AL AUTOMOTIVE LIGHTING

MARELLI

Rear lighting

Lighting electronics

Front lighting

Innovative Lighting Solutions

Innovative lighting solutions

Marelli Automotive Lighting contributes to exterior design and style in the car and light truck industry with a complete range of innovative lighting and lighting electronics solutions.

With intelligent and adaptive lighting products, Marelli Automotive Lighting unites the best performance and traffic safety standards with unique customer specific brand aesthetics.

Our energy saving products make it possible to meet CO2 limits on OEM vehicle fleets. By avoiding scrap and promoting recycling, we can help to reverse the damage done to the environment.

The world of
Marelli Automotive Lighting

Why Marelli?

- As a worldwide technology leader, we offer innovative lighting solutions to meet all requirements and styles.

- Our in-depth understanding of international brands, markets, trends and tastes addresses worldwide demand.

- We have global competence in premium and volume segments and extensive international legal lighting expertise.

- OEMs benefit from our **worldwide presence**; we have 31 locations in 16 countries on 5 continents.

- We offer both standard and tailored systems to suit customer requirements.

Rear lighting

Lighting electronics

Front Lighting

High-resolution LED ADB technologies

Standard LED ADB technologies

Basic LED technologies

Standard LED light modules

Signaling

Lighting electronics

ECU portfolio
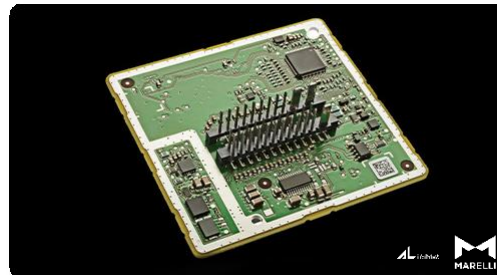
Light Domain Controller

Software as a Product (SaaP)

Rear Lighting

Full-LED rear lamps

OLED technology

Folia-LED

ECUs for rear lamps

Front Lighting

Our capacity for innovation enables us to find technical solutions for all styles and requirements, in **both premium and volume segments**. We offer modular lighting systems that provide **maximum flexibility** and **cost-effectiveness**.

Thanks to our **worldwide legal lighting expertise**, we are the partner of choice for all markets. Our global presence ensures we are always **close to our customers**.

We are a **stable company and a reliable supplier** that delivers the highest quality on time.

High-resolution LED ADB technologies

h-Digi®

PACE award winning module: the first generation of a high-resolution projection system with 1.3 million pixels, already installed in series vehicles on the road

AL AUTOMOTIVE LIGHTING
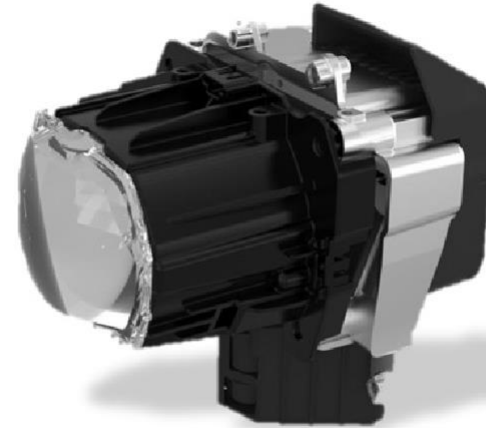
M MARELLI

Standard
LED ADB technologies

84 Pixel PHB

Multi-functional module with 84 pixels in 3 rows
that can create various light patterns

Standard
LED ADB technologies

e-Light 8.0 ADB

Stand-alone bi-functional ADB LED module with 12 to 18 segments for high performance – up to 1000 lm low beam (LB)

Standard
LED ADB technologies

m-Light

ADB LED module with 12 to 36 segments in 1 or 2 rows for higher performance, designed to be paired with a separate low beam module

