

# orange

## Femtosecond Fiber Laser 1040 nm & 520 nm

# MenloSystems



Menlo Systems' femtosecond Yb fiber-baser laser sources now offer more than 10 W in average power with a pulse duration of <math><150\text{ fs}</math>. Based on our unique figure 9<sup>®</sup> design, the lasers offer reproducible and long-term stable operation. Both oscillator and amplifier use polarization maintaining (PM) fiber components only, ensuring excellent stability and low-noise operation. The second harmonic generation is a highly efficient module for maximum performance. The laser is maintenance free, user installed and ready to use at the press of a single button. Customize your laser with the available options to match the requirements of your application.

### KEY SPECIFICATIONS

- Wavelength 1040 nm & 520 nm
- Output Power >10 W
- Pulse Length <math><150\text{ fs}</math>
- Repetition Rate 50-250 MHz

### APPLICATIONS

- OPA/OPO pumping
- Amplifier Seeding
- Ultrafast Spectroscopy
- Cell Surgery
- Multi-Photon Excitation
- 2-Photon Polymerization and 3D Printing

### FEATURES

- High Stability and High Beam Quality
- Low Amplitude and Phase Noise
- All-PM Solution
- figure 9<sup>®</sup> Technology
- Laser Output in less than 60 Seconds after Pressing On-Button

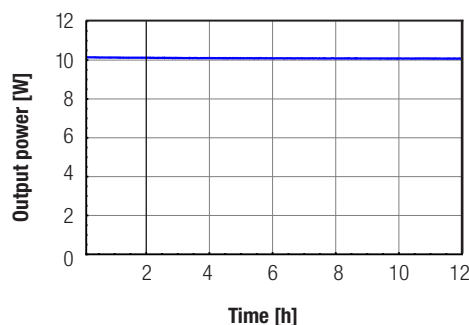
### OPTIONS

- **SHG 520**  
Frequency doubling to 520 nm
- **CHIRPED PULSES**  
Picosecond pulses for seeding applications
- **SYNC100**  
**Repetition Rate Synchronization**  
Tunable cavity length by high-bandwidth piezo-controlled synchronization
- **RRE-SYNCRO**  
**Repetition Rate Stabilization**  
Feedback electronics to phase lock pulses to an external clock (see separate data sheet for more details)
- **VARIO**  
**User-Defined Repetition Rate**  
Factory-set value, selectable in the 50-250 MHz range
- **MULTIBRANCH**  
**Additional Seed Ports**  
Seeding of multiple amplifiers with optional subsequent frequency conversion to cover multiple wavelengths

### PERFORMANCE DATA

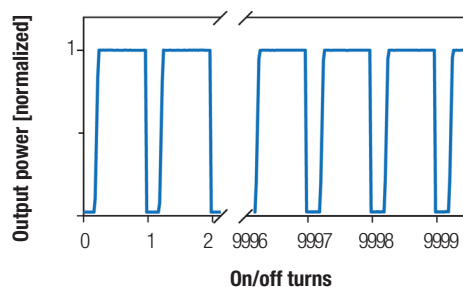
#### Amplitude noise

<math><1\% \text{ rms}</math> (over 12h)



#### Reproducibility

Identical and consistent laser performance



## Femtosecond Fiber Laser 1040 nm & 520 nm

SPECIFICATIONS	ORANGE	ORANGE HIGH POWER	ORANGE HIGH POWER 10
Center Wavelength	1040 nm ± 10 nm	1040 nm ± 10 nm	1040 nm ± 10 nm
Average Power	>100 mW (@ 100 MHz)	>1 W (@ 100 MHz)	>10 W (@ 100 MHz)
Pulse Energy	>1 nJ	>10 nJ	>100 nJ
Pulse Width	chirped, 1-4 ps, supporting <150 fs	<150 fs (<75 fs**)	<200 fs (<150 fs**)
Repetition Rate*	50 MHz or 100 MHz	100 MHz	50 MHz or 100 MHz
Output Port	fiber-coupled	free space	free space
Beam Quality		TEM00, M <sup>2</sup> <1.2 (typ.<1.1)	TEM00, M <sup>2</sup> <1.2 (typ.<1.1)
Additional Fiber-Coupled Seed Port	1 (up to 4 with MULTIBRANCH)	1 (up to 4 with MULTIBRANCH)	1 (up to 4 with MULTIBRANCH)
Polarization	linear, PM Fiber	linear, p-polarized	linear, p-polarized
Beam Height		120 mm	120 mm

### SECOND HARMONIC MODULE SHG 520

Key Specifications	>400 mW @ 520 nm, <150 fs @ 100 MHz
Dual Output	520 nm & 1040 nm, linear polarized, beam height 95 mm, laser head dimensions 500 x 580 x 140 mm

\*Please inquire for your specific combinations of average power, pulse duration and repetition rate.

\*\*Please inquire about shorter pulse widths.

### REQUIREMENTS

Operating Voltage	100/115/230 VAC		
Frequency	50 to 60 Hz		
Cooling Requirements	no water cooling is required		
Laser Head Stabilization	actively temperature stabilized		
Operating Temperature	22 °C ± 3 °C		
Laser Head Dimensions	413 x 178 x 120 mm <sup>3</sup>	415 x 400 x 140 mm <sup>3</sup>	415 x 400 x 140 mm <sup>3</sup>
Laser Head Weight	10 kg	26 kg	26 kg
Control Unit Dimensions	448 x 132 x 437 mm <sup>3</sup>	448 x 132 x 437 mm <sup>3</sup>	448 x 227 x 495 mm <sup>3</sup>
Control Unit Weight	10 kg	11 kg	24 kg
Warm-Up Time	<60 s		

### ORDERING INFORMATION

Product Code	orange	orange HP orange HP-520	orange HP 10
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Please call for pricing. Specifications are subject to change without notice. Custom modifications are available, please inquire.

