

Compact Diode-Pumped Q-Switched Laser Systems

Sierra lasers are a family of diode-pumped, solid-state, Q-switched lasers that are offered in IR, green and UV wavelengths. The air cooled Sierra lasers are compact and consume low power enabling them to be ideal for a variety of applications ranging from material processing and instrumentation to imaging and scientific use.

Exact control over parameters such as repetition rate, output power, pulse energy, and peak power are essential for laser-based applications. Sierra lasers provide users this control through a user-friendly GUI.

Sierra lasers also have the shortest pulse width of any commercial, Q-switched lasers. This enables very high peak power which is essential for many material processing applications.

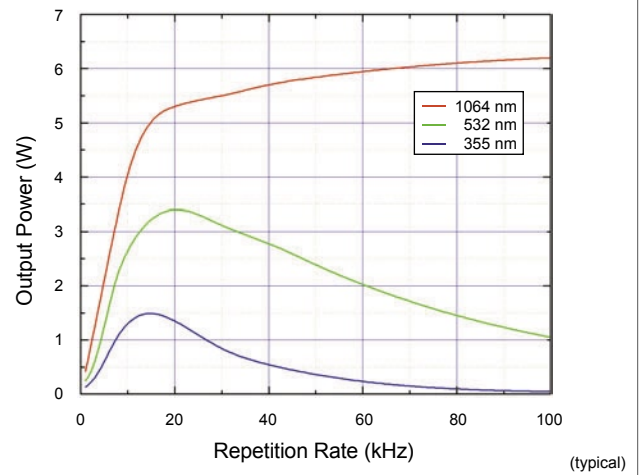
The Sierra laser delivers consistent and reliable results and is simple to integrate into OEM applications. With efficient conversion into the visible and ultraviolet, Sierra lasers provide reliable, high-performance, alignment-free solutions.



FEATURES

- 1 to 100 kHz repetition rates
- Rugged, compact design
- Long diode lifetime
- Simple field replacement of pump diodes
- System control through RS-232 interface; Lab View drivers and GUI program included
- Operates on either 120 V or 220V

Average Power vs. Repetition Rate



IMPROVED PERFORMANCE

Sierra System Specifications³

| | Sierra 1064 | Sierra 532 | Sierra 355 |
|--|-------------------|-------------------|-------------------|
| Wavelength (nm) | 1064 | 532 | 355 |
| Energy per pulse ¹ | 0.35 mJ | 0.2 mJ | 0.1 mJ |
| Pulsewidth (FWHM) ¹ | 4 ± 1 ns | 4 ± 1 ns | 4 ± 1 ns |
| Repetition Rate (kHz) | 1 to 100 | 1 to 100 | 1 to 50 |
| Peak Power (kW) | 87 | 50 | 25 |
| Average Power ¹ | 3.5 W | 2 W | 1 W |
| Beam Diameter, @ 1/e ² , (mm) | 0.3 | 0.3 | 0.3 |
| Beam Profile | TEM ₀₀ | TEM ₀₀ | TEM ₀₀ |
| Spatial Mode (M ²) | < 1.3 | < 1.3 | < 1.3 |
| Polarization (>100:1) | Horizontal | Vertical | Vertical |
| Beam Pointing Stability (µrad) | < 75 | < 75 | < 75 |
| Pulse-to-Pulse Stability ² | < 2.5% | < 5% | < 5% |
| Beam Divergence (mrad) | < 3.5 | < 1.5 | < 1.5 |

Sierra Utility and Environmental Specifications³

| | |
|--------------------------------------|--|
| Operating Voltage | 120 VAC / 220 VAC |
| Power Consumption | 720 W / 660 W |
| Line Frequency | 50 – 60 Hz |
| Weight Laser Head Power Supply | IR Only: 4.08 kg (9 lbs); 532/355: 9.52 kg (21 lbs) 15.88 kg (35 lbs) |
| Temperature Operating | 18 – 35 °C |
| Humidity Operating | 8 – 35 % |
| Umbilical Cord Length | 10 m |

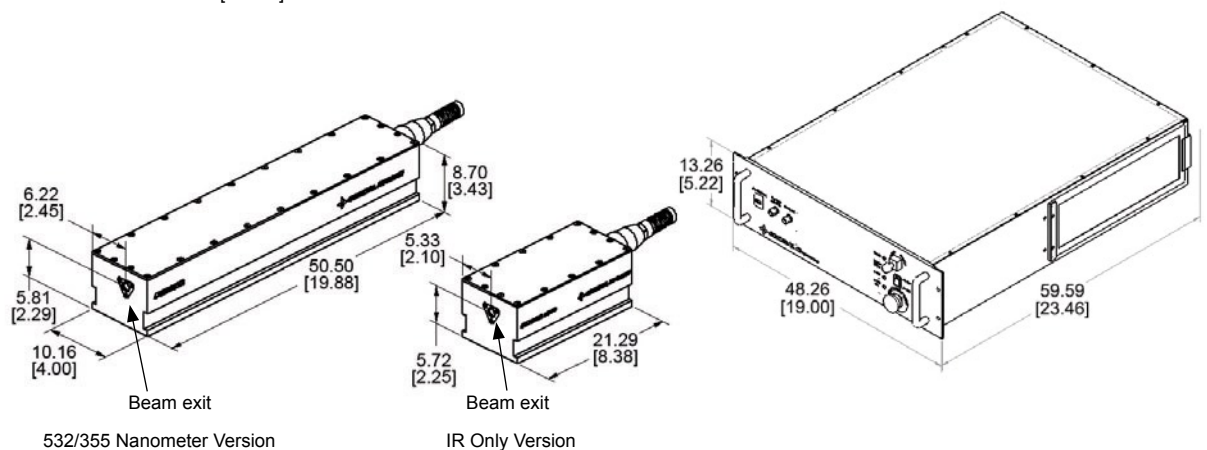
¹ Measured at 10 kHz

² rms up to 10 kHz

³ General Atomics follows a policy of continuous product improvement. Specifications are subject to change without notice.

Mechanical Specifications

All dimensions in cm and [inches]



For more information please visit
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General Atomics' scientific and industrial lasers comply with the US standards established by the Center for Devices and Radiological Health (CDRH) for a class IV laser device. Complies with CFR 1040.10 and 1040.11 as applicable.



VISIBLE AND INVISIBLE LASER RADIATION
 AVOID EYE OR SKIN EXPOSURE
 TO DIRECT OR SCATTERED RADIATION
 CLASS 4 LASER PRODUCT
 IEC 60825-1:1993+A1:1997+A2:2001

780 – 1000nm, MAXIMUM POWER 50W (CW)
 280nm, 355nm, 532nm AND/OR 1064nm
 MAXIMUM AVERAGE POWER < 4W
 PULSE DURATION 1 to 15 NANoseconds
 REPETITION RATE 1 – 50 KHz