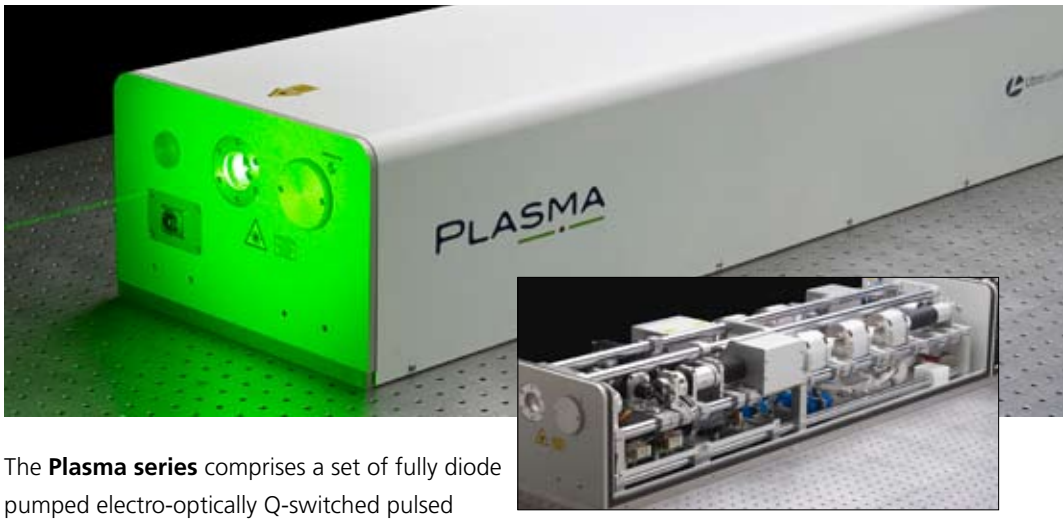
GMP
GENERAL MICROTECHNOLOGY & PHOTONICS

Plasma Series

High Energy at up to 200Hz Pulsed DPSS Nd:YAG Lasers.

Key Features

- Repetition rates up to 200Hz
- Fully diode pumped
- Super-Gaussian resonator M^2 ≤2
- Stable resonator M^2 ≤8
- RMS stability 0.2% at 1064nm
- Diode life >4 billion pulses
- 532nm, 355nm, 266nm and 213nm options available
- Smooth, homogenous beam profile
- Compact PSU and remote chiller



Applications

- Semiconductor annealing
- Semiconductor and display inspection
- Laser shock peening
- Laser lift-off
- LCD repair
- Ti:Sa pumping
- Laser cleaning
- LIBS & LIF

System options

- Motorised optical attenuator
- Auto-tuning harmonics
- Real time beam profile monitoring
- Real time pointing stability monitoring
- Real time energy monitoring

The **Plasma series** comprises a set of fully diode pumped electro-optically Q-switched pulsed Nd:YAG lasers with output energies of up to 450mJ and repetition rates of up to 200Hz.

The Plasma series incorporate Litron's sealed, mechanically robust diode pump module to ensure a stable output, high reliability, easy diode replacement and long diode lifetime of more than 4 billion pulses. Litron's unique diode module design and diode drive electronics combined with the mechanically stable and rigid optical rail systems deliver a class leading pulse to pulse stability of 0.2% RMS at 1064nm.

All Plasma models employ a birefringence compensating twin rod resonator that gives a circular and highly homogenous beam profile. A Super-Gaussian coupled resonator is also available for applications where an M^2 ≤2 is required.

The use of diode pumping results in a significant increase in pumping efficiency, thus reducing the heat management requirements. This allows a very compact, Litron designed, chiller to cool even the most powerful Plasma models. With only a single phase electrical supply, full RS232 control and on-board diagnostics the Plasma series are stand-alone, turn-key systems.

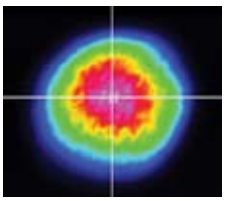
Options include motorised auto-tuning and auto-tracking of the harmonics modules. Litron has developed industrially proven hands-free tuning to obtain the maximum energy output from a given harmonic module in less than twenty seconds. The additional auto-tracking function significantly reduces long term energy drift, often prevalent at UV wavelengths.