Standard
LED ADB technologies

d-Light

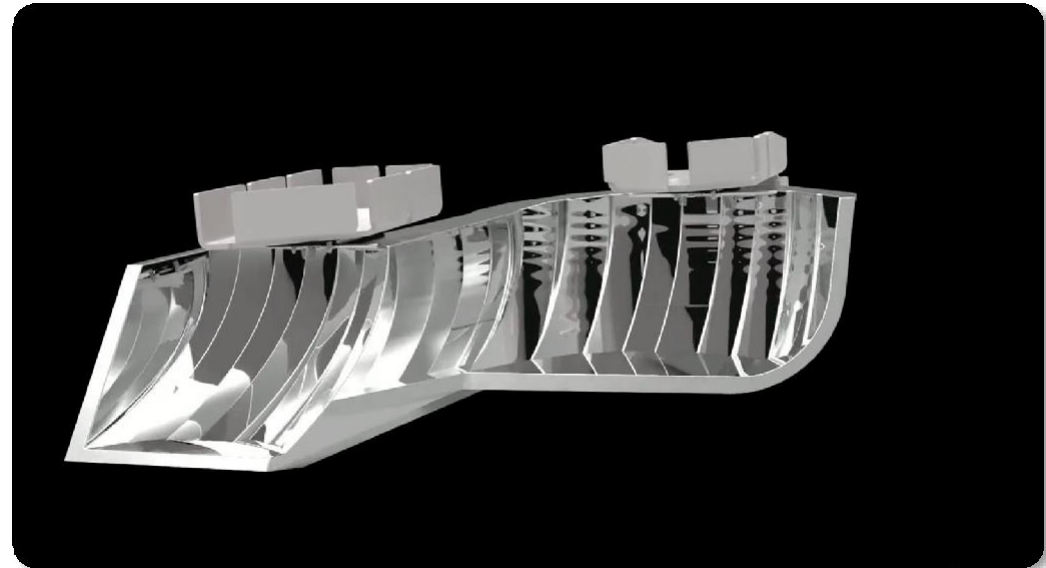Style-driven module designed for slim headlights

Basic LED technologies
Cost-optimised solutions for "halogen replacement"

Projection system
f-Lux

Compact and scalable standard module allowing for cost-efficient LED deployment in headlamps

Signalling

The exterior lamps play a decisive role in vehicle styling and can provide impressive brand signatures.

With our portfolio of optical concepts, we offer many possible solutions that combine with our sophisticated electronics to provide our customers with style concepts in series headlamp products.

Daytime running lights

Staging of welcome & goodbye functions

Light guide solutions & Dynamic turn indicators

Grille & logo illumination

Front Lighting

High-resolution LED ADB technologies

Standard LED ADB technologies

Basic LED technologies

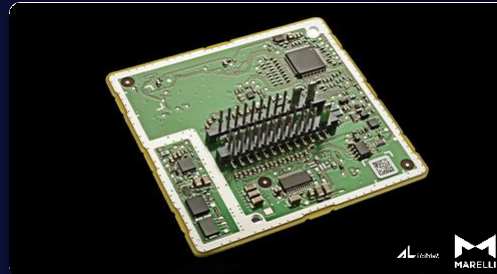Standard LED light modules

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As an experienced full-service supplier of lighting electronics with in-depth expertise related to all processes and toolchains, we offer electronic hardware to support our customers in terms of cost, quality and scalability.

We have a top Software Feature Catalogue supporting "Software as a Product" and "Light Domain Controllers" and we exploit our know-how in HD graphics software for upcoming microLED projects

Electronic competences

Application competence

We have the know-how to integrate optical and electronic applications in complete lighting systems

- System integration
- Simulation and validation
- Lighting technology

Production competence

We have the key know-how to apply soft and hardware of electronic control units for innovative lighting systems

- Functional requirements
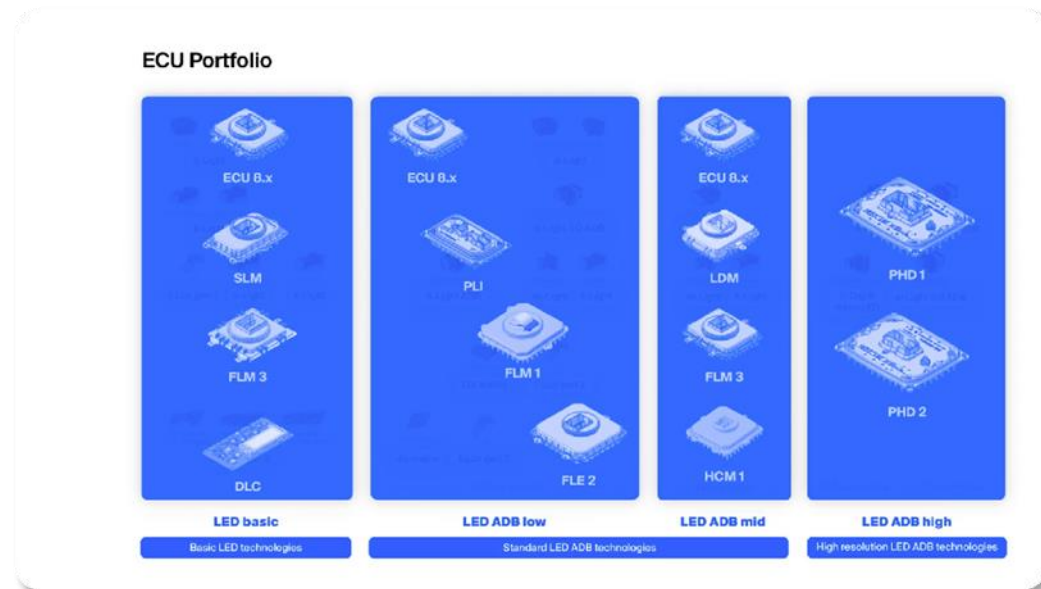- Software and Algorithm
- Hardware and Mechanics

