Evangelical Minster parish of Ulm
- Architect: Minster builder Dipl.-Ing. architect Michael Hilbert, Ulm
- Lighting planning: Ingenieure Bamberger GmbH & Co. KG, Pfünz bei Eichstätt; Dipl.-Ing. Walter Bamberger, Dipl.-Ing. Monika Kadlubek, Andreas Fürsich
- Electrical planning: Ingenieure Bamberger GmbH & Co. KG
- Special luminaires: Metallbau Böhm GmbH, Eichstätt
- LED Drivers: Tridonic LCA 75 W 900–1,800 mA one4all Ip PRE
- Photos: bildhübsche fotografie, Andreas Körner, Stuttgart

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## **About Tridonic**

As a leading global provider of smart and efficient lighting solutions, Tridonic supports its customers and business partners on their path to success by making their lighting smarter, more exciting and more sustainable. Our lighting components deliver superior quality, maximum reliability and impressive energy savings to provide our customers with a strong competitive edge.

Tridonic continuously brings innovations and state-of-the art lighting solutions to market. Our R&D projects are fully devoted to the development of new LED systems and connected lighting technologies. Thanks to our in-depth expertise and know-how in vertical lighting applications (for instance in Retail, Hospitality, Office & Education, Outdoor Applications and Industry), leading luminaire manufacturers, architects, electrical and lighting planners, electrical installers and wholesalers rely on Tridonic for both indoor and outdoor lighting needs.

Tridonic is the technology company forming part of the Zumtobel Group and is headquartered in Dornbirn, Austria. In fiscal year 2016/17, Tridonic generated sales of 377.2 million EUR. 1,590 highly skilled employees and a worldwide sales presence in over 50 countries reflect the company's commitment to the development and deployment of new, smart and connected lighting systems. With

more than 40 million light points installed every year, Tridonic plays a decisive role in leveraging connected lighting as a key enabler and important infrastructure for the Internet of Things.

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