THORLABS

Femtosecond Laser

OCTAVIUS-85M-HP

Octavius® fs Ti:Sapphire Laser

Thorlabs' Octavius® 85 MHz Titanium:Sapphire laser offers some of the broadest spectra commercially available. The spectrum of this ultrafast laser system is well suited for amplifier seeding, particularly for Optical Parametric Chirped Pulse Amplifiers (OPCPAs), or for use in pump/probe experiments. The OCTAVIUS-85M-HP is a high-power laser capable of >600 mW output while maintaining a <8 fs transform-limited pulse width.

Designed for the physical and life sciences, our Octavius laser is ideal for many applications, including multiphoton or Coherent Anti-Stokes Raman Scattering (CARS) imaging. With a pulse duration of less than 8 fs, the OCTAVIUS-85M-HP laser provides an exceptionally high peak power of more than 700 kW and a large spectral bandwidth spanning more than 200 nm (at -10 dB). This wide bandwidth covers more than half the typical tuning range of most Ti:Sapphire lasers and allows for the simultaneous excitation of several spectrally separated fluorophores at their optimal absorption wavelengths without tuning.

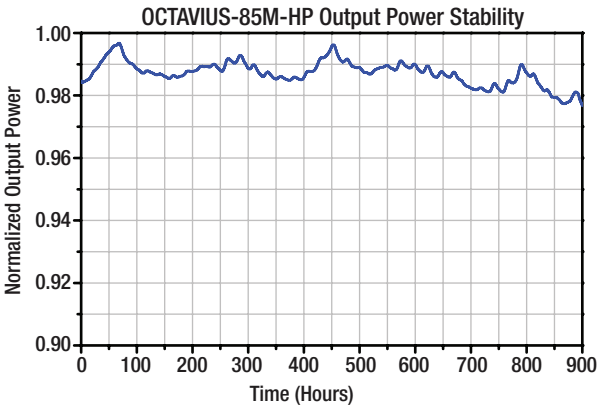
Features

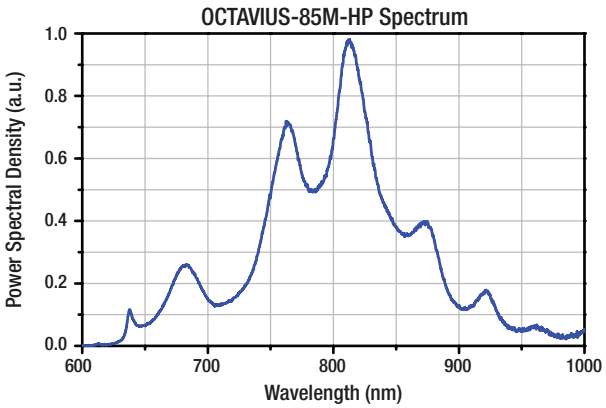
- Long-Term Stability: ±1% Over 900 Hours
- >600 mW Output Power and <8 fs Pulse Width
- Turn-Key, Maintenance-Free Operation
- Low Cost of Ownership

Applications

- Attosecond Science and High Harmonic Generation (HHG)
  - Optional Carrier Envelope Phase Stabilization for Ti:Sapphire Chirped Pulse Amplifier (CPA) Seeding
  - Optical Parametric Chirped Pulse Amplifier (OPCPA) Seeding
- Two-Photon Fluorescence Imaging
- Surface Plasmon Resonance
- THz Experiments
- Nonlinear Optics
- Ultrafast Spectroscopy

Spectrum Emitted by the OCTAVIUS-85M-HP





Specifications

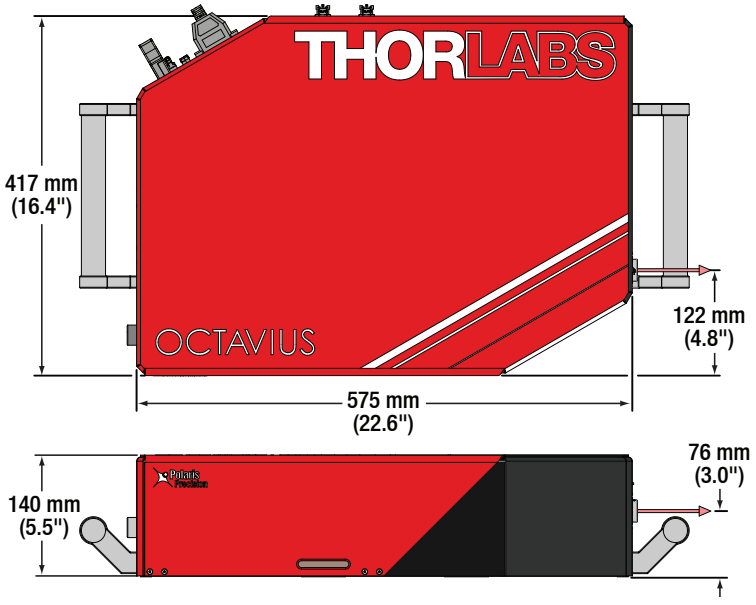
Item #	OCTAVIUS-85M-HP
Transform-Limited Pulse Width[a]	<8 fs
Bandwidth @ -10 dB	>200 nm
Average Output Power	>600 mW
Repetition Rate	85 MHz
M^2 @ 800 nm	<1.3
Divergence	<2 mrad
Beam Diameter	750 µm (Nominal)
Beam Ellipticity	1.15 (Nominal)
Polarization	>90:1
Power Stability Over 8 Hours[b]	±0.3%
RMS Noise (10 Hz to 625 kHz)	<0.2%
Laser Housing Dimensions	575 mm x 417 mm x 140 mm (22.6" x 16.4" x 5.5")
Controller Dimensions	432 mm x 267 mm x 381 mm (17.0" x 10.5" x 15.0")
Controller Power Consumption	750 W
Chiller Power Consumption	625 W (Max)
Air Circulator Power Consumption	25 W

a. The output pulse is chirped to account for dispersive materials outside the laser. To obtain the transform-limited pulse width, dispersion compensation is needed to counter-chirp and compress the pulse.
b. After warm-up and under stable environmental conditions.

Thorlabs' femtosecond lasers are engineered to provide peak performance without user intervention, offering minimal downtime and low cost of ownership. In order to provide stable experimental conditions in a variety of lab environments, they incorporate Thorlabs' Polaris® precision designs for ultrastable beam pointing. The laser is factory aligned and sealed for maintenance-free operation.

Pump Laser

The Octavius laser comes with an integrated pump laser. This pump laser is based on state-of-the-art Optically Pumped Semiconductor Laser (OPSL) technology, which allows for high compactness and a low cost of ownership.



For more information or to place an order, contact one of our Customer Support Specialists at 973-300-3000 or visit www.thorlabs.com.