

# Mai Tai<sup>®</sup> SP

## Short Pulse Ultrafast Oscillator



The Spectra-Physics<sup>®</sup> Mai Tai SP Ti:Sapphire oscillator provides industry leading stability and cutting edge capability to the scientific research community. It is specifically designed as an amplifier seed for Spectra-Physics ultrafast amplifiers. The Mai Tai SP laser incorporates fully automated controls for bandwidth and center wavelength adjustment without the need for manual user intervention.

This unprecedented level of performance provides a stable, easily adjustable seed source for Spitfire<sup>®</sup> Ace<sup>™</sup> amplifier systems. Because of its flexibility, the same Mai Tai SP laser can be used to seed amplifiers in a variety of pulse width configurations (35 fs, 100 fs) to deliver true, transform-limited pulses.

The Mai Tai SP is equipped with StabiLok<sup>®</sup> active beam alignment technology and EternAlign<sup>™</sup> permanent optics mounts, to ensure outstanding stability and reliability. When operating under widely varying environmental conditions the Mai Tai SP maintains the average power, center wavelength, bandwidth, and beam pointing with best-in-class accuracy and precision. In addition, the laser is sealed so there is never a need to clean or realign the internal optics. The Mai Tai SP provides truly hands-free performance.



### The Mai Tai SP Advantage

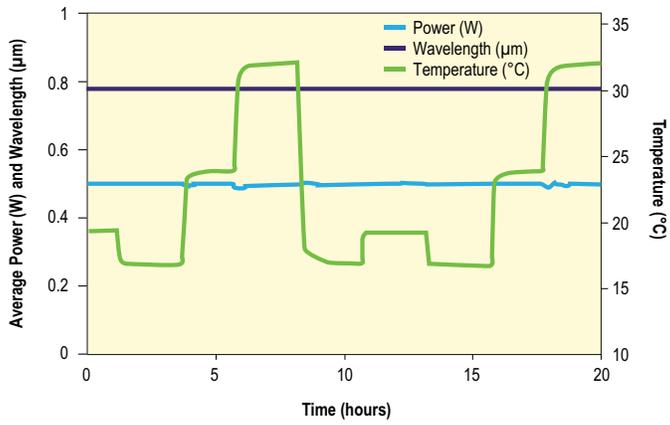
- Unsurpassed stability in  $\pm 10^{\circ}\text{C}$  operating environment
- Fully automated for hands-free operation
- $< 10 \mu\text{rad}$  beam pointing
- Computer-controlled adjustable bandwidth (10–60 nm)
- $< 25 \text{ fs}$  pulse width capability
- Field-proven reliability

### Applications

- Ultrafast amplifier seeding
- Multiphoton microscopy
- Time-resolved photoluminescence
- Non-linear spectroscopy
- Surface second harmonic generation
- Terahertz imaging
- Semiconductor metrology
- Materials processing

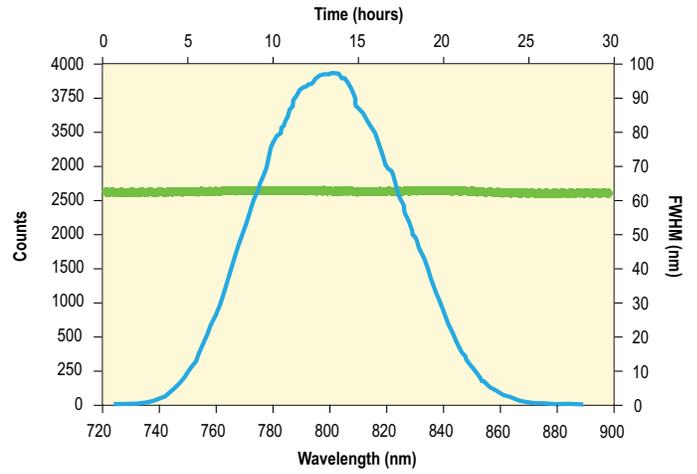
# Mai Tai SP

### Mai Tai SP Performance<sup>1</sup>



Mai Tai SP performance under  $\pm 8^\circ\text{C}$  temperature swing. Performance values for average power ( $\sim 0.5$  W) and center wavelength stability ( $< 0.3$  nm) are shown.

