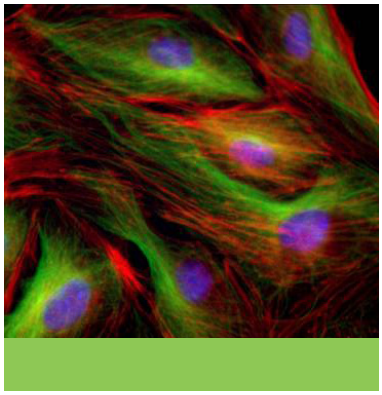
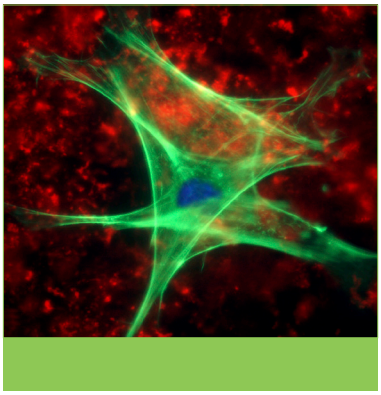
excel

532nm compact laser

- CW 532nm laser
- Highly efficient
- Power 1W - 2W

TECHNICAL DATA SHEET



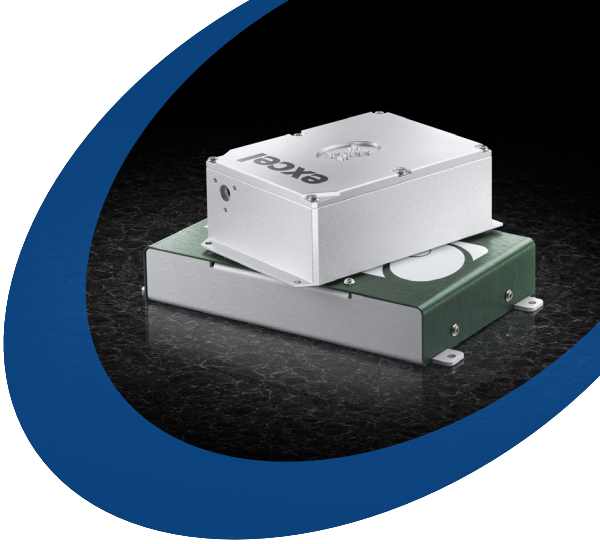


Laser Quantum

INNOVATIVE RELIABLE INTELLIGENT

excel

532nm compact laser



The high specification 532nm laser

Overview

The excel from Laser Quantum is a versatile laser. It has a unique stress-free cavity architecture, is small and robust in design and is capable of providing a high-power 532nm beam up to 2W. The excel can be used for numerous applications including PIV and biomedical research and was the first system to undergo ruggedisation for extreme vibration and temperature for military applications at Laser Quantum, making the excel a unique laser in its class.

Low Noise

Low noise results from the cavity architecture which restricts the number of oscillation modes and maintains tight 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 <0.5% RMS (up to 6MHz) over a wide operating temperature range.

Stability

The smd12 power supply is a highly intelligent and functional control unit. It allows the laser to be operated in power or current mode using the RS232 control; in power mode the output power is stabilised to better than <0.4% 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

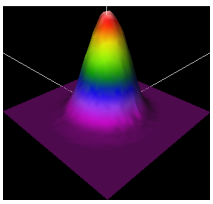
Laser Quantum builds all lasers to a high standard, and the excel is no exception.

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 excel is capable of withstanding extreme vibrational shocks without diminishing its performance. Before shipment each excel 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 excel has a pure spectral and spacial quality, consequently the typical M-squared value of the excel beam is <1.1 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 MTTF and full RS232 control.

smd12 power supply

The smd12 is an integral part of the excel laser system and has become much more than a power supply. It is able to flip between power mode and user mode via the RS232 interface and 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*

	EXCEL
Power	1W, 1.5W & 2W
Wavelength	532nm
Beam diameter[1]	1.5mm ± 0.1mm
Spatial Mode	TEM_{00}
Ellipticity	< 1:1.15
Bandwidth	30 - 40GHz
Divergence	≤ 0.5 mrad
M-squared	< 1.1
Power stability[2]	< 0.4% RMS
Beam pointing stability	< 2 µrad/°C
RMS noise[3]	< 0.5%
Polarisation ratio	> 100:1
Polarisation direction	horizontal
Coherence length	1cm
Beam angle[4]	1 mrad
Operating temperature	10 - 40°C
Head weight	0.9kg
Umbilical length	1.5m
Warm-up time	10 minutes

