

Vescent FFC Frequency Combs

The FFC-100 is a fully stabilizable octave-spanning frequency comb with precise control over f_{rep} , f_{opt} , and f_{CEO} . The Er-doped fiber MOPA architecture is simple and robust, and yet high-performance. A highly non-linear fiber broadens the spectrum and our unique f_{CEO} lock detection reduces the size, weight, and power of the system. The FFC frequency combs are designed and built to ensure stable, low-phase noise operation with Allan Deviations supporting the next generation of optical atomic clocks, gravimeters, quantum computers, optical sensors, and more.



FFC-100 turnkey frequency combs

The FFC-100 was designed for low SWaP and turn-key, stable operation: A single 2U 19" rack mount chassis contains the oscillator, amplifier, pump lasers, supercontinuum generation module, and f_{CEO} detection and lock as well as the control electronics. The simple oscillator mode locks at start up

every time and the innovative passive SESAM mode-locker is specially designed for a robust, long life. Our unique oscillator design also makes it easy to precisely factory match the repetition rate of two (or more) FFC-100 combs for multi-comb spectroscopy experiments.

Features:

- Turn-key operation
- 1560 nm center wavelength
- Low phase & amplitude noise
- 2U 19" rack-mounted enclosure or modular
- f_{rep} monitoring, control, and matching
- Input port for f_{opt}
- Repetition rates from 80 to 250 MHz
- Optional visible extensions
- Optional super continuum flattening
- Made in America

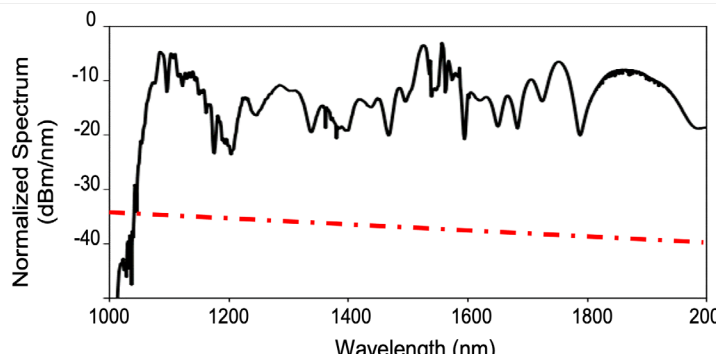
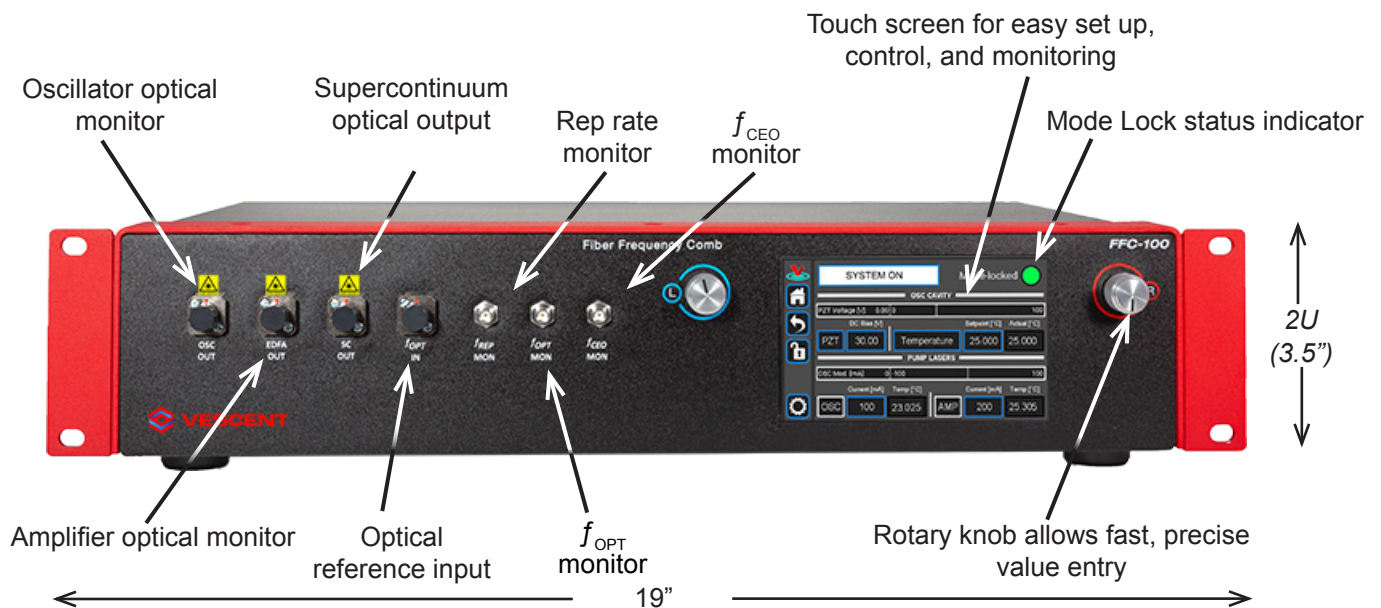
Applications:

- Time & frequency readout & transfer
- Frequency ruler
- Dual- and multi-comb spectroscopy
- Quantum sensing, computing, & cryptography
- Low-phase noise rf generation

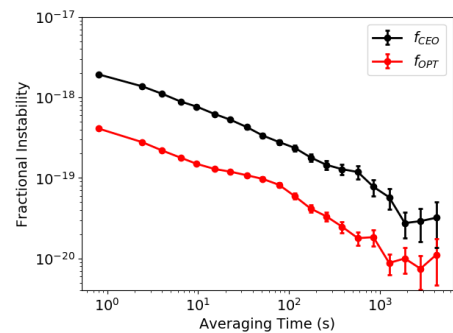


Also available in compact modular form for OEM integration.

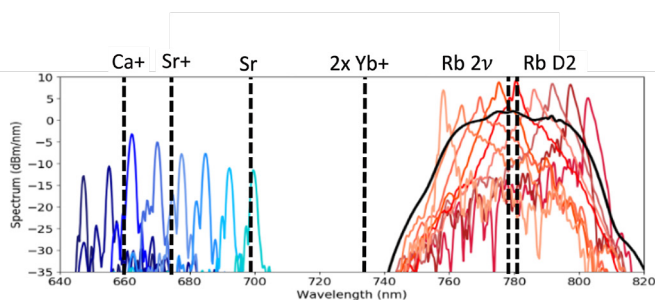
Meet the FFC-100



Full octave-spanning spectrum with optional flattened super-continuum. Dashed line indicates f_{opt} minimum lockable power.



Rock-solid performance of the FFC offers favorable stability with respect to the next generation of atomic clock requirements.



Non-linear extension of comb teeth allows for referencing of f_{opt} in the visible. 700-740 nm also available, but not shown for clarity.



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