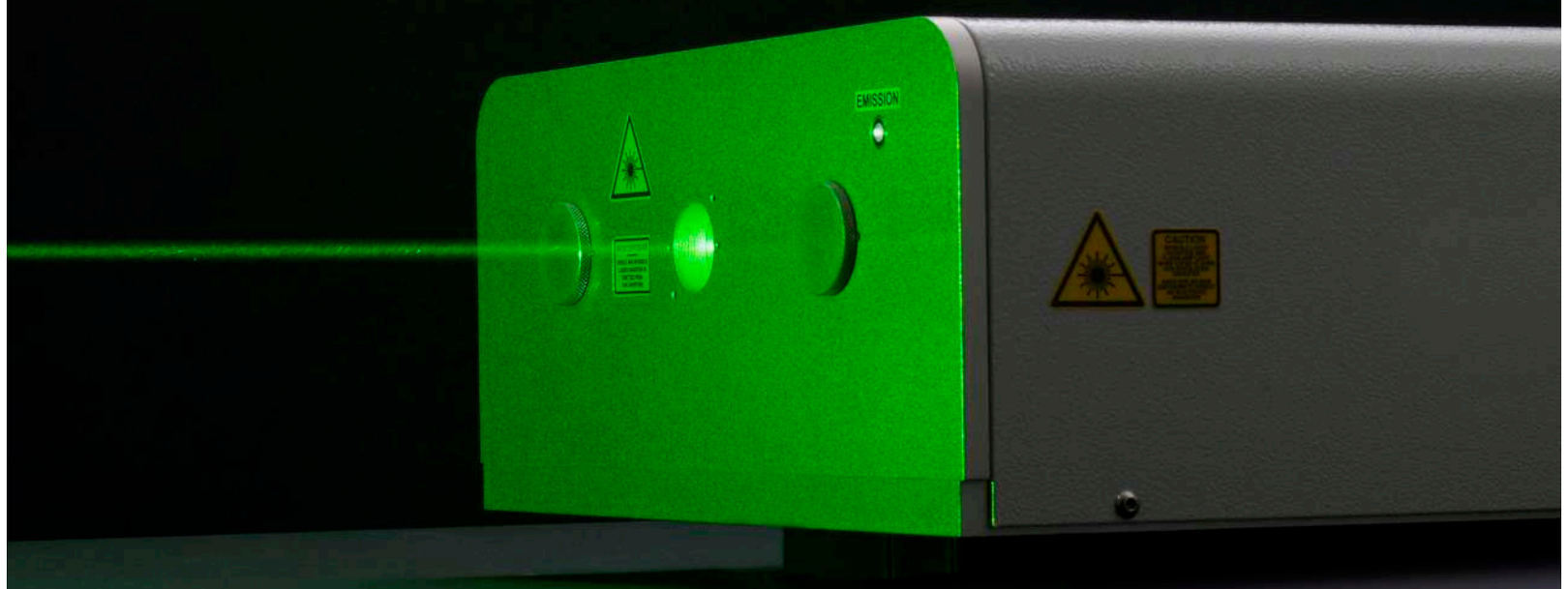
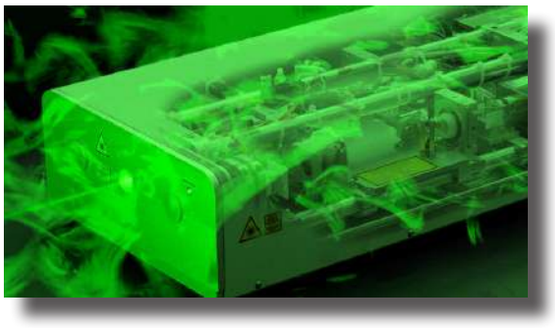
LASERS FOR PIV

2020



Litron Lasers

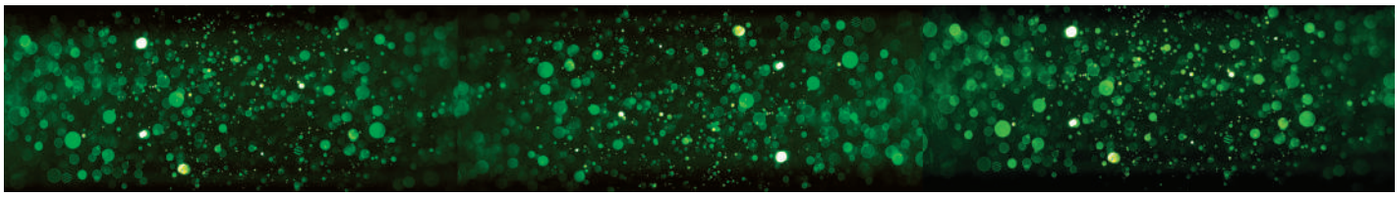
Lasers for PIV



Litron offers an extensive range of flashlamp pumped and diode pumped PIV laser systems. Output energies of up to 425mJ per laser per pulse and repetition rates of up to 200Hz for flashlamp systems and up to 50kHz for diode pumped systems are available. All of the systems are twin head devices, meaning that the PIV laser head contains two totally independent lasers. The range of PIV systems is based around both the ultra-compact Nano series and the larger Invar-stabilised LPY and LD PIV series. The overriding factor that sets Litron's products apart is quality. This is evidenced not only in the product design and construction, but also in its performance.

In any imaging application the beam quality is of paramount importance as this determines the light sheet characteristics. By choosing a suitable resonator configuration the output beam quality can be controlled to give a very smooth spatial profile which remains homogeneous as it propagates through to the far field. Such resonators are almost always stable or stable-telescopic configuration. Super-Gaussian-coupled resonators are not in general ideal for visualisation applications. These resonators produce very good super-Gaussian spatial profiles with low divergence in the far field, however, in the near to intermediate fields (within 10m of the laser output) the beam spatial profile often has significant structure. This phenomenon is typical of this resonator design and is a result of the physics of the system, making it unsuitable for forming uniform light sheets.

It is our philosophy to provide a laser system that suits an application. A 'one system fits all' approach, as offered by most manufacturers, does not allow the customer to optimise their process. For applications such as PIV Litron has developed resonators that yield extremely uniform light sheets whose pulse to pulse structure remains constant. These are all based around our stable and stable telescopic resonators.



