

# Chameleon Ultra Family

Widely Tunable, Hands-Free, Modelocked  
Ti:Sapphire Lasers

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.

For example, the Chameleon Ultra II's 680 nm to 1080 nm tuning range allows peak excitation of any marker – from short-wavelength dyes such as Indo or Fura, ubiquitous fluorescent probes such as eGFP, and also red shifted probes such as the mFruits and RCaMP. High peak power at the sample also ensure optimum native fluorescence excitation or SHG imaging.

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 high power from the Chameleon Ultra II makes it an ideal pump source for the Chameleon Compact OPO wavelength extension, enabling imaging even further into the infrared.

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



**Superior Reliability & Performance**

## Chameleon Ultra Features:

- **Hands-free operation**
- **Sealed maintenance-free design**
- **Ultrawide tuning range (up to 400 nm)**
- **High output power (up to >3.5W)**
- **Pulse width optimized for minimal broadening in MPE microscope systems**
- **Ready for Chameleon OPO for tuning up to 4000 nm**
- **Ready for harmonics generation available down to 190 nm**
- **Simple menu-driven GUI or RS-232 operator interface**
- **PowerTrack™ active alignment for long-term stability**
- **On-board spectrometer with simple USB interface shows wavelength**

## Chameleon Ultra Applications:

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

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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  >1.4W at 710 nm >2.5W at 800 nm >1.4W at 920 nm >450 mW at 1020 nm	>600 mW at 690 nm  >1.5W at 710 nm >2.9W at 800 nm >1.45W at 920 nm >450 mW at 1020 nm >300 mW at 1040 nm	>650 mW at 680 nm  >1.6W at 700 nm >3.5W at 800 nm >1.6W 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>3,3</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		2300W max., 1300W 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		4 m (13 ft.)	
Chiller:			
Dimensions (L x W x H)		436 x 270 x 393 mm (17.17 x 10.63 x 15.47 in.)	
Weight		11 kg (25 lbs.)	
MRU Air Recirculator:			
Dimensions (L x W x H)		46 x 43 x 8.5 cm (18 x 17 x 3 in.)	
Weight		9 kg (20 lbs.)	

<sup>1</sup> Specified at peak of tuning range.

<sup>2</sup> Average speed measured over entire tuning range.

<sup>3</sup> Based on sech<sup>2</sup> deconvolution of 0.65 times autocorrelation width.

<sup>4</sup> Measured RMS in a 10 Hz to 20 MHz bandwidth.

<sup>5</sup> Power drift in any two-hour period with less than ±1°C temperature change after a one-hour warm-up.

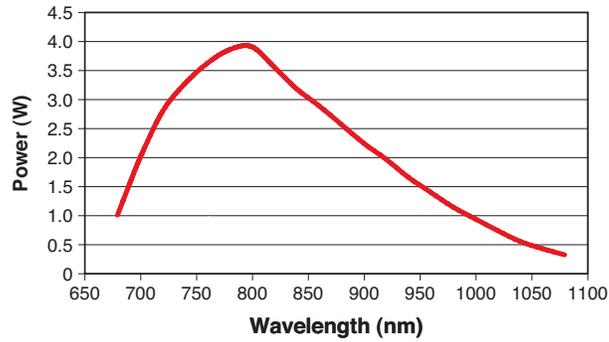
<sup>6</sup> 1/e<sup>2</sup> at exit port.

<sup>7</sup> Ratio of major to minor 1/e<sup>2</sup> beam diameter at exit port.

