

LASERS FOR LIFE SCIENCES

Product Catalog







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Ultimate Choice. Perfect Match.

With 50 years of experience in life sciences, Coherent understands that getting the best results requires a laser that perfectly integrate with your application. That's why we offer the widest choice of laser technologies and performance options.

Genesis CX



OBIS LG



OBIS XT



StingRay/BioRay

OBIS LX/LS



OBIS CORE LS

StingRay/BioRay

OBIS/OBIS FP

OBIS XT

OBIS LG

Sapphire

OBIS Galaxy

Whether your challenge is in cutting-edge research or developing a cost-sensitive clinical instrument, the perfect laser for your needs can be found in the following pages.



OBIS Cellix

Genesis MX

Genesis CX

Accessories

Femtosecond

Order/Contact

Notes

Ultimate Choice. Perfect Match.

Choose Your Laser by **Wavelength and Power**

	349 nm	OBIS XT up to 100 mW
	355 nm	OBIS LG up to 50 mW. Genesis CX up to 250 mW.
	360 nm	OBIS XT up to 100 mW
349 nm 355 nm 360 nm	375 nm	OBIS LX up to 50 mW
	405 nm	OBIS LX up to 250 mW. OBIS LX Fiber Pigtailed up to 100 mW. OBIS CellX up to 100 mW. StingRay and BioRay at 50 mW.
375 nm	413 nm	OBIS LX at 100 mW
	422 nm	OBIS LX at 100 mW
405 nm	445 nm	OBIS LX at 75 mW. OBIS LX Fiber Pigtailed at 45 mW.
413 nm	450 nm	StingRay and BioRay at 50 mW
422 nm	458 nm	OBIS LX at 75 mW. OBIS LX Fiber Pigtailed at 45 mW. Sapphire up to 75 mW. Sapphire FP at 40 mW.
445 nm 450 nm	460 nm	Genesis CX up to 1 W. Genesis MX up to 2 W.
458 nm 460 nm	473 nm	OBIS LX at 75 mW. OBIS LX Fiber Pigtailed at 50 mW.
473 nm	488 nm	Genesis CX up to 4 W. Genesis MX up to 2 W.
480 nm 488 nm		OBIS LX up to 150 mW. OBIS LX Fiber Pigtailed up to 100 mW. OBIS LS/OBIS CORE LS up to 150 mW. OBIS LS Fiber Pigtailed up to 120 mW. OBIS CellX up to 100 mW. StingRay and BioRay at 20 mW. Sapphire up to 400 mW. Sapphire Fiber Pigtailed up to 200 mW. Sapphire Single Frequency up to 100 mW. Genesis CX up to 4 W. Genesis MX up to 5 W.
	505 nm	OBIS LX at 50 mW. OBIS LX Fiber Pigtailed at 40 mW. OBIS LS/OBIS CORE LS up to 100 mW.
505 nm 514 nm 520 nm	514 nm	OBIS LX at 40 mW. OBIS LX Fiber Pigtailed at 30 mW. OBIS LS/OBIS CORE LS up to 150 mW. OBIS LS Fiber Pigtailed at 15 mW. Sapphire up to 150 mW. Sapphire Fiber Pigtailed up to 120 mW. Genesis CX up to 4 W. Genesis MX up to 5 W.
532 nm	520 nm	OBIS LX at 40 mW. StingRay and BioRay at 50 mW.
552 nm	532 nm	OBIS LS/OBIS CORE LS at up to 150 mW. OBIS LS Fiber Pigtailed up to 120 mW. Sapphire up to 500 mW. Sapphire Fiber Pigtailed up to 300 mW. Sapphire Single Frequency up to 150 mW. Genesis CX up to 6W. Genesis MX up to 8 W.
	552 nm	OBIS LS/OBIS CORE LS up to 150 mW. OBIS LS Fiber Pigtailed up to 120 mW. Sapphire up to 200 mW. Sapphire Fiber Pigtailed up to 120 mW.

Ultimate Choice. Perfect Match.

Choose Your Laser by **Wavelength and Power**

561 nm	OBIS LS/OBIS CORE LS up to 150 mW. OBIS LS Fiber Pigtailed up to 120 mW. OBIS CellX up to 100 mW. Sapphire up to 400 mW. Sapphire Fiber Pigtailed up to 200 mW. Genesis CX up to 3 W. Genesis MX up to 2 W.	561 nm
568 nm	Sapphire up to 200 mW. Sapphire Fiber Pigtailed up to 120 mW	568 nm
577 nm	Genesis CX up to 3 W. Genesis MX up to 5 W.	577 nm
588 nm	Sapphire up to 100 mW. Sapphire Fiber Pigtailed at 40 mW.	588 nm
590 nm	Genesis CX up to 3 W. Genesis MX up to 3 W.	590 nm
594 nm	OBIS LS/OBIS CORE LS up to 100 mW. OBIS LS Fiber Pigtailed at 40 mW. Sapphire up to 75 mW. Sapphire Fiber Pigtailed at 40 mW.	594 nm
607 nm	Genesis MX up to 1.25 W	607 nm
637 nm	OBIS LX at 140 mW. OBIS LX Fiber Pigtailed at 100 mW. OBIS CellX up to 100 mW.	
639 nm	Genesis MX up to 2 W	
640 nm	OBIS LX up to 100 mW. OBIS LX Fiber Pigtailed at 75 mW. StingRay and BioRay at 40 mW.	637 nm
647 nm	OBIS LX at 120 mW. OBIS LX Fiber Pigtailed at 100 mW.	639 nm
660 nm	OBIS LX at 100 mW. OBIS LX Fiber Pigtailed at 75 mW.	640 nm
685 nm	OBIS LX at 40 mW	647 nm
730 nm	OBIS LX at 30 mW	660 nm
752 nm	OBIS LX at 150 mW	685 nm
785 nm	OBIS LX at 100 mW	
808 nm	OBIS LX at 150 mW	730 nm
920 nm	Genesis MX at 4 W	752 nm
980 nm	OBIS LX up to 150 mW	785 nm
1064 nm	Genesis MX at 10 W	808 nm
1154 nm	Genesis MX at 6 W	920 nm
		980 nm
		1064 nm
		1154 nm

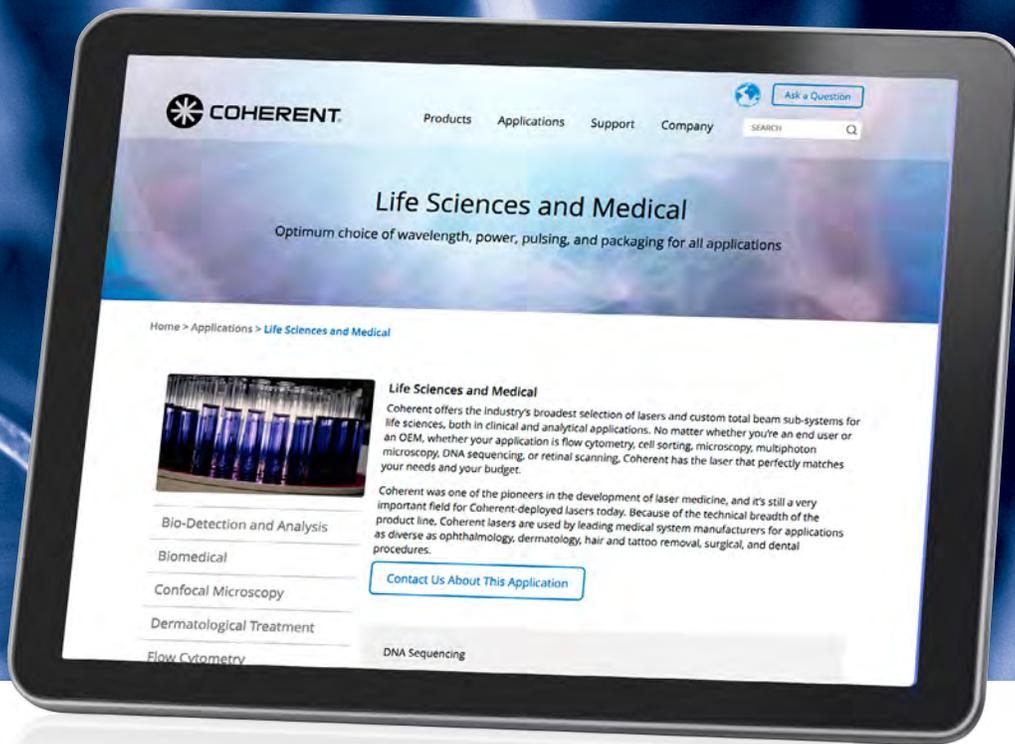
Ultimate Choice. Perfect Match.

Choose Your Laser by **Features**

<p>Continuous-Wave (CW):</p> <p>Modulation: Analog to 500 KHz</p> <p>Modulation: Analog to 100 KHz and/or Digital to 50 KHz</p> <p>High Speed Modulation: Analog to 500 KHz and/or Digital to 150 MHz</p>	<p>StingRay, BioRay, OBIS LS, OBIS LX, Sapphire, OBIS LG, Genesis CX, Genesis MX</p> <p>StingRay, BioRay</p> <p>OBIS LS</p> <p>OBIS LX</p>
<p>Fiber Delivery:</p> <p>Fiber Pigtailed, Single-Mode Polarization-Maintaining Fiber</p> <p>Fiber Connector, FC or SMA, 25 μm Core, SMA 905, 50 μm Core</p>	<p>OBIS LX, OBIS LS, Sapphire</p> <p>Genesis MX, BioRay FR, OBIS Galaxy</p>
<p>Single Frequency (Longitudinal Mode)</p>	<p>Sapphire SF, Genesis CX, Genesis MX</p>
<p>Miniaturized OEM Laser</p>	<p>OBIS CORE LS</p>
<p>OPSL (Optically Pumped Semiconductor Laser): Constant Beam Parameters with Power</p>	<p>OBIS LS, Sapphire, OBIS LG, Genesis CX, Genesis MX</p>
<p>Adjustable Beam Divergence (User Adjustable Lens)</p>	<p>StingRay, BioRay, CellX</p>
<p>Compact Laser with common beam, common footprint, common interace, common accessories</p>	<p>OBIS LX, OBIS LS</p>
<p>6-Laser Remote and Scientific Remote</p>	<p>OBIS LX, OBIS LS</p>
<p>Beam Combining</p>	<p>OBIS Galaxy with Fiber Output and FP lasers (FC/UFC connector), OBIS CellX four laser combined beam with adjustable beam position and steering</p>
<p>Laser Box for 5-Laser integration with thermal management (cooling), Analog/Digital I/O and laser safety features</p>	<p>OBIS LX, OBIS LS (frequently purchased with OBIS Galaxy)</p>

Elevate Your Life Sciences Application

Explore Coherent's Complete Laser Portfolio and Find Your Solution by Visiting Our Website.



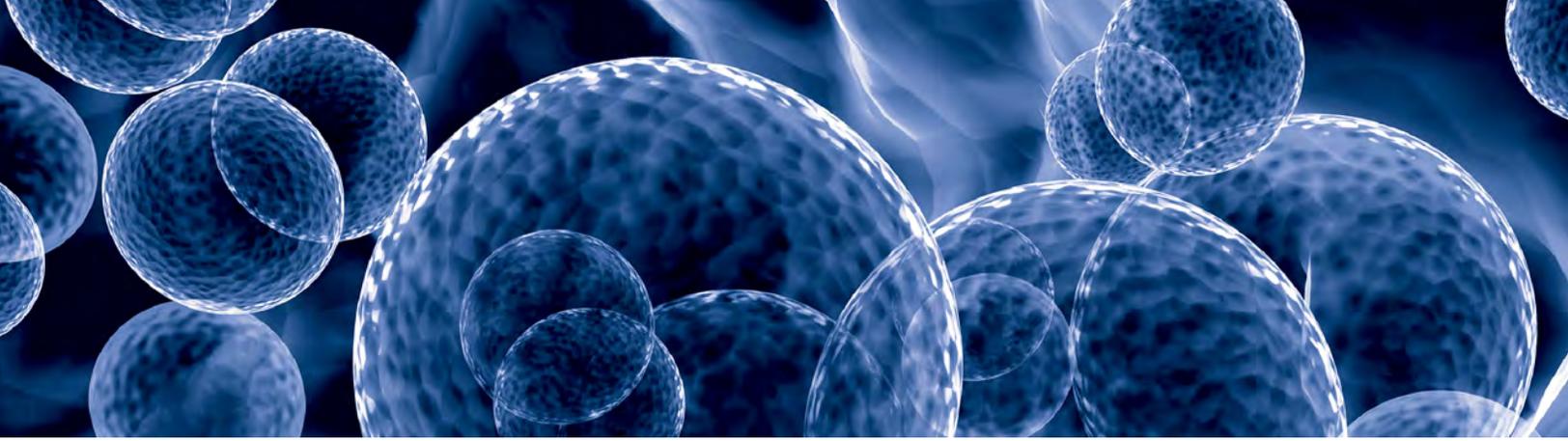
Accessories

Application Reports

Enhanced Application Finder

Technical Illustrations, Videos

Brochures, Tech Notes, Data Sheets



OBIS CORE LS

Next Generation Miniaturized OEM Laser Module

The Coherent OBIS CORE LS suite of products provide miniaturized building blocks for OEM instrument designers.

