

PRESS RELEASE

An all-round success

Tailor-made LED lighting system for the headquarters of dSPACE in Paderborn

Dornbirn, March 7, 2018. **The central elliptical atrium of the headquarters of dSPACE in Paderborn can be seen for miles around thanks to the new LED lighting. Luminaire manufacturer Erventec worked closely with Tridonic to develop a new LED lighting system for the atrium, adapted specifically for the ceiling geometry. The system not only meets high demands in terms of design but also consumes only half as much energy as the previous solution.**

dSPACE in Paderborn is often cited as a classic success story. Founded in 1988 as a spin-off from the University of Paderborn by Dr. Herbert Hanselmann and a number of partners, dSPACE now employs 1,400 people from 34 nations worldwide on creating successful hardware and software for developing and testing control devices for the automotive and aviation industries. By the summer of 2006 the site of the original headquarters in the Paderborn Technology Park threatened to burst at the seams – a new building was needed and the company moved into the new building in 2010.

The headquarters in central Paderborn has is flooded with light, giving it an open feel. The heart of the building is the generous atrium with its staircase and two glass elevators. Leading off from the central hall are the four wings of the X-shaped building containing the office spaces. The basic elliptical shape of the impressive void extending over all the floors is repeated in the clerestory roof.

Homogeneous illumination fulfils different requirements

It was this elliptical shape that presented a special challenge to the specialists at Erventec and Tridonic. It was not just a question of meeting the photometric, functional and aesthetic criteria but a high degree of design intelligence was required. “We had to install the new lighting system in the existing elliptical ceiling channels with relatively large tolerances”, said Erventec boss Andreas Ervens. Technical manager Eberhard Stölzner added: “Despite the inhomogeneity in the ceiling channel we had to create the appearance of uniform, homogeneous strips of light.”

They have multiple functions, serving as background lighting for the atrium and the foyer and at the same time providing standard-compliant light for the traffic routes, namely the encircling galleries and the zones leading to the office wings. In the event of a power failure, they also function as emergency lighting, powered by a central battery. Last but not least, the lighting strips are a major design element for the internal and external effect of the atrium.

Asymmetrical LED arrangement for standard-compliant light

The photometric solution to cover these diverse requirements was implemented in close collaboration with Tridonic. At the heart of the lighting system are two different LLE ADVANCED linear LED modules and dimmable LCAI 65W LED drivers. The 280 mm long rectangular LED modules are combined to create a polygon in a luminaire unit, resulting in a homogeneous elliptical strip of light thanks to appropriately curved covers.

The key here is the arrangement of the LED modules in two parallel rows. While one row directs light downwards from 55 mm wide boards with three LEDs arranged next to one another, the second row is tilted through 45 degrees. The light from the linear 23.6 mm wide LED modules is therefore emitted at the side. The asymmetrical LED arrangement is necessary because the lines of light run around the inner ceiling edge of the elliptical gallery floors.

“The combination of downward light and side emitting LEDs achieves the required illuminance levels with a high degree of uniformity”, explained Gisbert Schubert from Tridonic. “With a luminous efficacy of up to 187 lm/W, the LED modules are extremely efficient, and with a life of 50,000 hours they are a reliable maintenance-free solution”, added Schubert. Tridonic also offers support in the design-in process and a five-year guarantee.

Lighting expertise coupled with design know-how

Development of this special solution took some time. Since no two ellipses were exactly the same, 3D laser measurements were taken for each floor from the centre of the atrium. This was the only way to determine the curvature of the covers for each individual luminaire unit in the elliptical line of light. The U-profile PMMA luminaire cover protrudes from the ceiling channel by 25 mm. This means that the light lines can be also be seen from the side, emphasizing the contours of the galleries.

Models and full-scale mock-ups were used to test the interplay between the LED modules and the luminaire covers. Different transmission levels for the cover were tested, for example. The prototype was also used to develop an additional glare shield at the ends of the luminaire units, otherwise it would have been possible to look at the light sources directly from a certain angle.

Simple handling, efficient operation and excellent quality

In all, around 400 metres of linear LED modules and 200 metres of light lines were installed at dSPACE – corresponding to 158 tailor-made luminaire units. They can be mounted on and dismantled from the carrier system integrated in the ceiling channel without the need for a tool. The carrier system also accommodated the LED drivers. With the aid of DALI, each individual luminaire unit, and therefore the entire line of light on each floor can be dimmed. The old system from 2009 consisted of curved free-burning fluorescent tubes and resulted in very high maintenance and replacement costs for the special light sources. The new system reduced energy costs by half and considerably improved the quality of light. The homogeneous light lines provide standard-compliant illumination, make the building a more pleasant place to work and give the atrium a splendid prestigious appearance.

The project

- Atrium at dSPACE GmbH headquarters, Paderborn
- Client: dSPACE GmbH, Paderborn
- Architecture: Matern Architects, Paderborn
- Planning, luminaire development + electrical installation: Erventec GmbH & Co. KG, Lüdenscheid
- LED light engines, DALI LED drivers: Tridonic
- Photos: Thomas Mayer

Press contact

Melanie Stegemann
Tridonic GmbH & Co KG
Phone: +43 5572 395 – 45109
melanie.stegemann@tridonic.com

Markus Rademacher
Tridonic GmbH & Co KG
Phone: +43 5572 395 – 45236
markus.rademacher@tridonic.com

About Tridonic

As a leading international supplier of intelligent and efficient lighting solutions, Tridonic supports its customers and business partners on their journey to success with intelligent, impressive and sustainable lighting. Our lighting components offer optimum quality, maximum reliability and considerable energy savings, giving our customers a great competitive advantage. Tridonic continually brings innovations and state-of-the-art lighting solutions to market. Our R&D projects are devoted entirely to the development of new LED systems and technologies for connected

light. Thanks to our in-depth knowledge and our know-how in vertical lighting applications (in areas such as sales, hospitality, office and education, outdoor and industry), leading luminaire manufacturers, architects, electrical planners, lighting designers, electrical contractors and wholesalers place their trust in Tridonic for their indoor and outdoor lighting.

Tridonic is the technology company in the Zumtobel Group and has its headquarters in Dornbirn, Austria. In the 2016/17 fiscal year, Tridonic achieved sales of 377.2 million euros. 1,590 highly qualified employees and sales partners in more than 50 countries throughout the world reflect the company's commitment to the development and introduction of new, intelligent and connected lighting systems. With more than 40 million light points installed per year, Tridonic has a crucial role to play in connected lighting as a key component and important infrastructure for the "Internet of Things".

www.tridonic.com