

**BRIGHTVIEW**  
TECHNOLOGIES

DESIGN BRILLIANCE MEETS  
VISUAL INTELLIGENCE™

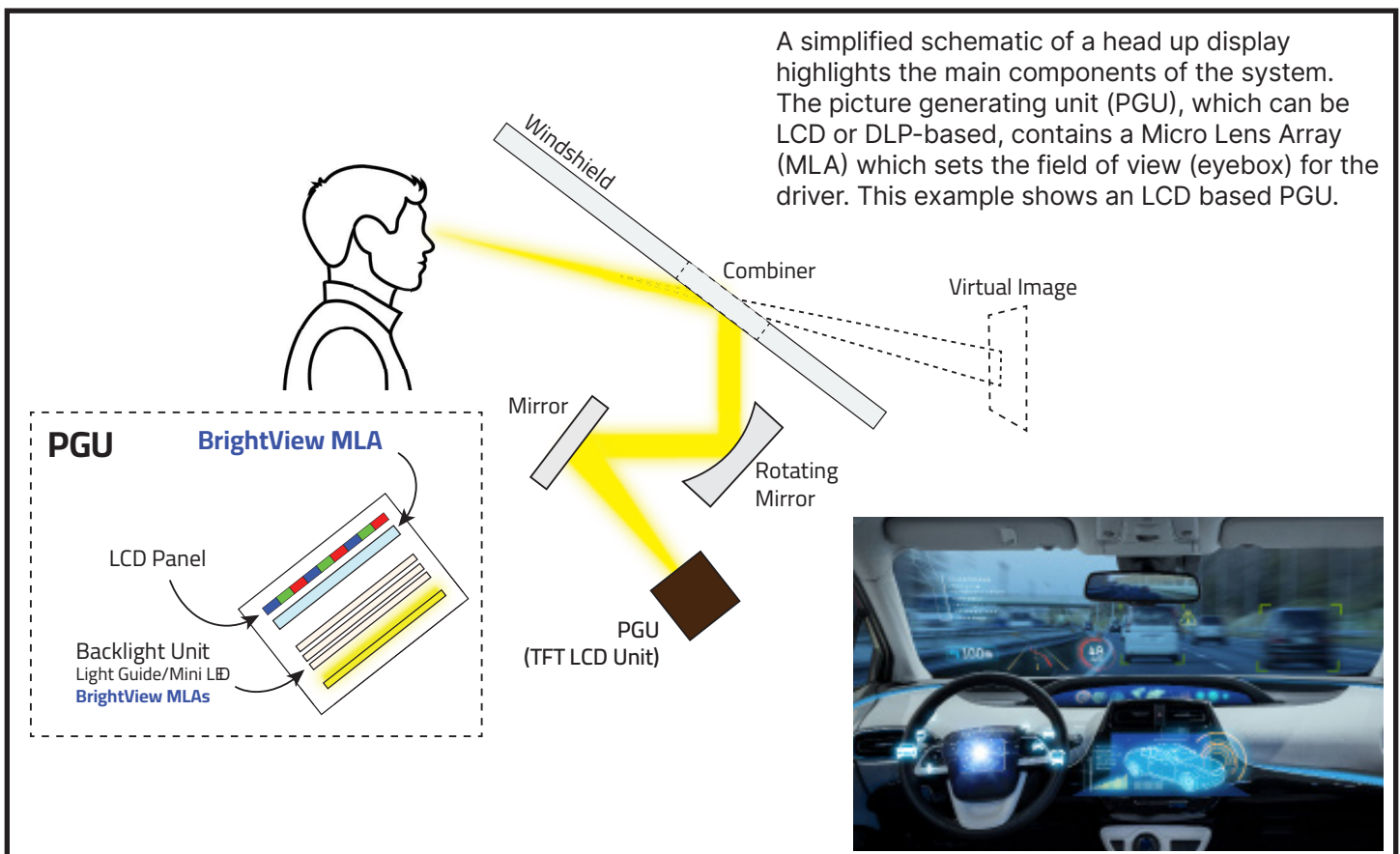
# MICRO LENS ARRAYS FOR HUD DISPLAYS

## BRIGHT & CRISP HEAD UP DISPLAY IMAGES

A head up display (HUD) projects relevant information into the driver's field of view for a dramatically improved driving experience. HUD units are quickly gaining in popularity in part due to the introduction of advanced sensors such as those used to monitor lane departure, driver awareness, the position of surrounding vehicles, signs, pedestrians, and in-road obstacles. These data streams can be integrated with the HUD to generate more relevant and dynamic information for the driver. Projecting these data streams as crisp, bright, dynamic images to the right place often requires a Micro Lens Array (MLA) integrated into the HUD optics.

BrightView improves HUD technology by providing advanced Micro Lens Array diffuser solutions that offer unmatched performance as a critical component in your design. Benefits include:

- Optimized off-the-shelf optical profiles and substrates
- Fast iterations for custom profiles
- High quality, high volume roll-to-roll mass production
- Compatible with next generation AR HUDs



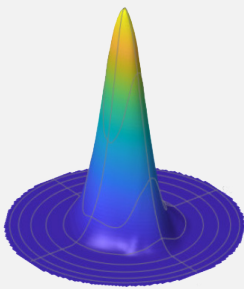
## OFF-THE-SHELF OPTICAL PROFILES

BrightView offers a variety of optical profiles to meet specifications:

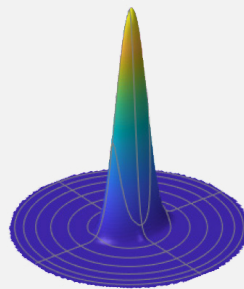
- Off-the-shelf elliptical profiles available
- World class optical engineering for custom MLAs\*
- Consistent lens quality with repeatable roll-to-roll manufacturing process
- Bright and vivid HUD images

\*MLA solutions for 2D mini LED and Edge Lit backlight units also available

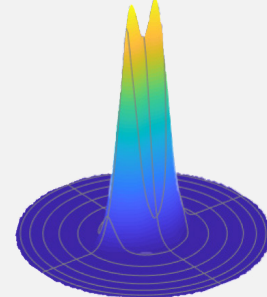
15°x 30° Elliptical



10°x 20° Elliptical



12°x 29° Top Hat



## ENVIRONMENTAL TESTING

BrightView MLAs are thoroughly tested to ensure high efficiency and reliable operation under a variety of environmental conditions.

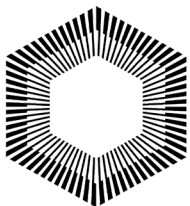
Test	Condition	Duration	$\Delta$ Transmission	$\Delta E^*$
Heat Resistance	105 °C	1000 Hrs	< 0.25%	< 1.5
Cold Resistance	-40 °C	1000 Hrs	< 0.25%	< 1
Temperature Cycling	-40 °C to 115 °C	100 Cycles	< 1%	< 1
Heat and Humidity	65 °C / 95% RH	1000 Hrs	< 0.25%	< 0.5

$$\Delta E^* = \sqrt{(\Delta L^{*2} + \Delta a^{*2} + \Delta b^{*2})}$$

## ABOUT BRIGHTVIEW

BrightView specializes in the highest-performing visual and optical solutions for advanced technology applications. We rapidly create, collaborate, and construct the world's most intelligent visual solutions, unlocking an unmatched level of performance across a range of emerging technologies.

BrightView is an ISO 9001:2015 certified organization by Advantage International Registrar, Inc.



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