Elevator Lights Take 75%-Energy-Saving LED Ride with i2Systems & Future Lighting Solutions

i2Systems' Apeiron recessed elevator lights, built with LUXEON Rebel LEDs, last nearly 20 times longer and use 75% less electricity than halogen versions

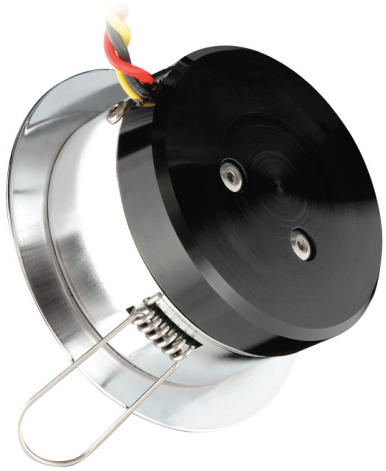
In the world of elevators, conventional lighting technologies carry a steep price in energy, bulb replacement and maintenance. In-cab fixtures stay lit around the clock, accounting for as much as 70% of the energy costs involved in elevator operation. Halogen downlights must be changed every 1,000 to 2,000 hours, incurring bulb and labor expenses. Heat and weight are additional burdens. Now leading elevator companies are lightening all of those loads with solid state elevator lights from i2Systems. Utilizing LUXEON® Rebel LEDs with color binning services from Future Lighting Solutions to help ensure color consistency, i2Systems' Apeiron A1161 recessed elevator lights chop energy consumption by 75%, dramatically reduce relamping with LUXEON's 50,000-hour lifetime, and trim both heat and weight - giving the phrase "going down" a whole new meaning.

QUEST FOR RELIABILITY

Development on the Apeiron elevator lights began in 2008 as a line extension for i2Systems' LED transportation lighting products, with a goal of developing a solid state alternative to the standard 20W halogen products used for elevator downlighting. As a long-time user of LUXEON products and integration partner of LUXEON distributor Future Lighting Solutions, Connecticut-based i2Systems planned to build the new luminaire around LUXEON Rebel LEDs. That decision proved to be central to the success of the product.

"For elevator manufacturers, it is critical that any LED lighting they use will last as well as deliver color consistency from fixture to fixture. Future Lighting Solutions' ability to provide LUXEON Rebel reliability data as well as color binning was instrumental in allowing us to supply recessed elevator fixtures that meet those demands."

Tom Zampini, Global Sales Manager, i2Systems



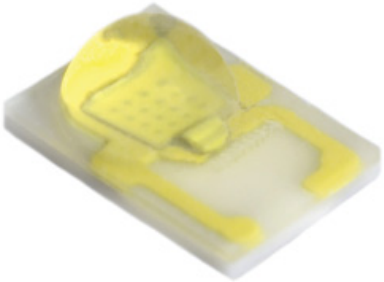
Integrated heat sink and i2Systems active thermal management dissipate heat and prevent overheating

Early in the development process, the company learned of one elevator manufacturer that had rejected several solid state fixtures using other LEDs because of concerns about long-term performance of the light source. Since reliability varies by LED vendor because of differences in materials and manufacturing processes, that customer was interested in evaluating elevator downlights using LUXEON technology. i2Systems turned to Future Lighting Solutions for assistance in making the LUXEON case.

"We had to prove to this customer that the LUXEON Rebel chip and package we were using would maintain high light output over the life of the fixture," said Tom Zampini, Global Sales Manager for i2Systems. "Future was able to supply documentation from Philips Lumileds showing that the LUXEON family has the highest lumen maintenance in the industry, and that gave us a competitive advantage even before we had finished product."

BUILDING THE BOARD

The LED board assembly that i2Systems developed for the Apeiron elevator downlights contains four LEDs integrated with a proprietary i2Systems SmartDriver that supports a 9-30V DC input range without sacrificing light output or lifetime, plus a proprietary optical system that eliminates pixilation and a custom aluminum heatsink housing and trim.



Each i2Systems' Apeiron fixture features 4 LUXEON Rebel LEDs tightly arrayed on the center of the board

The small LUXEON Rebel form factor enabled high lumen density that played a key role in producing a uniform beam free of telltale LED "dots," while the amount of forward light in the Rebel beam pattern helped deliver a wide 120° light distribution to illuminate both the floor and the walls of the elevator cab.

Each fixture has a 200-lumen output and is available in cool, neutral and warm white tightly binned for color consistency through Future's inventory management program. Bins are divided according to the ANSI C78.377-2008 standard for solid state lighting products, optimizing them for specific

i2Systems Power Box with integrated dimmer powers up to 9 Apeiron A1161 fixtures

color temperature and color rendering combinations while also enabling the emitters to qualify for the U.S. Department of Energy's ENERGY STAR® program.

Each dimmable Apeiron A1161 fixture also is equipped with special features tailored to the LED and elevator environments. i2Systems' Active Thermal Management technology, for example, automatically reduces the LED power level if the downlight begins to overheat for any reason, helping ensure optimal operation and long LED life.

A single power supply enclosure installs into the cab ceiling for simple wiring and easy serviceability, thanks to low LED power consumption that minimizes the size and weight of the transformer required to handle the necessary voltage conversions. The standard power supply enclosure can connect up to nine downlights, each configured with an included 2 meter cable and connector, eliminating the need to install wire harnesses into the cab ceiling. Emergency battery backup is available as an option.

A RIDE ON THE GREEN SIDE

The Apeiron elevator lights began shipping in late 2009, becoming the first LED recessed lights for the elevator market to be rolled out in volume. The first customer was the elevator manufacturer that had been searching for a product that satisfied their LED reliability requirements. By early 2010, other elevator manufacturers were climbing on board.

The reasons are clear. The use of i2Systems' 5W recessed fixtures instead of 20W halogen versions makes it possible to light a six-downlight elevator cab with just 30W of power instead of 180W, trimming the light-related electricity budget by 75%. The ability of LUXEON Rebel LEDs to deliver up to 50,000 hours of useful life eliminates 19 out of 20 relampings that would be necessary with halogen downlights, saving associated bulb and labor costs.

Together, these factors add up to a return on investment of two years or less, along with eco-friendly credentials that elevator manufacturers can use to differentiate their products and promote green building systems. The lack of heat in the LED light beam also keeps the fixture lens cooler than halogen sources, allowing safe burn-free operation as well as keeping cabs cooler for riders. With all of these advantages, solid state elevator lighting seems destined to become the industry standard – with i2Systems and Future Lighting Solutions leading the way.

Contact Information

In North America:
1-888-LUXEON2
Americas@futurelightingsolutions.com

In Europe:
00-800-44FUTURE
Europe@futurelightingsolutions.com

In Asia:
+800-LUMILEDS
Asia@futurelightingsolutions.com

In Japan:
+81-0120-667-013
Japan@futurelightingsolutions.com

www.FutureLightingSolutions.com

Philips Lumileds
370 W. Trimble Road
San Jose, CA 95131
www.PhilipsLumileds.com

FUTURE Lighting Solutions
Making LED Lighting Solutions Simple™