LF-24-4200K-24.2X16-PU - datasheet, version: 2025-03-28.1
LuxaLight Industrial LED Fixture Transparent IP68 Neutral White Full Spectrum 4200K 24.2x16mm (24 Volt, 2835, IP68)

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Datasheet

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Product description

The **LuxaLight Industrial LED Fixture (4200K)** is a high-quality fixture designed for applications that require high light output, precision, and excellent color rendering. The fixture is fully encapsulated in **polyurethane (PU)**, making it **completely waterproof (IP68)** and providing exceptional **impact resistance (IK10)**. This construction makes the fixture ideal for use in demanding environments where durability and protection from external factors are essential.

Key Features:

- **4200K Color Temperature:** The neutral white light at 4200K provides a balanced spectrum, with a strong focus on 650 nm and 675 nm wavelengths for red light, essential for photosynthesis and plant growth. The LED fixture 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 fixture 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.
- **Fully Encapsulated in Polyurethane (PU) for IP68 and IK10 Protection:** The fixture is fully encapsulated in polyurethane, providing **complete waterproof protection (IP68)**, making it ideal for use in wet or humid environments. Its **impact resistance of IK10** makes it highly durable and able to withstand heavy impact, making it perfect for industrial and demanding applications.
- **Easy Integration:** The LED fixture is designed for easy integration into existing systems or enclosures, providing flexibility for a wide range of horticultural and light-related applications.
- **Compatibility with Pollux for Pulse Mode:** The LuxaLight LED Fixture can be used in combination with the **Pollux**, which provides the ability to adjust light intensity in pulses. This allows the light cycle to be tailored to specific needs, optimizing photosynthesis and plant growth.
- **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 fixture 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 fixture 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.
- **Plant Research and Growth Optimization:** With its balanced light spectrum, including specific wavelengths of 650 nm, 675 nm, and 450 nm, the LED fixture 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 fixture 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.
- **Plant and Product Quality Control:** The LED fixture 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.
- **Robust Waterproof and Impact-Resistant Construction:** The fixture is fully encapsulated in PU for **IP68** protection, making it completely waterproof and suitable for use in wet environments. The **impact resistance (IK10)** ensures that the fixture is durable and able to withstand heavy impact, making it ideal for industrial applications.
- **Efficient Performance:** The LED fixture 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.
- **Real-Time Temperature Monitoring for Consistent Performance:** The integrated NTC sensor ensures continuous temperature monitoring, preventing overheating and maintaining optimal performance over time. This contributes to maximizing the LED fixture's yield, which is crucial for maintaining high performance in a dynamic environment.

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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	Polyurethane
LEDs per piece	108.00

Lighting	
Color temperature	4200 K
Beam angle	120 °

Measurement results

PPFD

Value	Measuring distance
3329 µmol/m2	50 mm
1893 µmol/m2	75 mm
1220 µmol/m2	100 mm
378 µmol/m2	200 mm
198 µmol/m2	300 mm
127 µmol/m2	400 mm
87,4 µmol/m2	600 mm

Irradiance

Value	Measuring distance
747 W/m2	50 mm
425 W/m2	75 mm
274 W/m2	100 mm
85 W/m2	200 mm
44 W/m2	300 mm
28 W/m2	400 mm
20 W/m2	600 mm

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Illuminance

| Value	Measuring distance
218 klux	50 mm
124 klux	75 mm
80 klux	100 mm
25 klux	200 mm
13 klux	300 mm
8,3 klux	400 mm
5,7 klux	600 mm