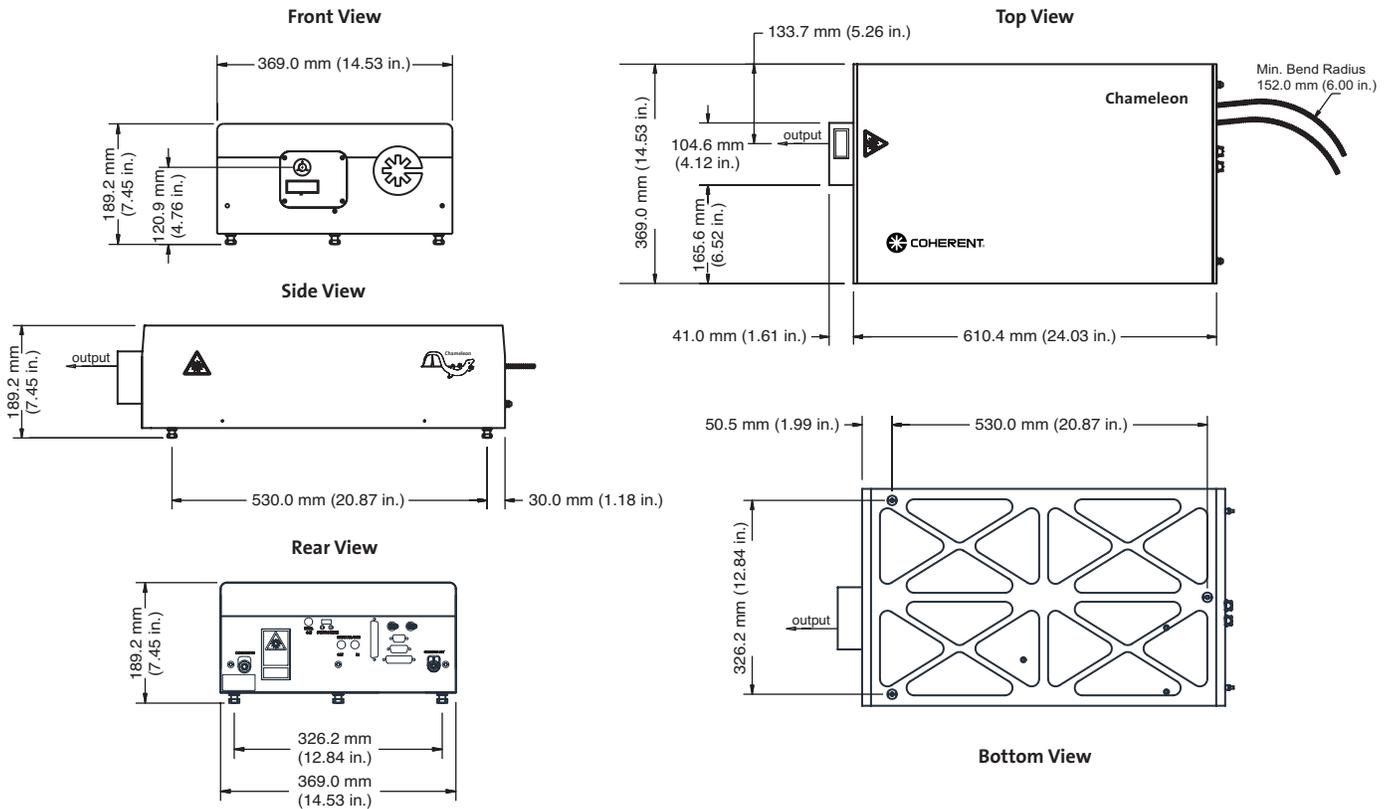
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Chameleon Ultra II  
Tuning Curve (typical)



