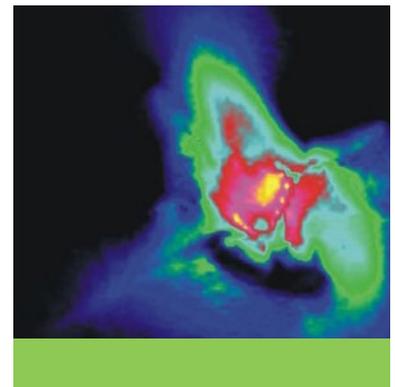
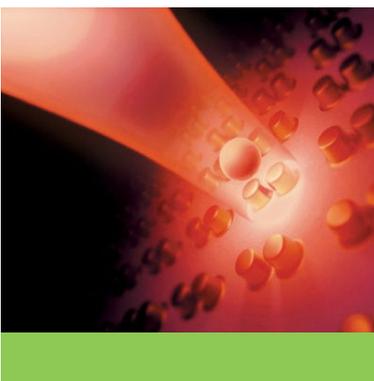


ventus¹⁰⁶⁴

high power scientific lasers

- CW 1064nm IR up to 5W
- Extremely low noise, high stability
- Long lifetimes
- TEM₀₀

TECHNICAL DATA SHEET





The high power laser of choice

Overview

The **ventus** has become the laser of choice within the scientific community. With its robust design and low rms noise, the **ventus 1064** is available with power up to 5W. Available in a wide range of powers, the **ventus 1064** is used in a varied range of applications such as optical trapping and manipulation, and it is available with fibre-delivery. The diode MTTF is manufacturer-specified as >40,000 hours at full power, but Laser Quantum de-rates the diode to further increase its lifetime, giving the **ventus 1064** itself industry leading lifetimes.

Low Noise

Low noise results from the cavity architecture of the **ventus 1064**, which restricts the number of oscillating modes and maintains precise control of all component temperatures. What little heat is generated within the head is removed by conduction, so there is rarely any need for water cooling. Only high quality optical components are used, resulting in a noise specification as low as <0.2% rms over a wide operating temperature range.

Stability

The **mpc6000** power supply allows control of the **ventus** in current mode, where a percentage of maximum current can be selected, resulting in optical output stabilised to values as low as 0.2%. The temperature of all critical components is PID regulated, solidly maintaining all temperature-sensitive parameters at their optimum values. The stability is maintained over a wide operating temperature range.

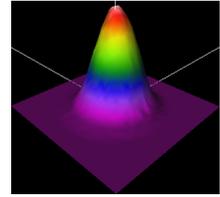
Construction

Laser Quantum builds all lasers to exacting standards, with quality the key focus of the company. The effects of shock and vibration in the **ventus** are minimised by the use of zero-stress mounts throughout the cavity, eliminating mechanical strain within the head and ensuring maximum contact with the heat sink. The **ventus** is capable of withstanding extreme shock and vibration without diminishing its performance. A Mil Spec variant of the **ventus** has been tested to temperatures below -30°C.

Prior to shipment, each **ventus** is subjected to rigorous quality assurance in line with ISO9001. The **ventus** is purged and hermetically sealed, prior to a >300 hour burn-in procedure under user realistic conditions and a 1,200 g-shock test on 5 faces. Every single unit must pass through this procedure before it is released for shipment.

Beam Quality

The typical M^2 value of the **ventus 1064** is <1.5 . The resulting TEM_{00} beam has $>98\%$ fit to a Gaussian profile in both the X and Y directions, with a typical ellipticity of better than 1:1.2. This beam quality is maintained across the power range of the laser.



mpc6000 power supply and controller

The **mpc6000** controller provides an interface with the **ventus 1064** both directly via an intuitive, user friendly menu displayed on the LCD screen, navigated using just two buttons and a dial, and remotely using the RS232 port. Remote use can be through simple commands from DOS or a DOS emulator, or our user friendly software simplifies this further. In addition to acting as a user interface, the **mpc6000** monitors component temperatures in the **ventus** laser head, automatically maintains laser output power and provides diagnostic analysis. It is a highly advanced, fully featured unit. Supply voltage: 100, 120, 240V AC, frequency: 47-63 Hz.

