High Power CW 532 nm DPSS Lasers
Sprout-Solo Series

Features
- Single longitudinal mode (single frequency) output
- Compact laser head with Seal™ enclosure for long lifetime
- LockT™ optics mounting for permanent laser alignment
- Long lifetime pump diode pack fiber-coupled to laser head
- Ultra low noise option <0.02% rms with Noise Elimination Technology
- Excellent long-term power stability <0.5% rms over 24 hours
- Fast warm-up time < 15 minutes for mode-hop free operation
- Closed-loop, purpose-built TEC chiller integrated in power supply
- 5, 6, 8, and 10 W versions

Applications
- Holography
- Interferometry
- Raman spectroscopy
- Atom trapping, optical lattices
- Pumping Ti:Sapphire & dye lasers

Patent Pending

Sprout™ is a compact, diode-pumped solid-state (DPSS) laser providing high-power, continuous-wave (CW) power at 532nm in a near- perfect TEM_{00} mode with extremely low optical noise and excellent long-term stability. Sprout™ is truly a next-generation laser designed and manufactured using many years of experience to provide a sealed, turn-key source of collimated green light with high spectral purity.

A number of key technologies enable Sprout™ to guarantee this performance. Seal™ technology keeps all dirt, dust and moisture out of the laser head to provide years of uninterrupted usage without need for cleaning or maintenance. LockT™ technology locks all laser head optics permanently in perfect alignment. Finally, for those applications requiring near-zero optical noise, Noise Elimination Technology (NET™) is the solution.

The laser head is a monolithic 3-dimensional design for ruggedness and compactness to minimize the space consumed in your lab or instrument. The fiber-coupled pump diode package, contained in the power supply, has a typical mean time to failure (MTTF) of more than 50,000 hours to minimize cost-of-ownership. The power supply also contains an integrated thermo-electrically-cooled (TEC) chiller. The chiller is designed specifically for this application to provide increased reliability and reduced overall system footprint. Additional features include automatic laser power stabilization and USB, RS-232 and Ethernet interfaces for external monitoring, control and remote service.

Sprout™ is a state-of-the-art laser designed for today's applications. It combines superb performance and tremendous value for today's market.

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Laser Output Characteristics[1,11]	Solo-5W	Solo-6W	Solo-8W	Solo-10W
Average Output Power	> 5 W	> 6 W	> 8 W	> 10 W
Wavelength	532 nm			
Linewidth[2]	< 2 MHz			
Spectral Purity[3]	> 99.9 %			
Spatial Mode	TEMoo			
Beam Quality (M^2)	1.0 - 1.1			
Beam Ellipticity	< 1.0 : 1.1			
Beam Diameter[4]	2.3 mm ± 10%			
Beam Divergence[5]	< 0.5 mrad			
Pointing Stability[6]	< 2 µrad/°C			
Power Stability[7]	< ± 0.25 % rms			
Warm-up Time (mode-hop free)[8]	< 15 minutes			
Noise[9]	Standard version: < 0.1 % rms Low noise (NET) version: < 0.02 % rms			
Polarization	> 100:1 vertical Horizontal polarization option available			
PZT Input Voltage[10]	0 to +100 V/channel			
PZT Tuning Range[10]	> 8.2 GHz			
PZT Bandwidth[10]	DC to 20 kHz			
Power Requirements				
Operating Voltage, Frequency	100 to 240 VAC, 50 Hz / 60 Hz			
Power Consumption	700 W max, 400 W typical			
Cooling Requirements				
Laser Head	Closed-loop chiller in Power Supply - Cooler			
Power Supply (in Power Supply - Cooler)	Air-cooled			
Environmental Specifications				
Operating Temperature	64 to 90°F (18 to 32°C)			
Relative Humidity	8 to 85%, non-condensing			
Laser Head - Physical				
Dimensions (Height x Width x Length)	2.7 x 5.3 x 12.6 inches (69 x 135 x 320 mm)			
Weight	approx. 16 lbs (7.3 kg)			
Cable Length	10 ft (3 m)			
Power Supply-Cooler - Physical				
Dimensions (Height x Width x Depth)	13.6 x 15.7 x 18.9 inches (345 x 398 x 480 mm)			
Weight	approx. 70 lbs (32 kg)			

