

Custom prescriptions to fulfill your special needs.



LPI applies its extensive proprietary technologies to propose specialty lighting solutions where the lighting prescription adds value, protection, competitiveness and/or distinction to the product. Shown below are examples of some of these specialty lighting application cases grouped as,

- Portable Illumination: headlamps for mountaineers and miners, above and underwater flashlights (torches), 180°– 360° degree navigation lights for boats and aircrafts,...
- Medical Illumination: surgeons' headlamps, cannula surgical illumination systems,...
- Signage: emergency and warning lights, indicators, exit signs, traffic lights,...
- Others: backlighting for LCD displays, high-efficiency condenser light sources, camera flash lighting...

Examples of Specialty Lighting.



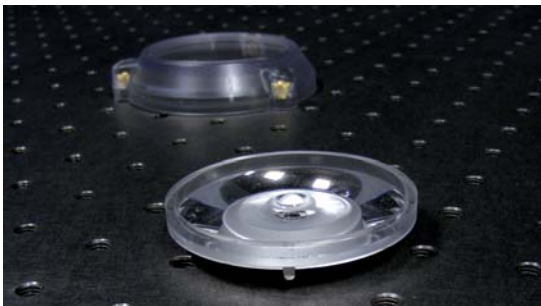
Mountaineering and Extreme Sport Headlamps

Since 2003, LPI has worked extensively with a leading manufacturer of sport and portable headlamps. From the beginning, strict and detailed requirements were defined for each project. LPI has responded with specialized optical designs for each headlamp by employing advanced design techniques like the SMS (Simultaneous Multiple Surfaces) method that has insured superior beam quality, efficiency and safety for the user. Such design have produced award winning headlamps.



High Performance Under Water LED Lamps

LPI has designed a range of optics for Underwater Kinetics (www.uwkinetics.com), a market leader and manufacturer of high quality diving lights and portable lanterns. LPI has applied patented design methods and optical architectures to provide superior beam quality, extreme compactness, and efficiency. Precision tool manufacturing by LPI and injection molding, checked by our quality control staff, ensures that our optics meet the ruggedness, aesthetics, and beam quality expected by the customer.



Miner's Lamp

LPI has developed an Ultra-slim RXI primarily for mining applications. The lens has an optical depth which is ten times smaller than its diameter. This produces a complex illumination pattern that combines a high intensity spot with medium and wide angle beams.



Optical Manifold

LPI's Optical Manifold technology combines light from various sources into a single homogeneous output. They can be used to combine multiple flat LEDs of the same color to provide a high intensity output, or they can be used to combine red, green and blue flat LEDs to generate white light. One advantage of this technology is to deliver HBLEED light with easier thermal management due to the separated light sources. Optical manifolds alleviate the substantial luminance inconsistency inherent to flat LEDs.

Surgeon's Headlamp

Alpha Med-Surge (www.litsurgical.com) approached LPI to develop a high power headlamp for surgeons. Some of the requirements included: an untethered light with a very small emission area located in front of the face of the user. Also, because surgeons some times must use these lamps for more than four hours at a time, a compact and light weight housing located on the head of the user with good balance was a must. LPI designed and fabricated all custom optical elements. A patented LED "combiner" gathers the light from two high-powered LEDs into a single lightguide with high efficiency and low dilution. LPI has successfully balanced beam quality, efficiency, adjustability and a very small mechanical profile so that the sight of the surgeon is not jeopardized. Needless to say that, because LPI fabricates the optics, the quality of the optical components and their coatings is assured.



Signage Warning Lights

LPI has also developed solutions in the field of Signaling and Warning lamps (such as flashing lights and light bars for Police, ambulances and other emergency vehicles). Although these kinds of devices have less stringent regulations to fulfill than other automotive lighting, LPI designs use fewer LEDs and therefore can be more compact, attractive and economical. This is the case, for instance, in several of the products manufactured by LPI's customer Federal Sigma Vama (www.fedsigvama.com).



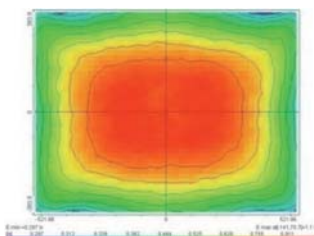
Exit Signs

As in traffic lights, LED exit signs have also come to prominence recently. LPI currently has two approaches to exit-signs. One uses a single high-power LED, distributing its light evenly over the face of the sign. The other uses multiple low-cost, unlensed LEDs, known as chip-on-board, mounted directly on a circuit board. Both achieve the required luminance with good uniformity.



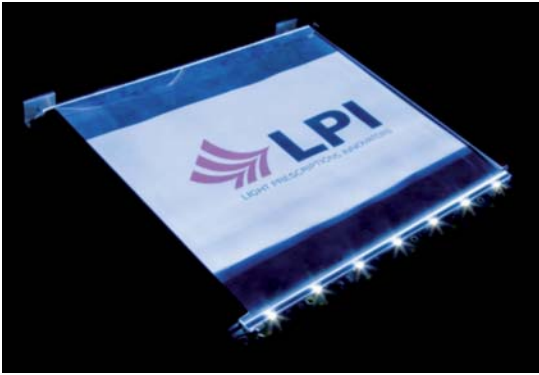
Camera Flash Lights

Mobile phone camera flash optics with rectangular illumination pattern have been developed and manufactured by LPI. The lens design is based on a full tailored profile and Free Form TIR optics, following customer specifications on maximum brightness and also minimum lens volume.



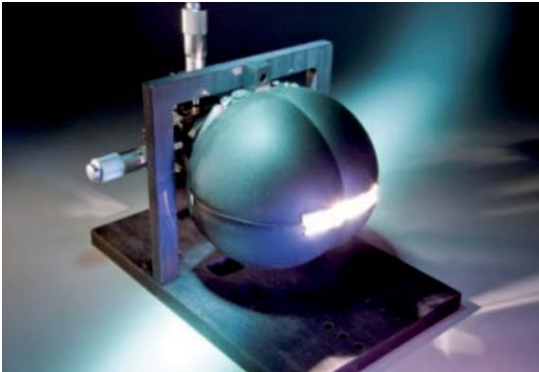
Illumination Pattern





Backlighting Displays

LPI has participated on several projects in the field of backlight displays where hazardous materials disposal is forcing solid state solutions that allow thin form factors and narrow (collimated) viewing angles. High brightness is also achievable without the use of conventional BEF films.



Condenser Light Sources

In order to improve illumination efficiency and produce customized patterns, LPI has been developing lamp sources based on LEDs which require optical condensers to be applied in special and novel, advanced light sources.

An innovative, international and independent company.



LPI LLC
2400 Lincoln Ave.
Altadena, CA 91001, USA
email: info@lpi-llc.com

LPI EUROPE
Edificio CeDInt
Campus de Montegancedo UPM
28223 Madrid, SPAIN
email: info@lpi-europe.com

LPI PRECISION OPTICS
Unit 02, G/F, Photonics Centre
2, Science Park East Ave.
Shatin, N.T., HONG KONG
email: info@lpi.com

www.lpi-llc.com