The Nano PIV Series

Compact Lasers for PIV Applications

FEATURES

- ***Compact dual head design***
- ***Dedicated PIV laser head***
- ***Stable resonator design***
- ***Telescopic versions for low divergence***
- ***Rugged for industrial environments***
- ***3rd and 4th harmonics available for LIF and dual colour PIV***
- ***Repetition Rates up to 100Hz***
- ***Energies up to 425mJ at 532nm***

Nano PIV

The construction of the Nano series of PIV laser systems is extremely robust. They have been developed as industrial tools that can be handled without worry of misalignment or damage. The PIV head is formed by an aluminium gauge-plate onto which two standard Nano series heads are mounted. The output beams are combined by dielectric polarisers and then frequency doubled, and if desired can be frequency tripled, quadrupled or quintupled. Many of the Nano PIV systems are powered by a single power supply unit, making the overall package both powerful and portable.

There are two twin power supplies available, the LPU450 and the LPU550, the latter allowing outputs of up to 200mJ at 532nm at 15Hz from each laser. The laser systems are controlled via a remote controller or via RS232 interface. All trigger and synchronisation signals are TTL compatible and each laser is controllable entirely independently.

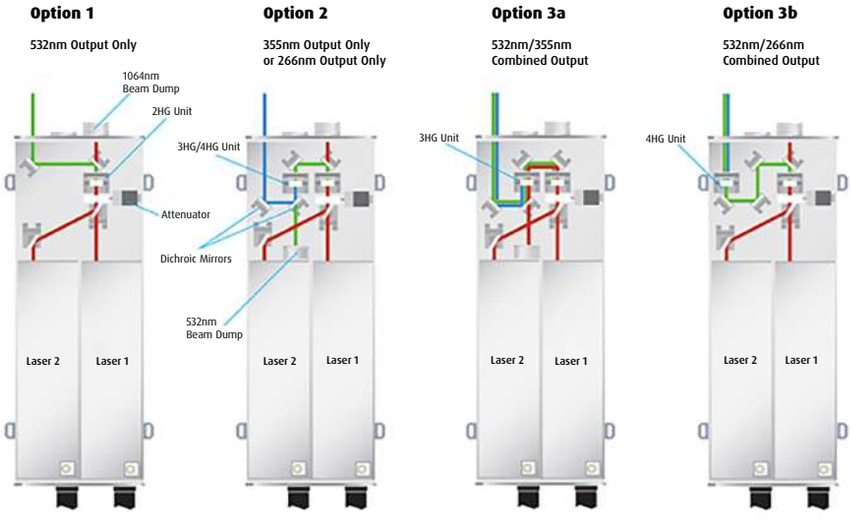
All Nano laser heads have a verified electronic intracavity safety shutter as standard, which ensures that the lasers cannot be started with the shutter open – an important safety feature.

The Nano L PIV range also includes high repetition rate models giving energies of up to 50mJ per pulse at 100Hz from each laser using two power supplies that are completely air cooled.

The Nano T PIV range has been designed incorporating stable telescopic resonators, giving very low divergence output beams that allow thinner light sheets to be formed than from conventional stable resonators.

For large area illumination, high energies are achieved with the birefringence compensated Nano TRL PIV range which achieves output energies of up to 425mJ per pulse at 532nm, 10Hz. The footprint of the head is an extremely compact at 908mm x 270mm. These systems are supported by twin power supplies - LPU1000 or a single 16U Rackmount.

Schematic showing the Nano PIV laser harmonic generation options.



TECHNICAL DATA

Model	Nano S 30-15 PIV	Nano S 30-30 PIV	Nano S 50-20 PIV	Nano S 65-15 PIV	Nano L 200-15 PIV	Nano L 145-15 PIV	Nano L 150-20 PIV	Nano L 50-50 PIV
Repetition Rate (Hz)	0-15	0-30	0-20	0-15	0-15	0-15	0-20	0-50
Pulse Energy Per Head (mJ) (1)	30	30	50	65	200	145	150	50
Parameter								
Pulse Stability (±%) (2)	2	2	2	2	2	2	2	2
Beam Diameter (mm)	3	3	4	4	6.5	5	6.5	4
Beam Divergence (mrad)	~2.0	~2.0	~2.5	~2.5	~3.0	~3.0	~3.0	~2.0
Pulse Length @ 1064nm (ns)	5-8	5-8	6-8	6-8	6-9	6-9	6-9	5-8
Pointing Stability (µrad)	<100	<100	<100	<100	<100	<100	<100	<100
Resonator Type	Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable
Lamp Life (pulses)	>5x10^7	>5x10^7	>5x10^7	>5x10^7	>5x10^7	>5x10^7	>5x10^7	>5x10^7
Timing Jitter (ns)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Services								
Voltage (VAC)	90-250	90-250	90-250	90-250	90-250	90-250	90-250	90-250
Frequency (Hz)	47-63	47-63	47-63	47-63	47-63	47-63	47-63	47-63
Power	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase
Ambient (°C) (3)	5-35	5-35	5-35	5-35	5-35	5-35	5-35	5-35
Consumption (W)	<350	<350	<350	<350	<800	<650	<800	<800
Cooling	Air	Air	Air	Air	Air	Air	Air	Air
Power Supply	LPU450	LPU550	LPU450	LPU450	LPU550	LPU550	LPU550	LPU550

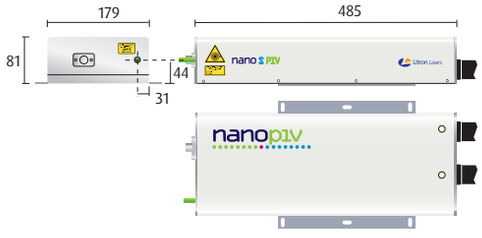
(1) At maximum repetition rate.
(2) Peak-to-Peak Energy - 99% of pulses.
(3) 0-80% non-condensing atmosphere.
(4) 110VAC option requires autotransformer to be specified on order.
(5) 50 or 60Hz to be specified on order.
(6) 200VAC available on request.

All data provided for each laser head, unless specified otherwise.

