



Sustainable in new splendour: Hamburg State Opera updates its auditorium lighting with ERCO

When updating its auditorium lighting, the historic opera house on Hamburg's Dammtorstraße opted for LED double-focus downlights from ERCO, achieving not only energy savings in excess of 80 per cent but also superior lighting quality and high visual comfort. This choice ensured seamless operations from planning through to commissioning.

Project data:

Project:	LED conversion of auditorium lighting at Hamburg State Opera, Hamburg / Germany
Client:	Hamburgische Staatsoper GmbH
Lighting design:	Ingenieurteam Gebäudetechnik GmbH & Co. KG, Kiel / Germany
Electrical engineering:	Zillmer Elektrotechnik, Hamburg / Germany
Photography:	Frieder Blickle, Hamburg / Germany

The citizens of Hamburg take great pride in their opera house, a cultural institution with a lineage tracing back to the original opera house at Gänsemarkt, established in 1678. In 1827, it found its new home on Dammtorstraße. Today, under the leadership of General Music Director Kent Nagano, the State Opera stands as one of Europe's premier opera houses. The existing structure, designed by architect Gerhard Weber (1909-1986), was inaugurated in 1955. Recognised as a protected monument, it features a spacious glass façade and an elegant auditorium that accommodates 1,690 spectators.

The recent modernisation efforts encompassed upgrading the lighting in the auditorium, previously equipped with high-voltage halogen lamps. The switch to LED technology was clearly identified as a means to significantly decrease energy consumption. However, energy efficiency was not the sole reason

for the planners' and opera house management's decision to choose ERCO lighting solutions. The exemplary service, ranging from assistance with sampling to managing technical modifications and ensuring dependable delivery timelines, was as commendable as the superior lighting quality of the products. The selection of [Atrium LED double-focus downlights](#), with their narrow-beam lens optics, was ideal for tall spaces like auditoriums, demonstrating their suitability for such environments.

"We adjust the downlights' brightness from 100% to as low as 0.1% using DMX control. I am unaware of any other manufacturer that offers such precise and smooth dimming capabilities."
Alexander Olias du Bosque, Building Services Engineering team from Kiel

Optimal dimmability – essential in theatrical settings

In buildings like the State Opera, hall lighting is technically linked to stage lighting, allowing seamless integration into the performance's dramaturgy. The demand for smooth and consistent dimming performance is substantial, with the turning on and off of lights needing to be virtually unnoticeable. "[ERCO individual](#)" crafted a tailor-made solution for Hamburg, modifying around 150 [double-focus downlights](#) with DMX drivers that facilitate dimming from 0.1 % to 100 % and allow for the programming of custom dimming curves. These adjustments also meet the flicker-free standard, which is crucial for clear, distortion-free digital photography and videography.

"Our auditorium now radiates its inherent elegance and beauty, while significantly reducing energy costs."

Bernd Gallasch, Head of Hamburg State Opera Lighting/Video Department

Lighting quality ideal for heritage-listed buildings

The Atrium double-focus downlights demonstrated exceptional quality in various aspects during the sampling process in the auditorium. In compliance with the preservation requirements, their warm white LED colour temperature of 2700K matches that of the previously used halogen lamps. These downlights blend seamlessly with the light from the auditorium's restored historical wall fixtures and, thanks to their outstanding colour rendering, enhance the deep red velvet of the seating with an intense glow. Due to [Atrium's](#) highly efficient lens optics, even the 18W LED module variant surpasses the required room illuminance of 200lx. Opera goers enjoy the excellent glare control and the consequent superior visual comfort provided by the double-focus downlights.

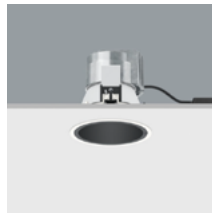
"The ERCO team in Hamburg aided us in identifying a sustainable lighting solution for the State Opera House, suitable for a heritage-listed building."

Alexander Olias du Bosque, Building Services Engineering team from Kiel

Significant decrease in energy and maintenance costs

Since the luminaires were scheduled for installation in the auditorium's lighting ceiling during the opera's six-week seasonal hiatus, the planners required a reliable delivery schedule. ERCO, with its proximate and adaptable manufacturing capabilities in Germany, easily met this demand: The individual DMX addresses were pre-programmed into the drivers at the factory, adhering to the opera technicians' specifications, which greatly expedited the on-site installation process. In use, the new lighting meets all high expectations. Energy consumption has dropped by over 80 per cent due to the reduced power per lighting point. This decrease also results in a lower heat output, creating a more comfortable work environment in the lighting ceiling. The once frequent need for lamp replacements is now obsolete. This change is attributed to the longevity and dependability of the new luminaires: ERCO exclusively incorporates high-performance LEDs with the "L90/B10" rating in its downlights, indicating that after 50,000 hours of operation, at least 90 % of the LEDs maintain 90 % of their initial luminous flux.

Luminaires used in the project



Atrium double-focus,
ERCO individual

About ERCO

ERCO is an international specialist for high-quality and digital architectural lighting. The family-owned company, founded in 1934, operates globally in 55 countries with independent sales organisations and partners.

ERCO understands light as the fourth dimension of architecture – and thus as an integral part of sustainable building. Light is the contribution to making society and architecture better and, at the same time, preserving our environment. ERCO Greenology® – the corporate strategy for sustainable lighting – combines ecological responsibility with technological expertise.

At the light factory in Lüdenscheid, Germany, ERCO develops, designs and manufactures

luminaires with a focus on photometric optics, electronics and sustainable design. The lighting tools are developed in close collaboration with architects, lighting designers and electrical designers. They are used primarily in the following applications: Work and Culture, Community and Public/Outdoor, Contemplation, Living, Shop and Hospitality. ERCO lighting experts support designers worldwide in transforming their projects into reality with highly precise, efficient and sustainable lighting solutions.

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