



# AVIA NX

## Solid-State Q-Switched Ultraviolet Lasers

AVIA NX is the fourth generation of the renowned AVIA ns UV laser product family. Providing an unmatched combination of disruptive features, the AVIA NX was redesigned from the ground up, breaking new barriers in performance, compact size, and reliability. Available in power levels from 20W to 55W, the AVIA NX is built on the same proven architecture as the current generation AVIA. The entire optical design and electronics, however, have been streamlined and cleverly integrated into a single compact package.

AVIA NX sets superior levels of reliability and cost of ownership, unmatched by other ns lasers. The unique SoloBoard™ electronics interface, which reduces all laser management to a single head board, and the PureUV™ active laser-cleaning engine enable the reduced complexity and hands-off functionality.

The AVIA NX design and build is executed under the industry's most stringent test benchmarks. HALT (Highly Accelerated Life Test) and HASS (Highly Accelerated Stress Screen) standards are the hallmarks of the design philosophy behind the AVIA NX. All components, as well as the entire system, are tested to environmental levels well beyond normal application conditions. Such attention to vigorous testing ensures that the AVIA NX quality and reliability levels are beyond that of any other ns laser.

AVIA NX is ideal for applications such as via drilling in PCB and Flex materials, 3D chip package manufacturing, IC package trimming, and wafer scribing. The AVIA NX offers effortless ease of integration into laser based tools through its small footprint and simplified interface.

### FEATURES

- 20W to 55W configurations
- Rep rates single-shot to 100s of kHz
- High beam quality  $M^2 < 1.2$
- Industry leading compact footprint
- Simplified user interface at laser head
- HALT designed/HASS certified
- High reliability between long maintenance cycles

### APPLICATIONS

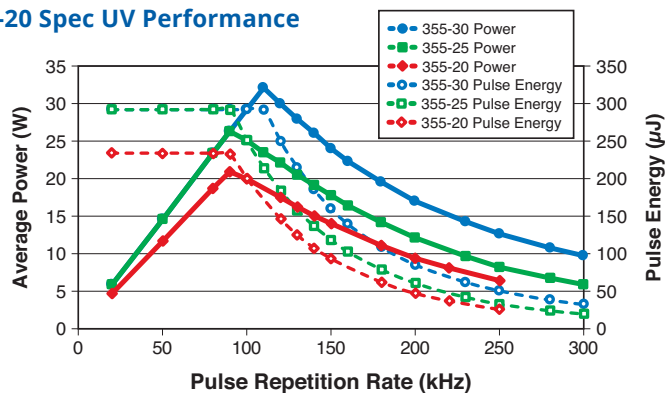
- Via Hole Drilling
- Flex Materials Cutting
- 3D Package Manufacturing
- IC Package Trimming
- Wafer Scribing and Singulation
- Solar Cell Scribing



SPECIFICATIONS <sup>1</sup>	AVIA NX 355-20	AVIA NX 355-25	AVIA NX 355-30
Fundamental Center Wavelength (nm)	354.7	354.7	354.7
Output Power and Energy	20W, 200 µJ at 100 kHz	25W, 250 µJ at 100 kHz	30W, 250 µJ at 120 kHz
Repetition Rate	Single-shot to 250 kHz	Single-shot to 300 kHz	Single-shot to 300 kHz
Pulse Width (ns)	<30 up to 100 kHz	<30 up to 100 kHz	<32 up to 120 kHz
Spatial Mode	TEM <sub>00</sub> , M <sup>2</sup> <1.2		
Beam Divergence (mrad)	<0.2		
Beam Waist Diameter (mm, 1/e <sup>2</sup> )	3.50 ±0.35		
Beam Waist Location	At output port ±25% of Rayleigh Range		
Astigmatism (%)	<30		
Beam Circularity (%)	>90		
Polarization Ratio	>100:1		
Polarization Direction	Vertical, ±3°		
Beam Pointing Stability (µrad/°C)	<25		
Pulse Energy Stability (%) (RMS)	<5		
Power Stability (%) (RMS, 2σ) (over 8 hours)	<2		
Warm-up Time (minutes)			
Cold Start	<45		
Warm Start	<15		
Long-term Pointing Stability at Fixed Rep-rate (µrad)	±25 over 8 hours		
Head Weight	21.5 kg (47.4 lbs.)		
External Comms	RS-232, Ethernet, USB		
Power Consumption (VAC)	100 to 240, <500W	100 to 240, <500W	100 to 240, <600W
OPERATING SPECIFICATIONS			
Temperature (non-condensing)			
Laser Head	+10 to 35°C (50 to 95°F)		
Power Supply	+10 to 35°C (50 to 95°F)		
Non-Operation (storage)	-20 to +50°C (-4 to 122°F)		
Shipping Specifications			
Temperature	-20 to +60°C (-4 to 140°F)		
Relative Humidity (%)	5 to 80		

