

## Air-cooled UVLED series L



With the UV LED series L, we combine the benefits of the UV LEDs compared to the UV lamps; these are initial start, dimmability, long service life and a lower heat input with an economical UV LED system.

Irradiances of up to 8 W/cm<sup>2</sup> are reached on the surface. The high irradiance enables short processing times. For different applications, wavelengths of 365nm, 385 nm, 395 nm, 405 nm, and 450 nm are available. That way, the UV LED series L can be optimal customized for the requirements of the photoinitiator.

All wavelengths are available in five differently sized illumination areas from 10 x 100 mm, and 30 x 30 mm up to 200 x 100 mm. Customized versions are available too.

The cooling of the modules is taken out by the fan on the backside. The largely dimensioned cooling minimizes the noise emission and the thermal drift.

Because of the modular construction it is possible to connect different UV LED heads to the control unit LEDControl.

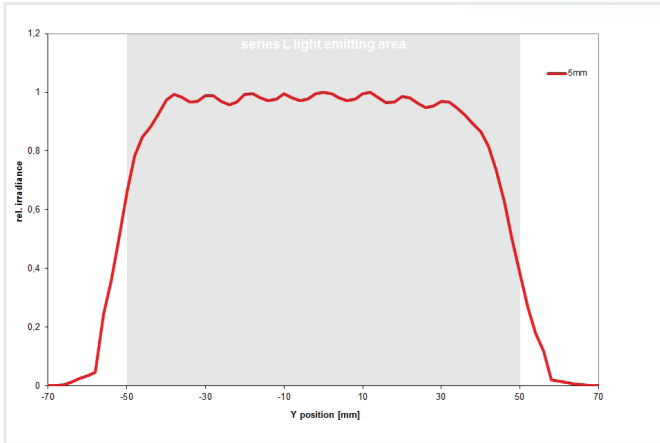
You will benefit from the modular and exchangeable UV LED series.

By means of the intelligent control unit, you can set the power to between 2% and 100%. Short clock cycles with the highest precision are possible due to the trigger input and the internal timer.

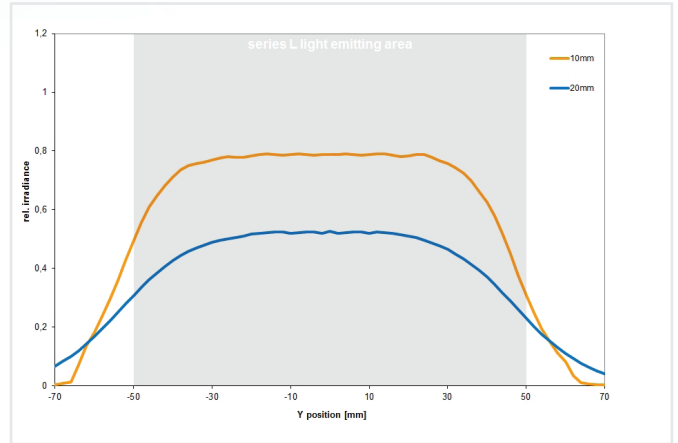
With the multi-channel LEDControl 5S, up to 5 UV LEDs can be controlled individually. The LEDControl is cascadeable and can be configured as master or slave. Remote control can be done via RS485, USB or RS232 for each channel and enables the use in industrial production. Other digital and analog inputs are also available as an option.

Furthermore, the control unit features internal fault detection and thus ensures the utilization in the industrial production. For the monitoring of UV LEDs we recommend our calibrated UVA+- sensors. These are available as PLC sensors and hand radiometers.