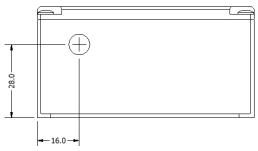
* Subject to change without notice.
[1] Beam diameter defined as the average of major and minor $1/e^2$ beam size measured at 25cm from exit port, at specified power.
[2] Test duration >100 hrs at constant temerature.
[3] Measured up to 6MHz.
[4] Tolerance relative to head orientation.

excel

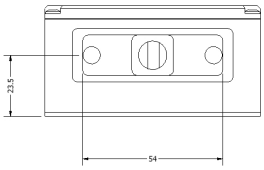
532nm compact laser

Dimensions

Front view

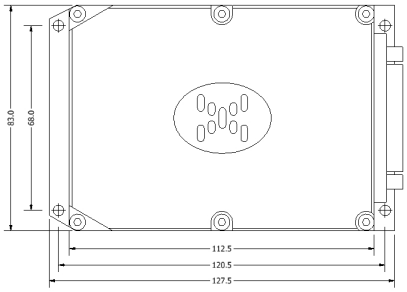


Back view

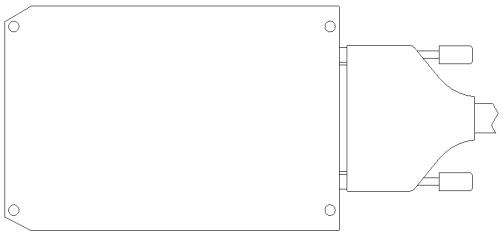


Side view

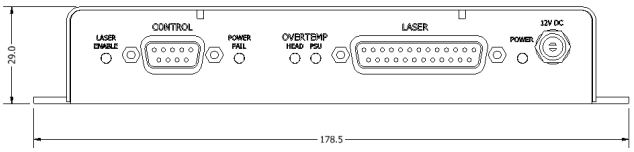
Top view



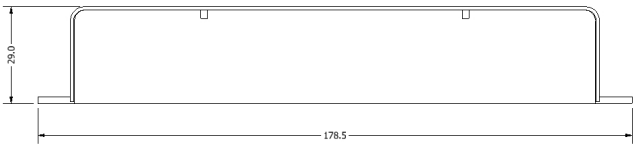
Bottom view



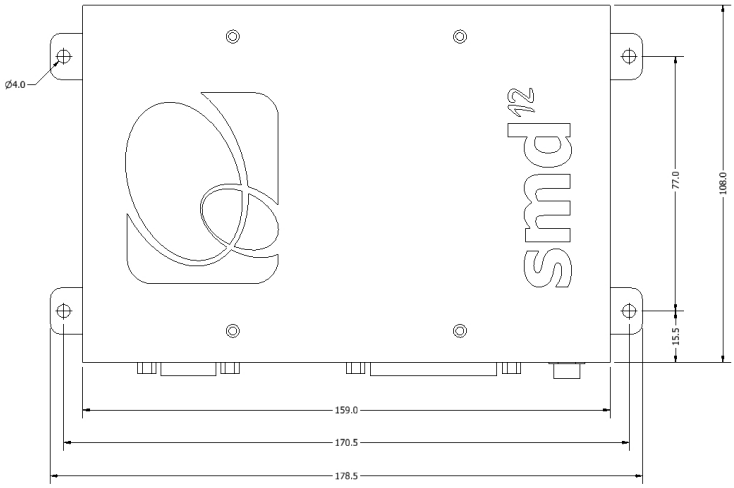
smd 12 - front view



smd 12 - back view



smd 12 - top view



Typical Applications

PIV

Opthalmology

PSU options

smd 12

mpc 6000

Drawings are for illustrative purposes only, please contact Laser Quantum for complete engineer's drawings, including mpc 6000.

• INNOVATIVE • RELIABLE • INTELLIGENT

LASER QUANTUM LTD
tel: +44 (0) 161 975 5300
fax: +44 (0) 161 975 5309
email: info@laserquantum.com
web: www.laserquantum.com

LASER QUANTUM INC
tel: +1 408-467-3885
fax: +1 408-467-3886
email: info@laserquantum.com
web: www.laserquantum.com

LASER QUANTUM GmbH
tel: +49 7531 368371
fax: +49 7531 368372
email: info@laserquantum.com
web: www.laserquantum.com

Laser QUANTUM
INNOVATIVE RELIABLE INTELLIGENT