COHERENT

Fidelity HP

High Power Femtosecond Fiber Laser

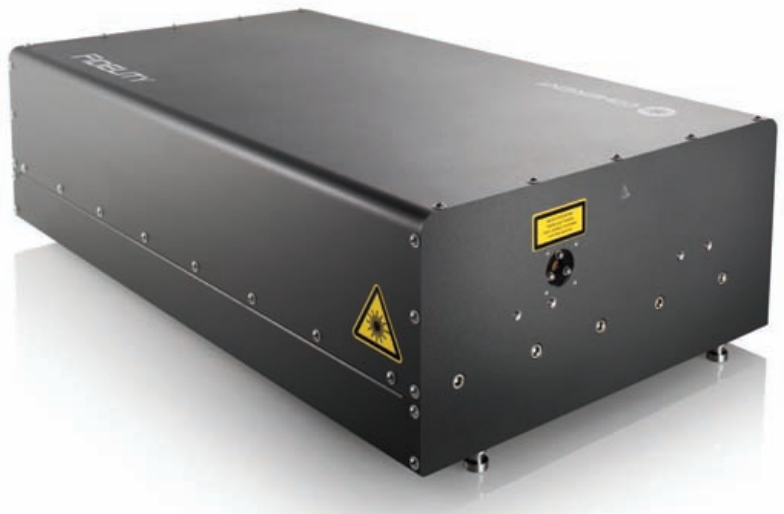
Fidelity femtosecond laser systems deliver world leading performance in a compact turnkey, low maintenance package. With average output powers up to 18W and short 140 fs pulses, Fidelity accesses high peak power regimes that truly enables a suite of applications in life sciences, applied physics, materials processing and microelectronics.

Utilizing Coherent's state of the art fiber laser technology, Fidelity delivers minimal cost of ownership with minimal maintenance requirements. Exquisite beam quality provides optimum focus resolution and efficiency, coupled with extremely stable and low noise output, thanks to a precise light-loop control.

In Multiphoton imaging applications, Fidelity's high average and peak power enables optogenetic photoactivation of large populations of neurons, with precise spatial and temporal resolution. Short pulses are delivered directly to the sample plane by way of user adjustable group dispersion delay compensation (GDD).

Industrial and commercial applications, such as two photon polymerization, rapid prototyping and scribing, benefit from the finesse and speed of Fidelity's high peak power pulses delivered at 80 MHz.

Fidelity is designed and manufactured with Industrial HASS and HALT methodologies, ensuring optimum product performance and reliability in the widest range of transport and operating environmental conditions.



Superior Reliability & Performance

Fidelity HP Features:

- **Highest average power**
- **Short pulses for high peak intensity**
- **Adjustable GDD precompensation**
- **Turnkey operation, low maintenance**
- **Low cost of ownership**
- **HASS/HALT tested design and manufacture**

Fidelity HP Applications:

- **Multiphoton Excitation (MPE) Microscopy**
- **Optogenetics (Photo Activation)**
- **OPO Pumping and Non-linear Optics**
- **Two-Photon Polymerization**
- **Scribing and Thin Film Processing**
- **Functional Surface Treatment**

www.Coherent.com/FidelityHP

Fidelity HP

High Power Femtosecond Fiber Laser

System Specifications	Fidelity 10	Fidelity 18
Average Power (W)	10	18
Wavelength (nm)	1040	
Pulse Repetition Rate (MHz)	80	
Pulse Duration[1] (fs)	140	
Noise[2] (%)	<0.25	
Power Stability[3] (%)	±0.5	
M^2	<1.2	
Beam Diameter (mm)	1.2 (±0.2)	
Ellipticity	0.8 to 1.2	
Astigmatism (%)	<10	
Polarization	100:1 Horizontal	
Negative GDD Range (fs^2)	0 to 30,000	

Utility Requirements

Power Supply	19" rack mount
Electrical Requirements (VAC)	100 to 250, 50 to 60 Hz
Cooling Requirements	Air-cooled closed-loop chiller (included)
External Interfaces	RS-232, USB, Sync Out

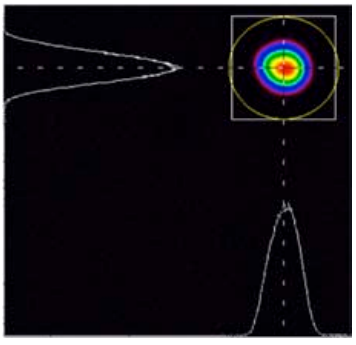
Environmental Specifications

Operating Temperature (°C)	15 to 35
Non-operating Temperature (°C)	0 to 40
Relative Humidity (%)(non-condensing)	<95
Altitude (m)	<2000

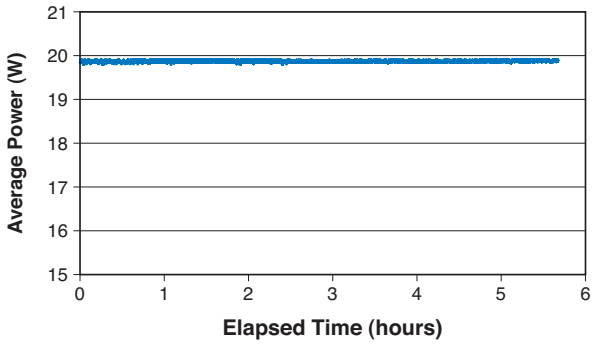
[1] Sech² pulse shape deconvolution.
[2] RMS, 10 Hz to 10 MHz.
[3] 2 hours, ±1°C, after 60 minute warm-up.

Typical Performance Data

Fidelity HP Beam Quality



Fidelity 18 Power Stability



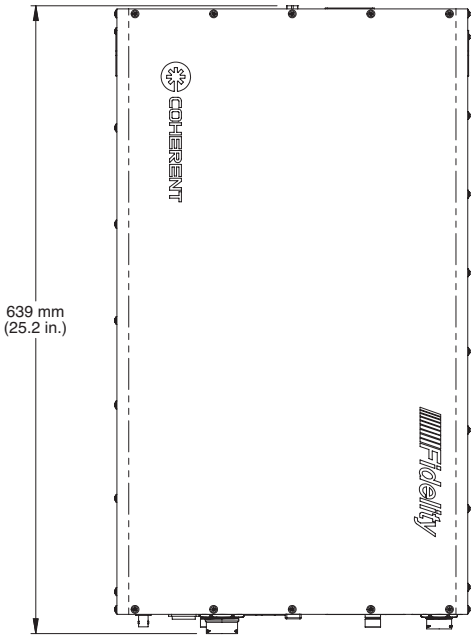
Fidelity HP

High Power Femtosecond Fiber Laser

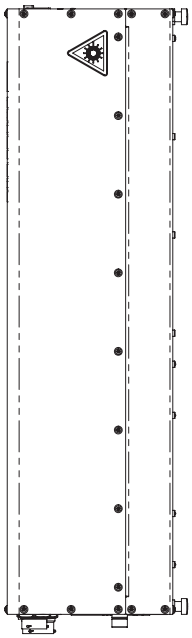
Mechanical Specifications

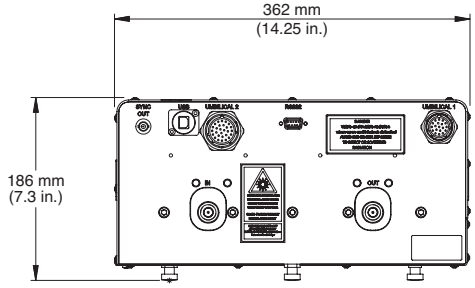
Laser Head

Top View



Side View





Front View

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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 HP 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.