Consisting out of the Optically Pumped Semiconductor Laser (OPSL) technology core of OBIS LS laser with perfect beam parameters and proven reliability the CORE LS lasers are the low-risk choice for OEM instruments in life sciences applications.

If small laser foot print, low heat dissipation and perfect beam quality are required the OBIS CORE LS modules are the best fit for OEM instrument designers.

FEATURES & BENEFITS

- Miniaturized for Integration
- Compact and powerful
- Perfect beam quality
- Low heat dissipation
- Up to 150 mW of laser power

APPLICATIONS

- Confocal Microscopy
- DNA Sequencing
- Flow Cytometry
- Medical Imaging and Instrumentation
- Ophthalmology



SPECIFICATIONS	OBIS CORE 488LS	OBIS CORE 505LS	OBIS CORE 514LS	OBIS CORE 532LS
Wavelength ¹ (nm)	488	505	514	532
Output Power ² (mW)	20, 60, 80, 100, 150	30, 100	20, 100, 150	20, 50, 80, 100, 150
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality)	≤1.1	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1	≤1:1.1	≤1:1.1
Beam Diameter at 1/e ² (mm)	0.7 ±0.05	0.7 ±0.05	0.7 ±0.05	0.7 ±0.05
Beam Divergence (mrad, full-angle)	<1.2	<1.2	<1.2	<1.2
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30	<30
Pointing Stability Over Temperature (μrad/°C)	<5	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.25	≤0.25	≤0.25	≤0.25
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<1	<1	<1	<1
Long-Term Power Stability (%) (8 hours, ±3°C)	<2	<2	<2	<2
Warm-Up Time ³ (minutes) (from cold start)	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°	Minimum 100:1, Vertical ±5°	Minimum 100:1, Vertical ±5°	Minimum 100:1, Vertical ±5°
Laser Drive Modes	CW, Analog Modulation, Digital Modulation, Computer Control			
Digital Modulation				
Maximum Bandwidth (kHz)	1	1	1	1
Rise Time (10% to 90%) (ms)	<1	<1	<1	<1
Fall Time (10% to 90%) (μs)	<100	<100	<100	<100
Extinction Ratio	on/no emission	on/no emission	on/no emission	on/no emission
Analog Modulation				
Maximum Bandwidth (kHz)	1	1	1	1
Rise Time (10% to 90%) (ms)	<1	<1	<1	<1
Fall Time (10% to 90%) (μs)	<1	<1	<1	<1
Dynamic Power Range (%)	20 to 110	20 to 110	20 to 110	20 to 110
Static Alignment Tolerances				
Beam Position from Reference ⁴ (mm)	<0.5	<0.5	<0.5	<0.5
Beam Angle ⁴ (mrad)	<2.5	<2.5	<2.5	<2.5
Beam Waist Position at Exit Window (mm)	±215	±215	±215	±215
Laser Safety Classification	3b	3b	3b	3b
Power Consumption (W)	Typical 5 to 8, Max. 12	Typical 5 to 8, Max. 12	Typical 5 to 8, Max. 12	Typical 5 to 8, Max. 12
Laser Head Baseplate Temp. (Max., °C)	40	40	40	40
CORE LS Controller Baseplate Temp. (Max., °C)	55	55	55	55
Heat Dissipation of Laser Head ⁵ (W)	Typical 2 to 4, Max. 5	Typical 2 to 4, Max. 5	Typical 2 to 4, Max. 5	Typical 2 to 4, Max. 5
Heat Dissipation of CORE LS Controller ⁵ (W)	Typical 3 to 5, Max. 6	Typical 3 to 5, Max. 6	Typical 3 to 5, Max. 6	Typical 3 to 5, Max. 6
Ambient Temperature ⁶				
Operating Condition ⁷ (°C)	15 to 40	15 to 40	15 to 40	15 to 40
Non-Operating Condition (°C)	-20 to +60	-20 to +60	-20 to +60	-20 to +60
Shock Tolerance (g) (6 ms)	30	30	30	30

1 Laser-to-laser tolerance. All CORE LS versions ±2 nm.
 2 Residual laser emission at 808 nm fundamental within beam at 100 mm distance <0.1 mW.
 3 For LS versions typical power-on delay 3 minute.
 4 See mechanical drawing for exit beam location.
 5 Heat load depends on laser power level. Heat dissipation through baseplate of laser head or controller.
 6 Non-Condensing.
 7 CORE LS laser head baseplate temperature needs to be maintained at ≤40°C

OBIS CORE LS

SPECIFICATIONS	OBIS CORE 552LS	OBIS CORE 561LS	OBIS CORE 594LS
Wavelength ¹ (nm)	552	561	594
Output Power ² (mW)	20, 60, 80, 100, 150	20, 50, 80, 100, 150	20, 60, 100
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality)	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1	≤1:1.1
Beam Diameter at 1/e ² (mm)	0.7 ±0.05	0.7 ±0.05	0.7 ±0.05
Beam Divergence (mrad, full-angle)	<1.2	<1.2	<1.3
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30
Pointing Stability Over Temperature (μrad/°C)	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.25	≤0.25	≤0.25
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<1	<1	<1
Long-Term Power Stability (%) (8 hours, ±3°C)	<2	<2	<2
Warm-Up Time ³ (minutes) (from cold start)	<5	<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°	Minimum 100:1, Vertical ±5°	Minimum 100:1, Vertical ±5°
Laser Drive Modes	CW, Analog Modulation, Digital Modulation, Computer Control		
Digital Modulation			
Maximum Bandwidth (kHz)	1	1	1
Rise Time (10% to 90%) (ms)	<1	<1	<1
Fall Time (10% to 90%) (μs)	<100	<100	<100
Extinction Ratio	on/no emission	on/no emission	on/no emission
Analog Modulation			
Maximum Bandwidth (kHz)	1	1	1
Rise Time (10% to 90%) (ms)	<1	<1	<1
Fall Time (10% to 90%) (μs)	<1	<1	<1
Dynamic Power Range (%)	20 to 110	20 to 110	20 to 110
Static Alignment Tolerances			
Beam Position from Reference ⁴ (mm)	<0.5	<0.5	<0.5
Beam Angle ⁴ (mrad)	<2.5	<2.5	<2.5
Beam Waist Position at Exit Window (mm)	±215	±215	±215
Laser Safety Classification	3b	3b	3b
Power Consumption (W)	Typical 5 to 8, Max. 12	Typical 5 to 8, Max. 12	Typical 5 to 8, Max. 12
Laser Head Baseplate Temp. (Max., °C)	40	40	40
CORE LS Controller Baseplate Temp. (Max., °C)	55	55	55
Heat Dissipation of Laser Head ⁵ (W)	Typical 2 to 4, Max. 5	Typical 2 to 4, Max. 5	Typical 2 to 4, Max. 5
Heat Dissipation of CORE LS Controller ⁵ (W)	Typical 3 to 5, Max. 6	Typical 3 to 5, Max. 6	Typical 3 to 5, Max. 6
Ambient Temperature ⁶			
Operating Condition ⁷ (°C)	15 to 40	15 to 40	15 to 40
Non-Operating Condition (°C)	-20 to +60	-20 to +60	-20 to +60
Shock Tolerance (g) (6 ms)	30	30	30

¹ Laser-to-laser tolerance. All CORE LS versions ±2 nm.

² Residual laser emission at 808 nm fundamental within beam at 100 mm distance <0.1 mW.

³ For LS versions typical power-on delay 3 minute.

⁴ See mechanical drawing for exit beam location.

⁵ Heat load depends on laser power level. Heat dissipation through baseplate of laser head or controller.

⁶ Non-Condensing.

⁷ CORE LS laser head baseplate temperature needs to be maintained at ≤40°C

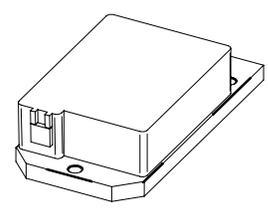
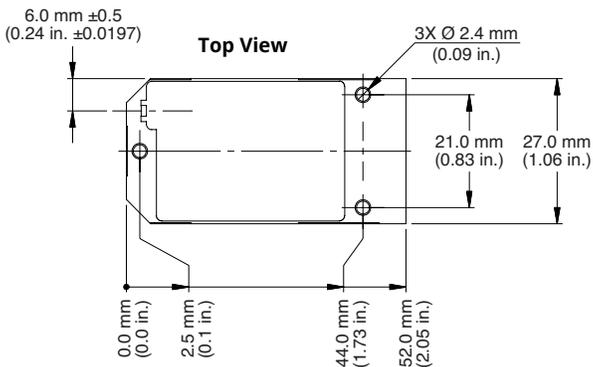
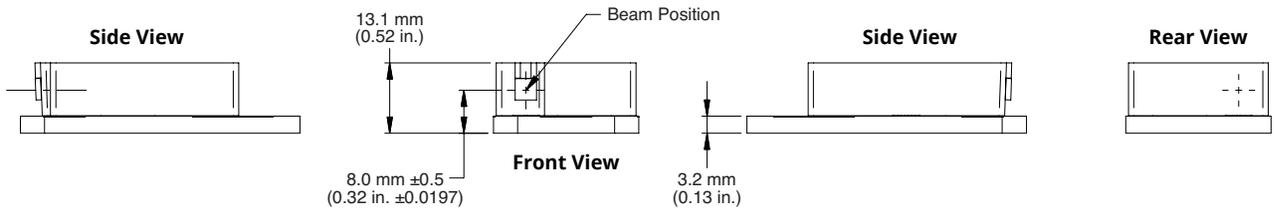
UTILITY AND ENVIRONMENTAL REQUIREMENTS	
Operating Voltage ¹ (VDC)	12 ±2
Dimensions (L x W x H)	
Laser Head (mm)	52 x 27 x 13 mm (2.05 x 1.06 x 0.51 in.)
CORE LS Controller Kit (mm)	115 x 33 x 16 mm (4.53 x 1.30 x 0.63 in.)
Cable, Laser Head to Controller (mm) (3 different lengths available)	150, 300, 500 mm (5.91, 11.81, 19.69 in.)
Weights	
Laser Head	22 g (0.05 lbs.)
CORE LS Controller Kit	81 g (0.18 lbs.)

¹ DC power supply has to meet the following requirements: power >12W; ripple <5% peak-to-peak; line regulation <0.5%. The power supply must comply with SELV and LPS regulations.

OBIS CORE LS

MECHANICAL SPECIFICATIONS

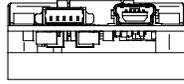
OBIS CORE LS



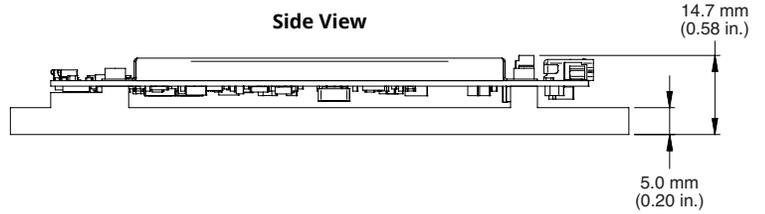
MECHANICAL SPECIFICATIONS

OBIS CORE LS Controller

Front View

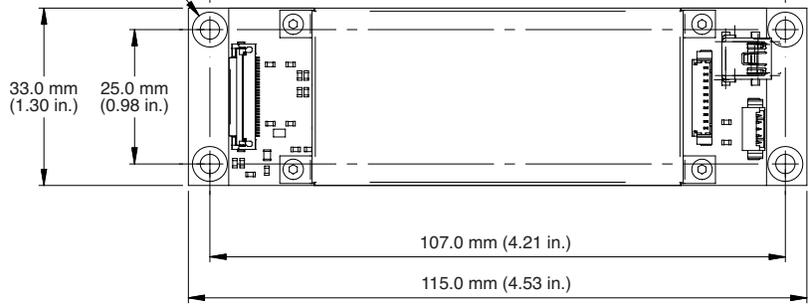
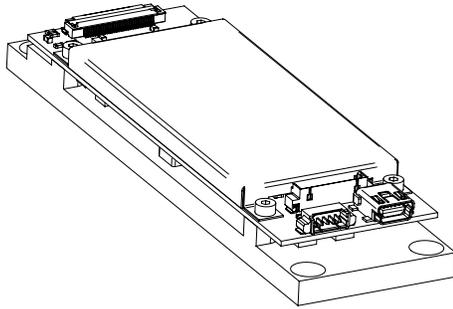


Side View



- 4X Ø 3.6 mm (0.14 in.)
- Ø 6.5 mm (0.26 in.)
- 3.4 mm (0.13 in.)

