

Diode Pumped Sub-Nanosecond Passively Q-Switched Laser

MNL1342

FEATURES

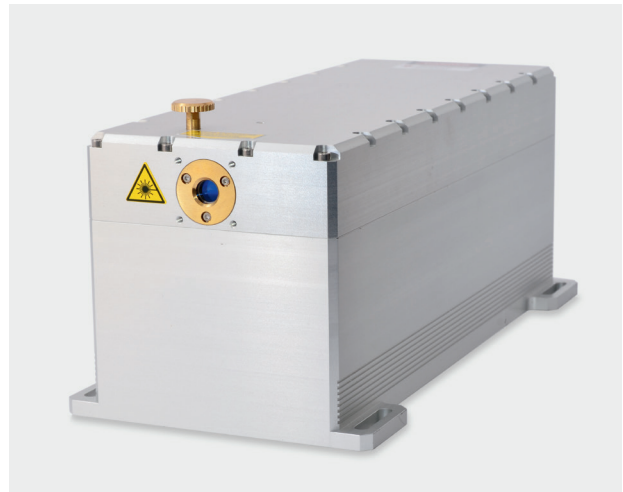
- > More than **50 μ J** pulse energy at **1342 nm**
- > Short pulse duration **< 0.5 ns**
- > **1 - 100 Hz** repetition rate
- > Passively Q-switched
- > Average power **5 mW**
- > Peak power **100 kW**
- > Guaranteed **> 3 Gshot** lifetime
- > Other wavelengths (e. g. 1342 nm, 671 nm, 447 nm) are available

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 μ 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 ¹⁾

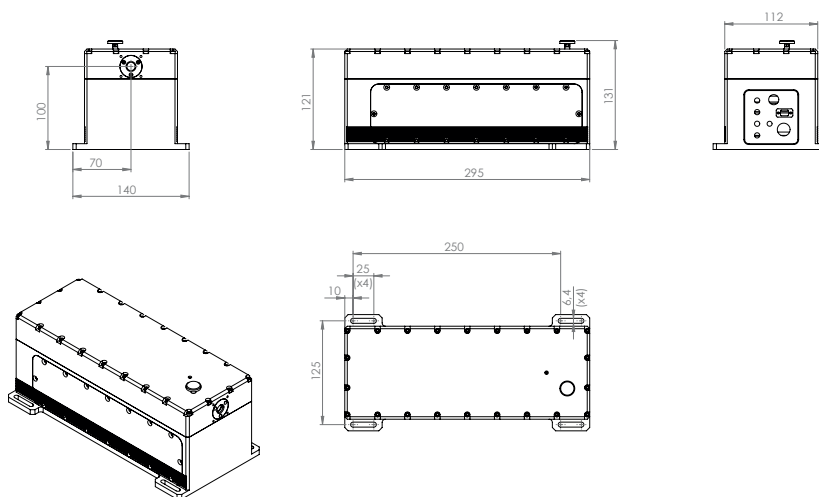
| MODEL | MNL1342 |
|--|------------------------------------|
| Pulse energy: | |
| at 1342 nm | 50 μ J |
| at 671 nm | 20 μ J |
| at 447 nm | 15 μ J |
| at 336 nm | 10 μ J |
| Typical pulse duration | < 0,5 ns ²⁾ |
| Pulse to pulse energy stability (RMS): | |
| at 1342 nm | < 1.0 % ³⁾ |
| at 671 nm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

DIMENSIONS

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

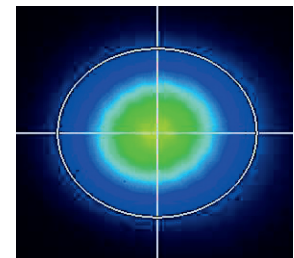
OPERATING REQUIREMENTS

| | | |
|----------------------|--|--------|
| 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 ¹⁰⁾ | |
| Power consumption | < 50 W | < 10 W |



MNL1342 series laser head dimensions (in mm)

- ¹⁾ Due to continuous improvements all specifications are subject to change. Unless stated otherwise all specifications are measured at 1342 nm.
- ²⁾ FWHM level at 1342 nm.
- 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.



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