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Chameleon Ultra II



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Chameleon Ultra II

- In **1992** Coherent revolutionized the world of Ultra-Fast lasers with **MIRA?** setting new standard of performance, ease-to-use and diagnostics.
- In **2002** Coherent introduced the **CHAMELEON?** Compact-One-Box Ultra-Fast Laser specifically designed for MPE end-users.
- In **2005** Coherent launched the **CHAMELEON ULTRA?**, the first Compact Ultra-Fast Laser tunable from 690nm to 1040nm.
- **January 2007: the next revolution is here! Coherent is pleased to introduce:**

CHAMELEON ULTRA II

- Widest tuning range (680-1080 nm)!!
 - Fastest tuning speed (40nm/sec)!!
 - Highest average power ^[1] over the widest tuning range!!
- o **>600 mW @ 680nm**
 - o **>1500 mW @ 700nm**
 - o **>3300 mW @ 800nm**



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- o >1500 mW @ 920nm
- o >500 mW @ 1020nm
- o >200 mW @ 1080nm

- Best long-term power stability ($< \pm 0.5\%$)!!
- Lowest Noise ^[2] : $< 0.15\%$ rms from 10Hz to 20MHz!!
- **KLM (Kerr Lens Mode-Locking)** with proven amplitude modulation starting and stability reliability
- **Power-Track?** (oscillator alignment optimization) and **Power-Pulse?** (power and pulse width optimization) to ensure the best long-term power stability and automatic tuning and pulse control over **400nm of tuning range!**
- **Pulse width optimized for standard MPE microscope systems** ^[3]
- **Superb Beam Profile and Pointing Stability**
 - o TEM₀₀ ($M^2 < 1.1$)
 - o Ellipticity: $< 0.9-1.1$; Astigmatism: $< 10\%$
 - o Pointing Stability: $< 0.5\mu\text{rad/nm}$

- Fully automated, hands-free operation ^[4]:
 - o Clean Room Assembled
 - o Sealed Head (P No Misalignment ? ever! P No cavity adjustment ? ever!)

- On-board Spectrometer (USB addressable) capable of monitoring both wavelength and bandwidth!
- MRU 1000 re-circulator Unit to control laser environment in the GFP water band (P no N₂ purge required!)
- Low Maintenance cost and long Diode lifetimes (typical average lifetimes of Verdi Al-free pump $> 10,000$ hours in order to reduce maintenance cost originating from material degradation!)



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^[1] At 80MHz repetition rates

^[2] Since Chameleon Ultra II is pumped by Single-Frequency Verdi Series laser, its noise spectrum is also free of chaotic behavior characteristic of multimode pump sources.

^[3] Pulse duration has been optimized to minimize broadening effect and to ensure maximum probability of MPE and the shortest pulse at the sample without the need of any additional GVD compensation assembly!

^[4] PermAlign? Technology guarantees the permanent cavity alignment, with no ports for dust invasion and no field alignment requirements. To maintain a clean laser environment, the Chameleon-Ultra II is sealed and has a miniature re-circulating unit (MRU) that prevents contamination from entering the lasers cavity while allowing full and continuous tuning through the known water bands. Chameleon-Ultra II is also truly turn-key system including rack-mountable power supply (microprocessor-controlled with full communication and computer control!)

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