

Q-smart 450 & 850

Compact pulsed Nd:YAG lasers
with excellent beam quality and versatility



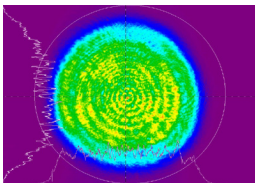
MAIN FEATURES

- Up to 850 mJ @ 1064 nm
- 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
- Intuitive touch screen interface and GUI
- Universal voltage
- SLM option (Single Longitudinal Mode)

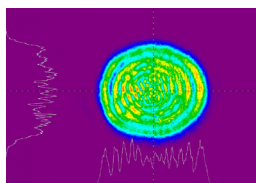
MAIN APPLICATIONS

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

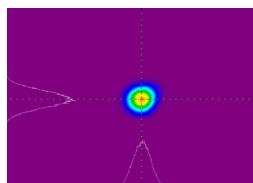
Typical beam profiles



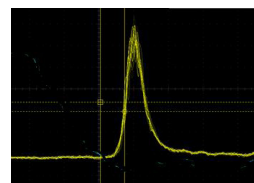
Q-smart 850
Near field @ 1064 nm



Q-smart 850
Near field @ 532 nm



Q-smart 850
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 450				Q-smart 850	
Repetition rate (Hz) ⁽¹⁾		10	10-SLM	20	20-SLM	10	10-SLM
Energy per pulse (mJ)	1064 nm	450	370	400	330	850	700
	532 nm	220	150	200	135	460	290 / 340 ⁽¹⁾
	355 nm	130	75	120	70	230	135
	266 nm	60	35	50	30	100	60
	213 nm	10	On request	8	On request	20	On request
Pulse duration (ns) ⁽²⁾	1064 nm	~ 6					
	532 nm	~ 5					
	355 nm						
	266 nm						
	213 nm						
Beam diameter (mm) ⁽³⁾	1064 nm	~ 6.5				~ 9	
Beam divergence (mrad) ⁽⁴⁾	1064 nm	< 0.5				< 0.5	
M ² ⁽⁵⁾	1064 nm	≤ 2				≤ 2	
Spatial profile @ 1064 nm (fit to Gaussian) ⁽⁶⁾	Near Field ⁽⁷⁾	> 0.7		> 0.7		> 0.7	
	Far Field ⁽⁸⁾	> 0.95		> 0.9		> 0.9	
Polarization ratio (%) ⁽⁹⁾	1064 nm	> 90	> 80	> 80	> 70	> 80	> 70

(1) 532 nm high energy version

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

(3) At the output of the laser

(4) Full angle, at 1/e² of the peak

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

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

(7) Measured at 1 m from laser output

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

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

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

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

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

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

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

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

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

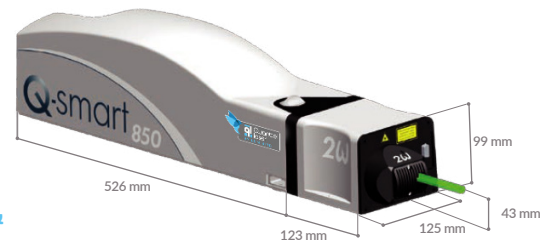
OTHER INFORMATION		
Power requirements		100-240 VAC, 50/60 Hz, single phase, 1100 VA
Cooling		Water to air
Operating temperature		+ 18 °C to + 28 °C
Storage temperature ⁽¹⁶⁾		- 10 °C to + 50 °C
Cable length (m)		3 ⁽¹⁷⁾
Flashlamps warranty		100 million shots ⁽¹⁸⁾
Weight (kg)	Laser Head	7
	Harmonic modules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