

Patara™ Dual Oscillator for PIV

FEATURES AND BENEFITS

GREEN DPSS LASER SYSTEM

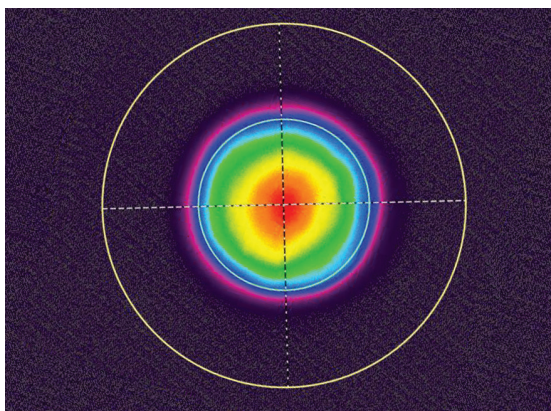


- Dual independent oscillator design
- Optimized for PIV
- Up to 50 mJ @ 1 kHz, YLF 527nm per oscillator
- > 200 W @ 10 kHz, YAG 532 nm per oscillator
- Superior pulse energy stability, matched for perfect correlation
- Long life Northrop Grumman® laser diode bars
- eDrive™ control electronics with digital remote control

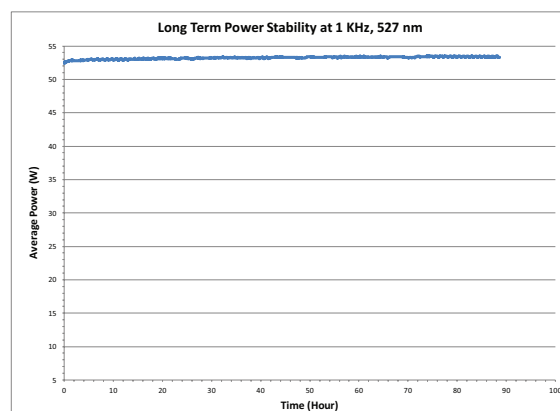
The Patara™ dual oscillator laser is a diode pumped solid-state (DPSS) laser system that is purpose built for Particle Image Velocimetry (PIV) applications. The system's two independently controllable laser oscillators can be configured with Nd:YAG for high average power or Nd:YLF for high pulse energy applications. The Nd:YAG configuration offers laser output powers of > 200 W per oscillator at 532 nm with a 10 kHz pulse repetition rate while the Nd:YLF configuration offers laser pulse energies of > 50 mJ per oscillator at 527 nm with a 1 kHz pulse repetition rate. Both configurations provide the excellent beam quality and shot-to-shot stability required to produce high quality repeatable light sheets for optimum illumination.

The two laser oscillators and beam combination optics share a common housing for excellent mechanical stability, ease of set-up and use. Each laser oscillator can be triggered independently (internally or externally) providing end users with maximum adjustability of laser pulse timing.

All Patara lasers feature Northrop Grumman's field proven DPSS gain modules pumped by high reliability, long life laser diode bars and are powered by the eDrive™ Nitro laser controller.



Typical far field beam profile of PAD-050-QMF, 527nm @ 1kHz.