Top View



OBIS CORE LS

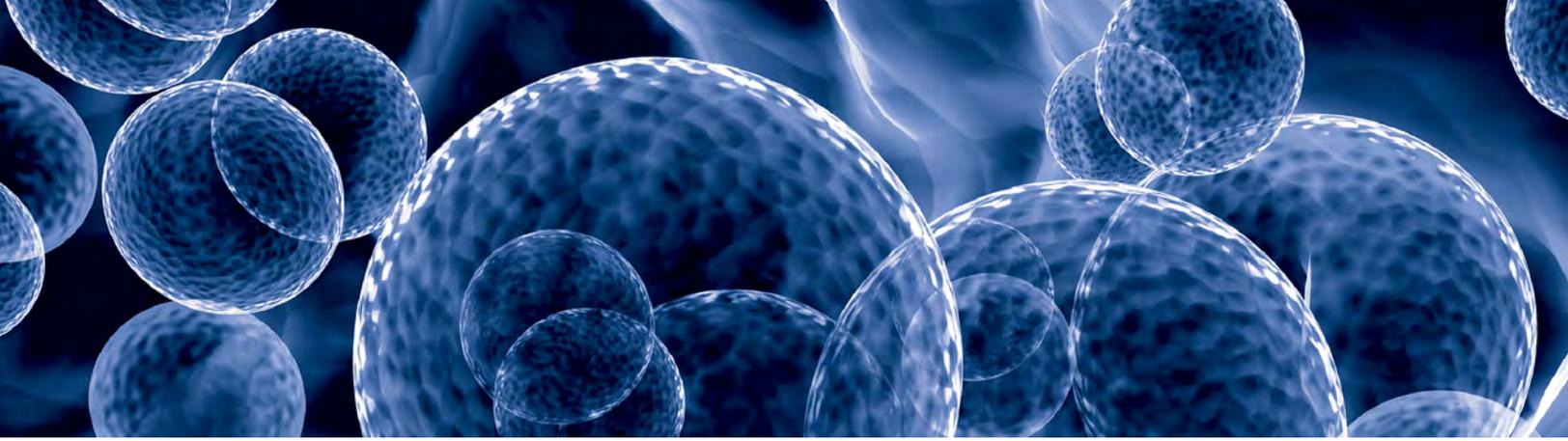
Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

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 OBIS CORE LS 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.

CE ISO 9001 Registered





StingRay and BioRay

With a compact modular design measuring only 19 mm in diameter and using the industries' premier laser diodes, the StingRay delivers best-in-class performance. High-quality glass optics and sophisticated drive electronics deliver the power and control to your application to improve signal-to-noise and measurement speed.

StingRay is the highest-performing top-hat-profile laser available that comes in a variety of fan angles to create the line you need for measurement and profiling applications. Offering the same focus adjustment as the BioRay, the StingRay allows the user to optimize the focus location for the best measurement resolution.

BioRay is a Stingray with an included Heat Sink and Mounting Plate for Life Science applications with an elliptical beam output and a user-adjustable beam divergence (adjustable focus).

With optional RS-232 control the laser power is adjustable as well as onboard diagnostics for operating hours, diode current, output power, temperature, and more.

Select StingRay and BioRay models also include the μ Focus and Fiber-Ready (FR) versions.

FEATURES & BENEFITS

- High Signal-to-Noise with superior Contained Power in the line
- 405 nm to 830 nm
- Power up to 200 mW
- User adjustable focus
- Pointing stability $<10 \mu\text{rad}/^\circ\text{C}$
- Analog or digital modulation
- Microprocessor controlled
- Onboard diagnostics monitor
- RS-232 control option
- Power supply range: 5 to 24 VDC
- ESD protection, over-temperature protection, and reverse polarity protection
- Optional fiber-ready version

APPLICATIONS

- Microscopy
- Cytometry
- Medical Imaging and Instrumentation
- Genetics
- High Throughput Screening
- Machine Vision
- 3D Profiling
- Industrial



LASER OUTPUT SPECIFICATIONS

Spatial Mode	TEM ₀₀ (Single Transverse Electric Mode)
Beam Quality, M ² (ModeMaster with 90/10 Clip Level)	<1.5
Pointing Stability over Temperature (μrad/°C)	<10
Beam Angle (boresight) (mrad)	<3
RMS Noise (%) (20 Hz to 20 MHz)	<0.5
Peak-to-Peak Noise (%) (20 Hz to 20 MHz)	<1
Long Term Power Stability (%) (over 8 hours and ±3°C)	<2
Warm-up Time (minutes)	<5

LASER ELECTRICAL SPECIFICATIONS

Operating Voltage (V DC)	+5 to +24 (recommend 12 VDC for best efficiency) ¹
Operating Current (mA) (maximum at 25°C)	200
Power-on Delay (seconds) (if enabled)	5
Power Consumption (W)	<5
ESD Protection	EN61326-1 (8 kV Air Discharge, 4 kV Contact Discharge)

LASER MECHANICAL AND ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-10 to 50°C (except 450 nm, 520 nm, and 525 nm with 10°C to 40°C)
Non-Operating (storage) Temperature	-20 to 60°C
Weight (grams) (standard model)	<70
Diameter (mm)	19.05
Material	Aluminum 6061 T1

LASER WIRING

Signal	Wire Color	Description
V _{in}	Red	Power Supply input for +5 to +24 Volts DC, Recommend 12 VDC ¹
V _{in} Ground	Black	Power Supply Ground
Output Signal for Over-Temperature or Over-Current	Green	Open Collector Output, 30 Volts DC maximum, 100 ma current load maximum ²
V _{mod}	Blue	Modulation Input, 5 kOhm input impedance, 5 Volts maximum
V _{mod} Ground	Red/Black	Modulation Ground
RS-232 Transmit	Orange	RS-232 Transmit for models with RS-232 option installed
RS-232 Receive	White	RS-232 Receive for models with RS-232 option installed
RS-232 Ground	White/Black	RS-232 Signal Ground for models with RS-232 option installed

¹ Minimum operating voltage for lasers between 400 nm to 525 nm is 6V DC.

² Not available on Fast Digital Modulation (FT or RFT models).

CHOOSE YOUR LASER

The StingRay and BioRay products come in a variety of wavelength, output power, and configuration options.

Use the following simple ten-step selection guide to choose the ideal laser and features for your application. Refer to the last page for our most popular versions, their part numbers, and pricing available for immediate delivery.

Configure your laser with these ten steps:

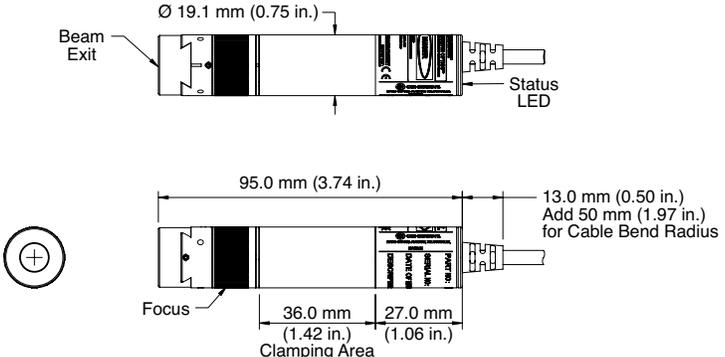
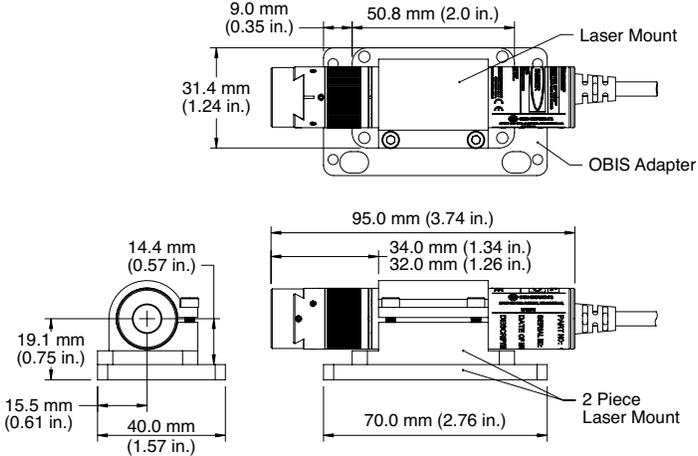
- STEP 1:** Package
- STEP 2:** Wavelength
- STEP 3:** Output Power
- STEP 4:** Output Power Control Mode
- STEP 5:** Beam Shape
- STEP 6:** Focus Distance
- STEP 7:** Communication Option (RS-232)
- STEP 8:** Cable Length/Connector
- STEP 9:** Data Report
- STEP 10:** Power-On Delay



STEP 1:

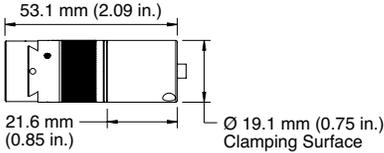
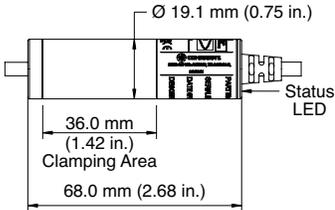
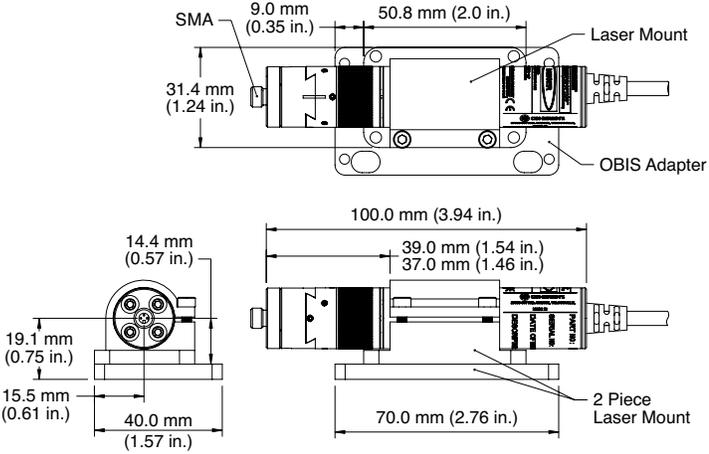
Choose your package with optional separated electronics, mounts, and/or fiber attachment.
 Choose only one option from the following selections.

StingRay/BioRay

Standard StingRay	Mechanical Specifications ¹
<input type="checkbox"/> 	
StingRay in Mount, BioRay	Mechanical Specifications ¹
<input type="checkbox"/> 	

¹ For more dimension details and CAD drawings, please visit www.coherent.com

STEP 1 (continued):

Separate Driver, Compact Laser Head	Mechanical Specifications ¹
<p>(select cable length between laser head and driver)</p> <p><input type="checkbox"/> 75 mm <input type="checkbox"/> 150 mm <input type="checkbox"/> 250 mm <input type="checkbox"/> 500 mm</p> 	<p>Laser Head</p>  <p>Driver</p> 
BioRay FR (Fiber-Ready with SMA)	Mechanical Specifications ¹
<p><input type="checkbox"/></p> 	

¹ For more dimension details and CAD drawings, please visit www.coherent.com

STEP 2:

Choose your wavelength.

Choose only one of the following selections.

Wavelength Choices ¹ (nm)	405	450	488	520	525	639	640	655	660	685	785	830
	<input type="checkbox"/>											

¹ BioRay FR available in 405 nm, 450 nm, 488 nm and 640 nm. StingRay and BioRay Laser-to-laser wavelength tolerance of 405 nm is ±5 nm, 450 nm is ±10 nm, 488 nm is ±10 nm, 520 nm is 510 nm to 530 nm, 525 nm is 520 nm to 530 nm, 639 nm is 635 nm to 648 nm, 640 nm is ±6 nm, 647 nm is ±5 nm, 655 nm is 650 nm to 665 nm, 660 nm for ≥50 mW is 655 to 665 nm, 660 nm for <50 mW is 652 to 662 nm, 685 is ±15 nm, 785 nm is ±19 nm, 830 nm is 815 nm to 840 nm.

STEP 3:

Choose your power.

Choose only one of the following selections.

