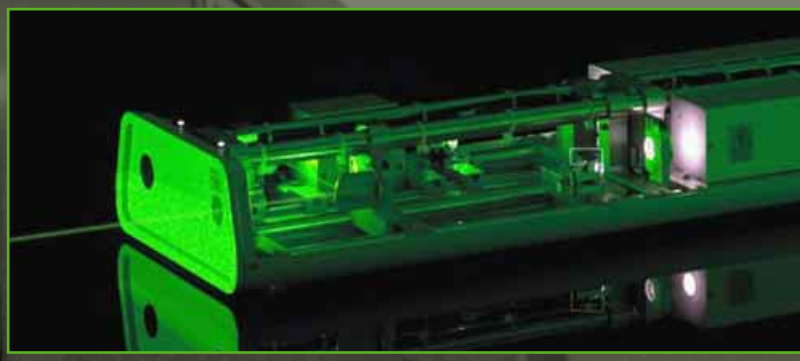
PIV Pulsed Nd:YAG Laser Systems



Litron Lasers

Pulsed Nd:YAG Lasers Designed for PIV Applications

Litron offers an extensive range of PIV laser systems with output energies of up to 1J per pulse and repetition rates of up to 200Hz. 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 series.

The overriding factor that sets Litron's products apart is quality. This is evidenced not only in the design and construction of the product, but also in it's performance. In any imaging application the beam quality is of paramount importance. 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 right into the far field. Such resonators are almost always of a stable or stable-telescopic configuration.

Unstable Gaussian-coupled resonators are not in general ideal for visualisation applications. Such resonators yield output beams that contain very high spatial frequencies in the near field, and as they propagate a hole appears in the centre of the beam (a 'donut' beam profile). This is typical of any such resonator and is a result of the physics of the system. It is therefore quite clear that if the beam is to be used in the near or intermediate fields (within 10 metres of the laser output) the light sheet formed is unlikely to be uniform, as the laser beam is not.

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 will yield extremely uniform light sheets whose pulse to pulse structure remains extremely constant. These are all based around our stable or stable-telescopic resonators.

The PIV Models

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-PIV and the LPU550-PIV, the latter allowing outputs of 120mJ at 532nm at 20Hz from each laser.

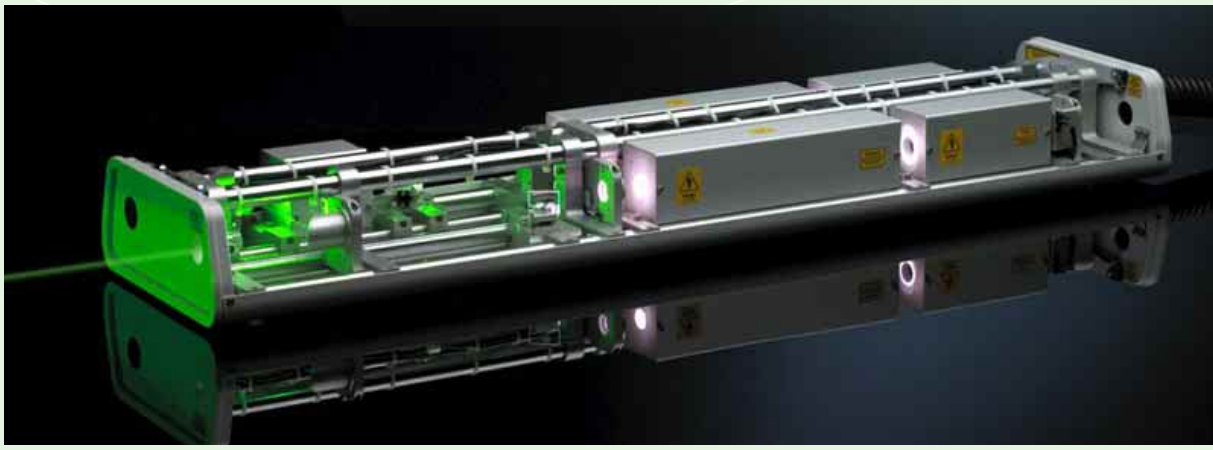
The laser system is controlled via a remote controller. All trigger and synchronisation signals are TTL compatible, and each laser is controllable entirely independently.

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.