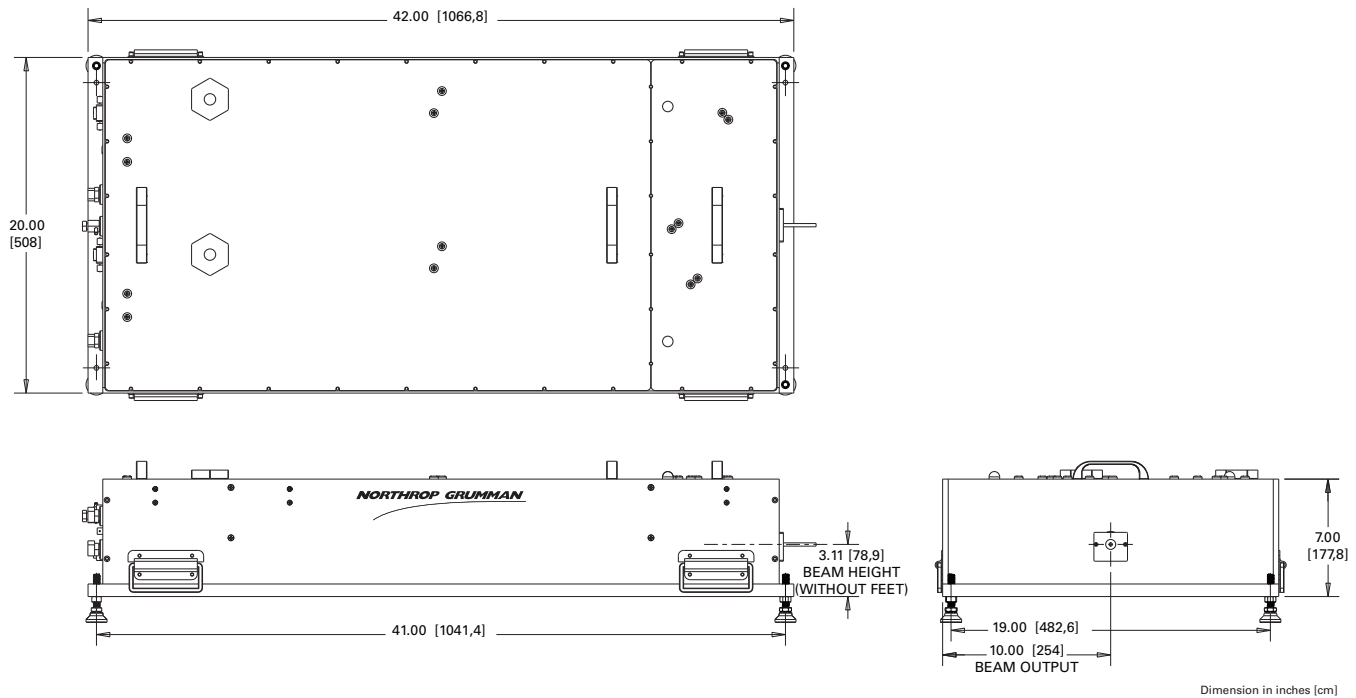
Power stability of PAD-050-QMF over 88 hours, 527nm @ 1kHz

Patara™ Dual Oscillator for PIV

PATARA DUAL OSCILLATOR LASER, SINGLE OSCILLATOR PERFORMANCE ⁽¹⁾

Specifications						
Parameter	Configurations					Units
Model	PAD-100-QMG	PAD-200-QMG	PAD-030-QMF	PAD-040-QMF	PAD-050-QMF	—
Laser Type	DPSS Nd:YAG	DPSS Nd:YAG	DPSS Nd:YLF	DPSS Nd:YLF	DPSS Nd:YLF	—
Wavelength	532	532	527	527	527	nm
Repetition Rate	1 to 50	1 to 30	Single shot to 5	Single shot to 5	Single shot to 5	kHz
Output Power (per Oscillator)	100 ⁽²⁾	200 ⁽²⁾	30 ⁽³⁾	40 ⁽³⁾	50 ⁽³⁾	W
Pulse Energy (per Oscillator)	10 ⁽²⁾	20 ⁽²⁾	30 ⁽³⁾	40 ⁽³⁾	50 ⁽³⁾	mJ
Spatial Mode	Multimode	Multimode	Multimode	Multimode	Multimode	—
Beam Diameter @ Output Window	< 3.5	< 4	< 3.5	< 3.5	< 3.5	mm
Beam Quality (M ²)	< 20	< 25	< 25	< 25	< 25	—
Beam Divergence (Full Angle)	< 5.0	< 8.0	< 8.0	< 8.0	< 8.0	mrad
Beam Pointing Stability	< 50	< 50	< 50	< 50	< 50	μrad
Pulse Width (FWHM)	< 150	< 120	< 150	< 150	< 150	nsec
Pulse-to-Pulse Stability	< 1.5	< 1.5	< 0.5	< 0.5	< 0.5	% rms
Output Power Stability Over 8 hr	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	% rms
Polarization	Circular	Circular	Circular	Circular	Circular	—
Electrical @ 50/60 Hz ⁽⁴⁾	190-250	190-250	190-250	190-250	190-250	VAC
Operating Temperature (non-condensing)	18-30°C	18-30°C	18-30°C	18-30°C	18-30°C	°C
Cooling @ 20°C ⁽⁴⁾	4000 @ 4.0	5000 @ 4.0	3000 @ 3.5	3000 @ 3.5	3000 @ 3.5	W @ GPM

NOTES: (1) The Patara dual oscillator laser has two independently controlled single oscillators. It generates twin pulses, that when combined, have twice the average power of the single oscillator. Single oscillator performance is listed in the table. (2) Measured @ 10 kHz. (3) Measured @ 1 kHz. (4) Required for the combined dual oscillator laser head.



Dimension in inches [cm]

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This Product is covered by one or more of the following Patents: 5,898,211 5,985,684 5,913,108 6,310,900 Other US and Foreign Patents Pending.