

Q-smart EX

Compact pulsed Nd:YAG lasers

with EXtended configuration for improved spatial profile



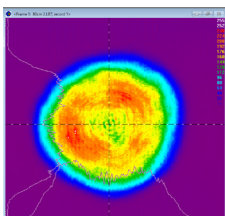
MAIN FEATURES

- Up to 700 mJ @ 1064 nm
- Optimized beam profile with reduced hot spots and spatial modulation
- Robust and field proven technology
- Built to last thanks to ceramic reflectors and 100 million shots flashlamp lifetime warranty
- Plug & play harmonics modules down to 213 nm, with automatic phase-matching
- Cables and cooling lines fully disconnectable for easy integration
- Intuitive touch screen interface and GUI
- Universal voltage
- SLM option (Single Longitudinal Mode) for narrow line operation

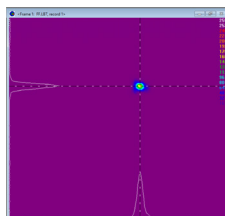
MAIN APPLICATIONS

- DYE, OPO & Ti:Sa PUMPING
- LiDAR
- LIBS
- MATERIAL PROCESSING
- ABLATION
- PULSED LASER DEPOSITION
- PHOTOACOUSTIC IMAGING
- SPECTROSCOPY

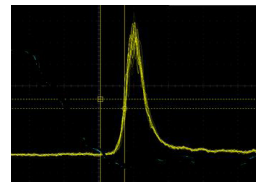
Typical beam profiles



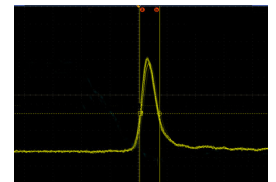
Near field at 1 m
@ 1064 nm



Far field @ 1064 nm



6 ns standard temporal profile
@ 1064 nm (1 GHz oscilloscope)



6 ns temporal profile
@ 1064 nm with SLM option
(1 GHz oscilloscope)

www.quantel-laser.com

Many options and configurations are available.
Please contact Lumibird to find the best match for
your needs and compatibility between options.

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SPECIFICATIONS

Q-smart EX		
Repetition rate (Hz)		10
Energy per pulse (mJ)	1064 nm	700
	532 nm	350
	355 nm	180
	266 nm	85
	213 nm	On request
Pulse duration (ns) ⁽¹⁾	1064 nm	~ 6
	532 nm	~ 5
	355 nm	
	266 nm	
Beam diameter (mm) ⁽²⁾	1064 nm	~ 8
Beam divergence (mrad) ⁽³⁾	1064 nm	< 0.5
M ² ⁽⁴⁾	1064 nm	≤ 2
Spatial profile @ 1064 nm ⁽⁵⁾ (fit to Gaussian)	Near Field ⁽⁶⁾	> 0.7
	Far Field ⁽⁷⁾	> 0.90
Polarization ratio (%) ⁽⁸⁾	1064 nm	> 80

(1) Measured at FWHM with fast photodiode and 1 GHz oscilloscope

(2) At the output of the laser

(3) Full angle, at 1/e² of the peak

(4) At 1/e² of the peak, measured by Spiricon LBA FWB

(5) Least square fit to Gaussian (perfect fit = 1)

(6) Measured at 1 m from laser output

(7) Measured at the focal plane of a 2 m focus lens

(8) Polarization is horizontal @ 1064, 355 & 266 nm and vertical @ 532 & 213 nm

Pulse to pulse energy stability (%) ⁽⁹⁾	1064 nm	± 2 (0.6)
	532 nm	± 4 (1.3)
	355 nm	± 6 (2)
	266 nm	± 8 (2.6)
Power drift (%) ⁽¹⁰⁾	1064 nm	± 3
	532 nm	± 5
	355 nm	± 5
	266 nm	± 10
Pointing stability (μrad) ⁽¹¹⁾	All wavelengths	< 40
Jitter @ 1064 nm (ns) ⁽¹²⁾	Standard	± 0.5
Linewidth @1064 nm (cm ⁻¹)	Standard	≤ 0.7 ⁽¹³⁾
	SLM ⁽¹⁴⁾	≤ 0.005 ⁽¹⁵⁾

(9) Peak to peak, 100% of the shots (RMS)

(10) Over 8 hours, without readjustment of phase-matching, 18°C < T < 28°C

(11) Measured by Spiricon LBA FWB RMS, on 200 pulses at the focal plane of a 2 m focus lens

(12) With respect to Q-Switch trigger, measured at half width of 500 accumulated shots for 99 % of the shots

(13) Measured at FWHM with a grating spectrometer with 0.045 cm⁻¹ resolution

(14) Energy reduction with SLM option. Please contact us for detailed specifications

(15) Measured at FWHM with a slow scan Fabry-Perot etalon

OTHER INFORMATION

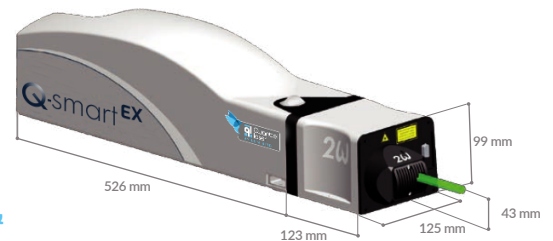
Power requirements		100-240 VAC, 50/60 Hz, single phase, 1100 VA
Cooling		Water to air
Operating temperature		+ 18 °C to + 28 °C
Storage temperature ⁽¹⁶⁾		- 10 °C to + 50 °C
Cable length (m)		3 ⁽¹⁷⁾
Flashlamps warranty		100 million shots ⁽¹⁸⁾
Weight (kg)	Laser head	7
	Harmonic modules	2.1
	Integrated cooling & electronics	27

(16) System rinsed and drained with ethylene glycol/water mixture

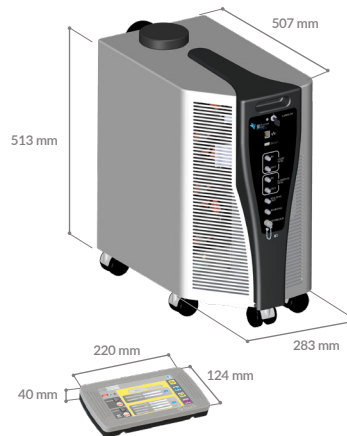
(17) Other lengths up to 10 m on request

(18) 80% of energy, or 1 year, whichever comes first

Laser head



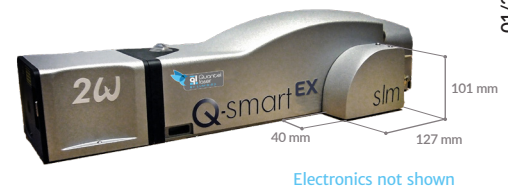
Integrated cooling & electronics



Q-touch

OPTIONS

Single Longitudinal Mode option (SLM)



Electronics not shown



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