



## High Power CW 532 nm DPSS Lasers Sprout-D Series



### Features

- Compact laser head with Seal™ enclosure for long lifetime
- LockT™ optics mounting for permanent laser head alignment
- Long lifetime pump diode pack integrated inside laser head
- Low noise option <0.02% rms with Noise Elimination Technology
- Excellent long-term power stability <0.5% rms over 24 hours
- Bench-top, compact power supply with touch-screen control
- Disconnectable, 3 meter long control cable
- 5, 6, 8, 10, 12, 15, 18 and 20 W versions

### Applications

- Pumping Ti:Sapphire lasers:  
ultrafast & continuous-wave
- Pumping dye lasers
- Flow visualization, PIV
- Flow cytometry
- Spectroscopy

### Patented

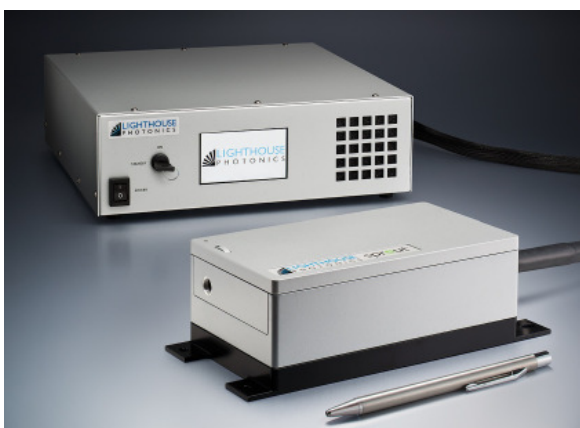
Sprout™ is a compact, diode-pumped solid-state (DPSS) laser providing high-power, continuous-wave (CW) power at 532nm in a near- perfect TEM<sub>00</sub> mode with extremely low optical noise and excellent long-term stability. Sprout™ is truly a next-generation laser designed and manufactured using many 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 pump diode package, integrated inside the laser head, has a typical mean time to failure (MTTF) of more than 50,000 hours to minimize cost-of-ownership. Locating the pump diode in the laser head rather than the power supply eliminates the fiber optic delivery cable.

A 3 meter long, flexible, disconnectable control cable connects the laser head to a compact power supply with touch-screen control. The power supply can sit next to the laser head or on an overhead shelf. Additional system features include automatic laser power control and USB, RS-232 and Ethernet interfaces for external monitoring, control and remote service.

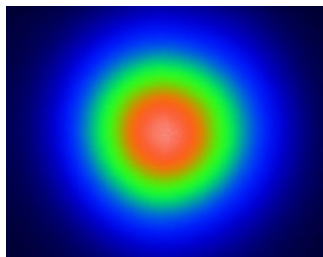
Sprout™ is a state-of-the-art laser designed for today's integrated solutions. It combines superb performance and tremendous value for today's market.