Notes:
1. All performance specifications are guaranteed at maximum specified power
2. Measured over 50 msec with a thermally-stabilized reference etalon
3. Output power at 532 nm compared to output power at 1064 nm
4. $1/e^2$, measured at the output port of the laser head
5. Full angle ($1/e^2$), measured at the output port of the laser head
6. Measured at far-field x and y positions after a 30 minute warm-up and over a 20°C to 30°C temperature range
7. Measured over a 24 hour period after a 15 minute warm-up
8. Measured at an environmental temperature of 23°C ± 3°C
9. Measured from 10 Hz to 10 MHz
10. PZT optional
11. Lighthouse Photonics is continually improving the performance of its products. Specifications subject to change without notice.

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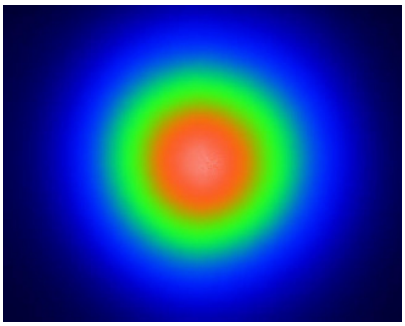
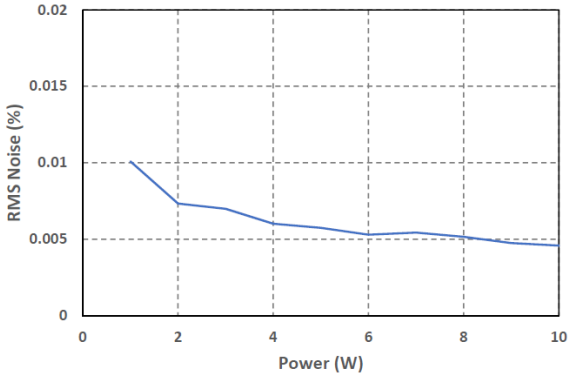
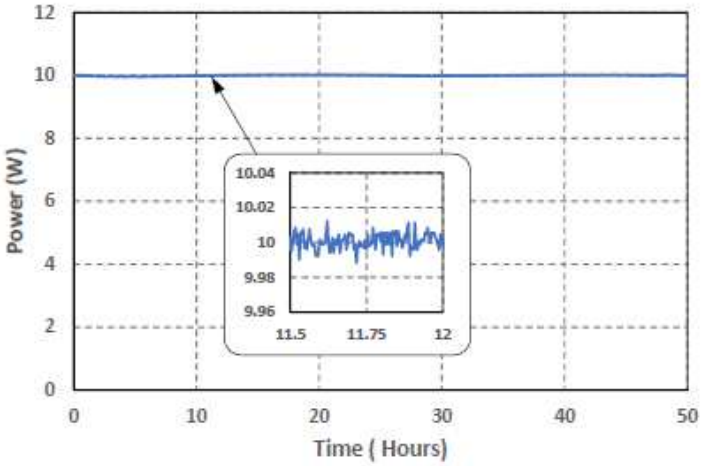


