



# Quanta-Ray Lab Series Pulsed Nd:YAG

Power Specifications													
Model <sup>1</sup>	LAB-130-			LAB-150-			LAB-170-			LAB-190-*			
Rep Rate (Hz)	10	30	50	10	30	50	10	30	50	10	30	50	100
Energy (mJ/p) <sup>2</sup>													
1064 nm	450	275	200	650	500	300	850	700	550	1000	800	600	325
532 nm	200	100	70	300	200	100	450	325	210	500	400	250	120
355 nm	90	40	30	150	100	40	220	175	100	250	200	100	50
EEO-355	—	—	—	—	—	—	240	—	—	300	—	—	—
266 nm	50	25	15	70	35	25	90	60	30	110	60	25	20

Performance			
Wavelength	Pulse Width <sup>4</sup>	Short Term Energy Stability <sup>5</sup>	Long Term Power Drift <sup>6</sup>
1064 nm	8-12 ns	± 2%	< 3%
532 nm	1-2 ns < 1064 nm	± 3%	< 5%
355 nm	2-3 ns < 1064 nm	± 4%	< 6%
266 nm	3-4 ns < 1064 nm	± 8%	< 10%

Mode			Pulse	
Spatial Mode Profile <sup>7</sup>	Standard Fit	ESM Fit <sup>8</sup>	Line Width <sup>9</sup>	
Near Field (1m)	> 70%	> 85% ± 5%	Standard	< 1.0 cm <sup>-1</sup>
Far Field (∞)	> 95%	> 95%	Injection Seeded	< 0.003 cm <sup>-1</sup>
Modulation <sup>10</sup>	< 40%	> 20%		
Beam Diameter <sup>11</sup>	< 10 mm	—	Timing Jitter <sup>12</sup>	< 0.5 ns

Beam Specifications	
Pointing Stability <sup>13</sup>	< ± 50 μrad
Beam Divergence <sup>14</sup>	< 0.5 mrad
Lamp Lifetimes <sup>15</sup>	30 million pulses
Remote Control	Analogue

diagnostic system. 70% refers to the correlation between the actual beam profile and the best least squares fit Gaussian profile. Far field profiles are measured at the focal plane of a 2 m focal length lens.

8. Enhanced spatial mode options can be tailored to meet your application needs. To obtain > 85% Gaussian fits, energy can be reduced by 30%.
9. Insertion losses for systems using the Model 6350 injection seeder are < 15% at 1064 nm, 532 nm, and 266 nm.
10. Refers to the maximum deviation from the best-fit Gaussian profile measured in the near field (1m) between the FWHM points.
11. Actual beam diameter will vary depending on laser configuration.
12. rms jitter from Q-switch sync pulse. Jitter is ≤ 1 ns rms when using the model 6350 injection seeder at 10 Hz, ≤ 1.5 ns at 30 Hz, and ≤ 2 ns at 50 Hz.
13. Long term average pointing drift after warmup, over 8 hours ± 3°C. Shot to shot pointing stability < ± 25 μr.
14. Full angle measured at FWHM points.
15. IR energy within 10% of specified value.

\* LAB -190-10 is also available as a PRO-190-10 with BeamLok option. For laser head size please refer to PRO datasheet.

1. All specifications, unless otherwise stated, are for Q-switched 1064 nm operation, and are subject to change without notice.
2. Harmonic energies are specified after separation using dichroic mirror pairs. 532 nm energies are specified using type II second harmonic generation (SHG). 355 nm energies are specified using type II SHG. A 10% increase in 355 nm energies can be specified when type I SHG is used.
3. High UV output option designed for OPO pumping, including injection seeder, harmonic generator, 355 nm dichroic separators, and beamdump.

4. Normal full width half maximum (FWHM) pulse width 8-10 ns except LAB-130 and 190 10 Hz versions, which will be 9-12 ns. The short pulse mode, standard on all LAB series lasers, reduces the 1064 nm pulse width to approximately 2.5 ns and reduces the energy by approximately 10%. (Short pulse mode available on seeded versions on special request only).
5. Pulse to pulse stability for > 99% of pulses, measured over a 1 hour period.
6. Over an 8 hour period with temperature variations of less than ± 3°C.
7. Near field spatial profiles measured 1 m from laser using a commercially available beam

