Diode Pumped Picosecond Passively Q-Switched Laser MPL2210

FEATURES

- More than 2 mJ pulse energy at 1064 nm
- > Short pulse duration < 250-270 ps
-) 1 100 Hz repetition rate
- Ultra-compact
- > Passively Q-switched
- > Average power 200 mW
- > High peak power > 7 MW
- > Guaranteed > 3 Gshot lifetime
- Other wavelengths (e.g. 532 nm, 355 nm, 266 nm) are available

MPL2210 series DPSS passively

Q-switched picosecond laser deliver high peak powers > 7 MW 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 < 250-270 ps, high pulse energy more than 2 mJ, 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 7 MW. Optional conversion to green (532 nm) and ultraviolet (355 nm, 266 nm) is also available.

APPLICATIONS

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





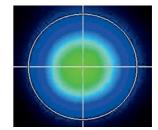


Specifications 1)

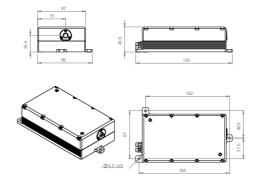
Pulse energy at 1064 nm 2 mJ at 532 nm 1 mJ at 355 nm 0.5 mJ at 266 nm 0.25 mJ Typical pulse duration < 250 ps - 270 ps ²) Pulse to pulse energy stability (RMS) at 1064 nm < 1.0 % ³) at 532 nm < 2.0 % ³) at 355 nm < 3.0 % ³) at 266 nm < 4.0 % ³) Power drift ± 3.0 % ⁴) Pulse repetition rate ³) 1 − 100 Hz Beam profile close to Gaussian Beam divergence ⁴) < 6 mrad Polarization linear, horizontal at 1064 nm Spectral linewidth SLM Beam pointing stability ³) < 10 μrad Typical beam diameter ³) 1.5 mm Optical jitter ~ 2 μs RMS ³) DIMENSIONS 125 × 295 × 76 mm (with harmonics) aser head (W×L×H) 99 × 174 × 45.5 mm (OEM version) Controller unit (W×L×H) 257 × 271 × 153 mm 75 × 200 × 70 mm (OEM version) 75 × 200 × 70 mm (OEM version) OPERATING REQUIREMENTS <tr< th=""><th>MODEL</th><th>MPL2210</th></tr<>	MODEL	MPL2210	
at 532 nm 1 mJ at 355 nm 0.5 mJ at 266 nm 0.25 mJ Typical pulse duration < 250 ps - 270 ps ²)	Pulse energy		
at 355 nm	at 1064 nm	2 mJ	
at 266 nm	at 532 nm	1 mJ	
Typical pulse duration	at 355 nm	0.5 mJ	
Pulse to pulse energy stability (RMS) at 1064 nm < 1.0 % ³)	at 266 nm	0.25 mJ	
at 1064 nm	Typical pulse duration	< 250 ps - 270 ps ²⁾	
at 532 nm	Pulse to pulse energy stability (RMS)		
at 355 nm < 3.0 % ³)	at 1064 nm	< 1.0 % ³⁾	
at 266 nm < 4.0 % ³	at 532 nm	< 2.0 % ³⁾	
Power drift ± 3.0 % 40 Pulse repetition rate 50 1 - 100 Hz Beam profile close to Gaussian Beam divergence 60 < 6 mrad	at 355 nm	< 3.0 % ³⁾	
Pulse repetition rate 5) Beam profile Close to Gaussian Beam divergence 6) Polarization Spectral linewidth Beam pointing stability 7) Typical beam diameter 8) Optical jitter DIMENSIONS Laser head (W×L×H) Controller unit (W×L×H) Controller unit (W×L×H) OPERATING REQUIREMENTS Cooling requirements Tec Ambient temperature Relative humidity Mains voltage 10 - 230 VAC, single phase, 50 - 60 Hz 10)	at 266 nm	< 4.0 % ³⁾	
Beam profileclose to GaussianBeam divergence Θ< 6 mrad	Power drift	± 3.0 % ⁴⁾	
Beam divergence θ < 6 mrad	Pulse repetition rate 5)	1 – 100 Hz	
Polarizationlinear, horizontal at 1064 nmSpectral linewidthSLMBeam pointing stability 7)< 10 μrad	Beam profile	close to Gaussian	
Spectral linewidth Beam pointing stability 7 Typical beam diameter 8 Optical jitter 8 DIMENSIONS Laser head (W×L×H) 9 $^{125 \times 295 \times 76 \text{ mm (with harmonics)}}$ $^{9} \times 174 \times 45.5 \text{ mm (OEM version)}}$ Controller unit (W×L×H) 7 8 8 9 8 9 $^$	Beam divergence 6)	< 6 mrad	
Beam pointing stability 7 < 10 μradTypical beam diameter 8 1.5 mmOptical jitter~ 2 μs RMS 9 DIMENSIONSLaser head (W×L×H) $125 \times 295 \times 76$ mm (with harmonics) $99 \times 174 \times 45.5$ mm (OEM version)Controller unit (W×L×H) $257 \times 271 \times 153$ mm $75 \times 200 \times 70$ mm (OEM version)OPERATING REQUIREMENTSCooling requirementsTECAmbient temperature $20 - 25$ °CRelative humidity $10 - 80$ % (non-condensing)Mains voltage $100 - 230$ VAC, single phase, $50 - 60$ Hz 10	Polarization	linear, horizontal at 1064 nm	