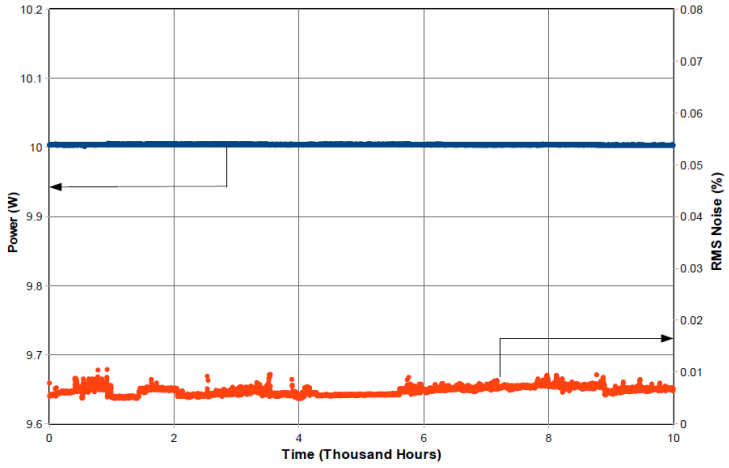
Typical Far-field beam profile



Optical noise <0.02% rms
for NET™ version



Power stability <0.2% rms
over >24 hours



10,000 hour test data for
output power & rms noise

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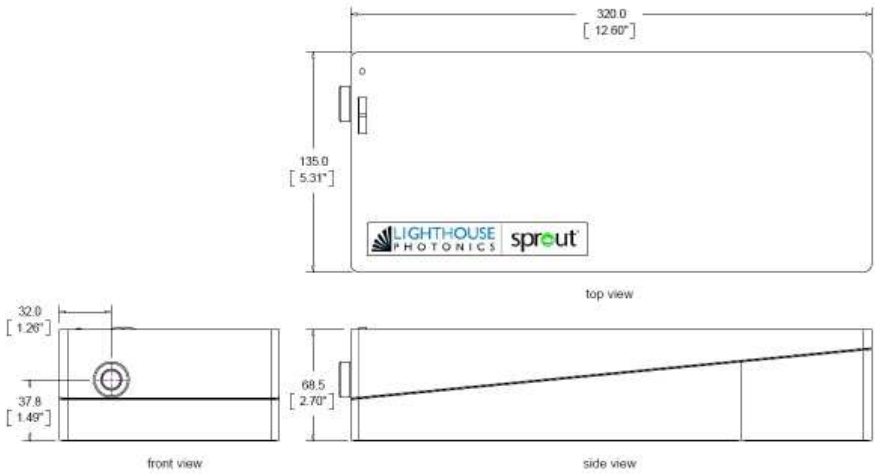
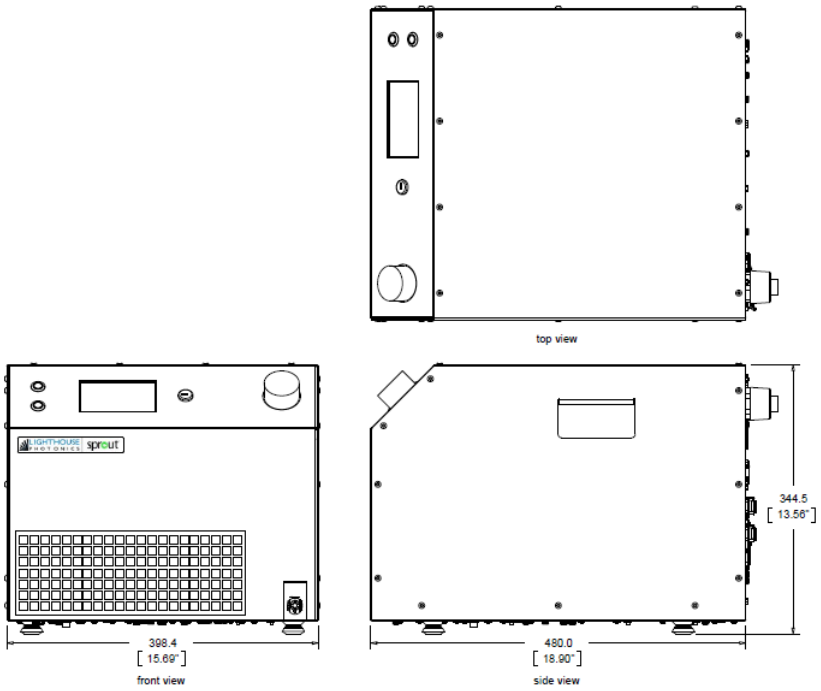
Laser Head Dimensions



Power Supply - Cooler Dimensions



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