



Case study

LED lighting at truck rest area

Location | Leipzig, Germany

“Thanks to the excellent, uniform illumination provided by the Fortimo LED HBMt modules, large areas can benefit from an energy-efficient solution which improves user safety.”

Philips Fortimo LED HBMt system delivers 24 % energy saving for a lighting installation in a truck rest area.



About

Leipziger Leuchten has been producing street lighting since 1889. The company manufactures technically advanced, standard and custom-made decorative outdoor lighting as well as urban furniture systems. Lighting solutions are becoming increasingly more tailor-made. The extensive range of luminaires and urban furniture the company supplies makes it possible for multiple designs and lighting solutions to be developed, for both urban and rural applications.



Background

Over the past decade, new Eastern European member countries have joined the European Union. The expansion has increased trade, resulting in rapidly growing freight traffic across Germany, the bridge between Eastern and Western markets. In anticipation of the growing trade, the Federal Republic of Germany, in cooperation with its federal states, has created a comprehensive program to increase the level of service in the truck parking areas along major trade routes. The goals were to ensure observance of truck drivers' legally required rest periods and improve traffic safety. One of the key projects for the upgrade was the Lehrter See Nord service area in the state of Lower Saxony. The rest area is along the A2 motorway, the largest and busiest freight channel across Germany, and was critically short on parking spaces. The decision was taken to expand the existing lot with 119 new parking spaces. The state took this opportunity to also improve the quality and performance of the lighting. LED street lights were specified as the solution, the first project of its kind in Lower Saxony.

The challenge

European regulations provide strict guidelines on minimum light levels and lighting uniformity for road rest areas. The parking lot would require an average illuminance level of 7.5 lux, with illuminance uniformity of 0.4 between the average and the lowest illuminance level. In order to comply with the required uniformity, the lowest light level had to be higher than 3 lux at all points. In addition to providing uniform illumination, the LED luminaires had to be more energy-efficient and offer better value than the high-pressure sodium (SON) alternative.

The solution

The project's needs were perfectly met by the Anja I LED luminaire from Leipziger Leuchten. Each luminaire features two Philips Fortimo LED HBMt modules in a slim, die-cast aluminum body. The Anja I LED delivers a total of 8,000 lumen in a neutral white (4,000 K) color temperature with excellent color rendering. Both the high-quality of light offered by the Fortimo LED HBMt and the flat



Fast Facts

OEM

Leipziger Leuchten

OEM luminaire

Anja I LED side-entry luminaire

Philips products

Fortimo LED HBMt 4000 35 W/740

Xitanium 150 W 0.7 A Prog Gl sXt with active

Dynadimmer program for standalone

light point control

Quantity

68 Anja I LED luminaires

single-layer toughened glass pane of the luminaire prevent glare for drivers on the A2 motorway.

The positioning of the luminaires in the parking area was adjusted to achieve optimal results. To provide level illumination in the 255 by 125 meter area, 18 luminaire poles were spaced approximately 42 meters apart. Each 12 meter pole supports three Anja luminaires, delivering a total light output of 24,000 lumen.

Benefits

The original plan of the rest area required 18 poles, each supporting 6 fittings with a 50 W sodium-vapor lamp inside, consuming 378 W per pole. In contrast, each pole with three Anja I LED luminaires only uses 288 W on a system level, delivering energy savings of 24 %. Thanks to the innovative LED modules featured in the Anja I LED, the state of Lower Saxony now saves € 1,600 per year on lighting, reducing power use and carbon emissions.

Fortimo LED HBMt modules provide neutral white light in a colour rendering index of 70 compared to only 20 for high-pressure sodium. High-quality white light allows the human eye to identify objects much quicker, giving drivers more time to react to any obstacles. This results in improved safety, particularly important in parking and truck service areas, where both pedestrians and motorised traffic are present.

Traffic flow and rest area usage varies with time. To reduce energy use even further, the luminaires take advantage of the integrated control options in the Philips Xitanium LED drivers. The light scheme was programmed to match the traffic flow, operating at full light until 23.00 hours, then dimming the light level to 65 % until 4 am. This results in additional annual energy savings of 15 %.

Philips Fortimo LED HBMt modules have been produced to the Zhaga standard, offering a future-proof and interchangeable solution.



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