

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
- 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 TEM₀₀ 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.





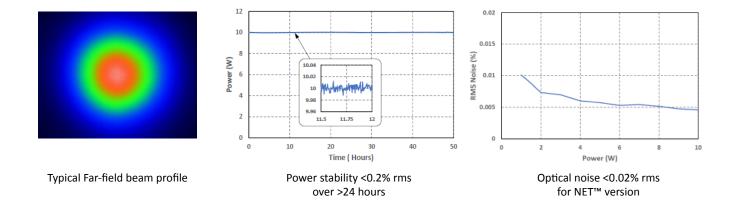
Spectral Purity³ > 99.9 % Spatial Mode TEMoo Beam Quality (M²) 1.0 - 1.1 Beam Ellipticity < 1.0 : 1.1 Beam Diameter⁴ 2.3 mm ± 10% Beam Divergence⁵ < 0.5 mrad Pointing Stability⁶ < 2 μrad/⁰C Power Stability⁶ < ± 0.25 % rms Noise³ Standard version: < 0.1 % rms Low noise (NET) version: < 0.02 % rms Polarization > 100:1 vertical Horizontal polarization option available	Laser Output Characteristics ^{1,10}	Solo-5W	Solo-6W	Solo-8W	Solo-10W	
Linewidth² < 2 MHz Spectral Purity³ > 99.9 % Spatial Mode TEMoo Beam Quality (M²) 1.0 - 1.1 Beam Ellipticity < 1.0 : 1.1 Beam Diameter⁴ 2.3 mm ± 10% Beam Diameter⁴ 2.3 mm ± 10% Beam Divergence⁵ < 0.5 mrad Pointing Stability⁴ < ± 0.25 % rms Pointing Stability⁴ < ± 0.25 % rms Noise³ Standard version: < 0.1 % rms Low noise (NET) version: < 0.02 % rms Polarization \$100:1 vertical Horizontal polarization option available PZT Input Voltage⁰ 0 to +100 V/channel PZT Tuning Range⁰ > 8.2 GHz PZT Bandwidth⁰ DC to 20 kHz Power Requirements Operating Voltage, Frequency 100 to 240 VAC, 50 Hz / 60 Hz Power Consumption 600 W max, 350 W typical Cooling Requirements Cooling Requirements Operating Temperature 64 to 90°F (18 to 32°C) Environmental Specifications Operating Temperature 64 to 90°F (18 to 32°C) Environmental Specifications Dimensions (Height x Width x Length) 2.7 x 5.3 x 12.6 inches (69 x 135 x 320 x 480 mm) Power Supply-Cooler - Physical Dimensions (Height x Width x Depth) 13.6 x 12.7 x 18.9 inches (345 x 323 x 480 mm)	Average Output Power	> 5 W	> 6 W	> 8 W	> 10 W	
Spectral Purity³ > 99.9 % Spatial Mode TEMoo Beam Quality (M²) 1.0 - 1.1 Beam Ellipticity < 1.0 : 1.1 Beam Diameter⁴ 2.3 mm ± 10% Beam Divergence⁵ < 0.5 mrad Pointing Stability³ < 2 µrad/°C Power Stability³ < ± 0.25 % rms Noise⁴ Standard version: < 0.1 % rms Low noise (NET) version: < 0.02 % rms Polarization 1 × 100.1 vertical Horizontal polarization option available PZT Input Voltage⁰ 0 to +100 V/channel PZT Tuning Range⁰ > 8.2 GHz PZT Bandwidth⁰ DC to 20 kHz Power Requirements Operating Voltage, Frequency 100 to 240 VAC, 50 Hz / 60 Hz Power Consumption 600 W max, 350 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 12.7 x 18.9 inches (345 x 323 x 480 mm)	Wavelength	532 nm				
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Beam Quality (M²) Beam Ellipticity C1.0:1.1 Beam Ellipticity C2.3 mm ± 10% Beam Diameter⁴ 2.3 mm ± 10% Beam Divergence⁵ C0.5 mrad Pointing Stability⁶ C2 µrad/⁶C Power Stability² Standard version: < 0.1 % rms Low noise (NET) version: < 0.02 % rms Standard version: < 0.02 % rms Polarization Polarization Polarization Horizontal polarization option available PZT Input Voltage⁶ PZT Input Voltage⁶ PZT Tuning Range⁶ PZT Bandwidth⁶ DC to 20 kHz Power Requirements Operating Voltage, Frequency Power Consumption Cooling Requirements Laser Head Closed-loop chiller in Power Supply - Cooler Power Supply (in Power Supply - Cooler) 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) Power Supply-Cooler - Physical Dimensions (Height x Width x Depth) Date in Power Supply-Cooler (345 x 323 x 480 mm) Power Supply-Cooler - Physical Dimensions (Height x Width x Depth) 13.6 x 12.7 x 18.9 inches (345 x 323 x 480 mm)	Spectral Purity ³	> 99.9 %				
Beam Ellipticity <a <="" href="text-align: right;" td=""><td>Spatial Mode</td><td colspan="4">TEMoo</td>	Spatial Mode	TEMoo				
Beam Diameter de 2.3 mm ± 10% Beam Divergence de < 0.5 mrad Pointing Stability de < 2 µrad/PC Power Stability de	Beam Quality (M²)	1.0 - 1.1				
Beam Divergence ⁵ < 0.5 mrad Pointing Stability ⁶	Beam Ellipticity	< 1.0 : 1.1				
Pointing Stability ⁶ Power Stability ⁷ Roise ⁸ Standard version: < 0.1 % rms Low noise (NET) version: < 0.02 % rms Polarization Polarization Polarization Power Stability ⁸ Polarization Power Stability ⁸ Polarization Power Requirements Power Requirements Operating Voltage, Frequency Power Consumption Cooling Requirements Laser Head Closed-loop chiller in Power Supply - Cooler Power Supply (in Power Supply - Cooler) Environmental Specifications Operating Temperature Relative Humidity Rest to 85%, non-condensing Laser Head - Physical Dimensions (Height x Width x Length) Power Supply-Cooler - Physical Dimensions (Height x Width x Depth) 13.6 x 12.7 x 18.9 inches (345 x 323 x 480 mm)	Beam Diameter⁴	2.3 mm ± 10%				
