



Sapphire LPX

Optically-Pumped Semiconductor Lasers

Sapphire LPX extends the Sapphire LP series of compact CW visible lasers to the higher power range.

Sapphire LP/ LPX relies on Coherent's unique OPSL technology. The lasers not only provide established legacy wavelengths of ion and diode-pumped solid-state lasers, but their scalability also allows for customized wavelengths to be developed and tailored to a specific application.

Sapphire lasers are manufactured in cleanrooms using Coherent's patented PermAlign™ technology for optimal aligning and solder-bonding the optics. The result? Best beam quality, power stability and lowest noise over the complete lifetime of the laser.

Sapphire comes with a future-safe, flexible interface concept: analog, RS-232, or USB – it is up to the user to select his communication channel.

Sapphire lasers feature superior performance, proven reliability, and low-cost of ownership making them the ideal laser solution for a manifold of applications including life sciences, environmental protection, semiconductor inspection, and metrology.

FEATURES

- Wavelength versions
 - 488 nm, 532 nm, 561 nm
 - Further wavelengths on request
- Power classes
 - 488 nm: 300 mW, 400 mW
 - 532 nm: 300 mW, 400 mW, 500 mW
 - 561 nm: 300 mW, 400 mW
- Outstanding power stability and low noise
- Superior beam quality
- Flexible interface concept
 - Analog, RS-232 & USB
- PermAlign technology
 - Permanent optimal alignment
 - Unsurpassed, robust, and stable
- Proven reliability
 - More than 45,000 installations
- OEM version

APPLICATIONS

- Flow Cytometry
- Confocal Microscopy
- Genomics & Proteomics
- High Throughput Drug Screening
- Medical Diagnostics
- Micro Array Scanning
- Semiconductor Inspection
- Metrology



SPECIFICATIONS	Sapphire 488 LPX	Sapphire 532 LPX	Sapphire 561 LPX
Wavelength ¹ (nm)	488 ±2	532 ±2	561 ±2
Output Power ² (mW)	300, 400	300, 400, 500	300, 400
Spatial Mode		TEM ₀₀ , M ² <1.1	
Beam Asymmetry		0.9 to 1.1	
Beam Diameter at 1/e ² (mm)		0.70 ±0.05	
Beam Divergence (mrad)	<1.2	<1.3	<1.3
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)		<30	
Static Alignment ³ x/y (mm) Angular x/y (mrad)		±0.25 ±2.5	
Beam Waist Location ⁴ (mm from front)		±200	
Noise (%) 20 Hz to 2 MHz, rms 20 Hz to 20 kHz, peak-to-peak		≤0.25 ≤1	
Long-term Power Stability (%) (2 hours, ±3°C)		<2	
Digital Modulation Rise Time (10 to 90%) (μs) Fall Time (10 to 90%) (μs)		≤200 ≤10	
Analog Modulation Rise Time ⁵ (10 to 90%) (μs) Fall Time ⁵ (10 to 90%) (μs)		≤1000 ≤1000	
Warm-up Time (minutes)		<5	
Polarization Ratio (linear, vertical)		>100:1	
UTILITY AND ENVIRONMENTAL REQUIREMENTS			
Operating Voltage ⁶ (VDC)		+10.8 to 15	
Power Consumption (W)		<80	
Max. Laser Head Baseplate Temp. ⁷		+50°C (122°F)	
Max. Heat Dissipation of Laser Head (W)		30 (baseplate at 50°C/122°F)	
Ambient Temperature Operating Condition Non-Operating Condition		10 to 40°C (50 to 104°F) -20 to 60°C (-4 to 140°F)	
Humidity (%) Operating Condition Non-Operating Condition		0 to 95, non-condensing 0 to 100, non-condensing	
Dimensions (L x W x H) Laser Head Controller Heat Sink (optional) DC Power Supply (optional) Cable — Laser Head to Controller		125 x 70 x 34 mm (4.9 x 2.8 x 1.3 in.) 117.8 x 76.2 x 39.4 mm (4.6 x 3.0 x 1.6 in.) 200 x 80 x 50 mm (7.9 x 3.2 x 2.0 in.) 171 x 104 x 55 mm (6.7 x 4.1 x 2.2 in.) 1m (3.28 ft.), with options	
Weights Laser Head Controller Heat Sink (optional) DC Power Supply (optional)		0.35 kg (0.77 lbs.) 0.25 kg (0.55 lbs.) 0.75 kg (1.65 lbs.) 0.95 kg (2.1 lbs.) (incl. line cable)	
Laser Safety Classification		4	

¹ Laser-to-laser tolerance. With residual IR emission less than 0.1 mW.

