

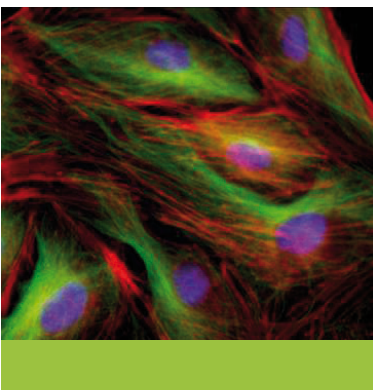


ignis

high specification red laser

- CW 671nm laser
- Extremely low noise
- Power 500mW

TECHNICAL DATA SHEET



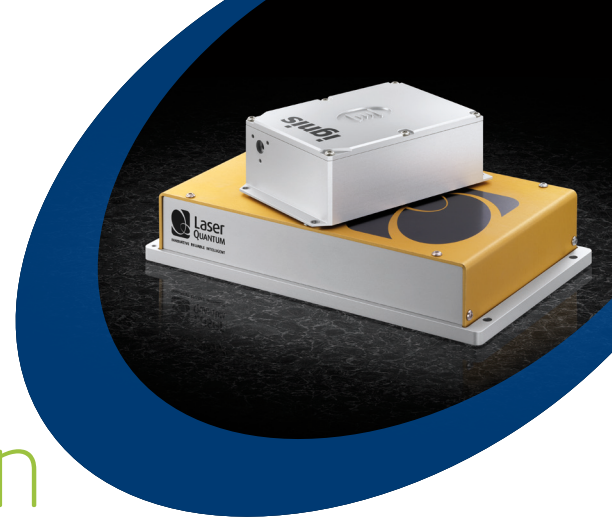
Laser
QUANTUM

INNOVATIVE RELIABLE INTELLIGENT



ignis

high specification red laser



The high specification 671 nm laser

Overview

The ignis at 671nm and 500mW is among the most powerful and compact red lasers available today and forms part of Laser Quantum's red laser range. It has excellent beam characteristics and, using our innovative stress-free cavity architecture, the ignis is suitable for a wide range of scientific applications including fluorescence imaging and spectroscopy.

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, therefore no water cooling is required. Only high quality optical components are used, resulting in a noise specification of $\leq 0.6\%$ rms (up to 10KHz) over a wide operating temperature range.

Stability

The smd6000 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 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

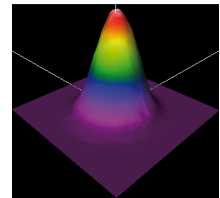
Laser Quantum builds all lasers to a high standard, and the ignis is no exception.

To minimise the effect of shock impacts zero-stress mounts are used throughout the cavity. The laser's feet are engineered to deform under high stress, eliminating mechanical strain within the head.

The ignis is capable of withstanding extreme vibrational shocks without diminishing its performance. Before shipment each ignis is subjected to rigorous quality assurance, in line with our strict ISO9001 procedures. Every unit is nitrogen purged and hermetically sealed. This is followed by a rigorous burn-in procedure under user-realistic conditions.

Beam Quality

The ignis has a pure spectral quality which follows that the spatial quality is also very pure. The typical M-squared value of the ignis beam is <1.2 resulting in a near perfect and near diffraction-limited beam.



Features

Features include: diffraction limited beam, permanently aligned cavity, low noise, stable output, compact design, low M-squared, zero-stress cavity, hermetically sealed, single phase mains driven, diode >40,000 hrs MTF and full RS232 control.

smd6000 power supply

The smd6000 is more than just a power supply, it is an integral part of the ignis laser system and is able to flip between power mode and user mode via the RS232 interface. The smd6000 also monitors component temperatures in the laser head, automatically maintaining laser output power and providing diagnostic analysis.

