Datasheet

Zirqle LED-strip Far Red 730nm Protected (24 Volt, 140 LEDs, 2835, IP64)

LS24FR2140X2835PZQ

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Product description

The **Zirqle Industrial LED Engine** is designed as a high-performance component for intensive industrial applications requiring high radiation intensity. With a **730 nm deep red wavelength**, this LED engine provides an efficient solution for processes that benefit from deep red light, such as plant growth stimulation, tissue regeneration, and specialized industrial processes.

As a **semi-finished product**, the engine is easy to integrate into custom fixtures or enclosures, offering flexibility depending on application requirements. It is suitable for a wide range of **industrial, research, medical, and cosmetic applications** where powerful 730 nm light delivers targeted results.

Key Features

- **730 nm Deep Red Wavelength** – ideal for horticulture, biological research, tissue regeneration, and therapeutic applications.
- **24 V Power Supply** – stable and reliable operation for demanding environments.
- **High Radiation Intensity** – delivers powerful output suitable for efficiency-driven processes.
- **Semi-Finished Product** – optimized for integration into custom housings, systems, or enclosures.
- **Passive Cooling Required** – designed for use with proper housings or systems that ensure efficient heat dissipation.
- **Integration with MaNima Pollux Industry System** – supports pulsing (strobing) for significantly higher radiation intensity, improving process speed and efficiency.
- **Robust PCB** – 3 oz/ft² thickness for mechanical strength and effective heat dissipation.

Applications

1. **Horticulture & Agriculture** – promotes flowering and fruiting in greenhouses, vertical farming, and controlled growth environments.
2. **Biological Research** – suitable for tissue regeneration studies, cell cultivation, and photobiomodulation (PBM) therapy.
3. **Medical Therapy** – applied in phototherapy treatments such as skin healing, anti-aging therapies, and muscle recovery.
4. **Food Industry** – supports growth stimulation in production environments and certain pasteurization processes requiring deep red exposure.
5. **Industrial Material Curing (Non-UV)** – cures coatings and materials responsive to red wavelengths, enabling efficient curing cycles.
6. **Cosmetic Industry** – enhances skin treatments such as wrinkle reduction, collagen stimulation, and improved skin tone.

Benefits

- **High Radiation Intensity** – ensures faster biological or industrial reactions, boosting productivity.
- **Flexible Integration** – semi-finished design allows customization and system-specific adaptation.
- **Efficient & Stable Output** – optimized for continuous operation in professional environments.
- **Passive Cooling** – ensures reliability and long lifespan when integrated with adequate thermal management.

Technical specifications

General	
Brand	Zirqle
LEDs / meter	140
LED type	2835
Length per reel	5 m
Length per segment	50 mm
LED strip width	10.00 mm
LED strip thickness	4.00 mm
PCB color	White
Mantle material	Silicon
Mounting	3M tape VHB4905
Warranty	5 years

Lighting	
Wave length	730 nm
BIN	3 SDCM
Beam angle	120 °
LB waarde	L90B50

Measurement results

Peak wavelength
(Object length: 200 mm)
730 nm

Peak irradiance
(Object length: 200 mm)

	24V
5cm	3.29 W/sqm
10cm	1.19 W/sqm
15cm	0.61 W/sqm
20cm	0.37 W/sqm
25cm	0.25 W/sqm
30cm	0.19 W/sqm

Total irradiance
(Object length: 200 mm)

	24V
5cm	93.79 W/sqm
10cm	33.25 W/sqm
15cm	16.94 W/sqm
20cm	10.38 W/sqm
25cm	6.94 W/sqm
30cm	5.24 W/sqm

Electronics	
Working voltage	24V
Current / meter	1.00 A / meter
Power consumption per meter	24.00 W / meter
PCB material	Copper

PCB thickness	3.0 oz / ft^2
Pinout	**Symbol** / **Function** V+ / V+ GND / Ground

