

Verdi V-Series

High-Power, Low-Noise,
Green DPSS Lasers

The Verdi -V laser is the first-choice pump laser for researchers performing demanding carrier envelope phase (CEP) stabilized ultrafast experiments. That's because it sets the industry standard for low-noise DPSS lasers. Whereas other DPSS lasers use elaborate schemes to minimize "green noise," the Verdi -V laser is based on a single longitudinal mode cavity, eliminating this source of instability. This makes the Verdi -V series perfect for other low-noise pumping applications, e.g., pumping continuous-wave (CW) OPOs.

In addition to driving high-performance systems, the single-mode output means that Verdi -V lasers are also the best choice for applications needing superior coherence and narrow-linewidth. These include holography and long-path interferometry, atom cooling and trapping, and high-resolution spectroscopy.

Verdi -V lasers also provide the highest electrical efficiency, making them "green" lasers in every way. And, with output power from 2 Watts up to 18 Watts, there is a model for every power budget.

Features and Benefits

- Single-longitudinal-mode output
- Optical noise <0.02% RMS measured from 10 Hz to 1 GHz
- Superior diode-to-green conversion efficiency (>25%)
- Ultra-long-life AAA™ (Aluminum-free Active Area) laser diode material
- PermAlign™ solder-bonded optics technology
- Sealed laser head

Applications

- Amplifier Seeding
- Holography
- Interferometry
- Atom Cooling and Trapping
- Continuous Wave OPO Pumping



SPECIFICATIONS

Verdi	V2	V6	V8	V10	V12	V18
Output Power (W)	>2	>6	>8	>10	>12	>18
Wavelength (nm)	532					
Linewidth ¹ (MHz)	<5					
Beam Diameter ² (mm)	2.25 ±10%					
Beam Divergence ³ (mrad)	<0.5					
M ²	<1.1					
Pointing Stability ⁴ (μrad/°C)	<2					
Power Stability ⁵ (%)	±1					
Noise ⁶ (RMS)	<0.02					
Polarization	Vertical, >100:1					
Operating Voltage (VAC)	100 to 240					
Frequency (HZ)	50/60					
Max. Operating Current (A) (at 100 VAC)	7.8	7.8	7.8	7.8	7.8	13
PZT Input Voltage ⁷ (V/channel)	0 to +100					
PZT Tuning Range ⁷ (GHz)	>8.2	>8.2	>8.2	>8.2	>8.2	>6.4
PZT Bandwidth ⁷	DC to 20 kHz					
Power Consumption						
Maximum	780 W	780 W	780 W	780 W	780 W	1.3 kW
Typical (W)	380	380	420	420	420	900
Number of Diodes (FAPs)	1	1	1	1	1	2
Cooling Requirements						
Laser Head	Air-cooled, water cooling optional		Closed-loop water cooling			
Power Supply	Air-cooled		Air-cooled			
Range of Operating Temperature						
Laser Head	15 to 45°C (59 to 113°F)					
Power Supply	15 to 35°C (59 to 95°F)					
Weight						
Laser Head	8 kg (18 lbs.)	8 kg (18 lbs.)	8 kg (18 lbs.)	8 kg (18 lbs.)	8 kg (18 lbs.)	8 kg (18 lbs.)
Power Supply	27 kg (59 lbs.)	27 kg (59 lbs.)	27 kg (59 lbs.)	27 kg (59 lbs.)	27 kg (59 lbs.)	33 kg (73 lbs.)
Length of Umbilical	3 m (10 ft.)					
Diameter of Umbilical	2.15 cm (0.85 in.)					

¹ Measured over 50 msec with a thermally stabilized reference etalon at maximum specified output power.

² 1/e² and located within ~0.5 m of the exit port.

³ Full angle divergence.

⁴ Measured as far-field x and y positions over a 25°C to 35°C temperature change.

