



# LS-HP1

High Power LED light sources



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### High Power LED light sources

The LS-HP1 is a series of high-power light sources for liquid light guides (LLG) with core diameters of 3 and 5 millimeters. It is characterized by its outstanding luminance and thus delivers very high light output from liquid light guides. The series includes both white light and monochromatic sources.

The LS-HP1 works with the latest generation of high-power LEDs with up to 100W power from an area of less than 15mm<sup>2</sup>. Due to the

resulting high luminance it's possible to insert a lot of light into a liquid light guide.

As a highlight we offer a daylight version with a CRI of 92. The monochromatic light sources cover the wavelength range of 365 to 850nm. The advantage of direct emitting monochromatic LEDs is the very high efficiency, because the total emitted power is in the range of the useful wavelength.

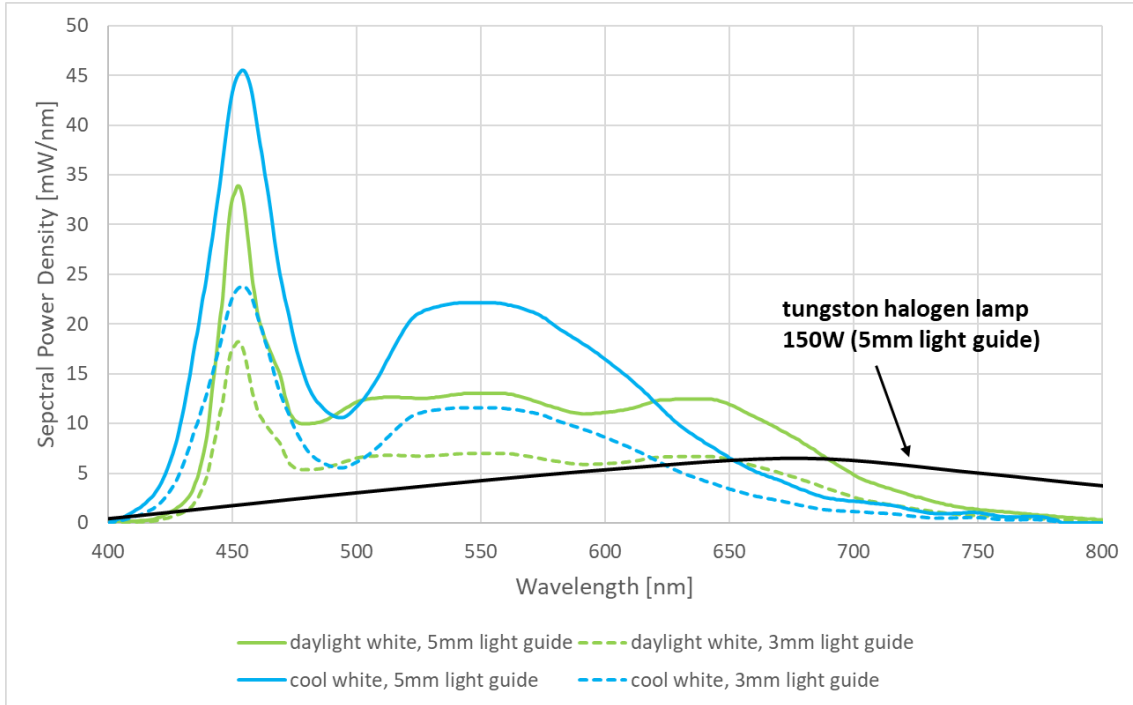
With the LS-HP1 series, we achieve the highest luminance levels through optimized optical coupling into the liquid light guide without heating it up too much. The LS-HP1 is available for liquid light guides with core diameters of 3 or 5mm. This provides the user with a small, flexible light source with very high luminance.

The choice of available wavelengths, as well as the accessible wavelength range, is constantly expanding. Other UV / NIR LEDs are available on request. Please contact us.

