

# Vitara

## Automated, Hands-Free Ultrashort Pulse Ti:Sapphire Oscillator Family

Vitara is the industry standard for hands-free, integrated, ultra-broad-band, flexible ultrafast lasers. The culmination of over 20 years of in-house expertise with Kerr Lens mode-locking and industrial ultrafast laser manufacturing, the Vitara family satisfies the most sophisticated requirements for amplifier seeding, terahertz generation, attosecond studies, non-linear imaging and time-resolved spectroscopy applications. Models within the Vitara family range from a tunable version with user-adjustable bandwidth and sub- 12 fs compressed output, a high power version providing 1 Watt-class average power, and a version streamlined for seeding ultrafast amplifiers. In addition Vitara can satisfy the most demanding requirements in Carrier to Envelope Phase (CEP) stabilization and synchronization to external source thanks to its broad range of accessories.



### FEATURES & BENEFITS

- Sealed and automated for hands-free, reliable operation
- Computer controlled bandwidth (pulse width adjustable to <12fs)
- Computer tunable center wavelength
- PowerTrack active optimization
- Low noise
- Carrier-Envelope Phase (CEP) Stabilizer option
- Pulse repetition rate synchronization option – Synchrolock-AP
- Every unit HASS\* verified for quality and reliability

### APPLICATIONS

- Ti:S Ultrafast Amplifier Seeding
- Terahertz Generation
- Time-Resolved Spectroscopy
- Broadband CARS
- Attosecond Science

\* HASS – Highly Accelerated Stress Screening

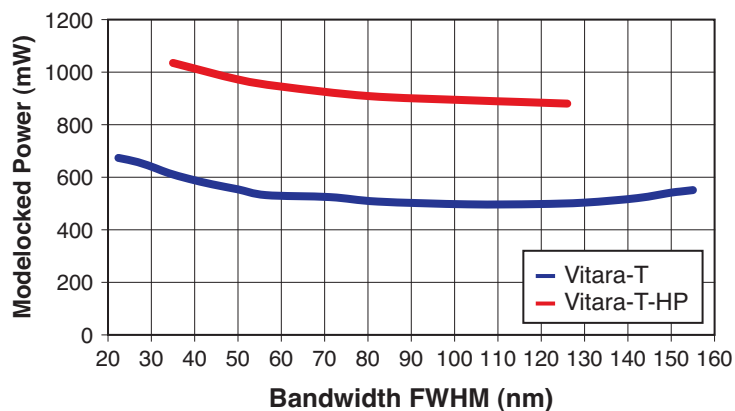


SPECIFICATIONS <sup>1,2</sup>	Vitara-T	Vitara-T-HP	Vitara-S <sup>8</sup>
Power (mW)			
at Minimum Specified Bandwidth	>525	>930	-
at 60 nm Bandwidth	>450	>850	-
at Maximum Specified Bandwidth	>425	>800	>450
Bandwidth (nm) FWHM	30 to 125	40 to 100	>70 (fixed)
Tuning Range (nm)			
at Minimum Specified Bandwidth	755 to 860	765 to 810	-
at 60 nm Bandwidth	765 to 840	775 to 825	-
at 100 nm Bandwidth	790 to 820	795 to 805	NA
Uncompressed Pulse Width <sup>3</sup> (fs)	<20 (typically <15)	<20 (typically <15)	(typically <40)
Compressed Pulse Width <sup>3</sup> (fs) with External CPC-II Pulse Compressor (not included)	<12	<15	<20
RMS Noise <sup>4</sup> (%)	<0.05	<0.05	<0.05
Power Stability <sup>5</sup> (%)	±0.5	±0.5	±0.5
Repetition Rate (MHz) (standard)	80 <sup>6</sup>	80 <sup>6</sup>	80
M <sup>2</sup> (average of X & Y)	<1.3	<1.3	<1.3
Beam Diameter <sup>7</sup> (mm)	2.2	2.2	2.2
Beam Divergence (mrad)	<1	<1	<1
Polarization	Horizontal	Horizontal	Horizontal
FEATURES			
Integrated Verdi-G Pump Laser	•	•	•
PowerTrack™ Active Optimization	•	•	•
Computer Controlled Bandwidth	•	•	
Computer Tunable Center Wavelength	•	•	
OPTIONS & ACCESSORIES (not included)			
Integrated and Calibrated Spectrometer	•	•	•
Carrier to Envelope Phase (CEP) Stabilizer	•	•	
SynchroLock-AP - Repetition Rate Synchronization	•	•	
CPC-II - Compact Pulse Compressor	•	•	•
Second Harmonic Generator	•	•	
PulsePicker	•	•	•
ELECTRICAL & COOLING REQUIREMENTS			
Voltage	100 to 240		
Current Max. (A)	5		
Line Frequency (Hz)	50 to 60		
Cooling	Closed-cycle chiller		
Laser Head Dimensions (L x W x H)	609.6 x 427.5 x 162.4 mm (24.0 x 16.8 x 6.4 in.) excluding handles		
Beam Height	120.6 mm (4.75 in.)		

