



SAPPHIRE 488 & 460

CW Blue Lasers

		Sapphire 488-20	Sapphire 460-10
System Specifications	Wavelength ^{1,6}	488 ±2 nm	460 ±2 nm
	Output Power ²	20 mW	10 mW
	Spatial Mode	TEM ₀₀ , M ² <1.1	
	Beam Asymmetry	<1:1.1	
	Beam Diameter @ 1/e ²	0.70 ±0.05 mm	
	Beam Divergence	<1.2 mrad	
	Pointing Stability (over 2 hours after warm-up and ±3°C)	<30 μrad	
	Noise		
	20 Hz to 2 MHz, rms	<0.25%	
	20 Hz to 20 kHz, peak-to-peak	<1%	
	Long-term Power Stability (2 hours, ±3°C)	<2%	
	Warm-up Time	<5 min.	
	Polarization Ratio	>100:1, vertical	
	Static Alignment Tolerances ³		

Beam Position

Beam Angle

Beam Waist Position

±0.25 mm

±2.5 mrad

at exit window ±200 mm⁷

		Specifications
Utility and Environmental Requirements	Operating Voltage ⁴	+10.8 to 15 VDC
	Power Consumption	<60W
	Maximum Laser Head Baseplate Temperature ⁵	+55°C (113°F)
	Maximum Heat Dissipation of Head (Baseplate at 55°C)	40W
	Ambient Temperature	
	Operating Conditions	10 to 40°C (50 to 104°F) Non-condensing
	Non-Operating Condition	-30 to 60°C (-22 to 140°F)
	Shock Tolerance (6 ms)	7g laterally, 15g vertically
	Dimensions (LxWxH)	
	Laser Head	125 x 70 x 34 mm (4.9 x 2.8 x 1.3 in)
	Controller	216 x 77 x 44 mm (8.5 x 3 x 1.7 in)
	Heatsink (optional)	200 x 80 x 50 mm (7.9 x 3.2 x 2 in)
	DC Power Supply (optional)	171 x 104 x 55 mm (6.7 x 4.1 x 2.2 in)
	Cable — Laser Head to Controller	2m (5.1 ft)
	Weights	
	Laser Head	0.35 kG (0.77 lb)
	Controller	0.25 kG (0.55 lb)
	Heatsink (optional)	0.75 kG (1.65 lb)
	DC Power Supply (optional)	0.95 kG (incl. line cable) (2.1 lb)
	Packaged System (Head+Controller+Cable+Manual)	1.7 kG (3.7 lb)
	Cable — Laser Head to Controller	0.3 kG (0.66 lb)

¹ Laser-to-laser tolerance.

² Output power is variable via RS 232 or analog interface from 2.5% to 110%. Specifications are valid for 100% power. Recommended power range is 70-110% power.

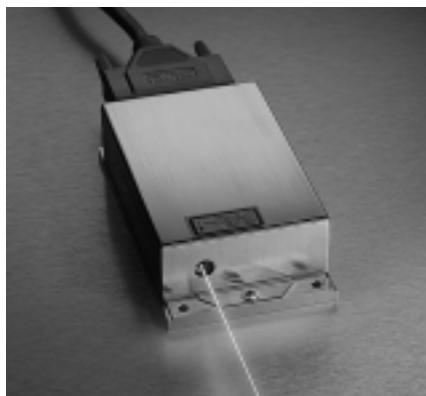
³ Static alignment tolerances are relative to the right bottom edge (in beam direction).

⁴ If user-supplied, the DC power supply has to meet the following requirements: Power > 60W, Ripple <5% peak-to-peak, Line regulation <0.5%.

⁵ With factory-provided or other adequate heatsink. For thermal impedance of the heatsink, see graph on back page.

⁶ Laser emission is single longitudinal mode with less than 0.1 mW residual IR.

⁷ 200 mm is 25% of Rayleigh range.



