



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 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.



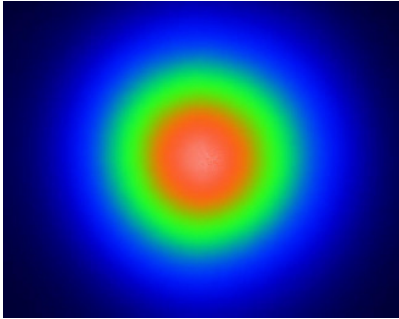


Laser Output Characteristics ^{1,11}	Solo-5W	Solo-6W	Solo-8W	Solo-10W
Average Output Power	> 5 W	> 6 W	> 8 W	> 10 W
Wavelength	532 nm			
Linewidth ²	< 2 MHz			
Coherence Length	> 30 m			
Spectral Purity ³	> 99.9 %			
Spatial Mode	TEM ₀₀			
Beam Quality (M ²)	1.0 - 1.1			
Beam Ellipticity	< 1.0 : 1.1			
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)			

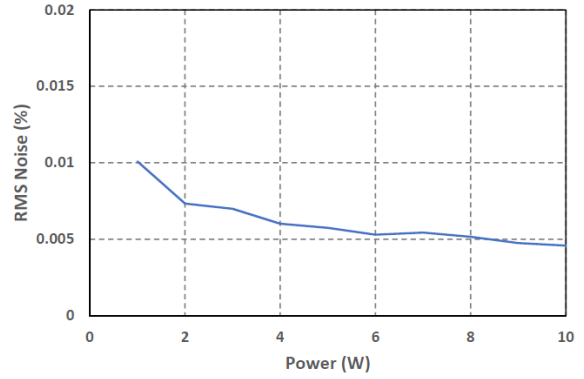
Notes:

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/e², measured at the output port of the laser head
5. Full angle (1/e²), 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.

