

**Ichikoh Industries exhibits new lighting solutions for automated driving and electrification, “Lighting Everywhere: Communication Writing for People and Cars” at AUTOMOTIVE ENGINEERING EXPOSITION 2022**

Ichikoh Industries, Ltd. (Head office: Itado, Isehara City, Kanagawa Prefecture; President: Christophe Vilatte; hereinafter "Ichikoh") a leading manufacturer of automotive components, will exhibit at the Automotive Engineering Exposition 2022 YOKOHAMA and ONLINE STAGE 1, the first automotive technology exhibition to be held online from May 25 (Wed.) to May 27 (Fri.), 2022. We will introduce three lighting solutions for automated driving and electrification, which are important issues for mobility today.



As the first area, "**HD Lighting**" will be exhibited as "Front Lighting Technologies for the Future". This individually controls the light divided into tens of thousands of pixels and prevents oncoming and preceding vehicles from being dazzled with a glare-free high beam that shades only the minimum range required.

In addition, it supports drivers by drawing information on the road with the illumination of the headlamps.

The importance of the electronic components for headlamps and signal lamps that control lamps and manage power of lamps with the automation and electrification of the vehicles is increasing.

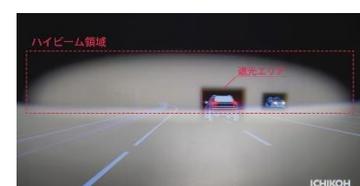
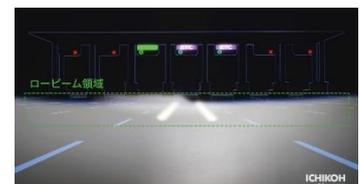
At the same time, system products such as the ADB (Adaptive Driving Beam) system, in which the camera and lighting are linked, are increasing. Valeo-Ichikoh Group began supplying headlamps including electronic components for control developed and manufactured at the Company to Japanese OEMs in 2020.

In this "once in a century" revolutionary period, the system of the entire vehicle is about to greatly evolve and Ichikoh have been developing an HD lighting unit in anticipation of the evolution.

**HD Lighting**



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HD lighting is the technology that individually controls each range of illumination which is divided into tens of thousands of pixels.

In the low beam area, it supports drivers by informing them of the lane guide and the navigation by drawing guidelines and symbols on the road with the illumination of the headlamps. It also enhances safety by accelerating the discovery of pedestrians with emphasized irradiation of crossing pedestrians' step.

In the high beam area, it is possible to drive maintaining the same light level as the conventional high beam while prevents oncoming and preceding vehicles from being dazzled by shading only the minimum range required.

In addition, it makes easier to see the sign by suppressing the light that irradiates the sign and works so that pedestrians don't feel glare by shading only the upper half of the body of the pedestrians.

The latest HD lighting units enable further improvements in night time visibility compared to conventional products. Ichikoh industries' independent testing have confirmed that the system can significantly reduce driver stress levels in night time driving.

In this exhibition, visitors can experience the evolution of lighting through a demonstration comparing HD lighting with the conventional 12-segment ADB unit.

As the second area, "**e-Grille**" will be exhibited as "Glowing Front Panel that Evolves Front Face".

This is a new lighting product for electric vehicles (EV / HEV / PHEV) that replaces conventional radiator grilles.

With the electrification of vehicles, the function of "intake for cooling the engine" of the radiator grille becomes less important.

On the other hand, just like lighting, the radiator grille has an iconic role to express the identity as a brand or model.

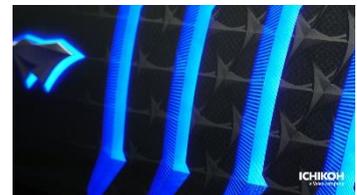
In addition, as a global styling trend, headlamps are becoming thinner and signal lamps are becoming larger, and the barrier between the design of the grille and lighting is lowering.

