

High Energy Nanosecond Nd:Glass Laser

The GxJ series DATASHEET, March 2023



High Energy Nanosecond E-O Q-SWITCHED Nd:Glass LASER

The GxJ series pulsed Nd:Glass lasers produce near-diffraction limited **Single Longitudinal Mode (SLM)** super-Gaussian radiation in the nanosecond regime having coherent output energy from **2 to 16 J** per pulse. Laser design incorporates either Passive or Self-seeded E-O Q-Switched Single Longitudinal Mode (SLM) master oscillator with sophisticated amplification via **SBS Phase Conjugation** and **Beam Cleaning techniques**. Laser design allows creation of diffraction-limited beams by compensation of the wavefront aberrations and rejecting diffraction distortions introduced by the limited aperture and thermally stressed amplifier rod. The standard conversion module to green (~527 nm)

and ultraviolet (351 nm, 263 nm) is also available.

Typical Laser Specifications^{*)}

Model	G2J	G5J
Wavelength ¹⁾	1053 / 526.5 / 351 / 263 nm	
Pulse energy (max)	up to 4 J	up to 15 J
Typical pulse duration ²⁾	~25 ns	
Pulse to pulse energy stability ³⁾	≤5 % RMS	
Modes of operation	Low energy Pilot & High Energy single shot	
Pulse repetition period ⁴⁾	2 min	3 min
Beam profile	Super-Gaussian	
Beam divergence ⁵⁾	Diffraction limited for the beam size	
Polarization	Linear, horizontal	
Contrast ratio	≥10 ⁵ : 1	
Spectral linewidth	SLM	
Coherence length	>10 m	
Beam pointing stability ⁶⁾	≤ 100 μrad	
Typical beam diameter ⁷⁾	~10 mm	~19 mm
Optical jitter ⁸⁾	~2 ns or 10 μs RMS	
Dimensions (preliminary)		
Laser head (W×L×H)	320 × 1100×175 mm	410 × 1085×186 mm
Controller unit (W×L×H)	470 × 445 × 165 mm	552 × 600×1282 mm
Operating requirements		
Laser cooling	Water	
Ambient temperature	20 – 28 °C	
Relative humidity (non-condensing)	15 – 80 %	
Mains voltage ⁹⁾	230 VAC, single phase, 50-60 Hz	
Power consumption	< 300 W	< 450 W

- *) Typical specifications are illustrative; they are indications of typical performance and will vary with each unit we manufacture. Due to continuous improvements all specifications are subject to change. Specifications are subject to be discussed with client.
- 1) Other wavelengths may be also available on request. Unless stated otherwise all specifications are measured at 1053nm.
 - 2) FWHM level at 1053 nm. Other pulse duration is available by request.
 - 3) Under stable environmental conditions averaged from 10 shots.
 - 4) High Energy mode is Factory-set pulse repetition rate is fixed at max repetition rate. Low energy Pilot mode – 1Hz.
 - 5) Full angle measured at the 1/e² level.
 - 6) RMS value measured under stable environmental conditions averaged from 10 shots.
 - 7) Beam diameter is measured at 20 cm distance from laser output at the 1/e² level.
 - 8) In respect to external Q-switch triggering rising edge pulse.
 - 9) Laser can be powered from appropriate different mains on request. Inquire for details.

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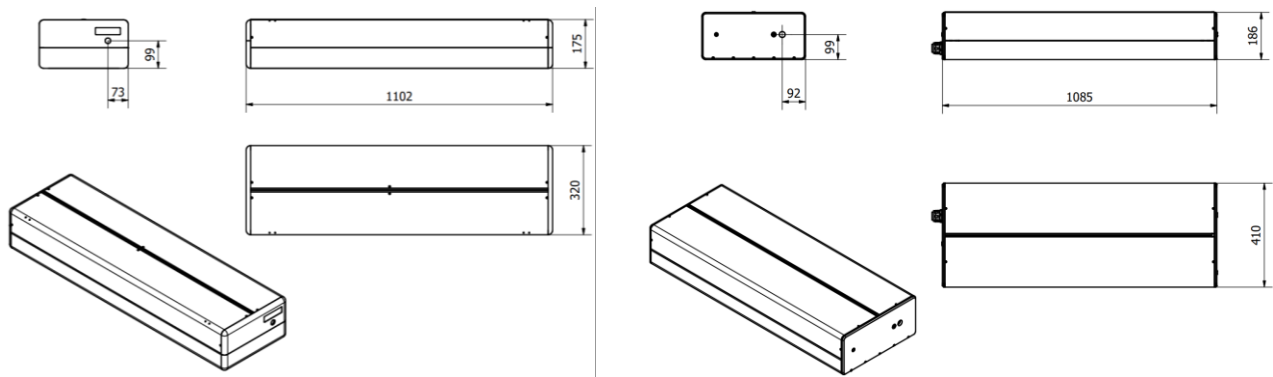


Application

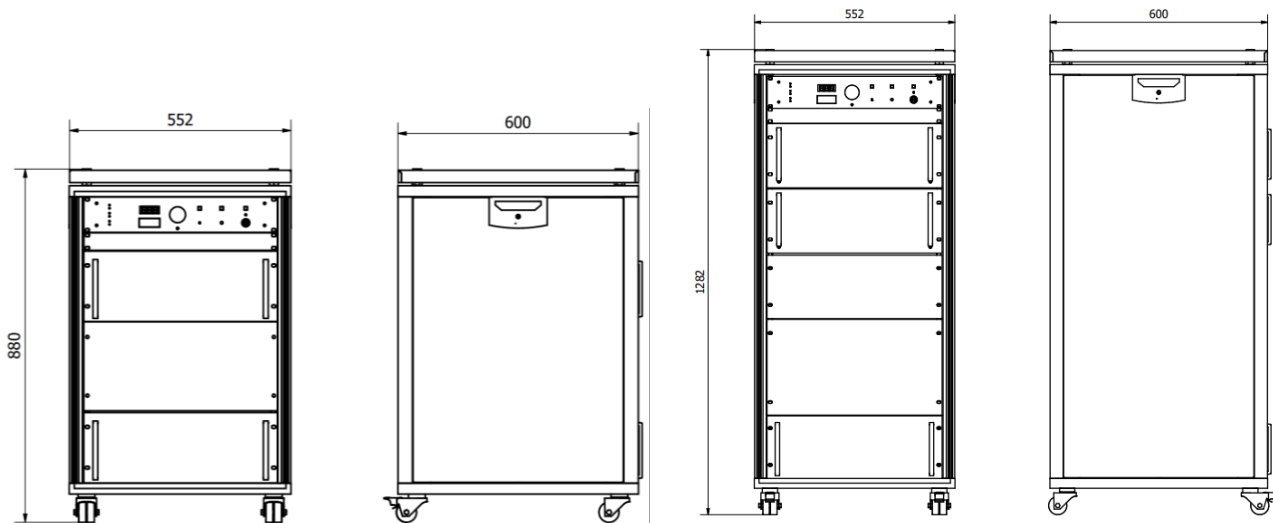
- Display Holography
- Holography interferometry
- Plasma research
- Spectroscopy

Dimensions

The G5J Laser head



The G5J Laser controller



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