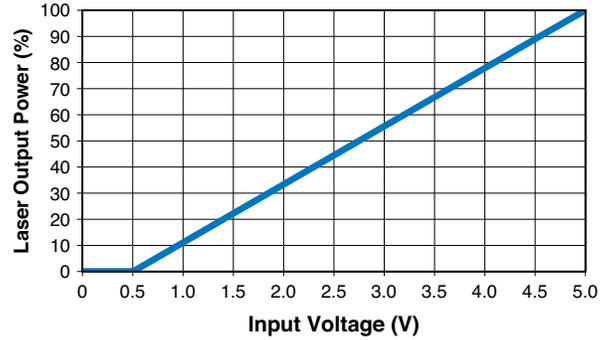
Wavelength Choices ¹ (nm)	405	450	488	520	525	639	640	655	660	685	785	830
Output Power Available (mW)												
1						<input type="checkbox"/>		<input type="checkbox"/>				
5				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>				
10		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			
20	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
25					<input type="checkbox"/>							
35	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
50	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
75					<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
90											<input type="checkbox"/>	
100	<input type="checkbox"/>								<input type="checkbox"/>			<input type="checkbox"/>
150									<input type="checkbox"/>			<input type="checkbox"/>
200									<input type="checkbox"/>			<input type="checkbox"/>

¹ BioRay FR (Fiber-Ready) only available in 405 nm 50 mW, 450 nm 50 mW, 488 nm 20 mW and 640 nm 40 mW. BioRay FR offers >70% coupling efficiency with NA=0.22 into a customer-provided 50 µm or 100 µm fiber.

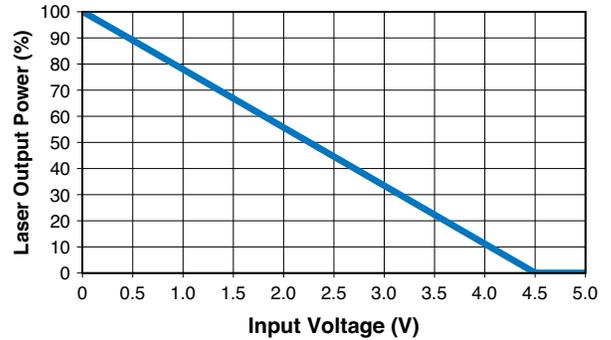
STEP 4:

Choose your output power control: CW, analog modulation (variable output power), or digital modulation.
Choose only one of the following selections.

CW Mode	Function
<input type="checkbox"/> Continuous Wave (CW)	Constant power mode Laser on at full power User can adjust laser output power and monitor power through RS-232 option (if enabled) No modulation input required
Analog Modulation ¹	Function
<input type="checkbox"/> Analog (A)	Input <0.5V = output power is off, Input = 5V is 100% output power, 0.5V to 5V is linear power control from external voltage source Bandwidth of 500 kHz Rise time (10% to 90%) <1 μsec, 500 nsec (typ.) Fall time (90% to 10%) <1 μsec, 500 nsec (typ.) Analog Modulation can be used with a DC voltage input to simply vary the output power
<input type="checkbox"/> Reverse Analog (RA)	Input >4.5V = output power is off, Input = 0V is 100% output power, 4.5V to 0V is linear power control from external voltage source Bandwidth of 500 kHz Rise time (10% to 90%) <1 μsec, 500 nsec (typ.) Fall time (90% to 10%) <1 μsec, 500 nsec (typ.) Reverse Analog Modulation can be used with a DC voltage input to simply vary the output power



No adjustable output power through RS-232

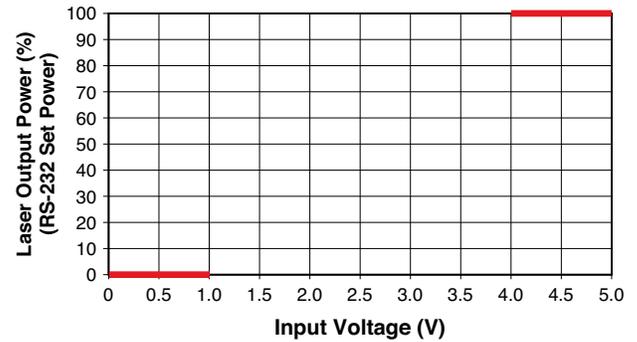


No adjustable output power through RS-232

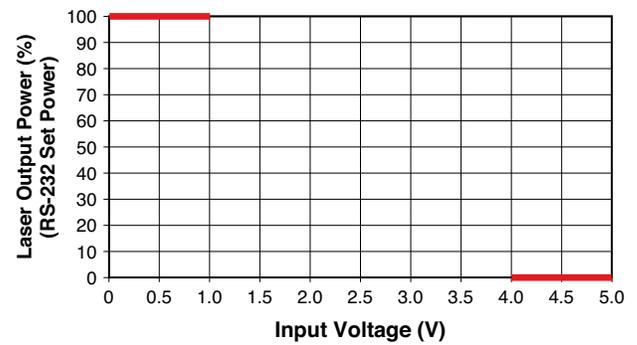
¹ BioRay is standard with Analog Modulation and will require a 5V input signal to operate.

STEP 4 (continued):

Digital Modulation	Function
<input type="checkbox"/> Digital TTL (T) <input type="checkbox"/> Fast Digital TTL (FT)	<p>Input 0V to 1V is output power off, Input 4V to 5V is 100% output power</p> <p>Maximum bandwidth of 100 KHz Rise time (10% to 90%) <1 msec Fall time (90% to 10%) <1 msec</p> <p>Maximum bandwidth of 2 MHz Rise time (10% to 90%) <150 nsec Fall time (90% to 10%) <150 nsec</p>
<input type="checkbox"/> Reverse Digital TTL (RT) <input type="checkbox"/> Reverse Fast Digital TTL (RFT)	<p>Input 0V to 1V is 100% output power, Input 4V to 5V is 0% output power</p> <p>Maximum bandwidth of 100 KHz Rise time (10% to 90%) <1 msec Fall time (90% to 10%) <1 msec</p> <p>Maximum bandwidth of 2 MHz Rise time (10% to 90%) <150 nsec Fall time (90% to 10%) <150 nsec</p>



User can adjust output power setting through RS-232 option (if enabled)



User can adjust output power setting through RS-232 option (if enabled)

STEP 5:

Choose your beam shape.

Choose only one of the following selections.

Elliptical Dot Beam	
<p>D01 – Coherent’s high-quality elliptical collimated beam with user adjustable focus to change the beam divergence.</p> <p><input type="checkbox"/> D01-XX, Standard ~1 mm by ~3 mm beam diameter</p>	 <p>1mm X 3mm ELLIPTICAL BEAM</p>
<p>MicoFocus μFL D01 – Coherent’s high-quality elliptical collimated beam with user adjustable focus to change the beam divergence. Large diameter beam allows for tighter focus spots.</p> <p><input type="checkbox"/> μFL D01-XX, Large beam diameter 2X with less divergence</p>	 <p>2mm X 6mm ELLIPTICAL BEAM</p>
Line Beam Generator	
<p>L01 – Coherent’s Premier Flat-Top Line Technology, with nine choices for the fan angle at which the line expands out from the laser.</p> <p><input type="checkbox"/> L01-1 Line with 1 degree fan angle</p> <p>Fan angle 1° with tolerance $\pm 10\%$</p> <p>Relative intensity floor >75%</p> <p>Contained Power $\geq 90\%$</p> <p>Note: Not available in 488 nm</p>	 <p>1° FAN ANGLE</p>
<p><input type="checkbox"/> L01-5 Line with 5 degree fan angle</p> <p>Fan angle 5° with tolerance $\pm 10\%$</p> <p>Straightness <0.1%</p> <p>Relative intensity floor >75%</p> <p>Contained Power $\geq 95\%$</p> <p>Note: Not available in 488 nm</p>	 <p>5° FAN ANGLE</p>

STEP 5 (continued):

Line Beam Generator (cont.)

- L01-10 Line with 10 degree fan angle

Fan angle 10° with tolerance ±5%
 Straightness <0.1%
 Relative intensity floor >75%
 Contained Power ≥95%

Note: Not available in 488 nm



- L01-15 Line with 15 degree fan angle

Fan angle 15° with tolerance ±5%
 Straightness <0.1%
 Relative intensity floor >75%
 Contained Power ≥95%

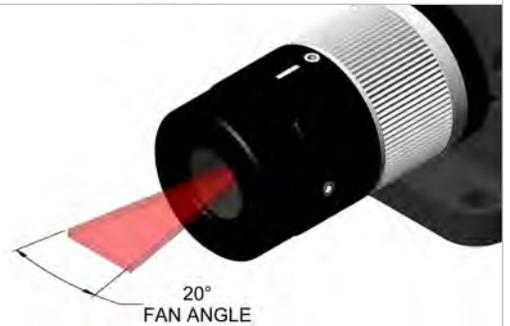
Note: Not available in 488 nm



- L01-20 Line with 20 degree fan angle

Fan angle 20° with tolerance ±5%
 Straightness <0.1%
 Relative intensity floor >75%
 Contained Power ≥95%

Note: Only available for wavelengths 520 nm to 785 nm



- L01-30 Line with 30 degree fan angle
- L01-30 Line with 30 degree fan angle, micro-focus (μFL)

Fan angle 30° with tolerance ±5%
 Straightness <0.1%
 Relative intensity floor >75%
 Contained Power ≥95%

Note: Not available in 488 nm. Micro-focus (μFL) only available in 520 nm to 785 nm.



STEP 5 (continued):

Line Beam Generator (cont.)	
<ul style="list-style-type: none"> <input type="checkbox"/> L01-45 Line with 45 degree fan angle <input type="checkbox"/> L01-45 Line with 45 degree fan angle, micro-focus (μFL) <p>Fan angle 45° with tolerance \pm5%</p> <p>Straightness <0.1%</p> <p>Relative intensity floor >60%</p> <p>Contained Power \geq95%</p> <p>Note: Not available in 488 nm. Micro-focus (μFL) only available in 520 nm to 785 nm.</p>	<p>45° FAN ANGLE</p>
<ul style="list-style-type: none"> <input type="checkbox"/> L01-60 Line with 60 degree fan angle <input type="checkbox"/> L01-60 Line with 60 degree fan angle, micro-focus (μFL) <p>Fan angle 60° with tolerance \pm5%</p> <p>Straightness <0.1%</p> <p>Relative intensity floor >60%</p> <p>Contained Power \geq95%</p> <p>Note: Not available in 488 nm. Micro-focus (μFL) only available in 520 nm to 785 nm.</p>	<p>60° FAN ANGLE</p>
<ul style="list-style-type: none"> <input type="checkbox"/> L01-75 Line with 75 degree fan angle <p>Fan angle 75° with tolerance \pm5%</p> <p>Straightness <0.1%</p> <p>Relative intensity floor >50%</p> <p>Contained Power \geq95%</p> <p>Note: Not available in 488 nm</p>	<p>75° FAN ANGLE</p>

StingRay/BioRay

GLOSSARY OF TERMS:

Definition	Description
Fan Angle or Line Length	Length of flat top profile, measured at 80% intensity clip levels. Reported in degrees for the fan angle.
Straightness	Maximum deviation from the best fit line. Measured as the delta from the best fit line divided by the line length. Reported as a percentage.
Relative Intensity Floor	Minimum relative intensity at any point along the line length. Reported as a relative intensity.
Contained Power	Power contained within the defined Flat Top.

Note: Line is optimized in the factory at 500 mm working distance from laser

STEP 6:

Choose your focus distance (Coherent can preset the adjustable focus).
Choose only one of the following selections.

Focus	Description
<input type="checkbox"/> Standard, Default, 500 mm	Adjustable focus feature factory set for best focus at 500 mm distance from laser. You can readjust and lock as needed.
<input type="checkbox"/> Custom, _____ mm	Choose from a 50 mm up to a 2000 mm focus distance. Adjustable focus feature factory set to your specified distance from laser. You can readjust and lock as needed. Choosing 2000 mm is "collimated".

STEP 7:

Choose your communication option (RS-232).
Choose only one option of following selections.

Focus	Description
<input type="checkbox"/> None	No communications. RS-232 disabled.
<input type="checkbox"/> RS-232	RS-232 enabled for laser control and status. Can monitor hours, power and temperature. Can adjust laser output power for CW and digital modulation modes.

STEP 8:

Choose your cable length and connector/pinout.
Choose only one of the following selections.

Code	Description	Image	Connection	
FL	<p>Flying Leads</p> <p>Choose Length (mm)</p> <input type="checkbox"/> 250 <input type="checkbox"/> 500 <input type="checkbox"/> 1000 <input type="checkbox"/> 1500 <input type="checkbox"/> 2000 <input type="checkbox"/> 2500		V_{in} V_{in} Ground Fault V_{mod} V_{mod} Ground RS-232 Transmit RS-232 Receive RS-232 Ground	Red Black Green Blue Red/Black Orange White White/Black
HR	<p>Hirose R10A-10P-12SC(73)</p> <input type="checkbox"/> 1000 mm		V_{in} V_{in} Ground Fault V_{mod} V_{mod} Ground RS-232 Transmit RS-232 Receive RS-232 Ground	9 1 10 2 3 6 4 5
P	<p>Power Plug, Phono 3.5 mm</p> <input type="checkbox"/> 500 mm		V_{in} V_{in} Ground, Shield Fault V_{mod} V_{mod} Ground RS-232 Transmit RS-232 Receive RS-232 Ground	Tip Base No Connection No Connection No Connection No Connection No Connection No Connection
B	<p>Power Plug, Phono 3.5 mm and BNC for Modulation</p> <input type="checkbox"/> 500 mm		V_{in} V_{in} Ground, Shield Fault V_{mod} V_{mod} Ground RS-232 Transmit RS-232 Receive RS-232 Ground	Phono Plug Tip Phono Plug Base No Connection BNC Tip BNC Base No Connection No Connection No Connection

StingRay/BioRay

STEP 9:

Choose data report.

