

# 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 or Ti:Sapphire lasers.

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 at 6 Watts or 18 Watts, there is a model for every power budget.



### FEATURES

- Single-longitudinal-mode output
- Optical noise <0.03% 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
- Ti:Sapphire Pumping
- Excitation of nitrogen-vacancy (NV) centers in diamond

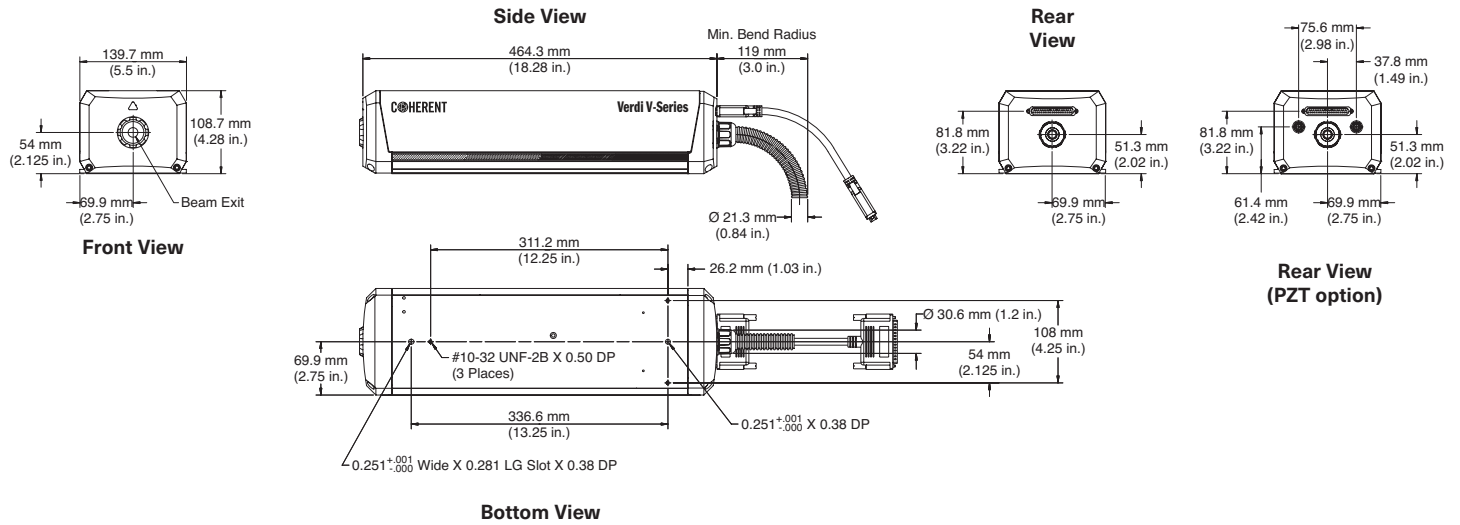
Specifications	Verdi V6	Verdi V18
Output Power (W)	>6	>18
Wavelength (nm)	532	
Linewidth <sup>1</sup> (MHz)	<5	
Beam Diameter <sup>2</sup> (mm)	2.25 ±10%	
Beam Divergence <sup>3</sup> (mrad)	<0.5	
M <sup>2</sup>	<1.1	
Pointing Stability <sup>4</sup> (μrad/°C)	<2	
Power Stability <sup>5</sup> (%)	±1	
Noise <sup>6</sup> (RMS)	<0.03	
Polarization	Vertical, >100:1	
Operating Voltage (VAC)	100 to 240	
Frequency (HZ)	50/60	
Max. Operating Current (A) (at 100 VAC)	7.8	13
PZT Input Voltage <sup>7</sup> (V/channel)	0 to +100	
PZT Tuning Range <sup>7</sup> (GHz)	>8.2	>6.4
PZT Bandwidth <sup>7</sup>	DC to 20 kHz	
Power Consumption		
Maximum	780 W	1.3 kW
Typical (W)	380	900
Number of Diodes (FAPs)	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.)
Power Supply	27 kg (59 lbs.)	33 kg (73 lbs.)
Length of Umbilical	3 m (10 ft.)	
Diameter of Umbilical	2.15 cm (0.85 in.)	

## Notes:

1. Measured over 50 msec with a thermally stabilized reference etalon at maximum specified output power.
2. 1/e<sup>2</sup> 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

