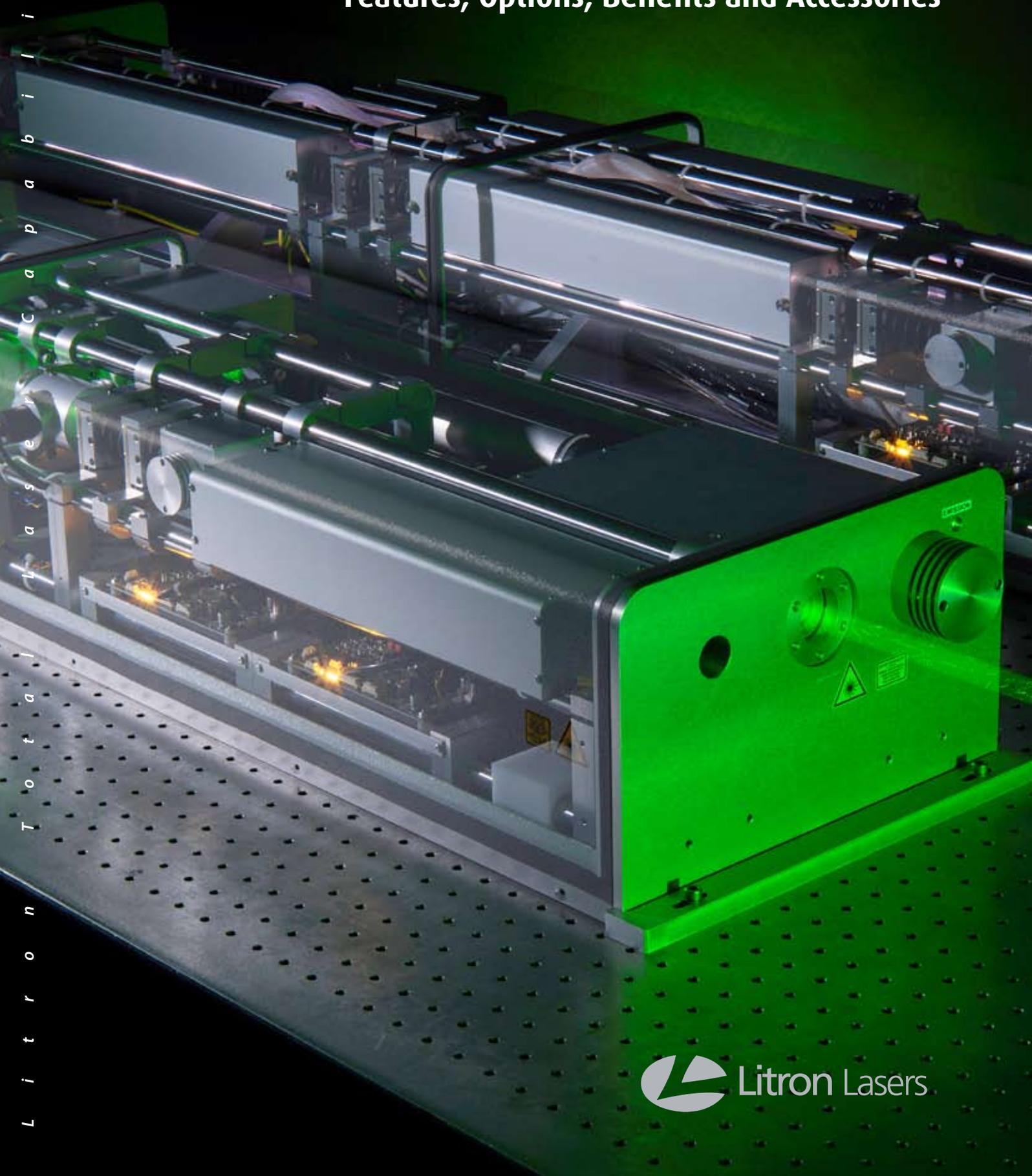


*Litron Ultra High Energy Lasers*

# LPY Series

Features, Options, Benefits and Accessories

Litron Total Capability Library





# LPY Series

## Features, Options, Benefits and Accessories

### The Evolution of the LPY Range

The LPY series of pulsed Nd:YAG lasers was designed to suit almost any industrial or research application requiring a high-energy or high-specification Nd:YAG laser. A 'no-compromise' design approach is evident in the build quality, a parameter that sets these lasers well apart from any of their competitors.



