

# Datasheet

## Zirqle LED Engine Deep Red 660nm Protected (24 Volt, 108 LEDs, 2835, IP64)

**LE-24-660-108X2835PZQ**

**Version: 2025-05-08.1**

## Product description

The **Zirqle Industrial LED Engine** is designed as a high-performance component for intensive industrial applications that require high radiation intensity. With a 660nm wavelength, this LED engine provides an efficient solution for processes that benefit from deep red light, such as plant growth stimulation, tissue regeneration, and more.

This LED engine is a semi-finished product, allowing it to be integrated into custom fixtures or housings depending on your specific requirements. It offers flexibility for use in various industrial, research, and medical applications, where the powerful 660nm wavelength can deliver targeted results. The engine is designed for easy integration into larger systems or custom enclosures.

### Key Features:

- **660nm Wavelength:** The 660nm wavelength is ideal for applications that require deep red light, such as horticulture, biological research, and certain industrial processes.
- **24V Power Supply:** The LED engine operates on a reliable 24V power supply, ensuring stable and consistent operation, perfect for demanding applications.
- **High Radiation Intensity:** This LED engine delivers high radiation intensity, making it suitable for high-efficiency processes and applications that require significant light output.
- **Semi-Finished Product:** The LED engine is designed to be integrated into custom systems or housings, providing flexibility for adapting to various industrial, research, or medical setups.
- **Integration with MaNima Pollux Industry Pulsing (Strobing):** The LED engine supports integration with the MaNima Pollux Industry System for pulsing (strobing), significantly increasing radiation intensity. This feature allows for faster reactions and improved efficiency in industrial processes.
- **Real-Time Temperature Monitoring via NTC Sensor:** The integrated NTC sensor ensures continuous temperature measurement and adjustment through the MaNima Pollux Industry System. This helps maintain the optimal operating temperature for maximum radiation output and consistent performance.

### Applications:

- **Horticulture & Agriculture:** The 660nm wavelength is highly effective for stimulating plant growth, making it ideal for integration into custom lighting solutions for greenhouses and agricultural applications.
- **Biological Research:** The LED engine can be used in scientific and medical applications for processes such as promoting tissue regeneration, cell cultivation, and photobiomodulation therapy (PBM), assisting in pain relief and wound healing.
- **Medical Therapy:** 660nm light is used in phototherapy treatments such as skin healing, anti-aging treatments, and muscle recovery, where red light stimulates cells and tissues.
- **Food Industry:** The 660nm wavelength can be used for applications such as stimulating growth in food production environments or in the pasteurization of certain food items.
- **Industrial Material Curing (Non-UV):** The deep red light can cure specific coatings and materials that react to red wavelengths, providing effective and fast curing processes in industrial settings.
- **Cosmetic Industry:** The LED engine is suitable for use in the cosmetic industry for skin treatments such as wrinkle reduction, skin tone improvement, and stimulating collagen production.

### Benefits:

- **High Radiation Intensity:** The engine provides high radiation intensity, allowing for faster reactions and increased productivity in applications that require deep red light.
- **Flexibility in Integration:** As a semi-finished product, the LED engine offers flexibility for integration into custom housings or systems tailored to specific industrial, research, or medical applications.
- **Efficient Performance:** The LED engine provides efficient performance with stable output, making it ideal for environments that need consistent light delivery.
- **Real-Time Temperature Monitoring for Consistent Performance:** The integrated NTC sensor, combined with the MaNima Pollux Industry System, ensures continuous temperature monitoring, helping to prevent overheating and maintain optimal operating conditions for long-term reliability.

## Technical specifications

### General

Brand	Zirqle
Application	Barcode Scanning Horticulture Machine Vision
LED type	2835
PCB color	White
Material	Aluminum
Dimensions	200 × 20 × 4 mm
Mounting	3M tape VHB4905
Warranty	5 years
LEDs per piece	108.00

### Lighting

Wave length	660 nm
Beam angle	120 °
LB waarde	L80B50

### Measurement results

Illuminance (Lux)  
(Object size: 1 piece)

	24V
5cm	36300 lx
7.5cm	26900 lx
10cm	10100 lx
20cm	3280 lx
30cm	1720 lx

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

	24V
5cm	3000 umol/m2
7.5cm	2260 umol/m2
10cm	855 umol/m2
20cm	276 umol/m2
30cm	141 umol/m2

Peak wavelength  
(Object size: 1 piece)

660 nm

Peak irradiance  
(Object size: 1 piece)

	24V
5cm	23.6 W/sqm
7.5cm	17.7 W/sqm
10cm	6.49 W/sqm
20cm	2.11 W/sqm
30cm	1.1 W/sqm

Total irradiance  
(Object size: 1 piece)

	24V
5cm	554 W/sqm
7.5cm	419 W/sqm
10cm	165 W/sqm
20cm	53.9 W/sqm
30cm	27.1 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

Pinout

Symbol	Function
V+	V+
GND	Ground
NTC	NTC sensor
NTC_GND	NTC ground

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V+	V+
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NTC parameters  
Resistance: 5000 Ohm  
Beta value: 3950

## Environmental

Operating temperature -20 ~ +60 °C

Storage temperature -20 ~ +60 °C

IP class IP 64

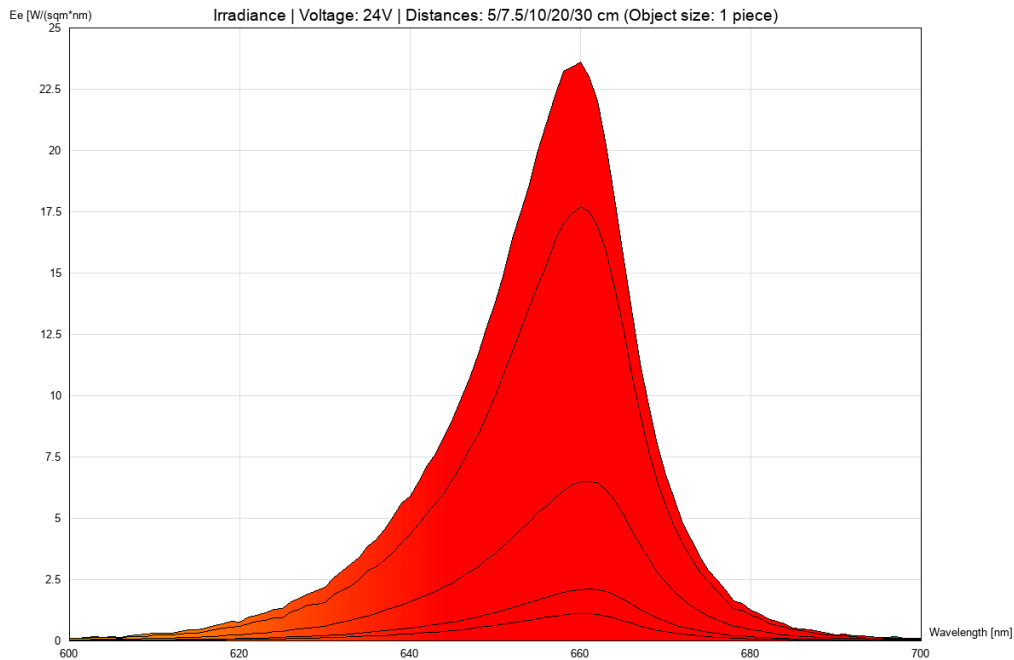
## Directives - standards - certificates

Directives  
RoHS  
CE

Safety standards  
EN60598-1  
EN62031  
IEC62471

## Measurement results

### irradiance - 600-700-red (24V)



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