

New wave “all-in-one” laser technology

DISCOVER OUR FULLY PROGRAMMABLE SYNCHRONIZED FIBER-BASED PICOSECOND TUNABLE LASER AND MOPA

The synchronized laser system incorporates a Programmable Laser and a Master Oscillator Power Amplifier (MOPA) which combine into an optical fiber to deliver a single synchronized output. It is the ideal source for two color pump probe experiments including Coherent Anti-Stokes Raman Scattering (CARS) and Difference or Sum Frequency Generation. The synchronization is maintained even when the laser is tuning. A dither option may be used to perform Stimulated Raman Scattering (SRS).

The synchronized programmable picosecond laser is entirely computer controlled and can be dynamically adjusted within microseconds while the laser is in operation.

All parameters can be configured (wavelength, wavelength sweep, picosecond pulse width, and power). Furthermore, the time delay between the two lasers can be adjusted electronically.



Key Features

- Fully programmable synchronized picosecond tunable laser and MOPA that can be used together or alternatively
- User defined wavelength, wavelength sweep, pulse width, power, delay, and dither
- Transportable – no optical table required
- Always aligned
- Continually synchronized
- Highly reliable - consistent performance
- Ready to Go – “Plug and Play”
- Linear sweep in K-space – faster processing

Technical Uses

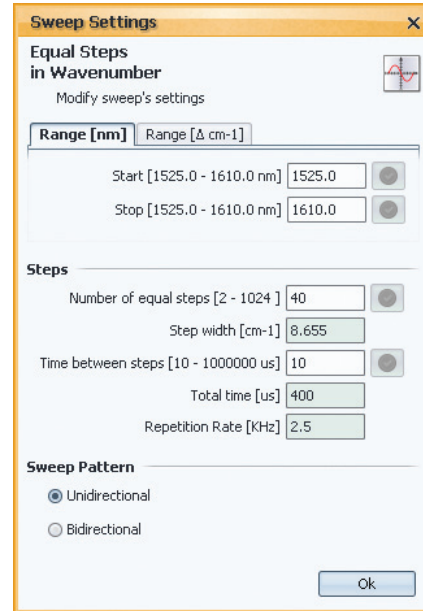
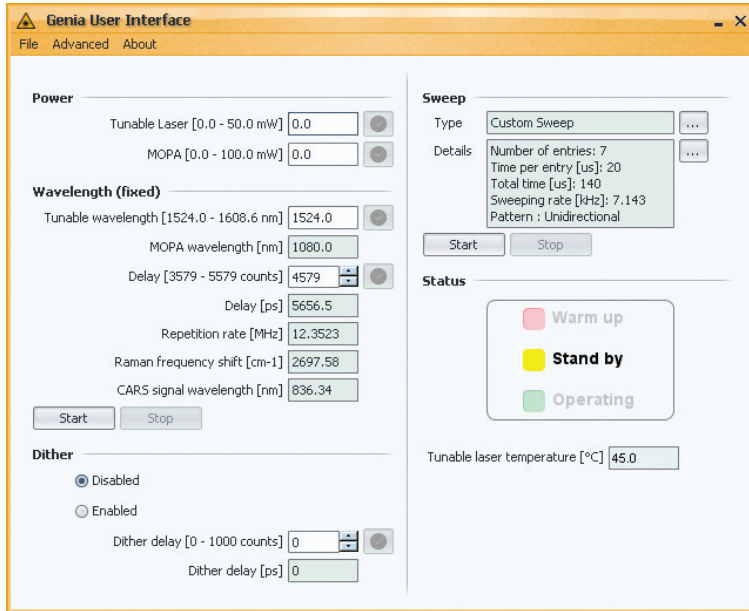
- Coherent Anti Stokes Raman Scattering (CARS)
- Stimulated Raman Spectroscopy (SRS)
- Advanced molecular spectroscopy (ex. Cancer cell and Spinal cord imaging)
- Nonlinear pump probe measurement
- Mid IR Spectroscopy
- UV to mid IR wavelength generation
- Optical Coherence Tomography (OCT)
- Nonlinear imaging
- Spectroscopy
- Ablation

Applications

- Dermatology
- Cardiology
- Dentistry
- Oncology
- Neurology
- Environmental monitoring
- Material science
- Fundamental research
- Chemical sensing

SYNCHRONIZED PROGRAMMABLE LASER

Interface preview

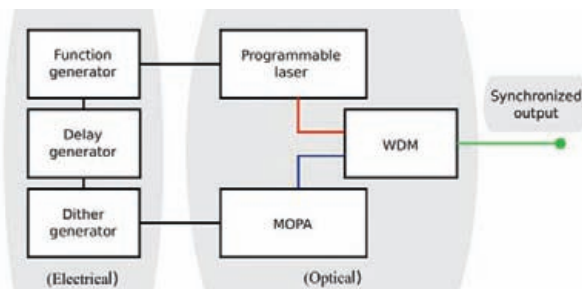


FEATURING:

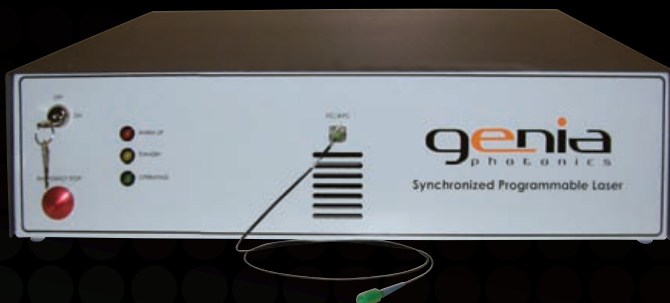
- Intuitive graphical user interface
- Easily configurable parameters (Power, Wavelength, Synchronization Delay, Wavelength Sweep, Dither option)
- Clearly visible laser status

FEATURING:

- Sweep settings can be entered in wavelength or in Wavenumber
- Capability to sweep in delay
- Possibility to change the number of steps and the time interval between them
- Choice of unidirectional ($\lambda_1 \lambda_2 \lambda_3 \dots \lambda_1 \lambda_2 \lambda_3$) or bidirectional ($\lambda_1 \lambda_2 \lambda_3 \dots \lambda_3 \lambda_2 \lambda_1$) sweep patterns
- Dithering may be enabled or disabled during sweeps

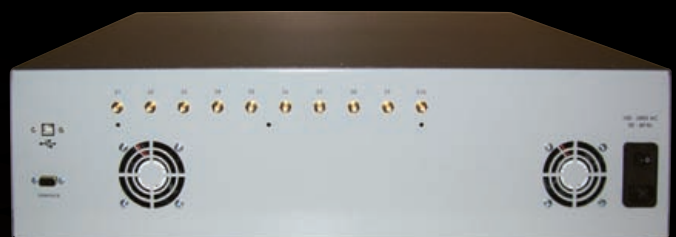


Front view



Front panel view with laser control lock, emergency laser shutdown button, laser status indication and laser output connector - FC/APC Polarized

Back view



Back panel view with computer Interface – USB connector, interlock connector (remote emergency shutdown), external signaling – SMA connectors, power switch, AC power input and fan output

Specification table*

Laser Parameters	Tunable Programmable Laser			MOPA	Comment
Wavelength (nm)	752-785 1250-1360	815-865 1525-1605	1030-1130	One wavelength within the previous ranges	Other wavelength available soon
Raman shift (cm ⁻¹)	400-3500 cm ⁻¹				Wavelength combination will address segments of this range. May require multiple lasers to extend range.
Difference Frequency mixing	2800-4750 nm				Far-IR and THz under development
Wavelength steps	>10 pm			NA	User programmable
Average Power	Up to 100 mW per wavelength				Higher power available
Tunable programmable laser tuning speed	100 kλ/sec 1 Mλ/sec 10 Mλ/sec			NA	User programmable
Synchronized mode tuning speed	Up to 100 kλ/sec				User programmable
Pulse width	20 +/-5 psec			25 +/-5 psec	Fixed (Adjustable as option)
Repetition rate	10 – 50 +/- 2 MHz				Fixed
Output Delivery parameters	Specifications			Comment	
Polarization	Linear				Single-mode Panda style optical fiber
Synchronization jitter	+/- 2psec				
Synchronization fine tuning	+/- 50 nsec				65 536 counts over the range
Output Format	Fiber coupled				FC/APC connector
Operating Temperature	25 +/-15 °C				Ambient temperature

* - Contact Genia Photonics for specific configurations and parameters.

Options

Option code	Option name	Description
DT	Dithering	Provides the capability to dither the MOPA pulse train
SD	Sweep in delay	Sweeps may be provisioned in delay
WC	Wavelength Change Trigger	Provides an electrical trigger signal coincident with each wavelength change
DL	Delayed Trigger	Provides an electrical trigger delayed in time for each optical pulse. The delay is user configurable.

Ordering information*

	Programmable laser			MOPA		
Product code	Central Wavelength (nm)	Sweep Code	Output Power Code	Wavelength Code	Output Power Code	Options
SL	XXXX	00 (no sweep)	01 (1mW)	XXXX	01 (1mW)	DT
		01 (100 kλ/sec. sweep)	02 (10mW)		02 (10mW)	SD
		02 (10 Mλ/sec. sweep)	03 (50mW)		03 (50mW)	WC
			04 (100mW-1080 and 1565 only)		04 (100mW-1080 and 1565 only)	DL
			05 (1W-1080 and 1565 only)		05 (1W-1080 and 1565 only)	
			00 (custom)		00 (custom)	

Create your product code:

Product code	Central Wavelength (4 digits)	Sweep Code (2 digits)	Output Power Code (2 digits)	Wavelength Code (4 digits)	Output Power Code (2 digits)	Option (2 letters per option)
SL						

* - Contact Genia Photonics for specific configurations and parameters.

genia
photonics



光技術をサポートする

株式会社オプトサイエンス

<http://www.optoscience.com>

東京本社 〒160-0014 東京都新宿区内藤町1番地 内藤町ビルディング
TEL:03(3356)1064 FAX:03(3356)3466 E-mail:info@optoscience.com
大阪支店 〒532-0011 大阪市淀川区西中島7-7-2 新大阪ビル西館
TEL:06(6305)2064 FAX:06(6305)1030 E-mail:osk@optoscience.com
名古屋営業所 〒450-0002 名古屋市中村区名駅2-37-21 東海ソフトビル
TEL:052(569)6064 FAX:052(569)8064 E-mail:ngo@optoscience.com