

Datasheet

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

LF-24-640-24.2X16-TC

Version: 2025-08-29.1

Product description

The **Zirqle Industrial LED Fixture Transparent Cover Red 640 nm (24.2 × 16 mm)** is built for industrial environments that demand durability, precision, and high radiant intensity. Its modular design (scalable from 220 mm up to 3000 mm), transparent cover optimized for red light, and compatibility with the MaNima Pollux Industrial System make it a robust and adaptable solution for material curing, biological research, and phototherapy applications.

Specifications

Property	Value / Description
Wavelength	640 nm (red light, measured peak 639 nm)
Optical Output	High radiant intensity, tailored for red-light industrial use
Cover	Transparent cover optimized for efficient 640 nm transmission
PCB Protection	Industrial-grade silicone coating (dust, moisture, chemical resistance)
Thermal Monitoring	Integrated NTC sensor, controllable via MaNima Pollux Industrial System
Pulsing/Strobing	Supported when integrated with MaNima Pollux Industrial System
Design	Modular and scalable, adaptable from 220 mm up to 3000 mm
Dimensions	24.2 × 16 mm (fixture profile)
Environment	Designed for harsh industrial conditions (dust, vibration, moisture)

Applications

1. **Material curing (non-UV)** – red-sensitive coatings, adhesives, encapsulations
2. **Plant growth stimulation & horticulture** – wavelength beneficial for photosynthesis and biomass accumulation
3. **Biological & medical lighting** – photobiomodulation, tissue repair, cell culture enhancement
4. **Food & cosmetic processes** – skin treatments, cosmetic illumination, quality inspection
5. **Machine vision & marking** – QR/barcode illumination, optical filtering, contrasting inspections
6. **R&D and specialized lighting setups** – adaptable for experimental and advanced industrial use

Benefits for Engineers

1. **Process efficiency** – leverages pulsing + monitoring via MaNima Pollux for boosted output
2. **Consistent performance** – thermal feedback ensures stability and prolonged LED lifetime
3. **Robust industrial construction** – protection against dust, moisture, and mechanical stress
4. **Modular scalability** – customizable length and configuration per application
5. **Seamless integration** – plug-and-play readiness for production and R&D environments

Integration with MaNima Pollux Industrial System

- Real-time NTC sensor control and feedback
- Pulsing/strobing capabilities for higher peak intensity
- Prevents thermal overload while maximizing output
- Delivers process data for PLC/SCADA industrial automation
- Open API (UDP-based) support for system integration and custom applications

Technical specifications

General		
Brand	Zirqle	
Application	Barcode Scanning Machine Vision	
LED type	2835	
Material	Aluminum	
Dimensions	220 × 24,2 × 16 mm	
Mounting	Surface mounted	
Warranty	5 years	
Cover type	PMMA transparent	
LEDs per piece	108.00	
Lifetime	70000 hours	
Lighting		
Wave length	640 nm	
BIN	3 SDCM	
Beam angle	120 °	
LB waarde	L80B50	
Measurement results		
Illuminance (Lux) (Object size: 1 piece)		24V
	5cm	51513.6 lx
	10cm	19276.8 lx
	15cm	9657.6 lx
	20cm	5972.16 lx
	25cm	3924.48 lx
	30cm	3000 lx
Total PPFD umol/m2 (PAR 400-700nm) (Object size: 1 piece)		24V
	5cm	2084.15 umol/m2
	10cm	793.28 umol/m2
	15cm	410.67 umol/m2
	20cm	256.93 umol/m2
	25cm	172.33 umol/m2
	30cm	132.43 umol/m2
Peak wavelength (Object size: 1 piece)	643 nm	

Peak irradiance (Object size: 1 piece)	24V	
	5cm	17.78 W/sqm
	10cm	6.61 W/sqm
	15cm	3.36 W/sqm
	20cm	2.08 W/sqm
	25cm	1.39 W/sqm
	30cm	1.05 W/sqm

