

Fidelity-2

High Power Femtosecond Fiber Laser

Fidelity is a revolutionary ultrafast fiber laser that offers a unique combination of high average power and extremely short pulses in a simple to operate, maintenance-free and compact package.

Delivering over 2 W of sub-55 fs pulses at 1070 nm, Fidelity opens up a broad range of scientific and commercial opportunities in applications as diverse as optogenetics, terahertz generation and fundamental material research. Of course, for ultrafast pulses to be most effective in these types of applications, they must maintain their pulse width (maximum peak power) on target. By incorporating a user-adjustable pre-chirp pulse compressor into the laser head, Fidelity faithfully delivers the shortest possible pulses to the sample.

This combination of high peak power and wavelength make Fidelity-2 the ideal source for two photon imaging of red shifted calcium indicators, and photostimulation of the latest optogenetics tools such as C1V1 and Chrimson.



FEATURES & BENEFITS

- Shortest specified pulse length from a commercial fiber laser
- High average power >2 W
- Built-in automated pre-chirp pulse compressor
- Compact foot print
- Air-cooled
- Maintenance-free
- Highly Accelerated Stress Screened (HASS) Manufacturing
- Simple front panel user interface
- Software GUI

APPLICATIONS

- Time Resolved, Non-linear Spectroscopy
- Multiphoton Excitation (MPE) Microscopy
- Optogenetic Excitation
- Terahertz Generation
- Supercontinuum Generation
- Amplifier Seeding

SPECIFICATIONS		Fidelity-2
Average Power (W)		>2
Center Wavelength (nominal) (nm)		1070
Pulse Width ¹ (fs)		<55
Ratio of Measured to Transform Limited Pulse Duration		<1.2
Peak Power (kW)		>450
RMS Noise ² (%)		<1
Power Stability ³ (%)		±0.5
Repetition Rate (MHz) (factory set)		70 ±2
M ² (average of X&Y)		<1.2
Beam Diameter ⁴ (mm)		1.2 ±0.2
Beam Divergence (mrad)		<1.6
Beam Circularity ⁵		0.9 to 1.1
Astigmatism (%)		<10
Polarization		Horizontal
Group Delay Dispersion (GDD) Pre-compensation Range (fs ²)		-30,000 to 0
FEATURES		
Light-loop Power Stabilization		
Integrated and Automated Pre-Chirp Dispersion Compensation		
Fast Photodiode Output (trigger signal)		
ELECTRICAL AND COOLING REQUIREMENTS		
Voltage (V)		100 to 240
Current Max. (A)		3
Line Frequency (Hz)		50 to 60
Cooling		Air-cooled
Max. Heat Dissipation from Laser Head (W)		25
Laser Head Dimensions (L x W x H)		317.5 x 317.5 x 146.8 mm (12.5 x 12.5 x 5.78 in.)
Beam Height		120.6 mm (4.75 in.)
Umbilical Length		3m (9.8 ft.)
Laser Head Weight		18.5 kg (40.8 lbs.)
Power Supply Weight		6.5 kg (14.3 lbs.)

1 Based on pulse measurements made using FC Spider (APE GmbH).

2 Measured from 10 Hz to 10 MHz.

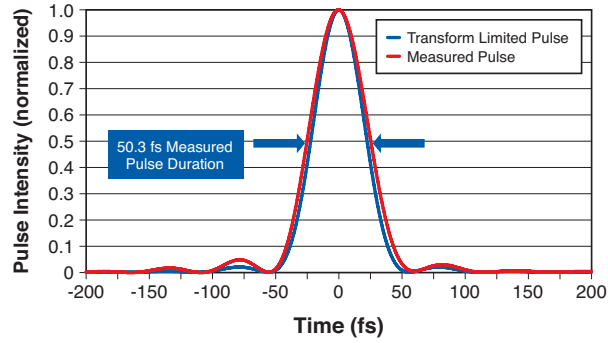
3 Measured over 2 hrs. after 30 min. warm-up at constant environmental temperature.

4 Average 1/e² diameter measured at output.

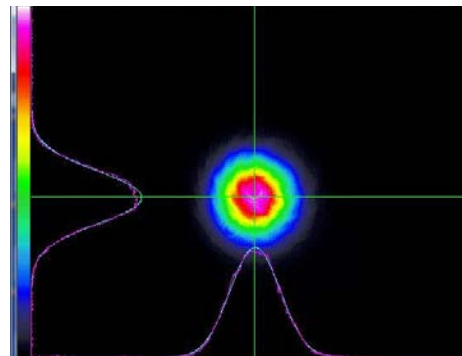
5 Ratio of major to minor 1/e² beam diameter at exit port.

