



LPY642T Unity Series Injection Seeded Pulsed Nd:YAG Lasers

Features

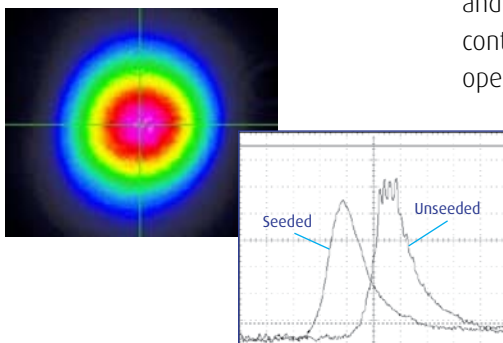
- True TEM₀₀ output beam
- $M^2 < 1.3$
- Built in CW DPSS Injection Seeder
- 1064nm / 532nm / 355nm & 266nm options
- INVAR optical rail system
- MOBIUS microprocessor laser head monitor
- Motorised harmonics mount
- LUCi - Touch screen or computer control
- Easy maintenance

Applications

- OPO Pumping
- Holography
- Interferometry
- LIDAR

Optional upgrades

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



The LPY642T-IS series lasers are all-in-one injection seeded Nd:YAG laser systems, with a true TEM₀₀ single transverse mode and single longitudinal mode (SLM) output and with a linewidth less than 0.003cm⁻¹ at 1064nm. The seeding process also ensures exceptionally smooth temporal profiles for every pulse.

The laser incorporates a dedicated CW SLM injection seeding laser built directly onto the same proven self-supporting INVAR frame that the oscillator and amplifier 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 in turn mechanically decoupled from the laser head case and electrical connection system to maintain optimum output and alignment.

The oscillator is configured as a stable TEM₀₀ resonator offering a highly focusable beam with low divergence and an M^2 value of less than 1.3.

The LPY642T IS lasers have a full suite of microprocessor controlled feedback sensors. The system has options for 2nd (532nm), 3rd (355nm) and 4th (266nm) harmonic generation. All the seeder controls and control electronics are provided and the whole system is tested to operate in both seeded and un-seeded mode at the flick of switch.

An energy monitoring option with automatic peak energy function is available to ensure the system is always running at optimum output. Motorised harmonic tuning options and a dual wavelength option with motorised harmonic switching between the two chosen wavelengths are also available.



TECHNICAL DATA

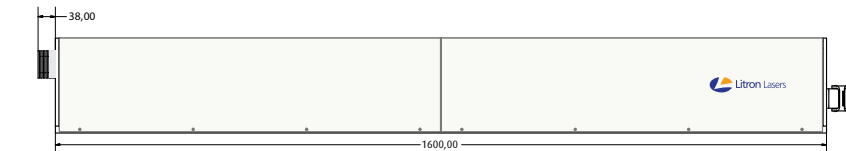
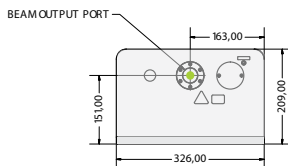
Model	LPY642TIS-10	LPY642TIS-20	LPY642TIS-30
Repetition Rate (Hz)	10	20	30
Output Energy (mJ) ⁽¹⁾			
1064nm	350	300	250
532nm	175	150	125
355nm	80	70	65
266nm	40	30	25
Pulse Stability ($\pm\%$) ⁽²⁾			
1064nm	2	2	2
532nm	3	3	3
355nm	4	4	4
266nm	6	6	6
Pulse Length (ns) ⁽³⁾			
1064nm	6-10	6-10	6-10
Parameter			
System configuration	TEM ₀₀	TEM ₀₀	TEM ₀₀
Oscillator configuration	Osc/Amp	Osc/Amp	Osc/Amp
M ² @ 1064nm	1.3	1.3	1.3
Beam diameter (mm)	6.5	6.5	6.5
Beam divergence (mrad) ⁽⁴⁾	0.8	0.8	0.8
Linewidth @ 1064nm (cm ⁻¹)	0.003	0.003	0.003
Pointing stability (μ rad) ⁽⁵⁾	<50	<50	<50
Lamp life (pulses) ⁽⁶⁾	10 ⁷	10 ⁷	10 ⁷
Timing jitter seeded/unseeded (ns) ⁽⁷⁾	<0.5/3	<0.5/3	<0.5/3
Services			
Voltage (VAC) ⁽⁸⁾	220-250	220-250	220-250
Frequency (Hz) ⁽⁹⁾	50/60	50/60	50/60
Power phase	Single	Single	Single
Operating amb temp (°C) ⁽¹⁰⁾	5-25	5-25	5-25
Laser cooling ⁽¹⁰⁾	Water	Water	Water
PSU type (19" Rackmount)	16U	16U	16U

Water Cooling Requirements	
Max water temp (°C)	20
Nominal flow rate (lpm)	8-10 lpm
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)	~6

System Dimensions	
Laser Head	
mm	326 (W) x 214 (H) x 1700 (L)
Inches	12.8 (W) x 8.5 (H) x 67 (L)
PSU	
mm	605 (W) x 700 (D) x 793 (H)
Inches	23.8 (W) x 27.5 (D) x 31.3 (H)

- (1) Dedicated 355nm laser models available - please contact Litron.
- (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.

MECHANICAL DATA



All dimensions shown in mm unless stated.



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

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