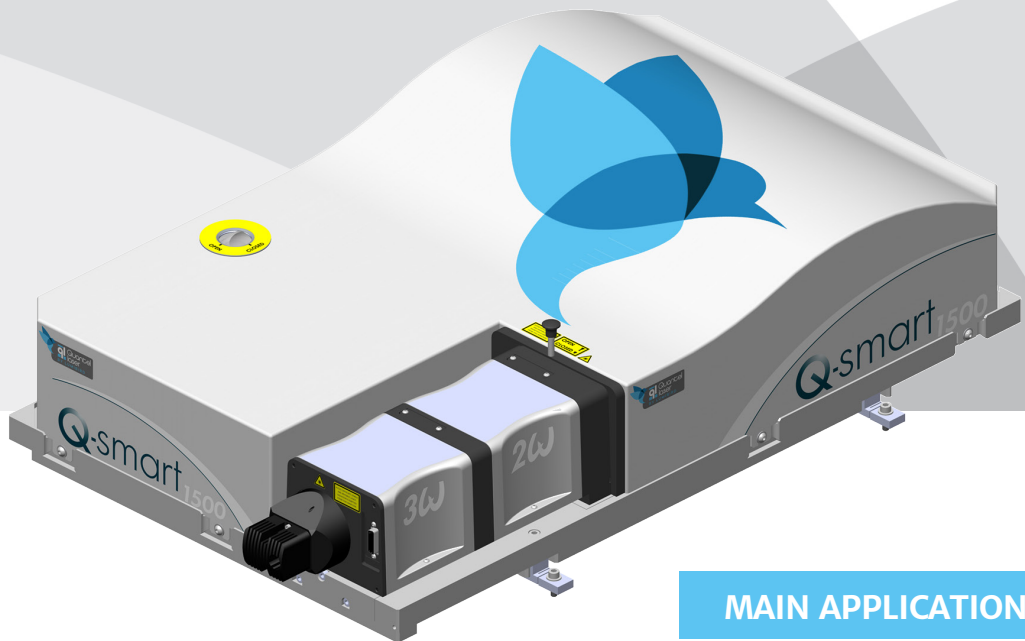


Q-smart HE

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



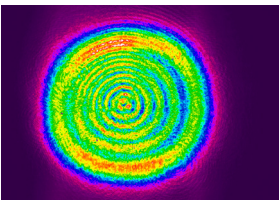
MAIN FEATURES

- Up to 2.3 J @ 1064 nm
- Robust and field-proven Q-smart™ technology
- Built to last thanks to ceramic reflectors
- Flashlamp warranty up to 50 million shots for operation without downtime
- Plug & play harmonic modules for user-friendly wavelength switch
- Automatic crystal phase-matching for hands-free operation
- Cables and cooling lines fully disconnectable for easy integration
- Intuitive GUI interface
- SLM option (Single Longitudinal Mode) for long coherence length
- Optional chiller for use in any environment

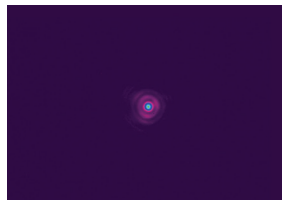
MAIN APPLICATIONS

- LIDAR
- INSTRUMENTATION
- PLD
- DYE, OPO & TI:SA PUMPING
- SPECTROSCOPY
- LIF
- COMBUSTION

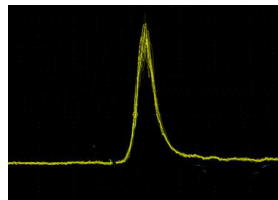
Typical beam profiles



Near field 1.5 J @ 1064 nm, 10 Hz



Far field 1.5 J @ 1064 nm, 10 Hz



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

Q-SMART HE

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SPECIFICATIONS

		Q-smart 1200		Q-smart 1500	Q-smart 2300
Repetition rate (Hz) ⁽¹⁾		10	20	10	
Energy per pulse (mJ)	1064 nm	1200	1050	1500	2300
	532 nm	575 / 650 ⁽²⁾	550	750 / 850 ⁽²⁾	1100 / 1350 ⁽²⁾
	355 nm	280 / 350 ⁽³⁾	350	400 / 520 ⁽³⁾	620 / 850 ⁽³⁾
	266 nm	110	90	130	200
Pulse duration (ns) ⁽⁴⁾	1064 nm	6 - 10			
Beam diameter (mm) ⁽⁵⁾	1064 nm	≤ 10			≤ 13
Beam divergence (mrad) ⁽⁶⁾	1064 nm	≤ 0.5			
M ² ⁽⁷⁾	1064 nm	≤ 2	≤ 3	≤ 2	≤ 3
Spatial profile @ 1064 nm ⁽⁸⁾ (fit to Gaussian)	Near field ⁽⁹⁾	≥ 0.7	≥ 0.65	≥ 0.7	
	Far field ⁽¹⁰⁾	≥ 0.9	≥ 0.85	≥ 0.9	
Polarization ratio (%) ⁽¹¹⁾	1064 nm	≥ 90	≥ 80	≥ 90	≥ 80

