SolsTiS

Ultra Narrow Linewidth CW Ti:Sapphire Laser

Applications

- Atom trapping and cooling
- High-resolution spectroscopy
- Squeezed light
- Quantum optics

Features

- Low amplitude noise
- Narrow linewidth
- Sealed and fully automated design
- Broad tuning range with one optics set (up to 300nm)
- Custom wavelength ranges available, e.g. < 700 nm or >1000 nm, please enquire
- Simple 'dial a wavelength' for wavelength setting
- High precision 'dial a wavelength' option (requires wavemeter)
- Terascan wide scan version (requires wavemeter)
- Instrument control by Ethernet (ICE) for hands off use
- Easily purged in minutes
- Frequency doubler / mixer accessories available
- Fully integrated beam pick off and fiber launch accessories available

Specifications [1]

Model	Power (W) [2]
SolsTiS 4000	> 4.0
SolsTiS 3500	> 3.5
SolsTiS 3100	> 3.1
SolsTiS 2000	> 2.0
SolsTiS 1600	> 1.6
SolsTiS 1200	> 1.2
SolsTiS 1000	> 1.0
SolsTiS 700	> 0.7
SolsTiS 500	> 0.5
SolsTiS 300	> 0.3
SolsTiS 100	> 0.1

Tuning Range (nm) [3] [4]	-XS	-R	-F	-XF	-XL
SolsTiS 4000		725-875	(725-975) +/-15		
SolsTiS 1200 to 3500	670-710	725-875	725-975	700 - 1000	950-1050
SolsTiS 500 to 1000		725-875	725-975		
SolsTiS 100 to 300		745-855			

Linewidth [5]	
SolsTiS SRX (Scanning Reference Cavity)	< 50 kHz
SolsTiS PSX (Passive Scanning)	< 5 MHz
SolsTiS LX (Etalon Lock)	< 5 MHz
SolsTiS PX (Passive Etalon)	< 5 MHz
SolsTiS BRF (BRF Only)	< 20 GHz

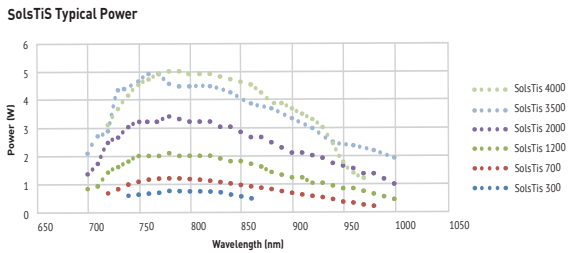
Scan Range [6]	> 25GHz, measured at ~780nm, scan stitching option available
Amplitude Noise	< 0.1% RMS above pump noise, added in quadrature
Spatial Mode	TEM_{00}
Beam Radius	< 0.4mm, $1/e^2$ intensity (nominal, at output port)
Beam Divergance	< 1.5 mrad, far field, half angle
Polarisation	Horizontal (pump & output beam)

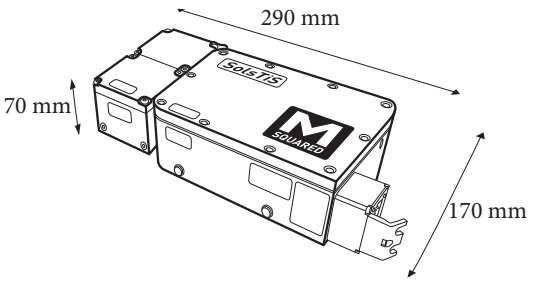
Laser Head Dimensions [7]	<29 x 17 x 7cm (<11.5 x 6.7 x 2.6 inches), L x W x H
ICE-BLOC™ Controller Dimensions	34cm x Half Rack x 2U, L x W x H
AC Power	90 - 264 VAC, 2.5 A max.
Cooling	Supplied closed-loop water
Environmental Requirements	Operating temperature range: 16-30^{0}C Max. relative humidity: 80% non-condensing, up to 30^{0}C
Laboratory	Mounting surface: optical table Air free of dust (laminar air flow box recommended)

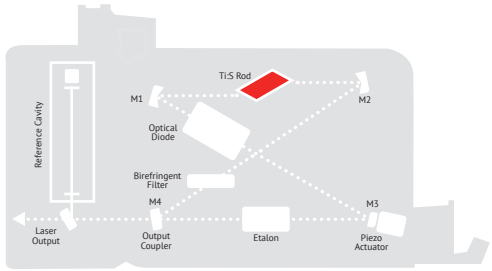
Notes

1. Unless stated otherwise, all specifications apply to: the peak of the tuning curve; ambient temperature change of < +2^{0}C; after 30-minute warm-up; provided the pump laser is operated at its nominal rated output power & meets its published specifications; & provided SolsTiS is not operated on or near strong atmospheric absorption lines without purge.
2. Unique integrated pump packages are available for models up to SolsTiS 3500, intermediate output power levels available
3. Other custom tuning ranges are available - please inquire for specific wavelengths.
4. All ranges available with 'dial a wavelength' and high precision wavemeter control option
5. 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 100µsec.
6. SRX and PSX models only. Typical 25GHz scan < 0.1 seconds. Terascan option for narrow linewidth scan of full wavelength range.
7. Laser head only. Includes reference cavity. Excludes Pump Optics Module, baseplate used with integrated pump lasers, or riser blocks in configuration using separate pump.

Typical Tuning Curves







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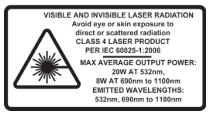
M Squared Laser's laser products are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Centre of Devices and Radiological Health on all systems ordered for shipment after October 1st, 2003.



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