## UNIFORMITY OF IRRADIATION



Uniformity vs. distance along Y axis in a distance of 5 mm



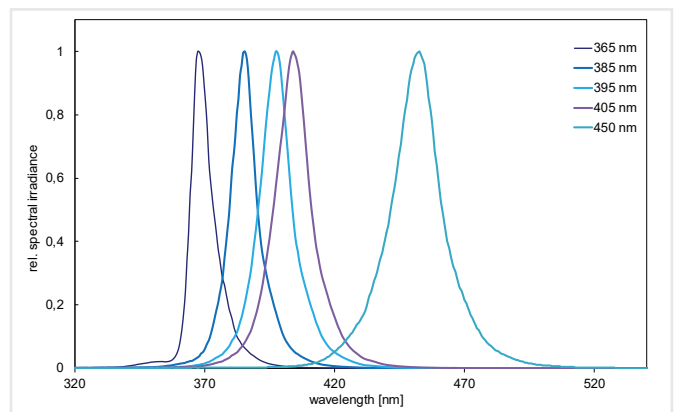
Uniformity vs. distance along Y axis in a distance of 10/20 mm

## IRRADIANCE VS. DISTANCE

5 mm distance	5,5 W/cm <sup>2</sup>
10 mm distance	4,6 W/cm <sup>2</sup>
15 mm distance	3,8 W/cm <sup>2</sup>
20 mm distance	3,1 W/cm <sup>2</sup>
30 mm distance	2,1 W/cm <sup>2</sup>

Measured centrally under UV-LED module XS-HO, wavelength 385 nm, power 100%, reference: bottom surface

## UV-LED SPECTRA



Typical UV-LED spectra

## IRRADIANCE XS-HO

365 nm	4000 mW/cm <sup>2</sup>
385 nm	5500 mW/cm <sup>2</sup>
395 nm	5000 mW/cm <sup>2</sup>
405 nm	5000 mW/cm <sup>2</sup>
450 nm	8000 mW/cm <sup>2</sup>

## IRRADIANCE XS, S, M, L

365 nm	1000 mW/cm <sup>2</sup>
385 nm	1400 mW/cm <sup>2</sup>
395 nm	1300 mW/cm <sup>2</sup>
405 nm	1300 mW/cm <sup>2</sup>
450 nm	2000 mW/cm <sup>2</sup>

