

AVIA NX

Solid-State Q-Switched Ultraviolet Lasers

AVIA NX is the fourth generation of the AVIA ns UV product family. Providing an unmatched combination of disruptive features, the AVIA NX was conceived from the ground up, breaking new barriers in performance, compact size, and reliability. Available in power levels from 20W to 40W, 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.

AVIA NX represents the pinnacle of performance and reliability for 24/7 micro-electronics applications in which factory up-time is the true measure of success.



Superior Reliability & Performance

AVIA NX Advantages:

- **20W, 25W and 40W 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**

AVIA NX Applications:

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

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System Specifications¹

	AVIA NX 355-20	AVIA NX 355-25	AVIA NX 355-40
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	40W, 308 μJ at 130 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	<35 up to 130 kHz
Spatial Mode		TEM ₀₀ , M ² <1.2	
Beam Divergence (mrad)		<0.2	
Beam Waist Diameter (mm, 1/e ²)		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 lbs.)	21.5 kg (47 lbs.)	22.2 kg (49 lbs.)
External Comms		RS-232, Ethernet, USB	
Power Consumption (VAC)	100 to 240, <500W	100 to 240, <500W	100 to 240, <700W

Operating Specifications

Temperature (non-condensing)

Laser Head

Power Supply

Non-Operation (storage)

+10 to 35°C (50 to 95°F)

+10 to 35°C (50 to 95°F)

-20 to +50°C (-4 to 122°F)

Shipping Specifications

Temperature

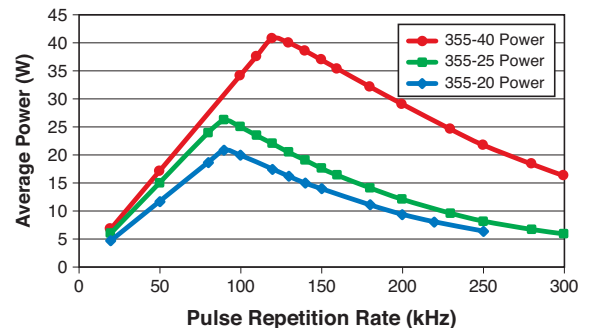
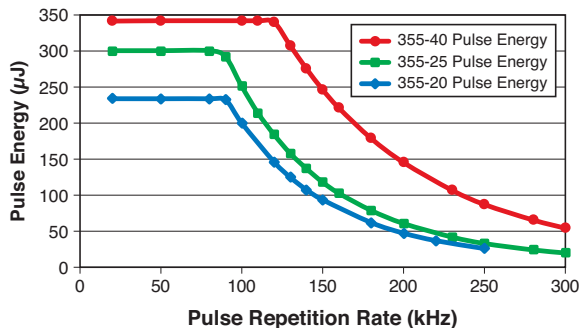
Relative Humidity (%)

-20 to +60°C (-4 to 140°F)

5 to 80

¹ All specifications measured at the optimized repetition rate.

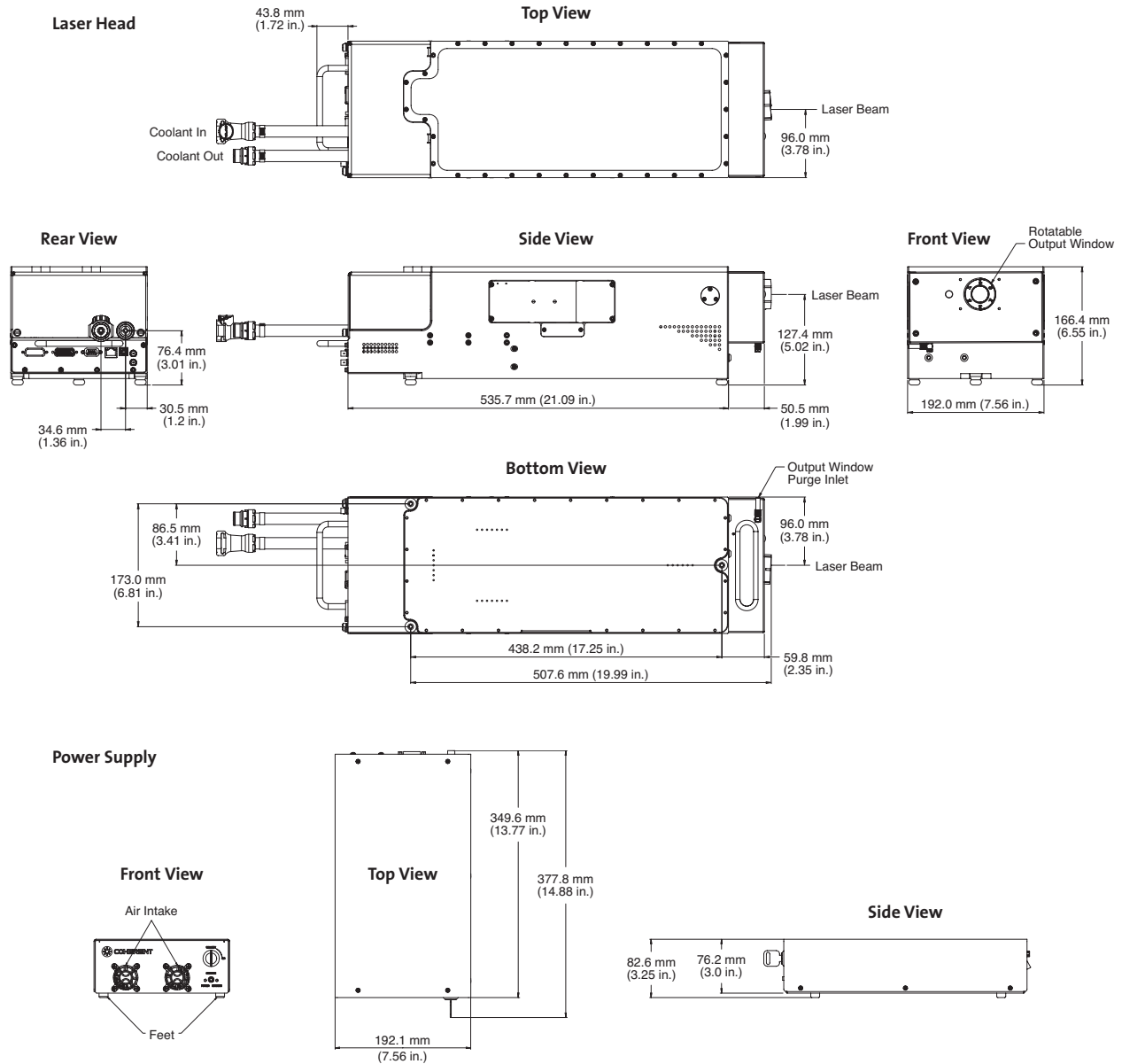
AVIA NX 355-40 and 355-20 Spec UV Performance



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Mechanical Specifications



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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 or contact your local Sales or Service Representative.