



Astrella

Ultrafast Ti:Sapphire Amplifier

Astrella is a next-generation, ultrafast, kHz amplifier that is 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 >7 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.

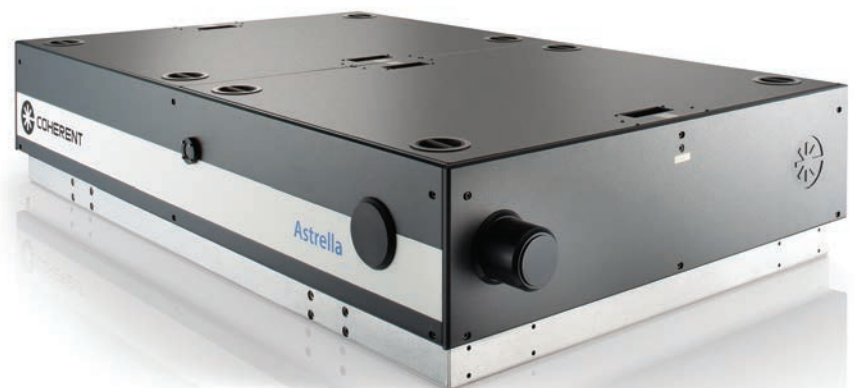
With unmatched performance, reliability and affordability, Astrella stands at the forefront of the industrial revolution in ultrafast science.

FEATURES

- One-box, industrialized platform
- HASS* verified for quality and reliability
- >5 mJ or >7 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



SPECIFICATIONS	Astellra-1K-USP	Astellra-1K-F
Center Wavelength ² (nm) (nominal)	795 to 805	780 to 820
Repetition Rate (kHz)	1	1
Pulse Duration ³ (fs) (FWHM)	<35	<100
Contrast Ratio ⁴		
Pre-pulse	>1000:1	>1000:1
Post-pulse	>100:1	>100:1
Power Stability ^{5,6} (rms)	<0.5	<0.5
Beam Pointing Stability ^{5,6} (μrad) (rms)	<10	<10
Beam Diameter (mm) (1/e ²) (nominal)	11	11
Spatial Mode	TEM ₀₀ , M ² <1.25	TEM ₀₀ , M ² <1.25
Polarization	Linear, horizontal	Linear, horizontal
Energy per Pulse (mJ)	>7.0 , >5.0	>7.0 , >5.0
Pump Laser	REVOLUTION-65, REVOLUTION-50	REVOLUTION-65, REVOLUTION-50
Seed Laser	Vitara-S, Vitara-T, or Vitara-T-HP	Vitara-S, Vitara-T, or Vitara-T-HP

¹ Specifications apply at 800 nm.

² Factory set, must be specified when ordered and will be optimized prior to shipment.

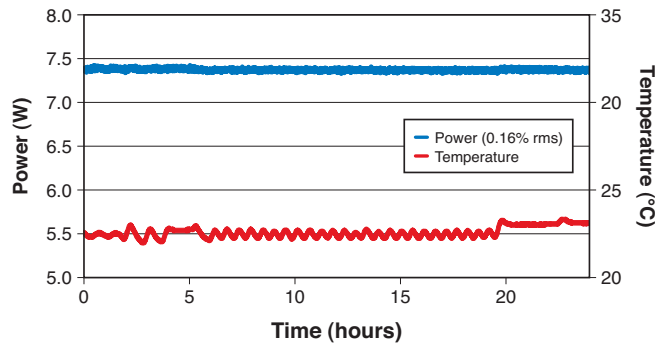
³ A Gaussian pulse shape de-convolution factor (0.7) is used to determine the pulse width from an autocorrelation signal measured by a Coherent SSA (Single-Shot Autocorrelator).

⁴ 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.

⁵ Under stable environmental conditions after system warm-up.

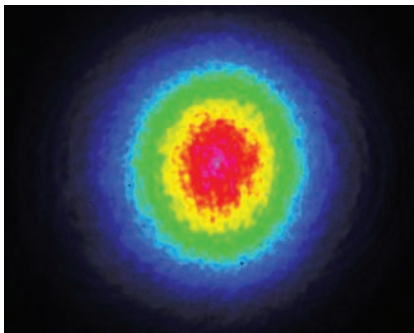
⁶ Over 24 hrs.

Astellra Power and Pulse Width Stability

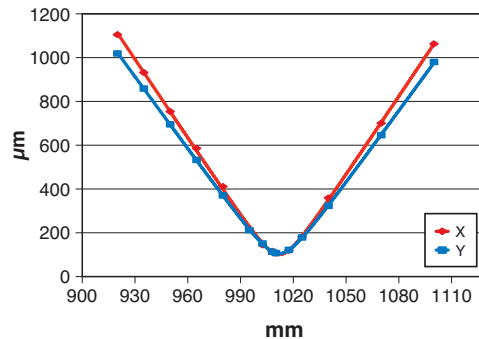


SUPERIOR MODE QUALITY

Typical Near Field Mode Quality



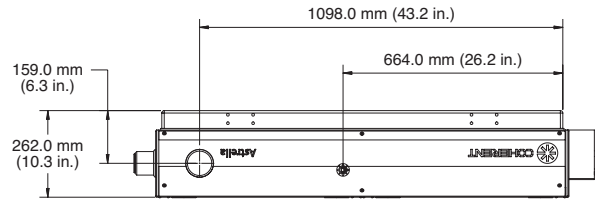
M² (x = 1.18, y = 1.14)



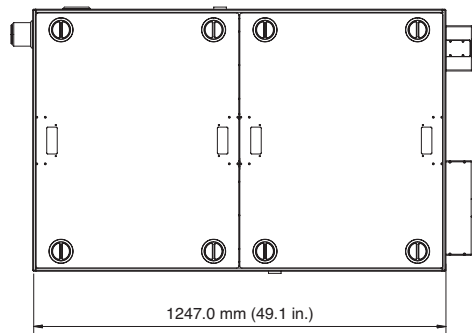
MECHANICAL SPECIFICATIONS

Astrella

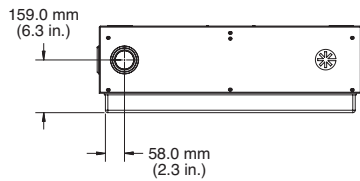
Right Side View



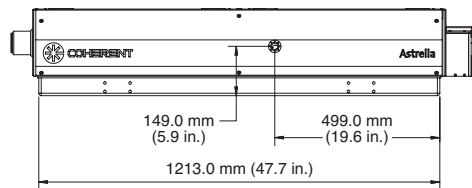
Top View



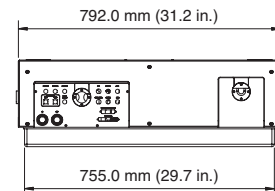
Front View



Left Side View



Rear View



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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 Astrella Ti:S amplifiers. 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. Printed in the U.S.A. 003-14-0M0916 Copyright ©2017 Coherent, Inc.