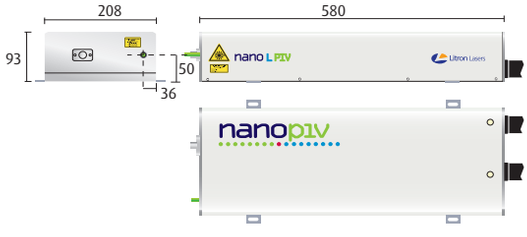
MECHANICAL DATA

All dimensions shown in mm.

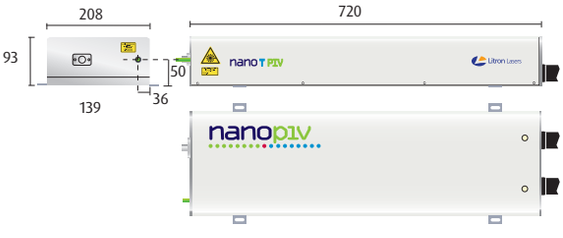
Nano S PIV Laser Head



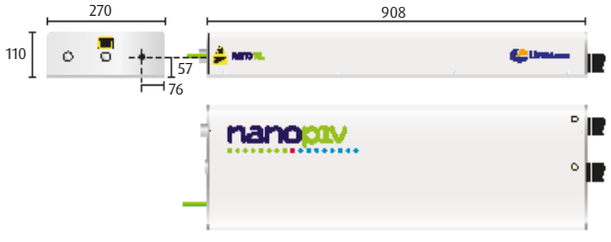
Nano L PIV Laser Head



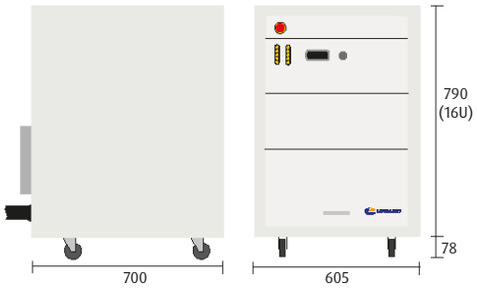
Nano T PIV Laser Head



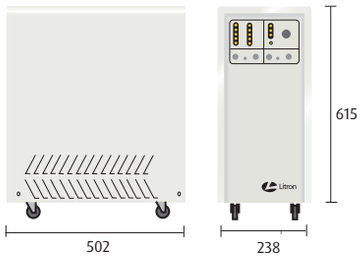
Nano TRL PIV Laser Head



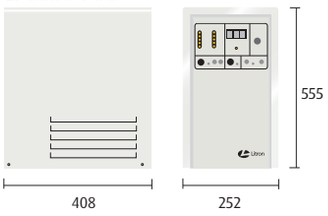
Rack-mount PSU



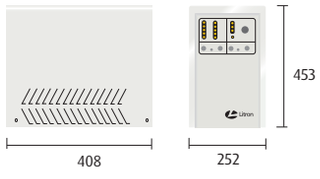
LPU1000 PSU



LPU550 PSU



LPU450 PSU



Model	Nano L 100-50 PIV	Nano L 50-100 PIV	Nano T 180-15 PIV	Nano T 135-15 PIV
Repetition Rate (Hz)	0-50	0-100	15	15
Pulse Energy Per Head (mJ) (1)	100	50	180	135
Parameter				
Pulse Stability (±%) (2)	2	2	2	2
Beam Diameter (mm)	4	4	6.35	5
Beam Divergence (mrad)	~2.0	~2.0	0.8	0.8
Pulse Length @ 1064nm (ns)	5-8	5-8	7-9	7-9
Pointing Stability (µrad)	<100	<100	100	100
Resonator Type	Stable	Stable	Telescopic	Telescopic
Lamp Life (pulses)	$>5x10^7$	$>5x10^7$	$>5x10^7$	$>5x10^7$
Timing Jitter (ns)	<0.5	<0.5	0.5	0.5
Services				
Voltage (VAC)	220-250	220-250	90-250	90-250
Frequency (Hz)	47-63	47-63	47-63	47-63
Power	Single Phase	Single Phase	Single Phase	Single Phase
Ambient (ºC) (3)	5-35	5-35	5-35	5-35
Consumption (W)	<2500	<2500	<800	<650
Cooling	Air	Air	Air	Air
Power Supply	2 x LPU1000 (6)	2 x LPU1000 (6)	LPU550	LPU550

All data provided for each laser head, unless specified otherwise.

(1) At maximum repetition rate.
(2) Peak-to-Peak Energy - 99% of pulses.
(3) 0-80% non-condensing atmosphere.
(4) 110VAC option requires autotransformer to be specified on order.
(5) 50 or 60Hz to be specified on order.
(6) 200VAC available on request.

Model	Nano TRL 250-20 PIV	Nano TRL 350-10 PIV	Nano TRL 300-20 PIV	Nano TRL 425-10 PIV	Nano TRL 400-15 PIV	Nano TRL 400-20 PIV
Repetition Rate (Hz)	20	10	20	10	15	20
Pulse Energy Per Head (mJ) (1)	250	350	300	425	400	400
Parameter						
Pulse Stability (±%) (2)	2	2	2	2	2	2
Beam Diameter (mm)	6.35	8	9.5	9.5	9.5	9.5
Beam Divergence (mrad)	<1.5	<1.2	<1.0	<1.0	<1.0	<1.0
Pulse Length @ 1064nm (ns)	5-7	5-7	5-7	5-7	5-7	5-7
Pointing Stability (µrad)	100	100	100	100	100	100
Resonator Type	Telescopic	Telescopic	Telescopic	Telescopic	Telescopic	Telescopic
Lamp Life (pulses)	$>5x10^7$	$>5x10^7$	$>5x10^7$	$>5x10^7$	$>5x10^7$	$>5x10^7$
Timing Jitter (ns)	0.5	0.5	0.5	0.5	0.5	0.5
Services						
Voltage (VAC)	220-250 (4)	220-250 (4)	220-250 (4)	220-250 (4)	220-250 (4)	220-250 (4)
Frequency (Hz)	50-60 (5)	50-60 (5)	50-60 (5)	50-60 (5)	50-60 (5)	50-60 (5)
Power	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase
Ambient (ºC) (3)	5-35	5-35	5-35	5-35	5-35	5-35
Consumption (W)	<2500	<2500	<2500	<2500	<4500	<5500
Cooling	Air	Air	Water	Air	Water	Water
Power Supply	2 x LPU1000 (6)	2 x LPU1000 (6)	16U Rack	2 x LPU1000 (6)	16U Rack	16U Rack

All data provided for each laser head, unless specified otherwise.

