

Crossover[®]
SOLID-STATE LIGHTING

Value > Performance > Reliability > Sustainability



lsi
Industries[™]

A Company with a *Smart Vision*

Leading Today > Lighting Tomorrow

2010 Edition

Crossover to Solid State Lighting with LSI



For more than three decades, you have trusted LSI to deliver innovative, valued lighting solutions designed specifically for your needs. Today, we are continuing that effort in leading the development of revolutionary LED lighting solutions, destined to change the world as we light it.

Solid-state lighting is taking the lighting industry by storm. Given the dynamics of the LED technology and lack of industry-wide LED lighting standards, now more than ever you need a lighting partner you can trust.

Backed by 34+ years experience as a lighting manufacturer, including 20+ years of solid-state expertise, LSI's niche market philosophy coupled with our vertically integrated design and manufacturing capabilities make us uniquely equipped to fill any and all of your lighting needs. *We have more experience in fixture design and manufacturing than any other LED company – we have more LED experience than any other lighting manufacturer.*

We have been very deliberate in the development of our **Crossover** LED products. We have invested considerable resources to develop the best solid-state lighting technology available and we have put it through rigorous testing in our ETL certified lab. Further, **Crossover** luminaires are tested and listed to UL standards by independent labs to ensure we are delivering the best, most reliable product available. We back our LED product with a 5-year warranty.

We are so convinced that our experience and expertise will meet your lighting application that we prominently display the LSI logo on all of our products, giving you peace of mind that comes with knowing that we stand confidently by all of our products. You are making a big investment with your LED lighting system. Make sure you make it with a company who will stand by their product today and down the road. Invest with LSI – It's time to cross over from traditional lighting to LED.

Retrofit your site with LSI's **Crossover** LED lighting and see the benefits today.



A Company with a *Smart Vision*

SmartTec™ – The LSI Difference



We understand that LEDs are expensive. That is why all LSI LED fixtures are designed and built around our innovative **SmartTec** intelligence platform. Integrated intelligence combines with components designed, engineered and manufactured by LSI to work in unison to deliver the most reliable, energy-efficient and cost-effective LED lighting solution possible.

LSI's **SmartTec** Protects Your Investment –

- ✱ **Exceptional Low Operating Temperatures.** Heat is the enemy of LEDs and electronics in general. **SmartTec** combines the industry's highest efficacy, internal temperature monitoring and control with a proprietary thermal management system that won't lose effectiveness over time to give you the lowest internal operating temperatures possible.
- ✱ **Exceptional Uniformity to Reduce Light Requirements.** LSI has known that more uniform lighting requires less light to give equivalent perceived brightness since we introduced vertical burn HID technology. **SmartTec's** unique reflector technology gives great optical control for uniform illumination at an affordable price.
- ✱ **The Most Efficient Fixtures.** **SmartTec's** high driver efficiencies, high-performance LEDs and unique thermal management system combine to give you the highest lumens per watt possible.
- ✱ **The Most Reliable Fixtures.** LSI's conservative approach ensures that reliability is factored into every step along the way. Optics sealed with a tempered glass lens and heat sinks without fins to gather dirt and degrade over time are just two examples of our commitment to produce fixtures designed to stand the test of time.
- ✱ **Advanced Technology Energy-saving Controls.** Integral sensors and control intelligence work with motion and daylight control schemes to reduce energy even further, by dimming or turning off unneeded fixtures.
- ✱ **Lowest Total Cost of Ownership.** LSI's "Just Right Light" approach to design fixtures that give the highest standard of lighting with fewer LEDs, long-life, high-efficiency optics and labor-saving installation and maintenance features combine to give the quickest payback possible.

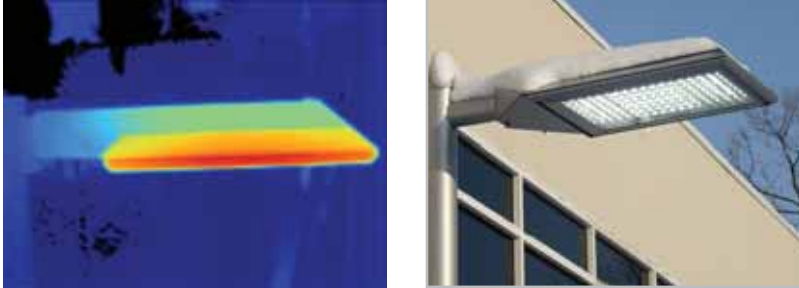
With LSI's **SmartTec**, solid-state lighting is elevated to a whole new level.



SmartTec™ – The LSI Difference

Intelligent Thermal Control

Aesthetically pleasing, *Crossover* fixtures have the most unique and effective heat management design in the industry to create the lowest internal operating temperatures. The flat surfaces of our patented heat sink radiate heat away from the LEDs more efficiently than unsightly finned heat sinks. Further, fins trap dirt, dust and grime which continually degrade the effectiveness of the heat transfer, shortening the life of the fixture. Lastly, **SmartTec** technology continuously monitors internal device and driver temperatures, reducing power when ambient temperatures reach extreme levels, protecting the life of the fixtures.