Data Reports	Description
<input checked="" type="checkbox"/> Basic	Every laser includes a final quality test report
<input type="checkbox"/> Line Data	Add uniformity and straightness data for lines (L01)

STEP 10:

Choose five-second start-up power-on delay.

Choose only one of the following selections.

Power-on Delay	Description
<input type="checkbox"/> None	Laser will start emission at power-on
<input type="checkbox"/> Yes, default	Laser will have an approximate five-second delay for laser emission after power-on

CONGRATULATIONS:

You have completed the laser configuration steps! Please email this to your local Coherent Sales representative to get a quote on price and delivery. You can also view our most popular models on the next two pages.

MOST POPULAR CONFIGURATIONS:

Part Number	Description
1264213	BioRay 405 nm 50 mW Elliptical Dot Laser Analog Modulation enabled, Includes mount, 1 meter cable and Hirose connector, typical 1x3 mm collimated beam
1264214	BioRay 450 nm 50 mW Elliptical Dot Laser Analog Modulation enabled, Includes mount, 1 meter cable and Hirose connector, typical 1x3 mm collimated beam
1270002	BioRay 488 nm 20 mW Elliptical Dot Laser Analog Modulation enabled, Includes mount, 1 meter cable and Hirose connector, typical 1x3 mm collimated beam
1264216	BioRay 520 nm 50 mW Elliptical Dot Laser Analog Modulation enabled, Includes mount, 1 meter cable and Hirose connector, typical 1x3 mm collimated beam
1264218	BioRay 640 nm 40 mW Elliptical Dot Laser Analog Modulation enabled, Includes mount, 1 meter cable and Hirose connector, typical 1x3 mm collimated beam
1286584	STR-520-20-CW-FL-L01-75-S-XX-3, CDRH Class II StingRay, 520 nm, 20 mW, Single Line, 75° Fan Angle, Pre-focused to 500 mm distance, 5-second Power-on Delay, 500 mm cable with Flying Leads
1253606	STR-520-35-CW-FL-D01-XX-S-TX StingRay, 520 nm, 35 mW, Elliptical Dot Beam, Pre-focused to 500 mm distance, 5-second Power-on Delay, 500 mm cable with Flying Leads, Includes RS-232 communications
1285005	STR-639-5-CW-FL-L01-20-S-XX-8 StingRay, 639 nm, 5 mW, Single Line, 20° Fan Angle, Pre-focused to 500 mm distance, 500 mm cable with Flying Leads. NOTE: Does not have 5-second power-on delay for laser emission.
1276557	STR-639-5-CW-FL-L01-45-S-XX-8 StingRay, 639 nm, 5 mW, Single Line, 45° Fan Angle, Pre-focused to 500 mm distance, 500 mm cable with Flying Leads. NOTE: Does not have 5-second power-on delay for laser emission.
1277105	STR-639-10-CW-P-L01-75-E-XX StingRay, 639 nm, 10 mW, Single Line, 75° Fan Angle, Pre-focused to 500 mm distance, Extended Depth of Focus, 500 mm cable with Flying Leads
1262766	STR-660-10-CW-FL-L01-10-S-XX-8 StingRay, 660 nm, 10 mW, Single Line, 10° Fan Angle, Pre-focused to 500 mm distance, 500 mm cable with Flying Leads. NOTE: Does not have 5-second power-on delay for laser emission.
1255565	STR-660-10-A-FL-L01-20-E-XX StingRay, 660 nm, 10 mW, Single Line, 20° Fan Angle, Pre-focused to 500 mm distance, Extended Depth of Focus, 500 mm cable with Flying Leads, Analog Modulation enabled
1258287	STR-660-10-CW-FL-L01-60-S-TX StingRay, 660 nm, 10 mW, Single Line, 60° Fan Angle, Pre-focused to 500 mm distance, 500 mm cable with Flying Leads, Includes RS-232 communications
1289028	STR-660-35-CW-HR-L01-1-S-XX-8 StingRay, 660 nm, 10 mW, Single Line, 1° Fan Angle, Pre-focused to 500 mm distance, ~1 Meter cable with Hirose Connector. NOTE: Does not have 5-second power-on delay for laser emission.

MOST POPULAR CONFIGURATIONS (continued):

Part Number	Description
1288507	STR-660-35-CW-HR-L01-20-S-XX-8 StingRay, 660 nm, 35 mW, Single Line, 20° Fan Angle, Pre-focused to 500 mm distance, ~1 Meter cable with Hirose Connector. NOTE: Does not have 5-second power-on delay for laser emission.
1280731	STR-660-100-T-FL-L01-10-S-TX StingRay, 660 nm, 100 mW, Single Line, 10° Fan Angle, Pre-focused to 500 mm distance, ~1 Meter cable with Hirose Connector, Digital Modulation enabled, Includes RS-232 communications
1280028	STR-660-100-T-HR-L01-15-E-TX-5 Stingray, Separate Driver (Enclosed) with 150 mm between laser and driver, 660 nm, 100 mW, Single Line, 15° Fan Angle, Pre-focused to 500 mm distance, Extended Depth of Focus, ~1 Meter cable with Hirose Connector, Digital Modulation enabled, Includes RS-232 communications
1280027	STR-660-100-T-HR-L01-30-E-TX-5 Stingray, Separate Driver (Enclosed) with 150 mm between laser and driver, 660 nm, 100 mW, Single Line, 30° Fan Angle, Pre-focused to 500 mm distance, Extended Depth of Focus, ~1 Meter cable with Hirose Connector, Digital Modulation enabled, Includes RS-232 communications
1285314	STR-660-100-CW-HR-L01-45-S-XX-8 StingRay, 660 nm, 100 mW, Single Line, 45° Fan Angle, Pre-focused to 500 mm distance, ~1 Meter cable with Hirose Connector. NOTE: Does not have 5-second power-on delay for laser emission.
1262526	STR-660-100-CW-FL-L01-60-S-XX StingRay, 660 nm, 100 mW, Single Line, 60° Fan Angle, Pre-focused to 500 mm distance, 500 mm cable with Flying Leads
1286514	STR-785-90-T-FL-D01-XX-S-XX StingRay, 785 nm, 90 mW, Elliptical Dot Beam, Pre-focused to 500 mm distance, 500 mm cable with Flying Leads
1231404	StingRay Controller with Keypress and Interlock Accessory for enhanced integration. Includes control software and power supply. Use with lasers that include a Hirose connector. For more details, refer to the StingRay Accessory datasheet.

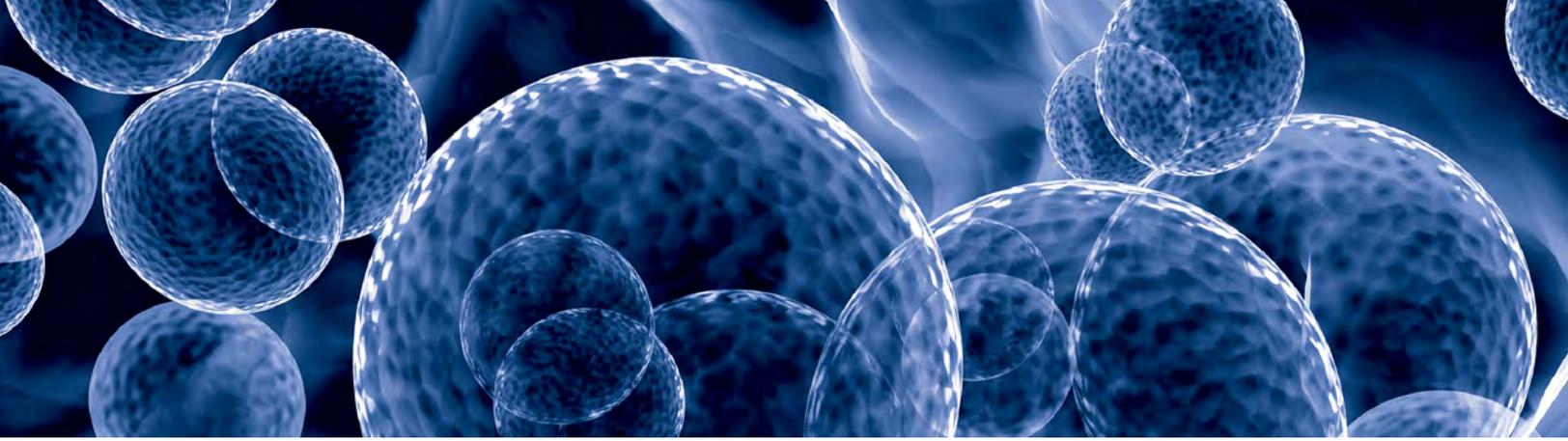
StingRay/BioRay

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 StingRay and BioRay 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.





OBIS LX/LS

Lasers for Plug-and-Play Simplicity

The Coherent OBIS suite of products offers higher signal-to-noise ratio laser technology for a wide range of applications in the Life Sciences, Environmental Monitoring, and Inspection markets.

Our Optically Pumped Semiconductor Laser (OPSL) technology combined with our laser diode solutions delivers the industry-best laser reliability and performance. The OBIS family of smart lasers covers the wavelength spectrum—from the Ultraviolet at 375 nm to the near-Infrared at 980 nm.

The plug-and-play flexibility allows customers to integrate the product of their choice much faster, thereby reducing their time-to-market and costs.

OBIS LX/LS lasers deliver superior power, low RMS noise, and higher beam quality that are key customer needs from any laser source.

Coherent has implemented an intelligent design that allows multiple ways to interface with the laser, giving our customers the ability to choose the smartest operation process for their specific application requirements.

FEATURES & BENEFITS

- Commonality across the spectrum in dimensions, beam and interface
- Integrated control electronics
- Analog, digital and mixed modulation modes

APPLICATIONS

- Confocal Microscopy
- DNA Sequencing
- Flow Cytometry
- Medical Imaging and Instrumentation



SPECIFICATIONS	OBIS 375LX	OBIS 405LX	OBIS 413LX	OBIS 422LX	OBIS 445LX
Wavelength ¹ (nm)	375	405	413	422	445
Output Power ² (mW)	16, 50	50, 100, 200, 250, 365	100	100	75, 365
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.3	≤1.2 ≤1.3	≤1.2	≤1.2	≤1.2
Beam Asymmetry	≤1:1.2	≤1:1.2	≤1:1.2	≤1:1.2	≤1:1.2
Beam Diameter at 1/e ² (mm)	0.7 ±0.1	0.8 ±0.1	0.8 ±0.1	0.9 ±0.1	0.6 ±0.1
Beam Divergence (mrad, full-angle)	<1	<1	<1	<1.1	<1.1
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30	<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5	<5	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.05	≤0.05	≤0.05	≤0.05	≤0.05
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<0.5	<0.5	<0.5	<0.5	<0.5
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2	<2
Warm-up Time ⁴ (minutes) (from cold start)	<5	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°				
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control				
Digital Modulation					
Maximum Bandwidth (MHz)	75	150	150	150	150
Rise Time (10% to 90%) (nsec)	<5	<2	<2	<2	<2
Fall Time (90% to 10%) (nsec)	<5	<2	<2	<2	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 75 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz
Analog Modulation					
Maximum Bandwidth (kHz)	500	500	500	500	500
Rise Time (10% to 90%) (nsec)	<700	<700	<700	<700	<700
Fall Time (90% to 10%) (nsec)	<700	<700	<700	<700	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>1,000,000:1	>1,000,000:1	>1,000,000:1
Static Alignment Tolerances					
Beam Position from Reference ⁵ (mm)	<1	<1	<1	<1	<1
Beam Angle ⁵ (mrad)	<5	<5	<5	<5	<5
Beam Waist Position at Exit Window (mm)	n/a	n/a	n/a	n/a	n/a
Laser Safety Classification	3b	3b	3b	3b	3b
ESD Protection	EN61326-1	EN61326-1	EN61326-1	EN61326-1	EN61326-1
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temp. (Max., °C)	50	50	50	50	50
Heat Dissipation of Laser Head ⁶ (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature ⁷					
Operating Condition ⁸ (°C)	10 to 50	10 to 50	10 to 50	10 to 50	10 to 50
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30	30	30

1 Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 445LX at 365 mW with a 435 nm to 450 nm range; 458LX at 365 mW with a 450 nm to 465 nm range; 522LX with a 520 nm to 530 nm range; 633LX with a 629 nm to 636 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 750LX, 785LX, 808LX, and 980LX with a ±10 nm range.