• 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 68

Directives - standards - certificates

Directives	RoHS CE
Safety standards	EN60598-1 EN62031 IEC62471

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Measurement results
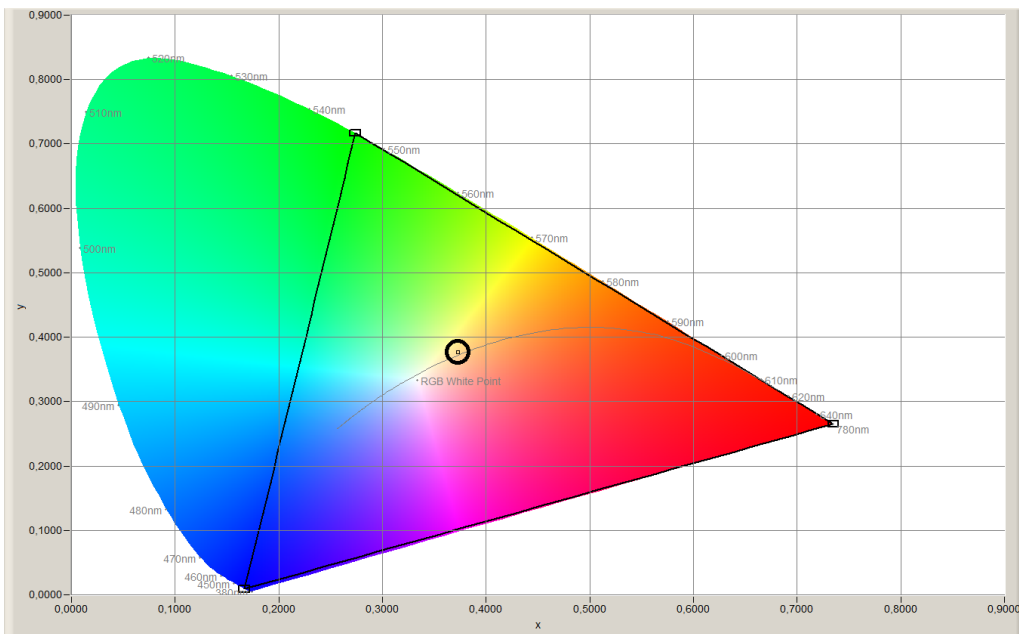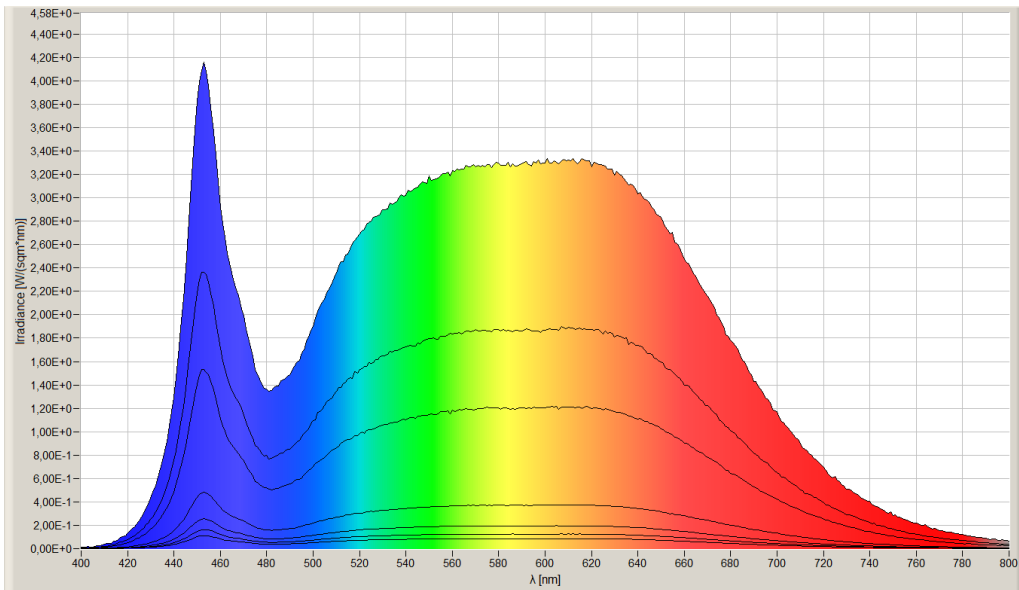
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