

# Astellra

## Ultrafast Ti:Sapphire Amplifier

Astellra 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, either <35 fs or <100 fs pulse widths, 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 & BENEFITS

- One-box, industrialized platform
- HASS\* verified for quality and reliability
- >5 mJ, >7 mJ or >9 mJ <35 fs or <100 fs pulses
- 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

\* HASS – Highly Accelerated Stress Screening

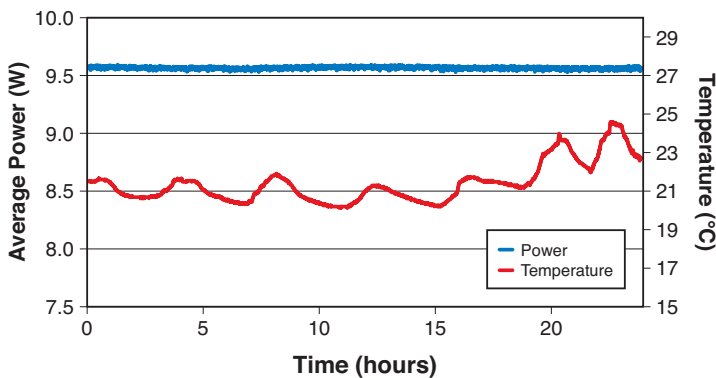


SPECIFICATIONS <sup>1</sup>	Astellra USP	Astellra F	Astellra HE USP	Astellra HE F
Center Wavelength <sup>2</sup> (nm) (nominal)	795 to 805	780 to 820	795 to 805	780 to 820
Repetition Rate <sup>3</sup> (kHz)	1, 5			
Pulse Duration <sup>3,4</sup> (fs) (FWHM)	<35	<100	<35	<100
Contrast Ratio <sup>5</sup>				
Pre-Pulse	>1000:1			
Post-Pulse	>100:1			
Power Stability <sup>6,7</sup> (rms)	<0.5			
Beam Pointing Stability <sup>6,7</sup> (μrad) (rms)	<10			
Beam Diameter (mm) (1/e <sup>2</sup> ) (nominal)				
1 kHz	11		13	
5 kHz			11	
Spatial Mode	TEM <sub>00</sub> , M <sup>2</sup> <1.25			
Polarization	linear, horizontal			
Energy per Pulse (mJ)				
1 kHz	>5.0, >7.0		>9.0	
5 kHz	>1.4		>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			

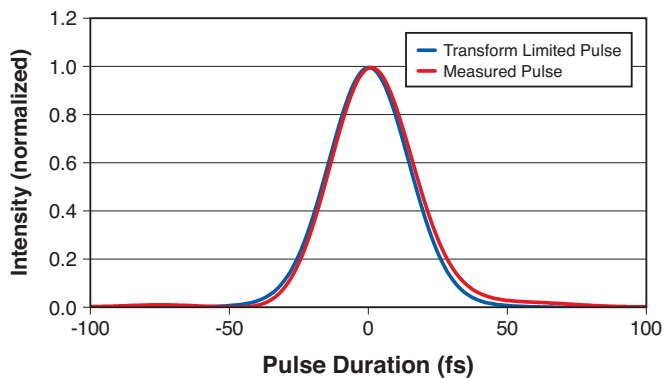
1 Specifications apply at 800 nm.  
 2 Factory set, must be specified when ordered and will be optimized prior to shipment.  
 3 Contact factory for other repetition rates and pulse width options.  
 4 A Gaussian pulse shape de-convolution factor (0.7) is used to determine the pulse width from an autocorrelation signal measured by a Coherent SSA (Single-Shot Autocorrelator).  
 5 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.  
 6 Under stable environmental conditions after system warm-up.  
 7 Over 24 hrs.