The e-Grille is a product that combines grille and lighting for a new era in which dissemination of electric vehicles (EV / HEV / PHEV) is progressing and that is in line with such styling trends and technological trends such as electrification for vehicles.

The e-Grille prototype at this exhibition, using a functional film material which was created in collaboration with DNP, gives a beautiful graphic appearance when not lit, and when lit, emphasizes the lighting shape without being affected by the graphics.

In the normal driving, it play a role as a glowing grille that creates a face of the car, and when charging, it plays a new role as a lamp to show charging status.

Experience the high quality graphics and light at the exhibition site.



As the third area, "Ichikoh's aftermarket products and new technologies in projection" will be exhibited.

Aftermarket product "**3D surround multi-view**" composites images from four HD cameras in real time and displays a safe field of view of all directions with high-quality 3D images. It can constantly display a bird's-eye view from directly above the vehicle, and drivers can grasp a situation around a vehicle with a 3D view.



Even if drivers check using a normal back camera and side mirrors together, blind spots will occur behind the vehicle. This product technology makes it possible to check the side and rear of the vehicle on a single monitor, including spots that were difficult to be seen before.

In addition, a composition technology that makes the object seen with as little sense of incongruity as possible in the joint between the cameras is used.

This product can be linked with all of our monitors, and can be used not only for ordinary trucks but also for special vehicles and construction machinery, and has been increasingly adopted in recent years.

The new technology in which the tool that allows the camera position and screen viewpoint to be changed during calibration was developed shortened development period for specifications which meet customer needs and vehicle geometry from approximately 2.5 months to about one month, and made it easier for customers to introduce the system by reducing costs and man-hours.

Users' demand for clearer images at night and in places with large contrast is increasing.

To address the demand, Ichikoh produces a line of new Digital products such as HD color cameras with a rear shutter of 1.28 million pixels equipped with HDR (high dynamic range) technology, the side cameras with a wider angle than before, HD color monitors which are digitized and increased in the size and back sensors which are compatible with them.

In addition to providing clearer images at night and in tunnels, they expanded the field of view by about 25% compared to conventional products by greatly reducing effect of contrast and by adopting a wider-angle camera and a larger monitor. This allows the drivers to have better rear visibility in all situations, enabling safer and more secure driving.

The use of HD-TVI transmission technology enables long-distance transmission and making it possible to install the system on all types of vehicles including large trucks and trailers which was difficult to install the system in the past, to check blind spots with a clear image, to use the conventional extension cable and to replace easily.

Please come to the venue to see the clear images.

**“Near-field Projection”** enhances safety and contributes to the reduction of traffic accidents by alerting the movement of the vehicle clearly to road users using projection technology.

Since our establishment, Ichikoh industries has developed a variety of products to improve safety, focusing on solutions to improve visibility from a driver and the vehicle's visibility to other driver.

The near-field projection is not for drivers, but for the purpose of communicating information to road users around vehicles such as pedestrians, bicycles, and motorcycles.

It aims to prevent accidents such as entanglement accident and contact accident by communicating the movements and danger of the vehicle clearly to the road users around and by urging to pay attention each other in addition to safety driving.

It can be used to inform the approach of quiet vehicles such as electric vehicles (EV / HV / PHEV).

It is particularly effective for large vehicles with many blind spots, such as trucks and buses, not only the passenger cars.

Improvements of safety can be expected, especially at spots with high risk of traffic accidents, such as intersections and parking lots.

In this exhibition, a prototype of a projection unit for direction indication which works in conjunction with turn signal lamps will be exhibited in addition to a model showing the use case of near-field projection.

## Near Field Projection



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(Reference)

About Ichikoh Industries, Ltd.:

Since its establishment in 1903, as a manufacturer specialized in car lamps and mirrors, Ichikoh has delivered products to major car makers in Japan and overseas.

In 2017, it became a subsidiary of Valeo, co-developing new products, gaining market share in the global market and strengthening geographically complementary relationships.

In 2019 started operation, Atsugi New Plant has introduced all the latest production technologies to enhance its competitiveness.

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