Total irradiance (Object size: 1 piece)	24V	
	5cm	396.38 W/sqm
	10cm	158.02 W/sqm
	15cm	82.33 W/sqm
	20cm	51 W/sqm
	25cm	33.56 W/sqm
	30cm	26.36 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	<table> <tr> <th>Symbol</th><th>Function</th></tr> <tr> <td>V+</td><td>V+</td></tr> <tr> <td>GND</td><td>Ground</td></tr> <tr> <td>NTC</td><td>NTC sensor</td></tr> <tr> <td>NTC_GND</td><td>NTC ground</td></tr> </table>	Symbol	Function	V+	V+	GND	Ground	NTC	NTC sensor	NTC_GND	NTC ground
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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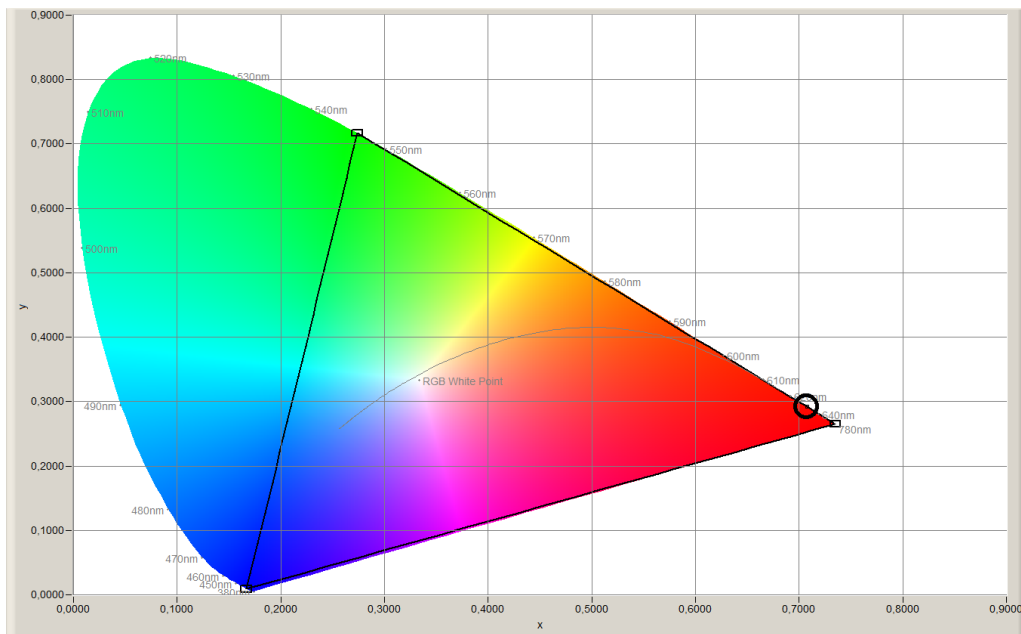
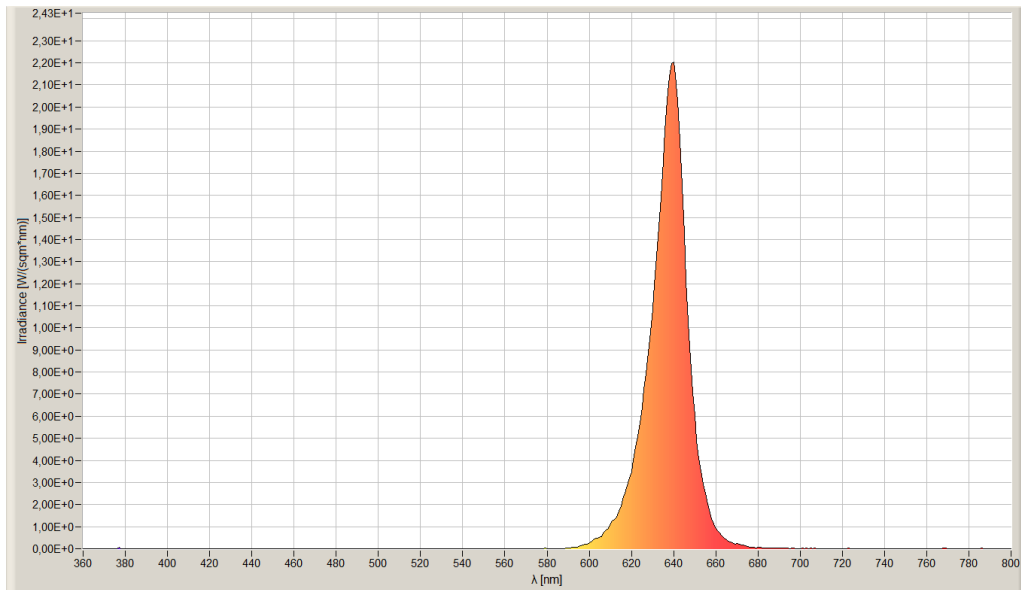
Environmental

