

Datasheet

LuxaLight LED Engine Blue 450nm Protected (24 Volt, 108 LEDs, 2835, IP64)

LE-24-450-108X2835PLX

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Product description

The **LuxaLight LED Engine Blue 450 nm (Protected, 24 V)** is a **semi-finished aluminum PCB module**, engineered for OEMs and research teams who need a powerful and precise blue light source. Designed as a **core light-emitting component**, it offers maximum freedom in housing, optics, and thermal design.

The module contains 108 × 2835 SMD LEDs, an **industrial silicone coating for IP64 protection**, and an integrated NTC temperature sensor for safe operation. Combined with the MaNima Pollux Industrial System, the engine becomes a **complete, high-efficiency solution**, enabling pulsing, thermal management, and improved performance.

Key Specifications

Property	Value / Description
Type	LED Engine – semi-finished PCB module
LEDs	108 × 2835 SMD LEDs
PCB base	Aluminum
PCB protection	Industrial silicone coating (provides IP64 rating)
Dimensions	200 × 20 × 2 mm (modular design)
Supply	24 V DC / ~30 W
Wavelength	450 nm blue (peak ~450 nm)
Irradiance (5 cm)	~518 W/m ²
PPFD (5 cm)	~1,943 μmol/m ² ·s
Illuminance (5 cm)	~3,600 lx
Beam angle	120°
Thermal monitoring	Integrated NTC sensor (5 kΩ, β = 3950)

Applications

- **Horticultural lighting** – blue 450 nm regulates photosynthesis, leaf expansion, and stem morphology.
- **Photobiomodulation & biomedical use** – used in tissue studies, cell stimulation, and antimicrobial treatments.
- **Curing of inks, coatings & adhesives** – supports photochemical processes activated by blue wavelengths.
- **Machine vision & contrast enhancement** – enhances inspection of reflective or patterned surfaces.
- **Food & packaging quality control** – reveals subtle differences in freshness, color, or texture.
- **Research & OEM integration** – versatile source for experimental setups and custom fixture development.

Also applicable in R&D and specialized lighting setups.

Benefits for Engineers

- **Semi-finished module** – intended for OEM use and R&D projects
- **Perfect Pollux companion** – becomes a fully controllable system with MaNima Pollux
- **Improved efficiency with Pollux** – pulsing and thermal control maximize performance
- **Design freedom** – tailor housing, optics, and cooling as needed
- **High optical performance** – ~518 W/m², ~1,943 μmol/m²·s, ~3,600 lx at 5 cm
- **Modular scalability** – multiple engines can be combined for larger systems
- **Thermal safety** – NTC ensures reliable and stable operation
- **Industrial robustness** – IP64 protection via silicone coating

Integration with MaNima Pollux Industrial System

- Real-time NTC temperature monitoring
- Pulse/strobe modes for **higher peak intensity and efficiency**
- Prevents overheating while maximizing radiant output
- Compatible with PLC/SCADA automation environments
- Open UDP-based API for advanced integration and customization

Technical specifications

General

Brand	LuxaLight
Application	Machine Vision
LED type	2835
Material	Aluminum
Dimensions	200 × 20 × 2 mm
Mounting	3M tape VHB4905
Warranty	5 years
LEDs per piece	108.00
Lifetime	70000 hours

Lighting

Wave length	450nm
Beam angle	120 °
LB waarde	L80B50

Measurement results

Illuminance (Lux)
(Object size: 1 piece)

	24V
5cm	24600 lx
10cm	10930 lx
15cm	5581 lx
20cm	3447 lx
25cm	2329 lx
30cm	1777 lx

Total PPFD umol/m2 (PAR 400-700nm)
(Object size: 1 piece)

	24V
5cm	2100.93 umol/m2
10cm	911.42 umol/m2
15cm	465.72 umol/m2
20cm	289.43 umol/m2
25cm	195.91 umol/m2
30cm	149.57 umol/m2

Peak wavelength
(Object size: 1 piece)

452 nm

Peak irradiance
(Object size: 1 piece)

	24V
5cm	22.88 W/sqm
10cm	9.82 W/sqm
15cm	5 W/sqm
20cm	3.04 W/sqm
25cm	2.08 W/sqm
30cm	1.59 W/sqm

Total irradiance

(Object size: 1 piece)

	24V
5cm	554.6 W/sqm
10cm	251.4 W/sqm
15cm	128.4 W/sqm
20cm	78.73 W/sqm
25cm	53.8 W/sqm
30cm	41.51 W/sqm

- By combining Pulse Mode with Real-Time Monitoring, the efficiency of LED systems can be increased, resulting in higher output.
- We have the expertise and equipment to perform measurements tailored to the specific requirements of the application.