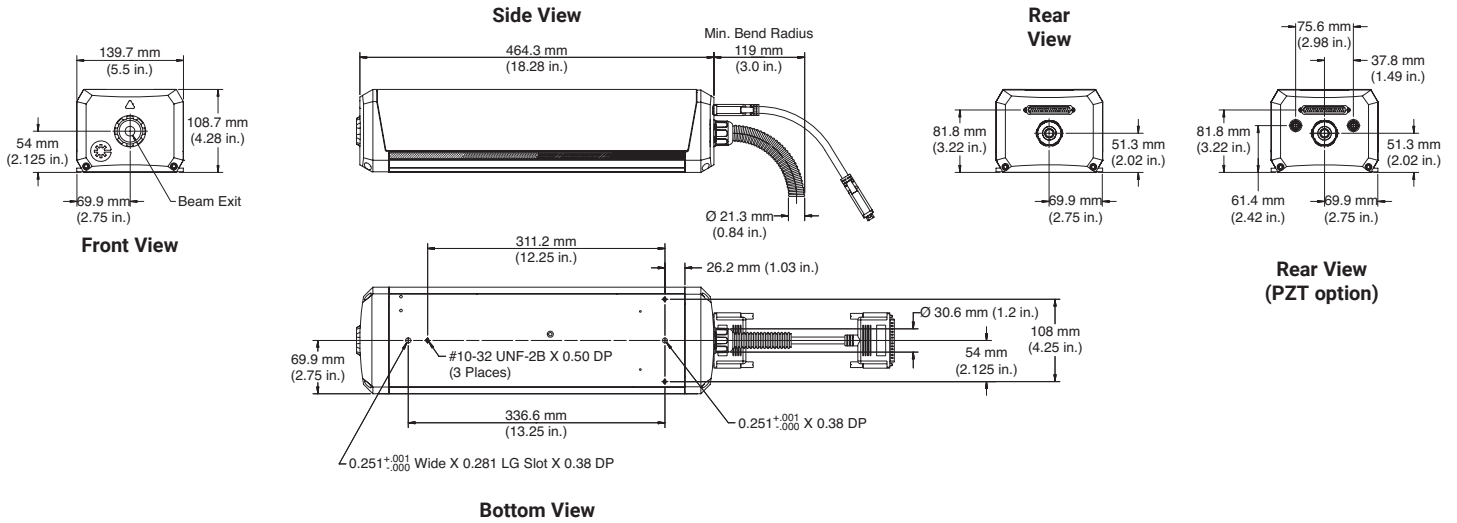
⁵ Measured over 2 hours after a 15 minute warm-up.

⁶ Measured from 10 Hz to 1 GHz.

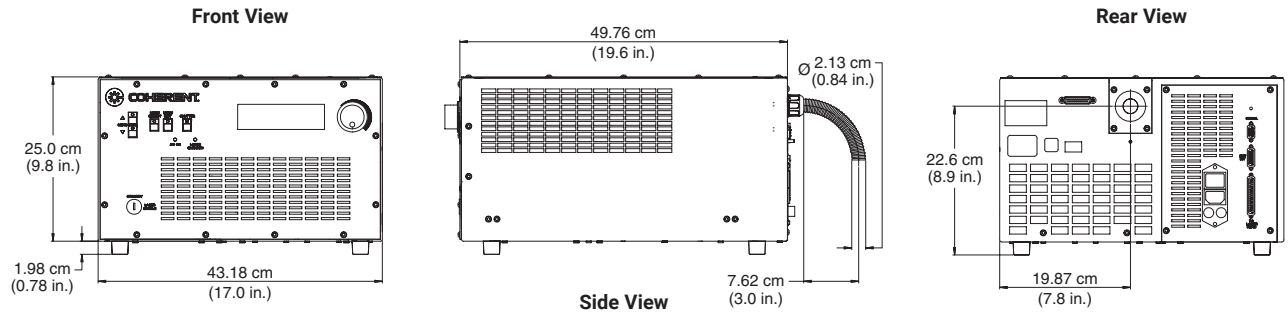
⁷ PZT optional.

MECHANICAL SPECIFICATIONS

Verdi V-Series Laser Head



Verdi V-Series Power Supply



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all Verdi systems. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative.

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