

GE Lighting – Leading solutions in LED technology

The third revolution of the lighting industry

In the late 1900's the invention of the electric light, by GE's founder Thomas Edison, brought about a revolution in lighting technology that has changed the way we live forever. The 1930s economic crises brought the second revolution of the lighting industry and a move towards increased efficiency. Today, again facing economic challenges, there is a third revolution going on in the lighting industry. In addition to increasing efficiency, the search is also on for solutions with increased environmental responsibility. And once again, GE is playing a lead role with its award winning LED technology and exciting progress in OLED research and development.

The inventor of LEDs

GE invented some of the first LED technology and is already the market leader in many applications such as traffic and rail signals, signage, and refrigerated display lighting. The company also has a strong presence in many emerging LED segments such as outdoor site lighting, retail and commercial display lighting, residential and professional retrofit and architectural lighting for both outdoor and interiors.

GE's expansive installed base of white LED systems in the United States includes Walmart's refrigerated display case lighting installation, the world's largest installed base of white-LEDs-replacing-fluorescent lighting in a retail display setting. Globally, GE has sold over 500 miles of LED refrigerated display case lights, over 5 million LED traffic signals and over 2600 miles of Tetra® LED lighting systems for use in signage and architectural applications.

Award winning

Three recent prestigious awards highlighted GE's LED credentials. The company received a "best in class" distinction from the LED Next Generation Luminaires™ Solid State Lighting Design Competition for the LED Display Case Lighting System and a "special recognition" from the same awarding body for the GE LED Cove Lighting System. This competition was sponsored by the International Association of Lighting Designers (IALD), the US Department of Energy, and the Illuminating Engineering Society of North America (IESNA). GE's Vio® High-Power White LED technology also recently achieved the top prize in the "light sources and controls category" at the UK Lighting Design Awards 2009, with judges highlighting Vio technology as 'a major advance in colour stability'.



GE imagination at work

Background on GE's LED Systems

Retrofit - GE High Output LED lamps

GE's innovative LED retrofit lamp solutions offer substantial opportunities to reduce energy consumption and maintenance costs in applications where directional, high quality light is required. Offering low cost of ownership, these lamps achieve dramatic through-life savings and fast paybacks of within 1 year are achievable in professional applications. The high output LED lamps are designed around the international standard outline. They are available in warm white colour temperatures of between 2700K and 3100K and have a minimum colour rendering index (CRI) of 80.



Display Case Lighting System

GE Consumer & Industrial's LED Display Case Lighting System is the ultimate in energy efficient display lighting. Specifically designed for retail display cases, GE's LED System saves energy whilst at the same time enhancing the appearance of displays. It has a rated life of 50,000 hours, which equates to over 10 years of ongoing brilliant light at 12 hours per day. GE's Display Lighting System can enable dramatic reduction in energy loads, with more than 80% energy savings possible versus tungsten halogen systems with similar light output, giving payback times well within a typical lifetime of a display case, whilst reducing the emission of greenhouse gases. Unlike typical fluorescent systems which flood the display case with broad diffuse light from one single continuous lamp, GE's LED solution uses multiple point sources of light combined with innovative optics, which create dramatic sparkle as the light beams reflect from all angles throughout the case.

With GE's LED Display Case System every ray of light emitted is directed within a 90 degree field, ensuring all light is usable and contained inside the case. Furthermore, GE's unique optical system distributes light evenly throughout the case, ensuring merchandise is not hidden in dark shadows. In addition, GE's LED Display Lighting System comes in sizes that increase in small increments enabling a closer edge-to-edge fit that can be easily customised to work with display cases of varying size and dimensions.



Next Generations Luminaires
Best In Class Award



Cove Lighting

Rated to perform for 50,000 hours (5.7 years of continuous operation), the GE LED Cove Lighting System eases the financial and maintenance burden of continuously running architectural cove lighting in casinos, hotels, resorts and commercial retail settings, and extended operation in residential applications. At 25 times the life of halogen, the GE LED Cove Lighting System provides up to 320 useable lumens per foot and consumes just 6.5 watts of energy, providing significant energy savings.



Next Generations Luminaires
Special Recognition



IMMERSION® LED Refrigerated Display Lighting

GE is the worlds largest supplier of LED lighting for refrigerated retail display applications with its unique IMMERSION® system. The system combines substantial energy saving with a dramatic enhancement in how frozen food product is presented to customers.

Unlike traditional fluorescent lamps, IMMERSION® is designed with precise optics which direct all of the available light onto the shelves where it is needed, reducing uncomfortable glare for shoppers and eliminating wasted light. In addition, a proprietary optical system projects the light across the entire width of the display rather than at the edges, showing all merchandise equally effectively.

LED technology also loves the cold that fluorescent hates! Therefore the IMMERSION® system is able to be switched on and off as required without any concerns. This adds to the energy saving potential and means that, versus T8 fluorescent systems, an energy reduction of up to 60% is achievable.

IMMERSION® is available in three colour temperatures and can be sized for both full, and half-door heights, offering the complete solution for all vertical retail refrigeration systems.



Vio® High-Power White LED

The Vio® High-Power White LED provides industry-leading light quality and stability with light outputs of up to 350 lumens. A GE proprietary technology, Vio combines violet LED chips with remote multi-phosphor materials to provide more stable colour than regular blue chip/yellow phosphor LED technology with low part-to-part colour variation. Vio High-Power White LEDs produce less than a 75-Kelvin color shift over a 50,000-hour rated life. This enhanced color stability allows Vio to more closely mirror halogen or incandescent light quality.

Outdoor lighting

GE Lighting's new outdoor LED area light (we ran into trademark problems with evolve), is the first of many outdoor LED lighting systems the company will debut in 2009. The LED Area light provides up to 60 per cent energy savings, longer life and significantly improved light level uniformity compared with traditional HID lamp sources and optical systems, such as a standard 400 watt quartz metal halide system. The LED Area light improves visibility and quality of light versus standard HID systems by providing a comparatively higher colour temperature (5500K), a 70+ colour-rendering index and a low glare optical design. It can do all this with lower lumens and considerable energy savings as its advanced optical design delivers light precisely where it is intended to go.

The low profile design offers an aesthetically desirable appearance while incorporating clean lines and a reduced effective projected area. Its optics create a more uniform light level for the on-site activities that require light, while reducing off-site glare and light pollution. The advance of LED's and the optical arrays available in LED Area Light make LED's a viable alternative for the outdoor environment. The long life of LED's (50,000 hours) puts this option clearly into the public lighting domain where maintenance costs have to be kept to a minimum.



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