(1) At maximum repetition rate.
(2) Peak-to-Peak Energy - 99% of pulses.
(3) 0-80% non-condensing atmosphere.
(4) 110VAC option requires autotransformer to be specified on order.
(5) 50 or 60Hz to be specified on order.
(6) 200VAC available on request.

The Bernoulli PIV Series

Vibration & Shock Proof, Ultra Ruggedised Laser for PIV Applications in Demanding Environments

bernoulli piv

FEATURES

- ***Vibration and shock proof***
- ***Fully sealed laser head***
- ***2 year warranty***
- ***Ability to operate in all orientations***
- ***Compact size***
- ***Fast connections and start -up***
- ***Motorised attenuator***
- ***High frequency options***

Bernoulli PIV

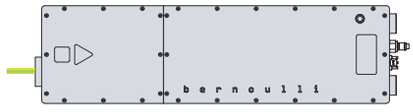
The Bernoulli PIV from Litron is the most advanced plug and play PIV laser system available today. It benefits from Litron's years of experience and the expertise gained from being the world's leading PIV laser manufacturer.

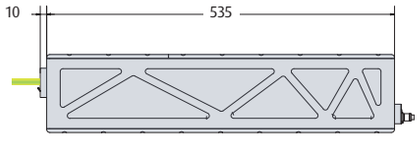
Thanks to its true turnkey operation and rugged, industral constuction, Bernoulli PIV is suited to operation in almost any environment.

MECHANICAL DATA

All dimensions shown in mm.

Laser Head



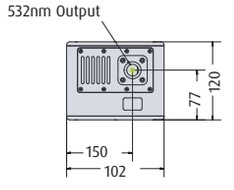


TECHNICAL DATA

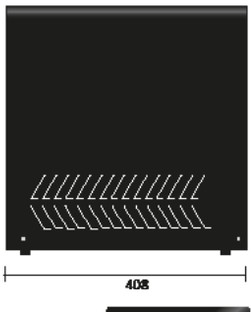
Model	Bernoulli 200-15 PIV	Bernoulli 145-15 PIV	Bernoulli 120-20 PIV	Bernoulli 100-25 PIV
Wavelength (nm)	532	532	532	532
Repetition Rate (Hz)	0-15	0-15	0-20	0-25
Pulse Energy (mJ) (1)	200	145	120	100
Pulse Stability (±%) (2)	2	2	2	2
Pulse Length (ns) (3)	≤10	≤10	≤10	≤10
Near Field Beam Diameter (mm)	6.5	5	5	5
Beam Divergence (mrad) (4)	<3.5	<3.5	<3.5	<3.5
Shot-to-Shot Pointing Stability (µrad)	<100	<100	<100	<100
Far Field Beam Overlap (µrad)	±100	±100	±100	±100
Near Field Beam Overlap (µm)	±100	±100	±100	±100
Polarisation	Linearly polarised, vertical plane	Linearly polarised, vertical plane	Linearly polarised, vertical plane	Linearly polarised, vertical plane
Spectral Purity (%)	>99.5	>99.5	>99.5	>99.5
System Requirements				
Voltage (VAC)	110-250 (50-60Hz) Single Phase	110-250 (50-60Hz) Single Phase	110-250 (50-60Hz) Single Phase	110-250 (50-60Hz) Single Phase
Power				
Operating Ambient (°C)	5-35	5-35	5-35	5-35
System Data				
Laser Head Sealing (5)	IP67	IP67	IP67	IP67
Laser PSU Sealing	IP21	IP21	IP21	IP21
Power Supply	LPU550B	LPU550B	LPU550B	LPU550B

High Frequency Options - 50Hz and 100Hz variants are also available.

(1) Per laser at maximum rep. rate.
(2) Peak-to-Peak Energy - 99% of pulses.
(3) At maximum energy 532nm (FWHM)
(4) Full angle for 90% of the output energy.
(5) With suitable connector set as an option, not suitable for full immersion.

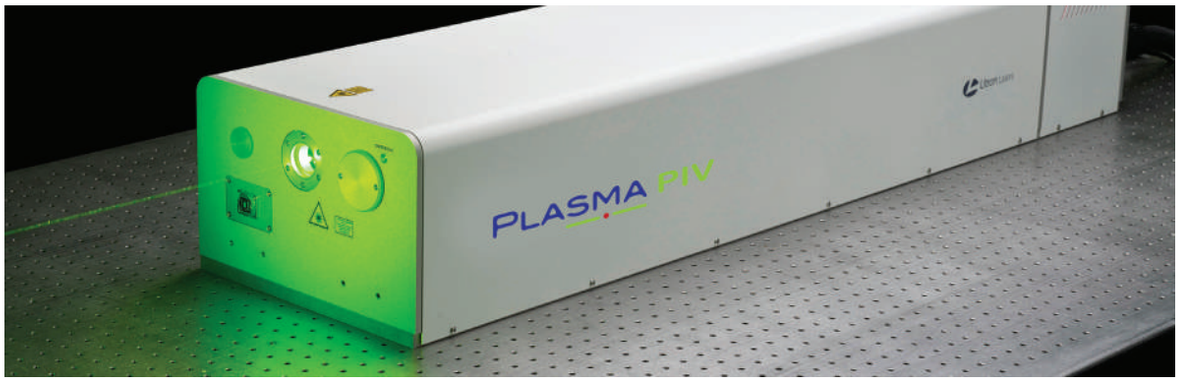


LPU550B Power Supply



The Plasma PIV Series

0-200Hz Pulsed Diode Pumped Nd:YAG Lasers for PIV Applications



PLASMA PIV

FEATURES

- ***0-200Hz operation***
- ***M^2 <10***
- ***Fully diode pumped***
- ***Long diode life***
- ***Fully independent laser operation and timing***
- ***Smooth homogeneous profile***
- ***Optimised for high brightness light-sheets***

Plasma PIV

The Plasma PIV system is a fully diode pumped dual head laser system designed specifically for PIV applications. It comprises two fully independent frequency doubled Nd:YAG lasers, that are beam combined to a common beam axis. These lasers each produce 532nm outputs of 100mJ per pulse up to 100Hz and 60mJ at 200Hz with pulse lengths of ~10ns. Pulsed diode pumping, ultra-stable mechanics, damage resistant optics and innovative design make the Plasma PIV system highly reliable. Offering a circular homogenous beam with a low M^2 it is an ideal tool for high brightness, high homogeneity light-sheet formation. With no services except the mains electrical input the Plasma PIV is a stand-alone turnkey system with an output suited to a huge range of PIV applications.

