Datasheet

LuxaLight LED Back Light 5700K Protected (24 Volt, 140 LEDs, 2835, IP64)

BL-5700-140-200X100

Version: 2025-07-03.2

LuxaLight B.V.
Hastelweg 260B
5652 CN Eindhoven
Nederland

KvK-nummer: 57580561
BTW-nummer: NL852642209B01
IBAN: NL87 INGB 0007 8159 75
BIC/SWIFT code: INGBNL2A

Email: info@luxalight.eu
Website: www.luxalight.eu
Tel.: +31 (0)40 - 202 49 04

Product description

The **LuxaLight Backlight PCB** is designed specifically for the machine vision and robotics industries, providing a highly modular and customizable lighting solution that ensures precise and efficient illumination. With an impressive 481K Lux (KLx) output, this backlight PCB delivers exceptional brightness and uniformity, essential for accurate imaging and object detection in demanding industrial environments. The PCB is equipped with strategically placed cutouts that allow for the correct positioning of the camera lens, ensuring improved alignment and focus.

Key Features:

- **481K Lux Output (KLx):** Provides exceptional brightness and high contrast, essential for machine vision applications, resulting in detailed and accurate imaging.
- **Modular Design:** The flexible, modular design allows for easy customization for different machine vision setups and robotics applications.
- **Camera Lens Alignment Cutouts:** Strategically placed cutouts ensure accurate camera lens positioning, enhancing image clarity and sharpness.
- **24V Power Supply:** Operates on a reliable 24V system, ensuring efficient operation with low energy consumption, making it suitable for continuous use in industrial environments.
- **Real-Time Temperature Monitoring with NTC Sensor:** The integrated **NTC sensor** monitors temperature in real-time, preventing overheating and ensuring the optimal performance of the system.
- **Pulsing Capability with MaNima Pollux Industry:** The backlight PCB is compatible with the **MaNima Pollux Industry** system, enabling pulsing (strobing) for enhanced clarity and brightness, especially in high-speed applications.
- **IP64 Silicone Nano Coating:** The **IP64-rated silicone nano coating** offers extra protection against moisture, dust, and other environmental factors, making it suitable for use in harsh industrial environments.
- **Durability and Industrial Suitability:** Built for industrial applications, the backlight PCB offers long-lasting reliability, even in demanding environments.

Applications:

- **Machine Vision Systems:** Ideal for providing precise, uniform lighting for machine vision cameras, with applications such as inspection, quality control, and automated testing.
- **Robotics:** Perfect for use in robotics applications where accurate object detection, sorting, or navigation is required. The ability to pulse and precise lens alignment optimizes speed and performance.
- **Automated Manufacturing:** Suitable for use in automated production lines for quality control, assembly, and sorting, where clear imaging is critical for quality outcomes.
- **3D Scanning and Inspection:** Ideal for 3D scanning and inspection processes, where lighting is essential for capturing detailed images of complex objects and surfaces.
- **Industrial Automation:** Ideal for various industrial automation applications that require lighting for cameras and sensors in environments such as material handling, packaging, and assembly lines.

Benefits:

- **Enhanced Imaging Accuracy:** The 481K Lux output, combined with precise camera lens positioning, ensures brighter and sharper images, improving the accuracy of machine vision applications.
- **Customization and Flexibility:** The modular design allows for maximum adaptability to specific machine vision and robotics applications, ensuring optimal lighting.
- **Real-Time Temperature Management:** The **NTC sensor** ensures continuous temperature monitoring, maintaining ideal operating conditions and extending the lifespan of the PCB.
- **Increased Efficiency with Pulsing:** The **MaNima Pollux Industry Pulsing** feature allows for faster and clearer imaging, ideal for high-speed applications or environments with rapid movement.
- **Reliability and Durability:** The **IP64 silicone nano coating** provides extra protection against dust, moisture, and other environmental factors, ensuring the system performs optimally in industrial environments.

