MonaLIGHT A01

Modular Narrow Angle Light Source

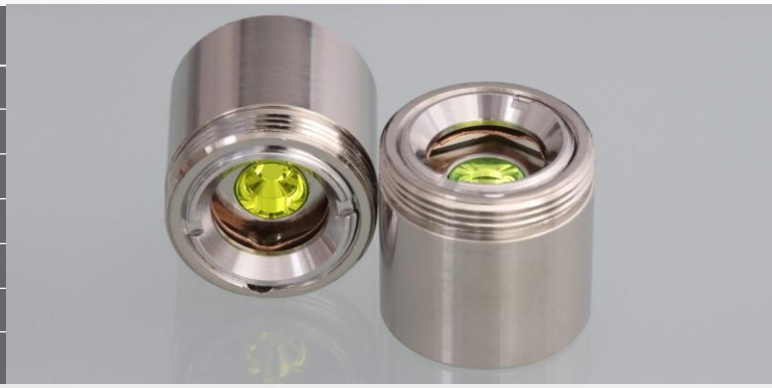
MonaLIGHT is a unique modular type of laser-based light source with a directional optical beam that offers an opportunity to design compact and high efficiency outdoor, scientific and industrial applications

KEY FEATURES

- **Narrow beam** — An outstanding level of peak luminous intensity and a narrow beam can be used in the design of compact and highly efficient subsequent optical elements.
- **All in one, modularity, integrability** — Modules can integrate additional optical functions such as short-pass or long-pass spectral filters, light guides, or lenses.
- **Compact dimensions** — Modules are designed to provide stable and superior performance with minimal size and weight.

PRODUCT CHARACTERISTICS

Spectral Coverage	500-650 nm * continuous
Spectral Bandwidth (FWHM)	95-110 nm *
Beam Divergence Angle (full angle)	80° / 90°
Viewing Angle (50%)	16° / 35°
Luminous Output	1000 - 1200 lm *
WPE (high power)	> 80 lm/W
Peak Luminous Intensity	1800 - 2500 cd *
Weight	8.6 g



* depending on module version

OPTICAL OUTPUT

CHARACTERISTICS

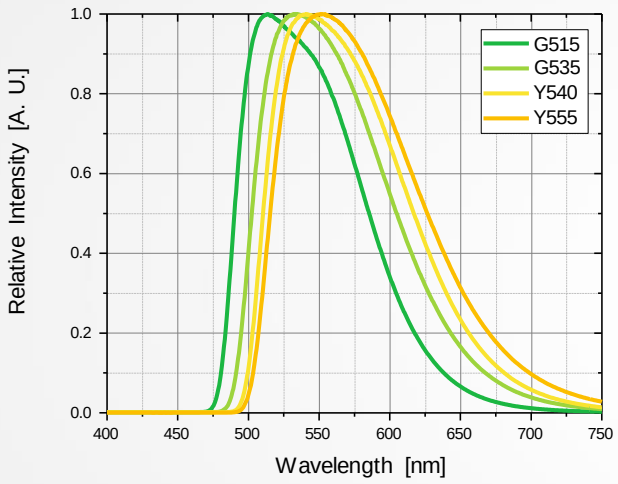
(I_F = 3 A, T_{Case} = 25°C)

Type		G515	G535	Y540	Y555	
Chromacity Coordinates	CIE x	0.33	0.39	0.42	0.44	*
	CIE y	0.60	0.58	0.56	0.54	*
Peak Wavelength	[nm]	513	533	542	550	*
Dominant Wavelength (ref x,y = 0.333, 0.333)	[nm]	553	563	568	570	*
Spectral Bandwidth (FWHM)	[nm]	95	100	105	110	
Viewing Angle (at 50% Intensity) X / Y Axis	[°]	16 / 35	16 / 35	16 / 35	16 / 35	
Luminous Flux	[lm]	1200	1200	1200	1000	*
Optical Power	[W]	2.5	2.5	2.5	2.2	*