2 Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power. For LS versions all residual laser emission at 808 nm pump/trigger or fundamental <0.1 mW.

3 For LX versions the M² measured with ModeMaster with 90/10 clip levels.

4 For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay of 0.1 minutes.

5 See mechanical drawing for exit beam location.

6 Typically 85% of heat load through the base plate. See Users Manual for more detail.

7 Non-Condensing. See User Manual for more detail.

8 For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

SPECIFICATIONS	OBIS 458LX	OBIS 473LX	OBIS 488LX	OBIS 488LS
Wavelength ¹ (nm)	458	473	488	488
Output Power ² (mW)	75 365	75	50 100, 150	20, 60, 80, 100, 150
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.2	≤1.2	≤1.2	≤1.1
Beam Asymmetry	≤1:1.2	≤1:1.2	≤1:1.2	≤1:1.1
Beam Diameter at 1/e ² (mm)	0.7 ±0.1	0.8 ±0.1	0.8 ±0.1 0.6 ±0.1	0.7 ±0.05
Beam Divergence (mrad, full-angle)	<1.1	<1.1	<1.2	<1.2
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.05	≤0.05	≤0.05	≤0.25
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<0.5	<0.5	<0.5	<1
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Warm-up Time ⁴ (minutes) (from cold start)	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°			
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control			
Digital Modulation				
Maximum Bandwidth (MHz)	150	150	150	0.05
Rise Time (10% to 90%) (nsec)	<2	<2	<2	<18,000
Fall Time (90% to 10%) (nsec)	<2	<2	<2.5	<2000
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 75 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	Infinite at 0 Hz to 50 kHz
Analog Modulation				
Maximum Bandwidth (kHz)	500	500	500	100
Rise Time (10% to 90%) (nsec)	<700	<700	<700	<3000
Fall Time (90% to 10%) (nsec)	<700	<700	<700	<3000
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>1,000,000:1	>50:1
Static Alignment Tolerances				
Beam Position from Reference ⁵ (mm)	<1	<1	<1	<0.5
Beam Angle ⁵ (mrad)	<5	<5	<5	<2.5
Beam Waist Position at Exit Window (mm)	n/a	n/a	n/a	±200
Laser Safety Classification	3b	3b	3b	3b
ESD Protection	EN61326-1	EN61326-1	EN61326-1	EN61326-1
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 8, Max. 12
Laser Head Baseplate Temp. (Max., °C)	50	50	50	40
Heat Dissipation of Laser Head ⁶ (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 8, Max. 12
Ambient Temperature ⁷				
Operating Condition ⁸ (°C)	10 to 50	10 to 50	10 to 50	15 to 40
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30	30

1 Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 445LX at 365 mW with a 435 nm to 450 nm range; 458LX at 365 mW with a 450 nm to 465 nm range; 522LX with a 520 nm to 530 nm range; 633LX with a 629 nm to 636 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 750LX, 785LX, 808LX, and 980LX with a ±10 nm range.
 2 Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power. For LS versions all residual laser emission at 808 nm pump/throw or fundamental <0.1 mW.
 3 For LX versions the M² measured with ModeMaster with 90/10 clip levels.
 4 For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay of 0.1 minutes.
 5 See mechanical drawing for exit beam location.
 6 Typically 85% of heat load through the base plate. See Users Manual for more detail.
 7 Non-Condensing. See User Manual for more detail.
 8 For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

OBIS LX/LS

SPECIFICATIONS	OBIS 505LX	OBIS 505LS	OBIS 514LX	OBIS 514LS	OBIS 522LX
Wavelength ¹ (nm)	505	505	514	514	522
Output Power ² (mW)	50	30, 100	40	20, 100, 150	40
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.2	≤1.1	≤1.2	≤1.1	≤1.2
Beam Asymmetry	≤1:1.2	≤1:1.1	≤1:1.2	≤1:1.1	≤1:1.2
Beam Diameter at 1/e ² (mm)	0.7 ±0.1	0.7 ±0.05	0.6 ±0.1	0.7 ±0.05	0.6 ±0.1
Beam Divergence (mrad, full-angle)	<1.2	<1.2	<1.1	<1.2	<1.1
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30	<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5	<5	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.05	≤0.25	≤0.05	≤0.25	≤0.05
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<0.5	<1	<1	<1	<1
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2	<2
Warm-up Time ⁴ (minutes) (from cold start)	<5	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°				
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control				
Digital Modulation					
Maximum Bandwidth (MHz)	150	0.05	100	0.05	100
Rise Time (10% to 90%) (nsec)	<2	<18,000	<3.5	<18,000	<3.5
Fall Time (90% to 10%) (nsec)	<2.5	<2000	<2	<2000	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	Infinite at 0 Hz to 50 kHz	>1,000,000:1 at 0 Hz, >250:1 at 100 MHz	Infinite at 0 Hz to 50 kHz	>1,000,000:1 at 0 Hz, >250:1 at 100 MHz
Analog Modulation					
Maximum Bandwidth (kHz)	500	100	500	100	500
Rise Time (10% to 90%) (nsec)	<700	<3000	<700	<3000	<700
Fall Time (90% to 10%) (nsec)	<700	<3000	<700	<3000	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>50:1	>1,000,000:1	>50:1	>1,000,000:1
Static Alignment Tolerances					
Beam Position from Reference ⁵ (mm)	<1	<0.5	<1	<0.5	<1
Beam Angle ⁵ (mrad)	<5	<2.5	<5	<2.5	<5
Beam Waist Position at Exit Window (mm)	n/a	±200	n/a	±200	n/a
Laser Safety Classification	3b	3b	3b	3b	3b
ESD Protection	EN61326-1	EN61326-1	EN61326-1	EN61326-1	EN61326-1
Power Consumption (W)	Typical 5, Max. 13	Typical 8, Max. 12	Typical 5, Max. 13	Typical 8, Max. 12	Typical 5, Max. 13
Laser Head Baseplate Temp. (Max., °C)	50	40	50	40	50
Heat Dissipation of Laser Head ⁶ (W)	Typical 5, Max. 13	Typical 8, Max. 12	Typical 5, Max. 13	Typical 8, Max. 12	Typical 5, Max. 13
Ambient Temperature ⁷					
Operating Condition ⁸ (°C)	10 to 50	15 to 40	10 to 50	15 to 40	10 to 50
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30	30	30

1 Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 445LX at 365 mW with a 435 nm to 450 nm range; 458LX at 365 mW with a 450 nm to 465 nm range; 522LX with a 520 nm to 530 nm range; 633LX with a 629 nm to 636 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 750LX, 785LX, 808LX, and 980LX with a ±10 nm range.

2 Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power. For LS versions all residual laser emission at 808 nm pump/irrigation or fundamental <0.1 mW.

3 For LX versions the M² measured with ModeMaster with 90/10 clip levels.

4 For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay of 0.1 minutes.

5 See mechanical drawing for exit beam location.

6 Typically 85% of heat load through the base plate. See Users Manual for more detail.

7 Non-Condensing. See User Manual for more detail.

8 For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

SPECIFICATIONS	OBIS 532LS	OBIS 552LS	OBIS 561LS	OBIS 594LS
Wavelength ¹ (nm)	532	552	561	594
Output Power ² (mW)	20, 50, 80, 100, 150	20, 60, 80, 100, 150	20, 50, 80, 100, 150	20, 60, 100
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.1	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1	≤1:1.1	≤1:1.1
Beam Diameter at 1/e ² (mm)	0.7 ±0.05	0.7 ±0.05	0.7 ±0.05	0.7 ±0.05
Beam Divergence (mrad, full-angle)	<1.2	<1.2	<1.2	<1.3
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.25	≤0.25	≤0.25	≤0.25
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<1	<1	<1	<1
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Warm-up Time ⁴ (minutes) (from cold start)	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°			
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control			
Digital Modulation				
Maximum Bandwidth (MHz)	0.05	0.05	0.05	0.05
Rise Time (10% to 90%) (nsec)	<18,000	<18,000	<18,000	<18,000
Fall Time (90% to 10%) (nsec)	<2000	<2000	<2000	<2000
Modulation Depth (extinction ratio)	Infinite at 0 Hz to 50 kHz	Infinite at 0 Hz to 50 kHz	Infinite at 0 Hz to 50 kHz	Infinite at 0 Hz to 50 kHz
Analog Modulation				
Maximum Bandwidth (kHz)	100	100	100	100
Rise Time (10% to 90%) (nsec)	<3000	<3000	<3000	<3000
Fall Time (90% to 10%) (nsec)	<3000	<3000	<3000	<3000
Modulation Depth (extinction ratio)	>50:1	>50:1	>50:1	>50:1
Static Alignment Tolerances				
Beam Position from Reference ⁵ (mm)	<0.5	<0.5	<0.5	<0.5
Beam Angle ⁵ (mrad)	<2.5	<2.5	<2.5	<2.5
Beam Waist Position at Exit Window (mm)	±200	±200	±200	±200
Laser Safety Classification	3b	3b	3b	3b
ESD Protection	EN61326-1	EN61326-1	EN61326-1	EN61326-1
Power Consumption (W)	Typical 8, Max. 12	Typical 8, Max. 12	Typical 8, Max. 12	Typical 8, Max. 12
Laser Head Baseplate Temp. (Max., °C)	40	40	40	40
Heat Dissipation of Laser Head ⁶ (W)	Typical 8, Max. 12	Typical 8, Max. 12	Typical 8, Max. 12	Typical 8, Max. 12
Ambient Temperature ⁷				
Operating Condition ⁸ (°C)	15 to 40	15 to 40	15 to 40	15 to 40
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30	30

OBIS LX/LS

1 Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 445LX at 365 mW with a 435 nm to 450 nm range; 458LX at 365 mW with a 450 nm to 465 nm range; 522LX with a 520 nm to 530 nm range; 633LX with a 629 nm to 636 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 750LX, 785LX, 808LX, and 980LX with a ±10 nm range.

2 Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power. For LS versions all residual laser emission at 808 nm pump light or fundamental <0.1 mW.

3 For LX versions the M² measured with ModeMaster with 90/10 clip levels.

4 For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay of 0.1 minutes.

5 See mechanical drawing for exit beam location.

6 Typically 85% of heat load through the base plate. See Users Manual for more detail.

7 Non-Condensing. See User Manual for more detail.

8 For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

SPECIFICATIONS	OBIS 633LX	OBIS 637LX	OBIS 640LX	OBIS 647LX
Wavelength ¹ (nm)	633	637	640	647
Output Power ² (mW)	70	140, 160	40, 100	120
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.2	≤1.2	≤1.2	≤1.2
Beam Asymmetry	≤1:1.2	≤1:1.2	≤1:1.2	≤1:1.2
Beam Diameter at 1/e ² (mm)	0.7 ±0.1	0.7 ±0.1	0.8 ±0.1	0.8 ±0.1
Beam Divergence (mrad, full-angle)	<1.3	<1.3	<1.3	<1.3
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.05	≤0.05	≤0.05	≤0.05
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<0.5	<0.5	<0.5	<0.5
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Warm-up Time ⁴ (minutes) (from cold start)	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°			
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control			
Digital Modulation				
Maximum Bandwidth (MHz)	150	150	150	150
Rise Time (10% to 90%) (nsec)	<2	<2	<2	<2
Fall Time (90% to 10%) (nsec)	<2	<2	<2	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz
Analog Modulation				
Maximum Bandwidth (kHz)	500	500	500	500
Rise Time (10% to 90%) (nsec)	<700	<700	<700	<700
Fall Time (90% to 10%) (nsec)	<700	<700	<700	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>1,000,000:1	>1,000,000:1
Static Alignment Tolerances				
Beam Position from Reference ⁵ (mm)	<1	<1	<1	<1
Beam Angle ⁵ (mrad)	<5	<5	<5	<5
Beam Waist Position at Exit Window (mm)	n/a	n/a	n/a	n/a
Laser Safety Classification	3b	3b	3b	3b
ESD Protection	EN61326-1	EN61326-1	EN61326-1	EN61326-1
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temp. (Max., °C)	50	50	50	50
Heat Dissipation of Laser Head ⁶ (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature ⁷				
Operating Condition ⁸ (°C)	10 to 50	10 to 50	10 to 50	10 to 50
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30	30

1 Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 445LX at 365 mW with a 435 nm to 450 nm range; 458LX at 365 mW with a 450 nm to 465 nm range; 522LX with a 520 nm to 530 nm range; 633LX with a 629 nm to 636 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 750LX, 785LX, 808LX, and 980LX with a ±10 nm range.