Technical specifications

General	
Brand	LuxaLight
Application	Horticulture Machine Vision
LED type	2835
PCB color	White
Material	Aluminum
Dimensions	200 × 100 × 2 mm
Mounting	3M tape VHB4905
LEDs per piece	140.00

Lighting	
CRI	≥ 95
BIN	3 SDCM
Beam angle	120 °
LB waarde	L80B50

Measurement results	
CRI (Object size: 1 piece)	95
CCT (Object size: 1 piece)	5922 K

Illuminance (Lux)
(Object size: 1 piece)

	24V
5cm	158800 lx
10cm	82520 lx
15cm	46100 lx
20cm	29190 lx
25cm	20260 lx
30cm	15310 lx

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

	24V
5cm	2501.08 umol/m2
10cm	1304.29 umol/m2
15cm	729.932 umol/m2
20cm	462.758 umol/m2
25cm	321.147 umol/m2
30cm	242.431 umol/m2

Peak wavelength (Object size: 1 piece)	453 nm

Peak irradiance
(Object size: 1 piece)

	24V
5cm	4.5549 W/sqm
10cm	2.43983 W/sqm
15cm	1.36611 W/sqm
20cm	0.876133 W/sqm
25cm	0.610836 W/sqm
30cm	0.461369 W/sqm

Total irradiance
(Object size: 1 piece)

	24V
5cm	569.6 W/sqm
10cm	298.1 W/sqm
15cm	166.7 W/sqm
20cm	105.4 W/sqm
25cm	73.06 W/sqm
30cm	55.02 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

Environmental

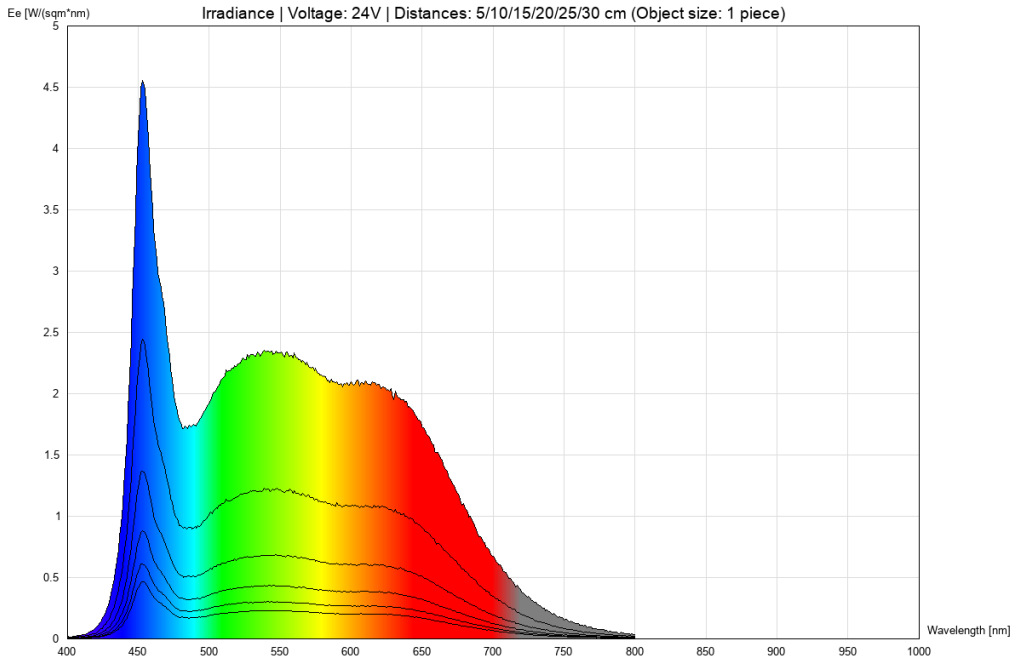
Operating temperature	-20 ~ +60 °C
Storage temperature	-40 ~ +80 °C
IP class	IP 64

Directives - standards - certificates

Directives	RoHS CE
Safety standards	EN60598-1 EN62031 IEC62471

Measurement results

irradiance - full-spectrum (24V)



cie1931