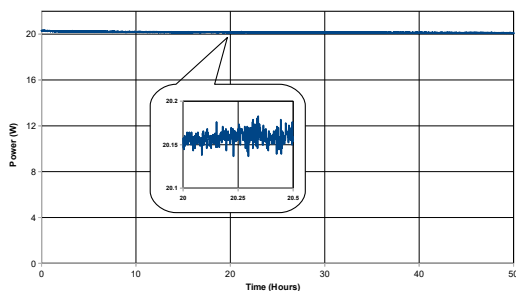
| Laser Output Characteristics <sup>1,9</sup> | D-5W  | D-6W  | D-8W  | D-10W  | D-12W  | D-15W  | D-18W  | D-20W  |
|---|---|-------|-------|--------|--------|--------|--------|--------|
| Average Output Power                        | > 5 W   | > 6 W | > 8 W | > 10 W | > 12 W | > 15 W | > 18 W | > 20 W |
| Wavelength                                  | 532 nm  |       |       |        |        |        |        |        |
| Spectral Purity <sup>2</sup>                | > 99.9 %  |       |       |        |        |        |        |        |
| Spatial Mode                                | TEM <sub>00</sub>   |       |       |        |        |        |        |        |
| Beam Quality (M <sup>2</sup> )              | 1.0 - 1.1   |       |       |        |        |        |        |        |
| Beam Ellipticity                            | < 1.0 : 1.1   |       |       |        |        |        |        |        |
| Beam Diameter <sup>3</sup>                  | 2.3 mm ± 10%  |       |       |        |        |        |        |        |
| Beam Divergence <sup>4</sup>                | < 0.5 mrad  |       |       |        |        |        |        |        |
| Pointing Stability <sup>5</sup>             | < 2 µrad/°C   |       |       |        |        |        |        |        |
| Power Stability <sup>6</sup>                | < ± 0.25 % rms  |       |       |        |        |        |        |        |
| Noise <sup>7</sup>                          | Standard version: < 0.1 % rms<br>Low noise (NET) version: < 0.02 % rms  |       |       |        |        |        |        |        |
| Polarization                                | > 100:1 vertical<br>Horizontal polarization option available  |       |       |        |        |        |        |        |
| Power Requirements                          |   |       |       |        |        |        |        |        |
| Operating Voltage                           | 100-240 VAC, 50 Hz / 60 Hz  |       |       |        |        |        |        |        |
| Power Consumption                           | 5W-12W versions: 300 W max, 200 W typical<br>15W-20W versions: 600 W max, 400 W typical   |       |       |        |        |        |        |        |
| Cooling Requirements                        |   |       |       |        |        |        |        |        |
| Laser Head <sup>8</sup>                     | 5W-12W versions: 200 W heat removal capacity, water temperature 23°C ± 1°C<br>15W-20W versions: 400 W heat removal capacity, water temperature 23°C ± 1°C |       |       |        |        |        |        |        |
| Power Supply                                | Air-cooled  |       |       |        |        |        |        |        |
| Environmental Specifications                |   |       |       |        |        |        |        |        |
| Operating Temperature                       | 64-90°F (18-32°C)   |       |       |        |        |        |        |        |
| Relative Humidity                           | 8-85%, non-condensing   |       |       |        |        |        |        |        |
| Laser Head - Physical                       |   |       |       |        |        |        |        |        |
| Dimensions (Height x Width x Length)        | 5W-12W versions: 2.7 x 5.3 x 9.4 inches (69 x 135 x 240 mm)<br>15W-20W versions: 2.7 x 5.3 x 16.8 inches (69 x 135 x 425 mm)                              |       |       |        |        |        |        |        |
| Weight                                      | 5W-12W versions: 9.2 lbs (4.2 kg)<br>15W-20W versions: 16.7 lbs (7.6 kg)  |       |       |        |        |        |        |        |
| Cable Length                                | 10 ft (3 m)<br>16 ft (5 m) option available for 5W-12W versions   |       |       |        |        |        |        |        |
| Power Supply - Physical                     |   |       |       |        |        |        |        |        |
| Dimensions (Height x Width x Depth)         | 4.7 x 13.9 x 14.1 inches (119 x 353 x 360 mm)   |       |       |        |        |        |        |        |
| Weight                                      | 26.0 lbs (11.8 kg), including cable   |       |       |        |        |        |        |        |

Notes:

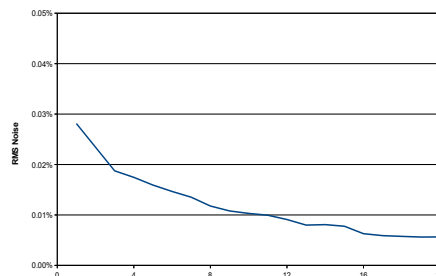
1. All performance specifications are guaranteed at specified power
2. Output power at 532 nm compared to output power at 1064 nm
3. 1/e<sup>2</sup>, measured at the output port of the laser head
4. Full angle (1/e<sup>2</sup>), measured at the output port of the laser head
5. Measured at far-field x and y positions after a 30 minute warm-up and over a 20°C to 30°C temperature range
6. Measured over a 24 hour period after a 15 minute warm-up
7. Measured from 10 Hz to 10 MHz
8. Assuming an environmental temperature for laser head of 25°C or less
9. Lighthouse Photonics is continually improving the performance of its products. Specifications subject to change without notice.