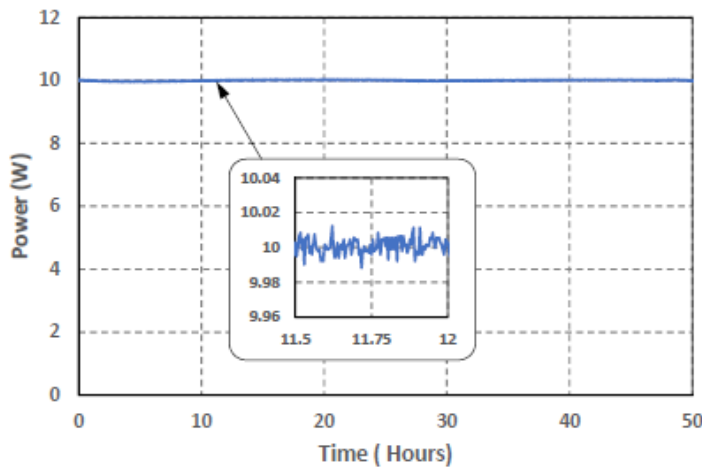




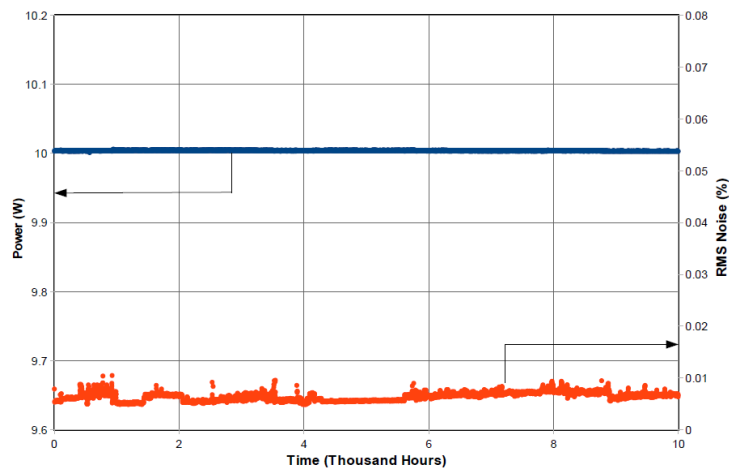
Typical Far-field beam profile



Optical noise <0.02% rms for NET™ version



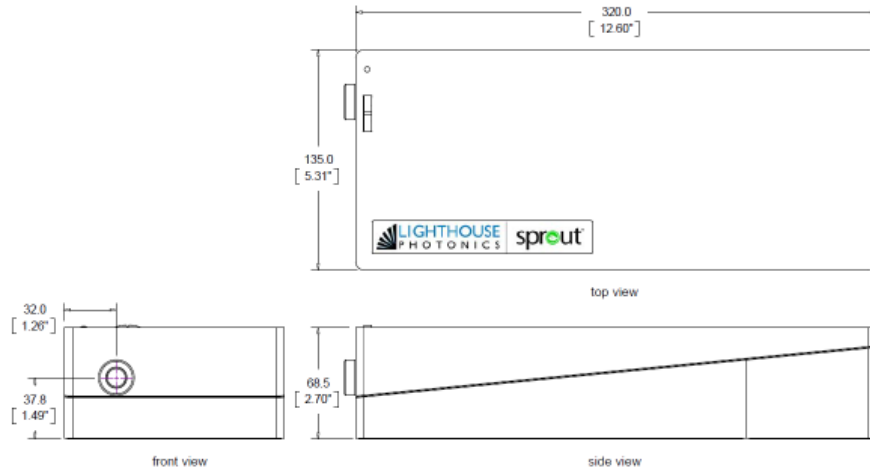
Power stability <0.2% rms over >24 hours



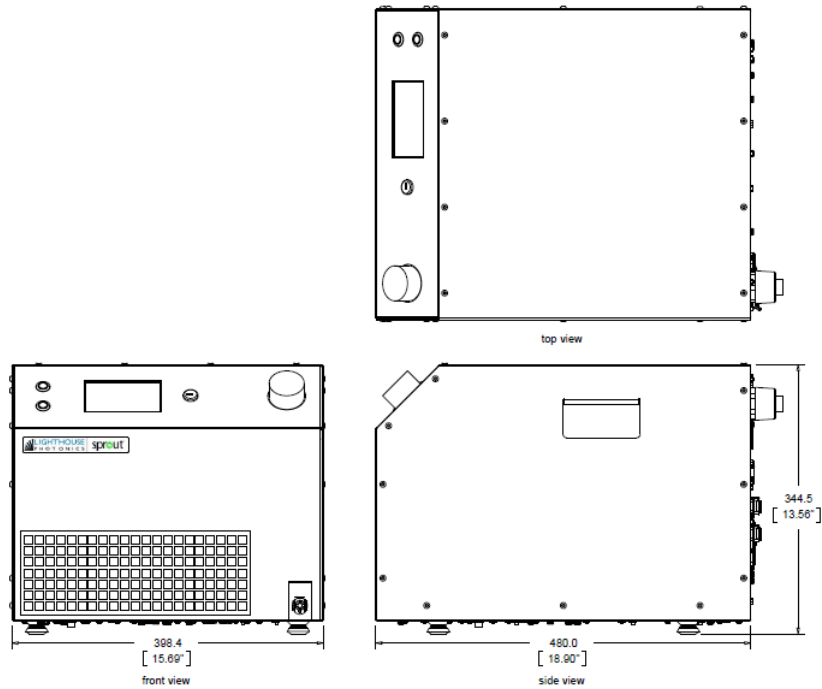
10,000 hour test data for output power & rms noise



Laser Head Dimensions



Power Supply - Cooler Dimensions



For more information go to: www.lighthousephotonics.com

Lighthouse Photonics Inc.
780 Montague Expy, Suite 304
San Jose, CA 95131 USA
phone: 408-708-7967
efax: 408-773-6240
e-mail: info@lighthousephotonics.com

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DYE-SF-077

CW Frequency-Stabilised Dye Laser



1

NARROWEST LINEWIDTH

3

AUTOMATED WAVELENGTH SETTING OPTION

2

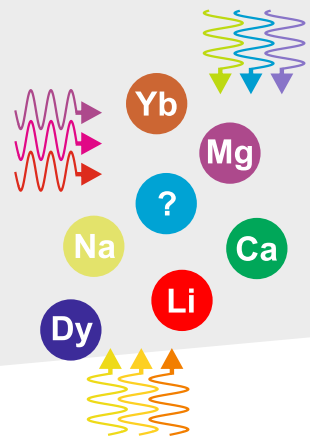
ULTRA-STABLE

4

FREQUENCY DOUBLER AVAILABLE

DYE-SF-077 laser is the first representative of the new contemporary generation of dye lasers that offer to the user virtually the same level of convenience and simplicity of operation as with a solid-state tuneable laser. Similarity of this laser to a solid-state one is emphasized by the fact that DYE-SF-077 laser can be optionally shipped in the combined configuration which allows its operation as a Ti:Sapphire laser (TIS-SF-777). Laser model DYE-SF-077 features exceptionally narrow generation line width, which amounts to less than 100 kHz/sec. DYE-SF-077 laser sets new standard for generation line width of commercial CW single-frequency dye lasers.

Upon customer's order, DYE-SF-077 laser may be equipped with a USB compatible interface for a desktop or a laptop connection used to remotely scan the generation line of the laser and to perform multi-channel data acquisition. DYE-SF-077 laser also may be shipped together with an atom cell and a system for reduction of long-term generation line drift. Besides, laser DYE-SF-077 in combination with highly-efficient resonant frequency doubler FD-SF-07 delivers several hundreds milliwatts of narrow-band UV radiation within the 285–350-nm range.



