

# Chameleon Ultra

## Widely Tunable, High Power Automated Femtosecond Ti:Sapphire Laser

Chameleon Ultra lasers deliver the highest power, the widest tuning range, the fastest tuning speed and the lowest noise of all commercially available Ti:Sapphire lasers.

Beam quality and pulse duration is specified to perfectly match your microscope or any other femtosecond experiment. Because of these capabilities, it is possible to image more dyes and fluorescent proteins, and to obtain deeper images more quickly than with any other laser.

Chameleon Ultra is the true workhorse of the non-linear imaging market and has been qualified with the widest range of commercial inverted or upright multiphoton microscope platforms available.

The laser is an ideal pump source for the Chameleon Compact OPO wavelength extensions, enabling imaging even further into the infrared and for ultrafast spectroscopy applications.

All Chameleon lasers are Highly Accelerated Stress Screened (HASS) to ensure highest product reliability, and benefit from Coherent's acclaimed Advanced Replacement (ARU) service strategy to maximize system uptime.



### FEATURES & BENEFITS

- Highest power for deepest imaging
- Automated tuning and alignment for hands-free operation
- PowerTrack™ active alignment for long-term stability and low maintenance
- Widest tuning range for efficient excitation of the widest gamut of probes
- Simple menu-driven GUI or RS-232 for flexible, intuitive control
- On-board spectrometer for real time spectral feedback
- Extendable wavelength range from 340 nm to 4000 nm with Compact OPO

### APPLICATIONS

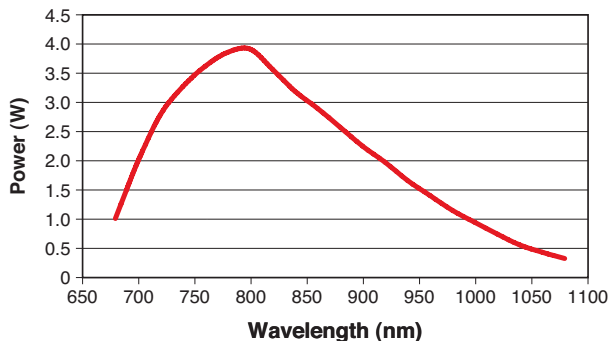
- Multiphoton Excitation (MPE) Microscopy
- Non-linear Optics
- Time Resolved Spectroscopy
- CARS/SRS Microscopy
- Optogenetic Photo Activation
- Second Harmonic Generation Imaging
- Pumping of Optical Parametric Oscillators (OPO)

SYSTEM SPECIFICATIONS	Chameleon Ultra	Chameleon Ultra I	Chameleon Ultra II
Average Power <sup>1</sup> (W)	>2.5	>2.9	>3.5
Tuning Range (nm)	690 to 1020	690 to 1040	680 to 1080
Peak Power <sup>1</sup> (kW)	>200	>250	>300
Power Specifications	>500 mW at 690 nm  >1.4 W at 710 nm >2.5 W at 800 nm >1.4 W at 920 nm >450 mW at 1020 nm	>600 mW at 690 nm  >1.5 W at 710 nm >2.9 W at 800 nm >1.45 W at 920 nm >450 mW at 1020 nm >300 mW at 1040 nm	>650 mW at 680 nm  >1.6 W at 700 nm  >3.5 W at 800 nm >1.6 W at 920 nm >550 mW at 1020 nm >200 mW at 1080 nm
Tuning Speed <sup>2</sup> (nm/s)	>35	>40	>40
Pulse Width <sup>1,3</sup> (fs)		140	
Noise <sup>1,4</sup> (%)		<0.15	
Output Power Stability <sup>5</sup> (%)		<±0.5	
Spatial Mode <sup>1</sup>		TEM <sub>00</sub> (M <sup>2</sup> <1.1)	
Beam Diameter <sup>1,6</sup> (mm)		1.2 ±0.2	
Beam Ellipticity <sup>1,7</sup>		0.9 to 1.1	
Astigmatism <sup>1</sup>		<10%	
Repetition Rate (MHz)		80	
Polarization		Horizontal >500:1	
Pointing (μrad/nm)		<0.5	
Operating Voltage		90 to 250 VAC (auto ranging)	
Maximum Operating Current		<15A at 90 VAC (power supply) <7A at 90 VAC (chiller) <2A at 90 VAC (MRU X1)	
System Power Consumption		2300 W max., 1300 W typical	
Line Frequency		47 to 63 Hz	
Operating Temperature Range		15 to 35°C (59 to 95°F)	
Non-operating Temperature Range		5 to 40°C (41 to 104°F)	
Weight of Laser Head		42 kg (93 lbs.)	
Weight of Power Supply		41 kg (90 lbs.)	
Umbilical Length		3 m (9.84 ft.)	
Chiller: Dimensions (L x W x H) Weight		436 x 270 x 393 mm (17.17 x 10.63 x 15.47 in.) 11 kg (25 lbs.)	
MRU Air Recirculator: Dimensions (L x W x H) Weight		46 x 43 x 8.5 cm (18 x 17 x 3 in.) 9 kg (20 lbs.)	

