Tue, 27 August 2024
Weekly Newsletter

DVN Lighting

NEWSLETTER #868

Editorial

Picking Up Shovels And Digging Again

August is ending, and Europe is coming back to work—while Asia, India, and America never stopped, because for better and worse, Summer Holiday isn't a thing in those places.

From 30 August, a lot of new cars are being unveiled with really interesting lighting content. These include the Zeekr 7X and Chery T11, to name just two. New models from BMW, BYD and other makers will be revealed at the Chengdu auto show—that's a city of 20 million in China's Sichuan province. All Chinese automakers, including their lighting teams, are hard at work preparing for the show.

In India, preparation at all levels is in the final stages for the **DVN event in Pune** on 4-5 September. Most of India's 2- and 3-wheeler and passenger and commercial vehicle makers will participate. There will be robust participation from most of India's vibrant vehicle lighting industry, including setmakers, light source manufacturers, testers, R&D outfits, and regulators. Following on from our interview with Tata's Ajay Jain, I have the honour this week to interview Vivek Jindal from Uno Minda and ACMA, that being India's Automotive Component Manufacturers' Association, who will introduce the event next week.

In Europe, we are starting again after summer break. Back to school for kids and back to work for the parents. Northern Europe is already working, and southern Europe is now returning. We're getting ready (and excited!) for the Paris auto show in October, and the famous **SIA VISION Congress** during that same week. See you soon!

Sincerely yours,

Paul-Henri Matha
DVN Chief Operating Officer and Lighting General Editor

In Depth Lighting Technology

Interview: Uno Minda's Vivek Jindal

By Paul-Henri MATHA

Vivek Jindal serves as a Whole-Time Director at Uno Minda and CEO of that company's Lighting & Acoustics Systems domain. He is also a Director at Minda Westport Technologies and Minda Onkyo India. Additionally, he serves as a Director at Clarton Horns Spain and Mexico, where he successfully facilitated the merger and acquisition of the Spanish entity into Uno Minda. He is the northern-region chair of ACMA, that is India's Automotive Component Manufacturers association.

Mr. Jindal has 19 years' experience in the automotive industry, and leads the electric and hybrid vehicle initiatives for the Uno Minda Group. He studied engineering at the Indian Institute of Technology's Delhi campus; got his MBA from the Katz Graduate School of Business at the University of Pittsburgh, and has undertaken an Executive MBA programme at Harvard Business School.

DVN: Can you tell us about ACMA?

Vivek Jindal: The Automotive Component Manufacturers Association of India (ACMA), with over 950 members, stands as the premiere industry association representing India's burgeoning automotive component manufacturing sector. Established in 1978, ACMA has evolved into a formidable force, driving the growth and development of the component industry.

ACMA plays a pivotal role in shaping the industry's trajectory. Its core functions encompass a wide spectrum of activities aimed at fostering a conducive business environment for auto component manufacturers.

Through proactive policy advocacy, ACMA engages with government bodies to address industry challenges, streamline regulations, and promote favourable policies. The association serves as a knowledge repository providing industry insights, market intelligence, and technical expertise to its members. ACMA plays a critical role in advancing India's automotive industry by promoting trade, enhancing technology, improving quality, and disseminating information. The association participates in international trade fairs, sends trade delegations abroad, and publishes industry materials. They also contribute to manufacturing excellence through skills training, mentoring programs, and initiatives like 'Asset Turnover Improvement,' 'Uptime Improvement,' 'Zero Defect Quality,' and 'Sustainable Manufacturing.' It is actively involved in various government panels, committees, and councils to influence policies and regulations.

ACMA's commitment to innovation and technology is evident in initiatives to promote research and development. By facilitating collaborations between industry, academia, and research institutions, the association drives technological advancements in the component manufacturing sector. ACMA undertakes various skill development programs to enhance the workforce's capabilities, ensuring the industry remains at the forefront of global competitiveness.

ACMA is accelerating India's auto component ecosystem by:

- Acting as a catalyst in enhancing growth & evolution of the Indian auto component industry
- Formulating innovative solutions for creating resilient & robust business models for auto component suppliers
- Advocating for developmental policies pertaining to the Indian auto component industry at national and international levels
- Fostering development of a skilled workforce through innovative capacity- and capability-building measures for sustaining current and future requirements
- Globally promoting auto components made in India
- Nucleating R&D orientation and efforts for generation of Indian IP
- Creating an environment of responsible corporate culture and behaviour among member organizations

DVN: And what can you tell us about Uno Minda?