Features

- ✓ Rigid laser base-plate with three invar rods in a volumetric configuration
- ✓ Absolute frequency stabilisation to atomic/molecular reference line available
- ✓ Automated absolute high-precision wavelength setting option
- ✓ Single solid etalon
- ✓ Auto-Relock function

Applications

- ✓ Cooling, BEC and manipulating atoms
- ✓ High-resolution spectroscopy
- ✓ Tasks requiring low amplitude noise
- ✓ Doubling, Raman & parametric conversion
- ✓ Isotope separation
- ✓ Nanoscience research

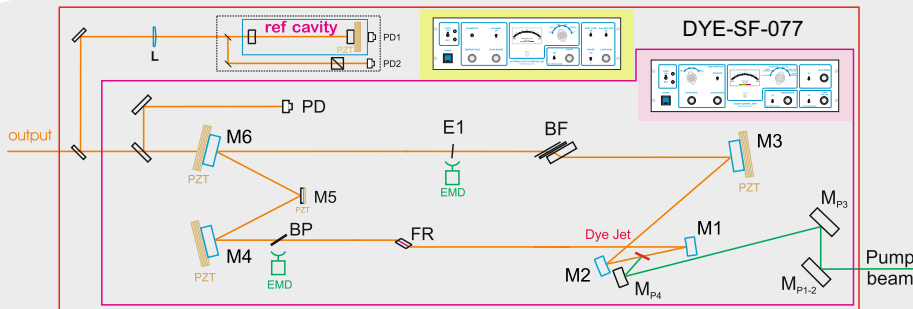
Contacts

Tekhnoscan - Lab
Inzhenernaia Str., 26,
Novosibirsk, 630090 Russia

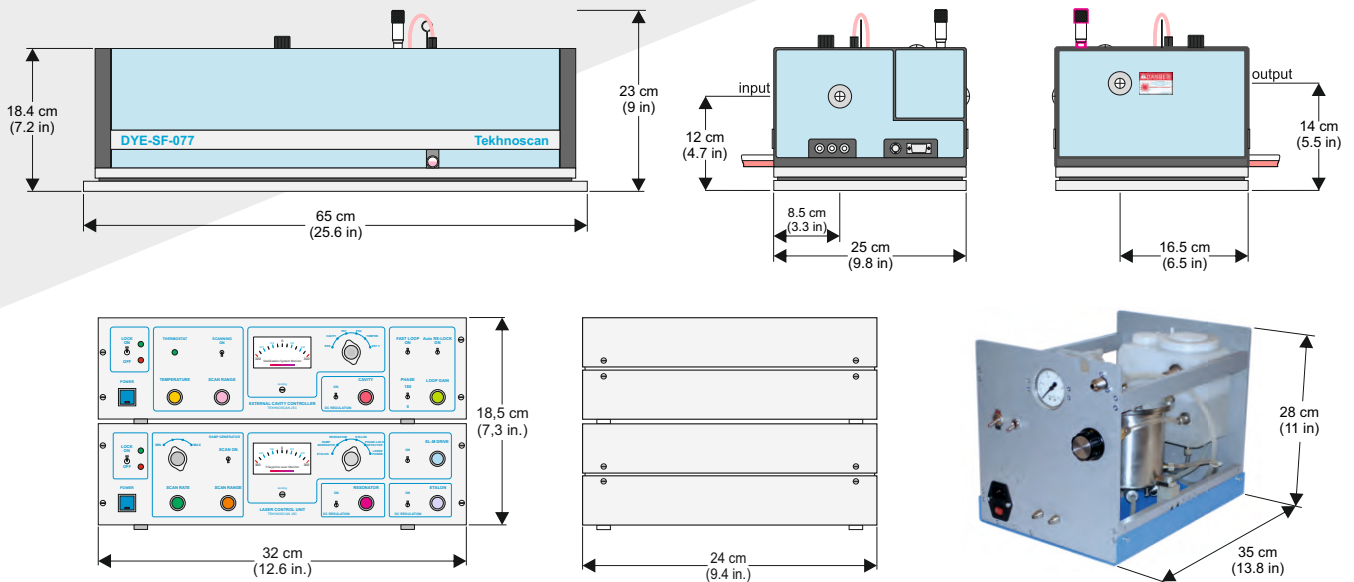
Technology Park of Novosibirsk
Akademgorogok

