

ULTRA

Ultra compact pulsed Nd:YAG laser



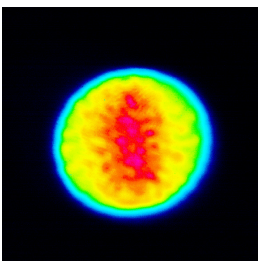
MAIN FEATURES

- 1064, 532, 355, 266, 213 nm and 1.57 μm available
- Compact and portable, with quick umbilical disconnects
- Choice of resonators available to meet the need of demanding applications
- Integrated motorized variable attenuator and harmonics options
- Fiber coupling available at 1064 nm and 532 nm
- MIL-STD-810 tested to withstand harsh environments

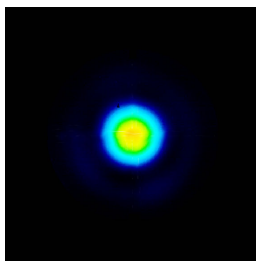
MAIN APPLICATIONS

- LIBS
- PUMPING
- FPD REPAIR
- LiDAR
- ABLATION
- PULSED LASER DEPOSITION
- PHOTOACOUSTIC IMAGING

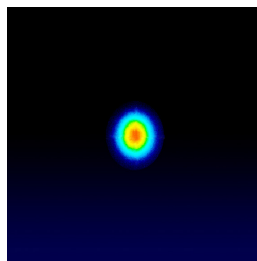
Typical beam profiles



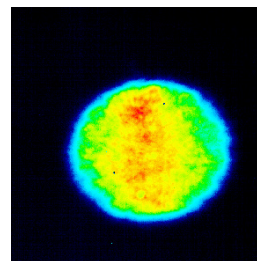
Ultra 50, Stable
Near field @ 1064 nm



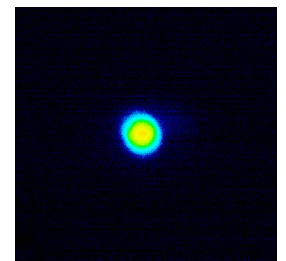
Ultra 50, GRM
Far field @ 532 nm



Ultra 20, TEM₀₀
Far field @ 355 nm



Ultra 50, Stable
Near field @ 266 nm



Ultra 100, GRM
Far field @ 213 nm



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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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Ultra compact pulsed Nd:YAG laser



SPECIFICATIONS

		ULTRA 20		ULTRA 50		ULTRA 100	
Resonator type		Stable ⁽⁶⁾		Stable	GRM	Stable	GRM
Repetition rate (Hz)		1 to 50		1 to 20	20	1 to 20	20
Energy per pulse (mJ)	1064 nm	20		50		100	
	532 nm	12		30		55	
	355 nm	4		12		30	
	266 nm	4		10		25	15
	213 nm	-	-	-	-	4	On request
	1.57 μm	-	8	-	-	25	-
Pulse duration (ns) ⁽¹⁾	1064 nm	< 13	< 10	< 9	< 10.5	< 9	
	532 nm	< 12	< 9	< 9	< 8	< 8.5	
	355 nm	< 11	< 8	< 8	< 8	< 7.5	
	266 nm	< 11	< 8	< 8	< 8	< 8	
	213 nm	-	-	-	< 7	-	
	1.57 μm	-	< 10	-	< 9	-	
Beam diameter (mm) ⁽²⁾	1064 nm	2.5		3		4	
Beam divergence (mrad) ⁽³⁾	1064 nm	< 6	< 7	< 1.5	< 8	< 1.5	
	532 nm	< 5	< 6	< 1.5	< 7	< 1	
	355 nm	< 4	< 5	< 1.2	< 5	< 1.5	
	266 nm	< 4	< 7	< 1.5	< 4	< 1.5	
	213 nm	-	-	-	< 3	-	
	1.57 μm	-	< 12	-	< 12	-	
Polarization ratio (%) ⁽⁴⁾	1064 nm	> 99	> 98	> 98	> 98	> 98	
Pulse to pulse energy stability (%) ⁽⁵⁾	1064 nm	< 2.5	< 2	< 4	< 2	< 2	
	532 nm	< 4	< 2.5	< 5	< 2.5	< 2.5	
	355 nm	< 3	< 3	< 6	< 2	< 3	
	266 nm	< 3	< 3	< 6	< 2	< 3	
	213 nm	-	-	-	< 2	-	
	1.57 μm	-	< 2	-	< 2	-	

(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) Polarization is horizontal @ 1064 nm & 1.57 μm and vertical @ 532, 355, 266 & 213 nm (5) RMS, 99 % of shots (6) TEM00 option on request

Power drift (%) ⁽¹⁾	1064 nm	± 5
Pointing stability (μrad) ⁽²⁾	All wavelengths	< 50
Jitter (ns) ⁽³⁾	All wavelengths	< ± 2
Linewidth (cm-1) ⁽⁴⁾	1064 nm	1

(1) Over 8 hours, 18 °C < T < 28 °C, for ΔT < ± 5 °C

(2) Full angle, 99 % of shots

(3) With respect to Q-Switch trigger

(4) Measured at FWHM

OTHER INFORMATION		
Power requirements		100-240 VAC, 50/60 Hz, single phase, 850 VA
Cooling		Water to air
Temperatures	Operating	+ 10 °C to + 40 °C
	Storage	+ 5 °C to + 70 °C
Laser head sealing		IP 66
Vibration and shocks		Complies with MIL-STD-810
Max. altitude (m)		2000
Cable length (m)		3 ⁽¹⁾
Flashlamps warranty		50 million shots ⁽²⁾
Weight (kg)	Laser head	0.9
	Harmonic modules	0.5
	Integrated cooling & electronics	14 (standard)

(1) Other lengths up to 15 m on request

(2) 80 % of energy, or 1 year, whichever comes first

Laser head



Remote Box



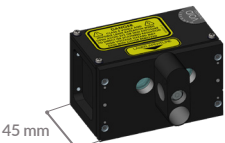
OPTIONS

19" rack integrated cooling & electronics

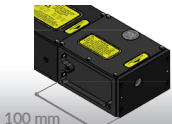


Wavelength separation

One (WS1) or two (WS2) apertures with rotatable beam blocks



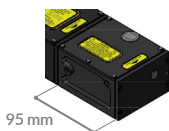
Motorized variable attenuator at 1064 nm



Harmonic generators (2ω, 2ω/3ω, 2ω/4ω)

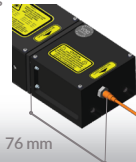


1.57 μm OPO option

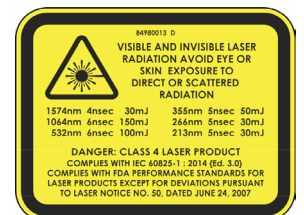


Fiber optic launch adaptor

Dimensions for 1064 and 532 nm versions
Up to 10 % loss



Integrated cooling & electronics



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