Electronics

Working voltage	24V
Current per piece	1.25 A / piece
Power consumption per piece	30.00 W / piece
PCB material	Aluminium

Pinout

Symbol	Function
V+	V+
GND	Ground
NTC	NTC sensor
NTC_GND	NTC ground

NTC parameters	Resistance: 5000 Ohm Beta value: 3950
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Environmental

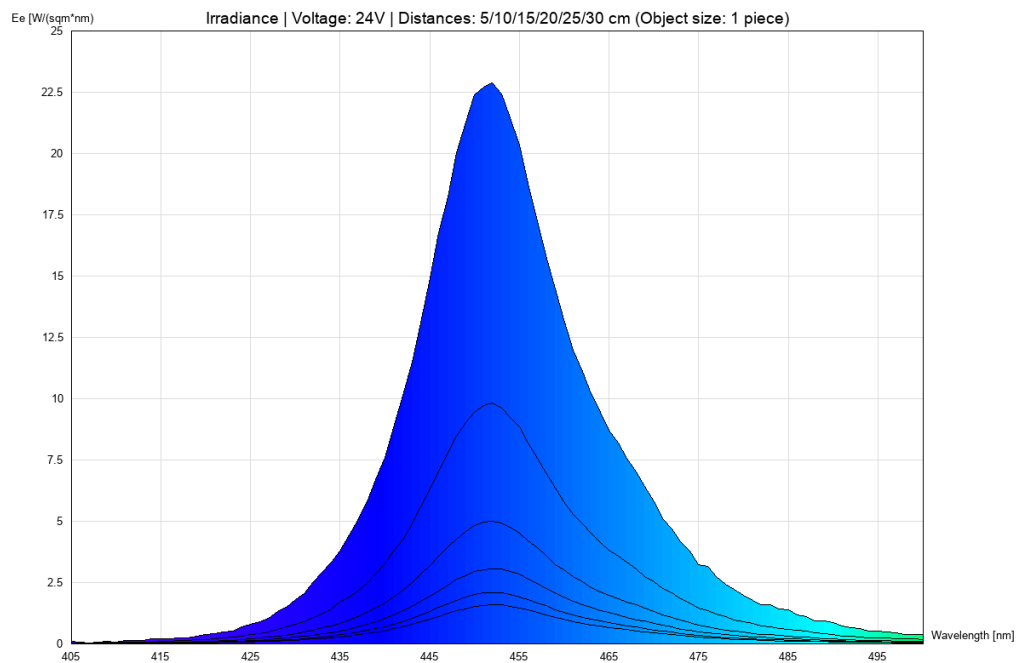
Operating temperature	-20 ~ +60 °C
Storage temperature	-40 ~ +80 °C
IP class	IP 64

Directives - standards - certificates

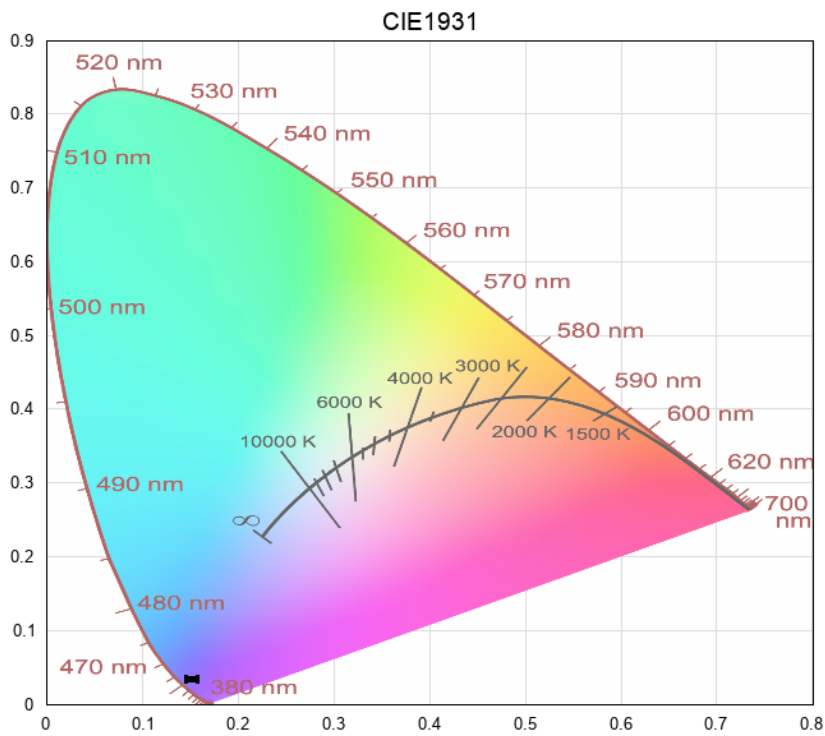
Directives	RoHS CE
Safety standards	EN60598-1 EN62031 IEC62471

Measurement results

irradiance - 405-500-blue (24V)



cie1931



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