+7 383 214-00-09
+7 383 363-69-12(14)
+7 383 363-69-13
service@tekhnoscan.com

www.tekhnoscan.com



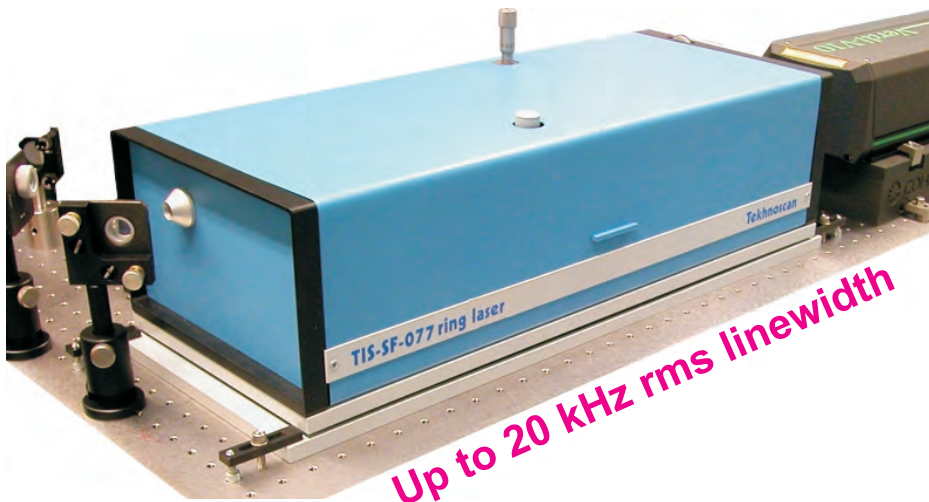
Laser Specifications	DYE-SF-07	DYE-SF-077
Line width, over 1 s rms	< 10 MHz	< 100 kHz
Line width, over 0,1 s rms	< 1 MHz	< 10 kHz
Output, W (6 W pump)	> 1	
Wavelength range, nm	550-700	
Smooth scanning, GHz	6-35	



Information and specifications contained herein are deemed to be reliable and accurate as of the publication date. Tekhnoscan reserves the right to change these specifications at any time without notice.

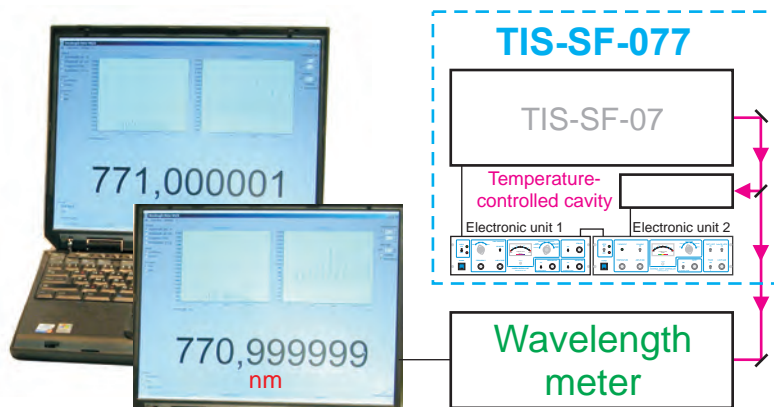


Frequency-stabilised CW single-frequency ring Ti:Sapphire laser, model TIS-SF-077



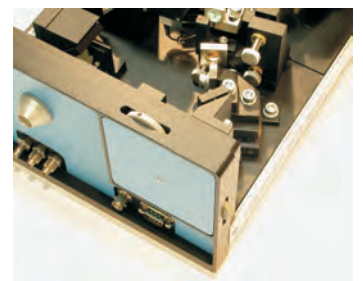
© Tekhnoscan presents a new frequency-stabilised CW single-frequency ring Ti:Sapphire laser, model TIS-SF-077, designed for researches in atom cooling and super-fine resolution spectrometry

© Ti:Sapphire laser, model TIS-SF-077, is a further development of model TIS-SF-07; it now includes a system of frequency stabilisation on the basis of a thermo-stabilised interferometer and a fast electronic driver; the thermo-stabilised interferometer comes as a separate module installed beside the laser itself



© Convenient multi-function electronic control units

CW single-frequency Ti:Sapphire laser with frequency stabilisation, model TIS-SF-077, opens up new horizons in super-fine wavelength-selective action on objects of investigation. The output linewidth of this laser does not exceed 50 kHz rms and may be further reduced (up to 20 kHz rms) upon a custom order. Laser TIS-SF-077 features exceptionally low generation line drift: less than 40 MHz/hour. This remarkably small figure is guaranteed by a superb thermal isolation and stabilization of the reference interferometer and its special design. The working wavelength range of this laser spans 700-1050 nm and can be further extended into the 350-525-nm range with the help of efficient frequency doubler FD-SF-07 offered by Tekhnoscan.



© superfine-precision adjustments of the pump beam, which allow the user to restore quickly the laser generation parameters when the pump beam changes position; for the convenience of use these controls are accessible from the front flange of the laser without opening the case cover