

CW Tunable NIR

# ULTRA NARROW LINEWIDTH CW TI: SAPPHIRE LASER

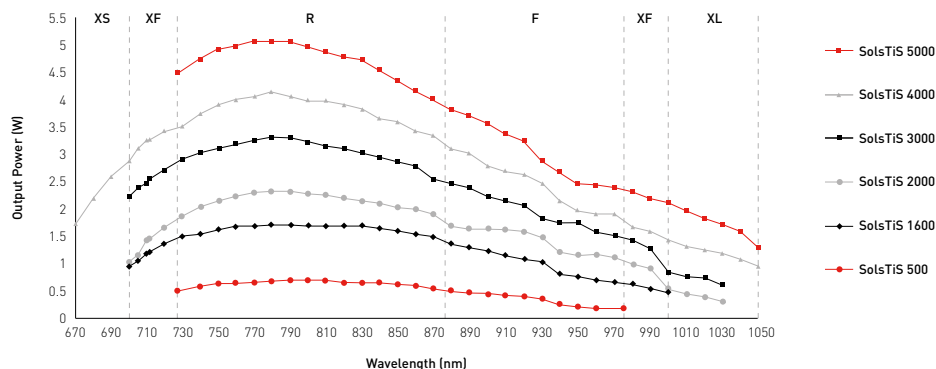


The award-winning SolsTiS is a step-change in continuous-wave Ti:Sapphire laser technology - compact, ultra-narrow linewidth, fully automated and widely tunable.

## APPLICATIONS

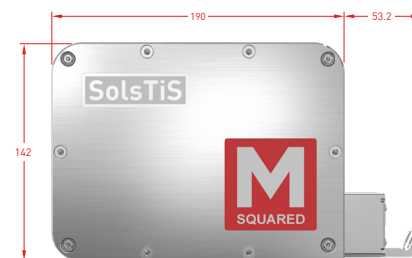
- Atom/Ion Trapping and Cooling
- High-Resolution Spectroscopy
- Squeezed Light
- Quantum Optics
- 2D Materials
- Colour Centres
- Quantum Dots
- Microresonators

SPECIFIED SOLSTIS TUNING CURVES

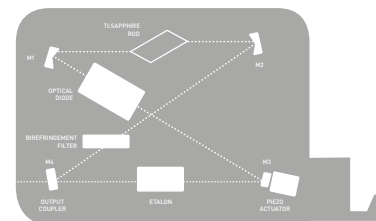


## FEATURES

- Broad, continuous tuning range from 700-1000 nm using a single optics set with custom wavelength ranges available <700 nm or >1000 nm
- Ultra-narrow linewidths from <50 kHz absolute linewidth, with options to achieve Hertz level linewidth via an external, ultra stable reference
- Option to fit intra-cavity EOM for increased feedback bandwidth
- Output power levels up to 6 W with high powers of >2.5 W in SHG
- Ultra stable output with relative intensity noise 0.075 % RMS with exceptional stability on longer timescales
- Materials minimise effects from vibrations and thermal variations, resulting in a stable, low-frequency drift laser
- Anti-humidity system and purge ports for trouble free operation across atmospheric absorptions
- Continuous, single mode, high-resolution scans over >25 GHz, up to 300 nm (with TeraScan option)
- Fully automated with wavelength tuning and locking via a web interface or published set of TCP/IP controls
- Integrated extension modules available to extend the tuning range from 210 nm to 4000 nm
- Beam pick off and fiber launch modules available
- Most compact laser in its class



Reference cavity not shown



SPECIFICATIONS <sup>1</sup>

MODEL	POWER (W)
SolsTiS 5000	>5.0
SolsTiS 4000	>4.0
SolsTiS 3000	>3.0
SolsTiS 2000	>2.0
SolsTiS 1600	>1.6
SolsTiS 500	>0.5

TUNING RANGE (nm) <sup>2</sup>	-XS	-R	-F	-XF	-XL
SolsTiS 5000		725-875	725-960		850-1050
SolsTiS 4000	670-710	725-875	725-975	700-1000	850-1050
SolsTiS 2000 and 3000		725-875	725-975	700-1000	850-1030
SolsTiS 1600		725-875	725-975	700-1000	
SolsTiS 500		725-875	725-975		