2 Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power. For LS versions all residual laser emission at 808 nm pump/irrigation or fundamental <0.1 mW.

3 For LX versions the M² measured with ModeMaster with 90/10 clip levels.

4 For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay of 0.1 minutes.

5 See mechanical drawing for exit beam location.

6 Typically 85% of heat load through the base plate. See Users Manual for more detail.

7 Non-Condensing. See User Manual for more detail.

8 For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

SPECIFICATIONS	OBIS 660LX	OBIS 685LX	OBIS 730LX
Wavelength ¹ (nm)	660	685	730
Output Power ² (mW)	100	40	30
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.2	≤1.2	≤1.2
Beam Asymmetry	≤1:1.2	≤1:1.2	≤1:1.2
Beam Diameter at 1/e ² (mm)	0.9 ±0.1	0.8 ±0.1	0.8 ±0.1
Beam Divergence (mrad, full-angle)	<1.3	<1.3	<1.3
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.05	≤0.05	≤0.05
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<0.5	<0.5	<0.5
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2
Warm-up Time ⁴ (minutes) (from cold start)	<5	<5	<5
Polarization Ratio	Minimum 100:1, Vertical ±5°		
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control		
Digital Modulation			
Maximum Bandwidth (MHz)	150	150	150
Rise Time (10% to 90%) (nsec)	<2	<2	<2
Fall Time (90% to 10%) (nsec)	<2	<2	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz
Analog Modulation			
Maximum Bandwidth (kHz)	500	500	500
Rise Time (10% to 90%) (nsec)	<700	<700	<700
Fall Time (90% to 10%) (nsec)	<700	<700	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>1,000,000:1
Static Alignment Tolerances			
Beam Position from Reference ⁵ (mm)	<1	<1	<1
Beam Angle ⁵ (mrad)	<5	<5	<5
Beam Waist Position at Exit Window (mm)	n/a	n/a	n/a
Laser Safety Classification	3b	3b	3b
ESD Protection	EN61326-1	EN61326-1	EN61326-1
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temp. (Max., °C)	50	50	50
Heat Dissipation of Laser Head ⁶ (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature ⁷			
Operating Condition ⁸ (°C)	10 to 50	10 to 50	10 to 50
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30

OBIS LX/LS

1 Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 445LX at 365 mW with a 435 nm to 450 nm range; 458LX at 365 mW with a 450 nm to 465 nm range; 522LX with a 520 nm to 530 nm range; 633LX with a 629 nm to 636 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 750LX, 785LX, 808LX, and 980LX with a ±10 nm range.

2 Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power. For LS versions all residual laser emission at 808 nm pump light or fundamental <0.1 mW.

3 For LX versions the M² measured with ModeMaster with 90/10 clip levels.

4 For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay of 0.1 minutes.

5 See mechanical drawing for exit beam location.

6 Typically 85% of heat load through the base plate. See Users Manual for more detail.

7 Non-Condensing. See User Manual for more detail.

8 For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

SPECIFICATIONS	OBIS 750LX	OBIS 785LX	OBIS 808LX	OBIS 980LX
Wavelength ¹ (nm)	750	785	808	980
Output Power ² (mW)	20	100	150	100, 150
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.2	≤1.2	≤1.2	≤1.3
Beam Asymmetry	≤1:1.2	≤1:1.2	≤1:1.2	≤1:1.3
Beam Diameter at 1/e ² (mm)	0.7 ±0.1	0.7 ±0.1	0.7 ±0.1	0.7 ±0.1
Beam Divergence (mrad, full-angle)	<1.7	<1.7	<2.1	<2.8
Pointing Stability (μrad) (over 2 hours after warm-up and ±3°C)	<30	<30	<30	<30
Pointing Stability Over Temp. (μrad/°C)	<5	<5	<5	<5
RMS Noise (%) (20 Hz to 20 MHz)	≤0.05	≤0.05	≤0.05	≤0.05
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<0.5	<0.5	<0.5	<0.5
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Warm-up Time ⁴ (minutes) (from cold start)	<5	<5	<5	<5
Polarization Ratio	Minimum 50:1, Horizontal ±10°	Minimum 100:1, Vertical ±5°	Minimum 50:1, Vertical ±5°	Minimum 100:1, Vertical ±5°
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control			
Digital Modulation				
Maximum Bandwidth (MHz)	150	150	150	150
Rise Time (10% to 90%) (nsec)	<2	<2	<2	<2
Fall Time (90% to 10%) (nsec)	<2	<2	<2	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz
Analog Modulation				
Maximum Bandwidth (kHz)	500	500	500	500
Rise Time (10% to 90%) (nsec)	<700	<700	<700	<700
Fall Time (90% to 10%) (nsec)	<700	<700	<700	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>1,000,000:1	>1,000,000:1
Static Alignment Tolerances				
Beam Position from Reference ⁵ (mm)	<1	<1	<1	<1
Beam Angle ⁵ (mrad)	<5	<5	<5	<5
Beam Waist Position at Exit Window (mm)	n/a	n/a	n/a	n/a
Laser Safety Classification	3b	3b	3b	3b
ESD Protection	EN61326-1	EN61326-1	EN61326-1	EN61326-1
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temp. (Max., °C)	50	50	50	50
Heat Dissipation of Laser Head ⁶ (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature ⁷				
Operating Condition ⁸ (°C)	10 to 50	10 to 50	10 to 50	10 to 50
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30	30

¹ Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 445LX at 365 mW with a 435 nm to 450 nm range; 458LX at 365 mW with a 450 nm to 465 nm range; 522LX with a 520 nm to 530 nm range; 633LX with a 629 nm to 636 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 750LX, 785LX, 808LX, and 980LX with a ±10 nm range.

² Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power. For LS versions all residual laser emission at 808 nm pumplight or fundamental <0.1 mW.

³ For LX versions the M² measured with ModeMaster with 90/10 clip levels.

⁴ For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay of 0.1 minutes.

⁵ See mechanical drawing for exit beam location.

⁶ Typically 85% of heat load through the base plate. See Users Manual for more detail.

⁷ Non-Condensing. See User Manual for more detail.

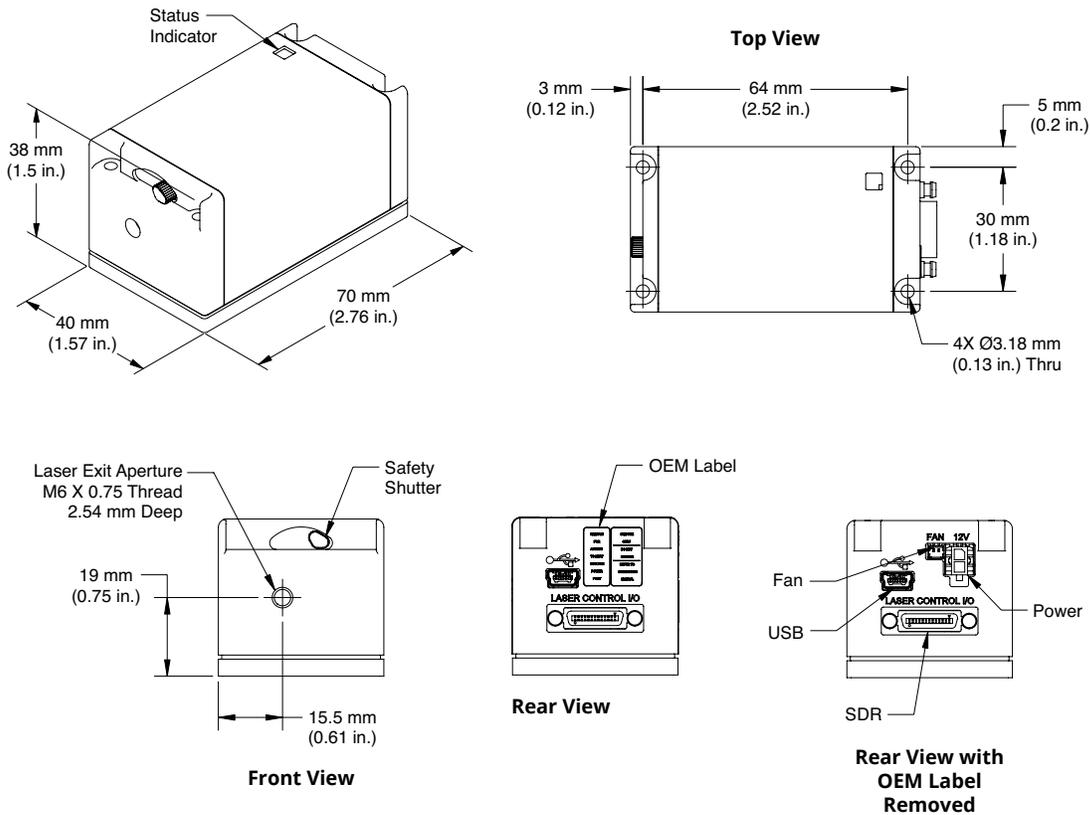
⁸ For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

UTILITY AND ENVIRONMENTAL REQUIREMENTS	
Operating Voltage ¹ (VDC)	12 ±2
Dimensions (L x W x H)	
Laser	70 x 40 x 38 mm (2.75 x 1.57 x 1.5 in.)
OBIS Remote (optional)	105 x 68 x 36 mm (4.13 x 2.68 x 1.42 in.)
DC Power Supply (optional)	105 x 42 x 33 mm (4.13 x 1.65 x 1.3 in.)
Cable, Laser to OBIS Remote (optional)	1 m (3.28 ft.) (3 meter and 0.3 meter sold separately)
Weight	
Laser	0.16 kg (0.35 lbs.)
OBIS Remote (optional)	0.24 kg (0.53 lbs.)
DC Power Supply (optional)	0.36 kg (0.79 lbs.)
Cable, Laser to OBIS Remote (optional)	0.1 kg (0.22 lbs.) for 1 meter

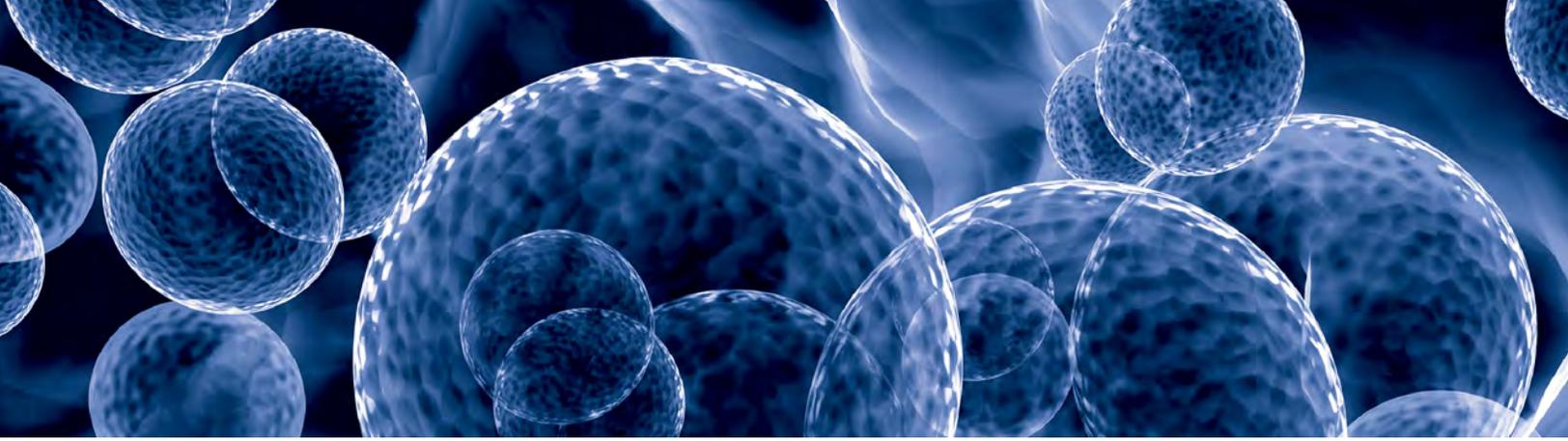
¹ If user supplied, the DC power supply has to meet the following requirements: power >20W; ripple <5% peak-to-peak; line regulation <0.5%.

MECHANICAL SPECIFICATIONS

OBIS LX/LS



OBIS LX/LS



OBIS LX/LS FP

Fiber Pigtailed Lasers in a Plug-and-Play Platform

The OBIS LX/LS Fiber Pigtailed (OBIS FP) suite of lasers delivers the simplicity of a plug-and-play platform for a wide range of wavelengths from the violet to the near IR. The fiber pigtail termination is complete with a FC/APC connector. The OBIS LX/LS FP lasers are based on the OBIS LX/LS laser platform, offering the same speed-to-market benefits.

