

Chameleon Vision

Widely Tunable, Single Box Precompensation,
Hands-Free, Modelocked Ti:Sapphire Laser

The Chameleon Vision lasers build on the dependable and innovative Chameleon Ultra Ti:Sapphire platform by adding dispersion precompensation to maximize peak power where it counts – at your sample plane.

Chameleon Vision'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.

Careful design ensure the pristine beam parameters of the Chameleon Ultra cavity are preserved through the dispersion precompensation stage, ensuring lowest losses through your microscope and lowest astigmatism in the excitation plane, which in turn delivers best image resolution and optimal 2 photon excitation efficiency.

Chameleon Vision lasers deliver highest precompensated average power of any automated Ti:Sapphire laser, and as such form a perfect pump source for the Chameleon MPX wavelength extension OPO. This extends tuning to 1340 nm, also with dispersion precompensation, ideal for red shifted probes and techniques such as Third Harmonic Generation and CARS

Chameleon Vision lasers are qualified and proven on all major commercial two-photon microscope platforms. 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 Vision Features:

- **Hands-free operation**
- **Sealed maintenance-free design**
- **Ultrawide tuning range (400 nm)**
- **Automated dispersion precompensation in a single box**
- **Fully-controllable dispersion precompensation down to 0 at all wavelengths**
- **High output power (up to >3W)**
- **Ultra wide dispersion compensation range from 0 to >45,000 fs²**
- **Simple menu-driven GUI or RS-232 operator interface for laser and precompensation features**
- **PowerTrack™ active alignment for long-term stability**
- **On-board spectrometer with simple USB interface shows wavelength**

Chameleon Vision Applications:

- **Multiphoton Excitation (MPE) Microscopy**
- **Time Resolved Spectroscopy**
- **Optogenetic Photoactivation**
- **Second Harmonic Generation Imaging**
- **Pumping of Optical Parametric Oscillators (OPO)**
- **Supercontinuum Generation**

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System Specifications	Chameleon Vision I	Chameleon Vision II
Tuning Range (nm)	690 to 1040	680 to 1080
Average Power at Peak (W)	2.5	3.0
Power Specifications	- 640 mW at 690 nm 1.07 W at 710 nm 2.5W at 800 nm 920 mW at 920 nm 260 mW at 1040 nm -	500 mW at 680 nm - 1.5W at 710 nm 3.0W at 800 nm 1.35W at 920 nm 400 mW at 1040 nm 180 mW at 1080 nm
Dispersion Compensation Range		
680 nm	-	0 to 47,000 fs ²
690 nm	0 to 43,000 fs ²	-
800 nm	0 to 22,000 fs ²	0 to 22,000 fs ²
1020 nm	0 to 10,000 fs ²	0 to 10,000 fs ²
1080 nm	-	0 to 9,000 fs ²
Tuning Speed ² (nm/s)	>35	>40
Pulse Width ^{1,3} (fs)		140
Noise ^{1,4} (%)		<0.15
Output Power Stability ^{1,5}		<±0.5
Spatial Mode ¹		TEM ₀₀ (M ² <1.1)
Beam Diameter ^{1,6} (mm)		1.2 ±0.2
Beam Ellipticity ^{1,7}		0.9 to 1.1
Astigmatism ¹ (%)		<10
Repetition Rate (MHz)		80
Polarization		Horizontal >500:1
Pointing ⁸ (μrad/nm)		<80/100 total
Operating Voltage (VAC)		90 to 250 (auto ranging)
Maximum Operating Current (A)		<15 at 90 VAC (power supply) <7 at 90 VAC (chiller) <2 at 90 VAC (MRU x1)
System Power Consumption (W)		2300 max., 1300 typical
Line Frequency (Hz)		47 to 63
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		52 kg (115 lbs.)
Weight of Power Supply		41 kg (90 lbs.)
Umbilical Length		3 m (10 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.)

¹ Specified at peak of tuning range.

