

# Datasheet

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

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

**Version: 2025-07-03.2**

## Product description

Our advanced UV-A 405nm LED engine offers a powerful solution for a wide range of industrial and research-related applications. This LED engine is designed for use in environments where precision, flexibility, and reliability are essential, but without the housing, making it an ideal choice for applications that require customized integration. The LED engine provides a range of unique advantages:

**Optimal Wavelength for Specific Applications:** The 405 nm wavelength is ideal for applications requiring UV-A light, such as curing, fluorescence, and photochemical processes. This wavelength provides high energy intensity, essential for activating photochemical reactions in various industrial and research environments.

**Stroboscopic Pulse Function:** The strobing pulse technology enables the generation of radiation with higher peak intensity. This technique increases efficiency in processes that are sensitive to short light pulses. The ability to deliver rapid, repeated pulses enhances effectiveness in applications such as surface treatment, photopolymerization, or material processing. This functionality is fully supported when integrated with the Manima Pollux Industry system, providing precise control and optimization of pulse intensity for maximum performance.

**Increased Radiation Capacity:** When integrated with the Manima Pollux Industry system, the UV-A 405nm LED engine achieves a radiation capacity significantly higher than conventional systems. This provides benefits such as accelerated reactions, improved industrial machine performance, and more accurate control over treatment parameters.

**Reliable Performance and Long Lifespan:** The robust construction of the LED engine ensures reliable performance, even without the protective housing. The long lifespan of the LEDs reduces the need for frequent replacements and minimizes downtime, contributing to higher operational efficiency and lower maintenance costs.

**Energy Efficiency and Sustainability:** Our technology is designed with energy efficiency in mind, reducing operational costs while optimizing energy output. This makes it a sustainable choice for industrial applications looking to minimize energy consumption and environmental impact.

**Built-in NTC Sensor:** The LED engine is equipped with an NTC (Negative Temperature Coefficient) sensor for precise temperature regulation. This ensures that the system operates within optimal temperature ranges for maximum performance and extended lifespan.

**Real-time Monitoring and Maximum Radiation:** When combined with the Manima Pollux Industry system, real-time monitoring allows for achieving the maximum radiation output from the UV-LED fixture. This integration provides precision control, ensuring the system operates with maximum efficiency under varying conditions.

### Applications:

- **Curing Coatings and Inks:** Ideal for fast curing of coatings, inks, and adhesives in industrial production lines.
- **Fluorescence Research:** For applications where materials fluoresce under UV-A light, such as detecting cracks or studying material aging.
- **Photochemical Reactions:** Perfect for activating photochemical processes in laboratory environments.
- **Material Processing and Surface Treatment:** For applications that require precision and control in material processing, such as improving adhesion or activating chemical reactions.
- **Research and R&D:** Suitable for scientific research where the 405 nm wavelength is necessary, such as testing UV stability or investigating fluorescent properties of materials.
- **Reactor Applications:** The UV-A 405nm LED engine is particularly suited for reactors using UV light to accelerate photochemical reactions, such as in pharmaceutical, chemical, and environmental industries. The high intensity of the LED engine provides advantages in applications like water treatment, wastewater purification, and synthesizing chemical compounds.

With the combination of the 405 nm UV-A LED engine, stroboscopic pulse function, and real-time monitoring, this is the ideal choice for applications requiring precision, power, and efficiency.

## 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)   | <table> <tr> <th></th><th>24V</th></tr> <tr> <td>5cm</td><td>23.1342 W/sqm</td></tr> <tr> <td>10cm</td><td>9.35709 W/sqm</td></tr> <tr> <td>15cm</td><td>4.67462 W/sqm</td></tr> <tr> <td>20cm</td><td>2.82404 W/sqm</td></tr> <tr> <td>25cm</td><td>1.85731 W/sqm</td></tr> <tr> <td>30cm</td><td>1.42444 W/sqm</td></tr> </table> |  | 24V | 5cm | 23.1342 W/sqm | 10cm | 9.35709 W/sqm | 15cm | 4.67462 W/sqm | 20cm | 2.82404 W/sqm | 25cm | 1.85731 W/sqm | 30cm | 1.42444 W/sqm |
|   | 24V   |  |     |     |               |      |               |      |               |      |               |      |               |      |               |
| 5cm   | 23.1342 W/sqm   |  |     |     |               |      |               |      |               |      |               |      |               |      |               |
| 10cm  | 9.35709 W/sqm   |  |     |     |               |      |               |      |               |      |               |      |               |      |               |
| 15cm  | 4.67462 W/sqm   |  |     |     |               |      |               |      |               |      |               |      |               |      |               |
| 20cm  | 2.82404 W/sqm   |  |     |     |               |      |               |      |               |      |               |      |               |      |               |
| 25cm  | 1.85731 W/sqm   |  |     |     |               |      |               |      |               |      |               |      |               |      |               |
| 30cm  | 1.42444 W/sqm   |  |     |     |               |      |               |      |               |      |               |      |               |      |               |
| Total irradiance<br>(Object size: 1 piece)  | <table> <tr> <th></th><th>24V</th></tr> <tr> <td>5cm</td><td>412.1 W/sqm</td></tr> <tr> <td>10cm</td><td>172.8 W/sqm</td></tr> <tr> <td>15cm</td><td>87.6 W/sqm</td></tr> <tr> <td>20cm</td><td>53.75 W/sqm</td></tr> <tr> <td>25cm</td><td>35.37 W/sqm</td></tr> <tr> <td>30cm</td><td>27.05 W/sqm</td></tr> </table>              |  | 24V | 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   |
|   | 24V   |  |     |     |               |      |               |      |               |      |               |      |               |      |               |
| 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