Typical beam diameter $^{8)}$ 1.5 mm Optical jitter $\sim 2 \mu s RMS ^{9)}$ DIMENSIONS Laser head (W×L×H) $125 \times 295 \times 76 mm$ (with harmonics) $99 \times 174 \times 45.5 mm$ (OEM version) Controller unit (W×L×H) $257 \times 271 \times 153 mm$ $75 \times 200 \times 70 mm$ (OEM version) OPERATING REQUIREMENTS Cooling requirements TEC Ambient temperature $20 - 25 ^{\circ}C$ Relative humidity $10 - 80 ^{\circ}$ (non-condensing) Mains voltage $100 - 230 VAC$, single phase, $50 - 60 Hz ^{10}$	Spectral linewidth	SLM	
$ \begin{array}{c} \text{Optical jitter} & \sim 2~\mu \text{s RMS}^{~9} \\ \\ \text{DIMENSIONS} \\ \text{Laser head (W\timesL\timesH)} & 125\times295\times76~\text{mm (with harmonics)} \\ \hline \text{Optroller unit (W\timesL\timesH)} & 257\times271\times153~\text{mm} \\ \hline \text{Controller unit (W\timesL\timesH)} & 75\times200\times70~\text{mm (OEM version)} \\ \\ \hline \text{OPERATING REQUIREMENTS} \\ \hline \text{Cooling requirements} & TEC \\ \hline \text{Ambient temperature} & 20-25~^{\circ}\text{C} \\ \hline \text{Relative humidity} & 10-80~\%~(\text{non-condensing)} \\ \hline \text{Mains voltage} & 100-230~\text{VAC, single phase, } 50-60~\text{Hz}^{~10} \\ \hline \end{array} $	Beam pointing stability 7)	< 10 µrad	
$\begin{array}{c} \text{DIMENSIONS} \\ \text{Laser head (W\times L\times H)} & 125\times 295\times 76 \text{ mm (with harmonics)} \\ \text{99}\times 174\times 45.5 \text{ mm (OEM version)} \\ \text{Controller unit (W\times L\times H)} & 257\times 271\times 153 \text{ mm} \\ \text{75}\times 200\times 70 \text{ mm (OEM version)} \\ \\ \text{OPERATING REQUIREMENTS} \\ \text{Cooling requirements} & \text{TEC} \\ \text{Ambient temperature} & 20-25^{\circ}\text{C} \\ \text{Relative humidity} & 10-80\% \text{ (non-condensing)} \\ \text{Mains voltage} & 100-230\text{VAC, single phase, } 50-60\text{Hz}^{10)} \\ \end{array}$	Typical beam diameter 8)	1.5 mm	
Laser head (W×L×H)	Optical jitter	~ 2 µs RMS ⁹⁾	
Laser head (W×L×H) $99 \times 174 \times 45.5 \text{ mm}$ (OEM version) $257 \times 271 \times 153 \text{ mm}$ $75 \times 200 \times 70 \text{ mm}$ (OEM version) OPERATING REQUIREMENTS Cooling requirements TEC Ambient temperature $20 - 25 \text{ °C}$ Relative humidity $10 - 80 \text{ % (non-condensing)}$ Mains voltage $100 - 230 \text{ VAC, single phase, } 50 - 60 \text{ Hz}$ 10	DIMENSIONS		
	Laser head (W×L×H)	125 × 295 × 76 mm (with harmonics)	
Controller unit (W×L×H) 75 × 200 × 70 mm (OEM version) OPERATING REQUIREMENTS Cooling requirements TEC Ambient temperature 20 - 25 °C Relative humidity 10 - 80 % (non-condensing) Mains voltage 100 - 230 VAC, single phase, 50 - 60 Hz 10)		99 × 174 × 45.5 mm (OEM version)	
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Ambient temperature 20 - 25 °C Relative humidity 10 - 80 % (non-condensing) Mains voltage 100 - 230 VAC, single phase, 50 - 60 Hz ¹⁰	OPERATING REQUIREMENTS		
Relative humidity $10 - 80 \%$ (non-condensing) Mains voltage $100 - 230 \text{ VAC}$, single phase, $50 - 60 \text{ Hz}$ 10)	Cooling requirements	TEC	
Mains voltage 100 – 230 VAC, single phase, 50 – 60 Hz ¹⁰	Ambient temperature	20 – 25 °C	
	Relative humidity	10 - 80 % (non-condensing)	
Power consumption < 20 W	Mains voltage	100 - 230 VAC, single phase, 50 - 60 Hz 10)	
	Power consumption	< 20 W	

- 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.
- 3) Averaged from 60 seconds time interval in 5 series.
- 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 10 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.
- 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.

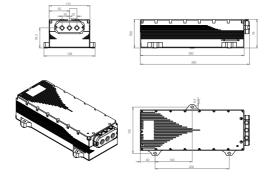




Typical beam intensity profile (20 cm from laser output) of MPL2210 series lasers



MPL2210 series laser head dimensions OEM version (in mm)



MPL2210 series laser head dimensions (in mm)