² Average speed measured over entire tuning range.

³ Based on sech² 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/e² at exit port.

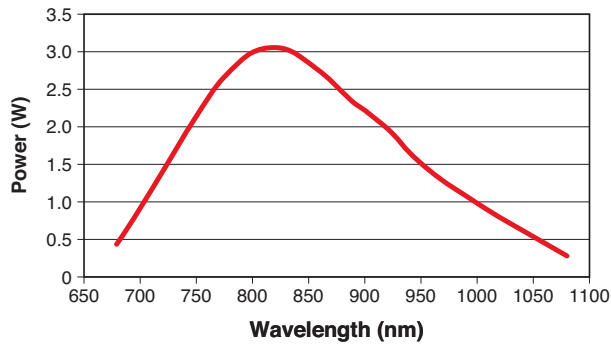
⁷ Ratio of major to minor 1/e² beam diameter at exit port.

⁸ Measured over the whole wavelength and GDD dispersion adjustment range.

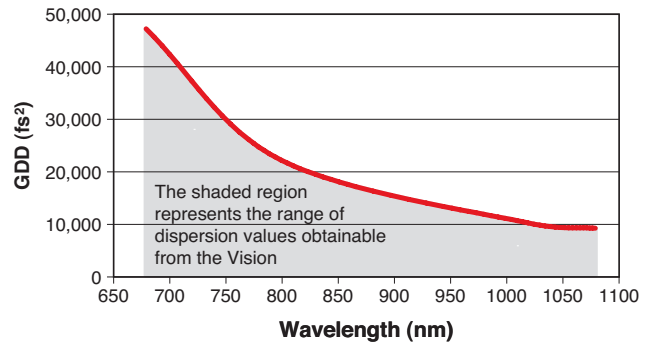
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Chameleon Vision II Tuning Curve (typical)



