Datasheet

LuxaLight Industrial LED Fixture Opaline cover Neutral White 4200k 24.2x16mm (24 Volt, 2835, IP64)

LF-24-4200k-24.2X16-OC

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Product description

The **LuxaLight Industrial LED Engine (4200K)** is a high-quality fixture, specially designed for applications that require high light output, precision, and excellent color rendering. The fixture is made from durable aluminum, which not only ensures a robust and reliable construction but also provides excellent *heat management* performance. The design is optimized to prevent overheating and maximize efficiency. The **opal cover** ensures even light distribution, making it ideal for applications where broad light coverage is essential. This makes the unit highly suitable for environments where uniform light spread is crucial.

Key Features:

- **4200K Color Temperature:** The neutral white light at 4200K provides a balanced spectrum, with a strong focus on the 650 nm and 675 nm wavelengths for red light, essential for photosynthesis and plant growth. The LED engine also has a high peak at 450 nm, ideal for promoting chlorophyll production and other biological processes.
- **High PAR Flux (2726 µmol/m²/s at 5 cm):** The LED engine delivers high light intensity in the form of PAR, ideal for promoting photosynthesis and plant growth. This makes it an excellent choice for horticulture and other applications requiring intense light.
- **Aluminum Fixture for Optimal Heat Management:** The fixture is made from high-quality aluminum, ensuring efficient heat dissipation and optimizing the performance of the LED engine. This helps prevent overheating, ensuring the product operates at its best at all times.
- **Opal Cover for Light Distribution:** The opal cover ensures soft, even light distribution, making it ideal for applications where broad light coverage is required, such as growing environments where even lighting throughout the space is needed.
- **Pulse Modes for Dynamic Light Management:** The **Pulse Modes**, developed for the **Pollux industry**, provide the ability to adjust light intensity in different stages. This makes it possible to tailor the light cycle to the specific needs of the application, optimizing photosynthesis and plant growth.
- **Easy Integration:** The LED engine is designed for easy integration into existing systems or enclosures, providing flexibility for a wide range of horticultural and light-related applications.
- **Real-Time Temperature Monitoring via NTC Sensor:** The integrated NTC sensor continuously measures and adjusts temperature, maintaining optimal operating conditions. This prevents overheating and ensures the LED engine always performs at its best, maximizing output for consistent and long-lasting results.

Applications:

- **Horticulture and Plant Lighting:** The 4200K color temperature and high PAR flux make this LED engine ideal for horticultural applications, where a broad spectrum of light is necessary to promote photosynthesis, with a strong focus on 650 nm and 675 nm for red light and a peak at 450 nm for blue light. The opal cover ensures even light distribution, making it ideal for larger growing spaces or applications requiring broad light coverage.
- **Plant Research and Growth Optimization:** With its balanced light spectrum, including specific wavelengths of 650 nm, 675 nm, and 450 nm, the LED engine is ideal for scientific research on plant growth, photosynthesis, and other biological processes influenced by light intensity and quality.
- **Growing Facilities and Vertical Farming:** The LED engine provides powerful lighting for controlled growing environments in greenhouses, vertical farming, and other indoor growing applications, where specific light spectrums and high PAR flux are essential for maximum yield and plant health. The opal cover aids in even lighting in such environments.
- **Plant and Product Quality Control:** The LED engine is also suitable for quality control of plants, crops, or other biological products in agriculture and horticulture, providing consistent lighting that accurately simulates growth conditions.

Benefits:

- **Full Spectrum with High Peaks at 450 nm and Red Light (650 nm & 675 nm):** The extensive light spectrum, with specific wavelengths for blue light (450 nm) and red light (650 nm & 675 nm), offers powerful lighting for photosynthesis and plant growth.
- **High PAR Flux:** The high PAR flux of 2726 µmol/m²/s at 5 cm ensures sufficient light intensity, essential for promoting healthy plant growth, especially in commercial growing environments.
- **Integration Flexibility:** The LED engine can be easily integrated into existing systems or enclosures, providing flexibility for applications in greenhouses, vertical farming, and other horticulture-related setups.
- **Efficient Performance:** The LED engine provides reliable and efficient performance with consistent light output, making it ideal for intensive growth applications such as horticulture, where long-lasting and dependable lighting is required.

Technical specifications

General	
Brand	LuxaLight
Application	Food Inspection (Agro-Food) Hyper - spectral Imaging Line Scan Cameras Machine Vision
LED type	2835
Material	Aluminum
Dimensions	220 × 24,2 × 16 mm
Mounting	Surface mounted
Cover type	PMMA opal
LEDs per piece	108.00

Lighting	
Color temperature	4200 K
Beam angle	120 °

Measurement results

CRI (Object size: 1 piece)	91
CCT (Object size: 1 piece)	4370 K

Illuminance (Lux)
(Object size: 1 piece)

	24V
5cm	215100 lx
10cm	81620 lx
15cm	41970 lx
20cm	25990 lx
25cm	17500 lx
30cm	13130 lx

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

	24V
5cm	3295.42 umol/m2
10cm	1250.16 umol/m2
15cm	643.615 umol/m2
20cm	398.71 umol/m2
25cm	268.668 umol/m2
30cm	201.382 umol/m2

