

Datasheet

Zirqle Industrial LED Fixture Polarised cover Red 640nm 24.2x16mm (24 Volt, 2835, IP64)

LF-24-640-24.2X16-POL

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Product description

The **Zirqle Industrial LED Fixture Polarised Cover Red 640 nm (24.2 × 16 mm)** is designed for industrial environments requiring robust, high-intensity deep-red illumination with reduced glare. The polarised PMMA cover provides linearly polarised red light, effectively suppressing reflections. Measurements at 5 cm distance show ~228 W/m² total irradiance, ~9.51 W/m² peak irradiance, ~48,218 lx illuminance, and ~1,204 µmol/m²/s PPFD. With a modular design (220–3000 mm) and compatibility with the MaNima Pollux Industrial System, this fixture is a powerful solution for horticulture, photobiomodulation, inspection, and research lighting.

Key Specifications

Property	Value / Description
Wavelength	640 nm Red (measured peak ~639 nm)
Irradiance (5 cm)	~228 W/m ² (Total, 24 V); ~9.51 W/m ² (Peak, 24 V)
Illuminance (5 cm)	~48,218 lx
PPFD (5 cm)	~1,204 µmol/m ² /s (PAR 400–700 nm)
Cover	Polarised PMMA – suppresses glare & stray light
Beam angle	120°
Dimensions	220 × 24.2 × 16 mm (fixture profile)
Supply & Protection	24 V DC / ~30 W; integrated NTC sensor; IP64
LEDs per fixture	108 × 2835 SMD LEDs
PCB Protection	Industrial-grade silicone coating
Thermal Monitoring	Integrated NTC sensor, controllable via MaNima Pollux
Pulsing/Strobing	Supported when integrated with MaNima Pollux Industrial System
Environment	Designed for industrial conditions (dust, moisture, vibration resistant)

Applications

- Horticulture & agritech** – deep-red light enhances photosynthesis, flowering, and fruit development; complements blue and far-red lighting strategies
- Photobiomodulation & medical/biotech** – red light around 640 nm supports wound healing, tissue regeneration, and pain relief
- Machine vision & quality inspection** – polarised red illumination improves contrast on reflective, glossy, or coated surfaces, ideal for OCR, barcodes, and defect detection
- Surface & material analysis** – inspection of polymers, glass, and coatings where red contrast highlights defects
- Food & cosmetic industries** – used in red-light stimulation processes, skincare treatments, and product quality control
- R&D and specialized lighting setups** – adaptable for experimental and advanced industrial use

Benefits for Engineers

- Polarised red output** – glare-free, high-contrast illumination
- Thermal stability** – NTC monitoring ensures consistent output and extended lifetime
- Rugged IP64 housing** – resistant to dust, moisture, and vibration
- Modular format** – scalable up to 3000 mm length
- Automation-ready** – plug-and-play with Pollux, PLC, SCADA, and UDP-based control systems

Integration with MaNima Pollux Industrial System

- Real-time thermal monitoring via integrated NTC sensor
- Pulse/strobe control for higher peak output
- Automatic thermal protection for reliable long-term operation

- PLC/SCADA compatibility for automation and process data logging
- Open UDP-based API for advanced system integration

Technical specifications

General		
Brand	Zirqle	
Application	Barcode Scanning Machine Vision	
LED type	2835	
Material	Aluminum	
Dimensions	220 × 24,2 × 16 mm	
Mounting	Surface mounted	
Cover type	PMMA Polarised transparent	
LEDs per piece	108.00	
Lifetime	70000 hours	
Lighting		
Wave length	640nm	
Beam angle	120 °	
LB waarde	L80B50	
Measurement results		
Illuminance (Lux) (Object size: 1 piece)		24V
	5cm	40245 lx
	10cm	15060 lx
	15cm	7545 lx
	20cm	4665.75 lx
	25cm	3066 lx
	30cm	2343.75 lx
Total PPFD umol/m2 (PAR 400-700nm) (Object size: 1 piece)		24V
	5cm	1128.91 umol/m2
	10cm	429.69 umol/m2
	15cm	222.45 umol/m2
	20cm	139.17 umol/m2
	25cm	93.35 umol/m2
	30cm	71.73 umol/m2
Peak wavelength (Object size: 1 piece)	642 nm	
Peak irradiance (Object size: 1 piece)		24V
	5cm	9.55 W/sqm
	10cm	3.53 W/sqm
	15cm	1.79 W/sqm
	20cm	1.11 W/sqm
	25cm	0.74 W/sqm
	30cm	0.56 W/sqm

Total irradiance
(Object size: 1 piece)