<sup>1</sup> All specifications measured at the optimized pulse repetition rate.

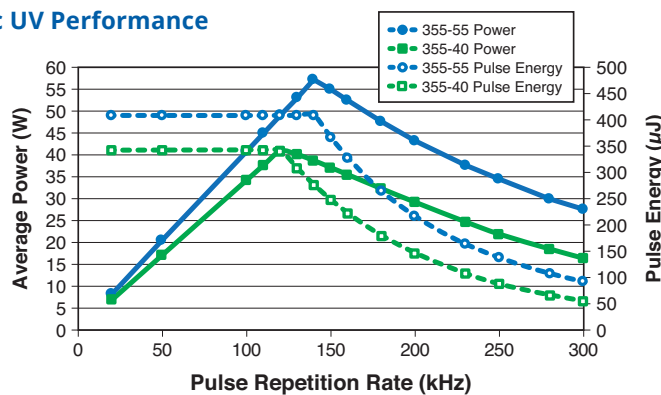
### AVIA NX 355-30, 355-25 and 355-20 Spec UV Performance



SPECIFICATIONS <sup>1</sup>	AVIA NX 355-40	AVIA NX 355-55
Fundamental Center Wavelength (nm)	354.7	354.7
Output Power and Energy	40W, 308 µJ at 130 kHz	55W, 367 µJ at 150 kHz
Repetition Rate	Single-shot to 300 kHz	Single-shot to 300 kHz
Pulse Width (ns)	<35 up to 130 kHz	<35 up to 150 kHz
Spatial Mode	TEM <sub>00</sub> , M <sup>2</sup> <1.2	
Beam Divergence (mrad)	<0.2	
Beam Waist Diameter (mm, 1/e <sup>2</sup> )	3.50 ±0.35	
Beam Waist Location	At output port ±25% of Rayleigh Range	
Astigmatism (%)	<30	
Beam Circularity (%)	>90	
Polarization Ratio	>100:1	
Polarization Direction	Vertical, ±3°	
Beam Pointing Stability (µrad/°C)	<25	
Pulse Energy Stability (%) (RMS)	<5	
Power Stability (%) (RMS, 2σ) (over 8 hours)	<2	
Warm-up Time (minutes)		
Cold Start	<45	
Warm Start	<15	
Long-term Pointing Stability at Fixed Rep-rate (µrad)	±25 over 8 hours	
Head Weight	22.5 kg (49.6 lbs.)	
External Comms	RS-232, Ethernet, USB	
Power Consumption (VAC)	100 to 240, <700W	100 to 240, <900W
OPERATING SPECIFICATIONS		
Temperature (non-condensing)		
Laser Head	+10 to 35°C (50 to 95°F)	
Power Supply	+10 to 35°C (50 to 95°F)	
Non-Operation (storage)	-20 to +50°C (-4 to 122°F)	
Shipping Specifications		
Temperature	-20 to +60°C (-4 to 140°F)	
Relative Humidity (%)	5 to 80	

