

Fidelity-2

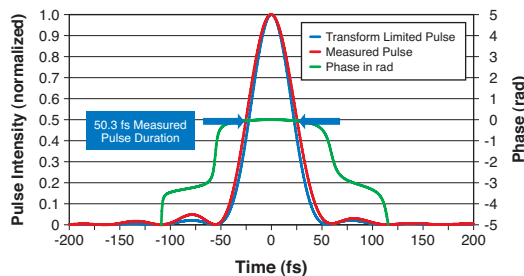
High Power Femtosecond Fiber Laser

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 2W 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.

With the simplicity and reliability of optical fiber, built to Coherent's exacting industrial manufacturing standards and delivering unmatched ultrafast performance, Fidelity is your powerful and dependable femtosecond light source.

Fidelity-2 50.3 fs Pulse Duration



Superior Reliability & Performance

Fidelity-2 Features:

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

Fidelity-2 Applications:

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

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System Specifications¹

Fidelity-2

Average Power (W)	>2
Center Wavelength (nominal)(nm)	1070
Pulse Width ² (fs)	<55
Ratio of Measured to Transform Limited Pulse Duration	<1.2
Bandwidth FWHM (nm)	>60
Peak Power (kW)	>450
RMS Noise ³ (%)	1%
Power Stability ⁴ (%)	±0.5
Repetition Rate (MHz)(factory set)	70 ±10
M ² (average of X&Y)	<1.2
Beam Diameter ⁵ (mm)	1.2 ±0.2
Beam Divergence ⁵ (mrad)	<1.6
Beam Circularity ⁶	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	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 127 mm (12.5 x 12.5 x 5.0 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 Specifications subject to change.

² Based on pulse measurements made using FC Spider (APE GmbH).

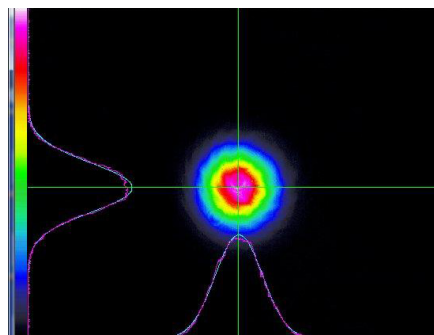
³ Measured from 10 Hz to 10 MHz.

⁴ Measured over 2 hrs. after 30 min. warm-up at constant environmental temperature.

⁵ Average 1/e² diameter measured at output.

⁶ Ratio of major to minor 1/e² beam diameter at exit port.

Fidelity-2 Typical Far Field Mode Quality

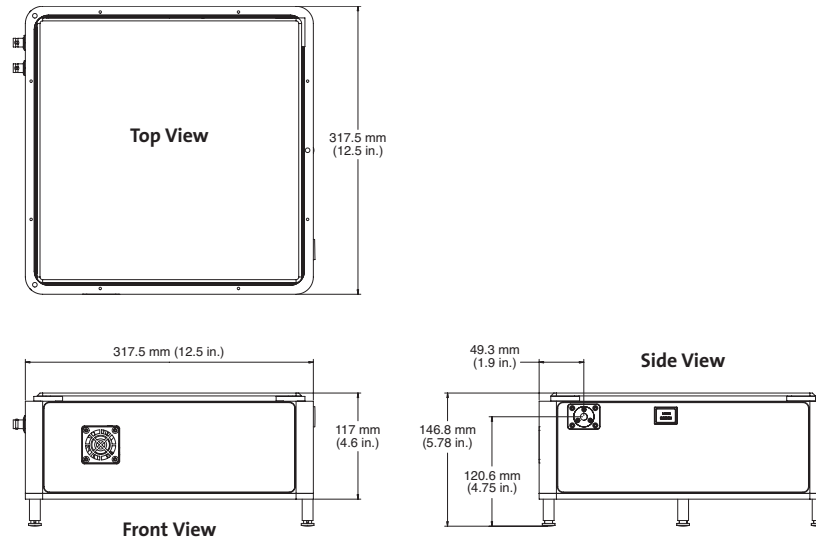


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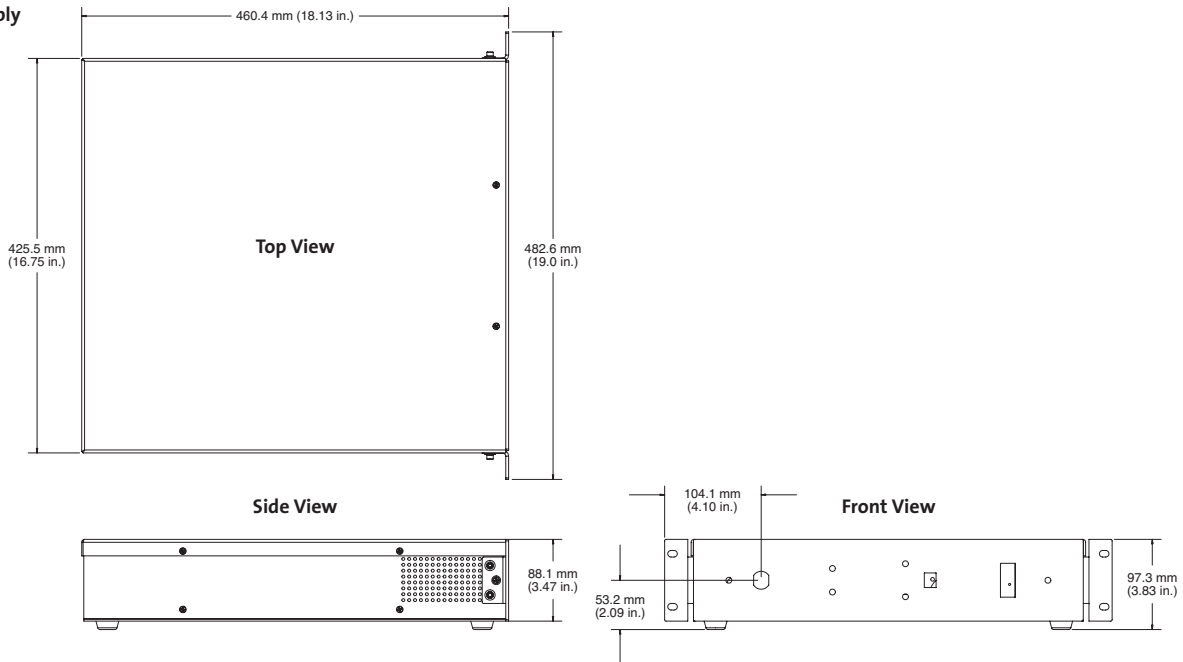
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Mechanical Specifications

Laser Head



Power Supply



COHERENT

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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.