Internal thermal testing ensures cool running fixtures

Brilliantly Engineered Optics

SmartTec technology translates into sophisticated optical systems that provide the right amount of light for the job and distributes that light where you want it. A variety of high performance reflectors combine with the best LED chips available to give fixtures a punch, up to 14,000 lumens to light large areas, while using fewer LEDs to do the job. In addition, *Crossover* optics provide high color rendering and color consistency without adding costs that make payback unobtainable.



Sophisticated in-house photometry lab ensures performance

Energy Savings up to 80% – with a target payback of 3 yrs. or less

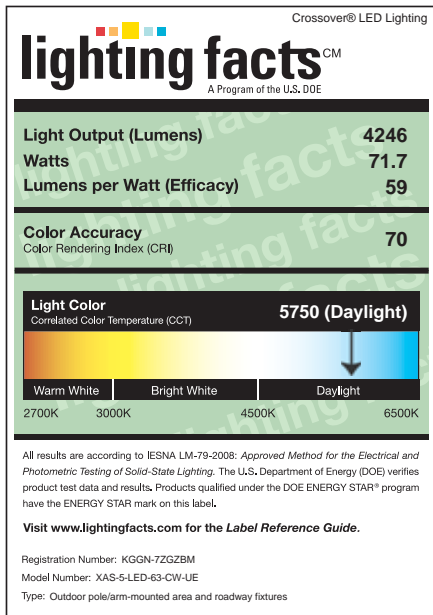
SmartTec intelligence translates into drivers that support two current levels (350 and 450 mA) which optimize the balance between the cost of light and the cost of energy. LSI's electronic driver, thermal management and optical technologies combine to transform electrical energy into light, with highest efficacies available in the industry (up to 82 LPW). High efficacy starts with efficiently transforming the input voltage into a precisely shaped, pulsed waveform that generates peak lumens from each LED. **SmartTec** drivers are as high as 94% efficient, with less than half the loss of most third party drivers.



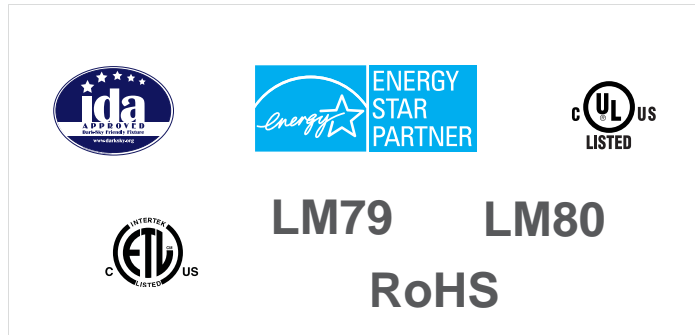
LSI's in-house circuit design and test capabilities produce the most energy efficient luminaires available

SmartTec™ – The LSI Difference

The Most Reliable Fixtures



LSI's internal design, manufacturing and testing capabilities ensure fixture reliability from earliest stages of development – from design and modeling software to photometric measurements to sophisticated thermal imaging equipment to a certified test lab. All **Crossover** fixtures are tested and listed to UL standards by independent test labs. In-house LM-79 photometric results are verified by external labs. LSI uses only chip suppliers with an established track record of quality and the LM-80 test capabilities to verify extended life with low lumen depreciation. **SmartTec** electronics and optics are protected by unique mechanical designs that produce sealed optics and dirt-resistant, easily cleaned lenses.



All LSI LED fixtures are designed for retrofitting existing fixtures as well as new construction

SmartTec – Protecting Your Investment 24/7

LED lighting is a significant investment. LSI's **SmartTec** technology provides a number of controls to ensure that you use the right amount of light at the right time. Proprietary integral sensors and controls can sense motion, daylight levels and internal operating temperatures without the need for additional costly components.

From integral photocell to full range dimming, **SmartTec** can allow you to precisely set the light output to maximize the use of ambient light in daylight systems or to precisely set the proper light level you need. Optional controls can operate with a variety of energy-saving systems, from building management, to daylight harvesting, to curfew and beyond.



Parking Garage Lighting



Designed for enclosed and open-sided structures, such as parking garages and other surface or pendant-mount applications, the LED light source creates an elevated sense of security without over lighting. Further, the LED light source works well with security/surveillance cameras to improve visibility and security.



The new *Crossover* XPG HL is a 79-watt solution for replacement of traditional 175-watt HID applications. It is designed for applications with higher ceiling heights or higher light level requirements. The XPG HL meets IESNA RP-20 at most traditional spacing with various mounting heights.

Leveraging unique high-performance optics designs, LSI *Crossover* parking garage **luminaires** are designed for exceptional uniformity with high minimums and high vertical foot-candles.