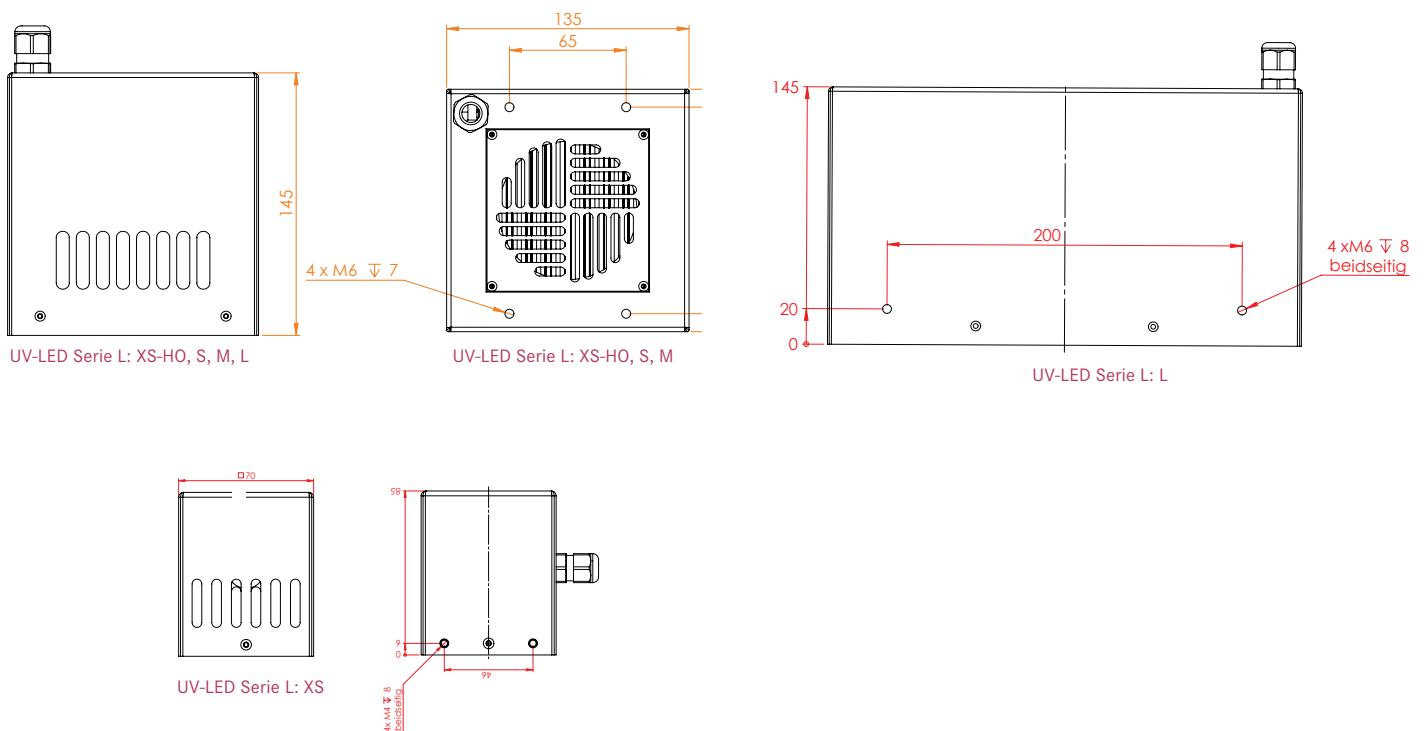
## APPLICATIONS

- Industrial UV curing and bonding
- IC Encapsulation
- UV sealing
- Hairline / leak detection using fluorescence markers
- Fluorescence Spectroscopy
- Surface Inspection

## COMMON TECHNICAL DATA LED MODULS

<b>Wavelength</b>	365, 385, 395, 405, 450 nm	<b>Internal security circuit</b>	Over-temperature
<b>Emission, peak tolerance</b>	+/- 5 nm	<b>Operating temperature</b>	5 to 40 °C
<b>Emission, FWHM</b>	10 - 20 nm	<b>Storage temperature</b>	-10 to 60 °C
<b>Uniformity</b>	90%, centric, 10 mm distance drop down to edge (s. fig.)	<b>Humidity</b>	< 80%, non-condensing
<b>Cooling</b>	air-cooling	<b>Cable length</b>	3 m, up to 10 m (opt.)
		<b>Classification</b>	risk group 3 according DIN EN 62471:2009-03

## DIMENSIONS



## COMMON TECHNICAL DATA LED MODULS

<b>Number of UVLED-Spots</b>	1 (LedControl) 5 (LedControl 5S-500W)	<b>Signals, Interface option</b>	24 V, 5 mA max
<b>Functions</b>	2 to 100%, each spot separate timer, continuous operation Master /slave mode	<b>Programming, optional</b>	RS485, RS232 or USB
<b>Display</b>	graphical, 128 x 64 px	<b>Dimensions</b>	305 x 358 x 145 mm
<b>Connections</b>	Interlock	<b>Cooling</b>	Aircooling
<b>Interface option</b>	dimming in (0-10V), common Trigger (IN/OUT), common	<b>Operating temperature</b>	5 to 40 °C
<b>Terminals, Interface option</b>	Galvanically isolated	<b>Storage temperature</b>	-10 to 60 °C
		<b>Humidity</b>	< 80%, non-condensing
		<b>Mains</b>	100 - 240 V, 50/60 Hz
		<b>Power (el.)</b>	dep. on type, 100 W - 750 W
		<b>Internal security circuit</b>	Over-temperature, LED N.C.