Power Stability? Standard version: < 0.1 % rms	Beam Divergence ⁵	< 0.5 mrad				
Noise ⁸ Standard version: < 0.1 % rms Low noise (NET) version: < 0.02 % rms > 100:1 vertical Horizontal polarization option available PZT Input Voltage ⁹ O to +100 V/channel PZT Tuning Range ⁹ > 8.2 GHz PZT Bandwidth ⁹ DC to 20 kHz Power Requirements Operating Voltage, Frequency 100 to 240 VAC, 50 Hz / 60 Hz Power Consumption 600 W max, 350 W typical Cooling Requirements Laser Head Closed-loop chiller in Power Supply - Cooler Power Supply (in Power Supply - Cooler) 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 Power Supply-Cooler - Physical Dimensions (Height x Width x Depth) 13.6 x 12.7 x 18.9 inches (345 x 323 x 480 mm)	Pointing Stability ⁶	< 2 μrad/°C				
Noise® Low noise (NET) version: < 0.02 % rms > 100:1 vertical Horizontal polarization option available PZT Input Voltage® O to +100 V/channel PZT Tuning Range® > 8.2 GHz PZT Bandwidth® DC to 20 kHz Power Requirements Operating Voltage, Frequency 100 to 240 VAC, 50 Hz / 60 Hz Power Consumption Cooling Requirements Laser Head Closed-loop chiller in Power Supply - Cooler Power Supply (in Power Supply - Cooler) 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) Veight 2.7 x 5.3 x 12.6 inches (69 x 135 x 320 mm) Weight Cable Length 10 ft (3 m) Power Supply-Cooler - Physical Dimensions (Height x Width x Depth) 13.6 x 12.7 x 18.9 inches (345 x 323 x 480 mm)	Power Stability ⁷	< ± 0.25 % rms				
Polarization Horizontal polarization option available PZT Input Voltage9 0 to +100 V/channel PZT Tuning Range9 > 8.2 GHz PZT Bandwidth9 DC to 20 kHz Power Requirements Operating Voltage, Frequency Power Consumption Cooling Requirements Laser Head Closed-loop chiller in Power Supply - Cooler Power Supply (in Power Supply - Cooler) 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 Cable Length 10 ft (3 m) Power Supply-Cooler - Physical Dimensions (Height x Width x Depth) 13.6 x 12.7 x 18.9 inches (345 x 323 x 480 mm)	Noise ⁸					
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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) Weight 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 12.7 x 18.9 inches (345 x 323 x 480 mm)	Power Consumption	600 W max, 350 W typical				
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Dimensions (Height x Width x Depth) Coperating Temperature 64 to 90°F (18 to 32°C) 8 to 85%, non-condensing 8 to 85%, non-condensing 2.7 x 5.3 x 12.6 inches (69 x 135 x 320 mm) approx. 16 lbs (7.3 kg) 10 ft (3 m) Power Supply-Cooler - Physical Dimensions (Height x Width x Depth) 13.6 x 12.7 x 18.9 inches (345 x 323 x 480 mm)	Laser Head	Closed-loop chiller in Power Supply - Cooler				
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 12.7 x 18.9 inches (345 x 323 x 480 mm)	Power Supply (in Power Supply - Cooler)	Air-cooled				
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 12.7 x 18.9 inches (345 x 323 x 480 mm)	Environmental Specifications					
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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 12.7 x 18.9 inches (345 x 323 x 480 mm)	Laser Head - Physical					
Cable Length 10 ft (3 m) Power Supply-Cooler - Physical Dimensions (Height x Width x Depth) 13.6 x 12.7 x 18.9 inches (345 x 323 x 480 mm)	Dimensions (Height x Width x Length)	2.7 x 5.3 x 12.6 inches (69 x 135 x 320 mm)				
Power Supply-Cooler - Physical Dimensions (Height x Width x Depth) 13.6 x 12.7 x 18.9 inches (345 x 323 x 480 mm)	Weight	approx. 16 lbs (7.3 kg)				
Dimensions (Height x Width x Depth) 13.6 x 12.7 x 18.9 inches (345 x 323 x 480 mm)	Cable Length	10 ft (3 m)				
	Power Supply-Cooler - Physical					
Weight approx. 55 lbs (25 kg)	Dimensions (Height x Width x Depth)	13.6	13.6 x 12.7 x 18.9 inches (345 x 323 x 480 mm)			
	Weight	approx. 55 lbs (25 kg)				