Maximum Negative Dispersion Capability

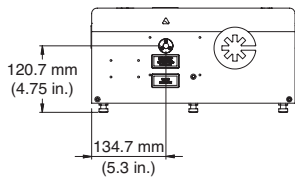


Mechanical Specifications

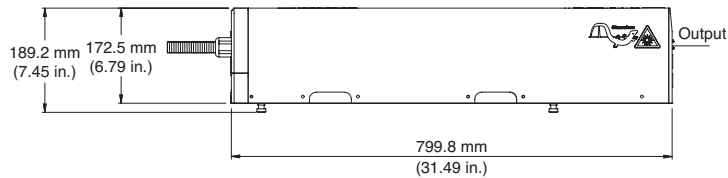
Top View



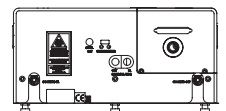
Front View



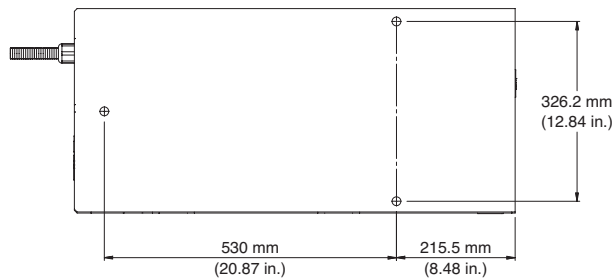
Side View



Rear View



Bottom View

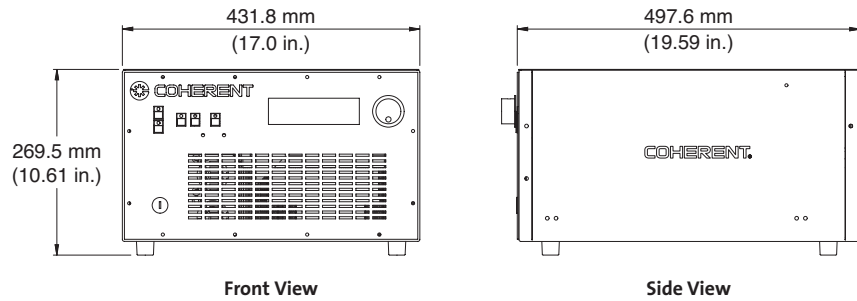


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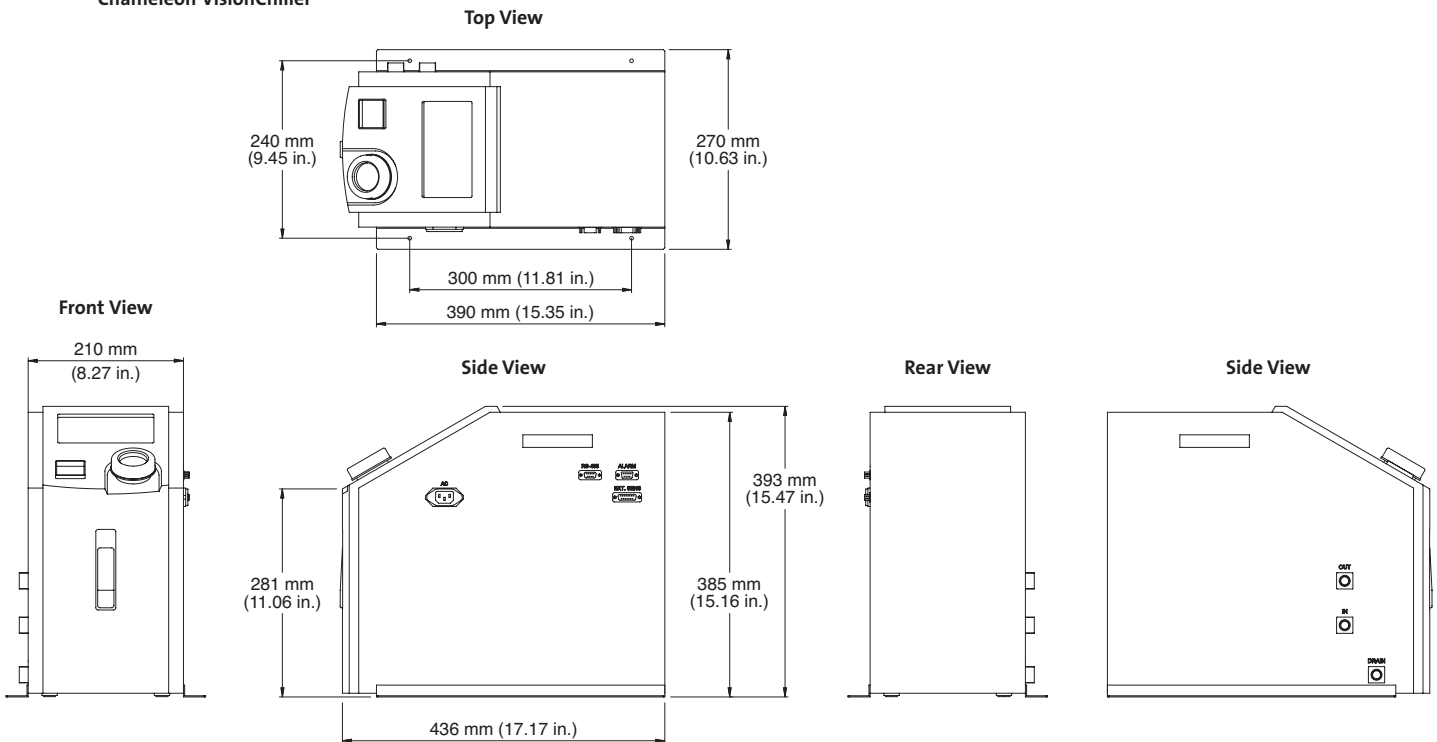
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Mechanical Specifications

Chameleon Vision Power Supply



Chameleon VisionChiller



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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 or contact your local Sales or Service Representative.