The modular design of the laser head allows a wide variety of resonator configurations and options to be offered, from single rod oscillators to fully birefringence compensating twin-rod-oscillator, twin-rod-amplifier systems. Furthermore, a choice of stable, stable-telescopic or graded reflectivity resonators is available, allowing the customer to specify a system that suits their requirements.

### LPY Concept – Cost effective Customization

The LPY Series is built on the industrial Invar space frame platform, which offers incredible stability. The modular nature of this design enables complete design customization to enable the customer to specify a laser system that is truly fit for purpose. The design also allows for easy maintenance when replacing consumable parts such as flash lamps that renders down time to a minimum.



### Configurable features include

- Specification of cavity type i.e. stable, Gaussian, telescopic
- Cavity etalons to reduce the line-width of the output
- Harmonic generation modules for 532, 355, 266 and 213nm
- Process shutters to ensure repeatable output energy from the first shot
- Sealed case to stop ingress of dust and dirt
- Complete software control with easy integration into proprietary software including LabView integration
- Bespoke conduit length

### Litron Ultra High Energy Lasers – Extending Outputs to 10J

In designing the Ultra High Energy range of laser systems, Litron built on the already robust and reliable LPY platform. Many new features have evolved during the design of this range that complement the industry proven LPY designs offering q-switched outputs from 4J to 10J at 1064nm.





## Advanced Benefits Include

### Full System Monitoring

All systems feature a fully integrated control system that monitors many system parameters ensuring reliable operation. A comprehensive interlock suite coupled with touchscreen control and reporting ensure that the user is in full control of the laser and in full knowledge of its performance.



### Remote Automation and ease of Integration

With a host of interface options such as RS232, ethernet and CAN and a full software suite with necessary drivers and LabView integration the LPY series offer an unprecedented ease of use for both industrial systems integrators and academic researchers alike.

## Advanced Features Include

### Motorised harmonic generation stages

All harmonics are available with optional auto-tracking and auto-tuning. The system will automatically peak the output energy at startup or on request. Auto-tracking continuously seeks to maximise the output energy during operation whereas auto-tuning will maximise the output upon request.



### Motorised Harmonic Separation and Switching

Motorised harmonic switching allows for remote switching between output wavelengths. When used in unison with the motorised harmonic generation and motorised mirror stages each configurable wavelength can be selected and optimised remotely at the push of a button.



### Integrated Type II BBO OPO

Optimum output characteristics are achieved by matching the pump source to the OPO. A tuning range of 200-2400nm can be achieved with appropriate options. Both 355nm and 532nm pumped OPOs are available both with optional frequency doubling.

### Integrated Injection Seeder

With the addition of an injection seeder output linewidths of  $0.0016\text{cm}^{-1}$  are possible. The use of a high stability, high power SLM seed laser gives unsurpassed lock for continuous SLM output. Litron offer both true  $\text{TEM}_{00}$  and Gaussian-coupled resonator options with injection seeding.



### Line Narrowing

Line narrowing etalons allow the linewidth of the laser output to be reduced for increased coherence length. In a stable resonator, the use of an output coupling etalon gives a linewidth of about  $0.3\text{cm}^{-1}$  and an additional intra-cavity etalon will reduce the linewidth to about  $0.06\text{cm}^{-1}$ .

In an unstable Gaussian-coupled resonator an intracavity etalon will reduce the linewidth to about  $0.15\text{cm}^{-1}$ .



### Variable Optical Attenuator

A variable optical attenuator is useful if the temporal profile of the pulse needs to be maintained at different output energies. The use of a half-wave plate and polariser allows continuous adjustment of the output energy with negligible effect on either the spatial or temporal pulse characteristics. Such attenuators are available for both 1064nm and harmonic wavelengths.



