

Astrella

Ultrafast Ti:Sapphire Amplifier

Astrella and the new Astrella HE are next-generation, ultrafast, kHz amplifiers that are the first to combine industry-leading performance and industrialized durability. Manufactured to Coherent's rigorous standards using advanced stress-testing techniques, the one-box Astrella system enables a wide range of demanding scientific applications and operating conditions, offering higher productivity and lower data acquisition costs. Delivering high (up to >9 mJ/pulse) energy, a range of pulse-width options from <35 fs to <100 fs, and excellent beam quality ($M^2 < 1.25$), Astrella is ideal for ultrafast spectroscopy, THz studies, femtosecond micromachining, etc. With unmatched performance, reliability and affordability, Astrella stands at the forefront of the industrial revolution in ultrafast science.



FEATURES

- One-box, industrialized platform
- HASS (Highly Accelerated Stress Screening) verified for quality and reliability
- >5 mJ, >7 mJ or >9 mJ pulse energies
- <35 fs, <60 fs, <80 fs, or <100 fs pulse width options
- High performance STAR regen amplifier (water-only cooling)
- Hands-free Vitara oscillator
- Revolution pump laser for performance overhead
- Sealed stretcher/compressor section with advanced dispersion management for clean, short pulses
- Thermally-stabilized sub-systems for long term stability

APPLICATIONS

- Time-resolved Spectroscopy
- Multidimensional Spectroscopy
- THz Spectroscopy
- fs Micromachining
- Surface SFG/SHG
- Stimulated Raman Scattering
- High Harmonic Generation
- EUV Spectroscopy

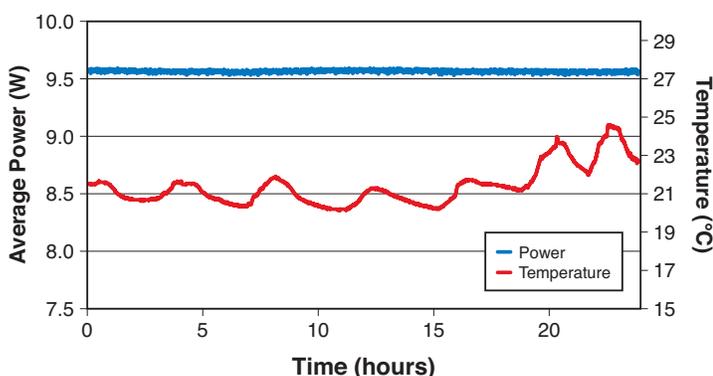
Specifications ¹	Astellra USP	Astellra F	Astellra HE USP	Astellra HE F
Center Wavelength ² (nm) (nominal)	795 to 805	780 to 820	795 to 805	780 to 820
Repetition Rate ³ (kHz)	1, 5			
Pulse Duration ^{3,4} (fs) (FWHM)	<35	<60, <80, <100	<35	<60, <80, <100
Contrast Ratio ⁵ Pre-Pulse Post-Pulse	>1000:1 >100:1			
Power Stability ^{6,7} (rms)	<0.5			
Beam Pointing Stability ^{6,7} (μrad) (rms)	<10			
Beam Diameter (mm) (1/e ²) (nominal) 1 kHz 5 kHz	11		13 11	
Spatial Mode	TEM ₀₀ , M ² <1.25			
Polarization	linear, horizontal			
Energy per Pulse (mJ) 1 kHz 5 kHz	>5.0, >7.0 >1.6		>9.0 >2.0	
Pump Laser	Revolution-50, Revolution-65		Revolution-80	
Seed Laser	Vitara-S, Vitara-T, or Vitara-T-HP			
Each System HASS Verified	Yes			

Notes:

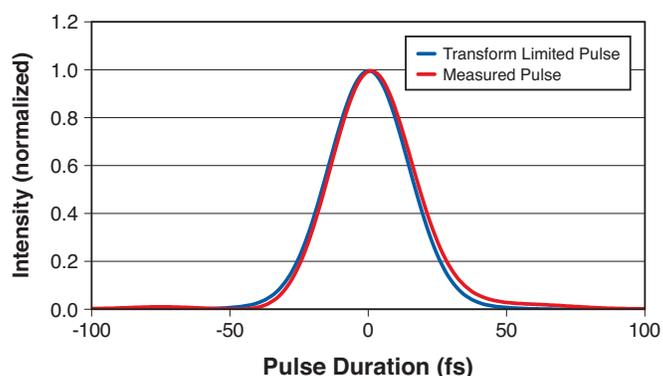
- Specifications apply at 800 nm.
- Factory set, must be specified when ordered and will be optimized prior to shipment.
- Contact factory for other repetition rates and pulse width options.
- A Gaussian pulse shape de-convolution factor (0.7) is used to determine the pulse width from an autocorrelation signal measured by a Coherent SSA (Single-Shot Autocorrelator).
- Contrast ratio is defined as the ratio between the peak intensity of the output pulse to the peak intensity of any other pulse that occurs greater than 1 ns before or after the output pulse.
- Under stable environmental conditions after system warm-up.
- Over 24 hrs.

Typical Performance Data

Astellra HE 24-Hour Stability



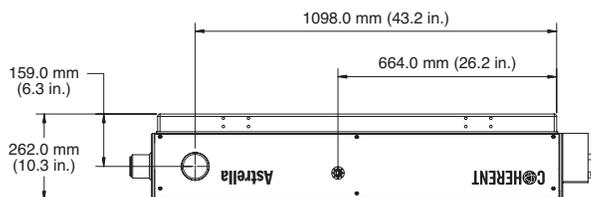
Astellra HE USP Pulse Width



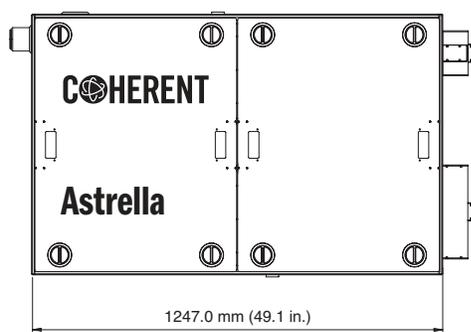
Mechanical Specifications

Astrella

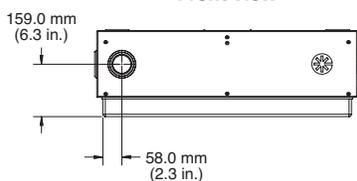
Right Side View



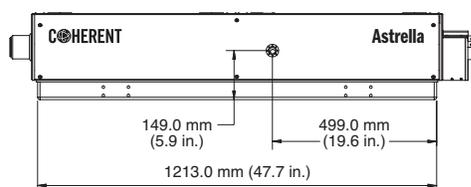
Top View



Front View



Left Side View



Rear View

