

# FC800

## Ti:Sapphire-based Optical Frequency Comb



The FC800 is a Ti:Sapphire based Optical Frequency Comb with a mode spacing of 1 GHz. Its oscillator is the Laser Quantum taccor turn-key femtosecond laser. Menlo Systems' robust and mature one-arm f-2f interferometer technology together with our optimized control loops and our established software packages for automation and data evaluation enables us to combine Ti:Sapphire low-noise performance and high repetition rate in a frequency comb system designed for 24/7 operation. This Optical Frequency Comb is as simple as our well-known FC1500 fiber-based frequency comb systems being workhorses in labs all over the world.

Every FC800 GHz Optical Frequency Comb will undergo stringent characterization at Menlo, including a full comb-comb comparison required to evaluate the specification on the stability and accuracy of the comb system.

Menlo Systems provides its customers with premium support during system design, procurement, and operation. We are proud of our unmatched 15 years experience in developing and building the best frequency combs in the world.

# MenloSystems

### KEY SPECIFICATIONS

- Comb Spacing 1 GHz
- Accuracy: Better  $10^{-14}$  in 120 s
- Stability: Better  $5 \times 10^{-13}$  in 1 s
- Operational Range from 500 nm to 1.1  $\mu\text{m}$

### APPLICATIONS

- Optical Clocks
- High Precision CW Laser Stabilization
- Direct Comb Spectroscopy
- Cold Atoms and Ions
- High Resolution Spectroscopy
- Low-noise Microwave Generation

### FEATURES

- High Repetition Rate of 1 GHz
- Self-starting turn-key Ti:Sapphire Oscillator including actuators for long-term operation
- Turnkey Metrology System. Fully automated, including data evaluation software, designed for continuous operation

### OPTIONS

#### Complete Solution with Modular Extensions

Menlo Systems Optical Frequency Combs are complete solutions. The modular system architecture allows for easy additions of more functionality to an existing system. Multiple extensions can be combined in a system.

- **BDU:** Beat Detection Unit
- **LLE-SYNCRO:** Laser Locking Electronics
- **Microwave:** Ultrastable RF Output
- **GPS:** -based 10 MHz Frequency Reference
- **WLM-VIS:** Integrated Wavelength Meter
- **PCF:** Additional photonic crystal fiber for different spectral coverage

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## Ti:Sapphire-based Optical Frequency Comb

### SPECIFICATIONS

### FC800

Comb Spacing	1 GHz
Accuracy	better $10^{-14}$ in 120 s*
Stability	better $5 \times 10^{-13}$ in 1 s*
Tuning Range of Spacing Between Individual Comb Lines	>30kHz
Tuning Range of CEO Frequency	>1 GHz
Laser Outputs	Freespace
Center Wavelength	800 nm
Spectral Range	>23 nm (plus additional extension units)
Average Output Power	Up to 1 W of power at 800 nm

\*or same as reference, whichever applies first

### REQUIREMENTS

Input Requirements	10 MHz frequency reference, power level +7 dBm
Operating Voltage	100/115/230 VAC
Frequency	50 to 60 Hz
Power Consumption	<500 W, <3kW including chiller
Cooling Requirements	closed cycle chiller included
Operating Temperature	$22 \pm 5$ °C
Optical Unit Dimensions/Weight	706 x 716 mm, approx. 80 kg**
Control Electronics Dimensions/Weight	600 x 800 x 1400 mm, approx. 140 kg**

\*\*Standard system configuration

### ORDERING INFORMATION

<b>Product Code</b>	FC800
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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 4 laser