² Output power is adjustable via analog or digital interface from 10% to 100%. Specifications are valid for 100% power. Recommended power range is 70 to 100% power.

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

⁴ 200 mm is ~30% of Raleigh Range at 532/561 nm; 200 mm is ~25% of Raleigh Range at 488 nm.

⁵ Power between 50% and 100% nominal.

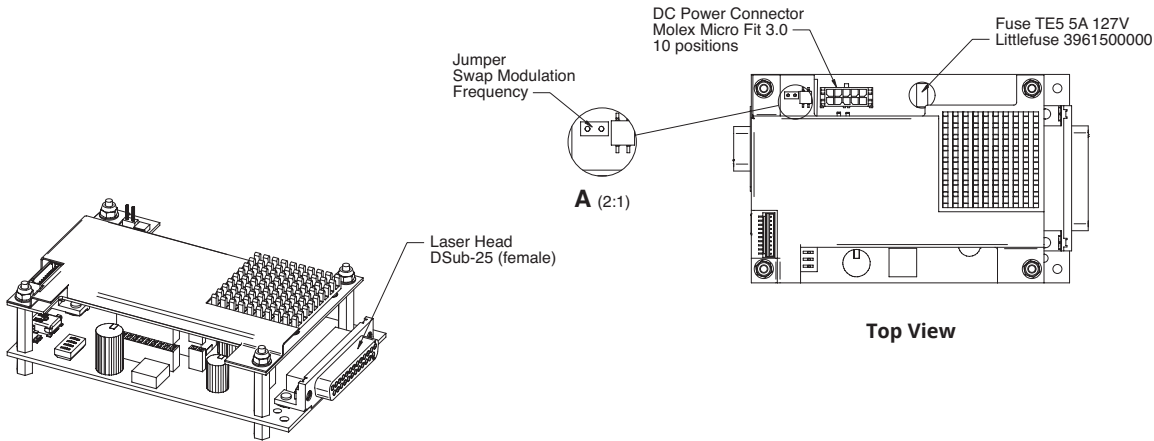
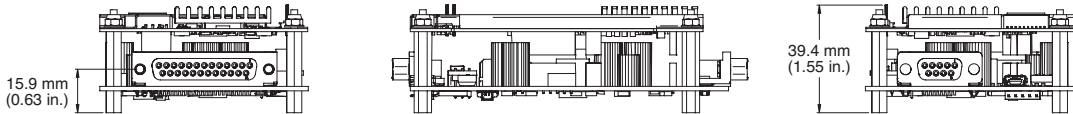
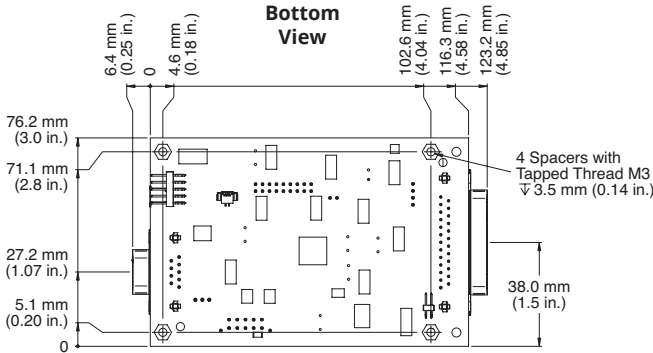
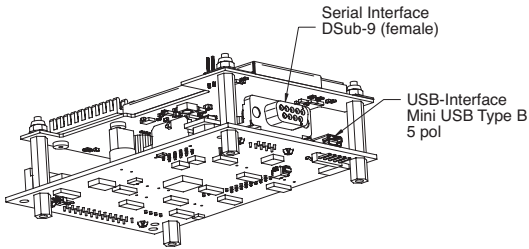
⁶ If user-supplied, the DC power supply has to meet the following requirements: Power >60W; ripple <5% peak-to-peak; line regulation <0.5%.

⁷ With factory-provided or other adequate heat sink.

