MINI Series PL.MI***.zzz

Features

* Different wavelengths
* Up to 1000 mW
* Dot and Line laser version
* Small housing dimension

Applications

* Fluorescence measurement
* Triangulation system
* Hot steel inspection
* Optical pumping

Related Products

The PEGASUS MINI is a series of medium output power line laser modules, available with different wavelengths from VIS to NIR.

Exactly the same mechanical dimensions of all models allows to easy exchange from one model with one wavelength to another without any additional adjustment. This makes it easy to find the best suitable laser wavelength, especially for flourescence excitation or scanning on different colored background.

Bandpassfilter	Line optics	Laboratory driver
		

Via external trigger signal 0-5 VDC, the output power can be directly modulated DC - 50 kHz. With temperature stabilization the laser can be operated wtih high power stability in different environments.

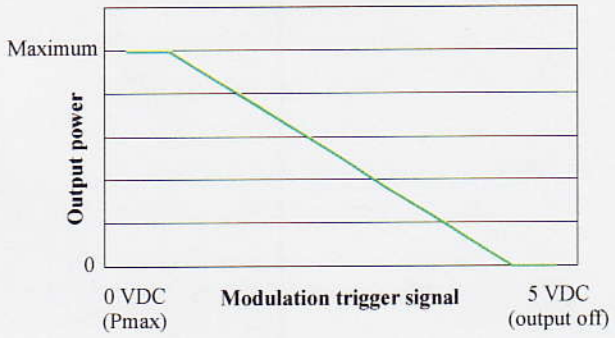
Specifications

Optical	Wavelengths	nm	405	445	532	638	660	810
	Output power	mW	150	500	200	500	500	1.000
	Power Stability	%	< +/-2	< +/-2	< +/-5	< +/-2	< +/-2	< +/-2
	Line thickness		< 0.5 mm @ 1m up to 4 mm @ 10 m (focus set at factory)					
	Fan angles	°	15, 30, 45, 60, 90 (others on request)					
	Line intensity uniformity	%	+/- 20 (within 80 % of the line)					
	Laser Class (EN 60825-1)		3B	3B	3B	3B	3B	4
Electrical	Power supply voltage	VDC	9.0 +/- 0.5					
	Operation current	A	< 3.0					
	Modulation input	VDC	analog 0-5 (active low)					
	Modulation frequency		DC - 50 kHz					
Mechanical	Dimension laserhead	mm³	107 x 45 x 25					
	Dimension power supply	mm³	111 x 61 x 28					
Environmental	Cooling		must be attached to external heatsink					
	Operating temperature	°C	10 - 35					
	Warm-up time	min	< 5	< 5	< 15	< 5	< 5	< 5

Specifications are given for 22°C at constant environment

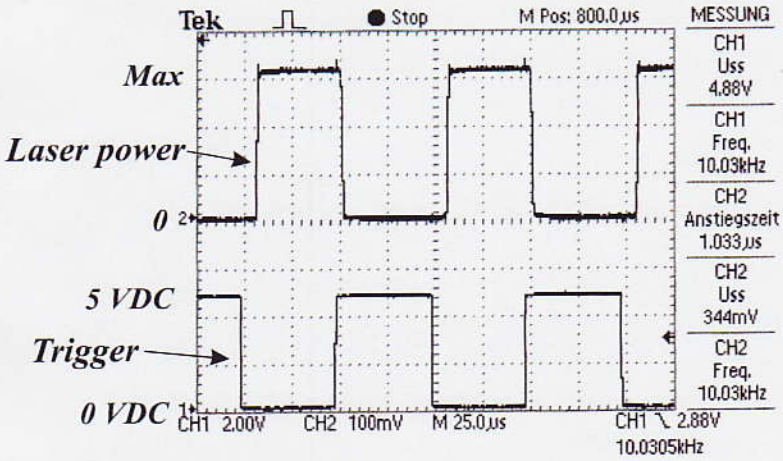
Power control

Principle measurement



External variable 0 - 5 VDC source allows the user to adjust output power. Signal between 0 and 0.5 VDC leads to maximum power. For 4.5 - 5 VDC the laser is off. 4.5 - 0.5 VDC produces power nearly analog increasing with input signal.