Vivek Jindal : Uno Minda, founded in 1958, are a tier-1 manufacturer and supplier of innovative automotive solutions and systems to automakers. We design and manufacture over 20 categories of components and systems for vehicles across all segments—passenger cars, commercial vehicles, two- and three-wheelers—catering to both combustion engines and electric/hybrid vehicles.

Minda are one of the leading manufacturers of automotive switching, lighting, acoustics, and seating systems, and alloy wheels. We have a leading position in India in almost all the products we manufacture. Technology and innovation are the two strong pillars of the organization, on the basis of which we have continued to lead the emerging trends in the automotive sector, over the past six decades.

The Group are globally active in the automotive sector, with 74 manufacturing facilities in India, Indonesia, Vietnam, Germany, Spain, and Mexico, as well as 37 R&D and engineering centres in India, Germany, Japan, Taiwan, Korea, and Spain. We have 19 joint ventures and technical agreements with world-renowned manufacturers from Germany, Japan, Korea, and China.

Uno Minda started manufacturing automotive lights in 1980. Since then the company have emerged as a leading automotive lamp manufacturer in India, renowned for our commitment to developing cutting-edge yet affordable lighting solutions. We have cultivated a strong market presence through a strategic focus on LED technology, particularly within the two-wheeler segment. Today, the lighting business contributes around 24 per cent of Uno Minda's consolidated revenues, and is one of our fastest-growing activities.

A recent pivotal milestone was the commissioning of a new four-wheeler lighting plant in Gujarat, marking the inception of India's first indigenous four-foot-long tail lamp (1.22 m). Subsequent orders for similar components from multiple OEMs solidified the company's position in this segment. We are further expanding our capacity by setting up another four-wheeler lighting greenfield plant in Khed City, Pune, which is expected to come onstream by the end of FY25. The passenger car exterior lighting business has demonstrated robust performance, securing incremental orders and pioneering technological advancements in tail lamps, eclipsing headlamps in terms of product value.

We also have the German R&D centre working on niche lighting technologies for global luxury passenger vehicle brands. We are already supplying logo projectors, illuminated logos and badges, interior lighting, and starlight headliners from Germany to these global automakers. Our German R&D centre helps us to keep an eye on the global trends and offer similar niche lighting solutions for the Indian market.

DVN: What is your perspective on the lighting business in India?

Vivek Jindal : The Indian vehicle lighting market presents substantial growth opportunities, catalyzed by stringent safety norms, escalating consumer demand for advanced features, and the burgeoning electrification landscape. Going ahead, our focus will be on developing cutting-edge lighting technologies such as LED, laser, and adaptive lighting systems. By leveraging our manufacturing prowess and ecosystem, we seek to capture a larger market share and contribute to the nation's vision of becoming a global automotive manufacturing powerhouse.

*(in our **July 2024 DVN Report**, we estimated India's lighting market at around €1.2bn in 2023 and forecast €2.7bn in 2030 with CAGR around 10 per cent -ed.)*

Uno Minda envisions a future where lighting is not merely functional, but an integral component of vehicle æsthetics, safety, and intelligence. We aspire to be a global leader in vehicle lighting solutions, with India as our innovation hub.

DVN: How is the shift from bulbs to LED playing out in India?

Vivek Jindal : Uno Minda have proactively embraced the transition from traditional bulbs to LEDs, recognizing its significance in enhancing vehicle aesthetics, safety, and energy efficiency. We have a complete range of LED offerings for headlamps and rear lamps. While we have healthy LED uptake in 2-wheelers, uptake in passenger cars is increasing more gradually considering the cost differential.

*(in our **July 2024 DVN Report**, we estimated LED prevalence at 50 per cent for 2-wheelers, 25 per cent for passenger car front lighting -ed)*

Our lighting supply chain is meticulously structured to integrate LED components seamlessly. We collaborate closely with domestic and global suppliers to ensure a robust and reliable supply of high-quality LEDs and associated components. Additionally, we have also developed a local supplier base for supplying LED to reduce import dependencies and enhance cost-competitiveness.

