

## Quantas - Diode-pumped air-cooled Q-switched laser

### Features:

- ▶ Up to 40 mJ pulse energy at fundamental wavelength.
- ▶ Air cooled.
- ▶ Variable pulse repetition rate.
- ▶ Build-in sync pulse generator for triggering of user equipment.
- ▶ Remote control via build-in Ethernet interface.
- ▶ Optional 2nd, 3rd, 4th or 5th harmonic generators.
- ▶ Optional attenuator for fundamental wavelength.
- ▶ Optional fiber coupled output.
- ▶ OEM version is available.

### Typical applications:

- ▶ Light Induced Breakdown Spectroscopy (LIBS).
- ▶ Time-of-Flight Spectroscopy (TOFS).
- ▶ Light Induced Fluorescence (LIF) Spectroscopy.
- ▶ Flash photolysis.
- ▶ Matrix Assisted Laser Desorption/Ionization (MALDI).
- ▶ Pulsed light deposition (PLD).
- ▶ Remote sensing.
- ▶ Laser ablation.



External view of Quantas Q1 laser

**Quantas** is compact, air-cooled, Q-switched laser designed for wide range of applications that require low pulse repetition rate and high peak power pulses (Q1D model produces ~6 MW peak power). Typical applications are Light Induced Breakdown Spectroscopy (LIBS), Light Induced Fluorescence Spectroscopy (LIF), laser ablation and remote sensing.

Less than 7 ns pulse duration allows efficient fundamental wavelength conversion to higher harmonics with shortest wavelength available of 211 nm. Wavelength extensions into infrared range are available by request using OPO.

Due diode pumping the laser has excellent wall-plug efficiency and low heat emission. The laser is air cooled (when operated at elevated ambient temperatures mounting on heatsink is recommended).

Laser is providing sync pulses for user equipment triggering with up to 450  $\mu$ s lead. In addition, laser pulsing can be externally triggered from delay generator.

Laser is controlled from its control pad or from personal computer via Ethernet interface.

For more information about our products visit  
[www.qlinstruments.com](http://www.qlinstruments.com)



Model	Quantas				
	Q1A	Q1B	Q1C	Q1D	
Wavelength, nm	1053 <sup>2)</sup>		1053 <sup>3)</sup>		
Pulse energy, mJ	5	10	20	40	
Typical pulse duration	< 7 ns <sup>4)</sup>				
Pulse to pulse energy stability	< 1 % RMS <sup>5)</sup>				
Power drift	± 3.0 % <sup>6)</sup>				
Pulse repetition rate, Hz	Single shot – 10 Hz <sup>7)</sup>				
Beam profile	Nearly TEM <sub>00</sub>		Hat-top, multimode		
Beam divergence, mrad	< 2 mrad <sup>8)</sup>		< 3 mrad <sup>8)</sup>		
Polarization	Linear, horizontal				
Typical beam diameter, <sup>9)</sup>	1.2 mm	1.8 mm	2.3 mm	3 mm	
Jitter	N/A	< 1 ns RMS <sup>10)</sup>			
<b>Optional harmonics generator module <sup>11)</sup></b>					
Pulse energy, mJ					
2 <sup>nd</sup> harmonic	2.5	5	10	20	
3 <sup>rd</sup> harmonic	1.5	3	5	10	
4 <sup>th</sup> harmonic	0.7	1.5	2.5	4	
5 <sup>th</sup> harmonic	0.15	0.5	1.2	2	
<b>Optional attenuator <sup>13)</sup></b>					
Wavelength, nm	1053 or 1064				
Attenuation range, %	5 - 95				
<b>Optional fiber coupled output <sup>13)</sup></b>					
Wavelength, nm	1053/1064 or 527/532				
Max output pulse energy, mJ	Up to 7 mJ <sup>14)</sup>				
<b>Physical characteristics</b>					
Laser head size ( W× L× H)	110 × 230 × 90 mm <sup>3</sup>				
Optional harmonics generator module ( W× L× H )	110 × 230 × 90 mm <sup>3</sup>				
Controller unit size (W× L × H)	85 × 165 × 50 mm <sup>3</sup>				
Power adapter size, typical (W× L × H)	116x52x33 mm typical (depends on model)				
<b>Operating requirements</b>					
Cooling requirements	Air cooled				
Ambient temperature	15 – 30 °C				
Relative humidity (non-condensing)	10 – 80 %				
Mains voltage	90-230 VAC, single phase, 47-63 Hz. <sup>15)</sup>				
Power consumption	< 30 W		< 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 10 Hz pulse repetition rate.

2)1064 nm version is available by request. Inquire for detailed specifications.

3)1064 nm version available by request. Inquire for detailed specifications.

4)FWHM at 1053 or 1064 nm. <3 ns pulse duration is available by request. Inquire for detailed specifications.

5)Averaged from 300 pulses.

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

7)Factory-set pulse repetition rate is 10 Hz. Variable pulse repetition rate is possible when laser is externally triggered.

8)Full angle measured at the 1/e<sup>2</sup> level.

9)Beam diameter is measured 20 cm from laser output at the 1/e<sup>2</sup> level.

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

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

12)Attenuator is supplied build-in into harmonics generator module.

13)Fiber coupler can be build-in into laser head (fundamental wavelength only) or harmonics generator module. Inquire for details.

14)For fiber core diameter of 1 mm. Smaller core fibers are available, inquire for specifications.

15)Laser can be powered from appropriate 12 or 15 VDC power source as well. Inquire for details.