



Nd:YAG passively q-switched DPSS lasers

WAVEGUARD



FEATURES:

Robust and compact design
Internal and external TLL triggering
Laser controller with USB or RS232 interface
OEM version available

APPLICATIONS:

Material processing and micromachining
LIBS
Marking
LIDAR and Laser Ranging
Biophotonics





Laser characteristics:

Wavelength	1064 nm ¹				
Wavelength tolerance	± 1 nm				
Repetition rate	1 Hz – 1 kHz ²				
Pulse energy	135 µJ @1Hz	130 µJ @10Hz	125 µJ @100Hz	120 µJ @500Hz	120 µJ @1kHz
Average output power	0,135 mW	1,3 mW	12,5 mW	60 mW	120 mW
Energy stability (4 hr), @100 Hz	<1 %				
Pulse duration	940 ps	950 ps	960 ps	960 ps	1 ns
Polarization contrast	>100:1				
Beam diameter at exit window	<1 mm				
Beam quality	M ² <1,2				
Beam divergence	<6 mRad				
Beam profile	TEM ₀₀				

¹additional harmonics modules for 532 nm, 355 nm or 266 nm wavelengths available on request

²higher frequency pulse repetition rates available on request

Physical dimensions:

Laser module dimensions	170 x 103 x 64 mm
Laser driver dimensions	164 x 105 x 44 mm

Utility requirements:

Pump current	8 A
Electric	100-240 V AC, 50/60 Hz, 1.4 A
Working temperature	20 – 28 °C
Cooling	TEC element + air cooling



Laser beam profile and laser pulse duration data:

Pulse repetition rate	Beam profile	Pulse duration
1 kHz		
500 Hz		
100 Hz		

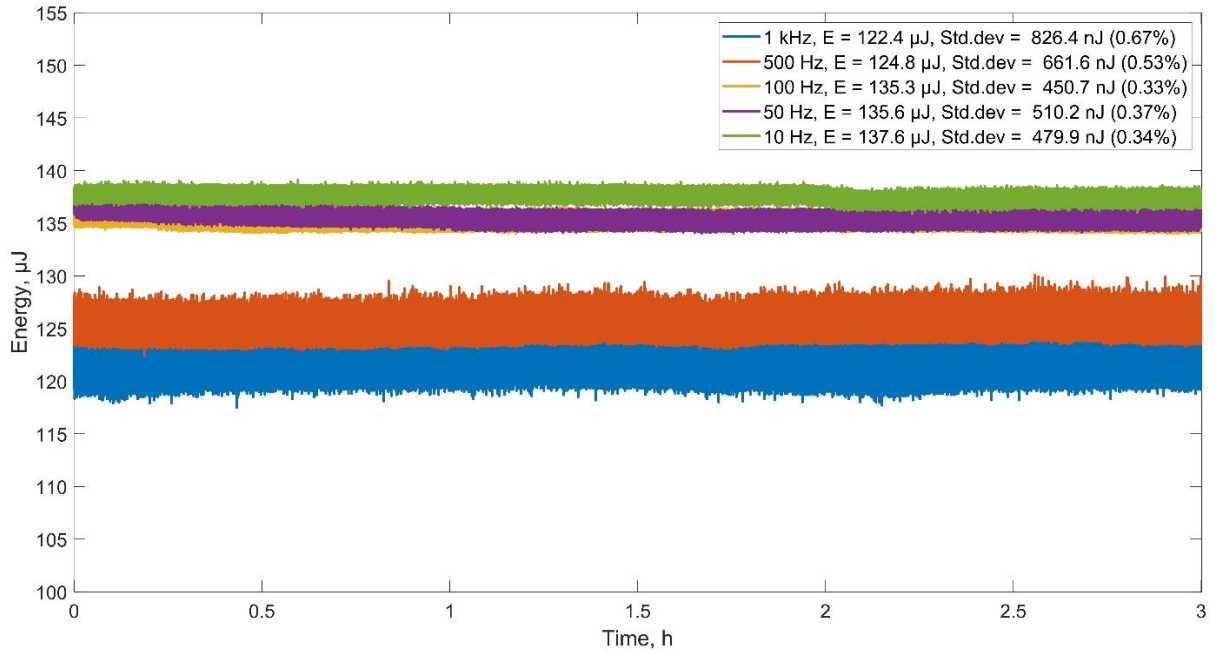
Beam profiles at lower repetition rates (50-1 Hz) does not change and pulse duration values become few picoseconds shorter at the lower repetition rates:

Pulse repetition rate	Pulse duration
10 Hz	
1 Hz	





Output energy stability:







Waveguard laser average output energy stability for different repetition rates

Pulse repetition rate	Standard deviation
1 kHz	<850 nJ
500 Hz	<700 nJ
100 Hz	<500 nJ
50 Hz	<550 nJ
10 Hz	<500 nJ

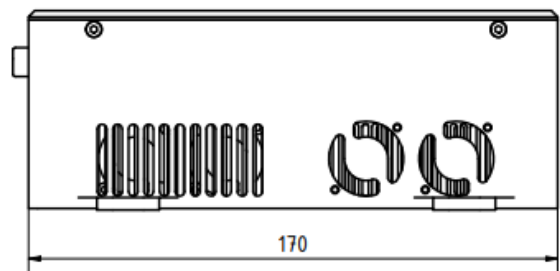
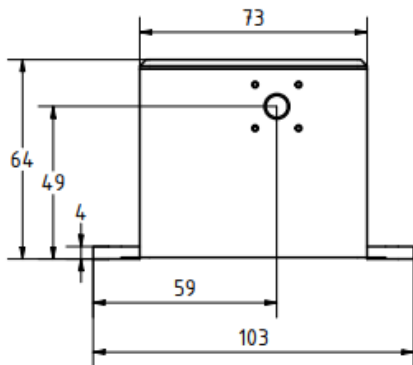


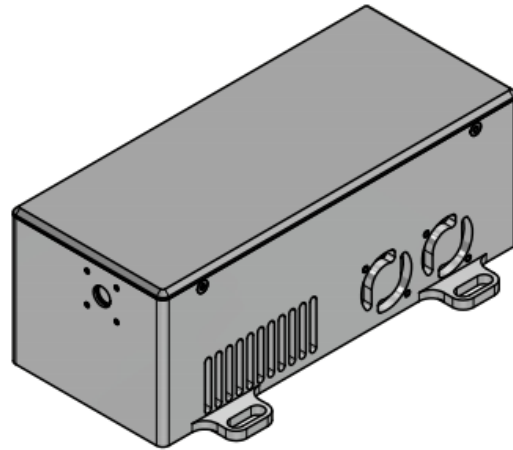
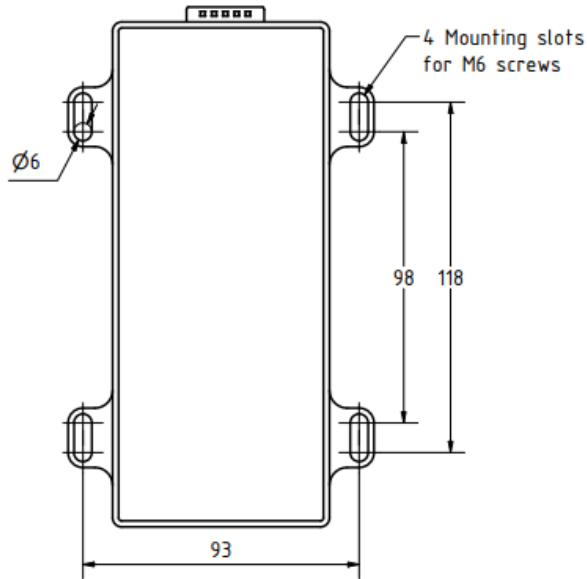


Necessary components to run the laser:

 <p>DPSS laser head</p>	 <p>Laser driver</p>
 <p>Power supply with cables</p>	 <p>USB-RS232 adapter</p>

Laser head schemes:





Laser safety class:

