



Press Release

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Marelli has developed a Light Domain Controller to enable software-defined vehicle architectures

Marelli has developed in China an **innovative automotive lighting domain control unit platform**, that is able to control vehicles' front lights, rear lights, and all new 360° lighting features. In the future, even more lighting algorithms could be further integrated into this light domain controller. This cutting-edge technology for lighting systems aimed at next-generation vehicles will be showcased at the upcoming Beijing International Automotive Exhibition, from April 25 to May 4, alongside other Marelli advanced technologies.

Whether it's internal combustion engine vehicles or electric vehicles, the automotive lighting control system remains key for enhancing vehicle safety and improving the driving experience. To meet the evolution of new electronic and electrical architectures, Marelli is advancing vehicle lighting control system architecture with a forward-looking approach. The successful mass production of Marelli's light domain controller has been introduced and proved in China's electric vehicles market. On the end node side, Marelli has introduced the "MCU LESS" intelligent driver concept, greatly enabling the opportunity to centralize the whole lighting software into domain ECUs, perfectly supporting the automotive industry's trend toward software-defined vehicle (SDV).

As lighting functions become increasingly independent from dedicated ECUs, the "Software as a Product" (SaaS) concept has reinforced the core role of software in the entire lighting system. Marelli's unique technological approach supports OTA (Over-the-Air) updates and continuous deployment of new features for automotive lighting software, after the vehicle is in production.

Leveraging over 20 years of expertise in automotive lighting electronics, Marelli portfolio includes a comprehensive suite of control unit solutions for automotive lighting, ranging from basic lighting controllers that meet distributed power supply systems, to centralized CAN communication controllers that support adaptive matrix headlamps, to high-definition rendering controllers represented by micro-LED and Digital Micromirror Device (DMD) technologies. This broad portfolio meets customer demands for affordability, quality, and scalability. In particular, the know-how and solutions of the company in terms of high-definition rendering algorithms applied to DMD and micro-LED have already been adopted by several global and Chinese premium brands.

Overall, with its solid software and hardware design foundation, Marelli provides robust support for the design of innovative lighting solutions, in particular in the field of adaptive headlights. Marelli has been leading the industry's development to high-definition adaptive headlight solutions up to 1.3 million pixels, for which the company provides both optical modules and electronic control modules.



Also, Marelli has been the first company to apply Digital Micromirror Device (DMD) technology to adaptive headlights.

In China, Marelli has built a complete localized R&D, design, and production system. On the production side, Marelli has devoted production facilities for electronic control units for lighting in Guangzhou and Wuhu. On the R&D side, the company has centers in Shanghai and Wuhu to support the development of lighting control units for Chinese and global market, while also closely collaborating and sharing design resources with design centers in Europe. This enables the company to quickly respond to market demands and provide customers with innovative, efficient and affordable lighting controller system solutions.

Visitors to the Beijing International Automotive Exhibition will have the possibility to see and experience the most advanced Marelli innovations in the lighting field at the company's booth, W1-W01, in the Temporary Hall.

About Marelli

Marelli is a leading mobility technology supplier to the automotive sector. With a strong and established track record in innovation and manufacturing excellence, our mission is to transform the future of mobility through working with customers and partners to create a safer, greener, and better-connected world. With around 50,000 employees worldwide, the Marelli footprint includes 170 facilities and R&D centers across Asia, the Americas, Europe, and Africa.