

OPUS CONTINUOUS WAVE LASER SERIES

MID POWER, LOW NOISE, COMPACT DPSS LASERS

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

A highly versatile platform, the opus is characterized by a unique combination of high power, exceptional stability and compact size. The opus patented design results in exceptional performance, suppressing amplitude noise and delivering a highly stable output, key features in eliminating false positives in semiconductor inspection and particle counting applications and delivering reliable and repeatable results where precision is essential.

Designed with the OEM integrator in mind the opus family features a small form factor and high wall plug electrical efficiency, delivering distinct benefits in thermal management, enabling the lasers to be used in environments where water cooling is not permitted or feasible. The rugged optomechanical design ensures system longevity, making the opus truly the laser of choice for high reliability, 24/7 system integrated applications.



The opus laser delivers excellent beam specifications

KEY FEATURES

Delivering reliable and repeatable results - Eliminate false positives.

- Patented design suppresses amplitude noise and ensures exceptional stability over time.

High power on sample - Flexible delivery system

- High power output from a compact platform
- Fibre coupling options (MM & SM)

Ease of integration

- Compact laser head and driver design. Maximum power/footprint ratio
- High wall plug efficiency. Efficient thermal management. Air cooling solutions
- Customizable features

Improve productivity - Minimize downtime.

- Rugged design supporting long operational lifetime
- Remote service capabilities

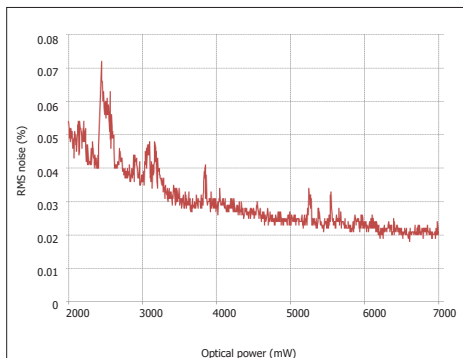


Fig. 1 Typical opus 532 noise power curve showing low noise performance across the available power range

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Specification*	opus 532	opus 660	opus 1064
Wavelength	532 nm	660 nm	1064 nm
Power	up to 6000 mW	up to 1500 mW	2 W - 10 W
Beam Diameter ¹	1.85 ± 0.2 mm	0.85 ± 0.1 mm	1.85 ± 0.2 mm
Spatial Mode	TEM ₀₀		
Ellipticity	<1:1.15		
Bandwidth	45 ± 10 GHz	30 GHz	80 GHz
Divergence	<0.5 mrad	<1.5 mrad	<1.0 mrad
M-Squared	<1.1	<1.2	<1.15
Power Stability (RMS) ²	≤0.2%	<1%	<0.1%
Noise (RMS)	≤0.08%	<0.6%	<0.15%
Noise Bandwidth	10 Hz - 100 MHz	10 Hz - 50 kHz	10 Hz - 100 MHz
Beam Pointing Stability	<2 μrad/°C	<10 μrad/°C	<10 μrad/°C
Polarization Ratio	>100:1		
Polarization Direction ³	Horizontal		
Coherence Length	0.7 cm	~1 cm	~4 mm
Beam Angle ⁴	<1 mrad		
Operating Temperature	15 - 40 °C	10 - 40 °C	15 - 40 °C

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

¹ Beam diameter defined as the average of major and minor 1/e² beam size measured at 25 cm from exit port, at specified power.

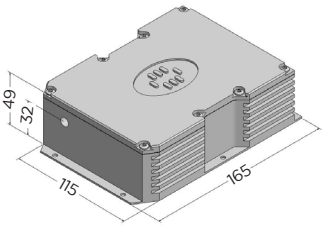
² Test duration >100 hrs at constant temperature.

³ Vertical polarization is available upon request.

⁴ Tolerance relative to head orientation.

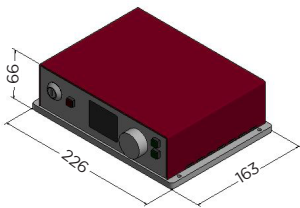
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DIMENSIONS (MM)



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

POWER SUPPLY UNIT



FLEXIBLE DESIGN

Customizable options available for your laser to optimize your application.

- **Fiber coupling:** Available with multi or single mode fiber delivery options which allows the beam to be delivered to the point of need.
- **Intelligent control unit:** Allows easy setting and monitoring of the laser parameters. Incorporating PowerLoQ™ technology, the opus lasers show extreme power stability over long periods of use (Fig 2).
- **1200 g drop-test:** All opus lasers undergo a drop test to check that all components are correctly fitted prior to its extended 300 hour test period. This rigorous testing regime ensures long operational lifetimes.
- **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.

POWER SUPPLY UNIT

- Umbilical length: 1.5 m
- Laser head weight: 1.5 kg
- Vertical polarization available on request
- Cooling options available
- Systems can be modulated on request
- Fiber coupling available
- LabView drivers available
- 2 years unlimited hours warranty for scientific users

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