

FEATURES

- **>3m coherence length**
- **0.003cm^{-1} linewidth**
- **Up to 3.5J per pulse**
- **$M^2 < 2$**
- **Fibre delivered Injection Seeder**
- **532nm, 355nm, 266nm & 213nm options**
- **Invar optical rail system**
- **MOBIUS microprocessor laser head monitor**
- **LUCi – Touch screen or computer control**
- **Twin head option**

APPLICATIONS

- **OPO Pumping**
- **Holography**
- **Interferometry**
- **LIDAR**

OPTIONAL UPGRADES

- **Motorised 1064nm attenuator**
- **Motorised harmonic tuning**
- **Automatic peak energy tuning**
- **Motorised wavelength output selector**

LPY700G UNITY Series Injection Seeded Pulsed Nd:YAG Lasers

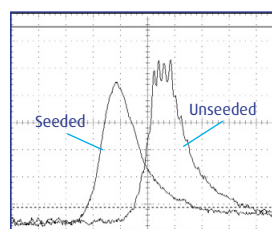
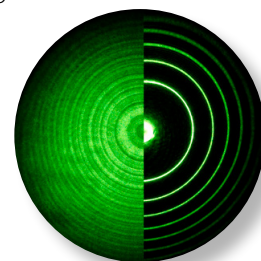
The **LPY700G UNITY** series lasers are all-in-one dedicated high power injection seeded Nd:YAG laser systems, with a single longitudinal mode (SLM) output. Injection seeding ensures linewidths better than 0.003cm^{-1} at 1064nm and smooth temporal profile for every pulse.

The laser incorporates a fibre delivered injection seeding laser built onto the same proven self-supporting invar frame that the oscillator and amplifiers are mounted to. All the optical components including the laser oscillator, amplifiers, harmonics and all other optional components are also mounted onto the same Invar rail system. This assures the long term alignment stability that is a must for applications such as pumping OPOs, holography, doppler LIDAR and interferometry. The rail is mechanically decoupled from the laser head case to maintain optimum output and alignment.

The oscillator is configured as a Gaussian resonator offering a highly focusable beam with low divergence and an M^2 less than 2. The laser is fitted with a motorised attenuator and beam dump shutter after the oscillator to allow full control and stabilisation of the seeded output.

The **LPY700G UNITY** series lasers have a full suite of microprocessor controlled feedback sensors. The system has options for 2nd (532nm), 3rd (355nm) 4th (266nm) and 5th (213nm) harmonic generation. All the seeder controls and laser control electronics are fully integrated and the whole system is designed to operate in both seeded and un-seeded mode at the flick of switch.

Motorised harmonics tuning options and a dual wavelength option with motorised harmonic switching between the two chosen wavelengths are also available.



TECHNICAL DATA

Model	LPY7875G-10U	LPY7864G-10U	LPY787G-10U	LPY764G-10U	LPY707G-10U
Repetition Rate (Hz)	10	10	10	10	10
Output Energy (mJ) ⁽¹⁾					
1064nm	3500	2600	2000	1250	850
532nm	1570	1250	1000	675	425
355nm	650	550	400	225	150
266nm	250	220	195	125	95
Pulse Stability (±%) ⁽²⁾					
1064nm	2	2	2	2	2
532nm	3	3	3	3	3
355nm	4	4	4	4	4
266nm	6	6	6	6	6
Pulse Length (ns) ⁽³⁾					
1064nm	6-12	6-12	6-9	6-9	6-9
Parameter					
Oscillator configuration	Gaussian	Gaussian	Gaussian	Gaussian	Gaussian
System configuration	Osc/Amp/Amp	Osc/Amp/Amp	Osc/Amp	Osc/Amp	Osc/Osc
M ² @ 1064nm	<2	<2	<2	<2	<2
Beam diameter (mm)	15	15	12.5	9.5	9.5
Beam divergence (mrad) ⁽⁴⁾	0.7	0.7	0.5	0.5	0.5
Linewidth @ 1064nm (cm ⁻¹)	0.003	0.003	0.003	0.003	0.003
Pointing stability (μrad) ⁽⁵⁾	<70	<70	<70	<70	<70
Lamp life (pulses) ⁽⁶⁾	10 ⁷	10 ⁷	>3x10 ⁷	>3x10 ⁷	>3x10 ⁷
Timing jitter seeded (ns) ⁽⁷⁾	<1	<1	<1	<1	<1
Services					
Voltage (VAC) ⁽⁸⁾	220-250	220-250	220-250	220-250	220-250
Frequency (Hz) ⁽⁹⁾	50/60	50/60	50/60	50/60	50/60
Power phase	Single	Single	Single	Single	Single
Operating amb temp (°C) ⁽¹⁰⁾	5-35	5-35	5-35	5-35	5-35
Laser cooling ⁽¹⁰⁾	Water	Water	Water	Water	Water
PSU type (19" Rackmount)	24U	24U	16U	16U	12U

