

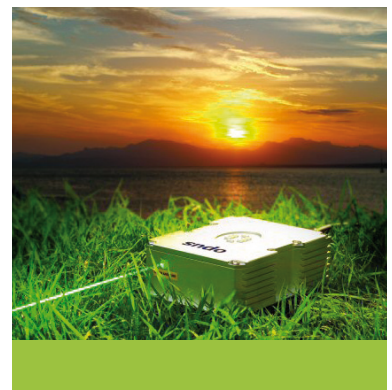


opus

ultra quiet 532nm CW laser

- CW 532nm laser
- Extremely low noise
- Two power configurations
2W and 3W

TECHNICAL DATA SHEET





The ultra quiet CW 532nm laser

Overview

The opus is one of our most popular green lasers. With its rugged, patented design and a choice of 2W and 3W of power the opus is capable of military-graded applications and also ideal in the fields of biomedicine and femtosecond Ti:Sapphire pumping. The reason for such versatility lies in the opus's excellent beam characteristics, highly stable output and an M-squared of <1.1 .

Low Noise

Low noise results from the cavity architecture which restricts the number of oscillation modes and maintains exact control of the component temperature. What little heat is generated within the head is removed by conduction - there is minimal cooling required. Only high quality optical components are used, resulting in a noise specification of $<0.4\%$ rms over a wide operating temperature range.

Stability

The mpc6000 power supply is a highly intelligent and functional control unit. It allows the laser to be operated in power or current mode; in power mode the output power is stabilised to better than 1% using optical feedback to the laser head.

The temperature of all critical components, and of the housing itself, is regulated by PID temperature controllers, solidly maintaining all temperature-sensitive parameters within the cavity at their optimum values. The stability is maintained over a wide operating temperature.

Construction

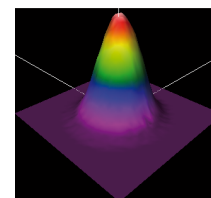
Laser Quantum builds all lasers to a high standard, and the opus is no exception.

The effects of shock impacts are minimised by the use of zero-stress mounts throughout the cavity, and the laser's feet are engineered to deform under high stress, eliminating mechanical strain within the head. The opus is capable of withstanding extreme vibrational shocks without diminishing its performance, and has been tested to temperatures below -30°C .

Before shipment each opus is subjected to rigorous quality assurance, in line with our strict ISO9001 procedures. Every unit is nitrogen purged and hermetically sealed. There follows a rigorous burn-in procedure under user-realistic conditions.

Beam Quality

The typical M-squared value of the opus beam is <1.1. The resulting TEM₀₀ beam has >98% fit to a Gaussian profile in both the X and Y directions, with an ellipticity typically of 1:1.05. This beam quality is maintained across the power range of the laser.



Features

Features include: low noise, stable output, compact design, low M-squared, zero-stress cavity, hermetically sealed, single phase mains driven, diode >40,000 hrs MTTF, full RS232 control and RemoteCal™.

RemoteCal™ diagnostics and RemoteVu™

The intelligent RemoteCal feature is unique to our systems, allowing complete remote access to the laser via the internet. It is capable of running diagnostics and controlling the laser when installed in the final application - and even performing minor services - with minimal disruption to the customer. The RemoteVu software suite is a user friendly, Windows-based interface used in partnership with RemoteCal or independently.

mpc6000 power supply and controller

The mpc6000 is more than just a power supply, it is an integral part of the opus laser system. The mpc6000 has a full colour LCD screen, is easy to use and is able to flip between power mode and user mode. The mpc6000 also monitors component temperatures in the laser head, automatically maintains laser output power and provides diagnostic analysis.

Supply voltage: 100, 120, 240 AC, frequency: 47 - 63 Hz

Technical Specifications*

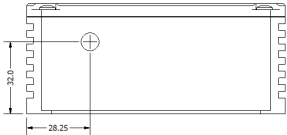
	OPUS 2	OPUS 3
Power	2 Watts	3 Watts
Wavelength	532 nm	532 nm
Beam Size	1.85 mm	2.0 mm
Spatial Mode	TEM ₀₀	TEM ₀₀
Ellipticity	< 1:1.15	< 1:1.15
Bandwidth	30 GHz	30 GHz
Divergence	0.4 mrad	0.4 mrad
M-squared	< 1.1	< 1.1
Power stability ¹	0.4% rms	0.4% rms
Beam pointing stability	< 2 μrad	< 2 μrad
RMS noise ²	0.4%	0.4%
Polarisation ratio	> 100:1	> 100:1
Polarisation direction	horizontal	horizontal
Coherence length	1 cm	1 cm
Beam angle ³	1 mrad	1 mrad
Operating temperature	15 - 40°C	15 - 40°C
Head weight	1.2 kg	1.2 kg
Umbilical length	1.5m	1.5m
Warm-up time	10 minutes	10 minutes