Technical Specifications*

	ventus 1064	
Wavelength	1064nm	
Power	100mW - 500mW	1.5W - 5W
Beam diameter ¹	2.0mm \pm 0.2mm	2.4mm \pm 0.2mm
Spatial mode	TEM_{00}	
Ellipticity	$<1:1.2$	
Bandwidth	80GHz	
Divergence	0.6mrad	
M-squared	<1.5	
Power stability ²	$<0.2\%$ rms	
Beam pointing stability	$<5\mu\text{rad}/^\circ\text{C}$	
rms noise ³	$<0.2\%$	
Noise bandwidth	1Hz - 100MHz	
Polarisation ratio	100:1	
Polarisation direction	vertical	
Coherence length	4mm	
Beam angle ⁴	1mrad	
Operating temperature	10 - 40°C	
Warm-up time	10 minutes	
Applications	Non linear, optics pump source, optical trapping & manipulation	

* 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 $1/e^2$ beam size measured at 25cm from exit port, at specified power.

² Test duration >100 hrs at constant temperature.

³ Measured at specified power.

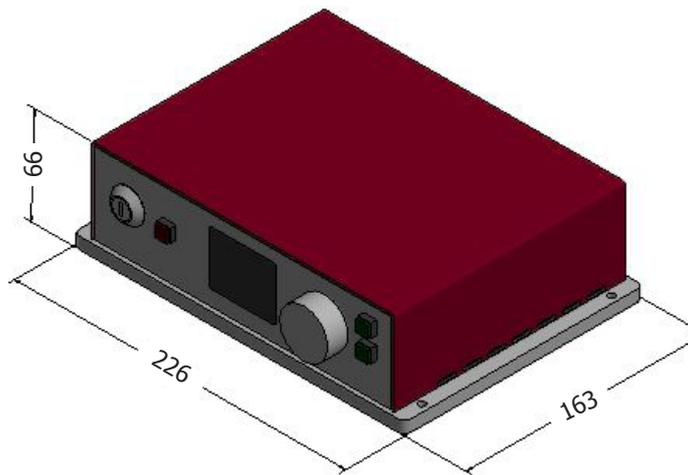
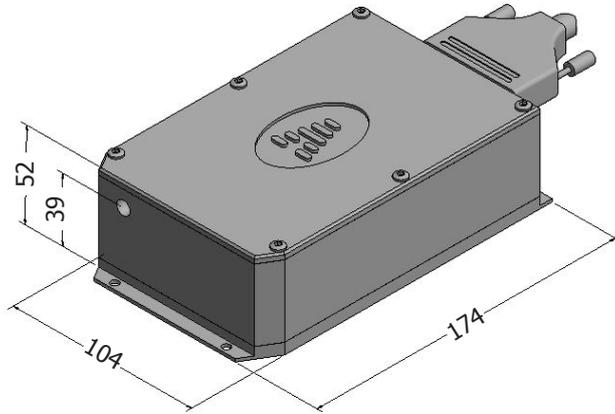
⁴ Tolerance relative to head orientation.



ventus¹⁰⁶⁴

high power scientific lasers

Dimensions (mm)



mpc6000

Other information

Umbilical length: 1.5m

Laser head weight: 1.3kg

Cooling options available

Systems can be modulated

Please contact us for further details

smd power supply also available

- 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



INNOVATIVE RELIABLE INTELLIGENT



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

脉动科技有限公司

中国代理商

北京总部 地址: 海淀区中关村东路89号 恒兴大厦9C, 100190
 电话: 010-62565117
 010-84413925

传真: 010-62565117-11
 邮箱: info@pulsepower.cn
 官网: www.pulsepower.cn

上海办事处 021-32070812
 西安办事处 029-87307077
 深圳办事处 0755-27528760