System Dimensions	
Laser Head (mm)	
1064 & 532nm output	326 (W) x 209 (H) x 1200 (L)
355nm & 266nm output	326 (W) x 209 (H) x 1400 (L)
2.6J & 3.5J output	326 (W) x 209 (H) x 1800 (L)
Laser Head (Inches)	
1064 & 532nm output	12.8 (W) x 8.2 (H) x 55 (L)
355nm & 266nm output	12.8 (W) x 8.2 (H) x 67 (L)
2.6J & 3.5J output	12.8 (W) x 8.2 (H) x 70.8 (L)
PSU (mm)	
12U	605 (W) x 700 (D) x 615 (H)
16U	605 (W) x 700 (D) x 793 (H)
24U	605 (W) x 700 (D) x 1148 (H)
PSU (Inches)	
12U	23.8 (W) x 27.5 (D) x 24.2 (H)
16U	23.8 (W) x 27.5 (D) x 31.2 (H)
24U	23.8 (W) x 27.5 (D) x 45.2 (H)

- (1) Unseeded
(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) Jitter is 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.

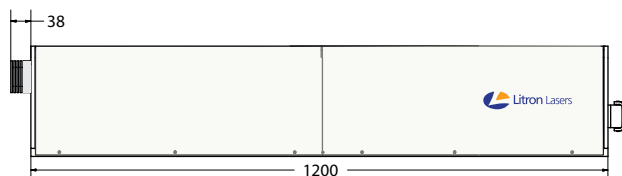
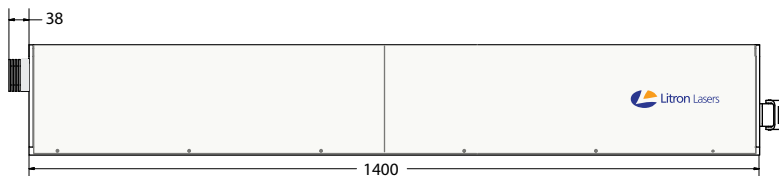
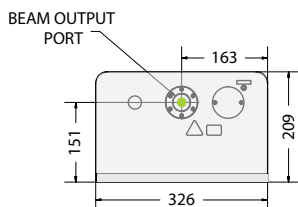
Water Cooling Requirements	
Max water temp (°C)	20
Nominal flow rate (lpm)	6-10
Min water pressure (Bar [psi])	2 [30]
Max water pressure (Bar [psi])	4.5 [65]
External water filtration (Micron)	100
Ext. chiller high pressure bypass (Bar [psi])	5 [73]
Osc/Amp systems thermal load (kW)	~4
Osc/Amp/Amp systems thermal load (kW)	~6

System Weights	
Laser Head	
1064 & 532nm output	50kg
355nm & 266nm output	60kg
2.6J & 3.5J	100kg
PSU	
12U	100kg
16U	130kg
24U	205kg

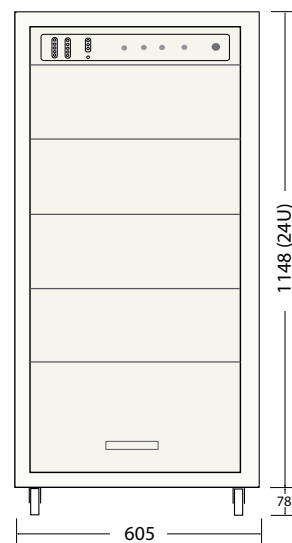
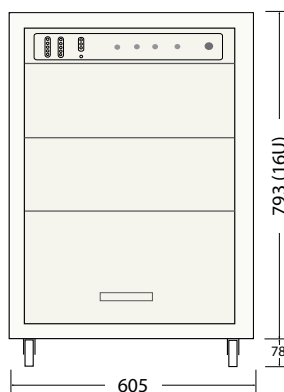
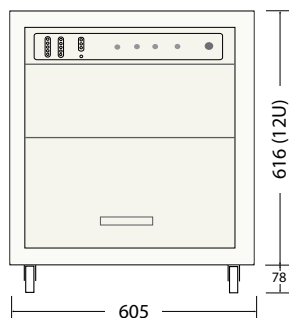
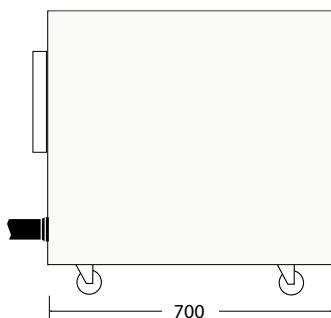
MECHANICAL DATA

All dimensions shown in mm unless stated.

Laser Head



Power Supply Unit



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 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