TECHNICAL DATA

Model	Plasma 75-100 PIV
Repetition Rate (Hz)	0-200
Wavelength (nm)	532
Pulse Energy (mj)	
10-100Hz	75
200Hz	60
Parameter @ 100Hz	
M^2	<10
Pulse Stability (±%) (1)	<1.5
Beam Diameter (mm) (2)	5
Beam Divergence (mrad) (3)	0.9
Pulse Length (ns) (4)	7-11
Pointing Stability (µrad)	<70
Timing Jitter (ns) (5)	<0.5
Polarisation	Linear
Approx. Diode Life (pulses)	>10x10⁹
Operation	
Control (6)	RS232
Q-switch Trigger and Sync (7)	TTL
Services	
Voltage (VAC)	220-250
Frequency (Hz)	50 or 60
Power	Single Phase
Ambient (ºC) (8)	5-35
Cooling (9)	Air
Power Supply	Free Standing

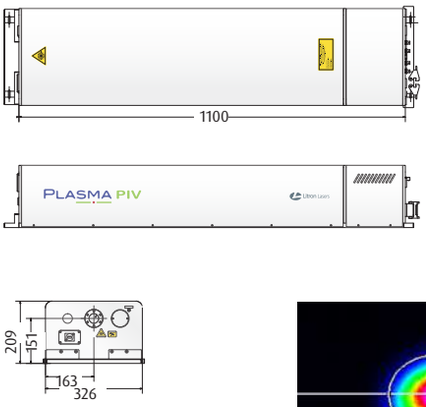
(1) Peak-to-Peak Energy - 99% of pulses.
(2) 100% beam diameter at laser exit port.
(3) Full angle at specified beam diameter.
(4) FWHM – Fast photodiode and >1GHz oscilloscope.
(5) RMS with respect to Q-switch trigger input.
(6) Full software suite and programming tools supplied.
(7) Each laser head independently triggerable.
(8) 0-80% non condensing atmosphere.
(9) Standard air-cooled or optional water-cooled chiller.

All data provided for each laser head, unless specified otherwise.

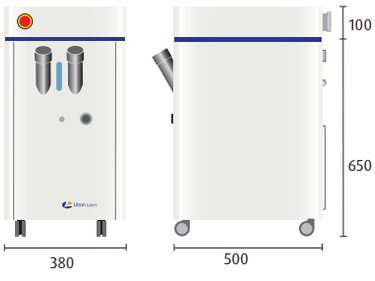
MECHANICAL DATA

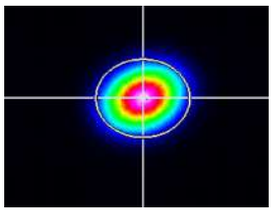
All dimensions shown in mm.

PIV Laser Head

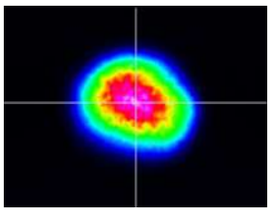


Free Standing PSU



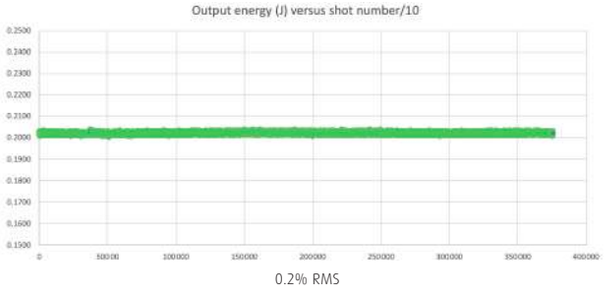


Far field 532nm profile at 100Hz



Near field 532nm profile at 100Hz

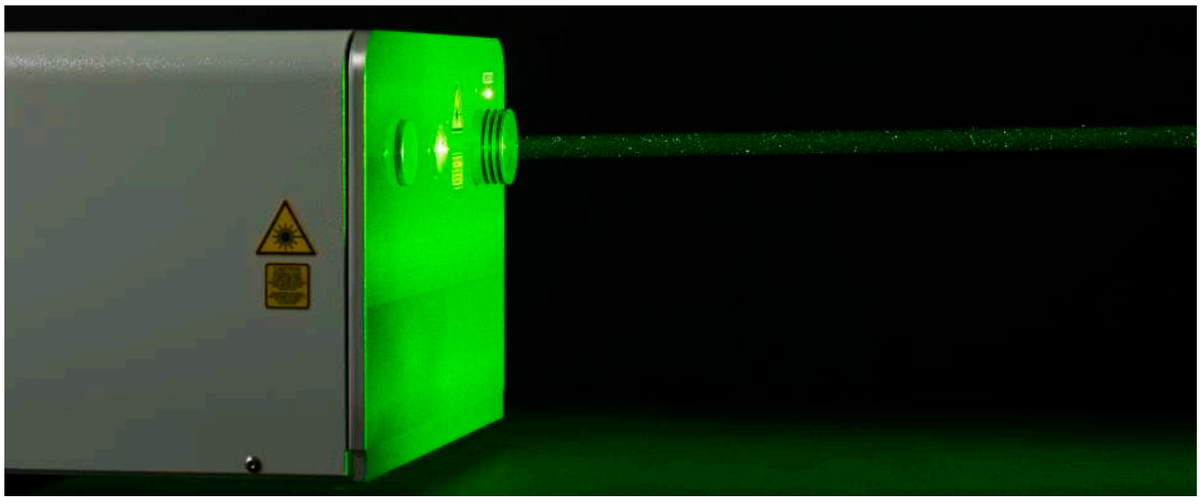
Pulse-to-Pulse Stability 532nm



0.2% RMS

The LPY PIV Series

High Energy & High Repetition Rate Lasers for PIV



LPY•PIV• •

FEATURES

- ***Dedicated PIV laser head***
- ***Up to 200Hz repetition rates***
- ***High pulse energies up to 425mJ***
- ***True TEM_{00} output available***
- ***Stable resonator design***
- ***Telescopic versions for low divergence***
- ***3rd and 4th harmonics available for LIF and dual colour PIV***
- ***Line narrowed versions***
- ***Rugged industrial design***

