



opus

High powered compact lasers



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



Overview

One of our most popular lasers, the **opus** is now available at 532nm, 660nm and 1064nm. 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 MTF 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 660nm DPSS laser commercially available.

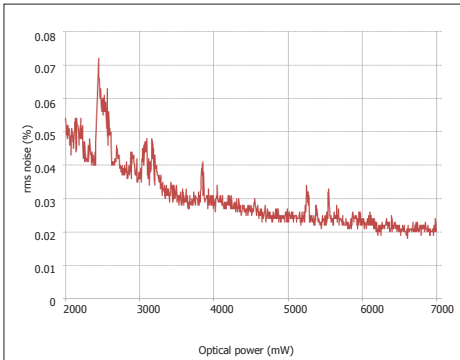


fig.1 Typical **opus 532** noise power curve showing low noise performance across the available power range.

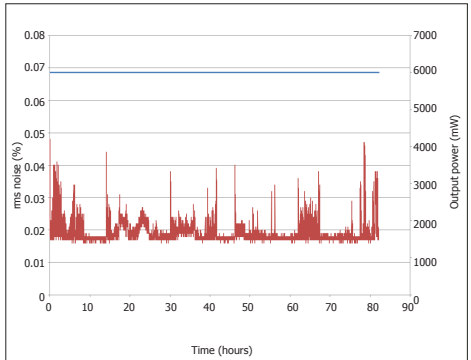


fig.2 Typical **opus 532** noise (red) and power stability (blue) test result showing noise performance well below specification and ultra-stable power output over a >80hours test.



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).

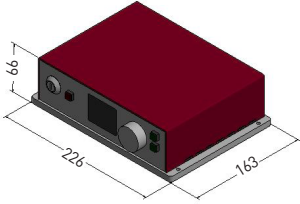
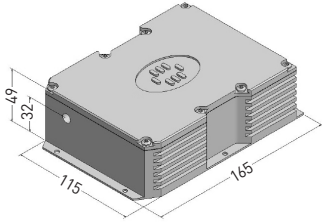


The **opus** can be controlled across the internet via the RemoteApp™ software that also allows connection to the Laser Quantum support team for monitoring laser performance, diagnosing opportunities for and carrying out laser optimisation.



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

Dimensions (mm)



Other information

- Umbilical length: 1.5m
- Laser head weight: 1.5kg
- 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



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

Specifications*

	opus 532	opus 660	opus 1064
Wavelength	532nm	660nm	1064nm
Power	6W	1W to 1.5W	4W to 10W
Beam diameter ¹	1.85mm±0.2mm	0.85mm±0.2mm	1.85mm±0.2mm
Spatial Mode	TEM ₀₀		
Ellipticity	<1:1.15		<1:1.2
Bandwidth	45±10GHz	30GHz	80GHz
Divergence	0.44±0.07mrad	<1.5mrad	<0.6mrad
M-squared	<1.1	<1.2	<1.5
Power stability ²	<0.2% rms	<1.0% rms	
Beam pointing stability	<2µrad/°C	<10µrad/°C	<10µrad/°C
RMS noise	<0.08%	<0.6%	≤0.15%
Noise bandwidth	10Hz to 100MHz	10Hz to 50kHz	10Hz to 100MHz
Polarisation ratio	>100:1		
Polarisation direction ³	horizontal		
Coherence length	0.7cm	~1cm	
Beam angle ⁴	<1mrad		
Operating temperature	15°C to 40°C		
Warm-up time	<10 minutes		
Umbilical length	1.5m		
Applications	Ti:Sapphire pumping, Optical trapping, military applications, Super-resolution microscopy, Raman, DNA sequencing	Super-resolution microscopy, DNA sequencing, Raman, optical trapping	optical trapping/optical tweezers

* 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 diameters measured at 20cm from exit port, at specified power.

² Test duration >100 hrs at constant temperature.

³ Vertical polarisation available on request.

⁴ Tolerance relative to head orientation.

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