General Features

- *Up to 10J at 1064nm*
- *Up to 5J at 532nm*
- *Telescopic or Super-Gaussian coupled resonators*
- *Birefringence compensation*
- *Rugged industrial build*
- *Optional seeder package*
- *3rd and 4th harmonics available*
- *Full RS232 software control and LabVIEW™ drivers*

Applications

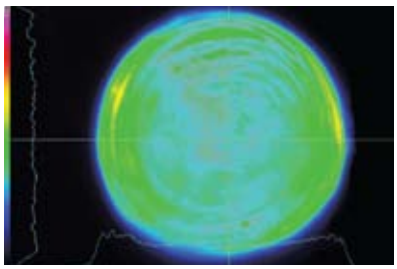
- *Ti:Sa pumpimg*
- *Shot peening*
- *LIBS*
- *Holography*
- *Plasma physics*

LPY10J

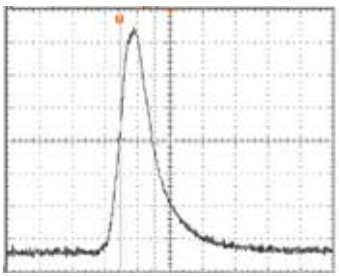
Ultra High Energy Pulsed Nd:YAG Laser

The LPY10J laser systems offer Q-switched output energies of 10 Joules at 1064nm from a proven design platform. The self-supporting invar frame has been utilised for many years in industrial and scientific applications where robustness and stability are paramount.

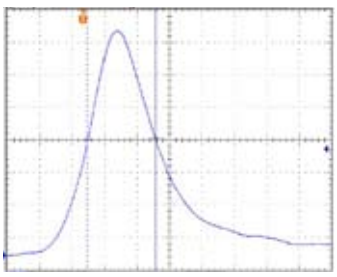
In addition to the standard configuration, there are several options available; injection seeder to provide a narrow linewidth, harmonic generation units to provide outputs up to the 4th harmonic, automated wavelength selection, energy monitoring and automatic output peaking and continuous tracking.



Telescopic stable beam profile at 5J, 532nm, 5Hz.



