

Cyan™ Scientific

Low Power CW 488 nm Lasers



The Cyan Scientific Advantage

- Single-mode operation at 488 ± 0.5 nm
- Output power of 10 mW to 100 mW
- Best-in-class power and wavelength stability
- Active power control enables quick start-up and automated operation
- Compact laser head easily integrates into most experiments
- True single-frequency operation for demanding applications such as Raman spectroscopy
- Built-in interlock interface and mechanical shutter ensure safe operation and CDRH compliance
- Low power consumption eliminates need for large heatsinks and cooling mechanisms
- Long lifetime—up to 25x longer than competing light sources—ensures low cost of ownership

The Spectra-Physics Cyan™ Scientific CW 488 nm laser provides researchers with unprecedented beam quality and reliability at power levels of 10-100 mW. Based on a highly reliable externally doubled diode laser, the Cyan Scientific laser provides intrinsically single-frequency operation with best-in-class power and wavelength stability. Designed to minimize space requirements, the compact Cyan laser head measures only 125 x 70 x 34 mm and is ready for use right out of the box.

The Cyan Scientific laser emits an optical beam in a single spatial mode ($M^2 < 1.1$), allowing for tight focusing and uniform sample illumination. With an integrated active power control system, the Cyan Scientific laser automatically locks output power over the entire operating temperature range, providing power stability better than 1%.

With a linewidth of < 1 MHz, the Cyan Scientific laser is ideal for Raman spectroscopy, interferometry and other applications requiring high coherence and spectral stability. Intensity noise of less than 0.2% makes the Cyan Scientific the favored light source for demanding applications in bioinstrumentation, particle measurement, and confocal microscopy.

Engineered to an extraordinary level of reliability, the Cyan Scientific delivers a multi-year product lifetime and low overall cost of ownership. Rigorous reliability studies show the Cyan Scientific has a lifetime up to 25 times longer than other competing light sources.

The Cyan Scientific laser's standalone power supply accepts input voltages ranging from 90 to 240 VAC at 50/60 Hz. For ease of use, the auto-ranging power supply eliminates DC converters and runs off regular wall current.

Even at the highest output power, the Cyan draws less than 15 W in typical laboratory settings, far less than Ar-ion or comparable DPSS lasers. This reduces the need for bulky and expensive heatsinks.

An integrated analog interface enables remote configuration of the laser. And the Cyan Scientific laser provides interface for remote interlocks, conforming to IEC 60825-1 and CFR 1040.10¹.

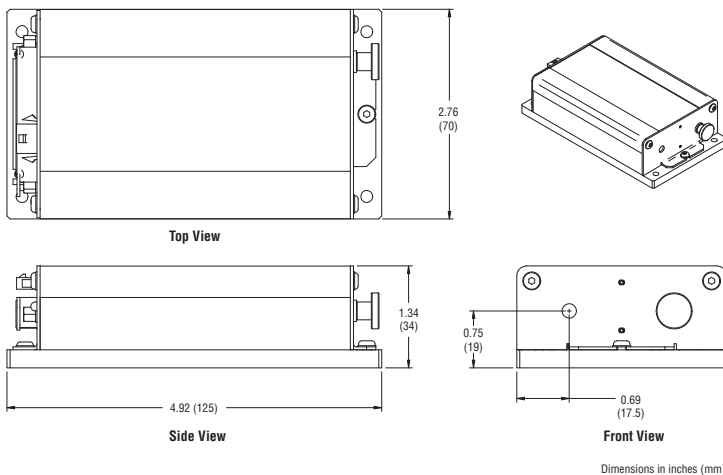
Specifications

Beam Characteristics	Cyan Scientific
Wavelength	488 nm
Wavelength Tolerance	±0.5 nm
Output Power	10, 20, 40, 50, 75, 100 mW
Output Power Stability	±1%, 2 hours ±3°C
Maximum IR Output Power	0.1 mW
Noise	<0.2% rms, 20 Hz–2 MHz
Beam Diameter	0.7 ±0.05 mm
Beam Ellipticity	<1:1.1 at beam waist
Beam Divergence	<1.1 mrad, full angle
M ²	<1.1
Polarization	>100:1
Beam Position (at waist)	±200 mm
Static Beam Position	±0.25 mm
Beam Angle	±2.5 mrad
Beam Pointing Stability	±30 μrad, 3 hours ±3°C
Environmental Specifications	
Temperature Range, Non-operating	-30 to +70°C
Humidity, Non-operating	0–100% non-condensing
Ambient Operating Temperature	4–40°C
Baseplate Operating Temperature	4–55°C
Altitude, Non-operating	21,000 m (70,000 ft)
Altitude, Operating	3,000 m (10,000 ft)
Input Voltage	90–240 VAC
Warm-up Time from Cold Start	<5 min
Total Power Dissipation	<30 W
Vibration	3 G (50–500 Hz sinusoidal 0.25 octave/min)
Shock Tolerance	25 G (11 ms laterally or vertically)

Notes

1. As applicable, except for deviations pursuant to Laser Notice 50, dated July 26, 2001.

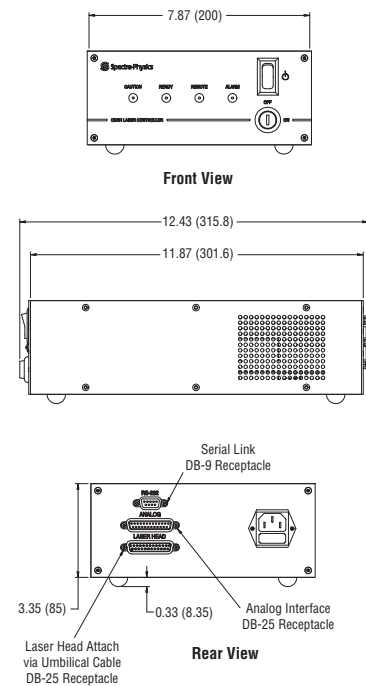
Cyan Scientific Laser Head



Applications

- Flow cytometry
- DNA sequencing
- Micro-array readers
- Analytical chemistry
- Bioinstrumentation
- Confocal microscopy
- Raman spectroscopy
- Brillouin scattering
- Particle measurement
- Interferometry

Cyan Scientific Controller



Spectra-Physics® Lasers Sales: 1-800-775-5273 sales@spectra-physics.com www.newport.com/lasers



Newport Corporation, Global Headquarters
1791 Deere Avenue, Irvine, CA 92606, USA

www.newport.com

PHONE: 1-800-222-6440 1-949-863-3144 FAX: 1-949-253-1680 EMAIL: sales@newport.com
Complete listings for all global office locations are available online at www.newport.com/contact

	PHONE	EMAIL	PHONE	EMAIL
Belgium	+32-(0)0800-11 257	belgium@newport.com	Mtn. View, USA	+1-800-775-5273
China	+86-10-6267-0065	china@newport.com	Netherlands	+31-(0)30 6592111
France	+33-(0)1-60-91-68-68	france@newport.com	United Kingdom	+44-1235-432-710
Italy	+39-02-92-90-921	newport@tin.it	Germany / Austria / Switzerland	+49-(0)6151-708-0
Japan	+81-3-3794-5511	spectra-physics@splasers.co.jp		
Taiwan	+886 -(0)2-2508-4977	sales@newport.com.tw		



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