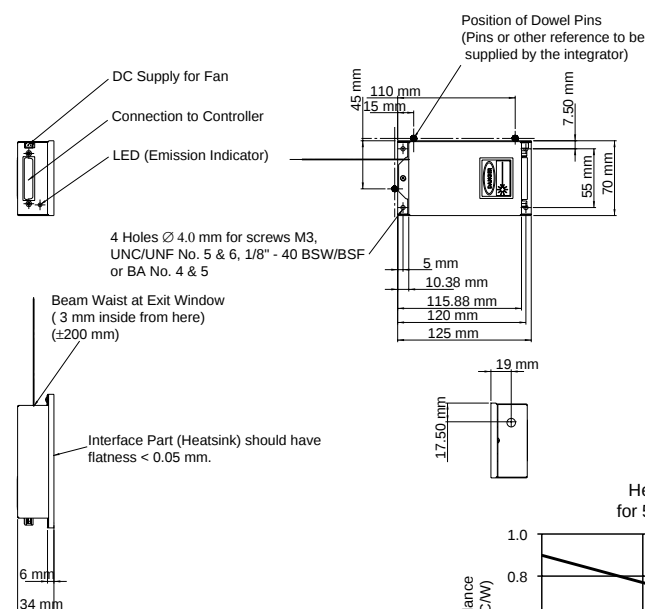
System Integration and Thermal Management

Coherent Sapphire™ lasers are modular components sold for use in OEM equipment. The OEM is responsible for compliance with all applicable safety regulations.

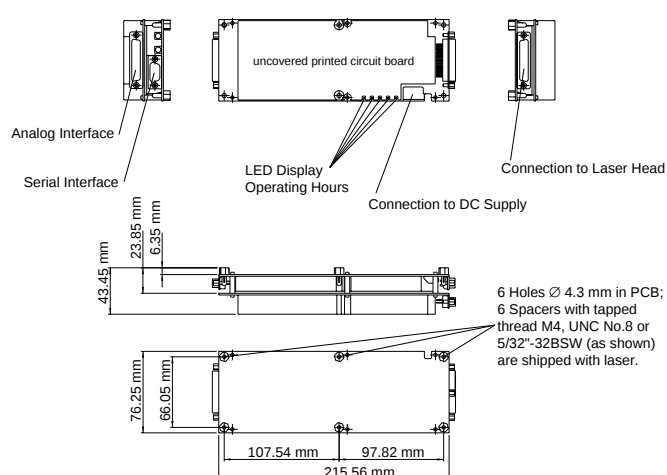
Thermal management of the Sapphire must be included in the OEM design. There is no warranty on failures caused by inadequate thermal management. To assure adequate cooling, the baseplate of the Sapphire must be attached to a heatsink. The required thermal impedance of the heatsink as a function of the ambient temperature is shown in Figure 1.

For assistance in thermal management and other system integration issues, please contact our Advanced Technical Sales Group at 1-800-527-3786.

Laser Head



Controller



Heatsink Thermal Impedance for 55°C Baseplate Temperature

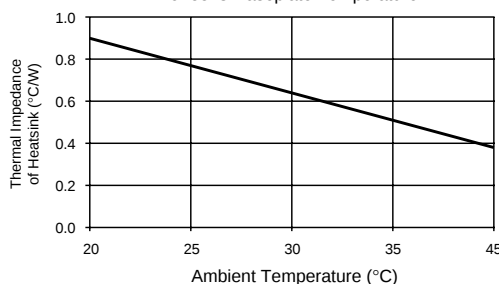


Figure 1



LASER DIVISION

A member of
Coherent Photonics Group
5100 Patrick Henry Drive
Santa Clara, CA 95054
Phone: 1-800-527-3786
1-408-764-4983
Fax: 1-800-362-1170
1-408-988-6838
Email:
tech.sales@CoherentInc.com
Web: www.CoherentInc.com

LOCAL OFFICES

Japan +81 (3) 5635 8700
Benelux +31 (30) 280 6060
France +33 (1) 6985 5145
Germany +49 (6071) 9680
Italy +39 (02) 34 530 214
UK +44 (1353) 658 800

Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

Coherent offers a limited warranty for all Sapphire systems. Please refer to the latest version of the Coherent, Inc., Laser Division Price List for full details of this warranty coverage.

U.S. Patent No. 5,945,978
U.S. Patent No. 6,167,068
U.S. Patent No. 6,097,742
U.S. Patent No. 5,991,318
Printed in the U.S.A. MC-121-01-2.5Mo801
Copyright ©2001 Coherent, Inc.

