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Marelli launches h-Digi® microLED, the next level of digital front-lighting aimed at a wider range of vehicles

This compact, efficient, and affordable, high-resolution projection module is based on ams OSRAM's EVIYOS® 2.0 light source, with around 20,000 pixels per lamp. It is already in series production

Marelli, together with ams OSRAM launches a ground-breaking innovation in automotive front lighting, introducing the **h-Digi® microLED** module, which is now in series production. This digital lighting solution, based on a new type of intelligent multipixel LED, enables fully adaptive, dynamic headlight operation and image projection, while being an affordable technology, available for a wider range of vehicles.

The new high-resolution module h-Digi® microLED is based on a matrix illumination system – featuring around 40,000 LED pixels (20,000 per lamp). This intelligent solution manages the LEDs selectively to create very flexible low-beam and high-beam light distributions, adapting to various driving situations: *Town*, *Country*, *Motorway* or *Adverse weather* light options can be realized. It also provides dynamic curve light and very precise glare-free high beam block out zones, to avoid blinding oncoming drivers. Furthermore, in terms of safety, the Marelli h-Digi® microLED can project warnings or driver assistance images on the road, directly in the driver's field of view. Other advantages include the extremely compact design and high energy efficiency.

The Marelli microLED system is based on ams OSRAM's light source EVIYOS® 2.0. Its combination with a special optical lens system and a new electronic control engineered by Marelli's Automotive Lighting & Sensing division, enables the enhanced level of adaptability of the illumination field. This is the first time that LEDs with a size of 40 µm x 40 µm are introduced as pixel elements in vehicle headlamps. With EVIYOS® 2.0, ams OSRAM made this technology available for the automotive use, which was a decisive factor for the Marelli-ams OSRAM partnership in this project.

With pixels smaller than 0,1 degree, the resolution of this illumination matrix system is 10 times more precise than conventional LED glare-free high beam systems, which are currently on the road. Two micro-LED options are available: an aspect ratio of 1:4, resulting in 25,600 pixels, or an aspect ratio of 1:3, providing 19,200 pixels per lamp.

Didier Thalgott, Senior VP at Marelli's Automotive Lighting & Sensing division, said: *"ams OSRAM and Marelli are cooperating to transform the future of automotive front lighting. The h-Digi® microLED platform module, based on the ams OSRAM EVIYOS® 2.0, enables us to develop solutions for global carmakers providing more safety and comfort for drivers at night. In addition, thanks to its compactness, improved power consumption and affordable pricing, the system opens doors to applying the technology also in mid-level car segments. With h-Digi® microLED, Marelli is driving the next generation of digital vehicle lighting."*

Wolfgang Lex, Senior Vice President Automotive at ams OSRAM, said: *"High-resolution adaptive forward lighting is set to become the next big differentiator for vehicles from the world's premium brands. EVIYOS® 2.0 is the enabler of the most precisely controllable forward lighting systems, and is a major new value creator for the automotive industry. We are excited to be working with Marelli to co-create the future of automotive mobility and enhance the driver safety and experience."*

The h-Digi® microLED is Marelli's second generation of high-resolution projection systems. It follows the path kicked-off with the h-Digi®, the worldwide first headlamp with a high-definition projector introduced by Marelli in 2018, which was based on digital micro-mirror (DMD) technology, in series production for premium OEMs.

About Marelli

Marelli is one of the world's leading global independent suppliers 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.