Amplitude modulation



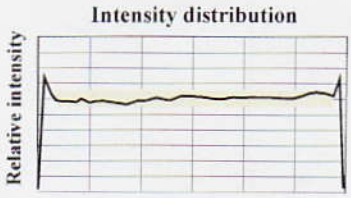
The laser design offers direct modulation with high frequency and high duty cycle. Via the external modulation input signal between 0 and 5 VDC the laser power can either be controlled, in order to trigger the laser with measurement to a camera or detection system.
With strobed illumination, fast processes could be freezed for image capture.

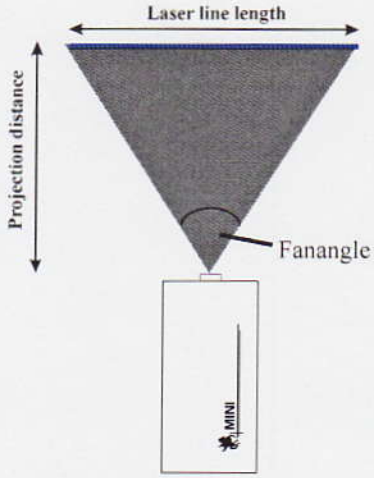
Rectangular trigger ban be used to achieve amplitude modulation frequencies of the system up to 50 kHz.

Ordering information

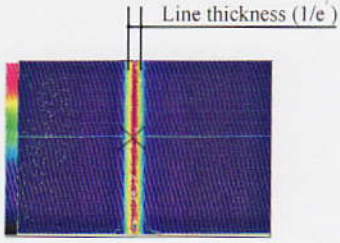
Model	Wavelength (nm) *	Power (mW)	Fan angle zz (°)	Laserclass
PL.MI405.150-Lzz	405	150	15, 30, 45, 60	3B
PL.MI445.500-Lzz	445	500	15, 30, 45, 60	3B
PL.MI532.200-Lzz	532	200	15, 30, 45, 60	3B
PL.MI638.500-Lzz	638	500	15, 30, 45, 60	3B
PL.MI660.500-Lzz	660	500	15, 30, 45, 60	3B
PL.MI810.1000-Lzz	810	1.000	15, 30, 45, 60	4
PL.MI1064.400-Lzz	1.064	400	15, 30, 45, 60	3B
	* others on request			

Laser line generator PL.MI***-Lzz





Each line laser model of the MINI series is set-up with special Powell lens in order to receive homogeneous intensity distribution along the line, within a tolerance of < +/-20 % for 80 % of the line.



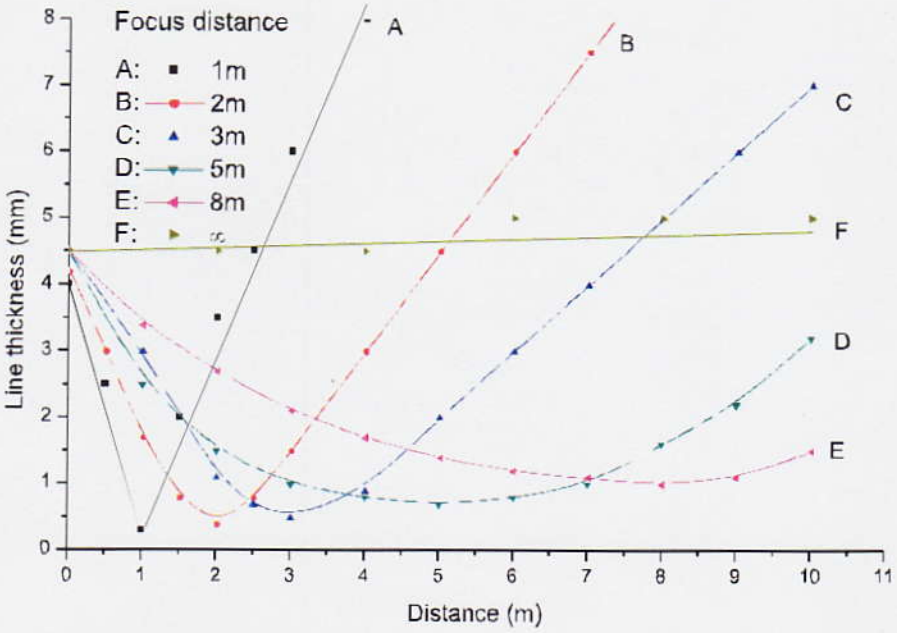
The line generating optics of the laser is specified by its fan angle. With specific projection distance, the needed fan angle could be determined to achieve requered line length.