PLASMA

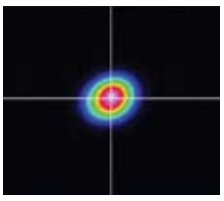
Litron Lasers

TECHNICAL DATA

Model	LP 450-100	LP 400-200	LP-G 450-100
Repetition Rate (Hz)	100	200	100
Output Energy (mJ)			
1064nm	450	400	450
532nm	225	200	225
355nm	100	90	100
266nm	45	35	45
Pulse Stability (RMS)			
1064nm	0.2	0.2	0.2
532nm	0.3	0.3	0.3
355nm	1.0	1.0	1.0
266nm	1.0	1.0	1.0
Pulse Length (ns) (1)			
1064nm	11-14	9-11	8-10
532nm	10-13	9-11	8-10
355nm	9-12	8-10	7-9
266nm	9-12	8-10	7-9
Beam Parameter			
Resonator	Stable	Stable	Super-Gaussian
Beam Diameter (mm) (2)	6.5	5	6.5
Beam Divergence (mrad) (3)	≤1	≤1	≤0.5
M^2 @ 1064nm	≤8	≤8	≤2
Pointing Stability (µrad) (4)	≤50	≤50	≤50
Timing Jitter (ns) (5)	≤0.5	≤0.5	≤0.5
Linewidth @ 1064nm (cm^{-1})	≤0.7	≤0.7	≤0.7
Polarisation	Vertical	Vertical	Vertical
Diode Life (pulses)	>4x10⁹	>4x10⁹	>4x10⁹
Operation			
Control (6)	RS232	RS232	RS232
Q-switch trigger and sync	TTL	TTL	TTL
Services			
Voltage (VAC)	220-250	220-250	220-250
Frequency (Hz)	50-60	50-60	50-60
Power	Single Phase	Single Phase	Single Phase
Ambient (°C) (7)	5-30	5-30	5-30
External Cooling (8)	Air	Air	Air
Power Supply	Free standing	Free standing	Free standing

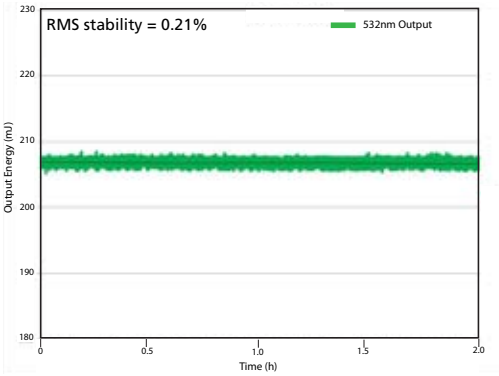


Near field profile from stable resonator at 100Hz.

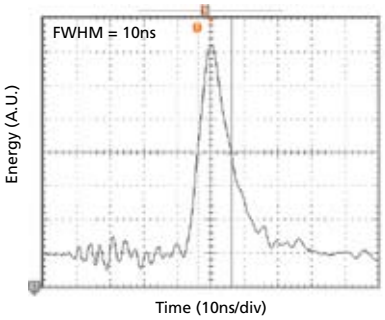


Far field from profile stable resonator at 100Hz.

LP 450-100 2 hour pulse stability at 100Hz.



LP 450-100 Pulse duration at 100Hz.



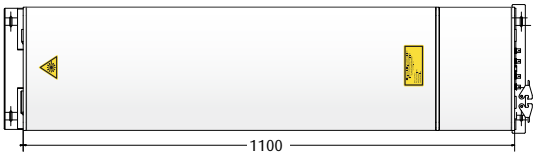
*** All specifications at maximum repetition rate unless otherwise stated.**

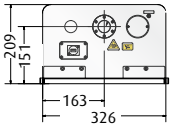
(1) FWHM – measured with a fast photodiode.
(2) 100% beam diameter at laser exit port.
(3) Full angle at specified beam diameter.
(4) Full angle.
(5) RMS with respect to Q-switch trigger input.
(6) Full software suite and programming tools supplied.
(7) 0-80% non-condensing atmosphere, laser head only.
(8) Standard air cooled chiller or optional water cooled chiller.

MECHANICAL DATA

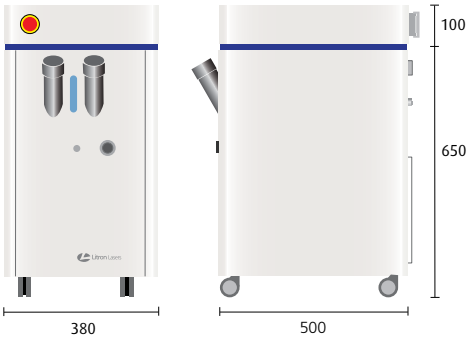
All dimensions shown in mm

Laser Head





Free Standing PSU



Our policy is to improve the design and specification of our products. The details given in this document are not to be regarded as binding.

Litron Lasers

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