

# Datasheet

## LuxaLight LED Engine UV-A 405nm Protected (24 Volt, 108 LEDs, 2835, IP64)

**LE-24-405-108X2835PLX**

**Version: 2025-08-27.2**

## Product description

The **LuxaLight LED Engine UV-A 405 nm (Protected, 24 V)** is a **semi-finished aluminum PCB module**, developed for engineers and OEMs seeking a violet/UV-A light source for integration into custom fixtures, optical systems, or R&D setups. It delivers only the **light-emitting core**, offering maximum flexibility in thermal management, optics, and housing design.

With 108 × 2835 SMD LEDs, an **industrial silicone coating providing IP64 protection**, and an integrated NTC temperature sensor, the module ensures reliable performance in demanding environments. Combined with the MaNima Pollux Industrial System, the engine becomes a **complete, high-efficiency UV solution**, unlocking improved efficiency through pulsing and advanced thermal control.

## 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 (provides IP64 rating) |
| Dimensions         | 200 × 20 × 2 mm (modular design)                   |
| Supply             | 24 V DC / ~30 W                                    |
| Wavelength         | 405 nm (UV-A), peak ~404 nm                        |
| Irradiance (5 cm)  | ~412 W/m <sup>2</sup> total radiant power @ 24 V   |
| Beam angle         | 120°                                               |
| Thermal monitoring | Integrated NTC sensor (5 kΩ, β = 3950)             |

## Applications

- **Resin & 3D printing photopolymerization** – optimized for curing resins sensitive to 405 nm, widely used in additive manufacturing.
- **Coating & adhesive curing** – suitable for materials designed for longer-wavelength UV curing, reducing material stress.
- **Fluorescence excitation** – excites specific dyes and markers in biology, chemistry, and quality control applications.
- **Antimicrobial surface treatment** – 405 nm UV-A reduces bacterial load, useful for hygienic and biomedical applications.
- **Machine vision with violet contrast** – enhances visibility of inks, coatings, and security features not seen under white light.
- **Research & laboratory use** – versatile UV-A source for experiments where controlled, less aggressive UV is required.

*Also applicable in R&D and specialized lighting setups.*

## Benefits for Engineers

- **Semi-finished module** – ideal for OEM and R&D integration
- **Perfect Pollux companion** – transforms into a complete UV-A system with MaNima Pollux
- **Improved efficiency with Pollux** – pulsing and thermal control maximize performance
- **Design freedom** – integrate into your own housing, optics, and thermal setup
- **High UV intensity** – ~412 W/m<sup>2</sup> at 5 cm supports demanding curing and inspection tasks
- **Modular scalability** – multiple engines can be combined as required
- **Thermal safety** – NTC ensures stable operation and long service life
- **Industrial durability** – IP64 protection via silicone coating

## Integration with MaNima Pollux Industrial System

- Real-time NTC temperature monitoring
- Pulse/strobe modes for **higher peak intensities and improved efficiency**
- Prevents overheating while maximizing UV performance
- Provides data to PLC/SCADA automation systems
- Open UDP-based API for advanced system integration and customization

## Technical specifications

| General                                                                                                                                                                                                                                                                                                             |                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Brand                                                                                                                                                                                                                                                                                                               | LuxaLight                                         |
| 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                                                                                                                                                                                                                                                                                                         | 405nm                                             |
| Beam angle                                                                                                                                                                                                                                                                                                          | 120 °                                             |
| Measurement results                                                                                                                                                                                                                                                                                                 |                                                   |
| Peak wavelength<br>(Object size: 1 piece)                                                                                                                                                                                                                                                                           | 404 nm                                            |
| Peak irradiance<br>(Object size: 1 piece)                                                                                                                                                                                                                                                                           | <b>24V</b>                                        |
|                                                                                                                                                                                                                                                                                                                     | 5cm 23.13 W/sqm                                   |
|                                                                                                                                                                                                                                                                                                                     | 10cm 9.36 W/sqm                                   |
|                                                                                                                                                                                                                                                                                                                     | 15cm 4.67 W/sqm                                   |
|                                                                                                                                                                                                                                                                                                                     | 20cm 2.82 W/sqm                                   |
|                                                                                                                                                                                                                                                                                                                     | 25cm 1.86 W/sqm                                   |
|                                                                                                                                                                                                                                                                                                                     | 30cm 1.42 W/sqm                                   |
| Total irradiance<br>(Object size: 1 piece)                                                                                                                                                                                                                                                                          | <b>24V</b>                                        |
|                                                                                                                                                                                                                                                                                                                     | 5cm 412.1 W/sqm                                   |
|                                                                                                                                                                                                                                                                                                                     | 10cm 172.8 W/sqm                                  |
|                                                                                                                                                                                                                                                                                                                     | 15cm 87.6 W/sqm                                   |
|                                                                                                                                                                                                                                                                                                                     | 20cm 53.75 W/sqm                                  |
|                                                                                                                                                                                                                                                                                                                     | 25cm 35.37 W/sqm                                  |
|                                                                                                                                                                                                                                                                                                                     | 30cm 27.05 W/sqm                                  |
| <ul style="list-style-type: none"> <li>• By combining Pulse Mode with Real-Time Monitoring, the efficiency of LED systems can be increased, resulting in higher output.</li> <li>• We have the expertise and equipment to perform measurements tailored to the specific requirements of the application.</li> </ul> |                                                   |
| 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