Notes

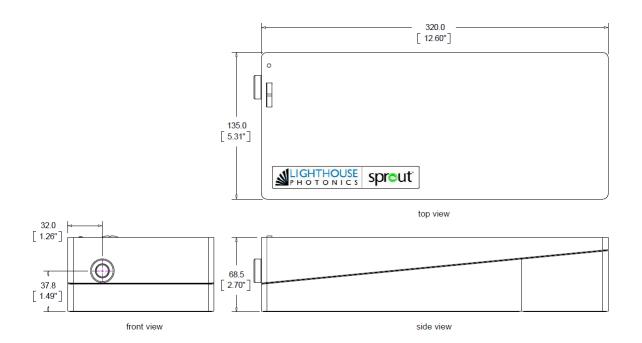
- 1. All performance specifications are guaranteed at maximum specified power
- 2. Measured over 50 msec with a thermally-stabilized reference etalon
- 3. Output power at 532 nm compared to output power at 1064 nm
- 4. $1/e^2$, measured at the output port of the laser head
- 5. Full angle $(1/e^2)$, 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 from 10 Hz to 10 MHz
- 9. PZT optional
- 10. Lighthouse Photonics is continually improving the performance of its products. Specifications subject to change without notice.







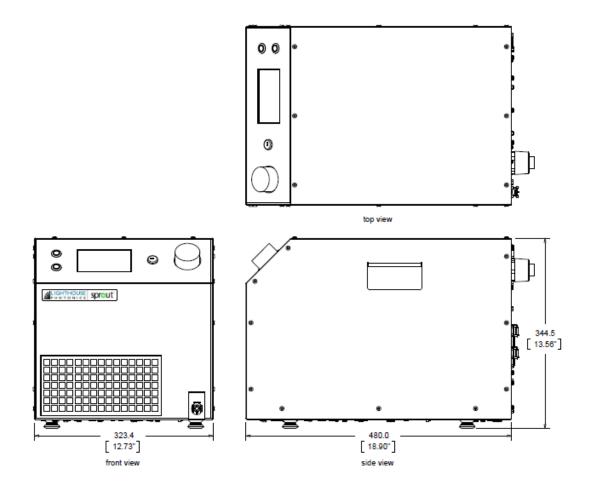
Laser Head Dimensions







Power Supply - Cooler Dimensions



For more information go to: www.lighthousephotonics.com

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