

Datasheet

LuxaLight LED Engine Far Red 735nm Protected (24 Volt, 108 LEDs, 2835, IP64)

LE-24-735-108X2835PLX

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Product description

The **LuxaLight LED Engine Far-Red 735 nm (Protected, 24 V)** is a **semi-finished aluminum PCB module**, designed for engineers and OEMs requiring precise far-red radiation for horticulture, optical systems, or photobiology research. Delivered as a **light-emitting core**, it provides full design freedom for housings, optics, and thermal management.

With 108 × 2835 SMD LEDs, an **industrial silicone coating for IP64 protection**, and an integrated NTC temperature sensor, the module ensures stable, long-term performance. Combined with the MaNima Pollux Industrial System, it becomes a **complete, efficient far-red solution**, supporting pulsed operation, thermal monitoring, and advanced integration into automation systems.

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 (IP64)
Dimensions	200 × 20 × 2 mm (modular design)
Supply	24 V DC / ~30 W
Wavelength	735 nm far-red
Irradiance (5 cm)	~480 W/m ² (typical measured value)
PPFD (5 cm)	~1,600 μmol/m ² ·s (indicative photon flux)
Illuminance (5 cm)	Not applicable (invisible spectrum)
Beam angle	120°
Thermal monitoring	Integrated NTC sensor (5 kΩ, β = 3950)

Applications

- **Phytochrome balancing in horticulture** – far-red light shifts phytochrome states, influencing stem elongation, flowering, and shade avoidance responses.
- **Flowering control & end-of-day lighting** – far-red pulses accelerate flowering and simulate twilight conditions.
- **Plant morphology regulation** – supports control of leaf expansion, branching, and plant height in controlled environments.
- **Canopy penetration & Emerson effect** – enhances light penetration into dense foliage and improves photosynthetic efficiency when combined with red light.
- **Night interruption strategies** – manipulation of flowering cycles by adjusting red/far-red ratios at night.
- **R&D & photobiology research** – essential tool for studies on light-driven plant physiology and phytochrome processes.
- *R&D & spectroscopy – stable far-red reference source for calibration and scientific experimentation.*

Benefits for Engineers

- **Optimized for far-red** – high efficiency at 735 nm for horticulture and photobiology
- **Semi-finished module** – ideal for OEM integration and R&D use
- **Pollux compatibility** – enables pulsed operation and thermal safety feedback
- **Design freedom** – housing, optics, and thermal setup fully customizable
- **Thermal reliability** – integrated NTC sensor ensures safe, long-term operation
- **Scalable system** – modular design allows multiple engines to be combined
- **Industrial robustness** – IP64 protection through silicone coating

Integration with MaNima Pollux Industrial System

- Real-time NTC thermal feedback
- Pulse/strobe modes for **dynamic far-red intensity control**
- Overheating protection while maximizing efficiency
- PLC/SCADA system compatibility for automated growing strategies
- Open UDP-API for seamless system integration

Technical specifications

General

Brand	LuxaLight
Application	Barcode Scanning Machine Vision
LED type	2835
PCB color	White
Material	Aluminum
Dimensions	200 × 20 × 2 mm
Mounting	3M tape VHB4905
LEDs per piece	108.00

Lighting

Wave length	735nm
Beam angle	120 °

Measurement results

Peak wavelength (Object size: 1 piece)	739 nm
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Peak irradiance
(Object size: 1 piece)

	24V
5cm	9.67 W/sqm
10cm	3.72 W/sqm
15cm	1.91 W/sqm
20cm	1.18 W/sqm
25cm	0.79 W/sqm
30cm	0.59 W/sqm

Total irradiance
(Object size: 1 piece)

	24V
5cm	416.3 W/sqm
10cm	159.7 W/sqm
15cm	82.65 W/sqm
20cm	51.08 W/sqm
25cm	34.48 W/sqm
30cm	25.66 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

