

August 3, 2023

Maxell, Ltd.

## Development of glass projection type high definition display for diverse needs and markets

Further miniaturization\*<sup>1</sup> has been realized based on Maxell's proprietary optical technology

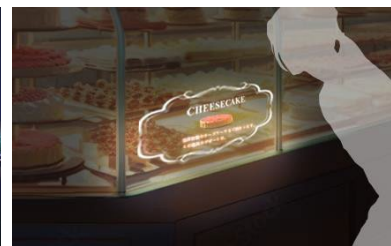
**BM**  
BM-Display



Appearance image of Bright Mirror



Display image on vehicles



Display image on digital signage\*<sup>2</sup>

Maxell, Ltd. (President and Representative Director: Keiji Nakamura / hereinafter “Maxell”), has developed the miniaturized high definition display, Bright Mirror Display (hereinafter “BM-Display”), which is able to project on the front windshield of passenger car, commercial vehicles, train, and on the shop window glass, that was enabled by the development of high-efficiency backlight.

Maxell has been mass-producing AR-HUD\*<sup>3</sup> for passenger cars since April 2021. Based on the high-efficiency backlight technology cultivated in AR-HUD, BM-Display realized the miniaturization (about 1.3L) and weight reduction (about 1kg), and is able to project on the front windshield of the vehicles that used to be difficult to install such as small vehicles, commercial vehicles, construction vehicles, train, and to project on clear glass in facilities as digital signage\*<sup>2</sup>.

In case of automobile, as BM-Display is able to display navigation, indicators, alarms, etc. on the bottom of front windshield, the viewpoint movement can be smaller than the conventional meter, which is expected to improve the safety. Furthermore, since the conventional HUD needs to be customized according to the glass of the vehicle, the development period used to be long and the introduction cost became high. In order to solve these problems, BM-Display has made it possible to extend the application scope, achieve low cost and shorten the development period of product by Maxell's proprietary image correction technology. In addition, the miniaturization of the product has made it easier to install on vehicles from a large range of small cars to large cars as well as special vehicles.

Maxell is also studying after-market installation on commercial cars, such as trucks, to display information like speed information, continuous driving time and rest time, to improve the safety.

## Specifications of BM-Display for automotive

Items	Specifications
FOV(H×V)[deg]	11×4
Set volume*4 [L]	About 1.3
Resolution (H×V)[pixel]	1,920×480
Weight [kg]	About 1.0

※The spec BM-Display for digital signage\*2 is differ from above. Please contact us for further information.

BM-Display can be applied to the signage field by display high definition images on glass, without blocking the products in glass.

Maxell will continue to create new value through our proprietary optical and imaging technologies and contribute to the safety and security of the society.

\*1 miniaturization : 88% smaller against AR-HUD, which has been mass-producing since April 2021.

\*2 digital signage : Information and advertising medias which display images and characters on flat display, etc. by using display and communication digital technology

\*3 AR-HUD : Augmented Reality Head-Up Display

\*4 Set volume : The volume varies depending on the shape of the vehicle and display size.

## HUD product page (Japanese only)

[https://biz.maxell.com/ja/display\\_equipment/ais\\_index.html](https://biz.maxell.com/ja/display_equipment/ais_index.html)

## Contact for product inquiries

New Business Producing Division, Maxell, Ltd.

Inquiry form: [https://biz.maxell.com/ja/display\\_equipment/inquiry\\_form\\_input.html](https://biz.maxell.com/ja/display_equipment/inquiry_form_input.html)

*This document was distributed in Japan on 3<sup>rd</sup> August 2023 by Maxell, Ltd. Bright Mirror Display complies with current Japanese regulations but Maxell Ltd cannot guarantee it complies with regulations outside of Japan.*