

Ultra High Power UV Curing System

(world's highest optical power density 365nm LED, continuous operation)



DATASHEET

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Applications

- UV adhesive cure
- UV coating

Features

- Long Operation
- High Power
- Uniform
- Compact
- Low Cost
- Timer
- Power Adjustment

This UV LED spotlight burns paper with an output power density exceeding legacy mercury UV lamps. It is the most powerful device on the market. The design leverages multi-year military UV gear developments, realizing a ruggedized manufacturing tool for the mass market. The 365nm UV light features fast/deep epoxy curing, continuous long operation, homogeneity illumination, compact size, ease of use, and longevity. The hand-held UV light can be switched on/off by a finger-press button switch or a foot pedal. It has a timer with a display. The optical lens is collimating and focusing with spot size that is adjustable from a diameter of 4 mm to 50 mm (power density also reduces accordingly). The illumination power setting is adjustable from 10% to 99%. A computer controller is also available that sets both the timer and power via a USB/GUI. We produce optical power meters that fit the head size to accurately measure the power level.

Do not look at the UV light as it can harm your eye. We offer several eye protection accessories, including glasses, UV head mount shield, and large transparent plate shields.

Specifications

Parameter	Min	Typical	Max	Unit
Wavelength	235, 255, 280, 365±5, 405			nm
Optical Power Density (4mm spot)	2.5		5.5 [1]	W/cm ²
Optical Power Density (25mm spot)	100		150 [1]	mW/cm ²
LED Electrical Power	14			W
Output Power Adjustment	10		99	%
Cure Time Range	10 seconds to 10 hrs			
UV Spot Size [2] (∅)	4		50	mm
Working Distance	20		150	mm
Cooling Method	air blowing			
Operation Life	> 25 000			hours
Power supply	AC 100 ~ 240			V
Fuse	1			A

Notes:

[1]. For wavelength above 365nm

For wavelengths shorter than 365nm, we use the best LED available

For 255nm, we use a LED with 60mW optical power output. The focusing spot power is measured at about 0.1W/cm²

For 280nm, we use a LED with 200mW optical power output. The focusing spot power is measured at about 0.5W/cm²

[2]. The spot size is about 4mm at the focus point, by moving away from the focus point, it becomes larger

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Rev 01/11/25

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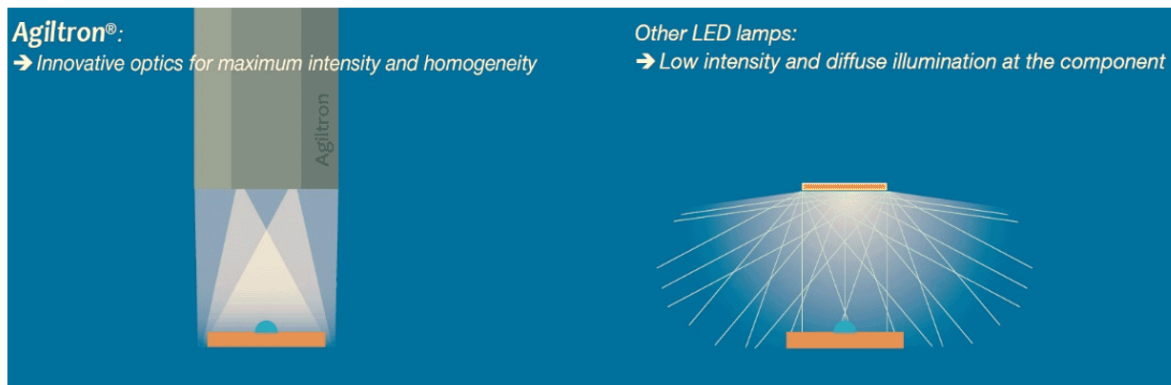
Mechanical Footprint Dimensions (mm)

Component	Dimensions	Unit
UV cure head	Ø30 x 142	mm
Driver	170 W x 180 D x 65 H	mm



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Advanced Features



Optical Lens System For Maximum Intensity and Homogeneity

The special LED and lens system delivery high UV light intensity that burns paper (no competitor can achieve). The optics also enables homogeneity over the entire irradiation area as illustrated above.

Cooled LED For Constant Light Intensity and Long Lifetime.

For constant light intensity and long lifetime, high power LED modules require temperature cooling. With integrated fan and special heat sinks, our spot light can operate continuously for a day without intensity change.

