

Quantas Q-SPARK

DIODE PUMPED AIR-COOLED Q-SWITCHED LASER

FEATURES

Up to **10 mJ** pulse energy at 1064 nm

Air cooled (no water)

Short pulse duration **< 2 ns**

Up to **50 Hz** repetition rate

Built-in sync pulse generator for triggering of user equipment

Remote control via built-in **Ethernet** or **Wi-Fi** interface

Guaranteed **> 2 Gshot** lifetime

APPLICATIONS

Light Induced Breakdown Spectroscopy (LIBS)

Laser ablation

Time-of-Flight Spectroscopy (TOFS)

Matrix Assisted Laser Desorption/Ionization (MALDI)

Light Detection And Ranging (LIDAR)

Remote sensing



Q-SPARK diode pumped, air-cooled, Q-switched lasers are designed for wide range of applications that require high peak power pulses. Due to short laser cavity and good thermal properties of Nd:YAG crystal laser delivers up to 10 mJ at < 2 ns pulse length. Pulse repetition rates up to 50 Hz is possible.

This laser is ideal and robust tool for applications like Light Induced Breakdown Spectroscopy (LIBS), remote sensing, LIDAR, semiconductor failure analysis, laser ablation and many others.

Short pulse duration allows efficient fundamental wavelength conversion to higher harmonics with shortest wavelength available of 266 nm.

Low jitter triggering pulses for user equipment are available with up to 300 μ s lead in internal triggering mode. If required, laser pulsing can be externally triggered from delay generator.

Laser controlled via built-in Ethernet port with option to add Wi-Fi adapter. It allows users to monitor and control laser remotely.

SPECIFICATIONS ¹⁾

MODEL	Quantas-SPARK		
	Q-SPARK-PS	Q-SPARK-5	Q-SPARK-10
Wavelength, nm	1064 nm		
Pulse energy	2 mJ	5 mJ	10 mJ
Typical pulse duration ²⁾	< 2 ns		
Pulse to pulse energy stability ³⁾	< 0.5 % RMS		
Power drift ⁴⁾	± 3.0 %		
Pulse repetition rate ⁵⁾	20 Hz	50 Hz ⁵⁾	20 Hz
Beam profile	nearly TEM ₀₀		
Beam divergence ⁶⁾	< 1.8 mrad	< 1.6 mrad	< 1.2 mrad
Polarization	linear, horizontal at 1064 nm		
Typical beam diameter ⁷⁾	0.7 mm	1.1 mm	1.5 mm
Jitter ⁸⁾	1 μs RMS	< 0.5 ns RMS	

OPTIONAL HARMONICS GENERATOR ⁹⁾

Pulse energy	Q-SPARK-PS	Q-SPARK-5	Q-SPARK-10
532 nm	1 mJ	2.5 mJ	5 mJ
355 nm	0.5 mJ	1.6 mJ	2.5 mJ
266 nm	0.2 mJ	0.8 mJ	1 mJ

OPTIONAL ATTENUATOR ¹⁰⁾

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

OPTIONAL FIBER COUPLED OUTPUT ¹¹⁾

Wavelength	1064 nm or 532 nm
Max input pulse energy	up to 10 mJ ¹²⁾

DIMENSIONS

Laser head (W×L×H)	150 × 275 × 135 mm ³
Controller unit (W×L×H)	106 × 165 × 55 mm ³
Power adapter, typical (W×L×H)	50 × 125 × 32 mm ³

OPERATING REQUIREMENTS

Cooling requirements	air cooled (no water)
Ambient temperature	15 – 30 °C
Relative humidity	10 – 80 % (non-condensing)
Mains voltage	90 – 230 V AC, single phase, 47 – 63 Hz ¹³⁾
Power consumption	< 50 W

¹⁾ Due to continuous improvements all specifications are subject to change. Unless stated otherwise all specifications are measured at 1064 nm and max pulse repetition rate depending on model.

²⁾ FWHM level at 1064 nm.

³⁾ Averaged from 30 second time interval.

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

⁵⁾ Factory-set pulse repetition rate is fixed at max repetition rate shown in the table.

⁶⁾ Full angle measured at the 1/e² level.

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

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

⁹⁾ Harmonics generator is built into laser head.

¹⁰⁾ Attachable to the laser head.

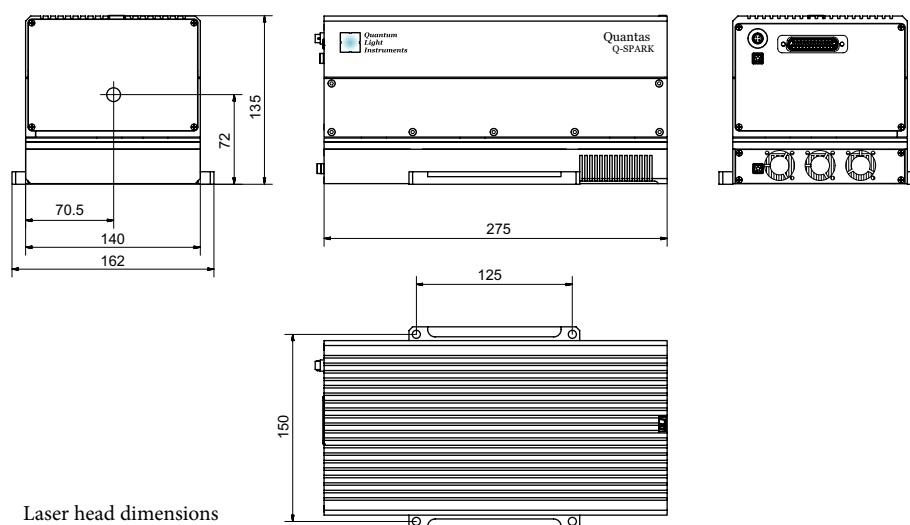
¹¹⁾ Fiber coupler is built-in into harmonics generator module. Please inquire for details.

¹²⁾ For fiber core diameter of 950 μm. Smaller core fibers are available, please inquire for specifications.

¹³⁾ Laser can be powered from appropriate 12 V DC power source. Please inquire for details.



DRAWINGS



Laser head dimensions