## TECHNICAL DATA

### SERIES L: XS

Emitting area	30 x 30 mm
Dimensions	70 x 70 x 85 mm
Power (el.)	50 W

### SERIES L: XS-HO

Emitting area	100 x 10 mm
Dimensions	135 x 135 x 145 mm
Power (el.)	200 W

### SERIES L: S

Emitting area	100 x 50 mm
Dimensions	135 x 135 x 145 mm
Power (el.)	150 W

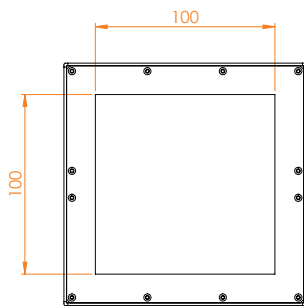
### SERIES L: M

Emitting area	100 x 100 mm
Dimensions	135 x 135 x 145 mm
Power (el.)	300 W

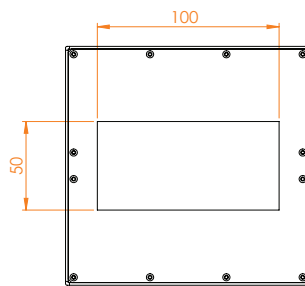
### SERIES L: L

Emitting area	200 x 100 mm
Dimensions	235 x 135 x 145 mm
Power (el.)	600 W

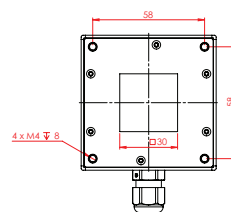
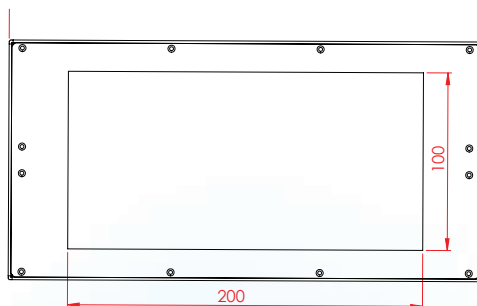
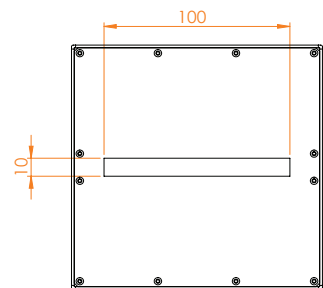
## EMISSION WINDOWS



UV-LED L-M



UV-LED L-S



UV-LED L-XS

## SAFETY


The equipment contains LEDs that emit UV-A radiation and blue light. UV radiation is invisible. The light you see is just luminescence caused by the UV. Mostly, luminescence is much weaker than the exciting UV.

UV-A light may lead to cataract formation in the eye lens and to photo-retinitis. Always use proper UV protection goggles when operating the device. The UV-A also causes pigmentation and aging of the skin. Please use proper clothing, gloves, and/or other personal safety equipment depending on exposure. Avoid irradiating skin or eyes directly! UV irradiance in the spot is several hundred times higher than that of sunlight!

This device is classified to risk group 3 (High Risk) according to DIN EN 62471:2009-03 "Photobiological safety of lamps and lamp systems."

For protection, the operating staff should not look into the LED and should not expose their skin continuously to UV/VIS radiation.

We will gladly assist you with UV job security and risk assessment according to EN 14255:2005.



## REMOTE OPERATION

The LEDControl can be controlled via the rear programming interface (USB, RS485 or RS232). Communication takes place as ASCII communication, which is illustrated below using the example of „Switching on“:

- control transmits: LOnOff: 1!
- LedControl answers: LOnOff: 1 (CRC-16)

Each channel can be individually controlled. The LedControl sends only when requested by the controller.

Via the other interface option LED powers can be set together for all channels (0-10V), LEDs on / off (trigger IN 24V) and the status (trigger OUT 24V) can be set and queried. This option is suitable for simple system integration with common signals and allows cascading of any number of LedControl.

## POWER MONITORING

Optionally, the LED module power can be monitored. Thus, failures can be detected quickly and online.

## PART NUMBERS

UV-LED L-XS-HO xxx nm	8606 15-2-XH-xxx nm
UV-LED L-XS xxx nm	8606 15-2-XS-xxx nm
UV-LED L-S xxx nm	8606 15-2-S-xxx nm
UV-LED L-M xxx nm	8606 15-2-M-xxx nm
UV-LED L-L xxx nm	8606 15-2-S-xxx nm
LEDControl	860609B
LEDControl 5S-500W	8606 10B5-500W
Wall angle for LEDControl	860609-WA
Power monitoring option	860609-PM

Interface option (I/O)	860609-CP
Programming interface RS485	860609-RS485 *
Programming interface RS232	860609-RS232 *
Programming interface USB	860609-USB *
Test and control software	860609-SW
Connection cable, 3 m	860609C
Cable, each add m	86060X-m
Foot switch	860611
UV safety goggles	918800

\* Includes Interface option (I/O)

## SCOPE OF DELIVERY

UV-LED Modul, LEDControl, cable 3 m, manual

Remote example software for instant testing, if ordered with programming option

Please specify wavelength, optics and options.