

i2Systems LED Lights

by Don Simons

More than 130 years ago, the light bulb wasn't just considered a good invention; it was hailed as one of the greatest inventions to date. It was a discovery that would forever improve our standard of living. Yet with today's continuing onslaught of new technology, the light bulb is burning out fast.

i2Systems is one of the first companies to roll out LED elevator lights in volume. The company offers an integrated solution complete with LED fixtures, battery backup and dimming control. i2Systems' all-in-one LED Elevator Cab lighting system reduces energy consumption by as much as 75% compared to conventional light sources and offers an operating lifetime of up to 50,000 hours.

As a family owned company with a heritage of electronics design and manufacturing stemming from the early 1980s, i2Systems began the design and development of LED-based lighting products for U.S. Navy shipboard applications in early 2001. Shortly after, i2Systems would introduce a portfolio of diversified LED products to commercial markets and in 2009 elevator cab lighting. Since then, i2Systems has teamed up with established industry leader Draka Elevator Products. "We were looking for a company that could deliver both economy and quality to our customers, and i2Systems was the clear choice," said Draka New Products Manager Douglas Babcock.

Unlike traditional lighting companies now looking to integrate LEDs into existing hardware, i2Systems continues to create its own fixture designs, electronics and associated software. Building integrated systems around the LED source, they apply advanced techniques in the way they manage and control LEDs. This approach has led to products with high performance, enhanced controllability and, in many fixtures, a soft light with no "LED dots."

Tom Zampini, i2Systems Global Sales manager, said: *"i2Systems' products are positioned to allow building managers to realize the benefits of the LED source, such as long life, minimal heat and reduced energy consumption, without sacrifice in light output, function and quality of light they have grown to know. Looking at the light output and color of an i2Systems' Apeiron downlight fixtures, it is difficult for a passenger to differentiate between the LED light and a halogen fixture."*

LEDs are a smart solution to the growing demand for energy-efficient products and environmentally conscious technology. With a lifetime of up to 50,000 hours of operation in comparison to 2,000 hours for halogen bulbs for elevators, LED lighting translates into a savings of up to 560 kW hours per year and eliminates 19 of the 20 relampings that would be necessary with traditional halogen/incandescent bulbs.

When low operating and replacement costs are combined, payback on LEDs can be in two years or less, depending on the type of lamps being replaced. With i2Systems' all-in-one LED system, less obvious LED advantages come in the form of a weight savings, significantly reduced heat in the cab for rider comfort and simplified product installation compared to that of conventional sources. Furthermore, the i2Systems' LED fixtures do not contain hazardous materials (unlike fluorescents which contain mercury) and are RoHS compliant.

As a result, LED lighting appears to be emerging as the



i2Systems headquarters in Morris, Connecticut



Apeiron dimmable LED fixture



S-Line dimmable LED light strip replaces fluorescent fixtures for cover and perimeter lighting



i2Systems' Power Box

new standard in elevator lighting. Overall, with the savings and advantages aside from being a cool technology – it makes sense financially.

Creative LED Cab Lighting: Recessed, Cove and Perimeter

i2Systems' team of engineers appear to have mastered the LED downlight appearance: fully illuminating elevator cabs without unattractive LED dots, while ensuring good color rendering and consistent color not often found in LED products on the market today. A more popular model is the dimmable Apeiron A1161 round recessed light, which is able to illuminate a six-downlight elevator cab with just 30 Watts instead of the 180 Watts required for halogen/incandescent lights. The wide angle of light in the Apeiron fully illuminates the space, while the amount of forward light in the beam pattern helps deliver illumination to both the floor and walls of the elevator cab.

For linear cove and perimeter applications, "socket-shadow" or dark spots between lights, often seen with fluorescent lighting, is eliminated with i2Systems' optical design. With five length options and three beam angles, designers are able to customize cove and perimeter lighting as they see fit. With no sockets or fixturing required, i2Systems' dimmable S-Line and V-Line linear LED fixtures are the bulb, socket and fixture in one, and yet are only roughly the size of a T5 fluorescent bulb.