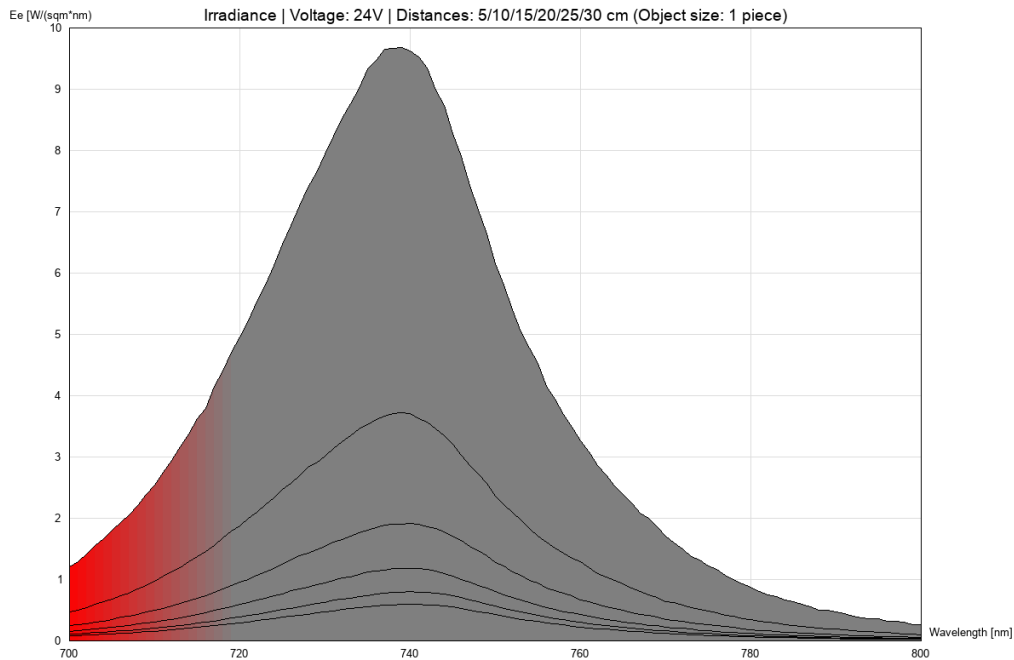
Operating temperature	-20 ~ +60 °C
Storage temperature	-40 ~ +80 °C
IP class	IP 64

Directives - standards - certificates

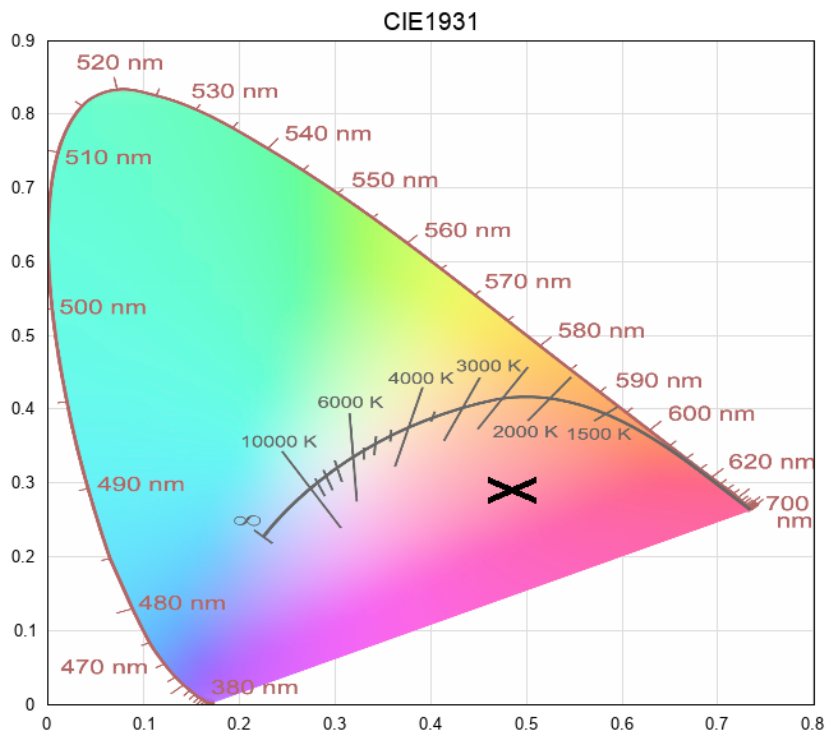
Directives	RoHS CE
Safety standards	EN60598-1 EN62031 IEC62471

Measurement results

irradiance - 700-800-deep-far-red (24V)



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