LPY PIV

For higher energy systems or systems where very low divergences are required Litron offers twin configurations of its Invar stabilised LPY series. Output energies of up to 425mJ per pulse of 532nm at repetition rates of up to 20Hz are available as standard, as are outputs of 100mJ at 532nm at 200Hz.

The LPY PIV series are based around a rugged, self supporting, Invar rail. This imparts both a large degree of mechanical and thermal stability to the system suiting them to use in both research and industrial applications with little need for maintenance.

The LPY PIV series can have a stable or a stable-telescopic resonator design, with the intra-cavity telescope yielding a lower divergence output.

All LPY700 series systems feature a birefringence compensating twin-rod design to give the best possible beam homogeneity, essential for the formation of uniform light sheets.

The modular construction of the LPY series laser heads allows for easy customisation of systems. Options include variable optical attenuation, line-narrowing etalons, injection seeding and third, fourth and fifth harmonic outputs.

TECHNICAL DATA

Model	LPY 706 - 20 PIV	LPY 707 - 20 PIV	LPY 704 - 30 PIV	LPY 706 - 15 PIV	LPY 707 - 15 PIV	LPY 704 - 100 PIV	LPY 703-200 PIV	LPY 742 - 100 PIV	LPY 742 - 200 PIV
Repetition Rate (Hz)	20	20	30	15	15	100	200	100	200
Pulse Energy Per Head (mJ)	300	400	200	325	425	100	50	200	100
Parameter									
Pulse Stability (±%) (1)	<3	<3	<3	<3	<3	<3	<3	<3	<3
Beam Diameter (mm)	8	9	6.5	8	9	6.5	4	6.5	6.5
Beam Divergence (mrad)	0.8	~3	0.8	0.8	~3	~3	~3	~3	~3
Pulse Length (ns)	7-11	7-11	7-11	7-11	7-11	10-12	10-12	10-12	10-12
Pointing Stability (µrad)	<70	<70	<70	<70	<70	<70	<70	<70	<70
Lamp Life (pulses)	$5x10^7$	$5x10^7$	$5x10^7$	$5x10^7$	$5x10^7$	10^8	10^8	10^8	10^8
Timing Jitter (ns)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Services									
Voltage (VAC) (2)	220-250	220-250	220-250	220-250	220-250	220-250	220-250	220-250	220-250
Frequency (Hz) (3)	50 or 60	50 or 60	50 or 60	50 or 60	50 or 60	50 or 60	50 or 60	50 or 60	50 or 60
Power	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase
Water Temp Max. (°C)	Air Cooled (4)	20	20	20	20	20	20	20	20
Inlet Pressure (bar)	-	<2	<2	<2	<2	<2	<2	<2	<2
Cooling	Air	Water	Water	Water	Water	Water	Water	Water	Water
Power Supply	2 x LPU1000	16U Rack	16U Rack	16U Rack	16U Rack	16U Rack	16U Rack	2 x 16U Rack	2 x 16U Rack

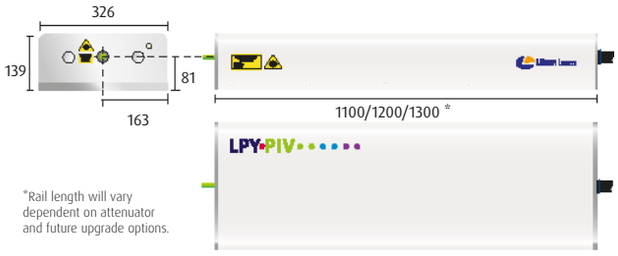
All data provided for each laser head, unless specified otherwise.

(1) Peak-to-Peak Energy - 99% of pulses.
(2) 110VAC option requires autotransformer to be specified on order.
(2) 50 or 60Hz to be specified on order.
(3) Ambient Temperature 5-35°C. (0-80% non condensing atmosphere.)

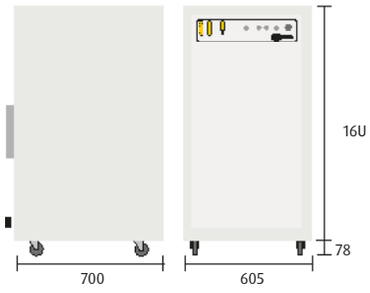
MECHANICAL DATA

All dimensions shown in mm.

