

MonaLIGHT F01

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

- ✓ **Low etendue 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.
- ✓ **Direct fiber coupling**
 - Directly accessible focal point with beam angle 4° and optimized for etendue limited applications.
- ✓ **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 (FWTM)	25°
Viewing Angle (FWHM)	4°
Luminous Output	500 - 550 lm *
WPE (high power)	40 lm/W
Peak Luminous Intensity	8000 cd *
Weight	18 g

* depending on module version



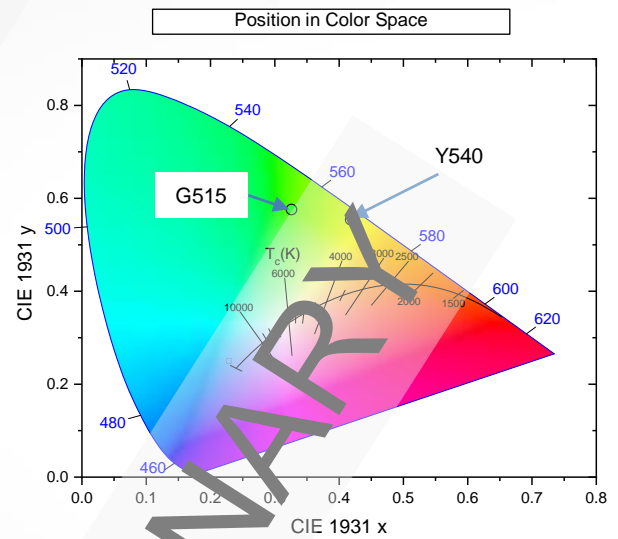
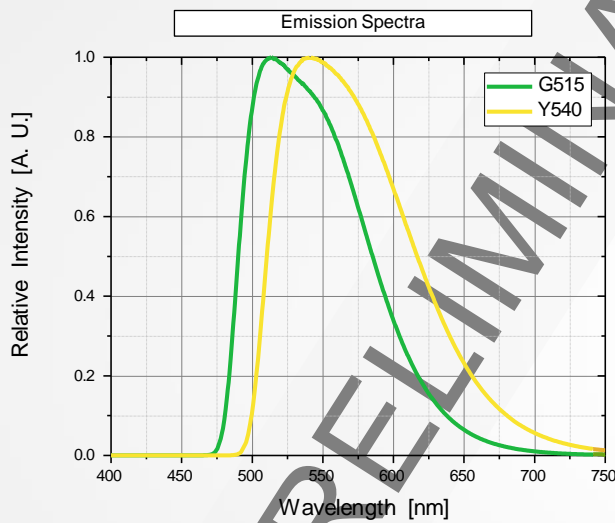
OPTICAL OUTPUT

CHARACTERISTICS ($T_{Case} = 25^{\circ}C$)

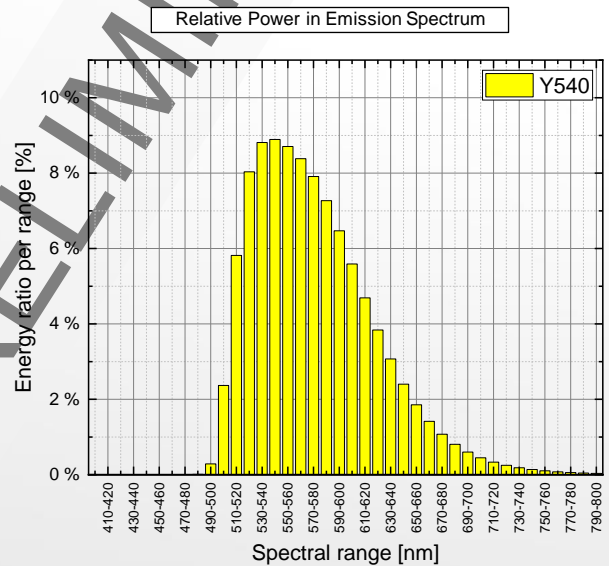
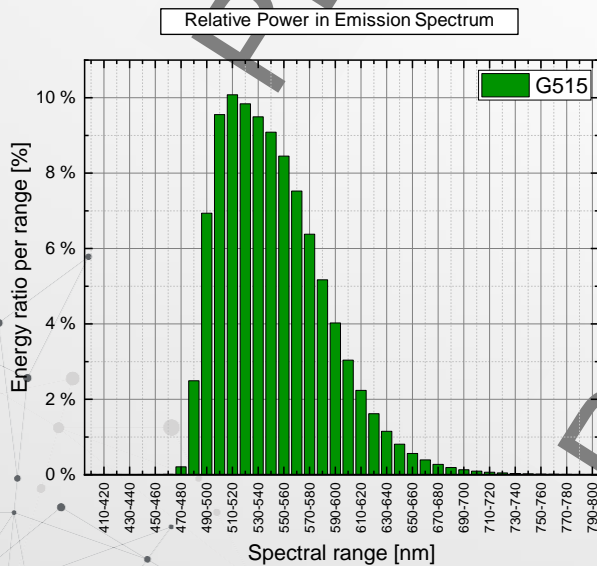
Type ID		G515	Y540
Product number		23096	23098
Chromacity Coordinates	CIE x	0.331	0.422
	CIE y	0.597	0.559
Typical Peak Wavelength	[nm]	515	542
Dominant Wavelength (ref x,y = 0.333, 0.333)	[nm]	555	568
Spectral Bandwidth (FWHM)	[nm]	95	105
Viewing Angle (at 50% Intensity) X / Y Axis	[°]	4°	4°
Max. Luminous Flux	[lm]	500	500
Optical Power	[W]	1.1	1.0
Typical forward current	[A]	3.0 A	3.0 A