TYPICAL PERFORMANCE DATA

Astellra HE 24-Hour Stability

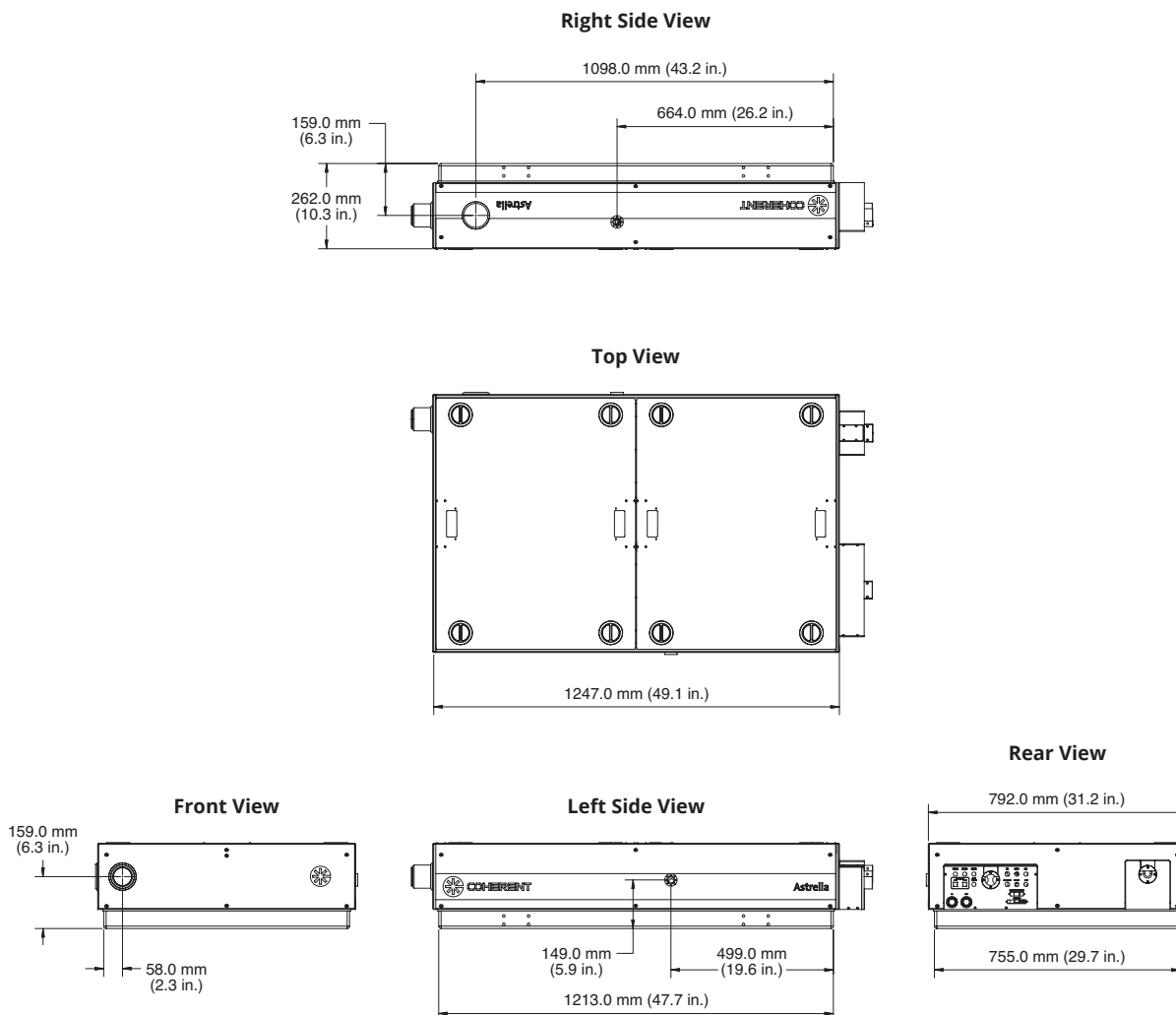


Astellra HE USP Pulse Width



## MECHANICAL SPECIFICATIONS

### Astrella



Coherent, Inc.,  
 5100 Patrick Henry Drive Santa Clara, CA 95054  
 p. (800) 527-3786 | (408) 764-4983  
 f. (408) 764-4646

[tech.sales@coherent.com](mailto:tech.sales@coherent.com) [www.coherent.com](http://www.coherent.com)

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 Astrella Ti:S Amplifiers. 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. Printed in the U.S.A. MC-003-14-0M0320Rev.F Copyright ©2020 Coherent, Inc.