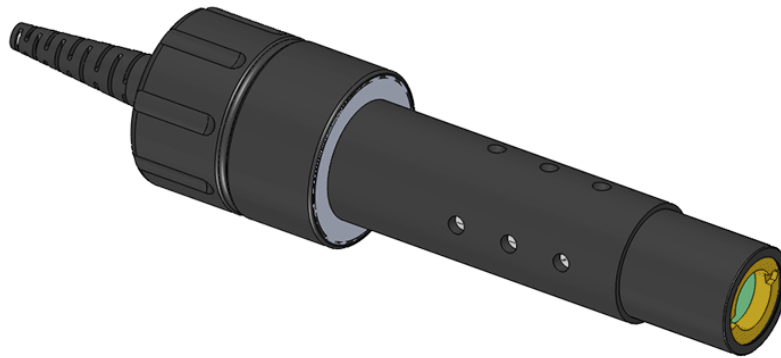
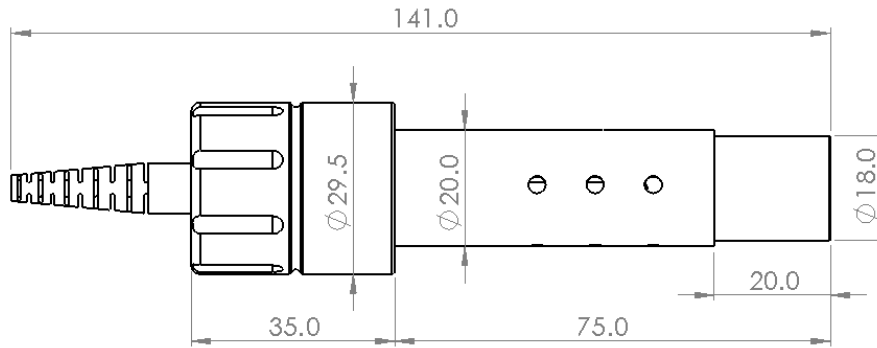
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Mini Head



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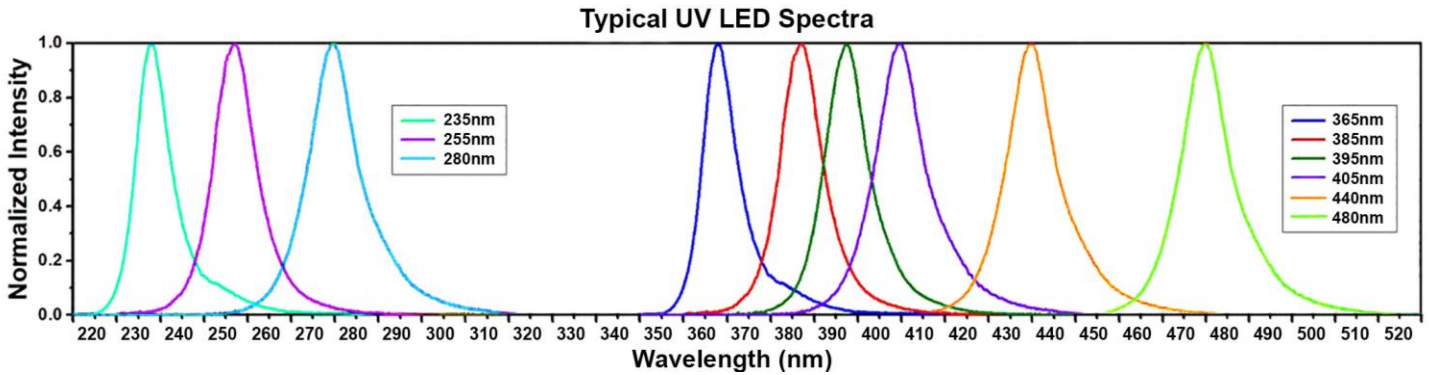
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Emission Spectrum



Ordering Information

Prefix	Control Box ^[1]	Head ^[2]	N	N	Power Calibration	N	N	Foot Switch ^[3]
SUVA-	One = 01 No = NN	365 nm = 1 265 nm = 2 280 nm * = 3 405 nm = 4 255 nm = 6 232 nm = 7 480 nm = 8 385nm = A None = N Mini 365nm = M Special = 0			None = N Yes = 2			No = N Standard = 1 Dual = 3 Quart = 4

[1]. A USB/PC programable controller is available as the 4-head controller. For wavelengths > 365nm, the control box is exchangeable with different heads. For wavelengths < 365nm, the control box is made specific and thus not exchangeable with heads of other wavelengths.

[2]. Wavelength < 365nm uses a LED with the highest optical power available but may not meet the spec

[3]. Dual control two

Red: Special order that is more expensive due to the lack of volume

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General Safety Statement

UV light is harmful to the eye and skin. Since sunlight contains UV, the effect is well studied. Do not look at the UV light directly. For the spotlight, the power density is concentrated at the focus spot, which quickly reduces at the position away from the focus point.

Questions and Answers

Q: What is the best wavelength I should choose if my epoxies have a wide range of curing wavelengths?

A: All epoxies can be cured at a shorter wavelength since these UV lights are more energetic and provide better and deeper curing. However, not all epoxies can be cured at a longer wavelength that requires a special formulation to be cured thoroughly.

Q: If I want to cure a UV epoxy through a piece of transparent plastic, what wavelength head should I choose?

A: Transparent plastic blocks 365nm UV light. Therefore one needs to choose an epoxy that can be cured at 450nm and choose the matching head.

Q: Is the UV head output power calibrated?

A: The output power of each UV head is tested to meet the range stated on the datasheet. Since the output power of each UV head is highly sensitive to the actual sample position, we recommend customer to calibrate the power density using a power meter in place of the sample. The power can be changed by adjusting the UV head position using our holder or by setting it in the four-head control box.

Application Notes

Fiber Core Alignment

Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness

Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power

Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the handling by expanding the core side at the fiber ends.