Pulsewidth at 5J, 532nm, 5Hz.
20ns FWHM ST Resonator



Pulsewidth at 5J, 532nm, 5Hz.
9ns FWHM GRM Resonator

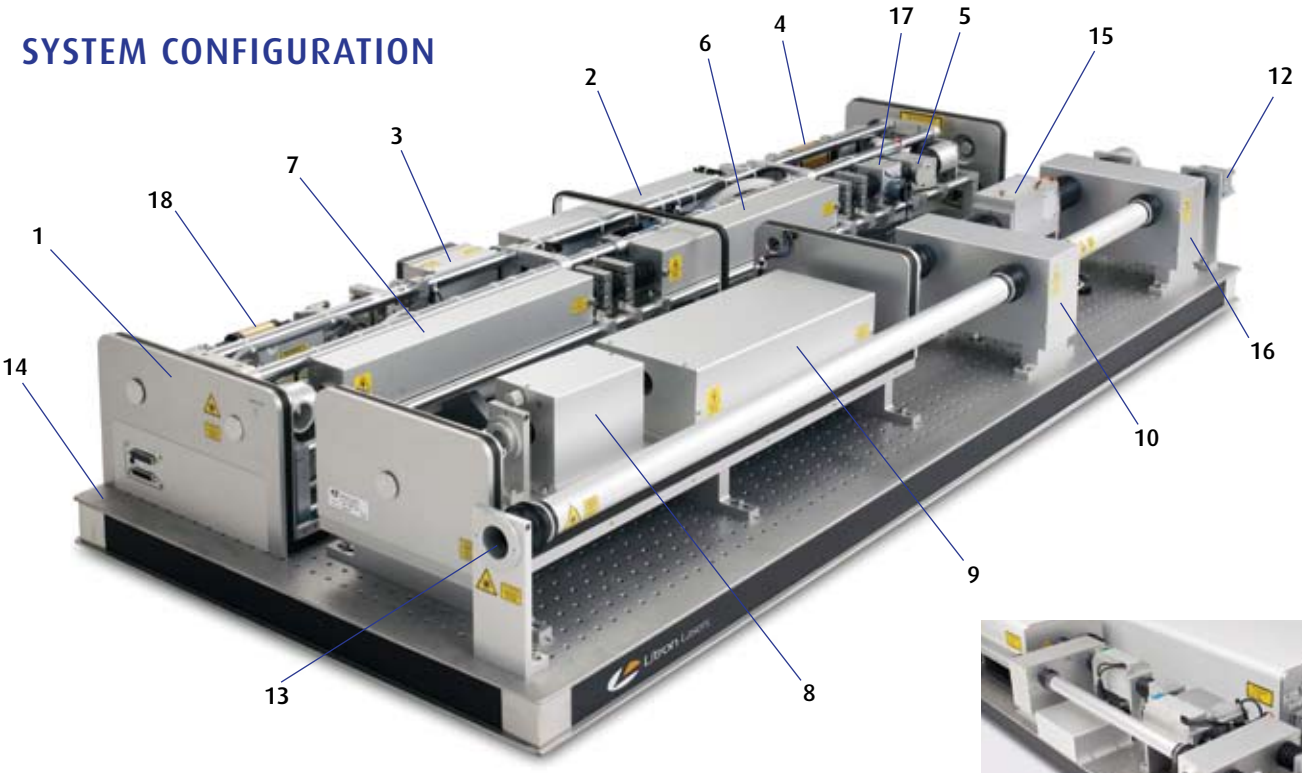
TECHNICAL DATA

Resonator Type	GRM		Stable Telescopic	
Model	**LPYG 10J-1**	**LPYG 10J-5**	**LPYST 10J-1**	**LPYST 10J-5**
Repetition Rate (Hz)	1	5	1	5
Output Energy (J) (1a)				
1064nm	10	10	10	10
532nm	5	5	5	5
355nm (1b)	2.5	2.5	2.5	2.5
266nm	0.8	0.8	0.8	0.8
Pulse Stability (±%) (2)				
1064nm	<2	<2	<2	<2
532nm	<4	<4	<4	<4
355nm	<6	<6	<6	<6
266nm	<10	<10	<10	<10
Pulse Length (ns) (3)				
1064nm	7-11	7-11	20-22	20-22
532nm	7-11	7-11	20-22	20-22
355nm	6-10	6-10	19-21	19-21
266nm	5-9	5-9	18-20	18-20
Parameter				
System configuration	Osc/Amp	Osc/Amp	Osc/Amp	Osc/Amp
Beam diameter (mm)	25	25	25	25
Beam divergence (mrad) (4)	0.5	0.5	0.8	0.8
M^2	<2	<2	<10	<10
Linewidth @ 1064nm (cm^{-1})	<1	<1	<1	<1
Seeded	0.003	0.003	n/a	n/a
Pointing stability (µrad) (5)	±100	±100	±100	±100
Lamp life (pulses) (6)	$1.5x10^8$	$1.5x10^8$	$1.5x10^8$	$1.5x10^8$
Timing jitter (ns) (7)	<0.5	<0.5	<0.5	<0.5

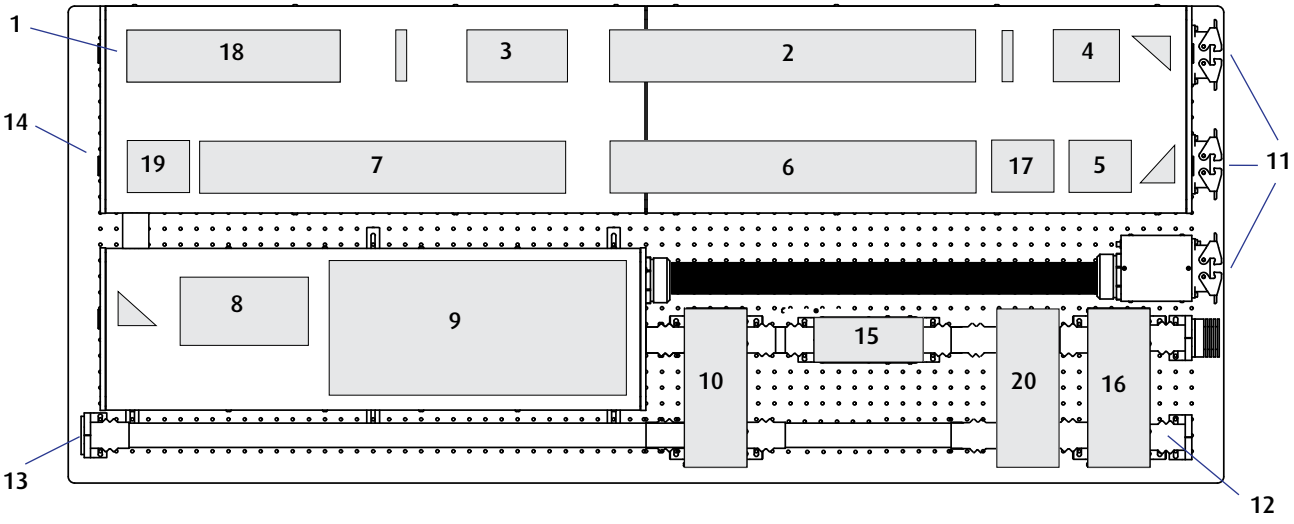
(1a) Single wavelength output only.
(1b) Dedicated 355nm only laser model.
(2) Peak to peak energy - 100% of pulses.
(3) FWHM.
(4) Full angle for 90% of the output energy.
(5) Full angle.
(6) Typical lifetime.
(7) RMS jitter, measured with respect to the Q-switch trigger input.
(8) 208VAC option requires autotransformer to be specified on order.
(9) 50 or 60Hz to be specified on order.
(10) Refer to cooling requirements table.

Litron Lasers

SYSTEM CONFIGURATION



532nm & 355nm auto wavelength selection and auto tuning.