We don't intend to get into semiconductor or LED production, as the skills and capabilities required are entirely different. We will continue to focus on our strengths: auto components and systems manufacturing.

DVN: What attracted you to join the DVN community?

Vivek Jindal : Uno Minda's recent membership with DVN signifies a strategic move to bolster our position as a leading automotive component manufacturer. DVN, renowned for expertise in lighting and electronics, offers a platform that perfectly aligns with Uno Minda's core competencies and future aspirations.

The automotive industry is undergoing rapid transformation, driven by advancements in technology and consumer preferences. Lighting and electronics have emerged as critical components in modern vehicles, enhancing safety, aesthetics, and user experience. By engaging with DVN, Uno Minda can access a wealth of knowledge, insights, and collaborative opportunities in these domains.

DVN: Uno Minda bought Delvis some years ago. Tell us about that, will you?

Vivek Jindal: Delvis, now renamed to Uno Minda Europe, was founded in 2002 as a lighting design and engineering company. The business was built around the German automotive industry; and the company served automakers and European tier-1 suppliers in pre-development and new product development.

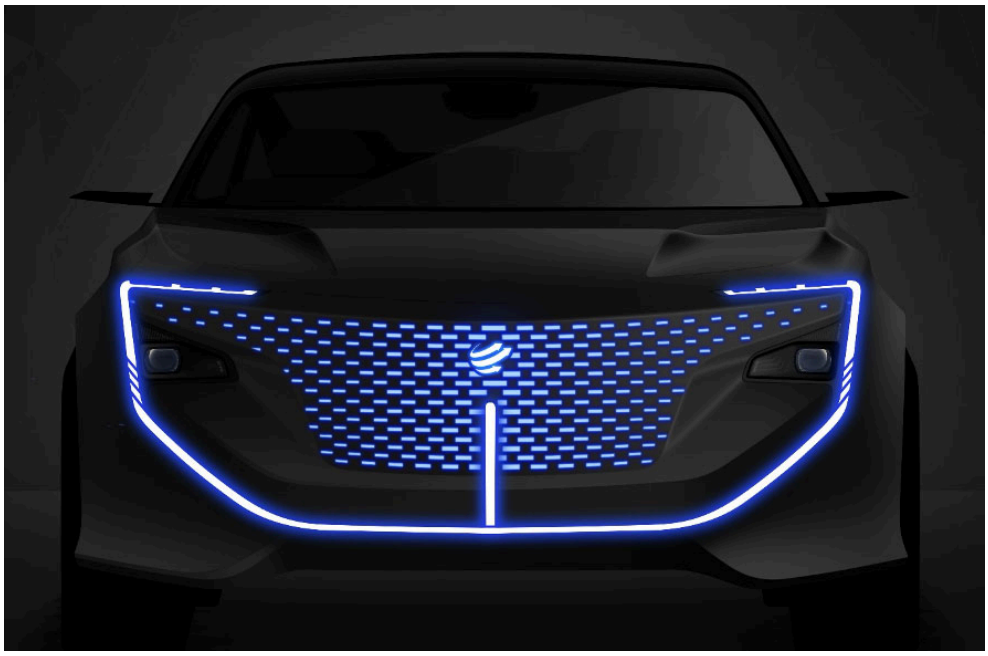
Uno Minda acquired Delvis in 2019. The acquisition was part of our strategy to augment and acquire technological capabilities in existing product lines, in this case lighting. Delvis was among the top players with state-of-the-art lighting technology, and closely working with German OEMs in pre-development activities for high end platforms, which deploy the next level of technologies. This acquisition delivered considerable synergies for growth of the lamp business in India, and enhanced product offerings to OEMs.

The acquisition strengthened our hold in the Indian vehicle lighting space. The advent of LED-based lighting products has brought a major shift; the acquisition helped us to fill the gap with cutting-edge technology that Delvis offered to the global markets, with a multiplier effect:

- Broadening product offering, especially LED headlamps
- A robust pipeline of new product launches
- Improved our share of business with OEMs
- Improved revenue mix
- Access to global markets with manufacturing base in low-cost countries like India and Indonesia
- Compliment both LSTC and iSYS RTS
- Strengthened the Group's European foothold

DVN: What is your future direction in the vehicle lighting industry?