## Mechanical Specifications

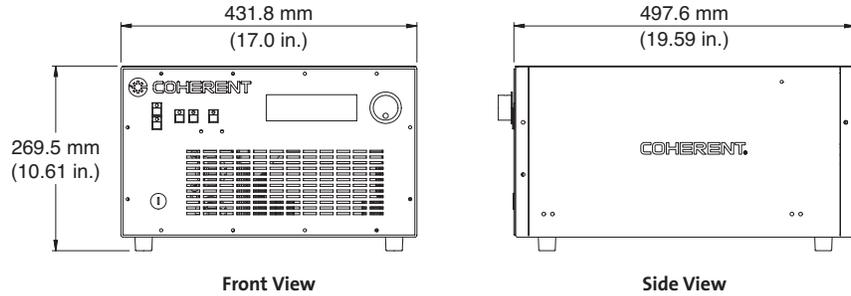


# Chameleon Ultra Family

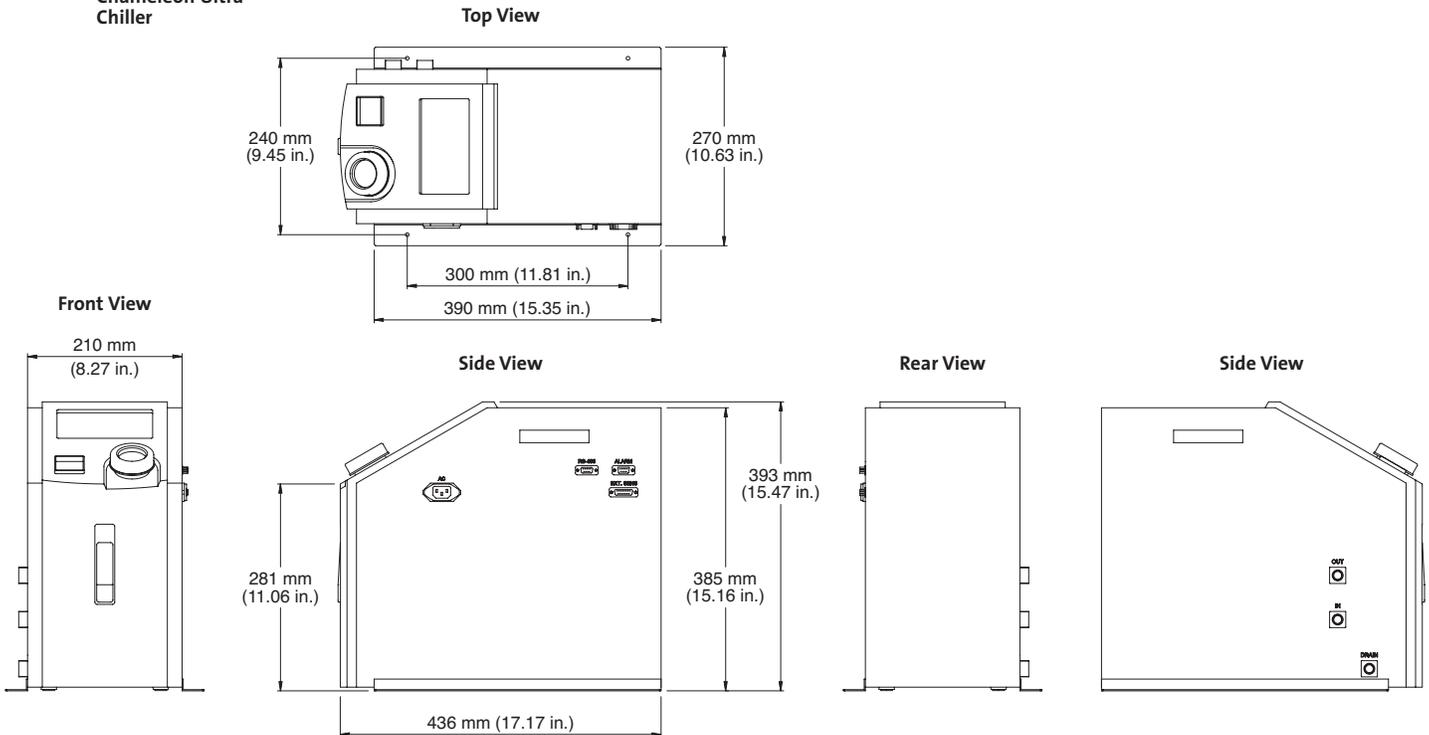
Widely Tunable, Hands-Free, Modelocked Ti:Sapphire Lasers

## 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.



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