opus
High powered compact lasers

Laser QUANTUM
A Novanta Company

- 532 nm up to 6 W
- 660 nm up to 1.5 W
- 1064 nm up to 10 W
- Highly robust & compact
- Low noise for demanding applications

Overview

One of our most popular lasers, the **opus** is now available at 532 nm, 660 nm and 1064 nm. Based on our patented design, the **opus** is known for its high power, excellent beam characteristics and compact size. The **opus 532** is ideally suited as a pump source for ultrafast lasers and both the **opus 532** and the **opus 660** address applications in super-resolution microscopy. The **opus 1064** offers a higher power alternative to our **ventus 1064**, the default choice for optical trapping. The diode MTTF of the **opus** lasers exceeds >100,000 hours to provide long operational lifetimes whether in a laboratory or incorporated in a fit-and-forget instrument.

The laser cavity design restricts the number of possible oscillation modes resulting in low inherent noise levels. With levels below 0.08 % (Fig. 1 & 2), the **opus 532** will satisfy all but the most noise sensitive Ti:Sapp pumping applications, in a highly compact and rugged monoblock design. The **opus 1064** offers the highest IR power levels with the necessary stability and beam specification for optical tweezing and trapping applications, while the **opus 660** is the highest power 660 nm DPSS laser commercially available.

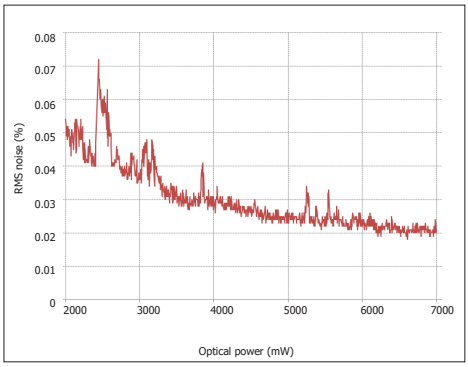

Fig. 1 Typical **opus 532** noise power curve showing low noise performance across the available power range.

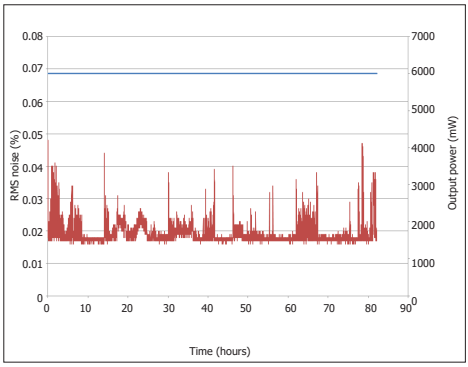

Fig. 2 Typical **opus 532** noise (red) and power stability (blue) test result showing noise performance well below specification and ultra-stable power output over a >80 hours test.

Fibre coupling: Like most of Laser Quantum lasers, the **opus** is available with multi or single mode fibre delivery options, which allow the beam to be delivered to the point of need.

The **opus** laser range features an intelligent control unit that 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).

The **opus** can be controlled across the internet via the RemoteApp™ software that also allows connection to the Laser Quantum support team for monitoring laser performance, diagnosing opportunities for and carrying out laser optimisation.

Every **opus** laser has been subjected to a 1200 g 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.

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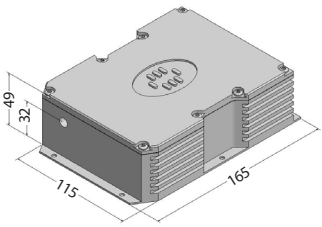
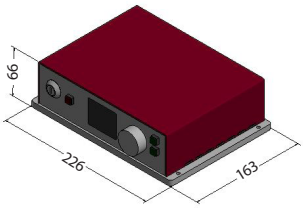
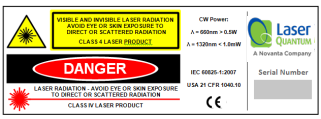
Dimensions (mm)





Other information

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



Drawings are for illustrative purposes only, please contact Laser Quantum for complete engineer's drawings.

Specifications*

	opus 532	opus 660	opus 1064
Wavelength	532 nm	660 nm	1064 nm
Power	up to 6,000 mW	up to 1,500 mW	500 mW to 10,000 mW
Beam diameter[1]	1.85 mm ± 0.2 mm	0.85 mm ± 0.2 mm	1.85 mm ± 0.2 mm
Spatial Mode	TEM00	TEM00	TEM00
Ellipticity	<1:1.15	<1:1.15	<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]	≤0.20 %	<1 %	<0.1 %
Noise (RMS)	≤0.08 %	<0.6 %	<0.15 %
Noise bandwidth	10 Hz to 100 MHz	10 Hz to 50 kHz	10 Hz to 100 MHz
Pointing stability	<2 urad/°C	<10 urad/°C	<10 urad/°C
Polarisation ratio	>100:1	>100:1	>100:1
Polarisation direction[3]	horizontal	horizontal	horizontal
Coherence length	0.7 cm	~1 cm	~4 mm
Beam angle[4]	<1 mrad	<1 mrad	<1 mrad
Operating temperature	15 to 40 ºC	10 to 40 °C	15 to 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 poalrisation is available upon request.
[4] Tolerance relative to head orientation.

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Rayture Systems

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