1 Specified at peak of tuning range.  
2 Average speed measured over entire tuning range.  
3 Based on sech<sup>2</sup> deconvolution of 0.65 times autocorrelation width.  
4 Measured RMS in a 10 Hz to 20 MHz bandwidth.  
5 Power drift in any two-hour period with less than ±1°C temperature change after a one-hour warm-up.  
6 1/e<sup>2</sup> at exit port.  
7 Ratio of major to minor 1/e<sup>2</sup> beam diameter at exit port.

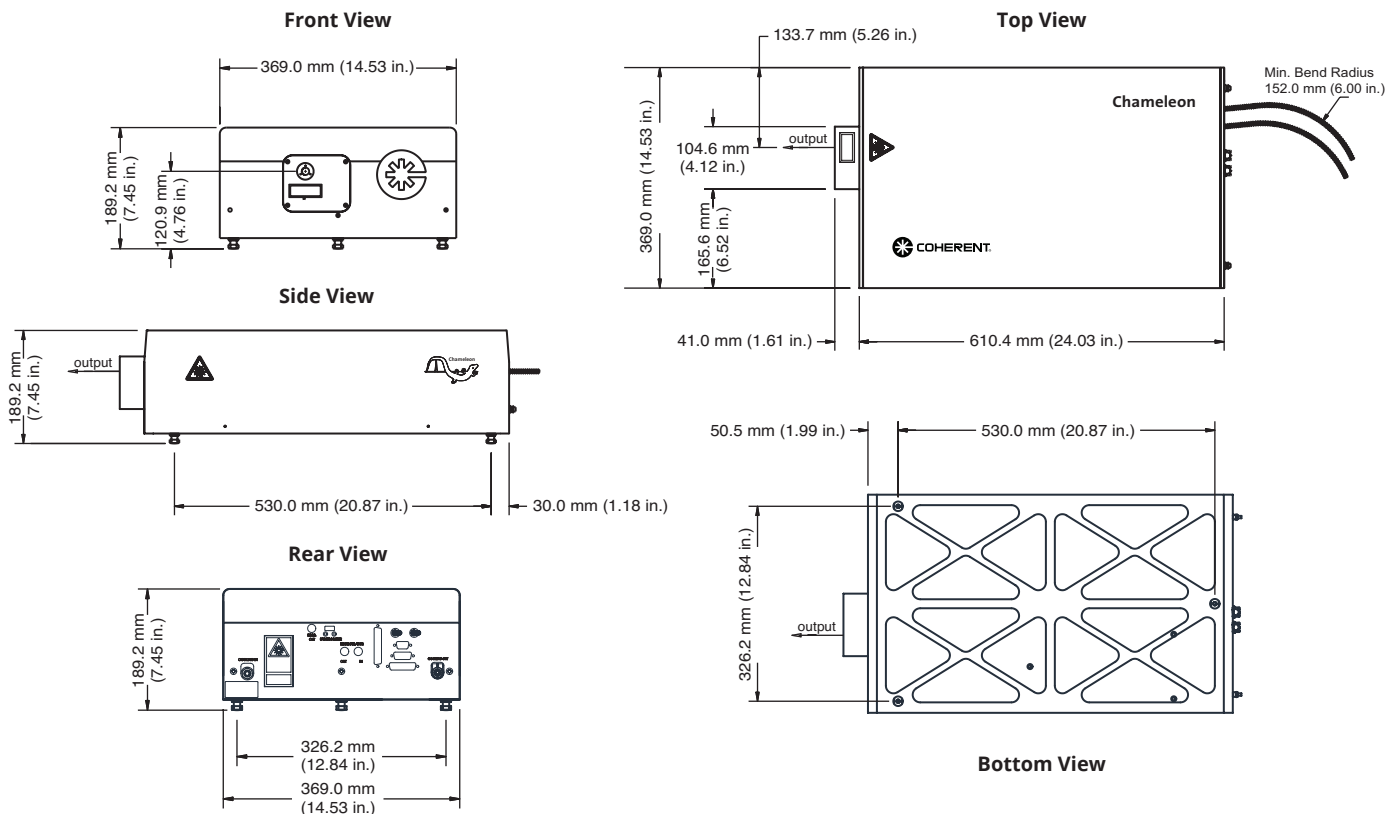
TYPICAL PERFORMANCE DATA

Chameleon Ultra II  
Tuning Curve (typical)