Typical Far-field beam profile



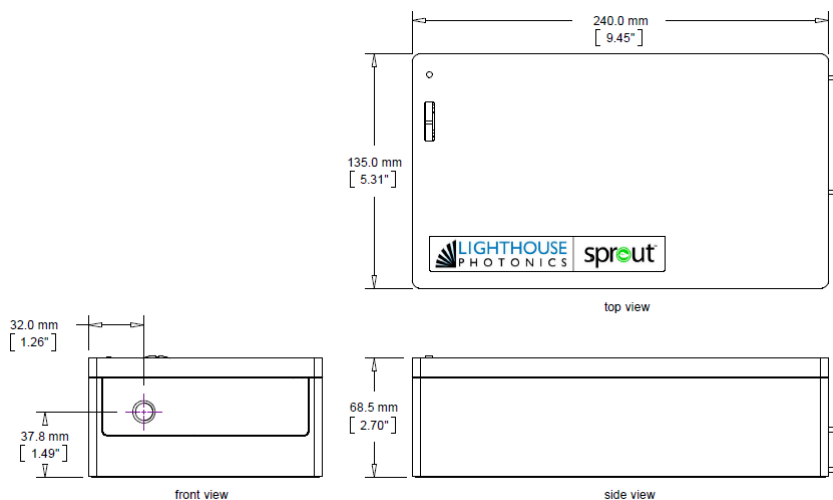
Power stability <0.1% rms  
over >24 hours



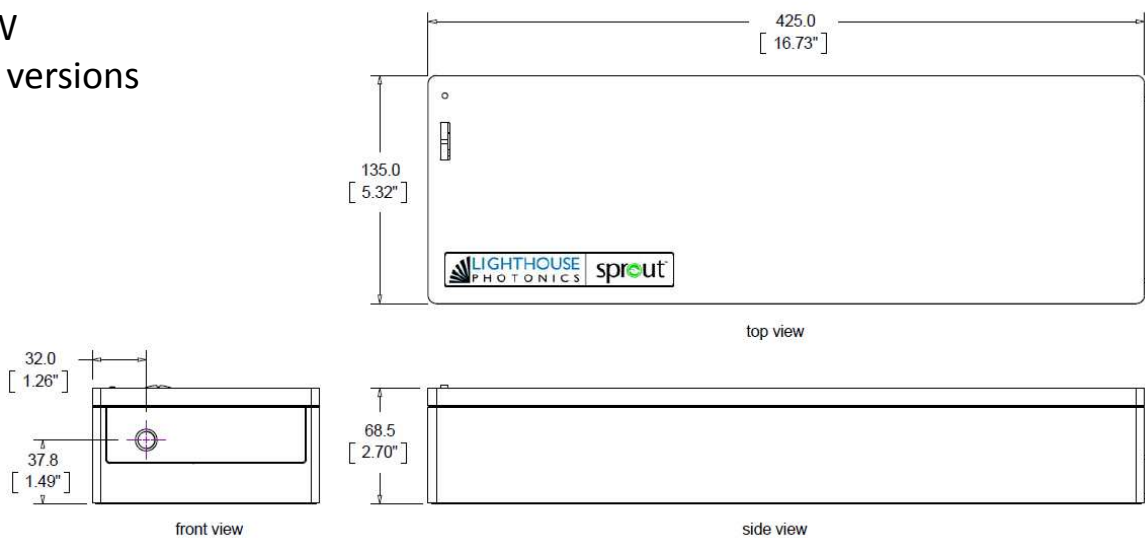
Optical noise <0.02% rms  
for NET™ version

## Laser Head Dimensions

5W, 6W, 8W, 10W,  
and 12W versions



15W, 18W  
and 20W versions



## Power Supply Dimensions