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

Technical Specifications*

	ignis 500mW
Power	500mW
Wavelength	671nm
Beam Size	0.75 ± 0.15mm
Spatial Mode	TEM ₀₀
Ellipticity	< 1:1.2
Bandwidth	~30 GHz
Divergence	< 3 mrad
M-squared	< 1.2
Power stability ¹	< 1% rms
Beam pointing stability ²	10 µrad/°C
RMS noise	≤0.6%
Polarisation ratio	> 100:1
Polarisation direction	horizontal
Coherence length	~3mm
Beam angle ³	< 2 mrad
Operating temperature	22 - 37°C
Head weight	0.7 kg
Umbilical length	1.5m
Warm-up time	< 15 minutes

* Subject to change without notice. ¹ Test duration >100 hrs. ² Measured up to 10KHz. ³ Tolerance relative to head orientation.

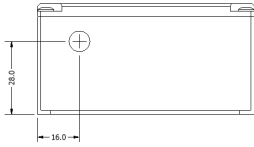


ignis

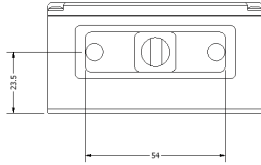
high specification red laser

Dimensions

Front view



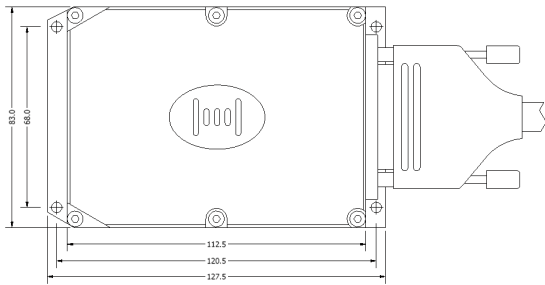
Back view



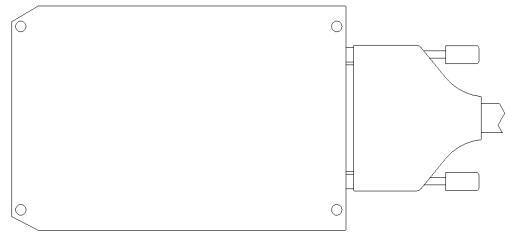
Side view



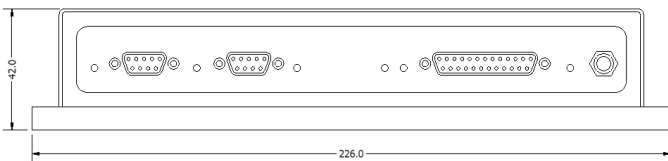
Top view



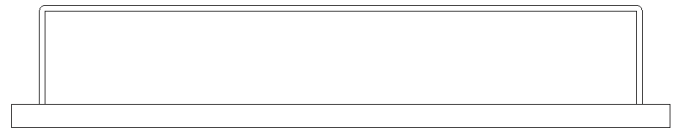
Bottom view



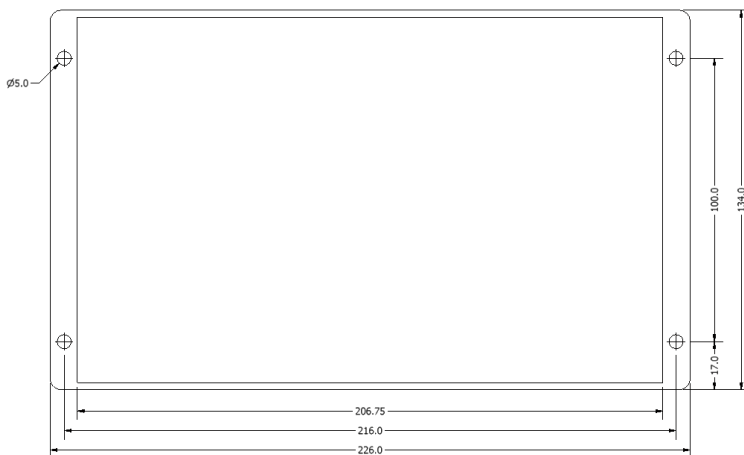
smd6000 - front view



smd6000 - back view



smd6000 - top view



Typical Applications

- Raman spectroscopy
- biomedical imaging
- fluorescence spectroscopy

PSU options

smd 6000



Drawings are for illustrative purposes only, please contact Laser Quantum for complete engineer's drawings, including smd9000.

- INNOVATIVE
- RELIABLE
- INTELLIGENT

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