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

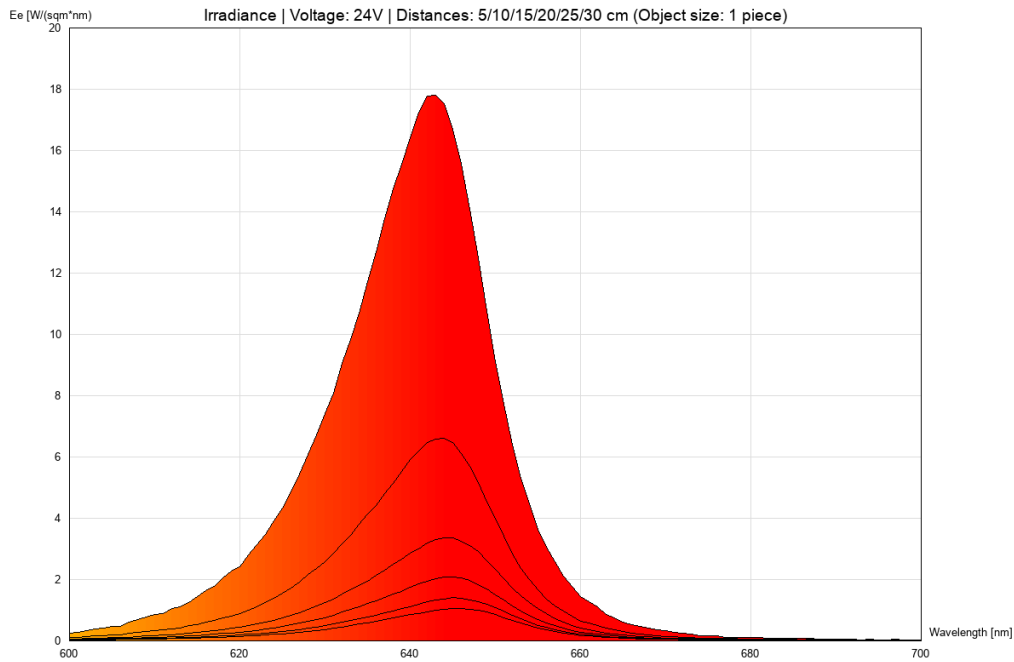
Directives - standards - certificates

Directives	RoHS CE
Safety standards	EN60598-1 EN62031 IEC62471

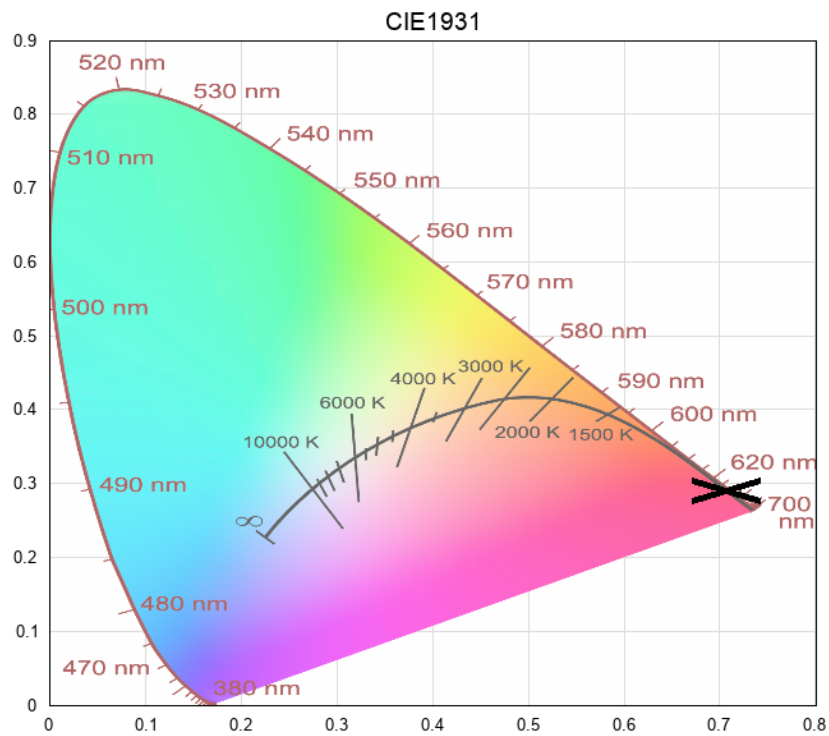
Measurement results



irradiance - 600-700-red (24V)



cie1931



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