Vivek Jindal : Uno Minda are a leading provider of advanced lighting technologies. By leveraging our expertise in electronics and LEDs, we aim to create customizable lighting systems that cater to individual driver preferences and enhance the overall driving experience and safety; includes the development of adaptive lighting systems, laser headlights, and OLED lighting.



We are now taking a step further with personalized system integration of the lamps within vehicles, by adopting the concept of 'tier 0.5', which integrates hardware, software, and advanced technologies. This has already been adopted by the European automotive market where they have a collaborative integration between automakers and tier-1 suppliers. The overhead console is a product that shows our collaborative, group-level thinking aligned with the OEMs. Creating such technologies while partnering with the OEMs strengthens our customer relations and shared knowledge, to achieve products that can become a benchmark at the global level.

Lighting News

Li Mega Rear Lamp From Utas-Nova

LIGHTING NEWS

Paul-Henri Matha with Wenbo Lei, technical Director of Utas-Nova automotive lighting Systems Co., Ltd.

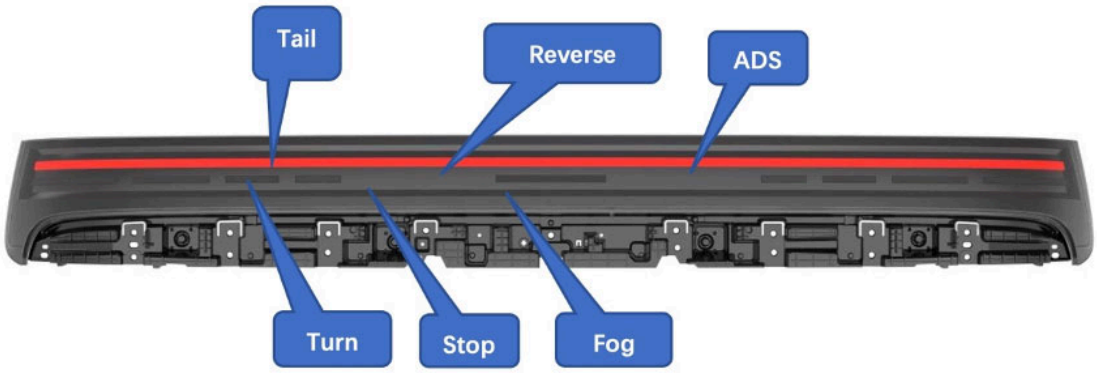
Utas-Nova Automotive Lighting are a national high-tech enterprise in China dedicated to the research and development, manufacturing and sales of vehicle lights. They have production bases in Danyang and Changzhou, as well as in Mexico; and R&D bases at Danyang, Shanghai, Wuhan, Hefei, and North America. They also have an electronics and a wire harness factory. Total company revenue has reached C¥1.5bn ($211m, €188m).

In recent years, Utas-Nova have greatly expanded their coöperation with Chinese domestic EV makers, and have successfully developed and mass-produced a variety of lamps for Li Auto, Nio, Xpeng, JAC, General Motors, Maxus, and more makers. Here is a look at their latest mass-produced lamp, for the Li Auto Mega.

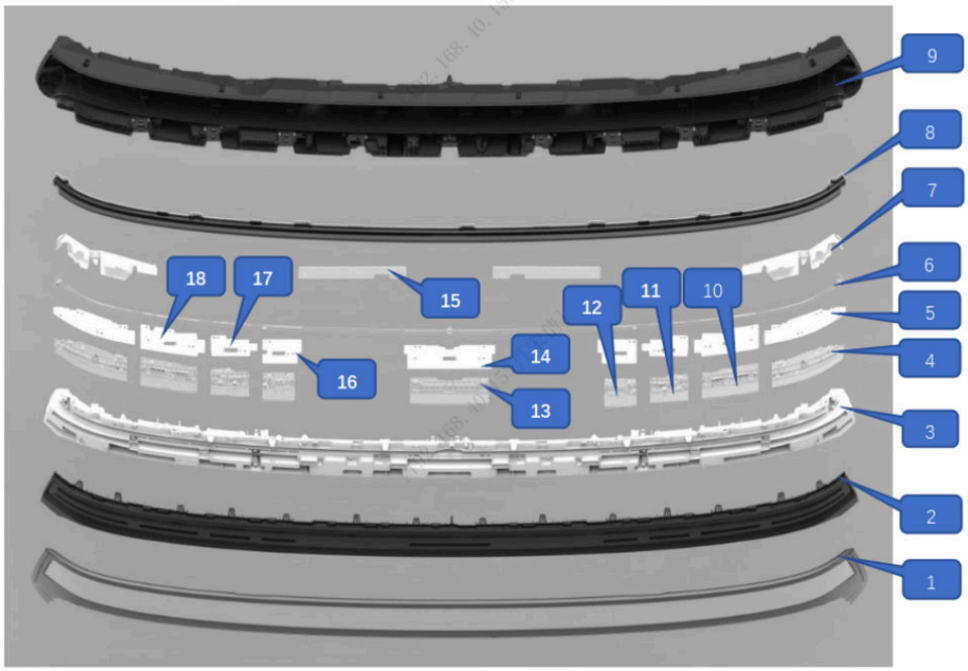
The Li Mega rear lamp cover is a grey and black PMMA two-colour injection moulding, and the lamp body is black ABS+PC; these two are connected by low-temperature hot plate welding.