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

SPECTRAL CHARACTERISTICS



ENERGY RATIO PER SPECTRAL RANGE

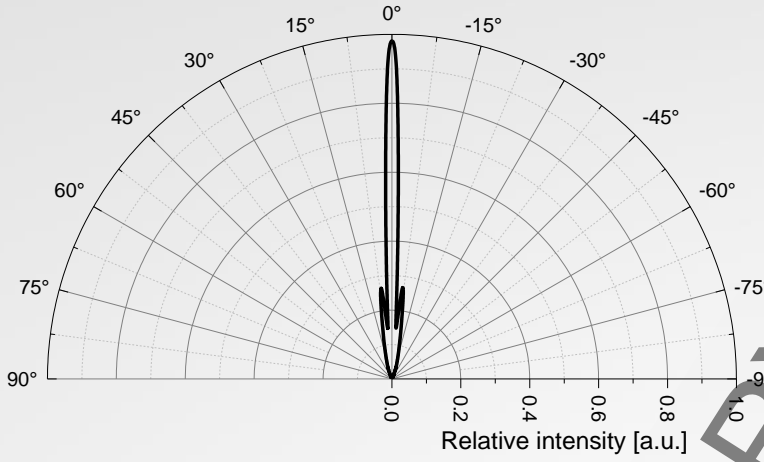


GRAPHS TYPICAL OPTICAL OUTPUT

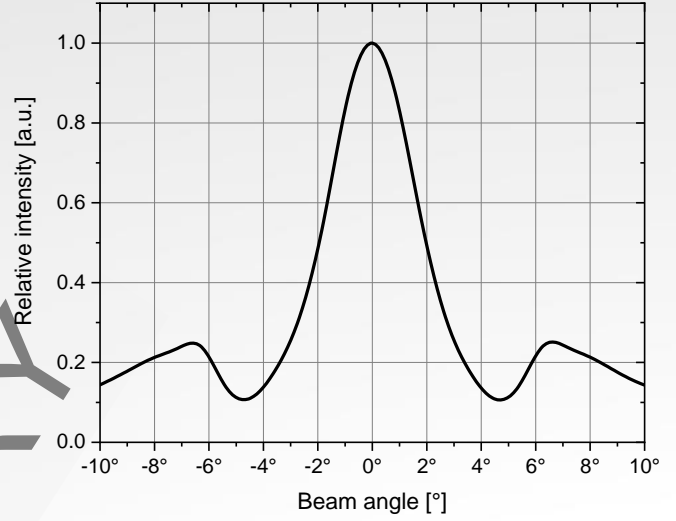
ANGULAR CHARACTERISTICS

($T_{Case} = 25^{\circ}C$)

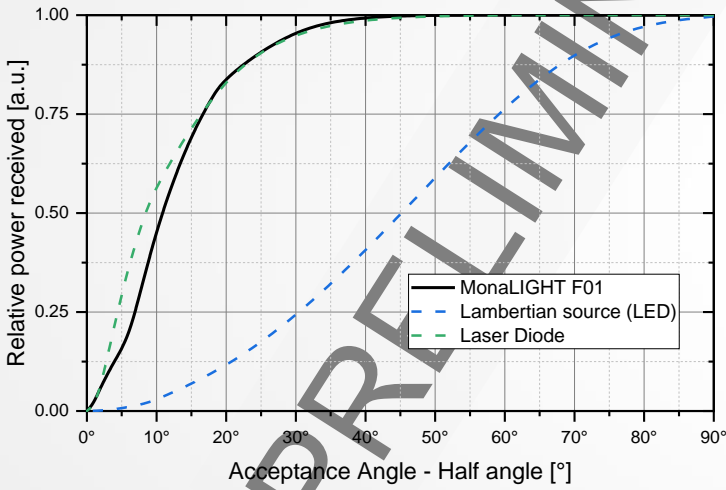
Polar radiation diagram - angular dependent radiant intensity