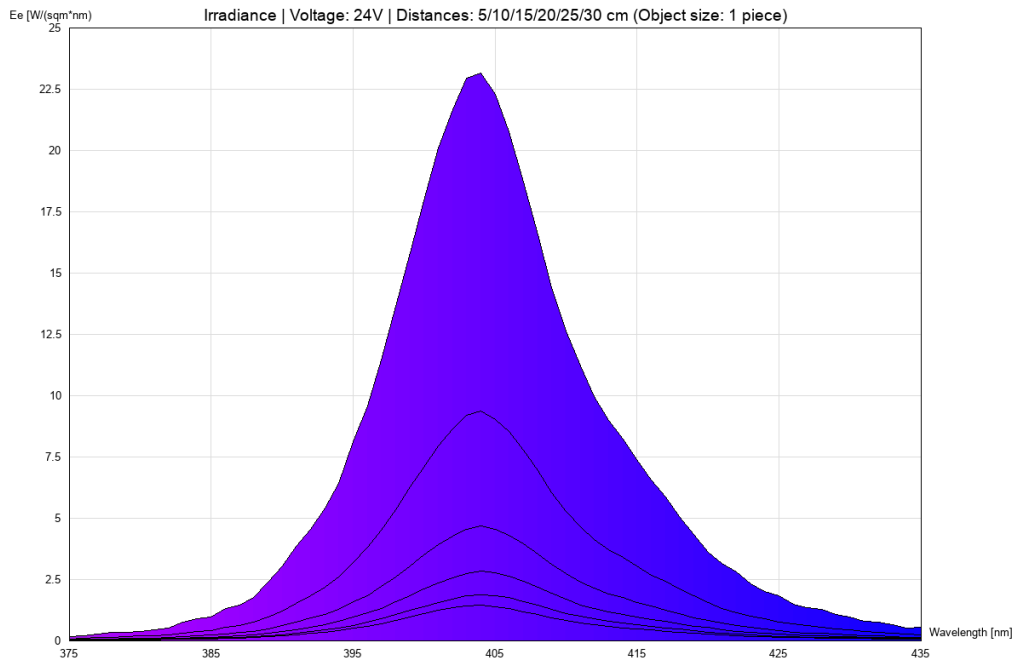
|                       |              |
|-----------------------|--------------|
| Operating temperature | -20 ~ +60 °C |
| Storage temperature   | -40 ~ +80 °C |
| IP class              | IP 64        |

#### Directives - standards - certificates

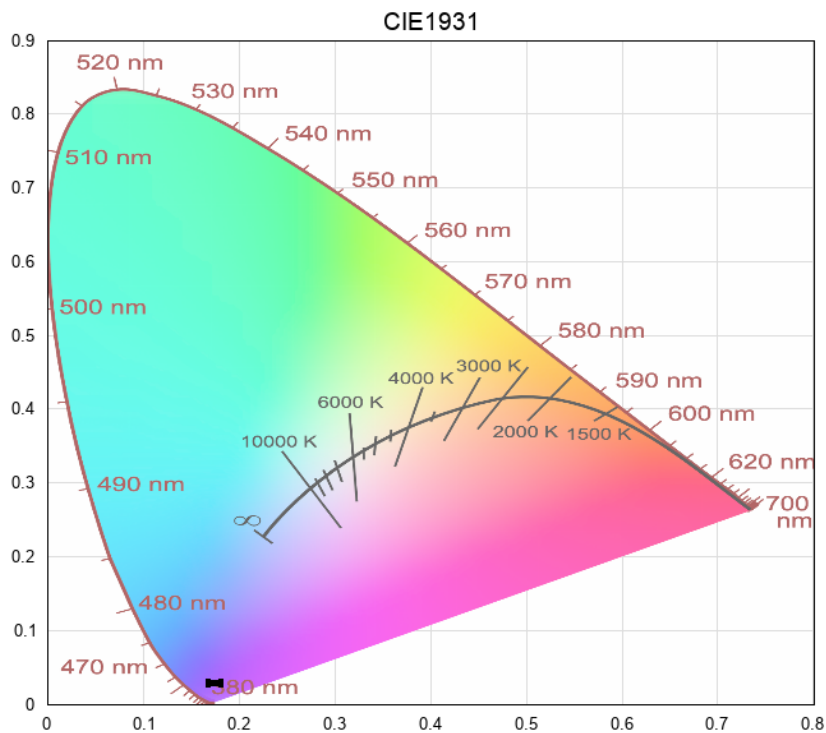
|                  |                                  |
|------------------|----------------------------------|
| Directives       | RoHS<br>CE                       |
| Safety standards | EN60598-1<br>EN62031<br>IEC62471 |

## Measurement results

### irradiance - 375-435-uv-ablue (24V)



## cie1931



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