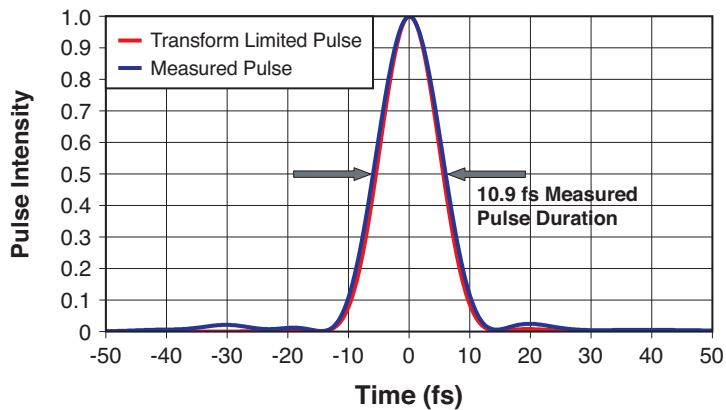
1 Specifications subject to change.  
2 Specifications apply at 800nm and 80MHz rep. rate unless otherwise state.  
3 At maximum bandwidth and measured with FC Spider (APE GmbH).  
4 Measured from 10 Hz to 10 MHz.  
5 Measured over 2 hrs. after 30 min. warm-up at constant environmental temperature.  
6 Can be factory set between 65 MHz to 110 MHz.  
7 Average 1/e<sup>2</sup> diameter measured at output.  
8 Center wavelength of output from Vitara-S is fixed at 800 ±10 nm.

TYPICAL PERFORMANCE DATA

Vitara-T and Vitara-T-HP  
Typical Power vs. Bandwidth at 80 MHz

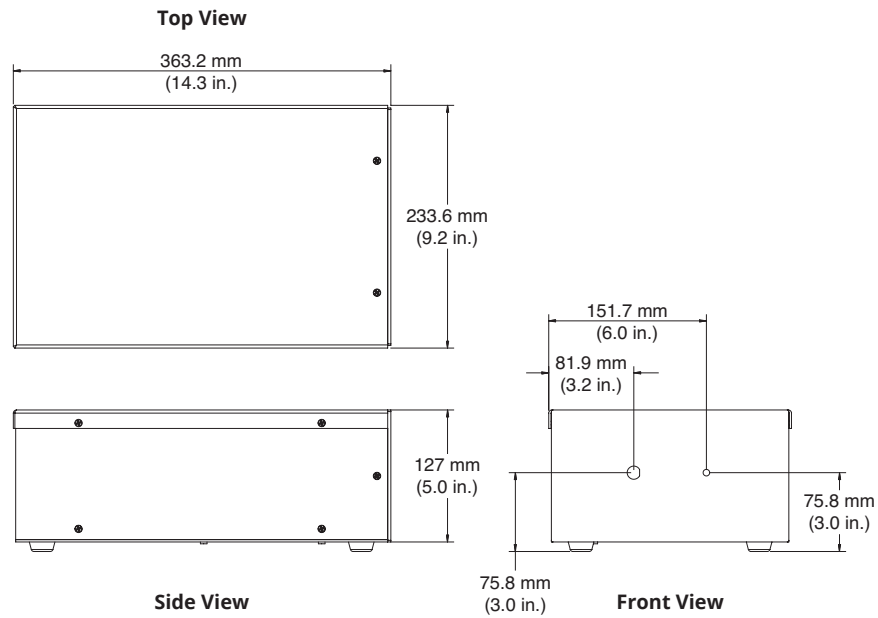


Typical Measured Pulse from Vitara-T  
After Compression with CPC-II  
Pulse Measured Using FC Spider

