

Diode Pumped Sub-Nanosecond Passively Q-Switched Laser

MPL1310

FEATURES

- > More than **2 mJ** pulse energy at **1064 nm**
- > Short pulse duration < **350 ps**
- > **100 Hz** repetition rate
- > **532 nm, 355 nm, 266 nm** standard options
- > Passively Q-switched
- > High peak power **6 MW**
- > Guaranteed > **3 Gshot** lifetime
- > Other wavelengths (e.g. 1342 nm, 1053 nm, 671 nm, 447 nm) are available

APPLICATIONS

- > Laser-induced breakdown spectroscopy (LIBS)
- > Medical OEM
- > DNA analysis
- > Pollution monitoring
- > Remote sensing
- > Supercontinuum generation
- > Ignition of gas mixtures

MPL1310 series DPSS passively Q-switched sub-nanosecond lasers deliver **6 MW** peak powers at 100 Hz repetition rate. Short laser cavity is fixed on thermo-stabilized and controlled baseplate which gives extremely stable output parameters. Small footprint is welcome point for integration into OEM systems. Sub-nanosecond pulse duration of < **350 ps**, high pulse energy more than **2 mJ**, variable repetition rate up to **100 Hz** covers many applications like medical OEM, LIBS, supercontinuum generation and many others. Optional conversion to green (532 nm) and ultraviolet (355 nm, 266 nm) is available.



Specifications ¹⁾

MODEL	MPL2310	MPL1310	MPL1310-MO
Pulse energy			
at 1064 nm	2 mJ	1 mJ	0.2 mJ
at 532 nm	1 mJ	0.5 mJ	0.1 mJ
at 355 nm	0.5 mJ	0.25 mJ	0.05 mJ
at 266 nm	0.25 mJ	0.15 mJ	–
Typical pulse duration	< 350 ps ²⁾		< 200 ps ²⁾
Pulse to pulse energy stability (RMS)			
at 1064 nm		< 1 % ³⁾	
at 532 nm		< 2.0 % ³⁾	
at 355 nm		< 3.0 % ³⁾	
at 266 nm		< 4.0 % ³⁾	
Power drift		± 3.0 % ⁴⁾	
Pulse repetition rate ⁵⁾		1 – 100 Hz	
Beam profile		close to Gaussian	
Beam divergence ⁶⁾		< 6 mrad	
Polarization		linear, horizontal at 1064 nm	
Spectral linewidth		SLM	
Beam pointing stability ⁷⁾		< 10 μrad	
Typical beam diameter ⁸⁾	1.5 mm	1 mm	
Jitter		~ 2 μs RMS ⁹⁾	

- ¹⁾ Due to continuous improvements all specifications are subject to change. Unless stated otherwise all specifications are measured at 1064 nm.
- ²⁾ FWHM level at 1064 nm. Other pulse duration is available by request. Please inquire for detailed specifications.
- ³⁾ Averaged from 60 seconds time interval in 5 series.
- ⁴⁾ Over 8-hour period after max 5 minutes of warm-up when ambient temperature variation is less than ± 2 °C.
- ⁵⁾ Factory-set pulse repetition rate is fixed at 100 Hz repetition rate. Higher repetition rates are available, please inquire for more details.
- ⁶⁾ Full angle measured at the 1/e² level. Lower beam divergence is available upon request, please inquire for more details.
- ⁷⁾ RMS value measured from 1000 shots.
- ⁸⁾ Beam diameter is measured 20 cm from laser output at the 1/e² level.
- ⁹⁾ In respect to Q-switch triggering rising edge pulse.
- ¹⁰⁾ Laser can be powered from appropriate 12 VDC power source. Inquire for details.

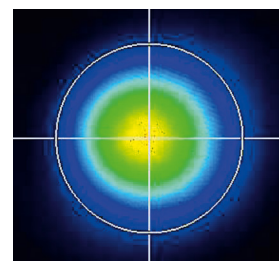
DIMENSIONS

Laser head (W×L×H)	138 × 164 × 48.5 mm
	113 × 162.5 × 45.5 mm (OEM version)
Controller unit (W×L×H)	257 × 271 × 153 mm
	75 × 200 × 70 mm (OEM version)

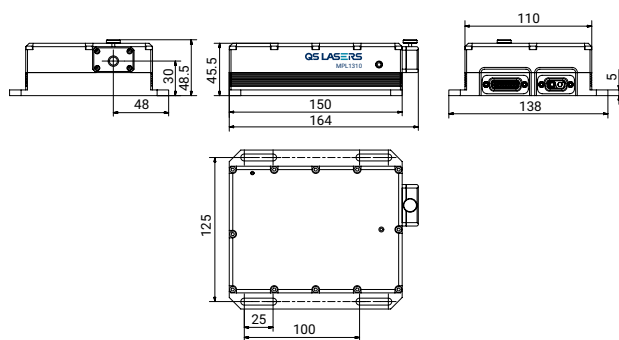


OPERATING REQUIREMENTS

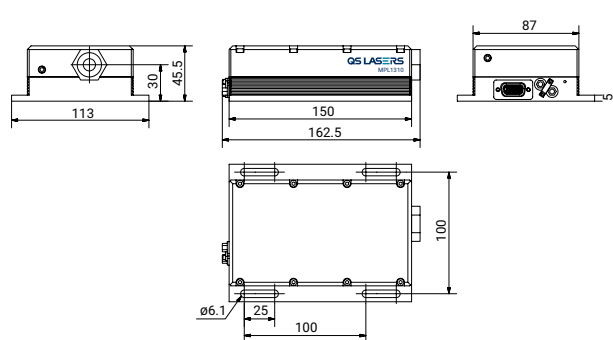
Cooling requirements	Air cooled
Ambient temperature	15 – 30 °C
Relative humidity (non-condensing)	10 – 80 %
Mains voltage	100 – 230 VAC, single phase, 50 – 60 Hz ¹⁰⁾
Cable cord length	1 m
Power consumption	< 20 W < 10 W



Typical beam intensity profile (20 cm from laser output) of MPL1310 series lasers



MPL1310 series laser head dimensions (in mm)



MPL1310 series laser head dimensions OEM version (in mm)