The lamp system includes:
• Position (tail) lights: two 3 × 2W LEDs + light guide + two-colour thick-wall
• Turn signals: two 14 × 0.5W LEDs + thick-wall side light
• Stop (brake) lights: two 12 × 0.5W LEDs + thick-wall side light
• Reverse lights: two 8 × 0.5W LEDs + thick-wall side light
• Rear fog lamps: two 7*0.5W LED + thick-walled side light)
• ADS (autonomous driving indicator) light: 14 × 1W LEDs + thick-walled side light

Here is the functional layout:



And here is an exploded view of the lighting module's main components:

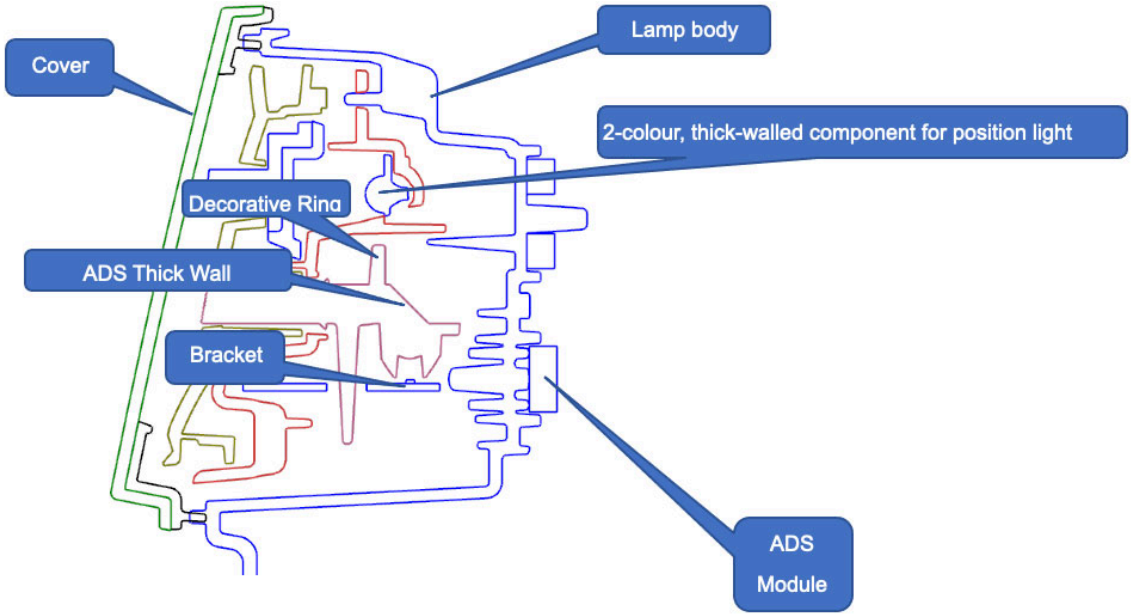


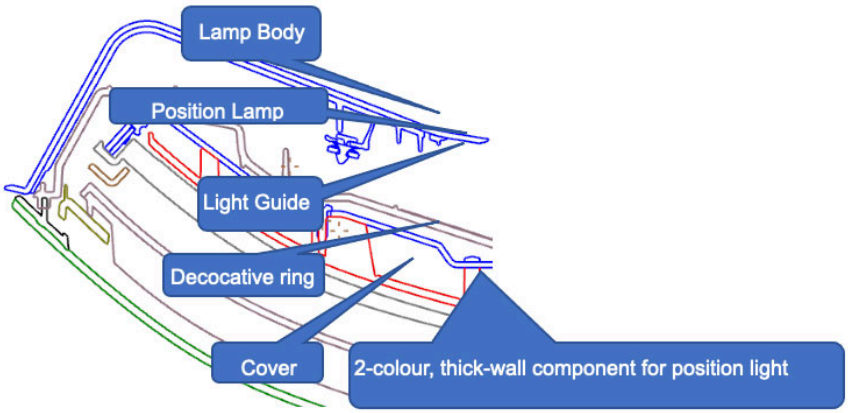
1: Lampshade. 2: Ring. 3: Bracket. 4: Thick-wall turn signal optic. 5: Turn signal module. 6: Light guide. 7: Position light module. 