Mesa™ PIV
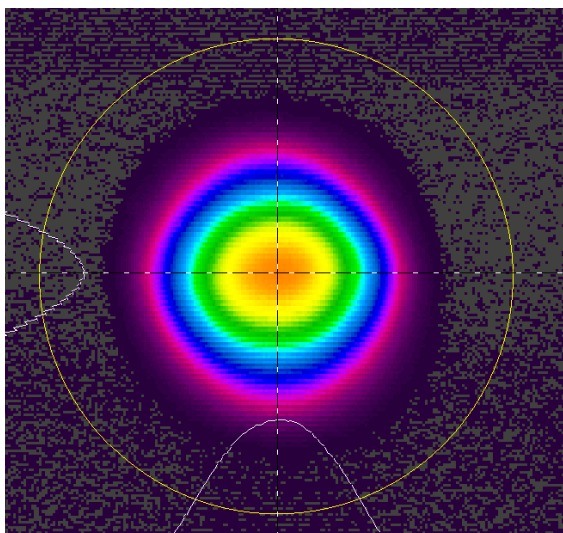
Mesa PIV, the high power diode pumped Nd:YAG laser

Mesa PIV is a dual oscillator/single head, high repetition rate, diode-pumped Nd:YAG laser. It offers ultimate flexibility for PIV and other dual output applications.

The combination of two oscillators allows complete control of pulse separation and pulse energy. Both oscillators in the Mesa PIV are identical in optical design giving temporally and spatially matched pulses for the highest degree of cross-correlation. Each oscillator can be independently triggered via TTL inputs. As an option, a compact, external combination box can be directly attached to the laser to make access to the beam combination optics easier and safer for the rest of the laser system.

> *18 mJ total energy at 1-6 kHz*

> *120 W average power at 10 kHz*

Ideal for Particle Image Velocimetry

Independent external trigger for each oscillator

Compact & rugged package designed for 24/7 operation

Record 3 min diode module replacement with no realignment necessary

Proprietary optical cavity design for optimal beam quality

Laser System Output Characteristics

Mesa PIV 532-120-M
Beam Profile

Continuum®
The High Energy Laser Company™

Mesa PIV Specifications

| Description[1]	532-120-M	532-80-M	532-80-L	532-60-M
Wavelength	532	532	532	532
Power at 10 kHz (W)	120	80	80	60
Energy per Osc (mJ) at 1- 6 kHz	9	6.5	6.5	5
Total Pulse Energy (mJ) at 1-6kHz	18	13	13	10
Repetition Rate (kHz)[1]	1-40	1-40	1-40	1-40
Pulse-to-Pulse Stability (% RMS)	<2	<2	<3	<2
Pulsewidth (ns)	<150	<170	<150	<190
Beam Pointing Stability (µrad RMS)	<20	<20	<20	<20
Beam Diameter (mm)[3]	5	5	3	5
Beam Divergence (mrad)[4]	7	7	5	7
Beam Quality (M^2)	<25	<25	<12	<25
Polarization[5]	circular			

Notes

1. All specifications at 6 kHz unless otherwise noted.
2. Single shot to 1 kHz available with external trigger.
3. Measured at 13.5% level at output window.
4. Typical measurement (±10%).
5. Cross-polarization available as option.

As a part of our continuous improvement program, all specifications are subject to change without notice.
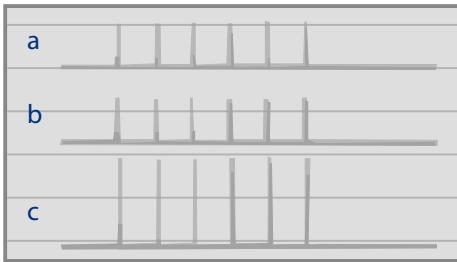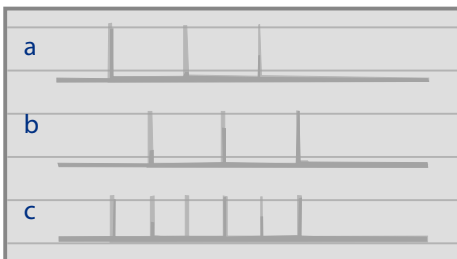
Advantages
Generation of Pulse Pairs
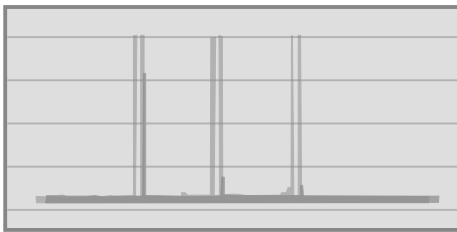
Generation of Pulse Pairs
Flexible time delay adjustment

Two laser output synchronized to double the pulse energy and peak power,
a) one laser output,
b) a second laser output, and
c) combined output.

