

## HIGH ENERGY MUTUALLY-COHERENT Double Output SLM Nd:YLF/Glass LASERS



The GxJ-TWIN series comprises a family of lasers which based on two mutually coherent and independently tunable output ports; basically consisting from a Nd:YLF oscillator, pre-amplifier 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 2 to 20 J per pulse (fundamental harmonic). Design features include a highly stable E-O or passively Q-switched ring or linear cavity oscillator, 2-pass amplification using high energy Brillouin phase conjugation (SBS) and frequency conversion to the second or third harmonics using most efficient NLO crystals. In addition to constituting highly versatile laboratory tools all GxJ-TWIN lasers are rigorously designed to meet the high standards required for scientific or technical application purposes, where smooth beam shape and long coherence length is of key importance.

### Applications

- ✦ Holography
- ✦ Interferometry
- ✦ Plasma studies
- ✦ Laser spectroscopy
- ✦ Apply for Your application..

### System Features

- ✦ Design based on "SBS Beam Cleanup" and "SBS phase-conjugation" techniques;
- ✦ Single source, mutually-coherent and independently amplified channels;
- ✦ 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;
- ✦ Unique very compact and cost-effective design;
- ✦ Lasers are CE marked according to IEC 60825-1:2001/EN 60825-1:2001;
- ✦ Laser energy meters included in standard package.

## Technical Specifications

Base Model	G8J-TWIN		G20J-TWIN	
Output Wavelength:	1053 nm	526.5 nm	1053 nm	526.5 nm
Output Energy <sup>(0)</sup> :	2 x 4 J	2 x 2 J	2 x 10 J	2 x 5 J
Pulse Duration:	~ 34 ns	~ 32 ns	~ 30 ns	~ 28 ns
Beam Diameter (1/e <sup>2</sup> ):	< 9 mm		< 16 mm	
Beam Divergence:	Near Diffraction Limit			
Coherence Length <sup>(1)</sup> :	> 10 m			
Pulse Energy Stability <sup>(2)</sup> :	5% at 526.5 nm			
Beam Profile:	Near Gaussian in near field and Gaussian in far field			
Pulse Repetition Rate:				
Pilot Mode:	0.5...2 Hz			
High Energy Mode:	1 pulse per 2 min		1 pulse per 3 min	
Polarization:	Horizontal, > 98% @ 1053 nm			
Optical Pulse Jitter <sup>(3)</sup> :	< 10 μs for Passive Q-Switch and ~ 0.5 ns for E-O Q-Switch			
Triggering:	External/Internal			
Remote Control:	Wireless			
	DIMENSIONS			
Laser Head: (W x H x L)	1105 x 610 x 225 mm		1105 x 780 x 225 mm	
Power & Cooling Cabinet: (W x H x L)	550 x 975x 600 mm		(TWIN) 550 x 860 x 600 mm	
Umbilical length:	~ 2.5 m			
	ENVIRONMENTAL REQUIREMENTS			
Cooling requirements: (Water flow for 20 °C water temperature)	< 10 litres/minute			
Room Temperature:	18 - 25 °C			
Relative Humidity (non-condensing):	< 70 %			
Mains Voltage:	210...240 VAC, single phase 50/60 Hz			
Power Consumption:	< 2.5 kW		< 3.5 kW	

<sup>(0)</sup> Other energy levels are available

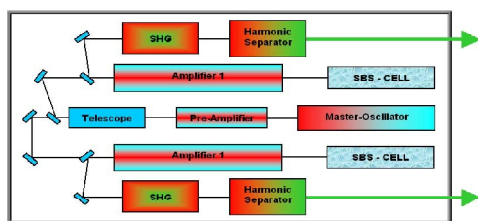
Geola Digital reserves the right to change specification without notice

<sup>(1)</sup> Coherence length at 526.5 nm.

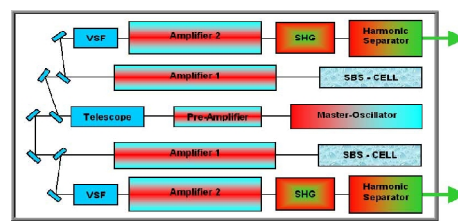
<sup>(2)</sup> Std.Dev. at High Energy Mode.

<sup>(3)</sup> Std.Dev. with respect to External sync pulse signal

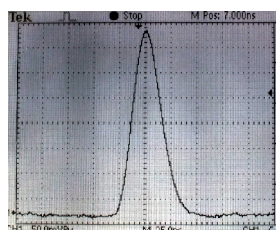
## Optical Schemes and Characteristics



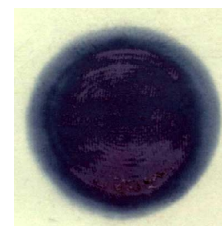
Optical Scheme for model G8J-TWIN



Optical Scheme for model G20J-TWIN



Typical temporal pulse shape of G20J-TWIN (526.5 nm)



Typical near field distribution High Energy mode - G20J-TWIN, E = 1.5J - 526.5 nm

## Manufacturer

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