8: Position light two-colour thick-walled parts (clear + milky grey). 9: Lamp body. 10: Stop light thick-walled parts. 11, 12: Thick-walled rear fog lamps. 13: Thick-walled ADS. 14: ADS module. 15: Driver. 16: Rear fog light module. 17: Reverse light module. 18: Stop light module.

Each lighting module can be considered as a separate system with its own light outlets, reflectors, light inlets, and LED modules. The position lamp concept is really interesting:

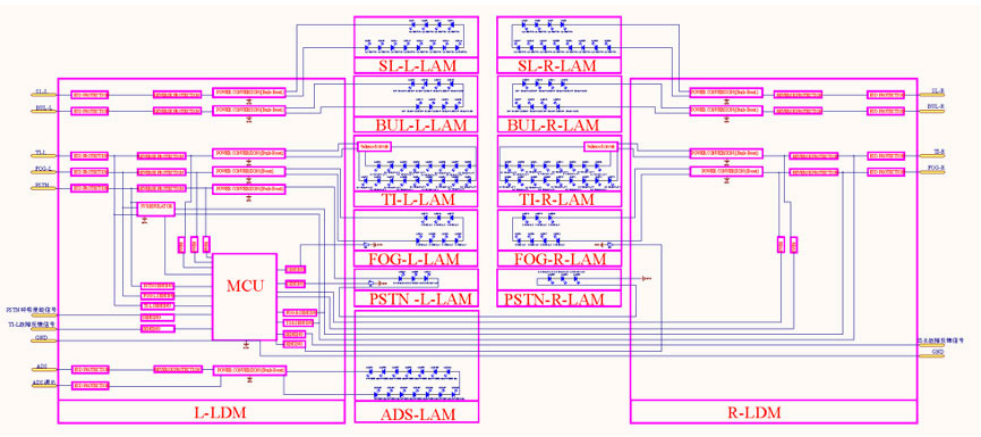
• Full-width light guide: 1,559 mm long
• Full-width 2K thick-wall piece: 1,564 mm long. The first colour is a 2.5-mm opalescent grey material (Covestro PC 2407 720028; transmittance 58.23 per cent and Haze 98.17

per cent). Second colour is clear.
• Welcome/farewell scenarios including dimming up and down.



