SGR series lasers

High energy Nd:YAG Q-switched lasers

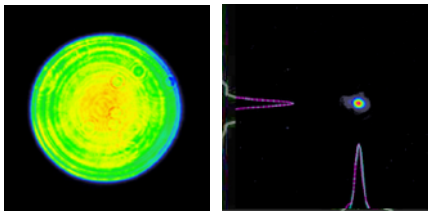
SGR series lasers are high energy EO-Q switched nanosecond pulsed laser systems. Fundamental wavelength covers 400mJ-6J output and the SHG, THG, FHG harmonics options are available. SGR Series features both high energy and excellent beam quality, so it is widely used in Laser Shock Peening, LIDAR, Plasmas generated by laser pulses, PLD, Pumping Ti:Sapphire lasers, Pumping OPO, etc.

The Beamtech close-coupled diffuse pump chamber delivers uniform pumping to the laser rod for optimum lasing excitation efficiency and allows for higher stored energy by eliminating parasitic oscillations within the pump chamber. The pump chamber uses chemically inert materials to withstand high pumping energy and absorb unwanted UV and IR radiation emitted by the flash lamps. One or more amplifiers can be added to the oscillator for higher energy output.

Because the laser intensity is large, the SGR series particularly emphasizes on safety and electromagnetic compatibility design, equipped with protection light lock, power supply interlock, flow switch, emergency stop switch, open box protection etc. Power control cabinets equipped with a full range of external trigger connection interface and communication interface, convenient for users to carry out synchronous trigger control and remote control of the system

Features

- Fundamental wavelength covers 400mJ -6 J output
- Multiple harmonics optional
- Repetition rate up to 50 Hz
- Injection seeded for narrow line width
- Higher energy (>6J) optional
- Superior beam quality
- High reliability and stability
- RS232 and TTL interface for remote or external control
- Quick lamp change without realignment



Near field @1064nm Far field @1064nm

Applications

- LIDAR
- CARS
- Laser Shock Peening(LSP)
- Pumping OPO
- Pumping Dye Lasers
- Pumping Ti:Sapphire femtosecond Laser
- Pulsed Laser Deposition (PLD)
- Laser Cleaning and Ablation
- Tokamak
- Laser-produced Plasma
- Laser Trigger Switch (LTS)
- Photo Chemistry
- Laser Illuminating
- Nonlinear Optics
- Laser Ion Source (LIS)
- Laser Driving Flyer

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Specifications

Models[1]		SGR-10	SGR-20				SGR-30		SGR-40		SGR-50		SGR-60	
Rep Rate		10Hz	10Hz	20Hz	30Hz	50Hz	5Hz	10Hz	5Hz	10Hz	5Hz	10Hz	5Hz	10Hz
Energy (mJ)	1064nm	1000	2000	2000	2000	1500	3000	3000	4000	4000	5000	5000	6000	6000
	532nm	500	1000	1000	1000	750	1500	1500	2000	2000	2500	2500	3000	3000
	355nm	250	500	400	400	300	750	750	1000	1000	1250	1250	1500	1500
	266nm	90	180	100	90	50	250	200	350	300	400	350	500	400
Energy Stability[2](RMS)	1064nm	<1%												
	532nm	<2%												
	355nm	<4%												
	266nm	<4%												
Power Drift[3]	1064nm	<3%												
	532nm	<5%												
	355nm	<6%												
	266nm	<8%												
Pulse Width[4]		1064nm: 8-10ns; Other wavelengths: 7-10ns												
Spatial Profile[5]	Near Field	>70%												
	Far Field	>90%												
Beam Diameter[6](mm)		10	12	12	12	12	15	15	15	15	17	17	20	20
Divergence[7]		≤0.5mrad												
Pointing Stability		<50μrad												
Jitter[8](RMS)		<1ns												
Linewidth	Standard	<1cm^{-1}												
	Injection Seeded	<0.003cm^{-1}												

Models[1]		SGR-S400	SGR-S500	SGR-S600	SGR-S800
Rep Rate (Hz)		10	20,30,50	20,30	10
Energy (mJ)	1064nm	400	500	600	800
	532nm	200	250	300	400
	355nm	100	100	150	200
	266nm	40	40	50	80
Divergence[7]		≤0.7mrad	≤0.5mrad	≤0.5mrad	≤0.5mrad
Beam Diameter[6]		8mm			
Other Specifications		Please refer to the table above			

1. All specifications, unless otherwise stated, are for Q-Switched 1064nm operation and are subject to change without notice.
2. Dev. to average (shot to shot for 99% of pulses).
3. Average for 8 hours with room temperature variation less than ±3°C.
4. Full width half max (FWHM).
5. Near field profiles measuared at 1m from laser output. Far field profiles measured at the focal plane, least squares fit to Gaussian profile.
6. Measured at the laser output.
7. Full angel at 1/e^2 of the peak.
8. With respect to external trigger.

Mechanical and Utilities

Models		SGR-S	SGR-10	SGR-20/30/40	SGR-60
Size(L×W×H) (mm)	Laser Head	1162×333×290.5	1162×410×290.5	1162×410×290.5	1265×565×243
	Power Supply	476×443×200	914×520×737	914×520×737	914×520×737
	Cooling System	N/A	N/A	240×170×70	836×688×1125
Electrical Service		220V-50Hz-16A	220V-50Hz-16A	220V-50Hz-16A	380V-50Hz-25A
RoomTemperature		5~30°C			
Length	Control Line	3m			
	Power Line	1.8m			
	Umbilical Line	3m			

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