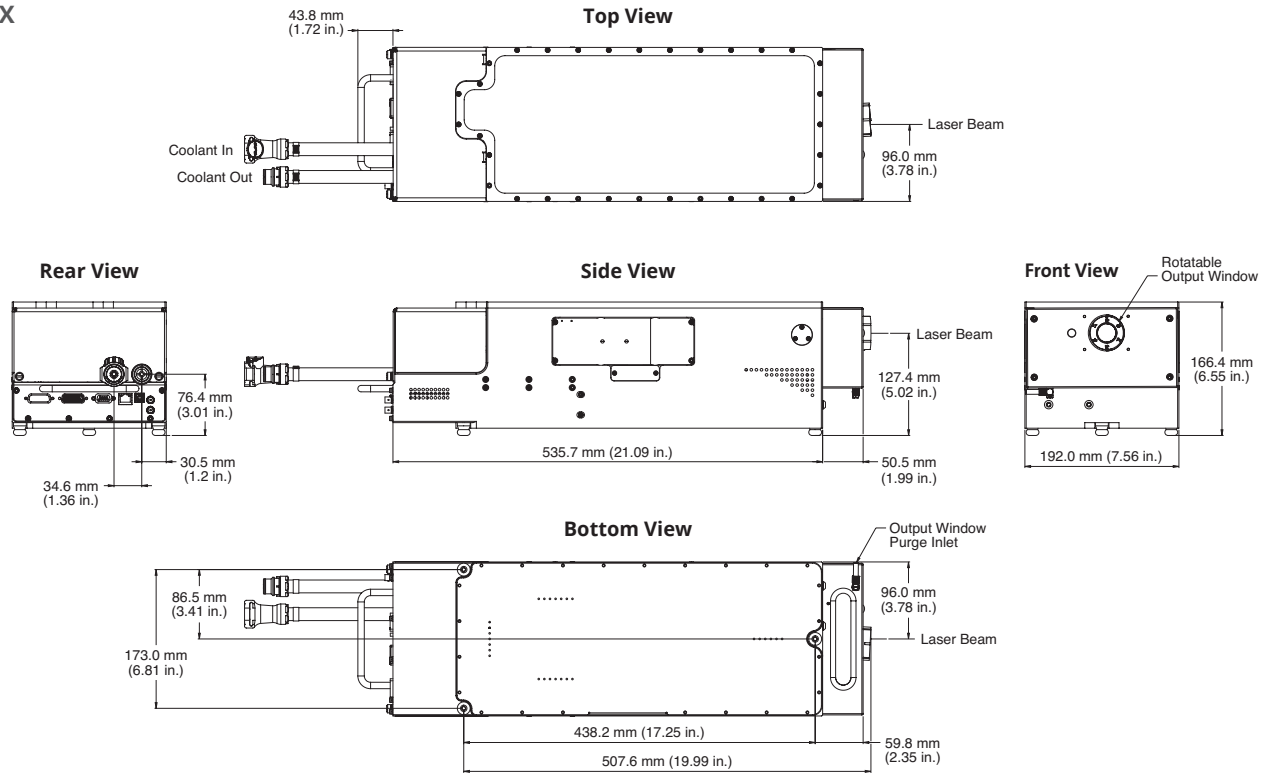
<sup>1</sup> All specifications measured at the optimized pulse repetition rate.

### AVIA NX 355-55 and 355-40 Spec UV Performance

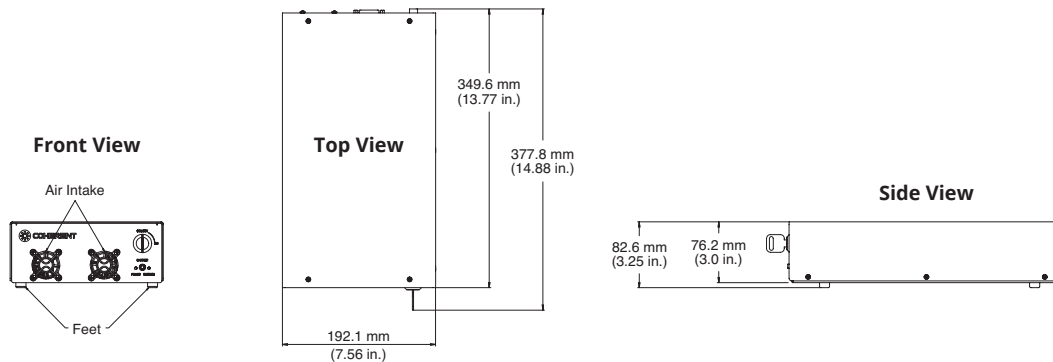


## MECHANICAL SPECIFICATIONS

### AVIA NX



### Power Supply



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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 AVIA NX lasers. 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-029-14-0M0117Rev.D Copyright ©2017 Coherent, Inc.