# Datasheet

## Zirqle LED Engine UV-A 365nm Protected (24 Volt, 108 LEDs, 2835, IP64)

### LE-24-365-108X2835PZQ

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# Product description

The **Zirqle LED Engine UV 365 nm (Protected, 24 V)** is a **semi-finished aluminum PCB module**, designed for engineers and OEMs who need **high-intensity UV-A output** for demanding industrial, medical, forensic, or R&D applications. Delivered as a **light-emitting core**, it provides full freedom in housing, optics, and thermal design.

Equipped with 108 × 2835 SMD LEDs, an **industrial silicone coating for IP64 protection**, and an integrated NTC sensor, the module ensures stable and long-term performance. When paired with the MaNima Pollux Industrial System, it becomes a **complete UV-A solution**, supporting pulsed operation, thermal monitoring, and advanced automation integration.

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## Key Specifications

| Property | Value / Description |
|---|---|
| Type | LED Engine – semi-finished PCB module |
| LEDs | 108 × 2835 SMD LEDs |
| PCB base | Aluminum |
| PCB protection | Industrial silicone coating (IP64) |
| Dimensions | 200 × 20 × 3 mm (slightly thicker for higher output) |
| Supply | 24 V DC / ~30 W |
| Wavelength | 365 nm UV-A |
| Irradiance (5 cm) | **~650 W/m²** |
| PPFD (5 cm) | Not applicable (outside PAR range) |
| Illuminance (5 cm) | Not applicable (UV not visible to human eye) |
| Beam angle | 120° |
| Thermal monitoring | Integrated NTC sensor (5 kΩ, β = 3950) |

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## Applications

- **High-speed UV curing** – rapid polymerization of inks, resins, adhesives, and coatings, ideal for high-throughput industrial processes.
- **Strong fluorescence excitation** – enables forensic analysis, biological imaging, and high-contrast security marking detection.
- **Document & security verification** – exposes hidden inks, counterfeit features, and tamper-proof markings with superior contrast.
- **Inline industrial quality control** – supports detection of surface defects and impurities at higher production speeds.
- **Medical diagnostics & dermatology** – allows shorter exposure times for Wood's lamp techniques in skin condition detection.
- **Photocatalytic activation & sterilization** – accelerates photocatalytic processes and supports disinfection in surface, air, and water treatment.
- **Environmental & agricultural monitoring** – stronger fluorescence enables non-destructive analysis of crop health, water purity, and food safety.

- *R&D & spectroscopy – high-intensity UV-A reference source for calibration, device testing, and scientific research.*

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## Benefits for Engineers

- **Very high UV-A output** – ~650 W/m² at 5 cm for demanding applications
- **Semi-finished module** – perfect for OEM and R&D integration
- **Pollux compatibility** – enhanced control, pulsing, and thermal safety feedback
- **Design freedom** – customizable housing, optics, and cooling systems
- **Thermal reliability** – integrated NTC ensures safe and long-term use
- **Scalable system** – multiple modules can be combined for larger setups
- **Industrial durability** – IP64 silicone coating for robust environments

## Integration with MaNima Pollux Industrial System

- Real-time NTC thermal feedback
- Pulse/strobe modes for **boosted UV-A efficiency**
- Overheating protection while ensuring maximum irradiance
- PLC/SCADA compatibility for industrial automation
- Open UDP API for advanced system integration

# Technical specifications

| General | |
|---|---|
| Brand | Zirqle |
| Application | Curing & Aging<br>Machine Vision<br>UV Inspection |
| LED type | 2835 |
| PCB color | White |
| Material | Aluminum |
| Dimensions | 200 × 20 × 2 mm |
| Mounting | 3M tape VHB4905 |
| LEDs per piece | 108.00 |

| Lighting | |
|---|---|
| Wave length UV | 365nm |
| Beam angle | 120 ° |

| Measurement results | |
|---|---|
| Peak wavelength<br>(Object size: 1 piece) | 369 nm |

Peak irradiance
(Object size: 1 piece)

| | 24V |
|---|---|
| **5cm** | 32.08 W/sqm |
| **10cm** | 12.55 W/sqm |
| **15cm** | 6.21 W/sqm |
| **20cm** | 3.74 W/sqm |
| **25cm** | 2.39 W/sqm |
| **30cm** | 1.75 W/sqm |

Total irradiance
(Object size: 1 piece)

| | 24V |
|---|---|
| **5cm** | 422.7 W/sqm |
| **10cm** | 175.8 W/sqm |
| **15cm** | 87.05 W/sqm |
| **20cm** | 52.53 W/sqm |
| **25cm** | 34.47 W/sqm |
| **30cm** | 24.5 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<br>Beta value: 3950 |

## Environmental

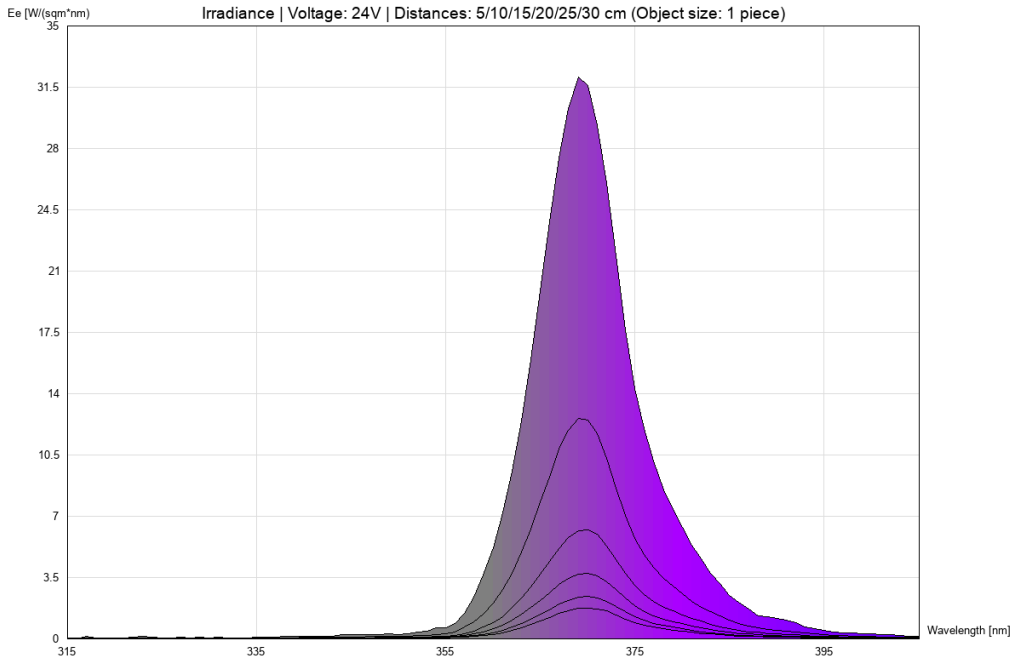
| | |
|---|---|
| Operating temperature | -20 ~ +60 °C |
| Storage temperature | -40 ~ +80 °C |
| IP class | IP 64 |

## Directives - standards - certificates

| | |
|---|---|
| Directives | RoHS<br>CE |
| Safety standards | EN60598-1<br>EN62031<br>IEC62471 |

# Measurement results

## irradiance - 315-405-uv-a (24V)



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