

Diode Pumped Sub-Nanosecond Actively Q-Switched Laser

MPL15100

FEATURES

- > More than **0.5 mJ** pulse energy at **1064 nm**
- > Short pulse duration **< 700 ps**
- > **1000 Hz** repetition rate
- > **532 nm, 355nm, 266 nm** wavelengths as standard option
- > Actively Q-Switched
- > High Peak Power **0.7 MW**
- > Other wavelengths (e.g. 1053 nm, 1342 nm, 671 nm, 447 nm) are available

APPLICATIONS

- > OLED repair
- > Marking
- > Nonlinear Optics
- > Seeding laser amplifiers
- > Pollution Monitoring
- > Remote sensing

MPL15100 series robust DPSS actively Q-switched sub-nanosecond lasers deliver multi-kW peak powers, less than 1 ns pulse duration at 1000 Hz repetition rate. Short innovative laser cavity with is fixed on thermo-stabilized baseplate which gives extremely stable output parameters performance. Small footprint is welcome point for integration into OEM lasers. Sub-nanosecond pulse duration of < 700 ps with near transform limited spectral linewidth at repetition rates up to 1 kHz with low timing jitter of <200 ps and energies more than 500 µJ covers broad spectrum of applications starting from LIBS, laser induced fluorescence to many others. Standard optional harmonics generator to green (532 nm) and ultraviolet (355 nm, 266 nm) is also available.



Specifications ¹⁾

| MODEL | MPL15100 | MPL15100-1K |
|--|-------------------------------|-------------|
| Pulse energy: | | |
| at 1064 nm | 0.5 mJ | |
| at 532 nm | 0.25 mJ | |
| at 355 nm | 0.15 mJ | |
| at 266 nm | 0.05 mJ | |
| Typical pulse duration | < 700 ps | |
| Pulse to pulse energy stability (RMS): | | |
| at 1064 nm | < 0.5 % ²⁾ | |
| at 532 nm | < 1.0 % ²⁾ | |
| at 355 nm | < 1.5 % ²⁾ | |
| at 266 nm | < 2.0 % ²⁾ | |
| Typical pulse duration | ≤ 700 ps ³⁾ | |
| Power drift | ± 3.0 % ⁴⁾ | |
| Pulse repetition rate ⁵⁾ | 100 Hz | 1000 Hz |
| Beam spatial profile | Close to Gaussian | |
| Beam divergence ⁶⁾ | < 4 mrad | |
| Polarization | Linear, horizontal at 1064 nm | |
| Spectral linewidth | SLM | |
| Beam pointing stability ⁷⁾ | < 50 μrad | |
| Typical beam diameter ⁸⁾ | 1.2 mm | |
| Optical jitter | < 0.3 ns ⁹⁾ | |

DIMENSIONS

| | |
|-------------------------|---------------------|
| Laser head (W×L×H) | 163 × 295 × 53.5 mm |
| Controller unit (W×L×H) | 257 × 271 × 153 mm |
| Cable cord length | 1 m |

OPERATING REQUIREMENTS

| | |
|----------------------|---|
| Cooling requirements | air cooled |
| Ambient temperature | 15 – 30 °C |
| Relative humidity | 10 – 80 % (non-condensing) |
| Mains voltage | 100 – 240 VAC, single phase, 50 – 60 Hz |
| Power consumption | < 10 W < 100 W |

¹⁾ Due to continuous improvements all specifications are subject to change. Unless stated otherwise all specifications are measured at 1064 nm.

²⁾ Averaged from 60 seconds time interval.

³⁾ FWHM level at 1064 nm.

⁴⁾ Over 8-hour period after max 5 minutes of warm-up when ambient temperature variation is less than ±2 °C.

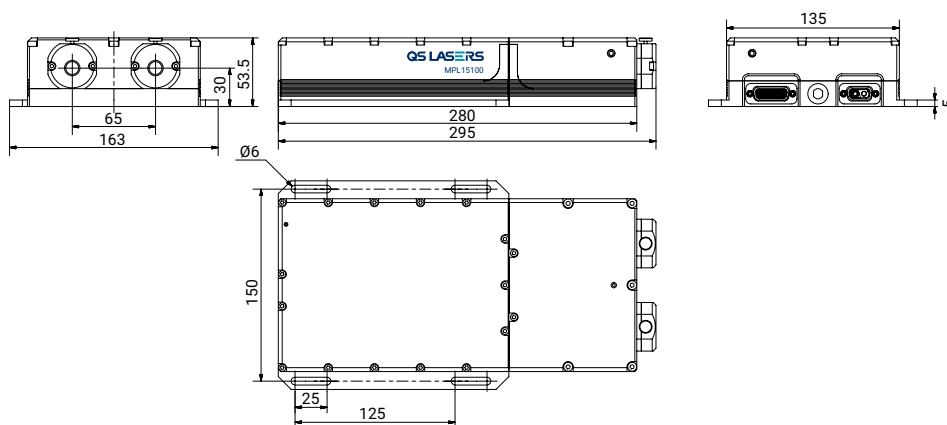
⁵⁾ Factory-set pulse repetition rate is fixed at max repetition rate. Higher repetition rates are available, please inquire for details.

⁶⁾ Full angle measured at the 1/e² level.

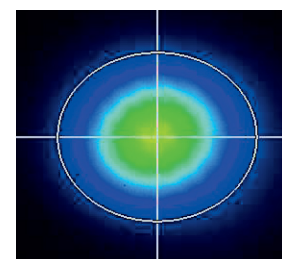
⁷⁾ RMS value measured from 1000 shots.

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.



MPL15100 laser head dimensions with attached harmonics unit (in mm)



Typical beam intensity profile (20 cm from laser output) of MPL15100 series lasers