

# Luminus LED Solutions for Automotive Projection





# Luminus: Improving Life with Photons

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Luminus creates market-enabling products across key segments using photonic innovation

With best-in-class performance in brightness available across the full wavelength spectrum, we enable unique capabilities across key life-improving applications

# Core Competencies



Broadest portfolio of product platforms across wavelengths



Highest current density in the industry ( $6.5\text{A}/\text{mm}^2$ )



Brightest light sources in the world



Custom precision spectra for demanding applications



Highest Power packages in the industry with excellent reliability



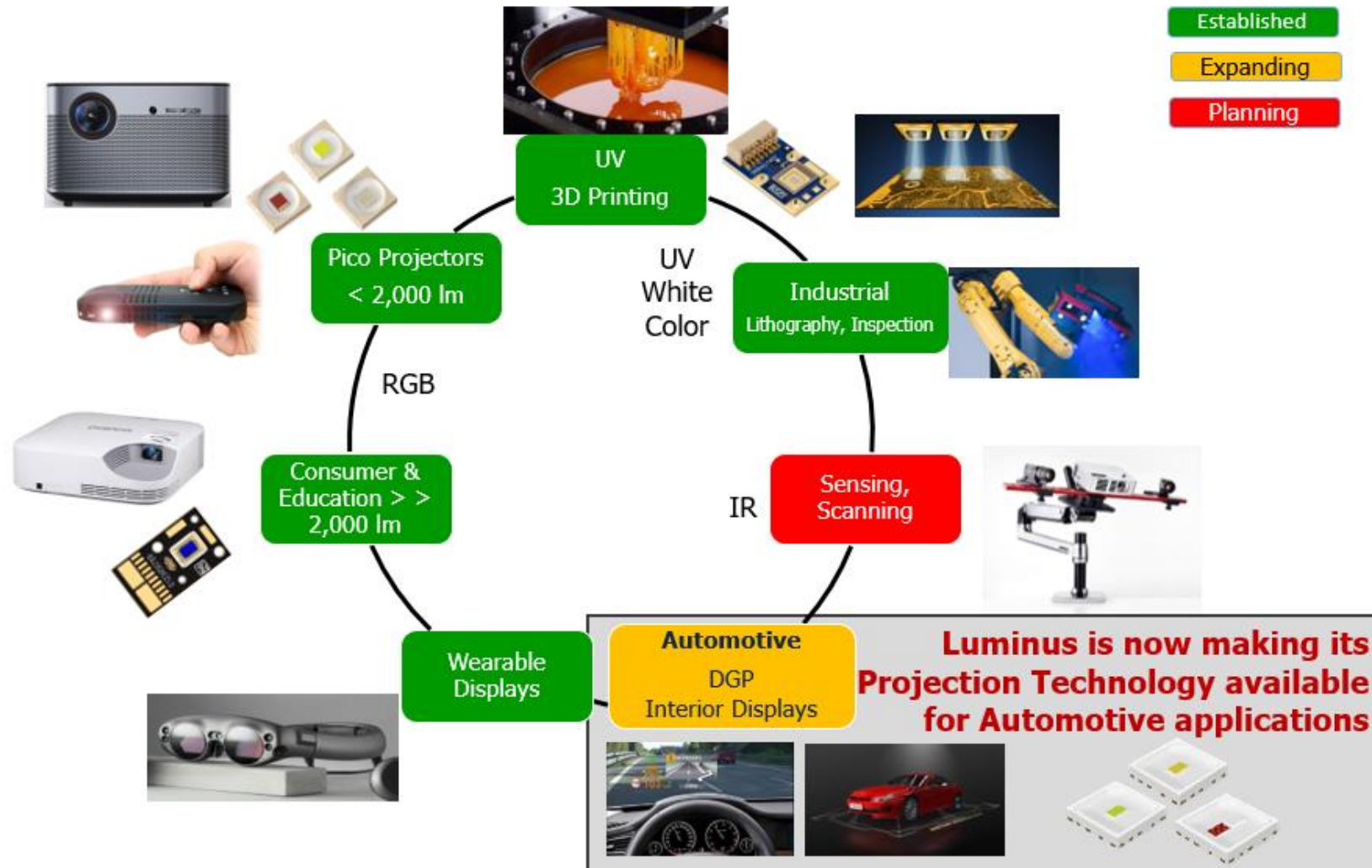
AlGaIn

AlInGa

AlGaInP

AlInGaAs

# 20 years experience in micro-display applications



# Automotive targeted applications

**Interior Projection**



RGB

**Side/Rear Window Displays**



RGB / W

**Augmented Reality HUD**



RGB

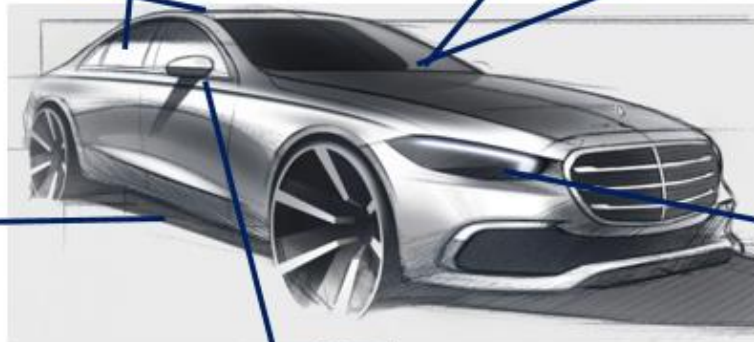
**Holographic HUD**



RGB



RGB / W



**High-Resolution Headlights w/ symbol projection**

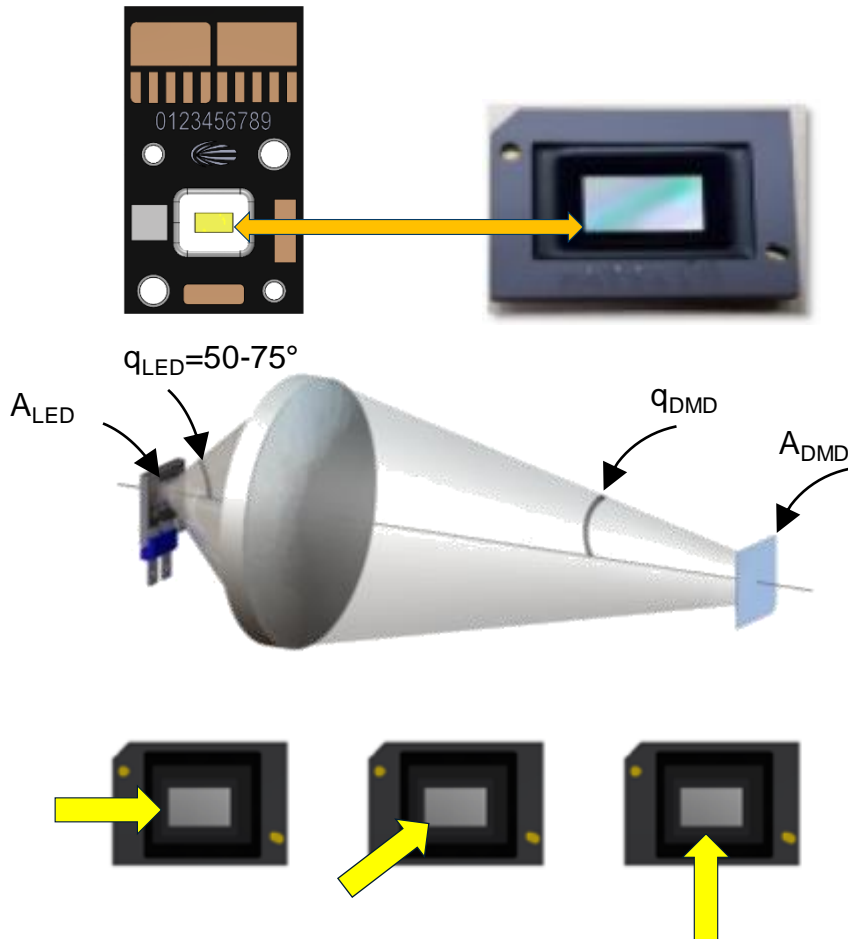


RGB / W

**DGP (Dynamic Ground Projection)**

- Driver Welcome / Orchestration
- "Vehicle to X" communication
- Autonomous vehicles

# Benefits of Luminus LEDs in DLP applications



- LEDs engineered specifically for projection applications
- Etendue-matched with DLP panel and system parameters for optimum optical efficiency and maximum performance
- Aspect-ratio matched to DMD size and illumination type (select models)
- Low thermal resistance package: high reliability with passive cooling
- Qualified at up to  $500A/cm^2$  (Red:  $400A/cm^2$ ) for maximum intensity in etendue
- Dedicated die & package Technology Innovation funnel for projection applications

*Illumination (vary by DMD type) : side, corner, bottom*

# Looking for – What can you do for Luminus

- Interested automotive customers (Tier 1 and OEMs)
- Requirements (lumen package, size, white or RGB)
- Optical partners to build solution around DLP and Luminus LEDs



IMPROVING LIFE WITH PHOTONS