Peak wavelength (Object size: 1 piece)	452 nm

Peak irradiance
(Object size: 1 piece)

	24V
5cm	4.27309 W/sqm
10cm	1.67554 W/sqm
15cm	0.867289 W/sqm
20cm	0.538581 W/sqm
25cm	0.363114 W/sqm
30cm	0.272948 W/sqm

Total irradiance
(Object size: 1 piece)

	24V
5cm	742.9 W/sqm
10cm	281.7 W/sqm
15cm	144.8 W/sqm
20cm	89.78 W/sqm
25cm	60.43 W/sqm
30cm	45.25 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

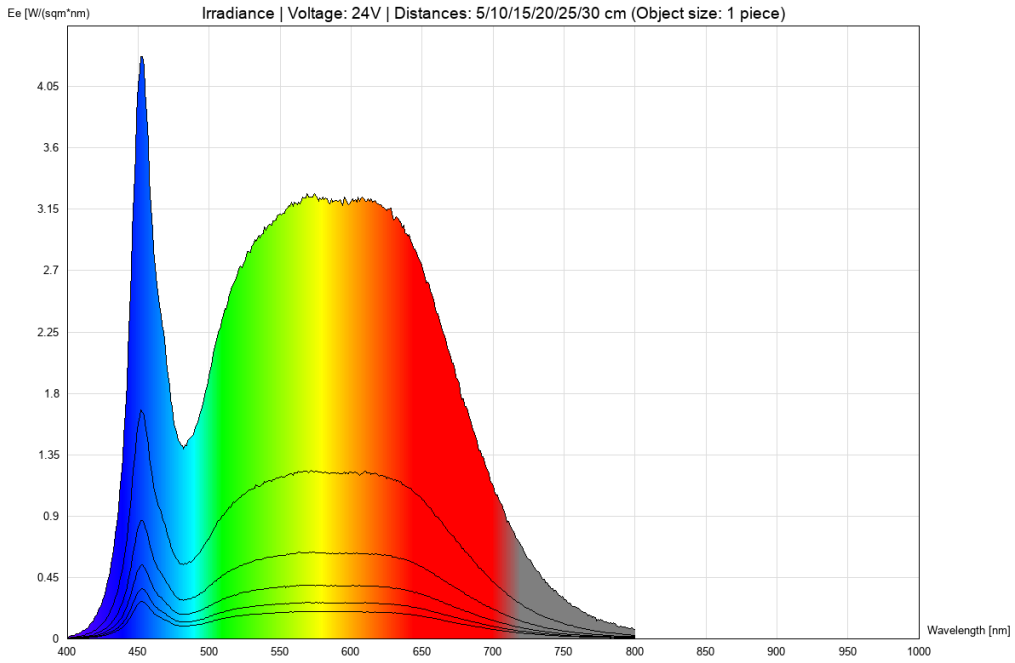
Operating temperature	-20 ~ +60 °C
Storage temperature	-40 ~ +80 °C
IP class	IP 64

Directives - standards - certificates

Directives	RoHS CE
Safety standards	EN60598-1 EN62031 IEC62471

Measurement results

irradiance - full-spectrum (24V)



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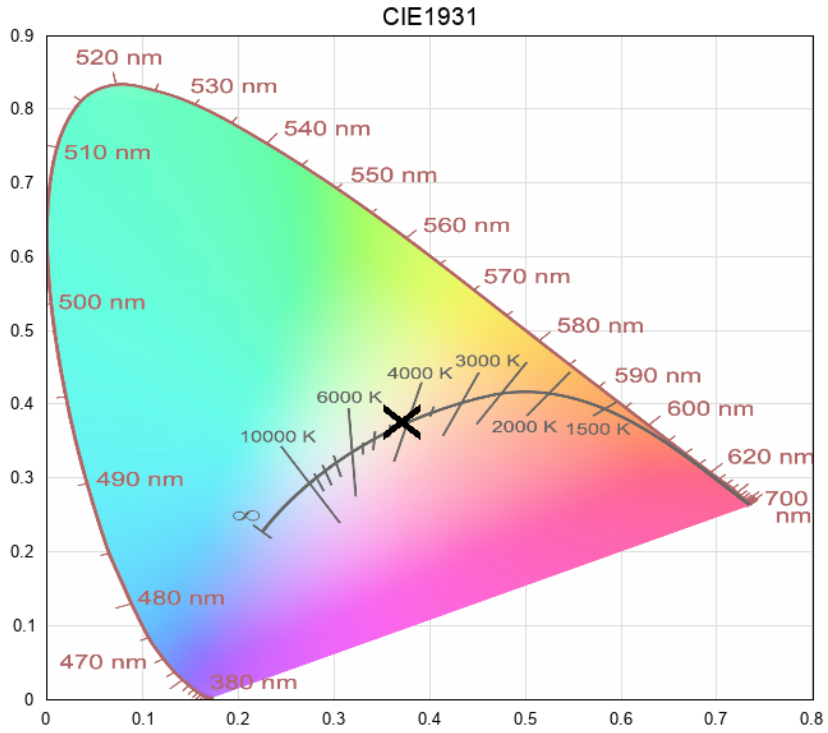

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