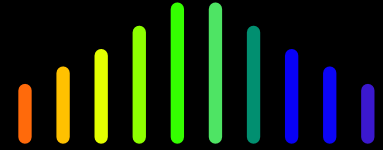


# Dual Comb (DUAL-OFC)

## Rackmount Dual Optical Frequency Comb



### All-in-one solution for time transfer and spectroscopy

Dual Comb builds on Vector Atomic's robust Er fiber comb architecture, integrating the optics for a pair of frequency combs into a monolithic package. The module contains all necessary pump lasers, drivers, and temperature controllers. An all-fiber architecture enables robust operation in challenging environments, while photonic self-referencing reduces the total power consumption below 20 W. Integrated RF detection and filtering provide clean beatnotes for self-referencing and repetition frequency. The 200 MHz repetition rates can be matched at a user-specified operating temperature.



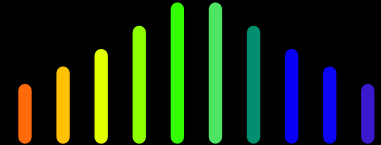
### Features

- Robust, Er Fiber design
- Fully integrated optics package
- Ultralow, ~8 W power consumption
- Vibration-immune oscillator design
- 1560 nm center wavelength
- Optional optical output



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## Rackmount Dual Optical Frequency Comb



### SPECIFICATIONS

Center Wavelength	1560 ± 1 nm
Repetition Rate	200 MHz @ user specified temp (20 – 50 °C ± 2 °C)
Oscillator Bandwidth	> 10 nm FWHM
Oscillator Tap	1 mW
Amplified Output	> 15 mW in full bandwidth
Amplified Spectral Bandwidth	> 20 nm FWHM centered at 1560 nm
Stability	< 5 x 10 <sup>-17</sup> @ 1 s (optically referenced)
Cavity Length Actuators (BW)	Oscillator Temperature (1 Hz) Slow PZT (100 Hz); Fast PZT (200 kHz)
$f_{\text{CEO}}$ Actuator (BW)	Pump Current (20 kHz set by Er pole)
$f_{\text{CEO}}$ RF Beatnote	> -30 dBm; > 40 dB SNR @ 300 kHz RBW
$f_{\text{CEO}}$ Free-Running Linewidth	< 500 kHz
$f_{\text{Rep}}$ RF Beatnote	> 0 dBm; > 60 dB SNR @ 300 kHz RBW

### OPERATING PARAMETERS

Power Consumption	< 25 W (oscillator setpoint within ± 5 °C ambient)
Operating Temperature	20 – 40 °C
Thermal Interface	Conductive cooling via baseplate

### CHASSIS AND INTERFACE

Volume	9 L (42.3 cm × 29.6 cm × 7.2 cm)
Power	110 – 120 V <sub>AC</sub> , 50 – 63 Hz
Weight	8 kg
RF Connectors	SMA, 50 Ω
Optical Connectors	FC/APC, PM1550 fiber
Laser Safety	IEC 60825-1, Class 1
Control Interface	USB-C
Mounting	19" rackmount kit included

### OPTIONAL OPTICAL REFERENCING (DUALOFC-OR)

CW Optical Input	User specified ITU Band (Channel Range: 10-35)
$f_{\text{Opt}}$ Beatnote	> -30 dBm; > 40 dB SNR @ 300 kHz RBW

