SOLSTIS LASER PAGE (INDIVIDUAL PRODUCT PAGE)

TITLE

TAGS: CW, TUNABLE

SOLSTIS ULTRA NARROW LINEWIDTH, CW TI:SAPPHIRE LASER

Tuning range: 670 - 1050 nm

Amplitude noise: <0.1% rms

Narrow linewidth: <50 kHz

Average power: Up to 5 W

OVERVIEW

Award-winning SolsTiS is a next generation continuous-wave Ti:Sapphire laser designed to meet the needs of pioneering scientists looking for high performance, ease of use, system flexibility and reliability. This fully automated, compact system features a completely sealed, alignment-free cavity with hands-free operation, an unprecedented tuning range, unrivalled power, and the ultimate narrow linewidth, low noise output. SolsTiS has options of high power output up to 5W, linewidths <50 kHz and amplitude noise of less than 0.05%. SolsTiS is made to order giving you the ability to specify your linewidth, output power and wavelength range. Fully integrated accessories such as beam pick-off and fiber coupling are available.

FEATURES

BROAD TUNING RANGE

Continuous tuning from 700 - 1000 nm with a single optics set. Specially optimised systems extend to 670 - 1050 nm. Optional integrated frequency conversion modules can further extend this to cover 210 – 4.5 µm.

ULTRA NARROW LINEWIDTHS

The exceptional passive stability and design flexibility allow for a range of linewidth options from <50 kHz absolute linewidth. Overall, SolsTiS is the quietest and most stable TiS laser available with free running linewidths close to 50 kHz. Using active feedback, SolsTiS can also be locked to an external cavity or reference cell with linewidths of <10 Hz achievable.

HIGH POWER

At any pump power level, SolsTiS is the most efficient TiS laser in the world. Output power levels >6 W are made possible by custom, low loss optics within the laser ring resonator. There is no compromise from having a single device to cover 300 nm, and exceptional power levels are achieved even at the edges of the tuning range. High powers of >2.5 W are possible in SHG.

WIDE CONTINUOUS SCANS

Continuous, single mode, high resolution scans over >25 GHz. Unique functionality available to automatically stitch together consecutive segments to achieve high resolution scans over >100 nm with high repeatability and linearity.

ULTRA LOW NOISE

Relative intensity noise < 0.1%, with minimal power variations on longer time scales. Robust, automatic locking of cavity elements allows continuous running over long time durations with no interruptions.

COMPACT DESIGN

By far the smallest laser in its class, the core system, including the integrated reference cavity, measures only 29 x 17 x 7 cm (11 x 6.7 x 2.8”). Its sealed resonator eliminates dust contamination and enables robust reliable performance. Materials minimize effects from vibrations and thermal variations, resulting in a stable, low-drift laser with anti-humidity, purge ports and easy operation across water and oxygen absorptions.

FULLY AUTOMATED

Wavelength tuning and locking is easy via a web interface or via a published set of TCP/IP controls, facilitating automated control and option to use third party applications such as LabVIEW and MATLAB. Resonator elements are also accessible through external voltage inputs for active feedback.

OPTIONAL EXTRAS

Dial-a-wavelength

SolsTiS with Dial a Wavelength enables automatic tuning to an exact wavelength as measured by an integrated wave meter (precision limited only by wave meter resolution). Using a web interface or TCP/IP commands you can select a single wavelength or perform a series of stepped scans.

TeraScan

SolsTiS with TeraScan extends the functionality of Dial a Wavelength to enable automatic, continuous mode-hop-free scans over many nanometers. It uses information provided by the integrated wave-meter to automatically readjust internal optical elements to stitch together a sequence of high resolution resonator scans, with no stitch error and resolution as small as the laser linewidth. Scans are performed at high speed, with several nm of continuous scanning performed in minutes. Scan status, including instantaneous wavelength, can be accessed live via TCP/IP making it simple to fully automate using third party control platforms (e.g. LabView and MatLab).

SPECIFICATIONS

Tuning range: 670 - 1050 nm

Narrow linewidth: <50 kHz

Average power: Up to 5 W

Pump source: SolsTiS is sold as a complete system with all components required for operation, including a low noise 532 nm DPSS pump laser. Stand-alone systems available for integration with own pump laser.

Control interface: Ethernet, and web page + serial port for control via third party software

Scan range: > 25 GHz, measured at ~780 nm, scan stitching option available

Amplitude noise: < 0.1% rms above pump noise, added in quadrature

Spatial mode: TEM00

Beam radius: < 0.4 mm, 1/e2 intensity (nominal, at output port)

Beam divergence: < 1.5 mrad, far field, half angle

Polarisation: Horizontal (pump & output beam)

General

SolsTiS laser dimensions: 29 x 17 x 7 cm (11.5 x 6.7 x 2.6") LxWxH

Ice Bloc controller dimensions: 34 cm x Half Rack x 2U, LxWxH

AC Power: 90 - 264 VAC, 2.5 A max.

Cooling: Supplied closed-loop water

Environmental requirements: Operating temperature range 16-300 C with maximum relative humidity 80% non-condensing, up to 300 C

Laboratory requirements: Mount on optical table with air free of dust (laminar air flow box recommended)

RELATED PRODUCTS

SOLSTIS ECD-X

SOLSTIS ECD-X0Q

SOLSTIS EMM

DOWNLOADS

Datasheet >

Platform Overview >

Product line card >