1. Typically measured performance; not a guaranteed or warranted specification.



Bandwidth stability of Mai Tai SP over 30 hours (green curve, top and right axes). Typical wavelength spectrum for the Mai Tai SP configured for 60 nm operation (blue curve, bottom and left axes).

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# Mai Tai SP Specifications<sup>1</sup>

## Output Characteristics

Average Power	
At Minimum Specified Bandwidth	>750 mW
At 60 nm Bandwidth	>450 mW
Bandwidth <sup>2</sup>	10–60 nm
Tuning Range	780–820 nm <sup>3</sup>
Repetition Rate (Nominal)	84 MHz
Noise <sup>4</sup>	<0.05%
Stability <sup>5</sup>	<0.5%
Spatial Mode	TEM <sub>00</sub>
Beam Diameter (1/e <sup>2</sup> )	1.5 mm
Beam Divergence, full angle	<1 mrad
Polarization	Horizontal

1. Due to our continuous product improvement program, specifications may change without notice.

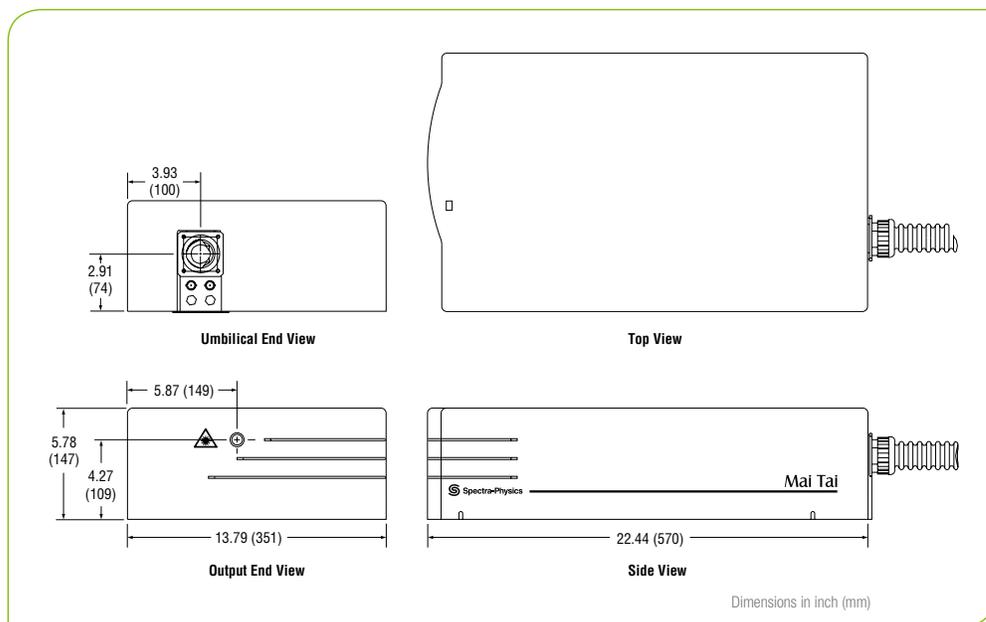
2. Bandwidth range accessible by computer control at 800 nm. User specified bandwidth configurations are available.

3. Center wavelength can be tuned at bandwidths <30 nm; otherwise center wavelength is fixed at 800 nm.

4. Specification represents RMS noise measured in a 10 Hz to 10 MHz bandwidth.

5. Percent power drift in any 2-hour period after a 1-hour warm-up.

6. The Mai Tai SP is a Class IV -- High Power Laser, whose beam is, by definition, a safety and fire hazard. Take precautions to prevent exposure to direct and reflected beams. Diffuse as well as specular reflections can cause severe skin or eye damage.



Mai Tai SP Dimensions



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