Environmental

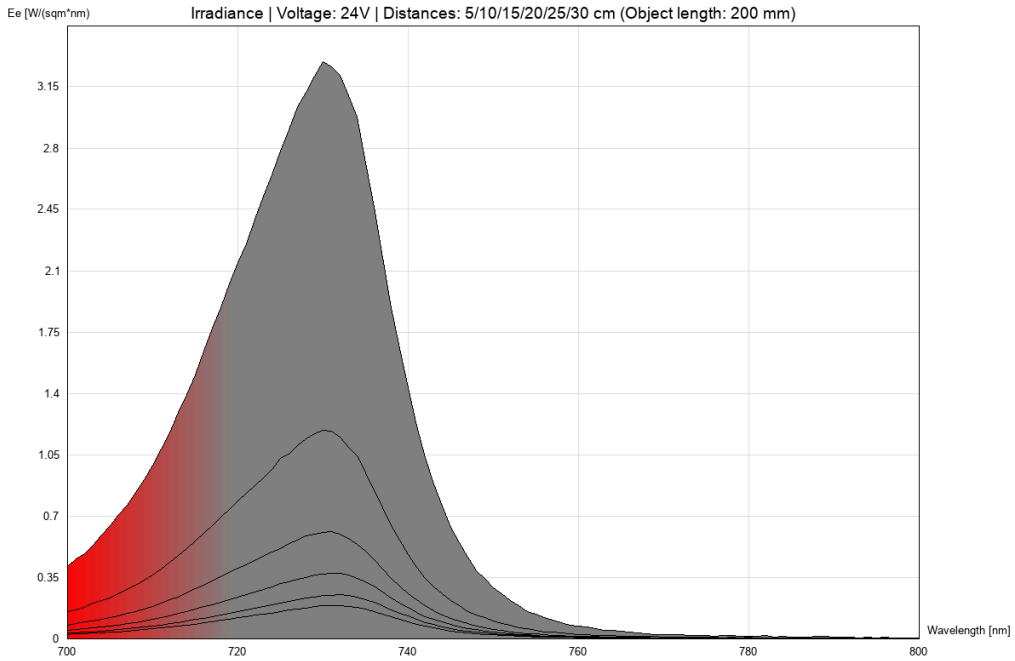
Operating temperature	-20 ~ +60 °C
Storage temperature	-40 ~ +80 °C
IP class	IP 64

Directives - standards - certificates

Directives	RoHS CE
Safety standards	EN60598-1 EN62031 IEC62471

Measurement results

irradiance - 700-800-deep-far-red (24V)



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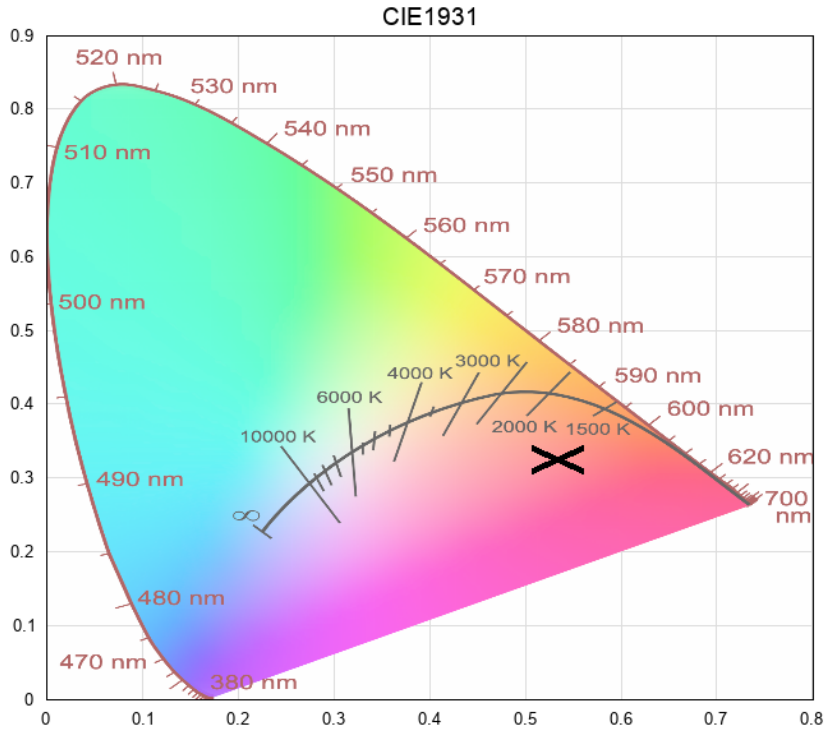

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