The *Crossover* XPG is a 60-watt solution for replacement of traditional 100-watt HID applications. It meets IESNA RP-20 in traditional spacings with various mounting heights.

For exceptional uniformity with high minimums, low max/min contrast ratios and high vertical foot-candles. The XPG fixtures use 40%-65% less energy than traditional metal halide or fluorescent luminaires.

Outdoor Area Lighting



LSI *Crossover* area lights feature a sleek, contemporary housing design available in multiple sizes, for a continuous stream of illumination from pedestrian walkways through egress areas and in parking lots. The lightweight, aerodynamic housing results in exceptionally low EPAs enabling the use of lighter-gauge, lower-price poles.



LSI *Crossover* area lights represent the ultimate blend of design sophistication and technological innovation.



Since introducing vertical burn technology, we've known that a uniform light distribution can allow for reduced average foot-candle levels (and so the number of LEDs) required to provide a bright, pleasing application. LSI's unique reflector technology consistently improves uniformity by 2:1 or more over HID sources.

Decorative Area Lighting





Top access, toolless option, sealed glass lens and easy optical unit and driver replacement make the *Crossover* decorative area lights easy to install and maintain.

Significant energy savings from high brightness LEDs and LSI's proprietary driver design deliver maximum output at minimum power.



LSI *Crossover* **decorative area lights** – traditional and contemporary designs with interchangeable modular components and a variety of mounting options give complete design control to light pedestrian walkways and egress areas.

Roadway Lighting



Beautifully styled *Crossover* roadway luminaires ensure uniform illumination without unwanted light spilling onto the area behind the pole. Meets IES RP8 specifications.



The low-profile housing accepts a range of mast arms for mounting roadway or utility poles to ensure easy retrofitting as well as for new installations.



Terminal blocks, photocells, toolless entry and optimum energy efficiency make LSI *Crossover* **roadway luminaires** ideal for applications with long running hours.

Canopy Lighting





Ambient 128

Crossover Ambient fixtures, available in a wide range up to 128 LEDs, give you a lumen package up to 45% higher than the Ambient 100.



Ambient 50

LSI *Crossover* canopy lighting systems are easy to install, significantly reduce energy consumption, provide longer illumination life and virtually eliminate maintenance requirements, which all translates into a tremendous return on investment.

Retrofitting your **canopy lighting** is the most effective way to reduce the energy consumption on your site. The *Crossover* canopy system offers a variety of lighting solutions that deliver high performance illumination and a highly refined look.



The *Crossover* Focus can provide targeted zone illumination to further enhance vertical retail surfaces.

Focus

S o f f i t L i g h t i n g



Designed for recessed downlighting application such as soffits, commercial canopies and drive-thrus. A specially designed thermal protector is a standard feature, making the *Crossover* soffit luminaire ideal for applications with insulated spaces. Easy to install, with minimal tools and minimal impact to the building structure. The *Crossover* soffit fits easily into a variety of structures – both retrofits and new construction.



With its clean lines and flush mount, LSI *Crossover* **soffit lighting** provides a level of architectural styling and performance not commonly found in other soffit luminaires.

With its high-performance optics design, completely sealed optical assembly, and clear-tempered glass lens, there are no exposed optics or electronics, further enhancing the longevity and performance contributions of the luminaires.

Inground Lighting





IP68 $\frac{\nabla}{3M}$

LSI's *Crossover* inground fixture provides outstanding uplighting for architectural and landscape features while saving up to 75% energy compared to metal halide.



Superior thermal management and inherently cool beam with Cool-Touch lens



Spot Optics



Flood Optics

Optic lens collects and redistributes 90+ percent of generated lighting into the desired beam pattern to give optimized beam control. External aiming for easy precise lighting.

In the IZONE, your imagination is your only limitation.

LSI's iZone is part of LSI's ongoing commitment to developing state-of-the-art, energy saving lighting and graphics products. It is a tool to ensure LSI's connection to our marketplace and to create an environment where customers and specifiers can learn and share ideas on a wide range of lighting technology from LED basics to in-depth discussions of the effects of light and color. The primary reason for creating this industry leading technology center is LSI's focus on the continuing development of its leadership position in solid-state LED lighting and graphics.



Complete with a 32-seat auditorium area and displays of LSI's latest, most innovative, energy-efficient lighting and graphics products, the iZone is designed to serve as an education center as well as an idea-generator. The centerpiece of the iZone is



a state-of-the-art LED video display produced and installed by LSI Saco Technologies. Comprised of over 1 million LED chips and framed by LSI's dynamic color LED VBrite product, the 13-foot wide solid-state video screen immerses viewers in a complete LSI lighting and graphics experience. The iZone is only the second facility in the world to utilize an all Digital Media Control system to operate and adjust the lighting and video features throughout the room, permitting a customized experience based on the needs and interests of the audience. As part of LSI's existing video conference network, meetings in the iZone can include subject matter experts from any LSI facility.

