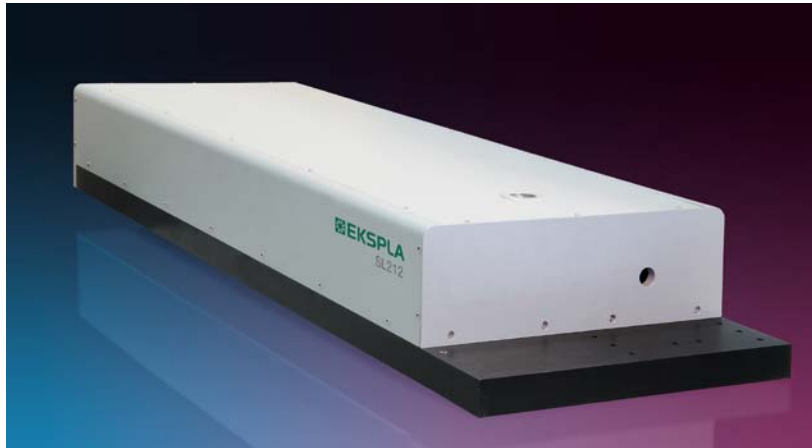


SL212 SERIES



SL212 laser is excellent solution for applications, where high energy picosecond pulses are needed. In contrary to conventional mode-locked lasers the SL212 series lasers use different method of generating short pulses based on backward-stimulated Brillouin scattering (SBS).

Diode pumped passive Q-switched single longitudinal mode (SLM) nanosecond generator is the heart of the system. It provides nanosecond optical pulse that is later compressed during SBS in a special cell.

Pulse compressor consists of optical guiding system and SBS-cell. SBS cell is designed for safe and longlife maintenance free operation.

A linearly polarized light pulse from master oscillator passes through QWP and is focused into SBS-cell by lens. Focusing is arranged in the way to compress the pulse via SBS process. The backscattered Stokes pulse, as its phase is reversed, strictly repeats the path of pump pulse in the opposite direction and with a reversal divergence. The compressed pulse is guided into the amplification stage using polarizer and mirror.

After SBS compression, pulse is directed to multi-pass flashlamp pumped power amplifier system, providing high-energy pulses. SL212 model lasers use multi-pass amplifier system which is based on laser chamber containing Nd:YAG rod pumped by two flash lamps. For smooth obtaining output beam profile pre-amplifier and double-pass amplifier layout is used in SL212 series lasers. Power amplifier includes optical components arranging passes through the active element. Aperture is employed to prevent the returning depolarized radiation from getting back into the amplifier.

Thermocontrolled harmonics' generators, based on angle-tuned non-linear crystals and harmonic separation optics are available as standard options. Fundamental and second harmonics are separated and has a single output port. Harmonics' crystals mounted in temperature-controlled heaters.

Pulse compression during SBS, is a simple and cost effective way for generating high power picosecond pulses. In addition to it, SBS

SBS Compressed Q-switched Nd:YAG Lasers for OEM

FEATURES

- ▶ Diode pumped Q-switched oscillator
- ▶ Advanced SBS compression produces pulses of less than **150 ps** duration
- ▶ Flashlamp pumped power amplifier for up to **250 mJ** pulse energy at 1064 nm
- ▶ Excellent pre-pulse contrast ratio
- ▶ Thermo stabilized harmonic generator options
- ▶ PC control and LabView™ drivers
- ▶ Remote control via keypad

APPLICATIONS

- ▶ Tattoo removal
- ▶ Material ablation and deposition
- ▶ Remote laser sensing
- ▶ Satellite ranging

compression allows generation of pulses with exceptional pulse duration range: from 150 ps up to 1000 ps.

A power supply and water/water type cooling units, placed in standard 19" rack, requires a little space under the user's optical table.

SPECIFICATIONS ¹⁾

Model	SL212
Max. pulse energy	
at 1064 nm	250 mJ
at 532 nm	150 mJ
Pulse energy stability (StDev) ²⁾	
at 1064 nm	< 3 %
at 532 nm	< 5 %
Pulse duration at 1064 nm (FWHM) ³⁾	< 150 ps
Repetition rate	10 Hz
Polarization ratio at 1064 nm	> 1 : 100
Optical pulse jitter ⁴⁾	0.5 ns
Beam profile	close to Hat Top
Beam divergence ⁵⁾	< 0.5 mrad
Beam pointing stability	< 50 μrad
Beam height	107 mm
Beam diameter ⁶⁾	~ 10 mm
Contrast ratio at 1064 nm	105 : 1
PHYSICAL CHARACTERISTICS	
Laser head size (W × L × H)	370 × 270 × 1000 mm
Electric cabinet size (W × L × H)	550 × 525 × 590 mm
Umbilical length	2.5 m
OPERATING REQUIREMENTS	
Water consumption (max. 20 °C) ⁷⁾	< 10 l/min
Room temperature	18–24 °C
Relative humidity	10–80 % (non-condensing)
Power requirements	~ 220 V AC, single phase, 50/60 Hz
Power consumption	< 2.5 kVA

¹⁾ Due to continuous improvement, all specifications are subject to change without notice. Parameters marked typical are not specifications. They are indications of typical performance and will vary with each unit we manufacture. Unless stated otherwise all specifications are measured at 1064 nm.
²⁾ Averaged from 500 pulses.

³⁾ Variable pulse duration up to 1500 ps is available, please inquire for detailed specs.
⁴⁾ RMS value measured from 500 pulses.
⁵⁾ Full angle measured at 1/e² level at 1064 nm.
⁶⁾ Beam diameter is measured at 1064 nm at 1/e² level.
⁷⁾ Air-water heat exchanger can be supplied as an option.