TYPICAL PERFORMANCE DATA

Fidelity-2: 50.3 fs Pulse Duration

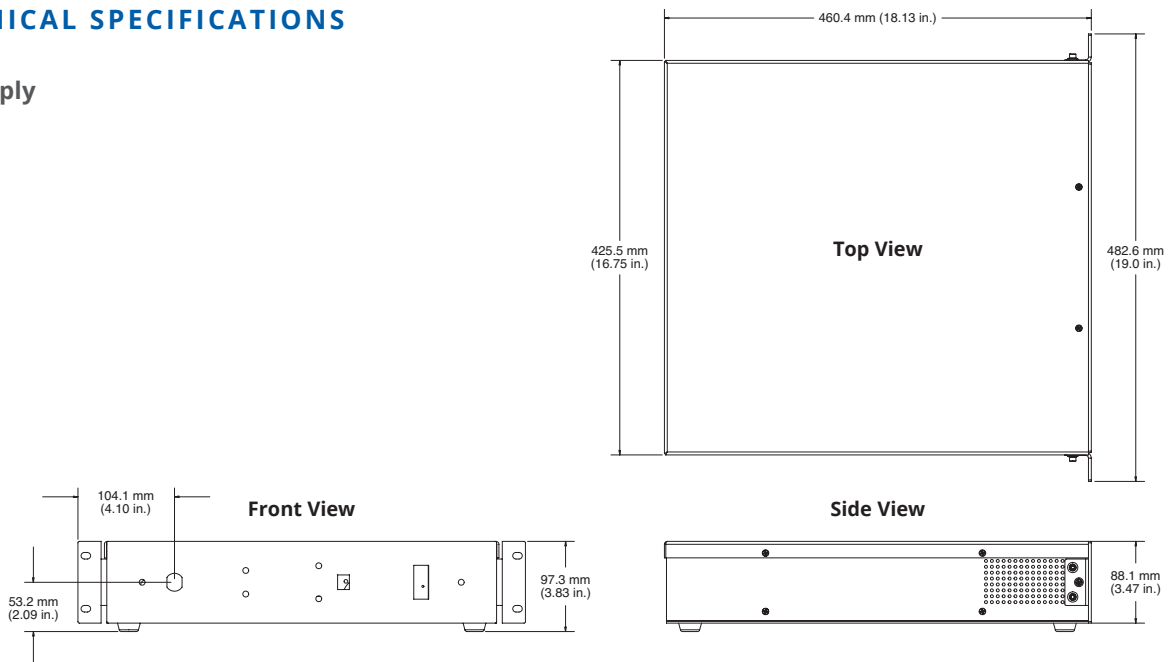


Fidelity-2: Typical Far Field Mode Quality



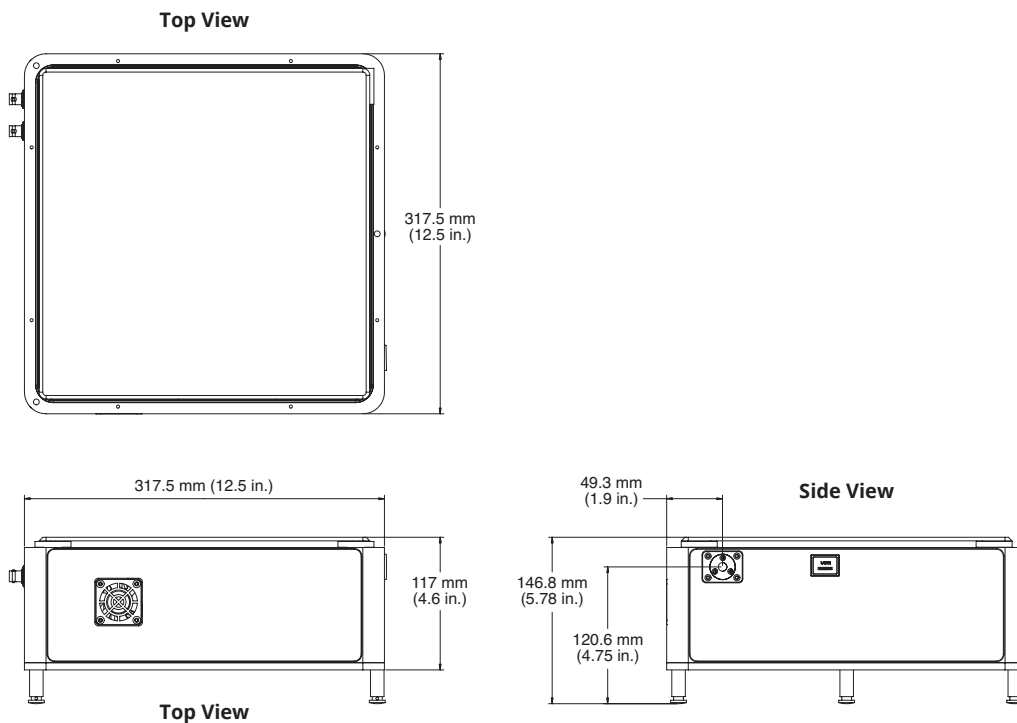
MECHANICAL SPECIFICATIONS

Power Supply



MECHANICAL SPECIFICATIONS

Fidelity-2



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all Fidelity-2 Lasers. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative. MC-004-14-0M0618Rev.C Copyright ©2018 Coherent, Inc.