Standard fan angles are 15°, 30°, 45°, 60° and 90°. Others are available on request.

Fan angle	Line length at 3 m
15°	0.8 m
30°	1.6 m
45°	2.5 m
60°	3.4 m
90°	6.0 m

Example: Typical line lengths in 3 m distance (perpendicular projection surface) for standard line projectors.

Line thickness



Typical line thickness versus focus distance for PL.MI445.500-L60 (500 mW at 445 nm) for different focus adjustments

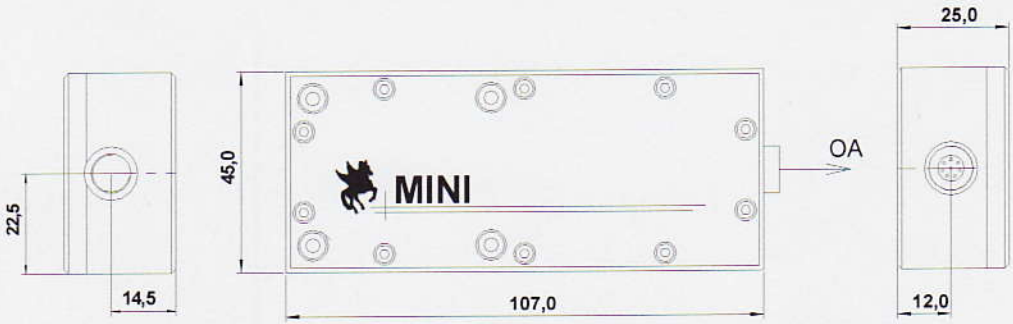
The line thickness and focus depth depends on the focus distance. The standard version is collimated to infinity (curve F) but in most applications the typical projection distance is < 10 m. At factory, the focus of the laser can be set to any projection distance in order to optimize the line thickness to the specific application.

For short range focussing (curve A), line thickness < 0.3 mm (1/e²) can be achieved.

Example curve A

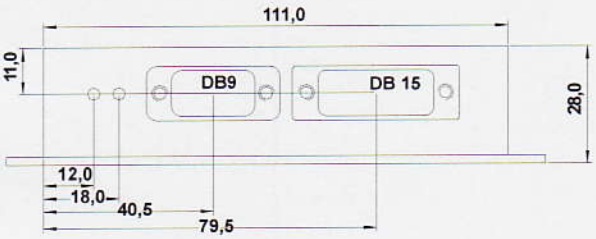
Distance	Line thickness
0 m	4.0 mm
0.5 m	2.5 mm
1.0 m	0.3 mm
1.5 m	2.0 mm
2.0 m	3.5 mm

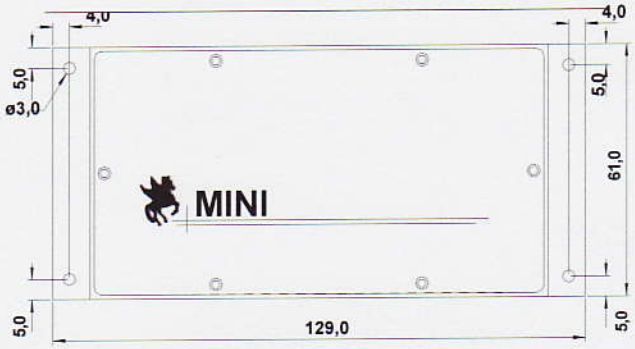
Laser head



All dimensions are given in mm

Electronic driver





DB 9 - Connector "Power supply"

DB 15 - Connector "Laser head"

All dimensions are given in mm

Accessories

Air cooling module

The laser baseplate has to be adequately heat sinked in order to prevent the system from overheating. Therefore adapted air cooling modules with low vibrational fan are available for the laser head and the driver. The cooler can be operated for environment temperatures up to 35°C.

Model	PL.LMK.125.MI
Supply voltage	24 VDC
Material	Black anodized Al
Power consumption	< 5 W

Adapted benchtop driver PL.LD230/6-1.**

Input voltage	230 VAC
Output current	up to 6 A
External modulation input	0 - 5 V
Frequency generator (option)	25 Hz - 25 kHz

PEGASUS reserves the right to make changes in specifications without any notice