

# Diode Pumped Sub-Nanosecond Passively Q-Switched Laser

## MNL1342

### FEATURES

- > More than **50  $\mu$ J** pulse energy at **1342 nm**
- > Short pulse duration **< 0.5 ns**
- > **1 - 100 Hz** repetition rate
- > Passively Q-switched
- > Average power **5 mW**
- > Peak power **100 kW**
- > Guaranteed **> 3 Gshot** lifetime
- > Other wavelengths (e. g. 1342 nm, 671 nm, 447 nm) are available

### APPLICATIONS

- > Laser-induced breakdown spectroscopy (LIBS)
- > Time resolved fluorescence measurements
- > DNA analysis
- > Pollution monitoring
- > Remote sensing
- > Supercontinuum generation
- > Ignition of gas mixtures

**MNL1342** series DPSS passively Q-switched sub-nanosecond lasers deliver high peak powers > 100 kW at 100 Hz repetition rate. Short laser cavity is fixed on thermo-stabilized and controlled baseplate which gives extremely stable output parameters performance. Small footprint is welcome point for integration into OEM lasers. Sub-nanosecond pulse duration of < 0.5 ns, high pulse energy more than 50  $\mu$ J, variable repetition rate from 1 Hz to 100 Hz covers many applications like pollution monitoring, DNA analysis, supercontinuum generation and many others.

Due to short pulse duration and high pulse energy laser delivers high peak power which is up to 100 kW. Optional conversion to green (532 nm) and ultraviolet (355 nm, 266 nm) is also available.



# Specifications <sup>1)</sup>

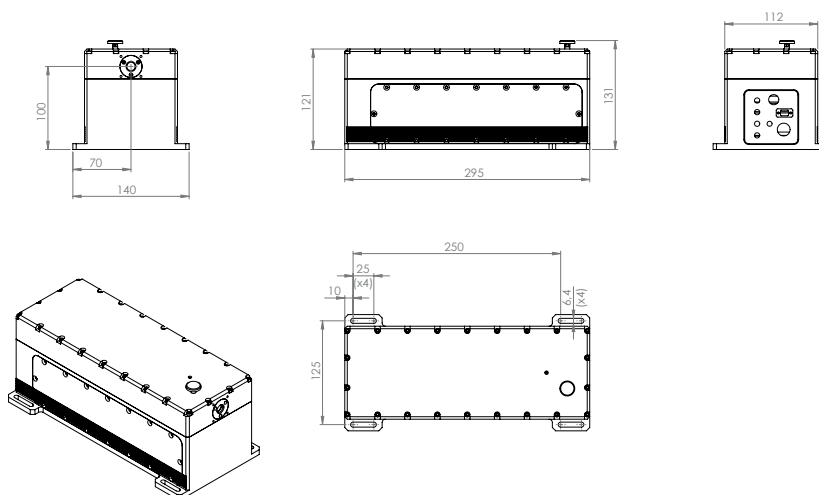
MODEL	MNL1342
Pulse energy:	
at 1342 nm	50 $\mu$ J
at 671 nm	20 $\mu$ J
at 447 nm	15 $\mu$ J
at 336 nm	10 $\mu$ J
Typical pulse duration	< 0,5 ns <sup>2)</sup>
Pulse to pulse energy stability (RMS):	
at 1342 nm	< 1.0 % <sup>3)</sup>
at 671 nm	< 2.5 % <sup>3)</sup>
at 447 nm	< 3.5 % <sup>3)</sup>
at 336 nm	< 5.0 % <sup>3)</sup>
Power drift	$\pm$ 3.0 % <sup>4)</sup>
Pulse repetition rate <sup>5)</sup>	100 Hz
Beam profile	M <sup>2</sup> < 1.5
Beam divergence <sup>6)</sup>	< 6 mrad
Polarization	Linear, at 1342 nm
Spectral linewidth	SLM
Beam pointing stability <sup>7)</sup>	< 40 $\mu$ rad
Typical beam diameter <sup>8)</sup>	1.5 mm
Optical jitter	$\sim$ 2 $\mu$ s RMS <sup>9)</sup>

## DIMENSIONS

Laser head (W×L×H)	121 × 295 × 140 mm
Controller unit (W×L×H)	115 × 195 × 60 mm

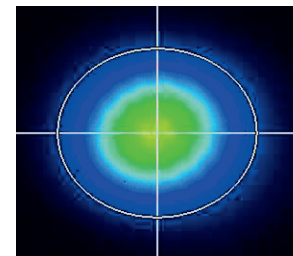
## OPERATING REQUIREMENTS

Cooling requirements	air cooled	
Ambient temperature	15 – 30 °C	
Relative humidity	10 – 80 % (non-condensing)	
Mains voltage	100 – 240 VAC, single phase, 47 – 63 Hz <sup>10)</sup>	
Power consumption	< 50 W	< 10 W



MNL1342 series laser head dimensions (in mm)

- <sup>1)</sup> Due to continuous improvements all specifications are subject to change. Unless stated otherwise all specifications are measured at 1342 nm.
- <sup>2)</sup> FWHM level at 1342 nm.
- <sup>3)</sup> Averaged from 60 seconds time interval in 5 series.
- <sup>4)</sup> Over 8-hour period after max 5 minutes of warm-up when ambient temperature variation is less than  $\pm$ 2 °C.
- <sup>5)</sup> Factory-set pulse repetition rate is fixed at 100 Hz repetition rate. Higher repetition rates are available, please inquire for more details.
- <sup>6)</sup> Full angle measured at the 1/e<sup>2</sup> level. Lower beam divergence is available upon request, please inquire for more details.
- <sup>7)</sup> RMS value measured from 1000 shots.
- <sup>8)</sup> Beam diameter is measured 20 cm from laser output at the 1/e<sup>2</sup> level.
- <sup>9)</sup> In respect to Q-switch triggering rising edge pulse.
- <sup>10)</sup> Laser can be powered from appropriate 12 VDC power source. Inquire for details.



Typical beam intensity profile (20 cm from laser output) of MNL1342 series lasers