* Characteristics are dependent on forwad current (I_F) and/or temperature

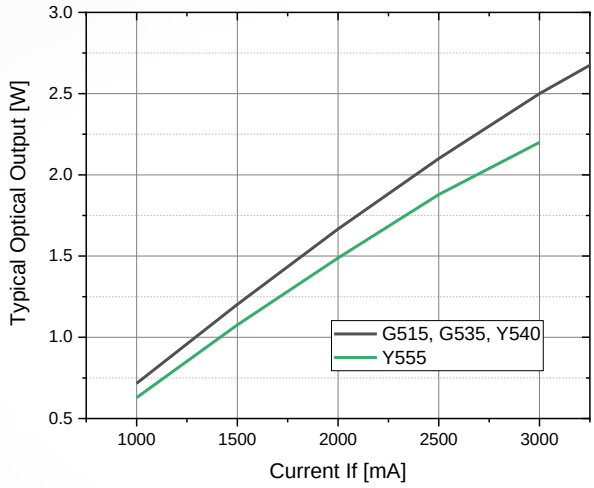
RELATIVE EMISSION SPECTRUM

(I_F = 3 A, T_{Case} = 25°C)



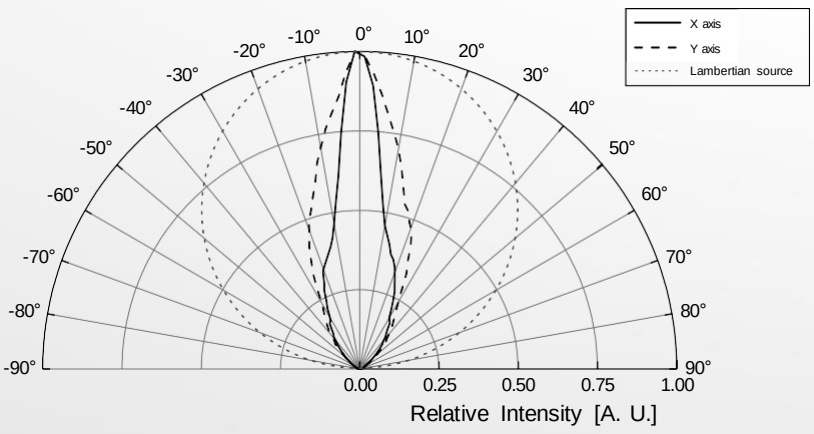
OPTICAL POWER CHARACTERISTICS

(T_{Case} = 25°C)



RADIATION CHARACTERISTICS

(I_F = 3 A, T_{Case} = 25°C)

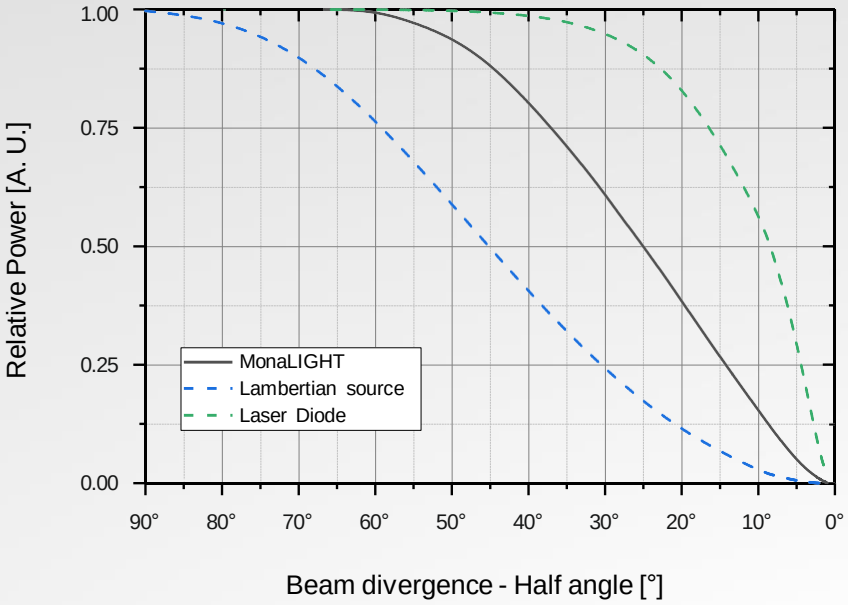


The ray file is available upon request.

OPTICAL OUTPUT

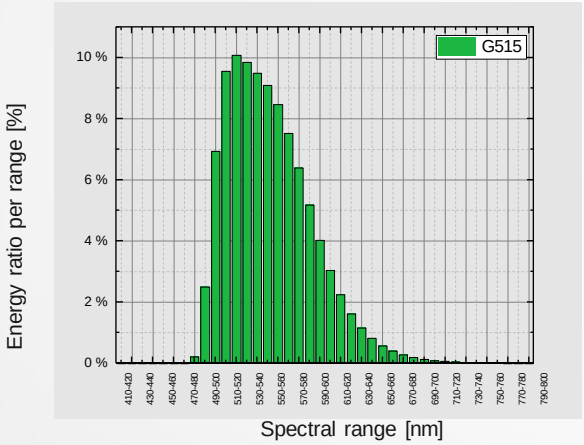
LEVEL OF RECEIVED ENERGY ON DIVERGENCE ANGLE

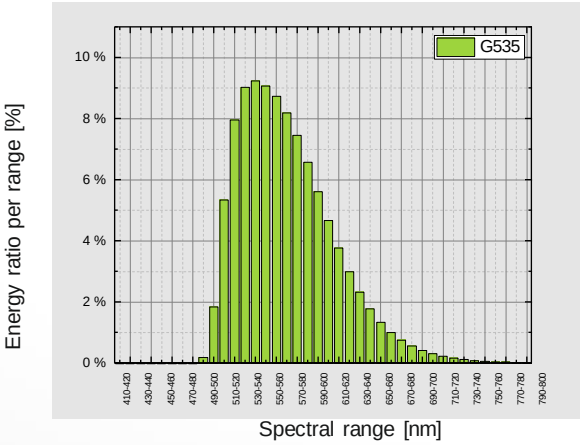
(T_{Case} = 20°C)

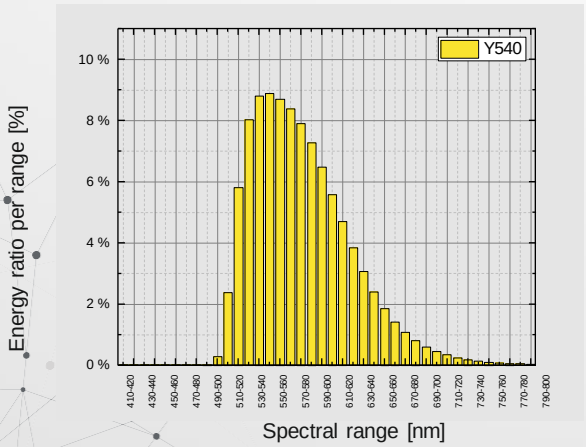


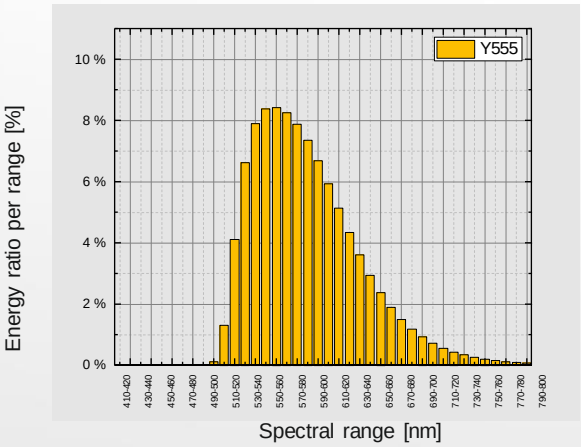
ENERGY RATIO PER SPECTRAL RANGE

(I_F = 3 A, T_{Case} = 25°C)









SAFETY INSTRUCTIONS

Caution: The product incorporates a high-power blue laser diode. Depending on the mode of operation, these devices could emit highly concentrated visible light, which can be hazardous to the human eye. Products that incorporate these devices have to follow the safety precautions found in IEC 60825 “Safety of laser products”.

Risk of eye injury. Do not look straight at the light source during operation. The intense light beam may damage your eyes.

Do not view the light output with optical instruments or with any device that may concentrate the beam.

Immediately stop operating the module if there is a visible blue component of light in any beam direction.

Do not operate the module in case of any visible damage to the front part as protective glass or integrated phosphor!

When using the bare module during development activities, it is recommended to wear laser protective glasses designed for blue laser light (440 – 480 nm).

Warning: DO NOT DISASSEMBLE THE MODULE!

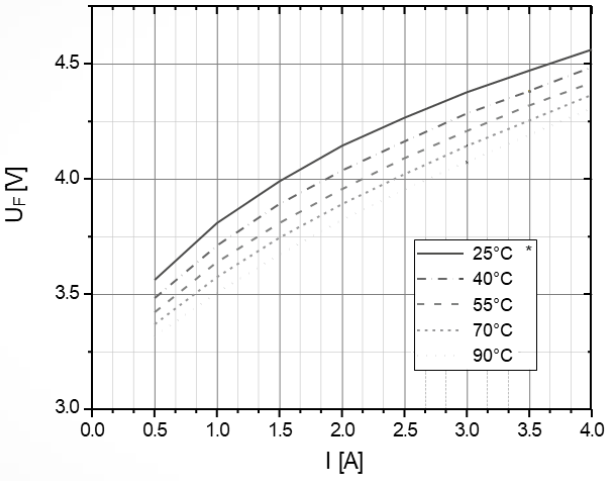
ELECTRICAL REQUIREMENTS

Characteristics (T_{Case} = 25°C)

	Min.	Typ.	Max.
Forward Current G515, G535, Y540	0.45 A	3.0 A	3.5 A
Forward Current Y555	0.45 A	2.5 A	3.0 A
Forward Voltage		4.3 V	5.0 V

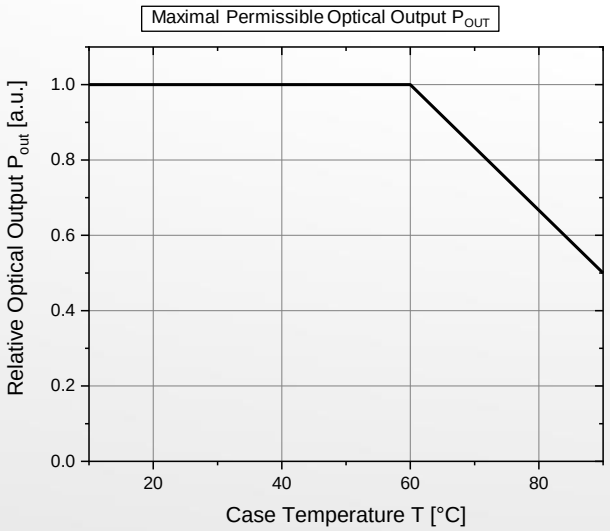
The module can be used in both continuous and pulsed operations.

As measured on the back side of the laser diode

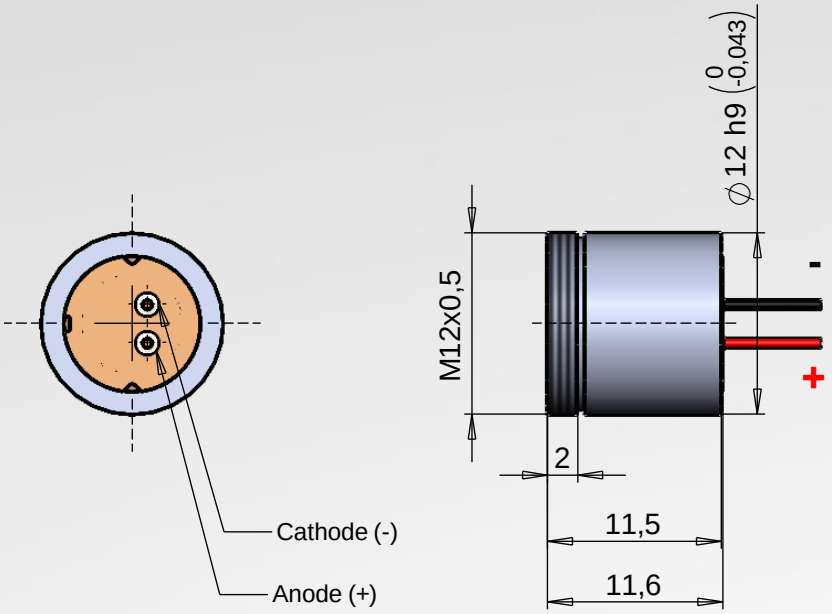


ENVIRONMENTAL HANDLING

	Min.	Max.
Operating Temperature (Case)	-20 °C	90 °C
Storage Temperature	-40 °C	120 °C



DRAWING



All dimensions are in mm.

HEAT MANAGEMENT

Using the light module without an external heatsink for extended periods of time can significantly shorten its lifetime and is not recommended.

	Min.	Typ.	Max.
Total Power Dissipation		10 W	12 W
Case Temperature	-20 °C	25 °C	90 °C

We recommend clamping the heatsink to ensure good thermal contact.

Without an additional heatsink, at the lowest input power, it takes approx. 1 minute to reach 50°C on the case from room temperature.

Please see the Application Note for detailed information to thermo-management