* Subject to change without notice. ¹ Test duration >100 hrs. ² Measured up to 6MHz. ³ Tolerance relative to head orientation.

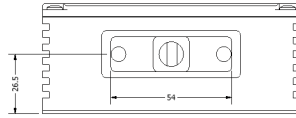
Dimensions



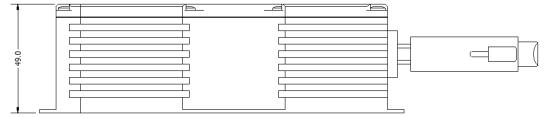
Front view



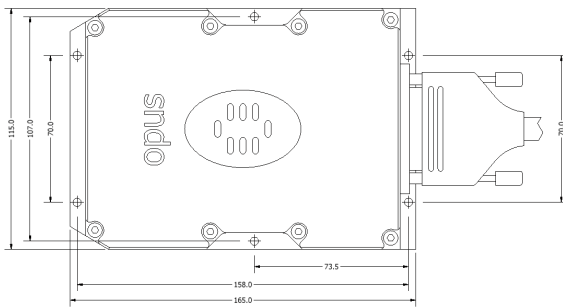
Back view



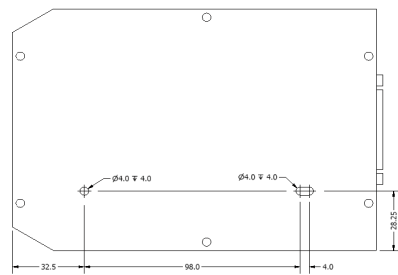
Side view



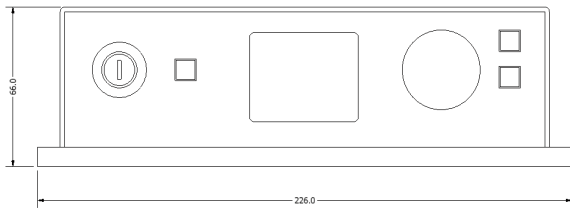
Top view



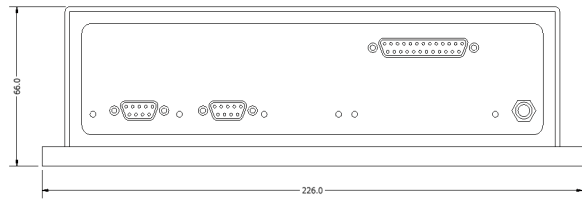
Bottom view



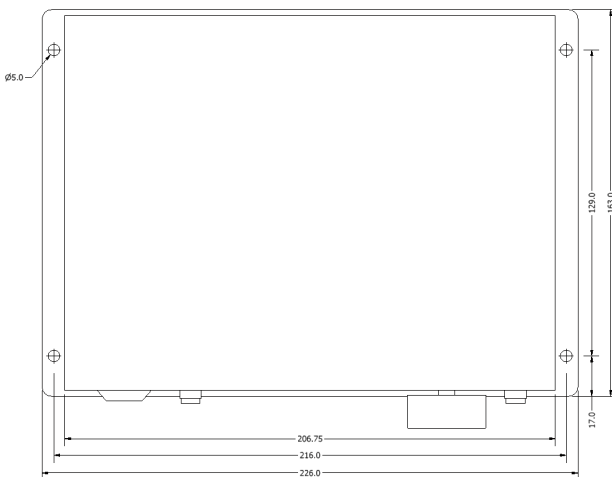
mpc6000 - front view



mpc6000 - back view



mpc6000 - top view



Typical Applications
 femtosecond Ti: Sapphire pumping
 optical tweezers
 military grade applications

PSU options
 mpc6000



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

- INNOVATIVE
- RELIABLE
- INTELLIGENT

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