HIGHEST STANDARDS

ECU portfolio

The Automotive Lighting ECU portfolio includes projection and reflection systems and various LED technologies that range from basic to high-resolution Adaptive Driving Beam (ADB).

The ECU catalogue encompasses standardised, optimised and adaptive lighting features to provide highly efficient, scalable and low-cost solutions.
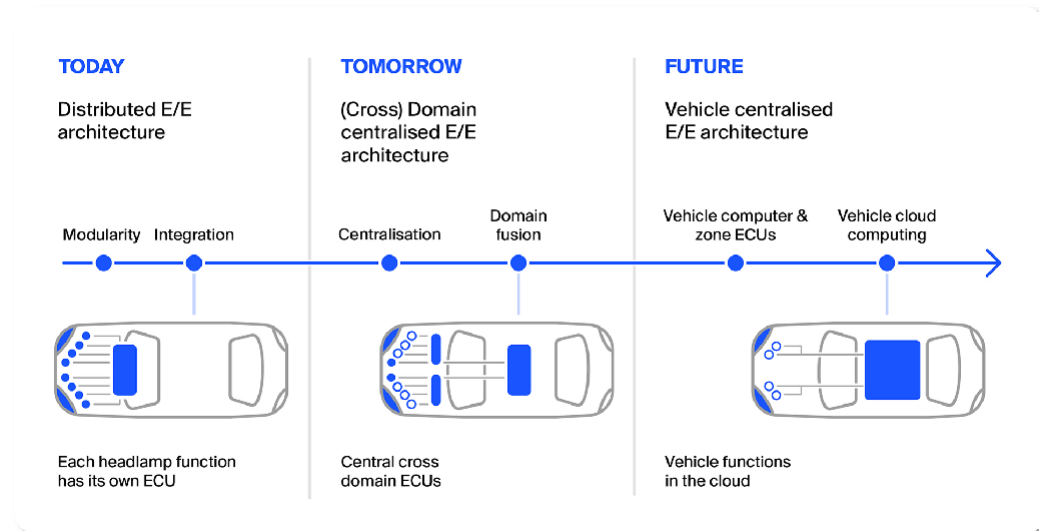
Light Domain Controller

From distributed electrical/electronic (E/E) architecture to vehicle-centralised E/E architecture

Market trend

From single electronic control units (ECUs) to centralised domain control units (DCUs) on the route to cloud computing: inside the vehicle, Marelli Automotive Lighting supports this huge transition phase with the next generation of lighting ECUs. We provide customised scalable solutions including the option to separate hardware and software into different domains.
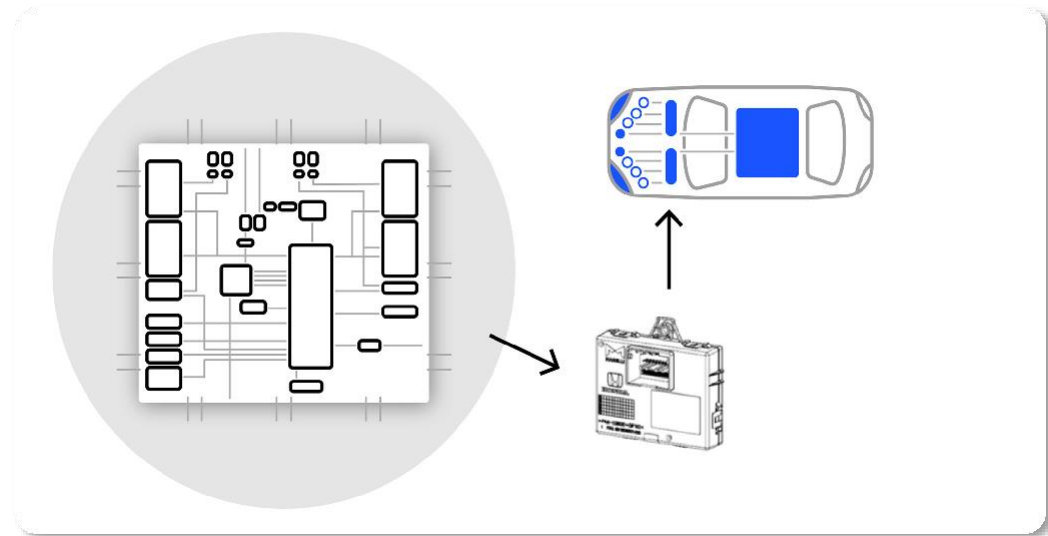

