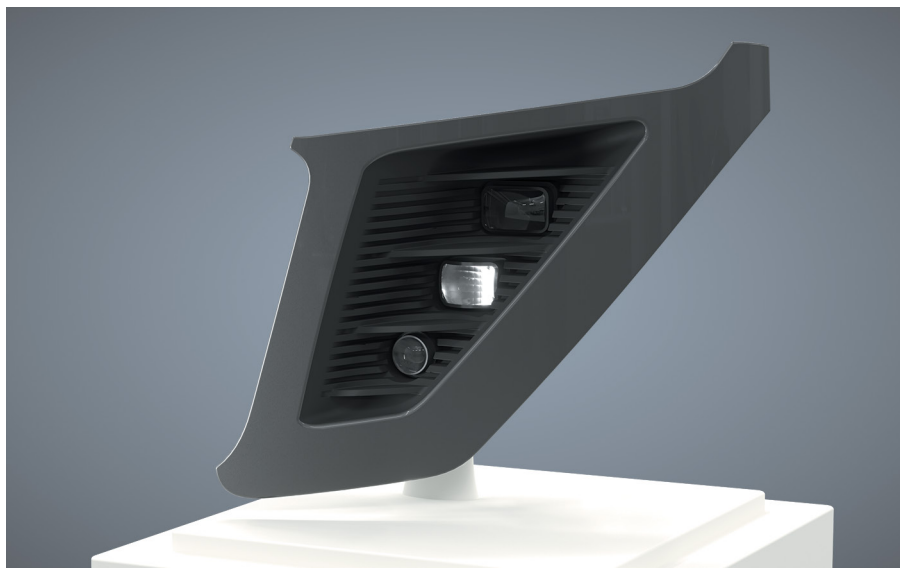


LUXEON NeoExact ADB Matrix

Customized Solutions for Compact and Efficient Direct Imaging



Customized LUXEON NeoExact matrix solutions enable extremely compact, highly efficient systems with superior intensity and contrast. Using direct-imaging optical architecture with a simplified lens system reduces build-in depth and enhances integration flexibility.

FEATURES AND BENEFITS

- The proprietary thin-film side coat of LUXEON NeoExact results in an extremely compact footprint, enabling close-die spacing down to 50 μm and compact optics
- Reduced glare due to improved contrast versus conventional LEDs
- 0.5 and 1.0 mm^2 light-emitting areas (LEAs) available, allowing customization and design flexibility for the matrix configuration
- Enables direct-imaging optical architecture, eliminating the need for complex primary optics
- LUXEON NeoExact matrix-board solutions offer easy design-in integration

PRIMARY APPLICATIONS

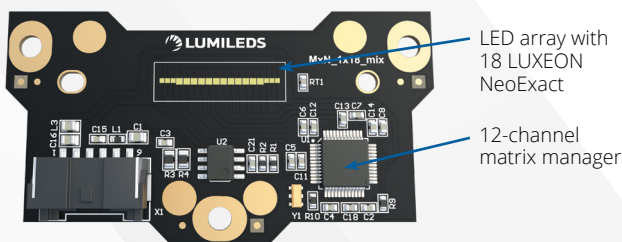
- Adaptive driving beam (ADB)
- Adaptive front-lighting system (AFS)
- Glare-free high beam

LUXEON NeoExact Customized Board Solutions for Compact ADB Systems with Direct-Imaging Optics

LUXEON NeoExact is designed for closely-spaced arrays with narrow gaps between the light-emitting areas. The arrays can be individually configured to match the needs of the optical system and desired beam performance.

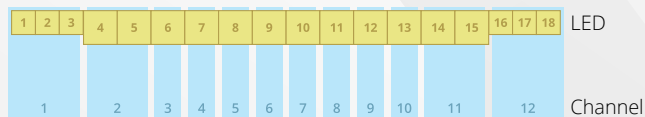
LED Array Configuration

- Single row of 18 LUXEON NeoExact:
 $12 \times 1.0 \text{ mm}^2 + 6 \times 0.5 \text{ mm}^2$
- Gap of 70 μm between the LEDs
- Combination of 1.0 mm^2 and 0.5 mm^2 light-emitting areas allows for the best compromise between cost, FoV, and performance.



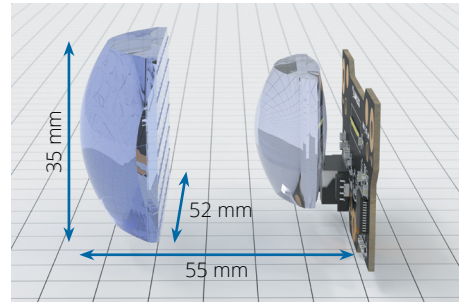
PCB Solution

- A single FR4 PCB with AIN inlay offers the best thermal performance.
- The 18 LEDs are grouped into 12 segments controlled by a single 12-channel matrix manager IC.
- The LEDs are connected in one string supplied by one LDM power channel along with intelligent PWM control.

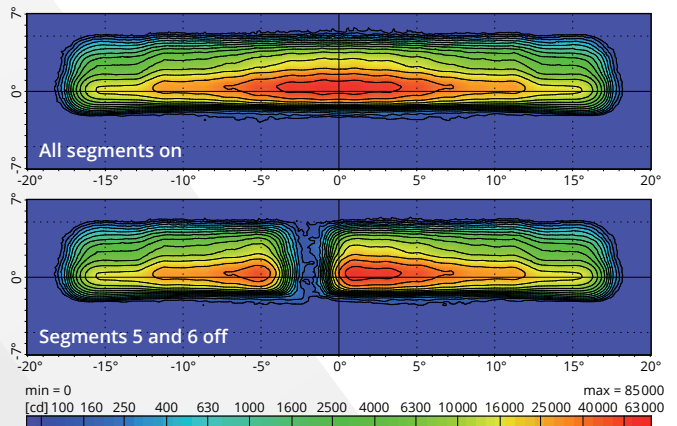


Lens System and Optical Performance

- Doublet PMMA projection lens of 52 mm \times 35 mm with focal length of 55 mm conforms with mass-production molding design rules.



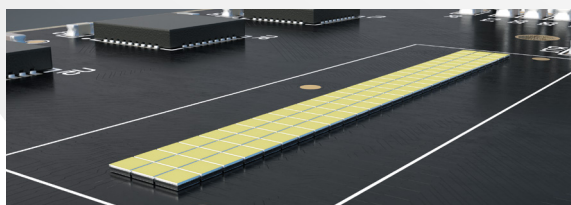
- With a flux of 300 lm from the LEDs in center:
 - Flux in beam*: 1090 lm
 - $I_{\text{max}}^* = 84300 \text{ cd}$, $E_{\text{max}}^* = 135 \text{ lx}$
 - Optical efficiency*: 41%
 - Field of view: $\pm 17^\circ \text{ H}$, $-2^\circ/+5^\circ \text{ V}$
 - Resolution of 2° at center pixel



* including losses at the cover glass

LUXEON NeoExact Matrix Solutions

Customized arrays of LUXEON NeoExact on a PCB:
 1 to 4 rows; any pixel count per row; electronic controls as specified by customer.



LUXEON NeoExact

0.5 mm^2

1.0 mm^2

	0.5 mm^2	1.0 mm^2
Maximum current	1.0 A	2.0 A
Typical luminous flux	188 lm (0.7 A, 85 $^\circ\text{C}$)	306 lm (1.0 A, 85 $^\circ\text{C}$)
Light-emitting area = package size	0.742 mm \times 0.742 mm	1.046 mm \times 1.046 mm
Contrast	1:400	1:400

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