LINEWIDTH <sup>3</sup>	
SolsTiS SRX (Scanning Reference Cavity) <sup>4</sup>	<50 kHz (reference cavity not shown)
SolsTiS PSX (Passive Laser Resonator)	<100 kHz
SolsTiS LX (Etalon Lock)	<5 MHz
SolsTiS PX (Passive Etalon)	<5 MHz
SolsTiS BRF (BRF Only)	<20 GHz
Scan Range <sup>5</sup>	>25 GHz, measured at ~ 780 nm, TeraScan option available
Amplitude Noise	<0.075% RMS including pump noise, added in quadrature (10 Hz - 10 MHz)
Spatial Mode	TEM <sub>00</sub> (M2 < 1.1)
Beam Radius	<0.4 mm, 1/e <sup>2</sup> intensity (nominal, at output port)
Beam Divergence	<1.5 mrad, far field, half angle
Polarisation	Horizontal (pump and output beam)
Laser Head Dimensions <sup>6</sup>	243.2 x 142 x 88 mm (9.57 x 6.8 x 3.5 inches), L x W x H
Ice Bloc Controller Dimensions	340 mm x Half Rack x 2U, L x W x H
AC Power	90 - 264 VAC, 2.5 A maximum
Cooling	Supplied closed-loop water chiller
Environmental Requirements	Operating temperature range: 16-30°C Maximum relative humidity: 80% non-condensing, up to 30°C
Laboratory	Mounting surface: optical table Air free of dust (laminar air flow box recommended)

1. Unless stated otherwise, all specifications apply to: the peak of the tuning curve; ambient temperature of 20°C; after 30 minute warm-up; provided the pump laser is operated at its nominal rated output power and meets its published specifications; and provided SolsTiS is not operated on or near strong atmospheric absorption lines without purge.

2. Other custom tuning ranges are available - please enquire for specific wavelengths.

3. RMS values. Unless otherwise stated, linewidth specification refers to an absolute linewidth measured over a period of 100 us.

4. RMS values. Linewidth specification applies relative to reference cavity and also absolute linewidth. Relative linewidth measured indefinitely and absolute linewidth measured over a period of 100 us.

5. SRX and PSX models only. Typical 25 GHz scan <0.15 seconds. TeraScan option for narrow linewidth scan full wavelength range.

6. Laser head only. Excludes reference cavity. Excludes pump optics module, baseplate used with integrated pump lasers, or riser blocks in configuration using separate pump.

## SOLSTIS EXTENSIONS

A range of extensions are available to enhance the wavelength coverage of the system, helping you to explore new regions.



CW Tunable UV

### SOLSTIS ECD-X

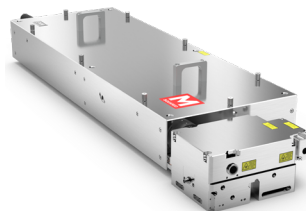
A compact frequency conversion module that extends the range of SolsTiS output wavelengths via frequency doubling in a resonant cavity with optimised conversion efficiency.



CW Tunable UV

### SOLSTIS ECD-X-Q

This SolsTiS extension adds a frequency quadrupling feature to SolsTiS, producing a narrow linewidth, tunable output in the ultraviolet.



CW Tunable UV Visible IR

### SOLSTIS EMM

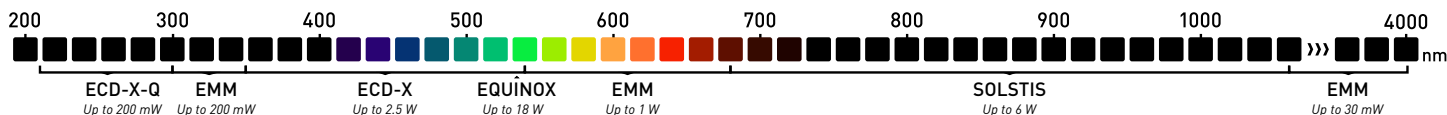
The SolsTiS External Mixing Module provides fully automated tuning in the visible (500-680 nm) and IR (1.1-4  $\mu$ m) with further extension options into the UV (300-350 nm).



CW

### EQUINOX

Equinox is a single frequency, CW 532 nm laser source. It's inherently stable, low noise, narrow linewidth and like all M Squared products, it's compact, robust and fully-automated.



## CONTACT US

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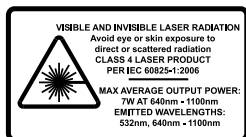
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