TODAY
Distributed E/E architecture

Modularity   Integration

Each headlamp function has its own ECU

TOMORROW
(Cross) Domain centralised E/E architecture

Centralisation   Domain fusion

Central cross domain ECUs

FUTURE
Vehicle centralised E/E architecture

Vehicle computer & zone ECUs   Vehicle cloud computing

Vehicle functions in the cloud

Light Domain Controller

From distributed electrical/electronic (E/E) architecture to vehicle-centralised E/E architecture

Advanced concept for Light Domain Controller

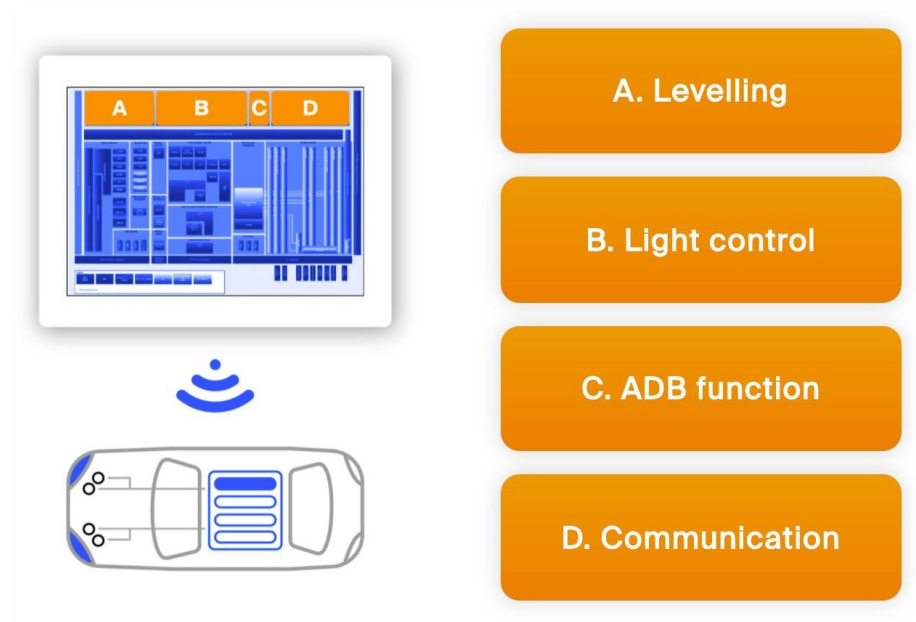Today, dedicated lighting control functions are already part of Marelli Lighting Controllers.

Our next step into the future is the centralisation of the complete vehicle lighting control for front, rear and interior lighting into one domain.

Software as a Product (SaaP)

As lighting functions become more and more independent from dedicated ECUs, our "Software as a Product" (SaaP) gains importance.

SaaP enables various lighting functionalities, user experiences and safety features to be rolled out via software-over-the-air updates – at any time and in any place.

