Ultra-High Power Black UV Light Handheld

(the highest power UV curing tool, 6 hr battery, 365, 405, 440nm)

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The UVFL is a battery-powered, handheld, UV lamp that delivers high-intensity 1W/cm² irradiation at a 2-inch distance over a 3mm x 3mm area using a 40W UV LED. It has a UV bandpass filter with visible light cutoff optical black glass. It is the most powerful battery-powered handheld UV lamp on the market. The UVFL features a specially designed UV collimating lens that maximizes intensity and homogeneity. With an internal cooling fan, It has a long operation time of up to 6 hours on its high-capacity 18AH 25V rechargeable battery. The battery is exchangeable so that one can purchase two batteries to continue the work while another battery is charging. The design leverages multi-year military UV gear developments, resulting in a ruggedized manufacturing tool for the mass market. The UVFL UV lamp is ideal for fast and deep epoxy curing, with continuous operation on a single battery charge, homogeneous illumination, lightweight construction, and ease of use. The lamp can be switched on and off with a finger-press button switch. An optional pluggable power supply and controller allow for hands-free operation with a foot switch pedal. The controller features a timer with settings from 0.01 to 10 hours, and the illumination power is adjustable from 10% to 99%. We offer three wavelengths – 365nm, 405nm, and 440nm – optimized for specific UV epoxy and paint curing applications. Additionally, we produce optical power meters that fit the head size to accurately measure and calibrate the power level.

Applications

- UV adhesive cure
- UV coating
- Paint curing
- Laboratory use

Features

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

Specifications

Parameter	Min	Typical	Max	Unit
Center Wavelength		365±5, 405±5, 440±5		nm
Optical Power Density (5mm away, 10x10mm)	1.5		1.7 [1]	W/cm²
Optical Power Density (15mm away, 35x35mm)	0.9		1.1 [1]	W/cm²
Battery Capacity (25V)		1.8		Ah
Battery Running Time			6	hr
Battery Charge Time		4		hr
LED Electrical Power (with controller)		150		W
Output Power Adjustment (with controller)	10		99	%
Cure Time Range (with controller)		10 minutes to 10 hrs		
UV Spot Size [2] (Ø)	10	35	50	mm
Working Distance	5	15	30	mm
Cooling Method		air blowing		
Operation Life		> 25 000		hours
Power supply		AC 100 ~ 240		V
Weight		0.3		lb

Notes:

[1]. For wavelength > 365nm. For wavelengths shorter than 365nm, use the best LED available.

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

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link]:

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Rev 08/20/25

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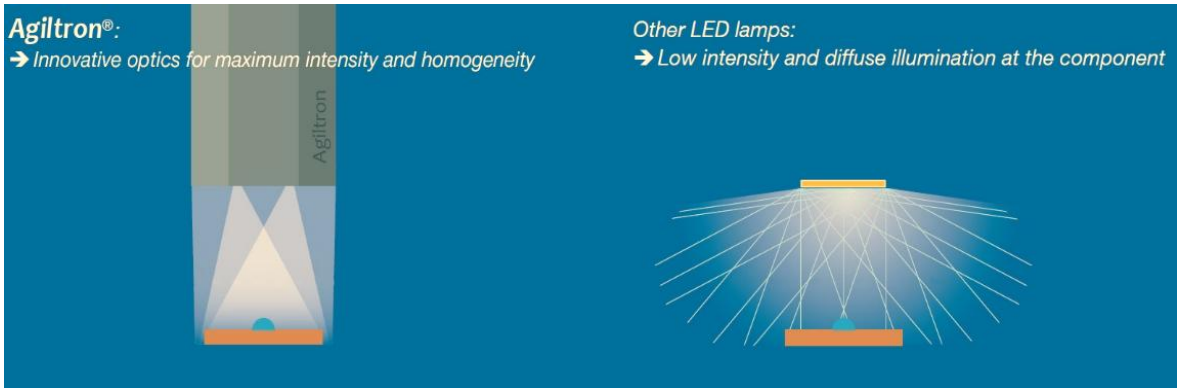
Mechanical Footprint Dimensions (mm)

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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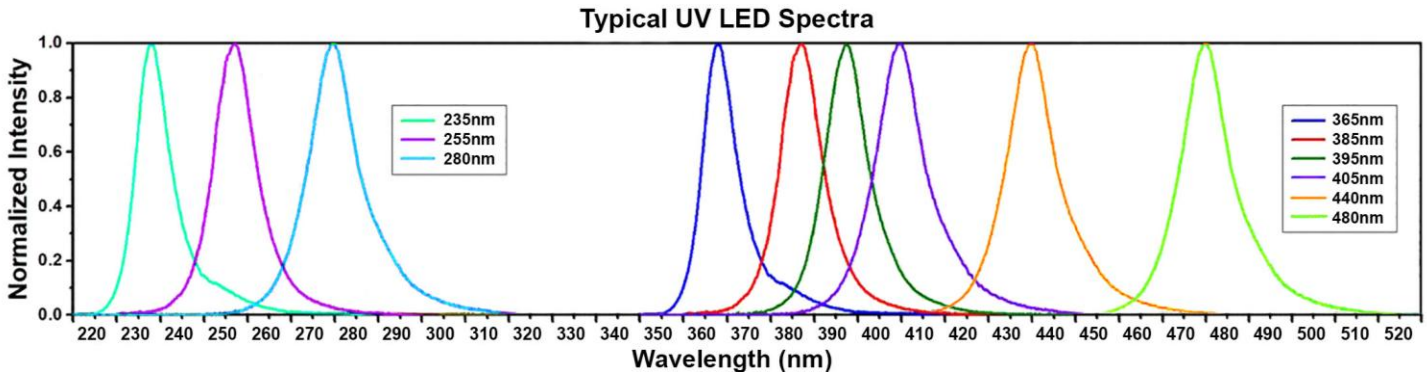
Emission Spectrum



Ordering Information (Part Number)

	☐	☐	☐	11	☐	☐	N	1
Prefix	**Control Box**	**Lamp [1]**	**Battery #**	**Black Filter [2]**	**Power Calibration**	**Collimating Lens**	**Stand**	
UVFL-	No = N Yes = 1	365 nm = 1 265 nm = 2 280 nm * = 3 405 nm = 4 440 nm = 5 255 nm = 6 232 nm = 7 480 nm = 8 495 nm = 9 385nm = A None = N Special = 0	1 = 1 2 = 2 None = N	Yes = 11 Non = NN	None = N Yes = 2	None = N Yes = 1	None = N	

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

[2]. Black filter block visible light while let the invisible UV light to pass

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 how handling by expanding the core side at the fiber ends.

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