

SOPRANO-MINI

1560 nm Er femtosecond laser

SESAM-free, low-noise fiber laser for THz
Generation, seeding Tisa amplifier and more



APPLICATIONS

Femtosecond fiber laser for

- THz time-domain spectroscopy
- Free-electron laser system
- Seeder for Titanium: Sapphire laser amplifier
- Two-photon microscopy
- Spectroscopy and metrology

BENEFITS

- Up to 3 nJ pulse energy at 1550 nm
- Pulse duration < 120 fs
- Rep rate control actuators available
- High environmental stability
- Turn-key operation

DESCRIPTION

Cycle's SOPRANO-MINI femtosecond laser offers <100 fs pulses, low-noise, and exceptional stability—ideal for THz time-domain spectroscopy, two-photon microscopy, and more. Built for reliable and hand-off operation without the need of water cooling, this compact all-in-one system combines optics, electronics, and rep-rate control actuators in a cost-effective package suited for both research and industry.

Contact us at sales@cyclelasers.com to explore the SOPRANO series. Our engineers will help optimize parameters for your needs.

SPECIFICATIONS

Model	SOPRANO-MINI-S	SOPRANO-MINI-U	Comment
Feature	Synchronization	Short pulse	
Center wavelength	1560 +/- 10 nm		
Pulse duration	< 120 fs	< 40 fs	Other pulse durations available on request
Avg. output power	Up to 140 mW	Up to 200 mW	Multiple output ports available on request
Pulse energy	Up to 2 nJ	Up to 3 nJ	
Pulse repetition rate	60 ~ 110 MHz	30 ~ 60 MHz	Other rep rates available on request
Beam quality	M2 < 1.1, TEM00		From fiber output port
PER	> 20 dB		Type, > 25 dB
SHG module	Optional		Add-on separated module
Free-running Rep. rate drift	< 1ppm		At stable room temperature (+/-0.5 degree)
Laser TEC tuning range	>10.000 Hz		Laser temp can used as a slow rep rate control
Slow PZT tuning range	> 700 Hz		Optional
Fast PZT tuning range	> 70 Hz		Optional
Laser output	PM fiber output		With FC/APC connector, fiber length customized
Technical			
Laser head dimension	119 ×231 ×266 mm (H×W×D)		All-in-one laser with electronics and optics
Power supply	24 VDC		

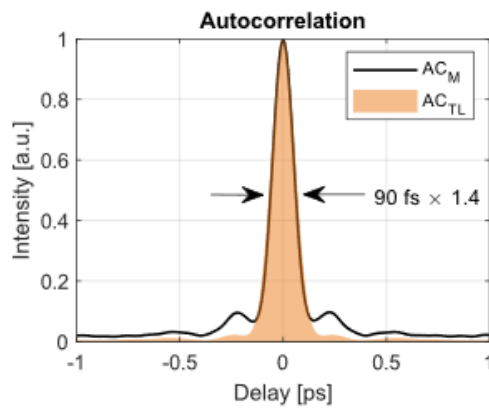




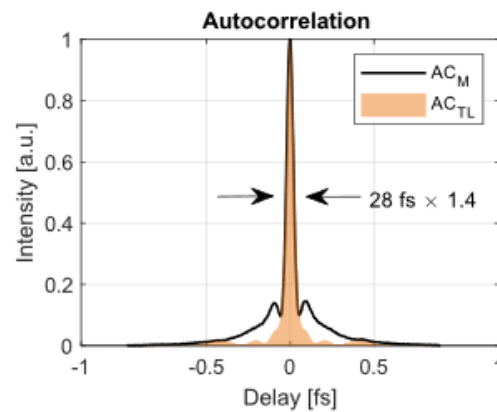
MEASUREMENT DATA

The output measurement of the SOPRANO-MINI prototype—delivering >100 mW average power at an 80 MHz repetition rate—is provided for reference

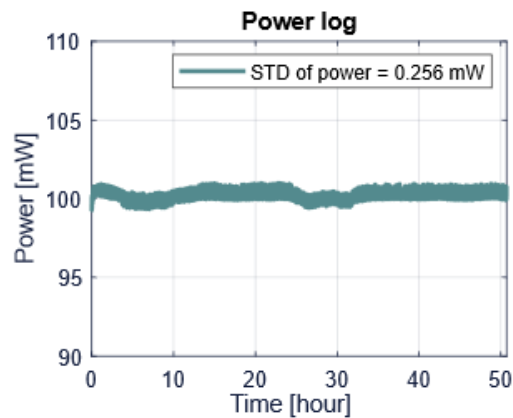
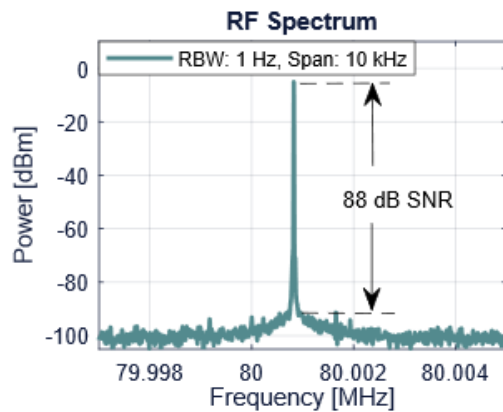
SOPRANO-MINI-S; AC trace



SOPRANO-MINI-U; AC trace



Spectrum & Autocorrelation



Phase noise & RIN measurement