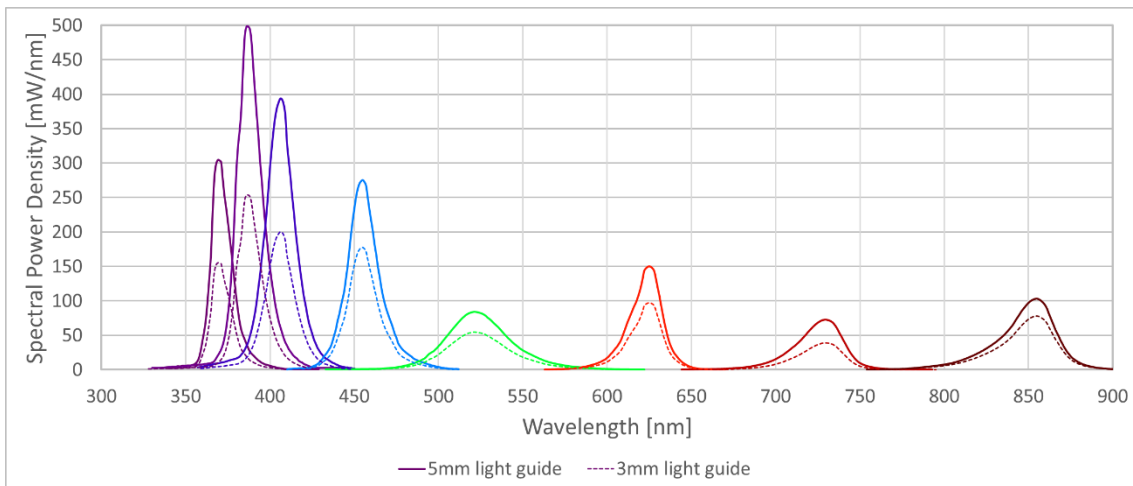
### Available light sources

Type	Color temperature / center wavelength	CRI / FWHM	Total Optical output with 3mm LLG	Total Optical output with 5mm LLG
<b>-DW</b> (daylight white)	5700K	92	1.9W (515lm)	3.5 W (950lm)
<b>-CW</b> (cool white)	6500K-7500K	70	2.5W (760lm)	4.3W (1350lm)
<b>-R</b> (red)	613nm	19nm	2.4W (650lm)	3.6W (990lm)
<b>-G</b> (green)	525nm	34nm	2.6W (1260lm)	3.9W (1910lm)
<b>-B</b> (blue)	460nm	20nm	4.3W (260lm)	6.5W (390lm)
<b>-365</b>	365nm	15nm	2.5W	4.9W
<b>-385</b>	385nm	15nm	5.0W	9.6W
<b>-405</b>	405nm	15nm	4.5W	8.7W
<b>-735</b>	735nm	32nm	1.4W	2.5W
<b>-850</b>	850nm	35nm	3.1W	4.0W
<b>Others on request</b>				

## Spectral Power Density of white light sources



## Spectral Power Density of single wavelength sources



## Specifications

<b>Emitter</b>	Direct emitting high-performance LED
<b>Optical output</b>	Version for 3mm and 5mm liquid light guide available
<b>Optical output power</b>	See table, output adjustable via jogwheel or software 5-100%
<b>Wavelength range</b>	See figures and tables above
<b>Manual operation</b>	Software-controlled configurable jogwheel (output, frequency, switch-on duration) depending on selected mode.
<b>Operating modes</b>	CW, Stroboscope, Pulse trigger, Direct mode All modes allow output setting of 5-100%
<b>Interface</b>	USB type B connection, RS-232 via USB (COM interface, 115200 baud)
<b>Software interface</b>	LabVIEW™-based GUI or direct commands via RS-232 for integration into arbitrary programming environment
<b>Signal In</b>	TTL-level trigger or digital modulation via SMA connection
<b>Signal Out</b>	Selectable output signals via SMA connection; signal reference (TTL), current monitor or input signal looped through
<b>Option output</b>	Interlock and emission status (TTL)
<b>Thermal management</b>	3 quiet high-performance fans and 2 miniature fans, air inlet right, air outlet left. Temperature sensor (readable using software), overheating protection, LED signal. Environmental temperature 5-30 °C. (Other temperature ranges possible on request) Ensure unimpeded air circulation.
<b>Power supply</b>	External power supply 24V DC, 9.0A (included), connection: Kycon KPJX-4S, power consumption approx. 150W max. at 100% (depending on the selected LED)
<b>Dimensions</b>	254mm (L) x 199mm (W) x 119mm (H) without user controls and connections

**The light source LS-HP1 is an ultra-bright point light source. Emitted light output and luminance can reach very high, potentially dangerous levels!**



The LS-HP1 is **not a toy** and may only be used by technically trained personnel. If the LS-HP1 is built into devices or is being connected to such devices or instruments via an optical fiber, appropriate protective measures must be taken to ensure the safe operation of the entire system. If the LS-HP1 is operated as a stand-alone device, please ensure that emission is switched off when the device is not being supervised.

**Risk of eye damage: avoid direct observation of:**

- the outlet opening if no fiber is inserted, or
- the glowing fiber end, or
- narrow, collimated beams or focal points.

**Use protective glasses to reduce light intensity to a safe and comfortable level.** Please check whether the protective glasses you use – e.g., laser safety glasses – are suitable for the emission range of the LS-HP1. Suitable protective glasses are also available from lightsource.tech.



Many applications require the beam to be collimated or focused. Depending on the optical technology used, dangerous luminance levels can arise even far from the source. Particularly when coupling into optical microscopes or similar visual observation devices, light may be focused in areas that result in direct exposure to the user (eyes, hands, etc.). It is imperative that optical systems of this kind are professionally designed to avoid dangerous exposure.

**Neurologically photo-sensitive persons should note:** The LS-HP1 provides pulsed or stroboscopic modes. Avoid visual observation of intense, low-frequency flickering illumination conditions.

**Risk of burns** arises in the range of focused or narrow, collimated beams.

**Fire risk:** Do not place flammable substances in focus.

