BRIGHTVIEW
TECHNOLOGIES

MICRO LENS ARRAYS FOR FLASH LIDAR

BEAM SHAPING AND STEERING FOR OPTIMIZED FIELD OF VIEW

LiDAR (light detection and ranging) uses a laser to detect objects in the surrounding environment. Flash LiDAR in particular is becoming popular due to its low cost and simplicity, and a key component in automated driver assist systems (ADAS), robotics, and manufacturing. It uses pulses of light, usually emitted from a vertical cavity surface emitting laser (VCSEL) array coupled with a time-of-flight (ToF) camera, to measure the distance of surrounding objects. This creates an accurate 3D map of the environment very quickly. The VCSEL array is a semi-collimated source and requires beam shaping to create a specific field of view.

BrightView's Micro Lens Arrays (MLAs) provide unmatched performance and flexibility in beam shaping and enable new possibilities in optical designs:

- Cost effective - Multiple optical functions into a single component
- Unique optical distributions for short, mid and long range LiDAR
- Efficient to optimize the use of valuable photons
- Form factors and substrates suitable for demanding environments
- Extensive experience with many BrightView MLA optics deployed in the field
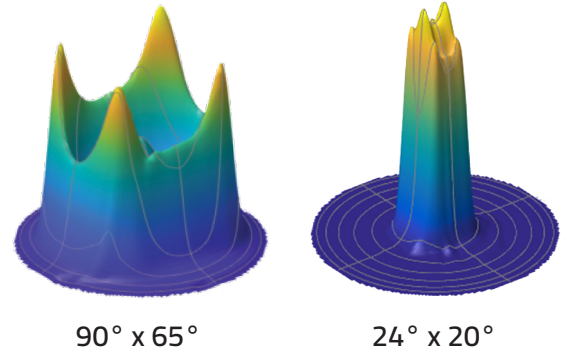
APPLICATIONS

- Automotive
- Surveying
- Robotics
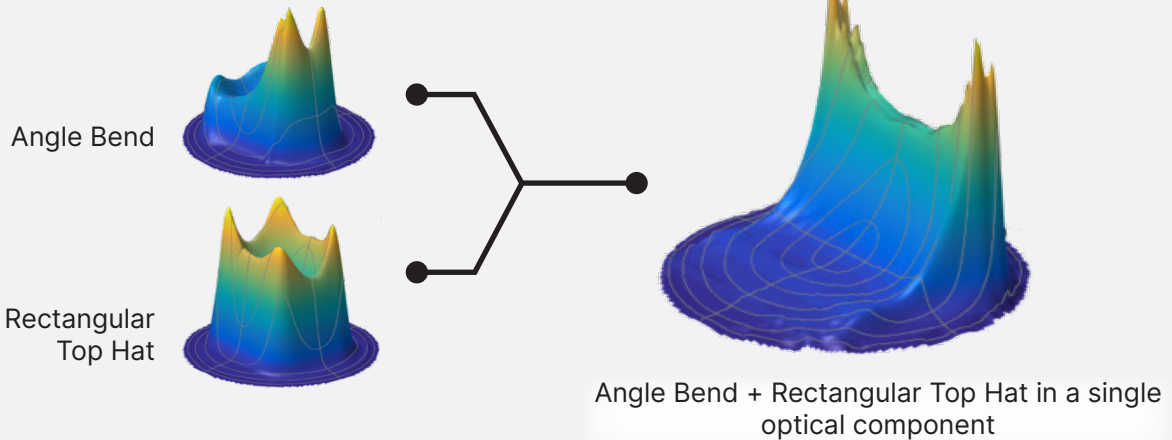- Manufacturing
- Custom Projects

SHORT AND LONG RANGE PROFILES

BrightView MLAs are designed for short, mid and long range LiDAR units. Smaller angles can focus light for improved distance, while larger angles can collect wide areas for short range detection.

Angles ranging from 10° to > 120°

90° x 65°   24° x 20°

COMBINING FUNCTIONS

Angle Bend

Rectangular Top Hat

Angle Bend + Rectangular Top Hat in a single optical component

ENVIRONMENTAL TESTING

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

Test	Condition	Duration	ΔTransmission	ΔE*
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.
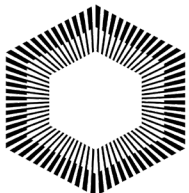
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