

Press Information

Philips and the Rijksmuseum – shining new light on old masterpieces

TECHNICAL FACT SHEET

Customized lighting

Interior designers Wilmotte & Associates designed the “light racks” seen throughout the galleries, in partnership with global design and consulting firm Arup. The engineering of the light racks was done by Bronnenberg in The Netherlands. Philips finalized their lighting design, fabrication and installation as follows –

- To complete the sleek, minimalistic hardware design for the light racks the Philips StyIID was customized to meet the requirements set out by the Rijksmuseum. A custom magnetic mono-point solution for the StyIID was created, eliminating the visually awkward lighting track that remained from the original lighting fixture. The mono-point mounting also allowed the driver to be remotely mounted in the top-side electrical tray, greatly reducing the visible size of the fixture.
- The 3,800 Philips StyIID fixtures house the Philips Fortimo LED Spotlight Module Tight Beam with LUXEON S LEDs from Philips Lumileds inside. All the spot lights were supplied to the museum with the same primary optics and LED engine. To accommodate the need for various beam angles to bring out the unique features of each individual work of art, Philips supplied high-performance optical diffusion lenses which maintained high output levels with precise beam angles. Most commonly used were +5°, + 10° and an asymmetric +5° X + 30°.
- The light racks also feature no less than 1.8km of Philips Fortimo LED strip up-lighting within the light racks. The advantage of the LED strip lighting is that it can be connected together to create seamless light lines illuminating the various types of gallery ceiling coherently. Sharp shadow edges from the up-lighting on the walls were softened by a specially designed diffuser developed by the executive lighting designer on site, Beers Nielsen.

Enhanced quality of light

The lighting also needed to bring out the unique features of each work of art. Philips worked with the Rijksmuseum and other project partners to share knowledge about the fundamentals of light in order to get the best possible outcome for the project and help realize the right quality of light to enhance the visitor experience:

- The use of LUXEON S LEDs with a color temperature of 3000K (warm white) has the effect of enhancing the viewer’s experience of works of art. The 3000k colour temperature with a Color Rendering Index (CRI) of 95 meant that the spectral balance produced by the LUXEON S LEDs maintains the rich warmth that is desired – rendering

the pinks, reds, ochres and yellows brilliantly whilst the green and blue tones stand out equally well.

- Another benefit of the combination of Philips Fortimo LED SLM Tight Beam and LUXEON S LEDs is the small Light Emitting Surface (LES): The incredibly small optical footprint enables very narrow beams (<10 degrees) while maintaining a compact reflector design and a minimal overall fixture size. This creates a uniform and sharp beam pattern and a crisp single-point-source shadow which highly enhances the sense of texture and sparkle in the artifacts.
- Minimizing glare from the light sources was another essential requirement. In order to optimize this within the Philips StylID fixture, a unique internal glare shield similar to filament shields on classic lamps such as the PAR 36 or AR 111 was developed. The internal glare shield eliminated the peripheral stray light and reduced the source glare within the fixture. This reduced the need for honey-comb louvers or large external glare snoots.

Simplicity of control

Philips harnessed the flexibility of LEDs as a digital light source, combining it with a state-of-the-art lighting control system, allowing the light throughout the museum to be controlled via an easy-to-use web interface. This means that museum staff are able to control and set the lighting levels on individual works of art to ensure that all of the pieces are properly balanced throughout the museum.

All the art exhibition lighting is controlled via Philips' Dynalite DALI system with a custom web-based control interface. An iPad connected to the system's WIFI bridge allows for portable touch-screen controls. With Philips' DALI-controlled Xitanium drivers, practical dimming cut-off levels were 10% which proved more than adequate for all but a few special artifacts where neutral-density glass lenses were incorporated. Lumen depreciation over the long term of the LED sources has also been addressed with the DALI control system providing constant light output.

Long –term adaptability with Zhaga compliance

Even though the common perception is that LEDs have such long lifetimes that maintenance is of trivial concern, Philips took steps to educate the museum leadership about the reality of long-term maintenance issues. Typical maintenance concerns such as reparability, expected failure rates and availability of components long into the future required an adaptable approach. As such, Philips selected Zhaga compliant LED modules for the design, including the Philips Fortimo LED SLM Tight Beam for the spot fixtures and the Philips Fortimo LED strip for the indirect up-lighting. The use of Zhaga-compliant modules offers peace of mind and ensures that the museum has the potential to repair or upgrade the lighting fixtures in the future.

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