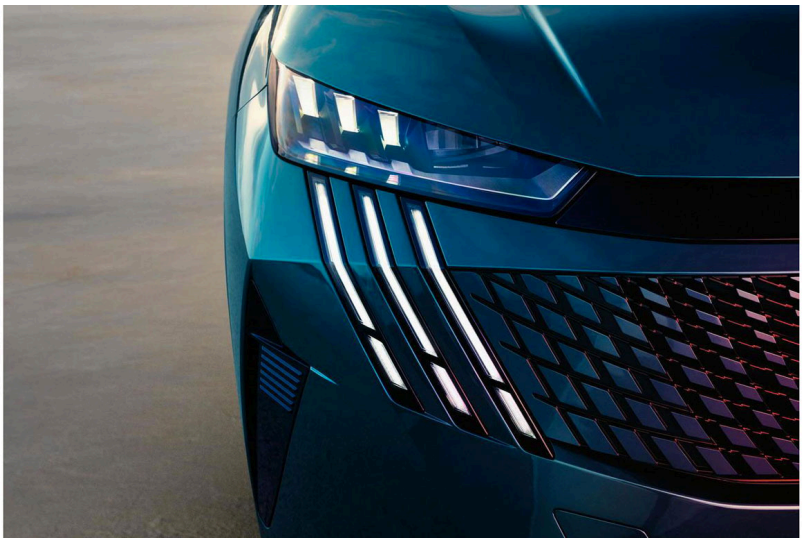


The whole lamp uses DC-DC drive, ISSI control chip, buck-boost/boost constant current output, and the current accuracy can be controlled to 5 per cent. Each function has an independent light-emitting module, and several sets of independent light-emitting modules are uniformly integrated and mounted on the bracket and controlled by left and right drivers. Among them, the position light and ADS are controlled by the left driver, and the rest of the functions are controlled by the driver on whichever side the light in question is on.



More About Lighting on the Peugeot e3008

LIGHTING NEWS



The Peugeot e-3008 is clearly recognisable as a Peugeot by many core design cues, while strikingly evolving them. The three-claw light graphic from the 9X8 race car is used for the DRLs, which blend into a shimmering and distinct grille (unlike Tesla, Polestar, and Ford EVs, Peugeot isn't abandoning the grille).
As an option, there's a Pixel LED adaptive system with six AFS driving modes + bending light; automatic high beam with ADB, and an additional high beam booster for high speed. It's done with an all-in-one module including low beam, high beam, AFS, and ADB.

As to the rear lamp: the main housings on the body and trunk have a 3D smoked lens and a really nice floating-blade design for rear position lamp. Marelli developed the lamps in Poland, where they are also being produced.
The CHMSL is incorporated into the tailgate, in continuity with the trunk rearlamp—similar to some Cupra models. And for cost reasons, the little-used reversing and rear fog lamps are still bulb-type items, in the lower part of the rear bumper.

Lincoln Lights: the '25 Navigator

LIGHTING NEWS

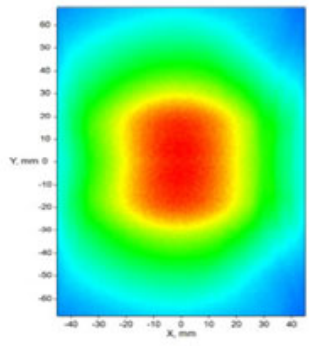
The 2025 Lincoln Navigator will get a dramatic new look when it goes on the market next Spring. There will be full-width light bars front and rear. DRL and front turn signal functions will be visually integral to the full-width light band, and with the lit brand logo in the middle of the grille.

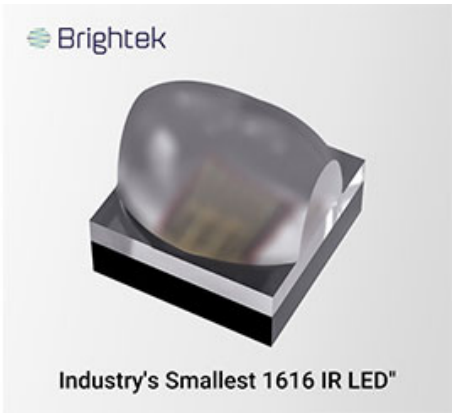
Brightek's Asymmetric IRED

LIGHTING NEWS

Brightek Optoelectronic recently released their 1616 High Power Asymmetric IRED (Infrared-Emitting Diode). This IRED, with a packaging size of only 1.60 × 1.60 × 1.37 mm, is the smallest high power asymmetric LED in the industry. This compact size provides advantages in space-constrained applications, offering design flexibility, especially in wide-angle image sensor illumination scenarios.
The new IRED has passed AEC-Q102 automotive reliability certification, which proves excellent performance in extreme conditions such as high temperatures, humidity, and vibrations, making it a reliable solution for automotive sensing systems.
Being compliant with the IEC-62471 eye safety standard, it is suitable for long-term or close-range use, such as in driver- and occupant-monitoring systems.

The asymmetric design of the 1616 LED ensures superior uniformity, achieving a uniformity rate of 38 per cent, compared to less than 27 per cent in traditional LEDs. This feature is crucial in high-precision applications such as access control and automated logistics systems, significantly enhancing recognition accuracy and system stability.





130° × 110° of uniform illumination