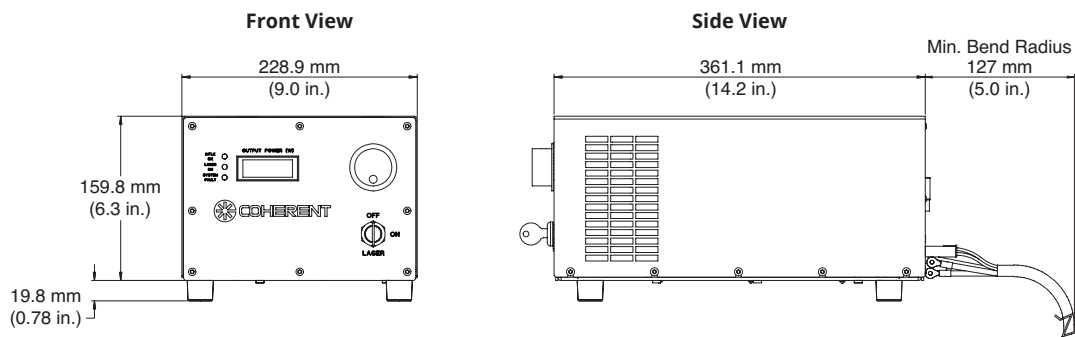


## MECHANICAL SPECIFICATIONS

### Controller



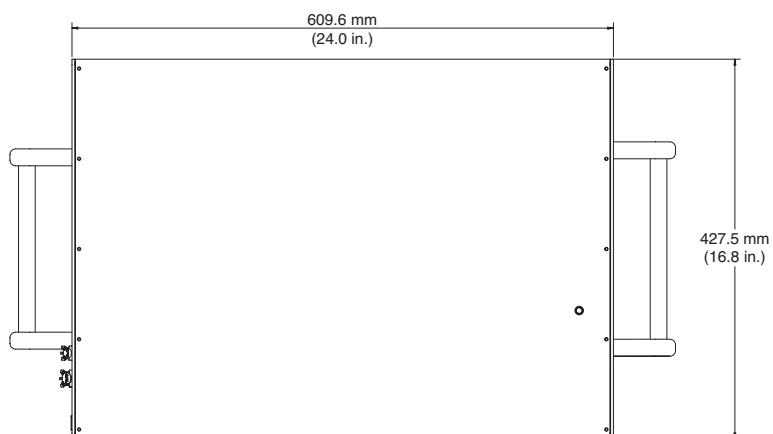
### Power Supply



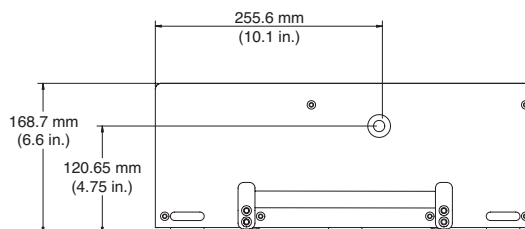
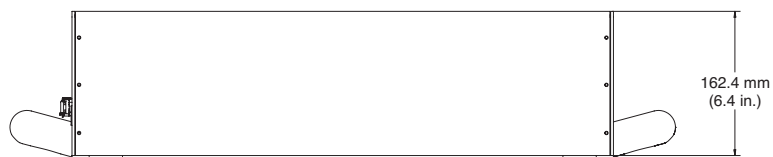
## MECHANICAL SPECIFICATIONS

### Vitara

Top View



Side View



Front 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](http://www.coherent.com) or contact your local Sales or Service Representative. Printed in the U.S.A. MC-042-11-0M0520Rev.D Copyright ©2020 Coherent, Inc.