Two laser output combined with an adjustable delay to double the pulse repetition rate,
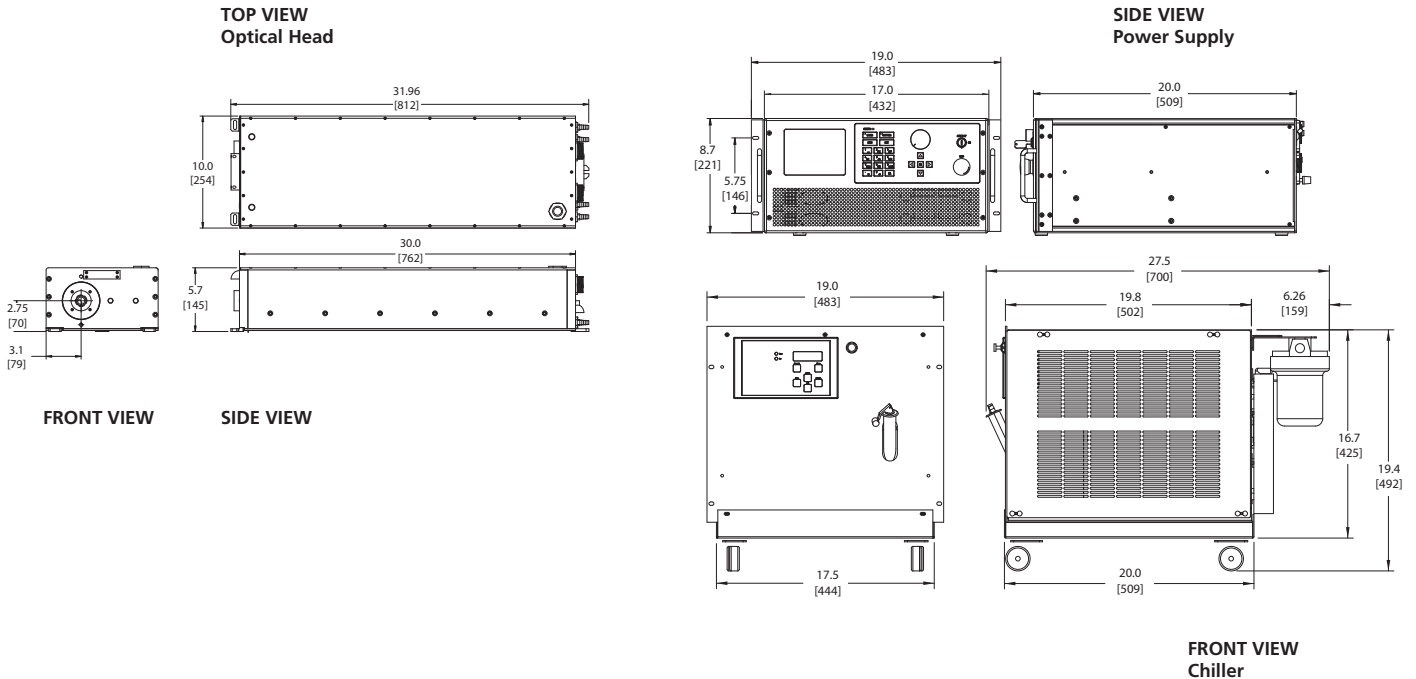a) one laser output,
b) a second laser output with delay, and
c) combined laser output.

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Mesa PIV System Requirements

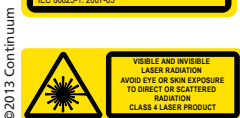| Size	Optical Head (LxWxH)	812 x 254 x 145 mm (31.9 x 10.0 x 5.6 in)
	Power Supply (LxWxH) Chiller (LxWxH)	509 x 483 x 221 mm (20.0 x 19.0 x 8.7 in) 699 x 483 x 492 mm (27.5 x 19.0 x 19.4 in)
Weight	Optical Head	31.5 kg (70 lbs)
	Power Supply Chiller	27 kg (60 lbs) 65 kg (144 lbs)
Cooling		Air-Water; Water-Water cooling option available
Electrical Service	Power Supply	Single-phase: 208-240 VAC, 50/60 Hz Opperating current: 10A, Max current: 20A
	Chiller	Single-phase: 230 ±10% VAC, 50/60 Hz Opperating current: 12A, Max current: 20A
Temperature & Humidity	Operating Temperature Storage Temperature Relative Humidity	15 to 35° C -20 to 50° C 8-80%, non-condensing
Umbilical Length		3.65 m (12.0 ft); longer available upon request
Control Interface	User Interface	Full featured front panel control
	Serial Interface	RS-232, Ethernet
	Rear Connections	External beam enable, External trigger, Analog current control, Analog RF attenuation control, Digital alert output
	Control Software	MS Windows-based Laser Commander™

Mesa PIV Physical Layout

All dimensions are in inches [mm]

TOP VIEW Optical Head

SIDE VIEW Power Supply

FRONT VIEW / SIDE VIEW

FRONT VIEW Chiller

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