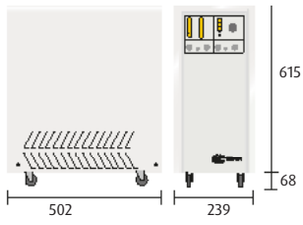
PIV Laser head Unit

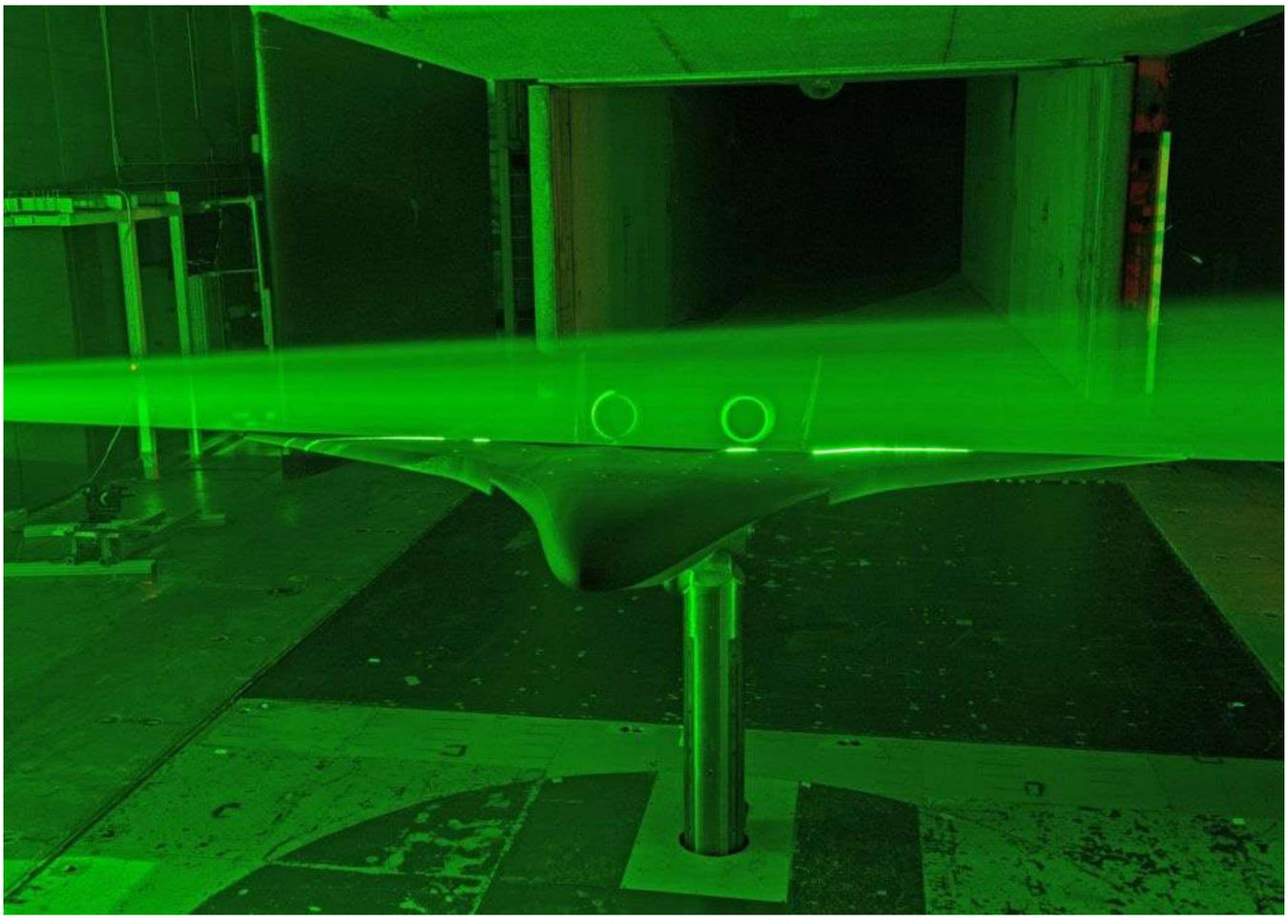


Rack-mount PSU



LPU1000 PSU





Hybrid Wing Body Particle Image Velocimetry Test in LaRC 14x22 Foot Tunnel: PIV measurement of HWB-N2A model in Langley 14x22 Foot Tunnel.
Source: NASA

The LD-527 PIV Series

527nm Nd:YLF Lasers for High Speed Imaging Applications

LD•PIV

FEATURES

- ***Improved beam quality for brighter light sheets***
- ***Short pulse width***
- ***Independent motorised attenuators to balance pulse energies easily***
- ***Small footprint***
- ***Efficient Q-switching***
- ***Lightweight conduit***

The LD-527 PIV Series

The LD-527 PIV series lasers are diode pumped, intra-cavity doubled, dual-cavity, Nd:YLF laser systems ideally suited to imaging applications such as PIV and pump applications. Output energies of up to 30mJ, 527nm per cavity at 1kHz are available.

The lasers are built around a rugged self-supporting Invar rail that bestows excellent mechanical and optical stability. This, coupled with the proprietary resonator design, leads to excellent output beams that are spatially and temporally extremely smooth and stable, giving rise to light sheets that offer almost identical shot-to-shot illumination.

Motorised Optical Attenuators are fitted to both lasers. Each attenuator is controlled independently allowing complete pulse energy control of each laser. As the attenuators act on the output of the laser (using a half-wave plate and a polariser), beam parameters such as the spatial and temporal profiles, the M^2 and the pulse length are unchanged by the attenuators.

TECHNICAL DATA

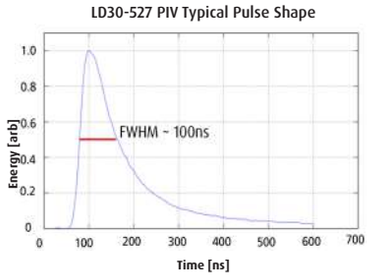
Model	LD10-527 PIV	LD15-527 PIV	LD20-527 PIV	LD25-527 PIV	LD30-527 PIV
Repetition Rate (kHz)			0.2-20		
Pulse Energy @ 1kHz (mJ)	10	15	20	25	30
Pulse Stability (±%) (1)			1		
Beam Diameter (mm) (2)			5		
Beam Divergence (mrad) (3)			<2.5		
Pulse Length (ns)			<120		
M^2			<12		
Services					
Voltage (VAC) (4)			220-250		
Frequency (Hz) (5)			50 or 60		
Power			Single Phase		
Ambient (°C) (6)			5-35		
Power Supply			13U Rack		

(1) Peak-to-Peak - 99% of pulses.
(2) Beam diameter is achieved with output telescope.Standard diameters quoted. Other diameters are available on request. In all cases M^2 is unchanged.
(2) At specified beam diameter.
(3) 110VAC option requires autotransformer to be specified on order.
(4) 50 or 60Hz to be specified on order.
(5) 0-80% non-condensing atmosphere.