A. Levelling

B. Light control

C. ADB function

D. Communication

Front Lighting

High-resolution LED ADB technologies

Standard LED ADB technologies

Basic LED technologies

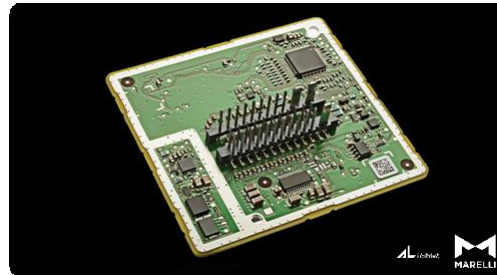Standard LED light modules

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Full-LED rear lamps

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Rear lighting

As a leader in rear lighting design and innovation for global markets, we pride ourselves on our ability to master all styling challenges and find technical solutions that will underline our customer's brand signature.
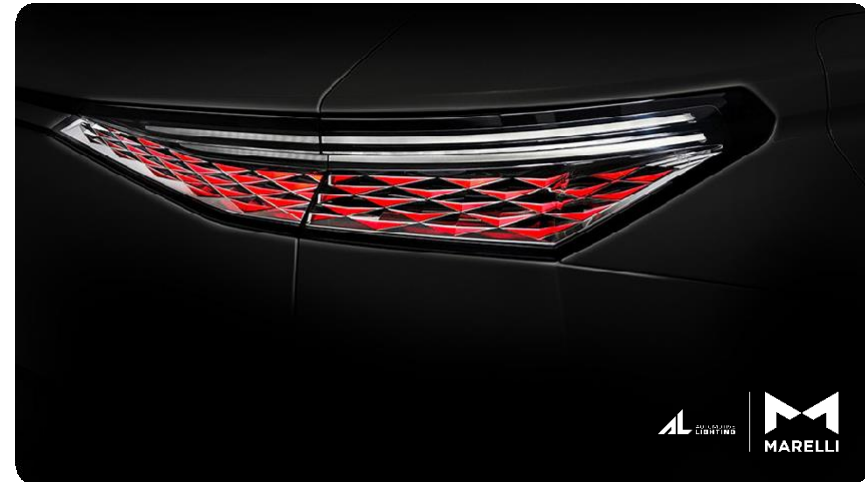
As a solid and economically stable supplier with decades of experience, we deliver the highest quality and always meet project milestones on time.

Image source: BMW Group

Full-LED rear lamps

The exterior lamps play a decisive role in vehicle styling and provide an impressive brand signature.

Our know-how and expertise in all areas of rear lamp design, mean that we always find the right optical concept and technical solution to achieve the desired style.

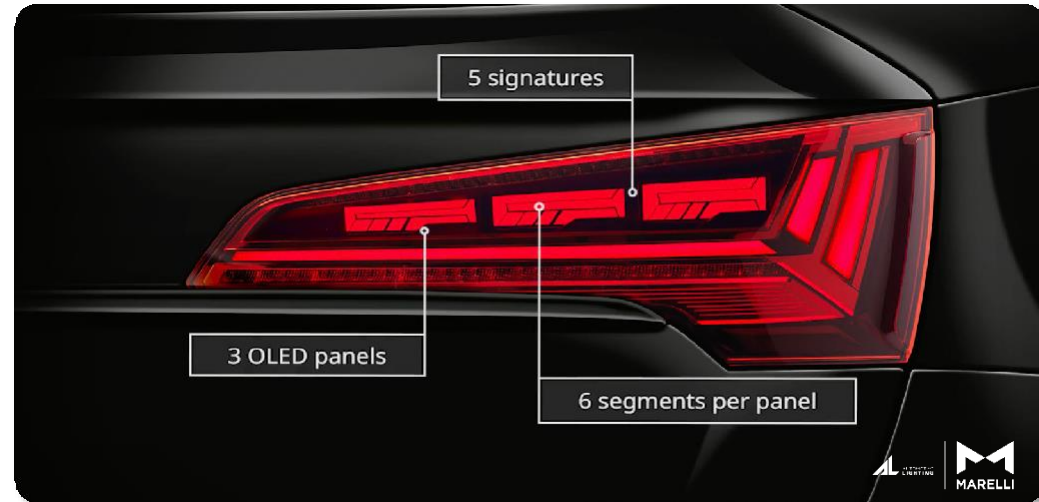Image source: RENAULT NISSAN MITSUBISHI Alliance

OLED technology

OLED technology provides extremely uniform luminance and an extended light effect achieved by a very thin light surface.

A glass substrate and electronically independent sub-areas define the unique OLED rear lamps with sequential or fading in and out light functions.

Module segmentation allows for a wide variety of activations and free shaping of different designs for attractive brand signatures. They can even be personalised by the end users.

OLED can be compared with our novel Folia-LED. Both technologies have their own peculiarities.

Folia-LED technology

Folia-LED provides an excellent combination of efficiency, uniformity and consolidated common technologies.

Attractive light uniformity and manifold styling possibilities can be developed on a limited budget. Designed as an OLED-like product, Folia-LED has become a cost-convenient opportunity to reach volume markets.

Sophisticated electronics systems mean that animations can be created by controlling the lighting-on of each individual Folia-LED area source. Dynamic effects such as fluid filling of the Folia-LED areas can be achieved by playing with the desired time ramp.

Our novel Folia-LED can be compared with OLED. Both technologies have their own peculiarities.

ECUs for rear lamps

The market requires new functionalities that are not possible without electronics:

- Wiping turn indicator
- Welcome functions
- ARS (adaptive rear lighting system) & OLED
- Car network interface for communication (LIN, CAN, CAN FD)

Electronics makes our products smart and enable us to offer our customers more than just on-and-off lighting functions.

VW ARTEON
Integrated ECU on LED PCB board

AUDI Q5 Digital OLED
Integrated ECU on LED PCB board
with LIN communication to Body Computer

POWERING PROGRESS TOGETHER

**Transforming the future of mobility
with our customers and partners**