

# M-Comb orange-Comb

Femtosecond Fiber Laser 1560 nm, 1040 nm



Menlo Systems' fiber based femtosecond laser sources integrate the latest achievements in fiber technology into easy-to-use products. Both the M-Comb and orange-Comb feature polarization maintaining outputs, ensuring excellent stability. The lasers are maintenance free and ready to use at the press of a single button. Engineered for the most demanding scientific applications, both lasers feature actuators for the laser repetition rate and the carrier envelope offset frequency required for high bandwidth PLLs as well as for extended tuning ranges. Customize your laser with the available options to match the requirements of your application.

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## KEY SPECIFICATIONS

- Wavelength 1560 nm and 1040 nm
- Repetition Rate 250 MHz
- Tuning Range of Repetition Rate >4 MHz
- Tuning Range of CEO Frequency >250 MHz
- Sub-Hz Linewidth of Comb Modes with EOM-Phase Option

## APPLICATIONS

- Optical Frequency Combs
- Distribution of Stable Optical Frequencies
- Low-noise Microwave Generation
- High-resolution Spectroscopy
- Frequency Comb Fourier Spectroscopy
- High Precision CW Laser Stabilization

## FEATURES

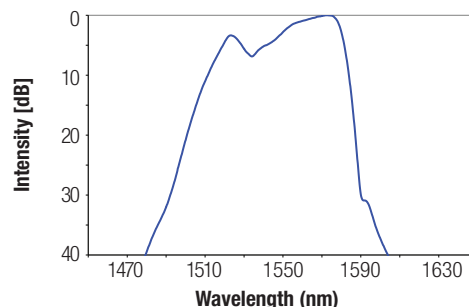
- Integrated Actuators for Repetition Rate and CEO Frequency Control
- Additional Actuators for Extended Tuning Range
- PM Outputs
- Outputs can be turned into High Power Ports
- Core Component of Versatile Optical Frequency Synthesizers
- Designed for High Precision Metrology Systems with  $10^{-14}$  Accuracy and  $5 \cdot 10^{-13}$  Stability in one Second
- Hands-off, 24/7 Operation

## OPTIONS

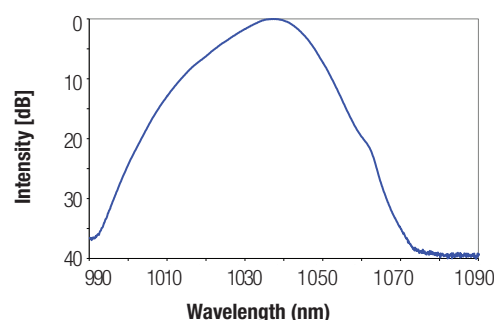
- **EOM-PHASE Electro-Optic Phase Modulator**  
Intracavity EOM for high-performance phase locking to an optical reference
- **MULTIBRANCH Additional Seed Ports**  
Seeding of multiple amplifiers with optional subsequent conversion to cover multiple wavelengths

## PERFORMANCE DATA

Optical spectrum of M-Comb



Optical spectrum of orange-Comb



# M-Comb orange-Comb

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Femtosecond Fiber Laser 1560 nm, 1040 nm

SPECIFICATIONS	M-COMB	ORANGE-COMB
Center Wavelength	1560 nm +/- 20 nm	1040 nm +/- 10 nm
Spectral Width	>25 nm	>15 nm
Average Power	>60 mW	>10 mW
Repetition Rate	250 MHz	250 MHz
Repetition Rate Tuning Range	>4 MHz	>2 MHz
CEO Frequency Tuning Range	>250 MHz	>250 MHz
Output ports*	5 x fiber-coupled (LC/APC) 1 x fiber-coupled (LC/APC) for upgrade with Menlo M-Phase module	1 x fiber-coupled (FC/APC) with >5 mW 1 x fiber-coupled (E2000) for upgrade with Menlo M-Phase module
Polarization	linear, PM fiber	linear, PM fiber

\* With MULTIBRANCH option different port configurations are available.

## REQUIREMENTS

Operating Voltage	100/115/230 VAC	100/115/230 VAC
Frequency	50 to 60 Hz	50 to 60 Hz
Power Consumption	120 VA	120 VA
Cooling Requirements	no water cooling is required	no water cooling is required
Laser Head Stabilization	active temperature stabilization	active temperature stabilization
Operating Temperature	22 ± 5 °C	22 ± 5 °C
Laser Head Dimensions/Weight	413 x 90 x 178 mm <sup>3</sup> / 7 kg	413 x 120 x 178 mm <sup>3</sup> / 9 kg
Control Unit Dimensions/Weight	448 x 132 x 437 mm <sup>3</sup> / 10 kg	448 x 132 x 437 mm <sup>3</sup> / 10 kg
Warm-Up Time	<60 s	<60 s

## ORDERING INFORMATION

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



Invisible laser radiation  
avoid exposure to beam  
Class 3B laser

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