1. Invar stabilised optical rail using 8 bar self supporting format.
2. Twin rod, birefringence compensating oscillator.
3. Q-switch assembly.
4. Faraday isolator.
5. Motorised Attenuator.
6. Twin rod, birefringence compensating pre-amplifier.
7. Twin rod, birefringence compensating amplifier.
8. Beam expanding telescope.
9. Power amplifier stage.
10. Beam switching unit for 1064nm only output.
11. Connections for power supply umbilicals.
12. Laser diode pointer assembly.
13. Laser output port.
14. Optical breadboard.

Optional accessories

15. Motorised second harmonic generation assembly.
16. Second harmonic separation assembly.
17. Beam dump shutter assembly.
18. Injection Seeder assembly.
19. Beam switching assembly.
20. Dual wavelength output switching unit.

SYSTEM REQUIREMENTS

Water Cooling Requirements	
Max water temp (°C)	20
Nominal flow rate (lpm)	8-10
Min water pressure (Bar [psi])	2 [30]
Max water pressure (Bar [psi])	4.5 [65]
External water filtration (Micron)	100
Ext. chiller high pressure bypass (Bar [psi])	5 [73]
Thermal load 5Hz/1Hz (kW)	10/4

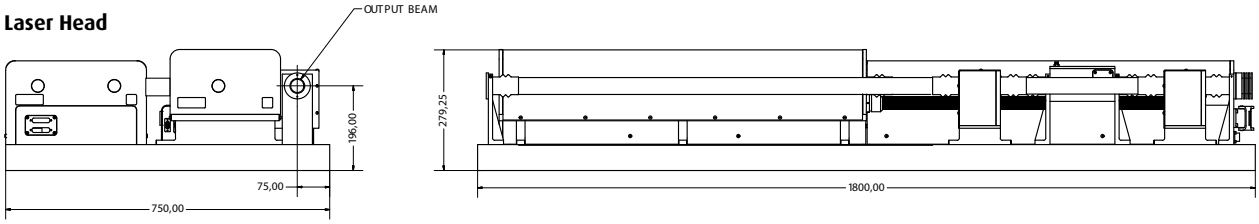
Services	
Voltage (VAC) (1)	220-250
Phases	Single
Frequency (Hz) (2)	50/60
Operating ambient temp (°C) (7)	5-30
Laser cooling (3)	Water
PSU type	19″ Rack

System Dimensions	
Laser Head	
mm	750 (W) x 279.25 (H) x 1800 (L)
Inches	29.53 (W) x 11 (H) x 70.86 (L)
Power Supply Unit (x2)	
mm	605(W) x 1221 (H) x 703 (L)
Inches	23.82 (W) x 48 (H) x 27.68 (L)

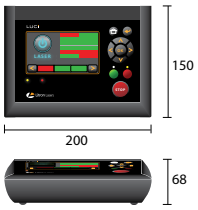
(1) Single phase, 208VAC option requires autotransformer to be specified on order.
(2) 50 or 60Hz to be specified on order.
(3) Refer to cooling requirements table.

MECHANICAL DATA

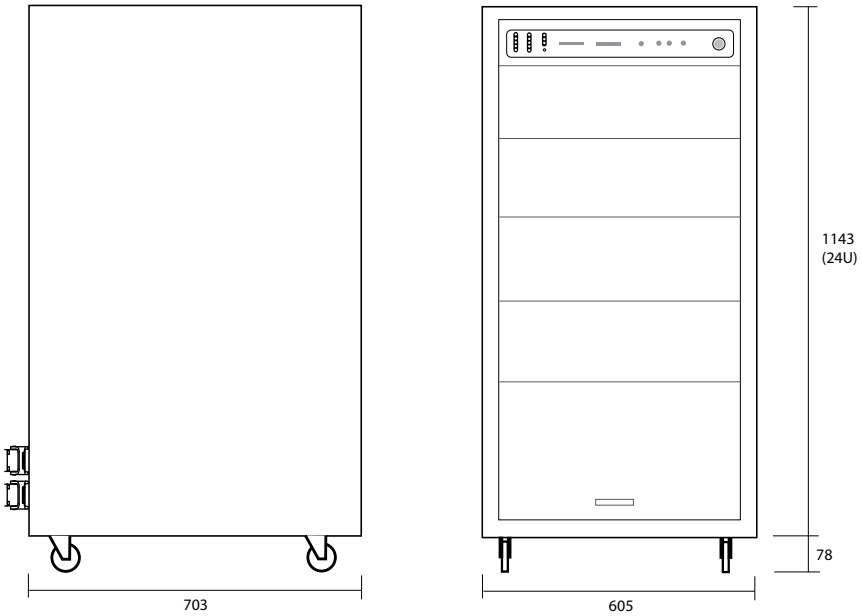
Laser Head



LUCi Remote Controller



Power Supply Unit (2 units required for this system)



All dimensions shown in mm unless stated.

AJA 00/2074

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.

HEAD OFFICE
Litron Lasers Ltd
8 Consul Road
Rugby
Warwickshire CV21 1PB
England

T +44 (0)1788 574444
F +44 (0)1788 574888
E sales@litron.co.uk

Litron Lasers
www.litronlasers.com