(1) Other repetition rates on request

(2) 532 nm high energy version

(3) 355 nm high energy version

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

(5) At the output of the laser

(6) Full angle, at 1/e² of the peak

(7) At 1/e² of the peak, measured by Spiricon LBA FWH

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

(9) Measured at 1 m from laser output

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

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

		10 Hz	20 Hz
Pulse to pulse energy stability (%) ⁽¹²⁾	1064 nm	± 2.2 (0.7)	± 3 (1)
	532 nm	± 4 (1.3)	± 5.5 (1.8)
	355 nm	± 6 (2)	± 7.5 (2.5)
	266 nm	± 8 (2.6)	± 9 (3)
Power drift (%) ⁽¹³⁾	1064 nm	± 3	
	532 nm	± 5	
	355 nm	± 5	
	266 nm	± 10	
Pointing stability (μrad) ⁽¹⁴⁾	1064 nm	< 40	
Linewidth @1064 nm (cm ⁻¹)	Standard ⁽¹⁵⁾	≤ 0.7	
	SLM ⁽¹⁶⁾ option	≤ 0.005	

(12) Peak-to-peak (RMS), 100% of shots on 200 consecutive shots

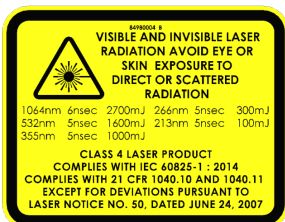
(13) Over 8 hours for ΔT° ≤ ± 3 °C

(14) Measured with Spiricon LBA-100, rms, on 200 pulses at the focal plane of a 2 m focus lens

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

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

Energy reduction with SLM: ≤ 15% @ 1064 nm, 532 nm & 266 nm, ≤ 5% @ 355 nm



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Edinburgh
EH14 4AP
+44 131 664 8122
www.photonicsolutions.co.uk

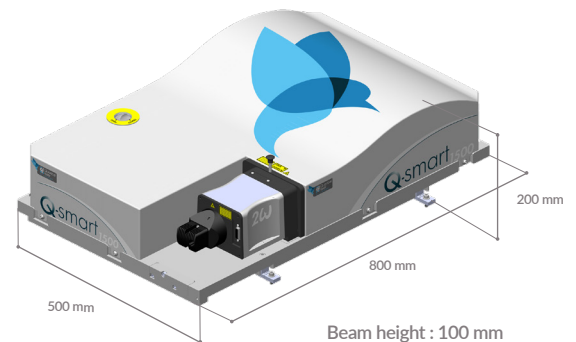
OTHER INFORMATION		
Power requirements		240 V (110 V on request) 16 to 20 A, 50/60 Hz
Cooling		Water to water Optional chiller (stand alone or 19" rack)
Operating temperature		+ 18 °C to + 28 °C
Storage temperature ⁽¹⁷⁾		- 10 °C to + 50 °C
Cable length (m)		3 ⁽¹⁸⁾
Flashlamps warranty		50 million shots ⁽¹⁹⁾
Weight (kg)	Laser head	45
	Harmonic modules	2.1
	Integrated cooling & electronics	50

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

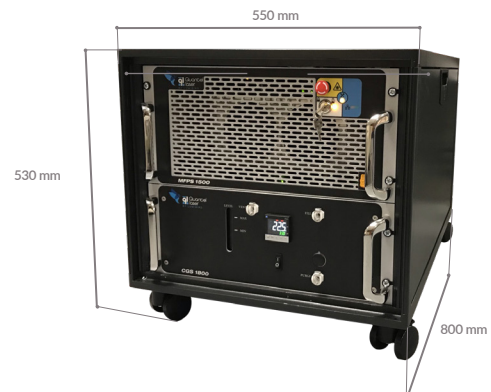
(18) Other lengths on request. Some losses are to be expected.

(19) 80% of energy, or 1 year, whichever comes first

Laser head



Integrated cooling & electronics



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