### Integrated energy monitor and closed-loop stabilization.

A calibrated photodiode based energy monitor enables accurate energy monitoring of the output energy and optional closed-loop stabilization of the laser and harmonic outputs.

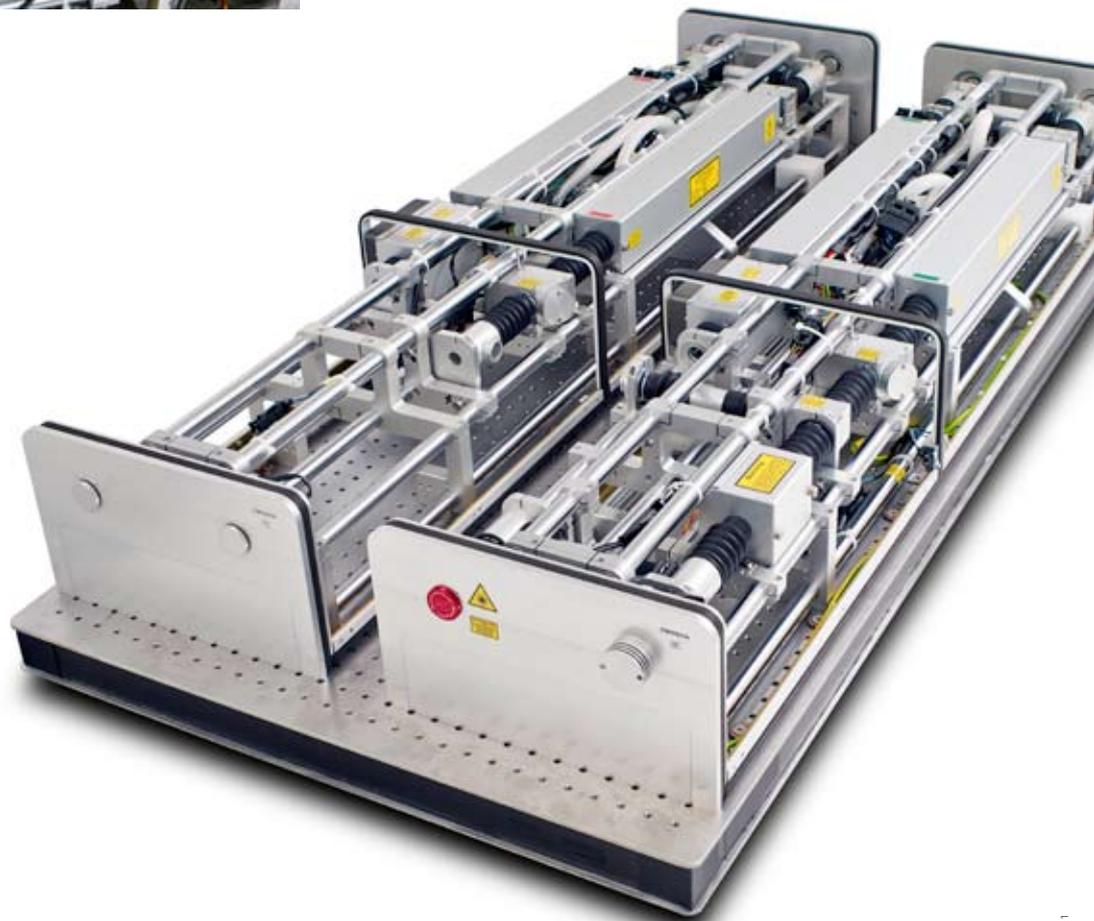
### Auto Attenuator

Using a closed-loop feedback system, the motorised attenuator can be adjusted to maintain a set output energy to compensate for flash-lamp degradation due to ageing.



### Options for Systems Integrators

The inherent strength and stability of the LPY construction very easily lends itself to securely mounting beam handling solutions such as articulated arms or Galvo scanning heads.



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.

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