

# Vescent FFC Frequency Combs

The FFC-100 is a fully stabilizable octave-spanning frequency comb with precise control over  $f_{\text{rep}}$ ,  $f_{\text{opt}}$ , and  $f_{\text{CEO}}$ . 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  $f_{\text{CEO}}$  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  $f_{\text{CEO}}$  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
- $f_{\text{rep}}$  monitoring, control, and matching
- Input port for  $f_{\text{opt}}$
- Repetition rates from 80 to 250 MHz
- Optional visible extensions
- Optional super continuum flattening
- Made in America

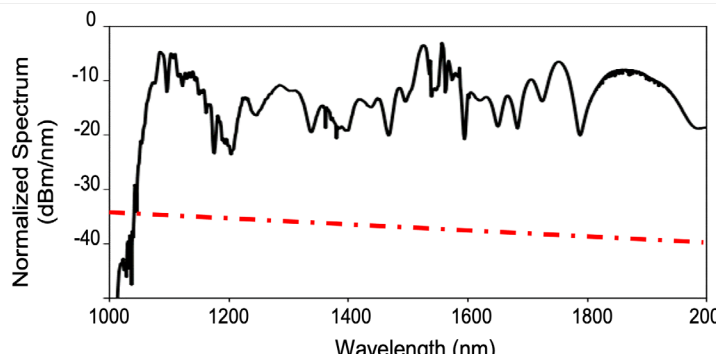
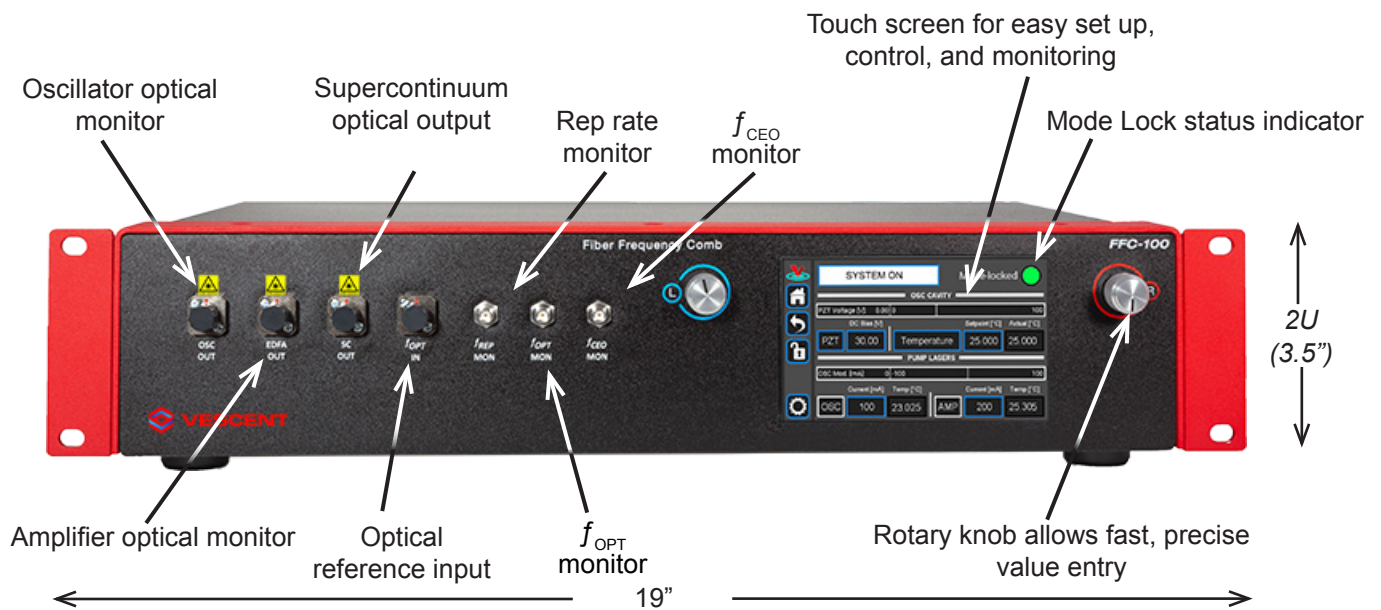
## Applications:

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

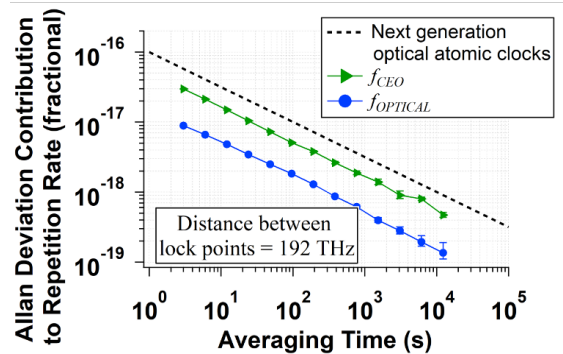


*Also available in compact modular form for OEM integration.*

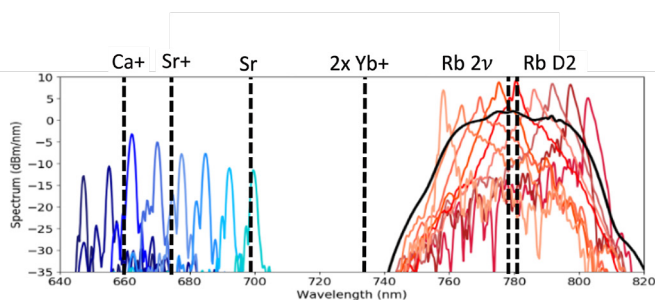
# Meet the FFC-100



Full octave-spanning spectrum with optional flattened super-continuum. Dashed line indicates  $f_{\text{opt}}$  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  $f_{\text{opt}}$  in the visible. 700-740 nm also available, but not shown for clarity.



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