In the case of both downlights and linear fixtures, i2Systems offers a variety of color temperatures, including warm, neutral and cool white. Warm white enhances wood tones, whereas neutral white and cool white provide a more contemporary appeal for stainless-steel and metal interiors. The use of LEDs ensures an optimal combination of color temperature and color rendering for eye-catching impact.

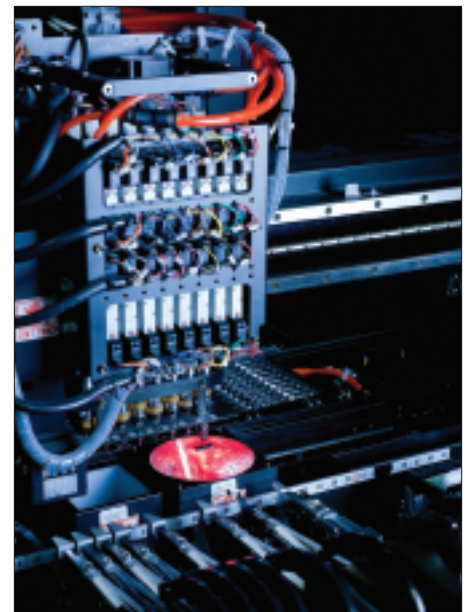
Beyond elevator cabs, i2Systems offers an escalator LED demarcation light, which allows direct installation into existing bolt holes for quick retrofits for dry, damp and wet locations. i2Systems elevator and escalator products are cULus and/or cETLus listed for use in the U.S. and Canada.

All-in-One Power: Battery Backup and Dimming Control

i2Systems' Power Box products offer emergency battery backup and LED dimming control for elevator cabs in a single power supply enclosure that installs into the cab ceiling. The Power Box accepts 120/240 VAC and provides simple terminal-block hookups with the ability to power and dim most i2Systems lighting products. Due to the use of switching circuitry and a smart controller called "LightLink," Power Boxes are small and lightweight, weighing only 16 pounds, including the weight of the batteries.

Upon power outage, the power box will operate two Apeiron downlights for up to eight hours of operation –

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twice as long as most halogen and fluorescent backup systems. In addition, a connection is provided for emergency bell and switch hookups. From within the Power Box, the press of a button allows users to tune the dimming level of the cab, which is then stored into system memory. If a power outage occurs or an elevator is shipped, the Power Box will remember the intensity of the light specific to the cab.

Additional features include i2Systems' Active Thermal Management that provides automatic protection in the rare occurrence in which fixtures begin to overheat, and i2Systems Smart Battery Management that optimizes battery life and system performance.

The standard Power Box can connect up to nine Apeiron downlights; however, other models are available for larger quantities of lights, including linear fixtures. Most i2Systems fixtures are configured with a 2-meter cable and (in the case of the Apeiron downlight) an in-line connector, eliminating the need to install wire harnesses into the cab ceiling and offering simple wiring and easy serviceability. Each Power Box includes knockouts for simple wiring, and its small size easily fits into the elevator ceiling or on top of the elevator cab. Power Boxes are cULus listed for use in the U.S. and Canada.

Supply Chain

i2Systems LED products are designed and manufactured by i2Systems, and most are assembled at the company's 70,000-square-foot manufacturing facility and headquarters in Morris, Connecticut. Starting with the placement of semi-conductor parts using high-speed automation through the final assembly and testing of the fixtures, i2Systems manages every step of the production process for quality and product flexibility.

i2Systems elevator lighting systems are available worldwide through Draka, with North American distribution locations including North Carolina, New York City, Los Angeles and Toronto.

To learn more about i2Systems, visit website: www.i2systems.com.

Don Simons is the North Central Regional Sales manager at Draka Elevator. Having been in the elevator industry since 1998, he was previously the Commercial Wire Rope manager which included troubleshooting wire-rope issues. Prior to joining Draka, he worked at Reliance Electric designing electrical control systems. Simons also worked at Boustead Electric, where he was in charge of its Control Systems Division. He then went on to work for Minnesota Elevator, where he was the National Sales manager. Simons was also on the elevator specifications writing board for the American Public Transportation Association. He received an Electronic Technology degree from Brown Institute in Minneapolis.