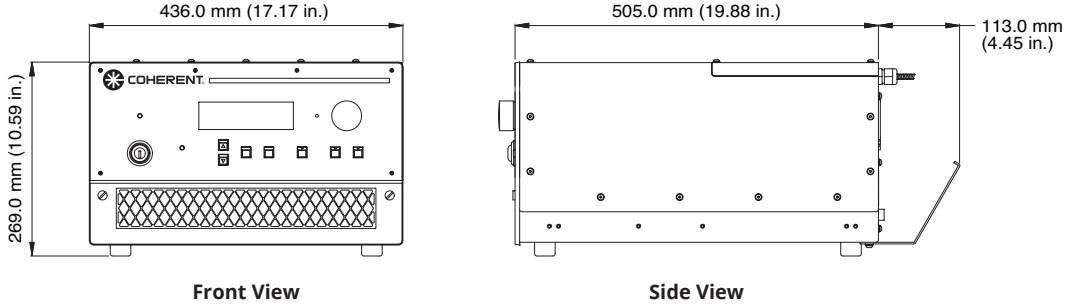
MECHANICAL SPECIFICATIONS

Chameleon Ultra

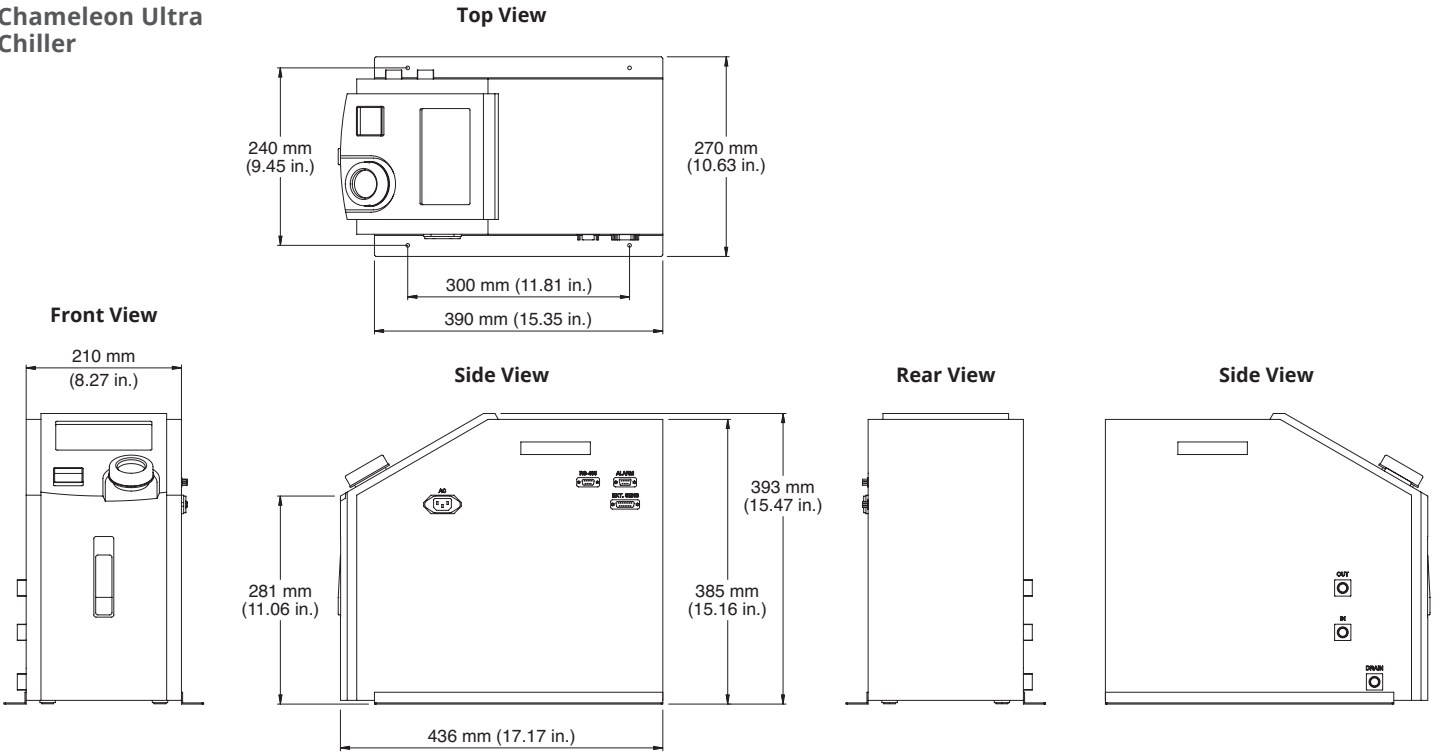


**MECHANICAL SPECIFICATIONS**

**Chameleon Ultra Power Supply**



**Chameleon Ultra Chiller**



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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 Chameleon Systems. For full details of this warranty coverage, please refer to the Service section at [www.coherent.com](http://www.coherent.com) or contact your local Sales or Service Representative. MC-033-18-0M0119 Copyright ©2019 Coherent, Inc.

