56 Sparta Avenue • Newton, New Jersey 07860
(973) 300-3000 Sales • (973) 300-3600 Fax
www.thorlabs.com

THORLABS

FC800 - October 7, 2021

Item # FC800 was discontinued October 7, 2021. For informational purposes this is a copy of the website content at that time and is valid only for the stated product.

TI:SAPPHIRE OPTICAL FREQUENCY COMB

- **High Power in Each Optical Mode**
- **High Repetition Rate of 1 GHz**
- **Operating Range from 500 nm to 1.1 µm**



FC800

OVERVIEW

Features

- Sealed, Alignment-Free Ti:Sapphire Oscillator
- Includes Optical Unit: Oscillator with Free-Space PM Output and f:2f Interferometer
- Includes Electronic Control Units: Phase-Locked Loops, Displays, and Data Acquisition
- Click Here to View Menlo Systems' Frequency Comb Brochure

Applications

- Laser Cooling
- Optical Clocks
- Microwave Generation
- Optical Metrology
- Spectroscopy



Simon Kocur
Menlo Systems

Feedback? Questions? Need a Quote?

Please note that the FC800 is available directly from Menlo Systems, Inc. within the United States and from Menlo Systems GmbH outside the United States.

United States
Phone: +1-973-300-4490
Email: ussales@menlosystems.com

Outside United States
Phone: +49-89-189166-0
Email: sales@menlosystems.com

Menlo Systems' FC800 is a Ti:Sapphire-based Optical Frequency Comb with a mode spacing of 1 GHz. Its oscillator is the Laser Quantum taccor turnkey femtosecond laser. Menlo Systems uses a robust, mature, single-arm, f:2f interferometer design together with optimized control loops and established software packages for automation and data evaluation. With the combination of Ti:Sapphire low-noise performance and a high repetition rate, the frequency comb system is designed for 24/7 operation. This optical frequency comb is as simple as the well-known FC1500 fiber-based frequency comb systems, which are used in labs all over the world.

S P E C S

FC800 Specifications	
Performance Specifications	
Comb Spacing	1 GHz
Accuracy	10^{-14} in 120 s[a]
Stability	5×10^{-13} in 1 s[a]
Comb Spacing Tuning Range	>30 kHz
CEO Frequency Tuning Range	>1 GHz
Laser Outputs	Free Space
Center Wavelength	800 nm
Spectral Range	>23 nm
Average Output Power	Up to 1 W (at 800 nm)
Environmental Specifications	
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, <3 kW Including Chiller
Cooling Requirements	Closed Cycle Chiller Included
Operating Temperature	22 ± 5 °C
Optical Unit Dimensions / Weight	706 x 716 x 139 mm / ~80 kg[b] (27.8" x 28.2" x 5.5" / ~176 lbs)
Control Electronics Dimensions / Weight	600 x 800 x 1400 mm / ~140 kg[b] (23.6" x 31.5" x 55.1" / ~308 lbs)

a. Or same as reference, whichever applies first.
b. For Standard System Configuration

Optional Packages

BDU Beat Detection Unit
Generates and measures the beat signal between the frequency comb and an external CW laser. Available for various spectral ranges, with free-space or fiber-coupled optics, and matched to the customer's laser.

LLE-SYNCHRO Laser Locking Electronics
Allows locking of an external CW laser to the stabilized frequency comb. Performance has been field tested with lasers from major suppliers.

Microwave Ultrastable RF Output
Ultrastable RF output in the 1 MHz to 10 GHz range. Utilizing a high-sensitivity fast photodetector and a frequency divider where needed.

GPS GPS-Based 10 MHz Frequency Reference
Provides the RF reference input signal for the frequency comb, combining the superior short-term stability of an ultrastable quartz oscillator with the long-term accuracy of the GPS.

WLM-VIS Integrated Wavelength Meter
Integrated wavelength meter with 100 MHz accuracy over 500 - 1100 nm.

PCF Photonic Crystal Fiber
Additional photonic crystal fiber for different spectral coverage.

Part Number	Description	Price	Availability
FC800	Ti:Sapphire Optical Frequency Comb	$0.00	Menlo Lead Time