	24V
5cm	214.71 W/sqm
10cm	85.59 W/sqm
15cm	44.6 W/sqm
20cm	27.62 W/sqm
25cm	18.18 W/sqm
30cm	14.28 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

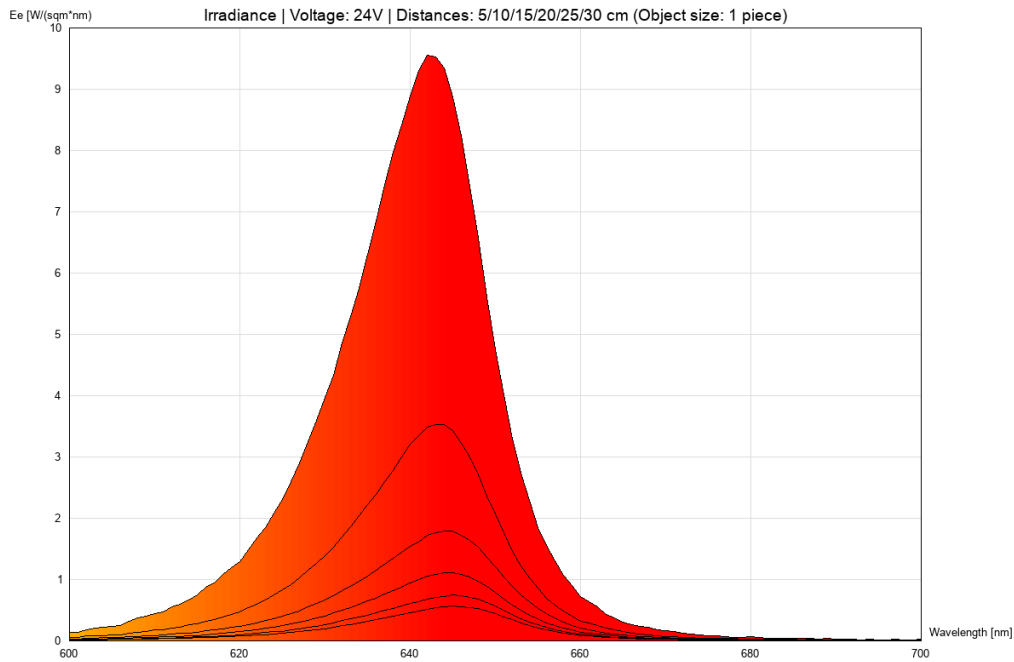
Operating temperature	-20 ~ +60 °C
Storage temperature	-40 ~ +80 °C
IP class	IP 64

Directives - standards - certificates

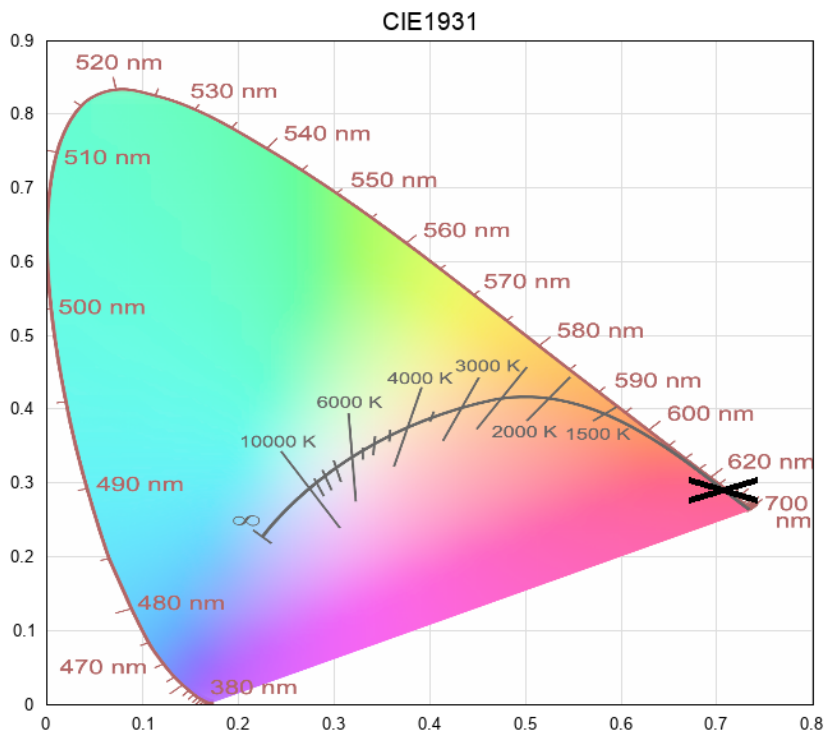
Directives	RoHS CE
Safety standards	EN60598-1 EN62031 IEC62471

Measurement results

irradiance - 600-700-red (24V)



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