GEOLA

HIGH ENERGY
SLM Nd:YLF/Glass LASERS

The GxJ Series of Pulsed Hybrid Nd:YLF/Phosphate Glass Lasers

The GxJ series comprises a family of 4 lasers each of which based on a Nd:YLF oscillator and one or more Nd:Phosphate Glass amplifiers. The lasers produce near-diffraction limited single-longitudinal mode (SLM) super-Gaussian radiation in the nanosecond regime from 1 to 16 J per pulse (fundamental harmonic). Design features include a highly stable EO or passively Q-switched ring-cavity oscillator, 2-pass amplification using high energy Brillouin phase conjugation (SBS) and optional frequency conversion to the second or third harmonics by most efficient NLO crystals. In addition to constituting highly versatile laboratory tools all GxJ lasers are rigorously designed to meet the high standards required for scientific interferometric or technical holography applications, where smooth beam shape and big coherence length is of key importance.

Applications

- Holographic applications
- Plasma research
- Seeding of amplification cascades
- Absorption spectroscopy of laser induced plasmas

System Features

- Design based on “SBS Beam Cleanup” and “SBS phase-conjugation” techniques
- Unique and cost-effective design
- Optimized laser characteristics for display and technical holography applications
- Remote control via Wireless unit
- PC control via RS232 using advanced Geola software or LabView drivers
- Coherence length exceeding of > 10m length
- Custom design plug for remote control of main laser functions
- Lasers are CE marked according to IEC 60825-1:2001/EN 6825-1:2001
- Low electrical consumption

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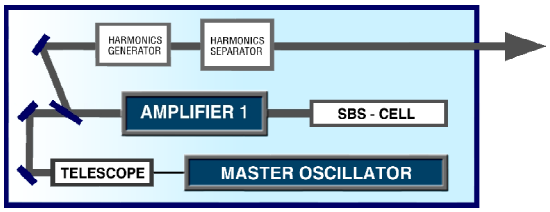
Technical Specifications

Base Model	G1J	G2J	G5J
Output Wavelength:	1053nm 526.5nm 351nm	1053nm 526.5nm 351nm	1053nm 526.5nm 351nm
Output Energy:	2J 1J 0.4J	4J 2J 0.9J	10J 5J -
Pulse Duration:	~34ns / ~32ns / ~31 ns	~34ns / ~32ns / ~31ns	~30ns / 28ns / -
Beam Diameter ($1/e^2$):	< 9mm	< 10mm	< 16mm
Beam Divergence:	Near Diffraction Limit		
Coherence Length [1]:	> 10m		
Pulse Energy Stability [2]:	5% at 526.5nm		
Beam Profile:	Near Gaussian in far field		
Pulse Contrast:	> 10^5:1 at 1053nm		
Pulse repetition rate - Pilot Mode:	0.5...2Hz		
Pulse repetition rate - High Energy Mode:	1 pulse per 2 min		1 pulse per 3 min
Polarization:	Horizontal, > 98% @ 1053nm		
Optical Pulse Jitter [3]:	< 10µs for Passive Q-Switch and ~ 0.5 ns for E-O Q-Switch		
Triggering:	External/Internal		
	DIMENSIONS		
Laser Head: (W x H x L)	1105 x 320 x 225 mm		1000 x 468 x 225 mm
Power & Cooling Cabinet: (W x H x L)	550 x 880x 600 mm		550 x 1250 x 600 mm
Umbilical length:	~ 2.5 m		
	ENVIRONMENTAL REQUIREMENTS		
Cooling requirements: (Water flow for 20 °C water temperature)	< 10 liter/minute		
Room Temperature:	22 - 24 °C		
Relative Humidity (non-condensing):	< 70%		
Mains Voltage:	210...240 VAC, single phase 50/60 Hz		
Power Consumption:	< 1 kW		< 2.5 kW

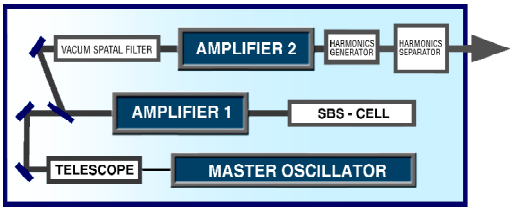
[1] Coherence length at 526.5 nm.
[2] Std.Dev. at High Energy Mode.
[3] Std.Dev, with respect to External sync pulse signal

Geola Digital reserves the right to change specification without notice

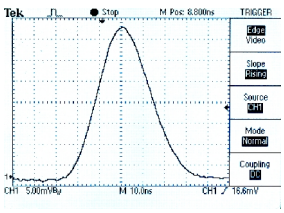
Optical Schemes and Characteristics



Optical Scheme for models G1J and G2J



Optical Scheme for models G5J and G8J



Typical temporal pulse shape
G5J - 526.5 nm

Typical near field distribution
High Energy mode - G5J, E = 2J - 1053 nm

Manufacturer

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