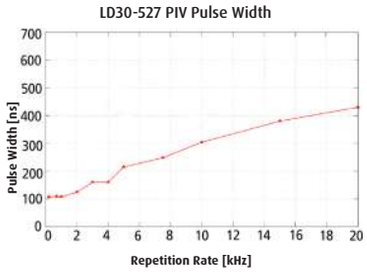
All data provided for each laser head, unless specified otherwise.
See LD PIV data sheet for information on specification, performance and system dimensions.

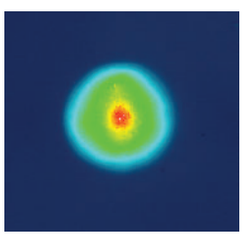
PERFORMANCE DATA

LD30-527 PIV Typical Pulse Shape



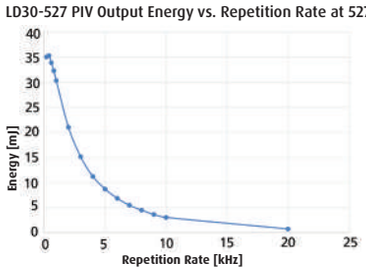
LD30-527 PIV Pulse Width





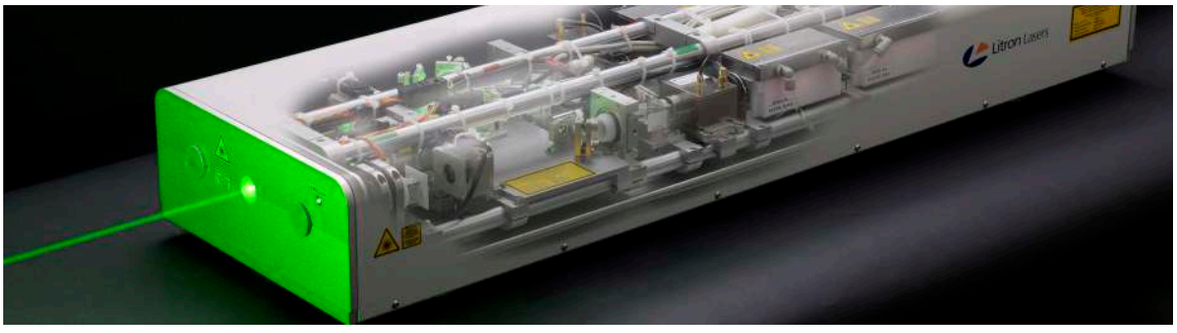
Near field 527nm profile at 1kHz.

LD30-527 PIV Output Energy vs. Repetition Rate at 527nm



The LD60-532 PIV Series

High Repetition Rate DPSS Nd:YAG Laser for Time Resolved PIV Applications



LD60• 532 PIV

FEATURES

- ***6mJ at 10kHz***
- ***8mJ at 6kHz***
- ***Repetition rates of 50kHz with individual pulses***
- ***<0.5% RMS stability***
- ***Fully independent operation and timing***
- ***Circular beam profile***
- ***Optimised for high brightness light-sheets***

LD60-532 PIV

The LD60-532 PIV is a dual laser head system ideal for PIV applications. The system comprises two fully independent intracavity doubled Nd:YAG lasers, each giving outputs of 60W at 532nm, that are combined to a common beam axis. Both lasers are independently triggerable and controllable. The Invar rail around which the system is constructed imparts exceptional stability and the sealed head enclosure ensures continuous reliable operation in non-ideal environments. The power supplies and chiller are fully integrated in a single unit. With no services except the mains electrical input the LD60-532 PIV is a stand-alone turnkey system with an output suited to many time resolved PIV applications.

TECHNICAL DATA

Model	LD60-532 PIV
Total Output Power (W) (1)	120
Repetition Rate (kHz)	1-50
Pulse Energy @ 10kHz (mJ)	6.0
Parameters @ 10kHz	
Pulse Stability (±%) (2)	1
Beam Diameter (mm) (3)	5
Beam Divergence (mrad) (4)	<4
Beam Circularity (%)	>85
Pulse Length (ns)	<170
Pointing Stability (µrad)	<25
Long Term Stability (%rms)	1
Polarisation (5)	Linear
Operation	
Control (6)	RS232
Q-switch Trigger and Sync (7)	TTL
Services	
Voltage (VAC)	220-250
Frequency (Hz)	50 or 60
Power	Single Phase
Ambient (°C) (8)	5-35
Power Supply & Integrated Chiller	18U Rack

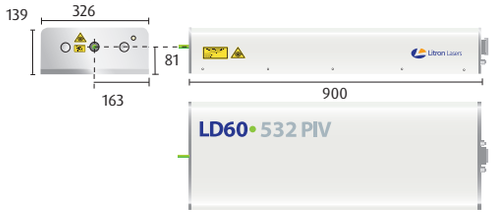
(1) Total output both laser heads.
(2) Peak-to-Peak Engery - 99% of pulses.
(3) Beam diameter is achieved with output telescope. Standard diameters quoted. Other diameters are available on request.
(5) Lasers 1 and 2 have orthogonal polarisations at 532nm.
(6) Full software suite and programming tools supplied.
(7) Each laser head independently triggerable.
(8) 0-80% non condensing atmosphere.

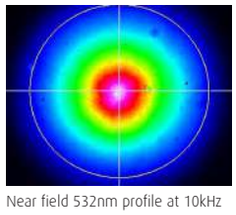
All data provided for each laser head, unless specified otherwise.

MECHANICAL DATA

All dimensions shown in mm.

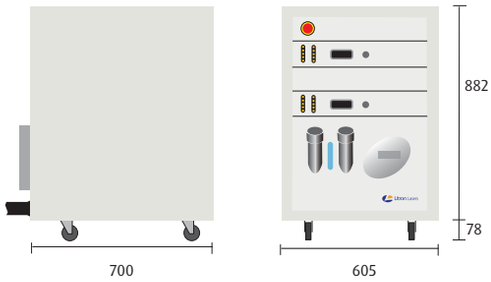
PIV laser head

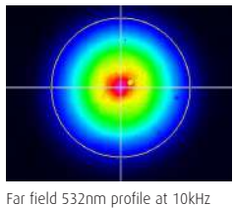




Near field 532nm profile at 10kHz

Fully integrated rack-mounted PSU and chiller





Far field 532nm profile at 10kHz

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