MEASUREMENT TOOLS	Part Number	
Meter	FieldMax™II-TO	1098579
Sensor	PS10Q	1098400

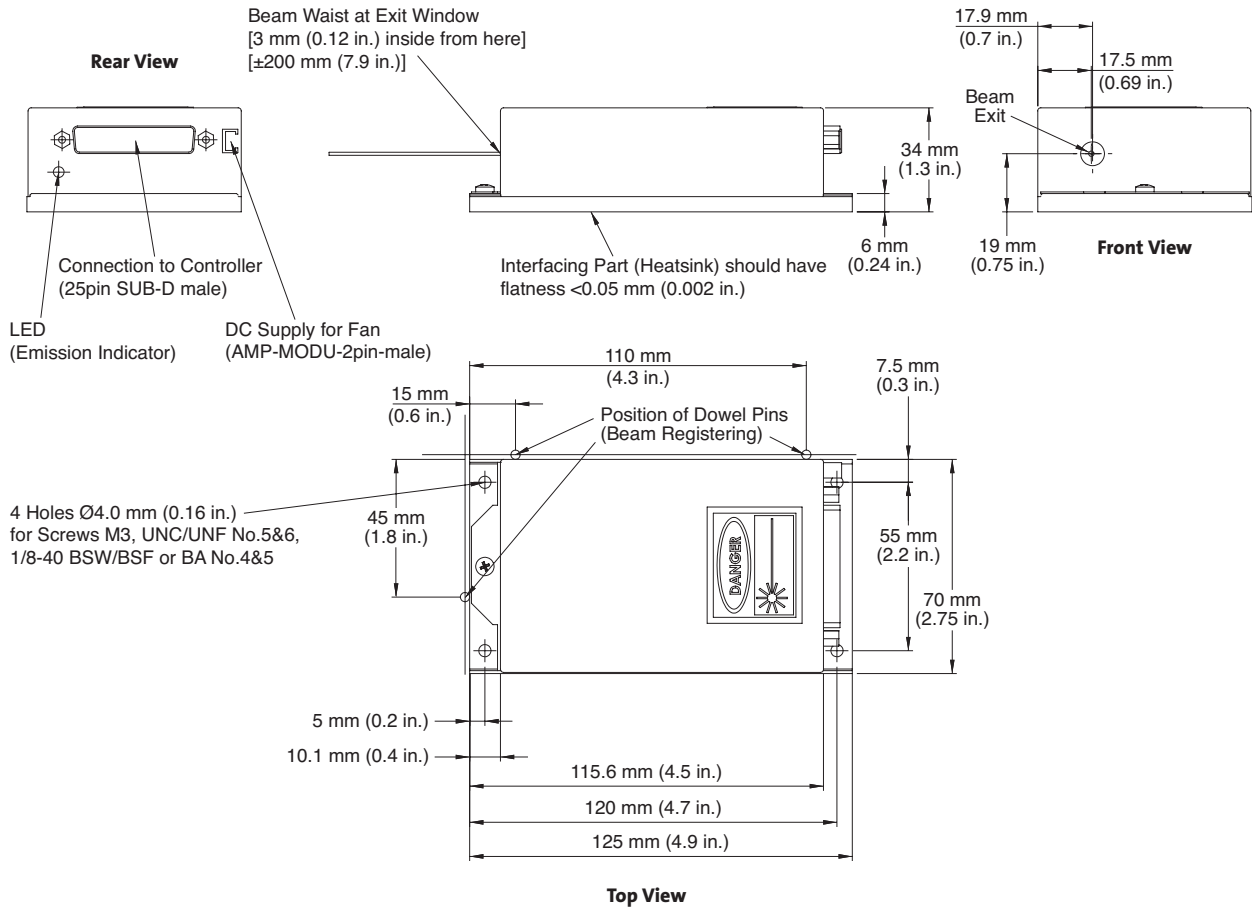
MECHANICAL SPECIFICATIONS

Controller



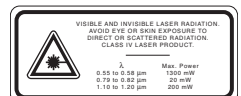
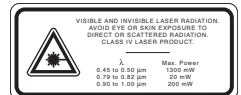
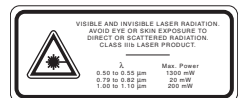
MECHANICAL SPECIFICATIONS

Sapphire LP



Coherent, Inc.,
 5100 Patrick Henry Drive Santa Clara, CA 95054
 p. (800) 527-3786 | (408) 764-4983
 f. (408) 764-4646

tech.sales@Coherent.com www.Coherent.com



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 Sapphire lasers. 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. Printed in the U.S.A. MC-XXX-17-0M0417 Copyright ©2017 Coherent, Inc.