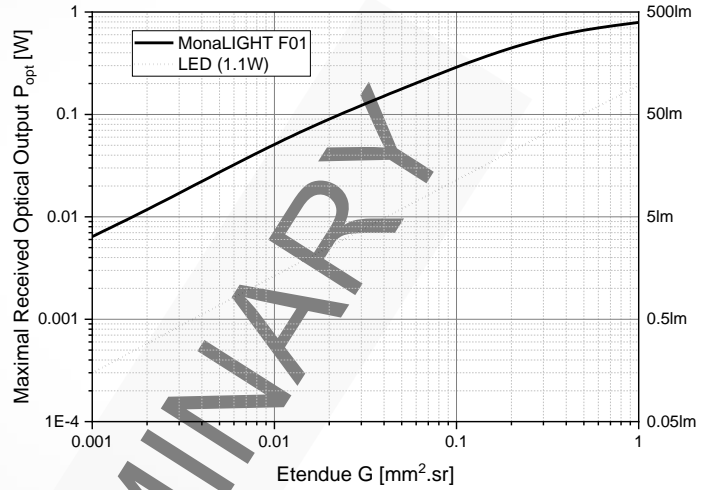
Detailed angular dependence



Level of energy received on Acceptance angle of Optics / Fibre



Maximal energy received for Etendue (G) limited target



The ray file is available upon the request.

PRELIMINARY



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).



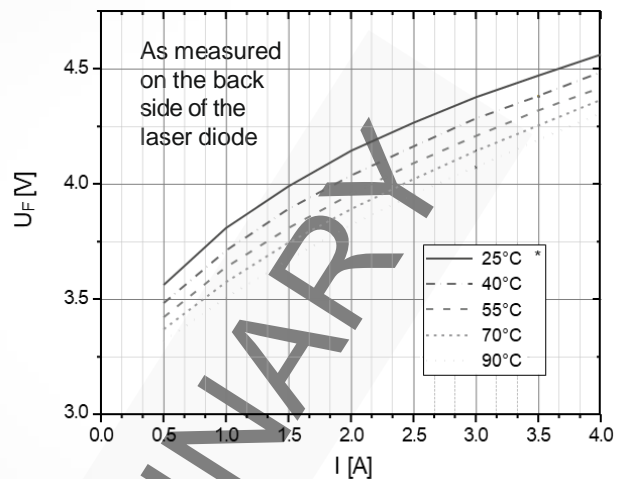
Warning: DO NOT DISASSEMBLE THE MODULE!

ELECTRICAL REQUIREMENTS

Characteristics ($T_{\text{Case}} = 25^{\circ}\text{C}$)

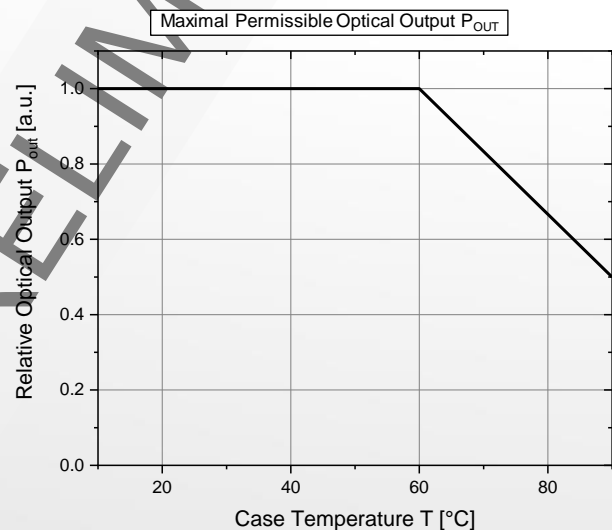
	Min.	Typ.	Max.
Forward Current G515	0.45 A	3.0 A	3.5 A
Forward Current Y540	0.45 A	3.0 A	3.0 A
Forward Voltage		4.3 V	5.0 V

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

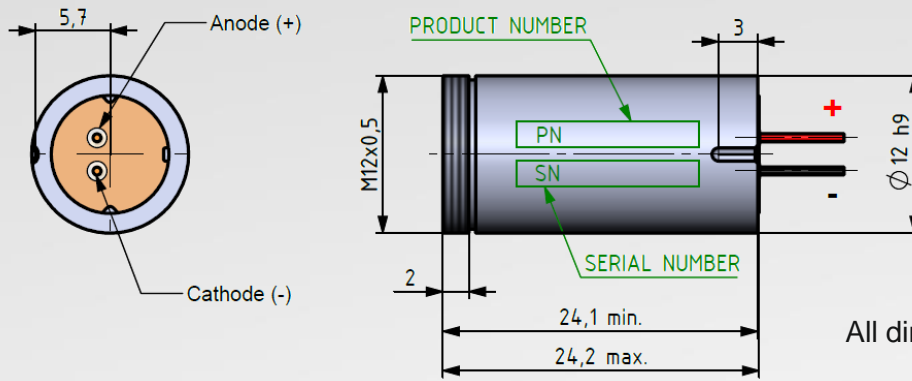


ENVIRONMENTAL HANDLING

	Min.	Max.
Temperature (Back side of LD)	-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
Temperature (Back side of LD)	-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

