

## AXIOM CONTINUOUS WAVE LASER SERIES

# HIGH POWER, HIGH PERFORMANCE, CONTINUOUS WAVE LASER

Novanta develops photonics solutions specializing in cutting-edge components and sub-systems for laser-based diagnostic, analytical, micromachining and fine material processing applications. Powerful lasers, coupled with advanced beam steering and intelligent sub-systems incorporating software and controls, deliver extreme precision and performance, tailored to our customers' demanding applications.

### PATENTED DESIGN

Laser Quantum's axiom is a high power / high performance range of lasers designed with OEM integrators in mind. The flexibility of the axiom platform allows this range of lasers to successfully address the requirements of highly demanding 24/7 applications from Wafer inspection, Particle Counting and Quantum Technologies to 2D Sintering, Polymerization and Solar Cell manufacturing. Thanks to its novel cavity design and the active noise suppression electronics the axiom can achieve exceptional power stability and low noise making it a perfect fit for the highly demanding Ti:S pumping and Carrier Envelope Phase lock applications. A highly efficient platform, it comes with a compact driver while the whole system can incorporate air cooling solutions.

The axiom laser is suited to a wide variety of high performance applications including electronic inspection, metrology and particle measurement. With beam pointing stability below  $2 \mu\text{rad}/^\circ\text{C}$ , typical noise values around  $<0.03\%$  and power stability of  $<0.1\%$ , the axiom delivers exceptionally high performance in any industrial environment.



*The axiom laser delivers demanding noise specifications*

### LEADING FEATURES

#### Unique power levels with flexible cooling solutions

- Leading power levels at key wavelengths delivering high power to sample
- Highly efficient system allowing for flexibility in cooling solutions either water based (standard) or forced air cooling (optional)

#### Exceptional power stability and ultralow noise ensure consistent and accurate results

- Active noise cancellation ensures ultralow noise and ultra stable output, enabling applications and resulting in accurate and consistent results.
- Optimum optical design ensuring power stability and minimizing false positives.
- CEP stabilisation for a faster and deeper modulation; removing cost and complexity from system design

#### Supporting OEM integration in 24/7 applications

- Long operational lifetimes and remote accessibility for reduced downtime and planned servicing
- Integrated pump diode ensures ease of integration and eliminates susceptibility to vibration induced instabilities.
- Flexible cooling solutions

## AXIOM CONTINUOUS WAVE LASER SERIES

Specification*	axiom 532	axiom 660	axiom LE
Wavelength	532 nm	660 nm	532
Power	4 - 12 W	3 - 6 W	4 - 12 W
Beam Diameter <sup>1</sup>	2.25 ± 0.25 mm	0.85 ± 0.2 mm	2.25 ± 0.25 mm
Spatial Mode	TEM <sub>00</sub>		
Ellipticity	<1:1.15		
Spectral Bandwidth	50 GHz	60 GHz	X
Divergence	<0.4 mrad	<1.6 mrad	<0.4 mrad
M-Squared	<1.1	<1.2	<1.1
Power Stability (RMS) <sup>2</sup>	<0.1% (<10 W) <0.05% (10 - 12 W)	<1%	<0.25%
Noise (RMS)	<0.03% (<10 W) <0.02% (10 - 12 W)	<1%	<0.25%
Noise Bandwidth	10 Hz - 100 MHz	10 Hz - 50 kHz	X
Beam Pointing Stability	<2 µrad/°C		10 µrad/°C
Polarization Ratio	>100:1		
Polarization Direction	Horizontal		
Coherence Length	-6 cm	-5 mm	X
Beam Angle	<1 mrad		
Operating Temperature	20 - 30 °C	20 - 29 °C	
Warm-up Time	<10 minutes		
Weight	3.9 kg		
Umbilical Length	Class IV		
Laser Class	1.5 m		

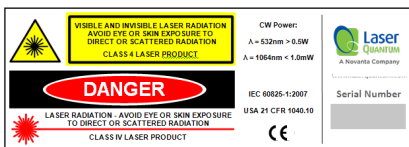
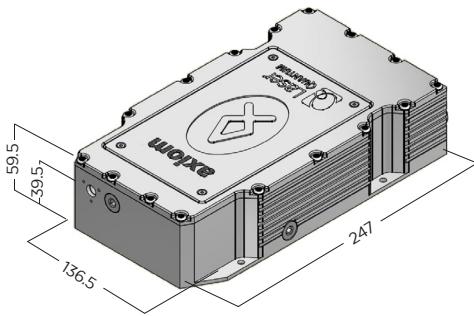
\*Laser Quantum operates a continuous improvement programme which can result in specifications being improved without notice..

<sup>1</sup> Beam diameter defined as the average of major and minor 1/e<sup>2</sup> beam size measured at 15 cm from exit port, at specified power..

<sup>2</sup> Test duration >100 hrs at constant temperature.

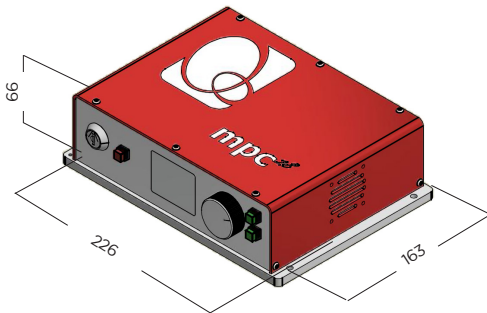
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## DIMENSIONS (MM)



Drawings are for illustrative purposes only, please contact us for complete engineer's drawings

## POWER SUPPLY UNIT



## ADDITIONAL INFORMATION

- Laser head weight: 3.9 kg
- Integrated water cooling
- 2 years unlimited hours warranty for scientific users
- LabView drivers available

## FLEXIBLE DESIGN

**Customizable options available for your laser to optimize your application.**

- **Intelligent control unit:** Allows easy setting and monitoring of the laser parameters. Incorporating PowerLoQ™ technology, the axiom lasers show extreme power stability over long periods of use.
- **RemoteApp™:** Software that allows the laser to be controlled locally, over the internet and connected directly to our support team for monitoring laser performance, diagnosing opportunities and carrying out laser optimization.

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