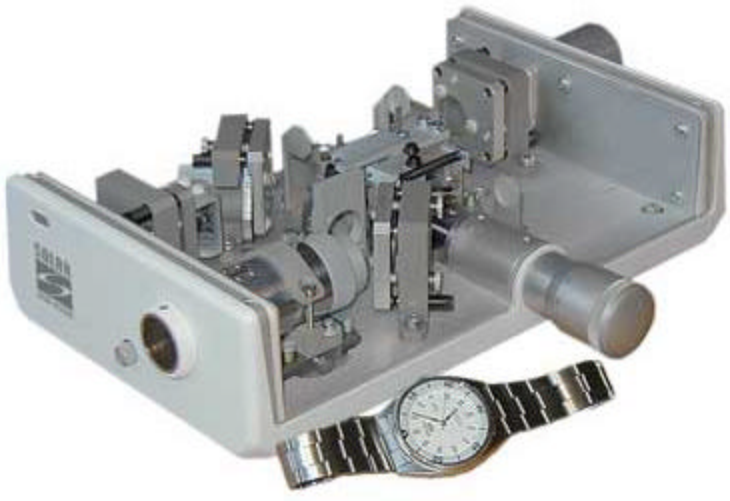
OPTICAL PARAMETRICAL OSCILLATORS

Optical Parametric Oscillator (OPO) systems supplied by Del Mar Ventures are compact, easy-to-operate, all-solid-state devices that convert the fixed-wavelength output of a pulsed Nd:YAG laser, or its harmonics, into a beam that is continuously tunable over a wide spectral range, with an optical efficiency greater than 40 percent. OPO systems combine high energy output, extremely wide tuning range with exceptionally easy maintenance and increased reliability.



BBO OPO system Model LP601

These OPO systems are developed based on the end user's demands and are highly reliable and easy to operate. They can be integrated with almost any Nd:YAG laser. The main advantage of the OPO LP series is a very low minimum required operating pump power densities. Thanks to the original optical scheme the specified parameters are obtained even at low pump intensities and as a result neither crystals nor other optics can be damaged. This feature combined with precise optics mounts and dust protective housing ensures perfect reliability and long-term output stability. The output can be tuned over its complete range by a precision micrometer or, as an option by a computer controlled motorized driver.. An optional closed-loop computer-based controller, which includes a spectrograph with a CCD array, fully automates the tuning and wavelength scanning processes and provides precise wavelength and pulse-energy data.

The OPO LP series optical design provides high-efficiency output even if it is pumped by standard multimode Nd:YAG lasers. The customer does not have to buy or use complex and expensive TEMoo or single-frequency pump lasers. The maintenance expenses are therefore reduced and the OPO LP series is attractive for every user. Compactness of the

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OPO saves space at your optical table and allows to easily integrating it into any available laser system.
A set of broadband dichroic mirrors supplied in the standard set with the device allows when it is necessary to separate the idler and the signal waves.

SPECIFICATIONS

MODEL	LP601	LP604
Non-linear crystal	BBO	
Tuning range, nm	420-2220	700-2220
Maximum total conversion efficiency*, %	40 @ 500 nm	40 @ 850 nm
Divergence*, mrad, not more than	10	10 x 2
Linewidth*, nm, not more than	0.4 @ 500 nm	0.5 @ 800 nm
Pump laser requirements		
Laser type	Nd:YAG	
Wavelength, nm	355	532
Max pump energy, mJ	100	150
Operating pump intensity, J/cm^2	0.5	0.7
Pulsewidth, nsec	4-12	
Beam quality	Multimode homogeneous spatial beam profile	
Beam divergence	Less than 1 mrad	
*depends on output wavelength		
Specifications are subject to change without notice.		

OPTIONS

Low divergence option enables to extract from the OPO system radiation with higher angular brightness.
PC controlled OPO system is available upon request.
UV option allows providing tunable output within the range of 300-400 nm.
The OPO system can be supplemented with a PC-compatible “SpectraStar” output wavelength measuring and control system. The “SpectraStar” is a super compact spectrometer with optical fiber input and CCD registration system.

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