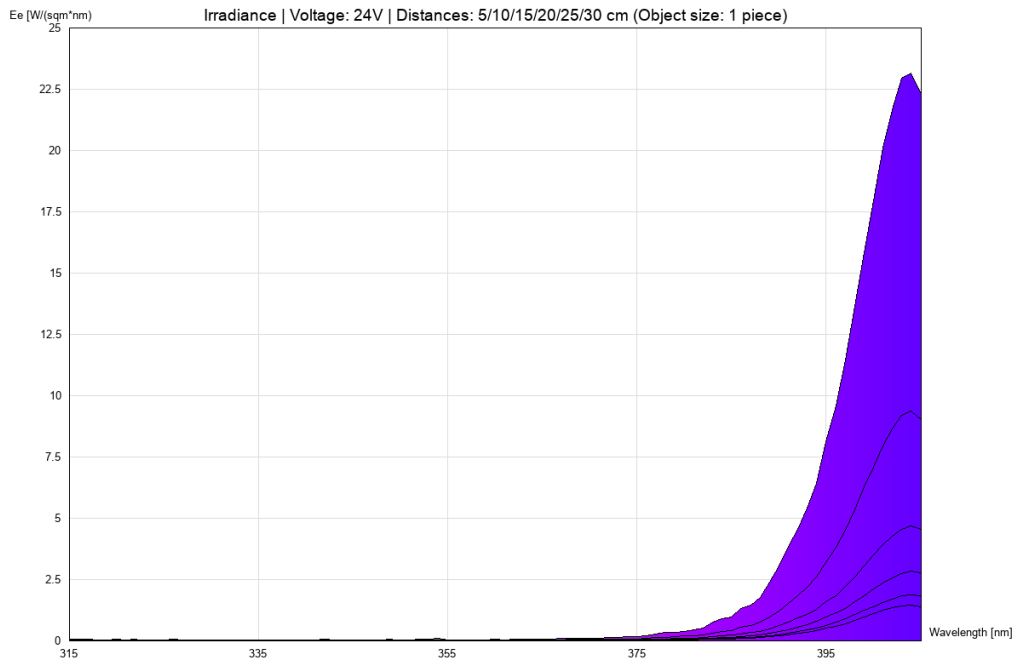
|                       |              |
|-----------------------|--------------|
| Operating temperature | -20 ~ +60 °C |
| Storage temperature   | -40 ~ +80 °C |
| IP class              | IP 64        |

## Directives - standards - certificates

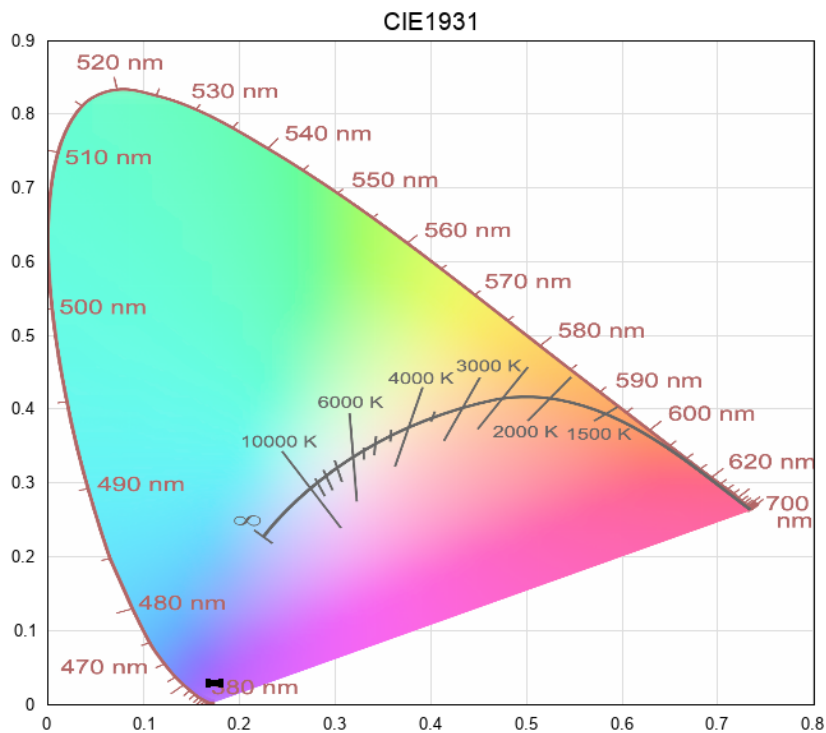
|                  |                                  |
|------------------|----------------------------------|
| Directives       | RoHS<br>CE                       |
| Safety standards | EN60598-1<br>EN62031<br>IEC62471 |

## Measurement results

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



## cie1931



While LuxaLight has made every reasonable effort to ensure the accuracy of the information in this brochure, LuxaLight does not guarantee that it is error - free, nor does LuxaLight make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. LuxaLight reserves the right to make any adjustments to the information contained herein at any time without notice. LuxaLight expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this catalogue are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult LuxaLight for the latest dimensions and design specifications.