

Quantas Q2

HIGH ENERGY AIR-COOLED Q-SWITCHED LASER

FEATURES

Up to **70 mJ** pulse energy

Air cooled – no liquids inside

Weight **<7 kg** incl. power supply

Variable up to **20 Hz** repetition rate

Build-in sync pulse generator for triggering of user equipment

Remote monitoring and control via build-in **Ethernet** interface

Optional 2nd, 3rd, 4th or 5th harmonic generators

Optional attenuator for fundamental wavelength

Guaranteed **>1 Gshot** lifetime

APPLICATIONS

Light Induced Breakdown Spectroscopy (LIBS)

Laser ablation

Time-of-Flight Spectroscopy (TOFS)

Light Induced Fluorescence (LIF) spectroscopy

Flash photolysis

Matrix Assisted Laser Desorption/Ionization (MALDI)

Pulsed Light Deposition (PLD)

Remote sensing

OPO, dye laser, Ti:sapphire pumping



Quantas Q2 models employ MOPA (Master Oscillator / Power Amplifier) architecture in order to produce high pulse energies while maintaining low divergence output. Two models are available, offering 50 mJ @ 20 Hz or 70 mJ @ 10 Hz pulse energies.

Typical applications are Light Induced Breakdown Spectroscopy (LIBS), Light Induced Fluorescence Spectroscopy (LIF), laser ablation and remote sensing.

Less than 8 ns pulse duration allows efficient fundamental wavelength conversion to higher harmonics with shortest wavelength available of 211 nm. Wavelength extensions into infrared range by use of OPO are available by request.

Quantas Q2 is forced air cooled laser due its good wall-plug efficiency. Liquids are not used for heat transfer, as result, maintenance associated with regular replacements of cooling liquid and/or cleaning of cooling system is not required.

Low jitter triggering pulses for user equipment are available with up to 450 μ s lead in internal triggering mode. If required, laser pulsing can be externally triggered from delay generator, allowing operation in single-shot or variable pulse repetition modes.

Laser controller has Ethernet interface for convenient monitoring and control from personal computer.



Quantum
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SPECIFICATIONS ¹⁾

MODEL	Quantas Q2-1064	Quantas Q2-1053
Wavelength	1064 nm	1053 nm
Pulse energy	50 mJ	70 mJ
Typical pulse duration	< 8 ns ²⁾	
Pulse to pulse energy stability	< 0.7 % RMS ³⁾	
Power drift	± 3.0 % ⁴⁾	
Maximum pulse repetition rate ⁵⁾	20 Hz	10 Hz
Beam profile	bell-shaped, >75 % fit to Gaussian	
Beam divergence ⁶⁾	< 2 mrad	
Polarization	linear, horizontal	
Typical beam diameter ⁷⁾	3 mm	
Jitter	< 1 ns RMS ⁸⁾	

OPTIONAL HARMONICS GENERATOR MODULE ⁹⁾

Pulse energy		
2 nd harmonic	25 mJ @ 532 nm	35 mJ @ 527nm
3 rd harmonic	15 mJ @ 355 nm	20 mJ @ 351 nm
4 th harmonic	7 mJ @ 266 nm	11 mJ @ 263 nm
5 th harmonic	2.5 mJ @ 213 nm	3.5 mJ @ 211 nm

OPTIONAL ATTENUATOR ¹⁰⁾

Wavelength	1064 nm, 532 nm, 355 nm	1053 nm, 527 nm, 351 nm
Attenuation range	5 – 95 %	

DIMENSIONS

Laser head (W×L×H)	113 × 400 × 112 mm ³
Harmonics generator module (W×L×H)	113 × 242 × 112 mm ³
Controller unit (W×L×H)	85 × 165 × 50 mm ³
Power adapter, typical (W×L×H)	50 × 125 × 32 mm ³

OPERATING REQUIREMENTS

Cooling requirements	air cooled
Ambient temperature	15 – 28 °C
Relative humidity	10 – 80 % (non-condensing)
Mains voltage	90 – 230 V AC, single phase, 47 – 63 Hz ¹¹⁾
Power consumption	< 50 W

¹⁾ The parameters marked typical are not specifications. They are indications of typical performance and might vary unit-to-unit. Unless stated otherwise all specifications are measured at 1053 or 1064 nm and maximum pulse repetition rate.

²⁾ FWHM level at 1053 or 1064 nm. Shorter pulse duration is available by request. Inquire for detailed specifications.

³⁾ Averaged from 500 pulses.

⁴⁾ Over 8 hour period after 20 minutes of warm-up when ambient temperature variation is less than ±2 °C.

⁵⁾ Factory-set pulse repetition rate is fixed at 10 Hz or 20 Hz, depending on model. Variable pulse repetition rate is possible when laser is externally triggered.

⁶⁾ Full angle measured at 1/e² level.

⁷⁾ Beam diameter is measured 20 cm from laser output at 1/e² level.

⁸⁾ In respect to Q-switch triggering edge of pulse.

⁹⁾ Harmonics generator module is stand-alone unit optimized for specified output wavelength. Inquire for details if you need multiple wavelength output.

¹⁰⁾ Attenuator is build-in into harmonics generator module.

¹¹⁾ Laser can be powered from appropriate 12 V DC power source. Inquire for details.



DRAWINGS