LPY PIV

For higher energy systems Litron offers twin configurations of its invar stabilised LPY series. Output energies of up to 1J per pulse of 532nm at repetition rates of up to 20Hz are available as standard.

For more information on our laser systems please refer to the Nano series brochure and the LPY600/700 series product literature or please contact Litron directly.



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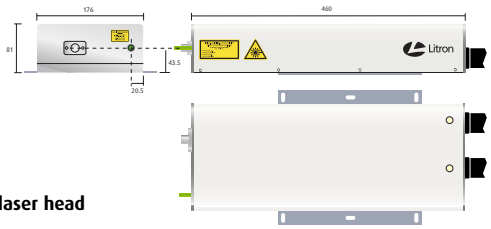
Our policy is to improve the design and specification of our products. The details given in this brochure are not to be regarded as binding.

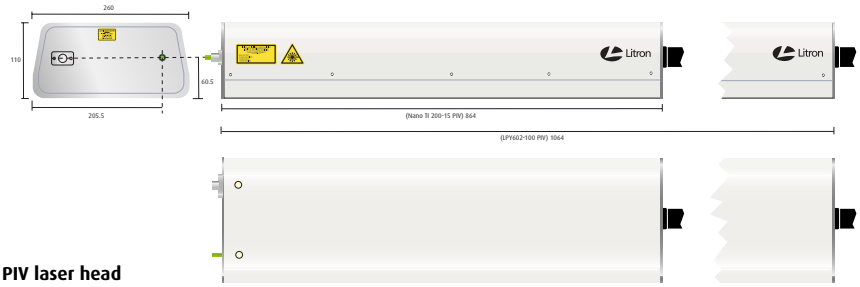
The Litron PIV Pulsed Nd:YAG laser range

All dimensions in mm.



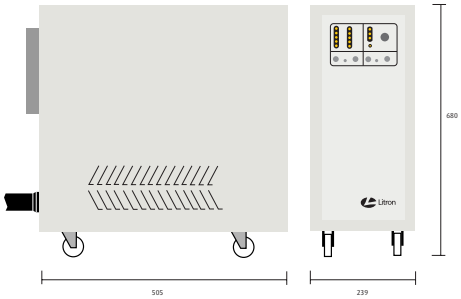
Nano S PIV laser head

Nano L PIV laser head

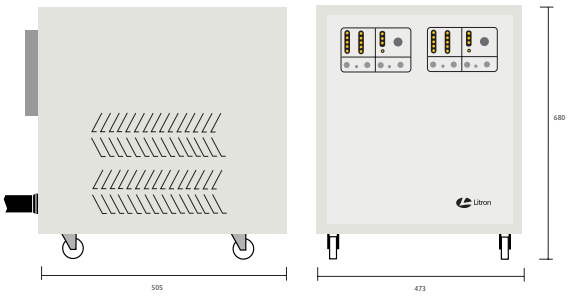


Nano TI PIV laser head

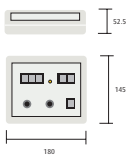
LPY PIV laser head



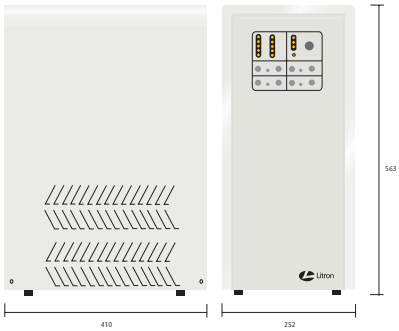
LPU1000 power supply unit



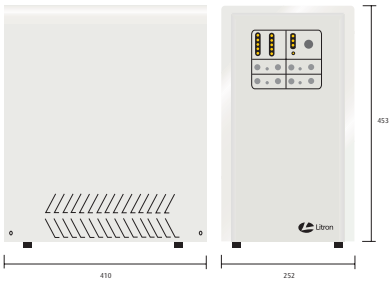
LPU1200 PIV power supply unit



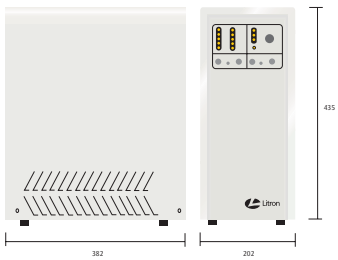
Remote control unit



LPU550 PIV power supply unit



LPU450 PIV power supply unit



LPU350 power supply unit

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