The OBIS LX/LS FP lasers offer superior performance, reliability, and hands-free operation. These lasers combine single-mode polarization maintaining fiber with an FC/APC connector for a high-quality low-noise laser beam output. They utilize proprietary fiber technology to provide superior lifetimes, and permanent fiber attachments for guaranteed power over time.

OBIS LX/LS FP lasers are also compatible with MetaMorph and μ Manager Software for microscopy automation and image analysis.

FEATURES & BENEFITS

- All OBIS advantages with fiber delivery
- Single mode, polarization maintaining fiber
- Extended life fiber design

APPLICATIONS

- Confocal Microscopy
- DNA Sequencing
- Flow Cytometry
- Medical Imaging and Instrumentation



OBIS LX/LS FP

SPECIFICATIONS	OBIS FP 375LX	OBIS FP 405LX	OBIS FP 413LX	OBIS FP 445LX
Wavelength ¹ (nm)	375	405	413	445
Output Power ² (mW)	25	50, 100	50	45, 200
Output from Fiber	FC/APC; 8° angled ⁸	FC/APC; 8° angled ⁸	FC/APC; 8° angled ⁸	FC/APC; 8° angled ⁸
Fiber Cable Type	3 mm Mono-Coil	3 mm Mono-Coil	3 mm Mono-Coil	3 mm Mono-Coil
Fiber Cable Length (m) (minimum)	1	1 (optional 2 m)	1	1
Fiber Numerical Aperture (NA) (1/e ²)	0.05	0.05	0.05	0.05
Fiber Core Diameter (µm) (typical)	3.5	3.5	3.5	3.5
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.1	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1	≤1:1.1	≤1:1.1
RMS Noise (%) (20 Hz to 20 MHz)	≤0.2	≤0.2	≤0.2	≤0.2
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	≤2	≤2	≤2	≤2
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Long-term Output Power Average (%/hrs.)	≤10/1000	≤5/1000	≤5/1000	≤5/1000
Warm-up Time ⁴ (minutes) (from cold start)	<5	<5	<5	<5
Polarization Ratio	Minimum 50:1	Minimum 100:1	Minimum 100:1	Minimum 100:1
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control			
Digital Modulation				
Maximum Bandwidth (MHz)	75	150	150	150
Rise Time (10% to 90%) (nsec)	<5	<2	<2	<2
Fall Time (90% to 10%) (nsec)	<5	<2	<2	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz
Analog Modulation				
Maximum Bandwidth (kHz)	500	500	500	500
Rise Time (10% to 90%) (nsec)	<700	<700	<700	<700
Fall Time (90% to 10%) (nsec)	<700	<700	<700	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>1,000,000:1	>1,000,000:1
Laser Safety Classification	3b	3b	3b	3b
ESD Protection	EN61326-1	EN61326-1	EN61326-1	EN61326-1
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temperature (Max., °C)	50	50	50	50
Heat Dissipation of Laser Head ⁵ (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature ⁶				
Operating Condition ⁷ (°C)	10 to 50	10 to 50	10 to 50	10 to 50
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30	30

OBIS LX/LS FP

¹ Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 445LX at 200 mW with a 435 nm to 450 nm range; 458LX at 200 mW with a 450 nm to 465 nm range; 522LX with a 520 nm to 530 nm range; 633LX with a 629 nm to 636 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 750LX, 785LX, 808LX, and 980LX with a ±10 nm range.

² Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power.

³ M² measured with ModeMaster with 90/10 clip levels.

⁴ For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay of 0.1 minutes.

⁵ Typically 85% of heat load through the base plate. See Users Manual for more detail.

⁶ Non-Condensing. See User Manual for more detail.

⁷ For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

⁸ Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.

SPECIFICATIONS	OBIS FP 458LX	OBIS FP 473LX	OBIS FP 488LX	OBIS FP 488LS
Wavelength ¹ (nm)	458	473	488	488
Output Power ² (mW)	200	50	30, 100	15, 40, 60, 80, 120
Output from Fiber	FC/APC; 8° angled ⁸	FC/APC; 8° angled ⁸	FC/APC; 8° angled ⁸	FC/APC; 8° angled ⁸ ; FC/APC; 8° angled ⁸
Fiber Cable Type	3 mm Mono-Coil	3 mm Mono-Coil	3 mm Mono-Coil	5 mm Protective Tubing
Fiber Cable Length (m) (minimum)	1	1	1	0.94
Fiber Numerical Aperture (NA) (1/e ²)	0.05	0.05	0.05	0.1, 0.06
Fiber Core Diameter (μm) (typical)	3.5	3.5	3.5	4
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.1	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1	≤1:1.1	≤1:1.1
RMS Noise (%) (20 Hz to 20 MHz)	≤0.2	≤0.2	≤0.2	≤0.25
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	≤2	≤2	≤2	≤1
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Long-term Output Power Average (%/hrs.)	≤5/1000	≤4/1000	≤4/1000	-
Warm-up Time ⁴ (minutes) (from cold start)	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1	Minimum 100:1	Minimum 100:1	Minimum 100:1
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control			
Digital Modulation				
Maximum Bandwidth (MHz)	150	150	150	0.05
Rise Time (10% to 90%) (nsec)	<2	<2	<2	<18,000
Fall Time (90% to 10%) (nsec)	<2	<2	<2	<2000
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	Infinite at 0 Hz to 50 kHz
Analog Modulation				
Maximum Bandwidth (kHz)	500	500	500	500
Rise Time (10% to 90%) (nsec)	<700	<700	<700	<700
Fall Time (90% to 10%) (nsec)	<700	<700	<700	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>1,000,000:1	>1,000,000:1
Laser Safety Classification	3b	3b	3b	3b
ESD Protection	EN61326-1	EN61326-1	EN61326-1	EN61326-1
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temperature (Max., °C)	50	50	50	50
Heat Dissipation of Laser Head ⁵ (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature ⁶				
Operating Condition ⁷ (°C)	10 to 50	10 to 50	10 to 50	10 to 50
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30	30

1 Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 445LX at 200 mW with a 435 nm to 450 nm range; 458LX at 200 mW with a 450 nm to 465 nm range; 522LX with a 520 nm to 530 nm range; 633LX with a 629 nm to 636 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 750LX, 785LX, 808LX, and 980LX with a ±10 nm range.

2 Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power.

3 M² measured with ModeMaster with 90/10 clip levels.

4 For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay of 0.1 minutes.

5 Typically 85% of heat load through the base plate. See Users Manual for more detail.

6 Non-Condensing. See User Manual for more detail.

7 For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

8 Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.

SPECIFICATIONS	OBIS FP 505LX	OBIS FP 514LX	OBIS FP 514LS	OBIS FP 522LX
Wavelength ¹ (nm)	505	514	514	522
Output Power ² (mW)	40	30	15	25
Output from Fiber	FC/APC; 8° angled ⁸	FC/APC; 8° angled ⁸	FC/APC; 8° angled	FC/APC; 8° angled ⁸
Fiber Cable Type	3 mm Mono-Coil	3 mm Mono-Coil	5 mm Protective Tubing	3 mm Mono-Coil
Fiber Cable Length (m) (minimum)	1	1	0.94	1
Fiber Numerical Aperture (NA) (1/e ²)	0.05	0.05	0.1	0.05
Fiber Core Diameter (μm) (typical)	3.5	4.5	4	4.5
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.1	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1	≤1:1.1	≤1:1.1
RMS Noise (%) (20 Hz to 20 MHz)	≤0.2	≤0.25	≤0.2	≤0.25
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	≤2	≤2	≤1	≤2
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	<2
Long-term Output Power Average (%/hrs.)	≤4/1000	≤3/1000	-	≤3/1000
Warm-up Time ⁴ (minutes) (from cold start)	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1	Minimum 100:1	Minimum 100:1	Minimum 100:1
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control			
Digital Modulation				
Maximum Bandwidth (MHz)	150	100	0.05	100
Rise Time (10% to 90%) (nsec)	<2	<3.5	<18,000	<3.5
Fall Time (90% to 10%) (nsec)	<2	<2	<2000	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 100 MHz	Infinite at 0 Hz to 50 kHz	>1,000,000:1 at 0 Hz, >250:1 at 100 MHz
Analog Modulation				
Maximum Bandwidth (kHz)	500	500	100	500
Rise Time (10% to 90%) (nsec)	<700	<700	<3000	<700
Fall Time (90% to 10%) (nsec)	<700	<700	<3000	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>50:1	>1,000,000:1
Laser Safety Classification	3b	3b	3b	3b
ESD Protection	EN61326-1	EN61326-1	EN61326-1	EN61326-1
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 8, Max. 12	Typical 5, Max. 13
Laser Head Baseplate Temperature (Max., °C)	50	50	40	50
Heat Dissipation of Laser Head ⁵ (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 8, Max. 12	Typical 5, Max. 13
Ambient Temperature ⁶				
Operating Condition ⁷ (°C)	10 to 50	10 to 50	15 to 40	10 to 50
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30	30

OBIS LX/LS FP

1 Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 445LX at 200 mW with a 435 nm to 450 nm range; 458LX at 200 mW with a 450 nm to 465 nm range; 522LX with a 520 nm to 530 nm range; 633LX with a 629 nm to 636 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 750LX, 785LX, 808LX, and 980LX with a ±10 nm range.

2 Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power.

3 M² measured with ModeMaster with 90/10 clip levels.

4 For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay of 0.1 minutes.

5 Typically 85% of heat load through the base plate. See Users Manual for more detail.

6 Non-Condensing. See User Manual for more detail.

7 For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

8 Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.

SPECIFICATIONS	OBIS FP 532LS	OBIS FP 552LS	OBIS FP 561LS	OBIS FP 594LS
Wavelength ¹ (nm)	532	552	561	594
Output Power ² (mW)	20 40, 60, 80, 120	15 40, 60, 80, 120	40, 60, 80, 120	40
Output from Fiber	FC/APC; 8° angled ⁸	FC/APC; 8° angled ⁸	FC/APC; 8° angled ⁸	FC/APC; 8° angled ⁸
Fiber Cable Type	5 mm Protective Tubing	5 mm Protective Tubing	5 mm Protective Tubing	5 mm Protective Tubing
Fiber Cable Length (m) (minimum)	0.94	0.94	0.94	0.94
Fiber Numerical Aperture (NA) (1/e ²)	0.1 0.06	0.1 0.06	0.06	0.06
Fiber Core Diameter (μm) (typical)	4	4	4	4
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.1	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1	≤1:1.1	≤1:1.1
RMS Noise (%) (20 Hz to 20 MHz)	≤0.25	≤0.25	≤0.25	≤0.25
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	≤1	≤1	≤1	≤1
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	≤2
Long-term Output Power Average (%/hrs.)	-	-	-	-
Warm-up Time ⁴ (minutes) (from cold start)	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1	Minimum 100:1	Minimum 100:1	Minimum 100:1
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control			
Digital Modulation				
Maximum Bandwidth (MHz)	0.05	0.05	0.05	0.05
Rise Time (10% to 90%) (nsec)	<18,000	<18,000	<18,000	<18,000
Fall Time (90% to 10%) (nsec)	<2000	<2000	<2000	<2000
Modulation Depth (extinction ratio)	Infinite at 0 Hz to 50 kHz	Infinite at 0 Hz to 50 kHz	Infinite at 0 Hz to 50 kHz	Infinite at 0 Hz to 50 kHz
Analog Modulation				
Maximum Bandwidth (kHz)	100	100	100	100
Rise Time (10% to 90%) (nsec)	<3000	<3000	<3000	<3000
Fall Time (90% to 10%) (nsec)	<3000	<3000	<3000	<3000
Modulation Depth (extinction ratio)	>50:1	>50:1	>50:1	>50:1
Laser Safety Classification	3b	3b	3b	3b
ESD Protection	EN61326-1	EN61326-1	EN61326-1	EN61326-1
Power Consumption (W)	Typical 8, Max. 12	Typical 8, Max. 12	Typical 8, Max. 12	Typical 8, Max. 12
Laser Head Baseplate Temperature (Max., °C)	40	40	40	40
Heat Dissipation of Laser Head ⁵ (W)	Typical 8, Max. 12	Typical 8, Max. 12	Typical 8, Max. 12	Typical 8, Max. 12
Ambient Temperature ⁶				
Operating Condition ⁷ (°C)	15 to 40	15 to 40	15 to 40	15 to 40
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30	30

1 Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 445LX at 200 mW with a 435 nm to 450 nm range; 458LX at 200 mW with a 450 nm to 465 nm range; 522LX with a 520 nm to 530 nm range; 633LX with a 629 nm to 636 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 750LX, 785LX, 808LX, and 980LX with a ±10 nm range.

2 Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power.

3 M² measured with ModeMaster with 90/10 clip levels.

4 For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay of 0.1 minutes.

5 Typically 85% of heat load through the base plate. See Users Manual for more detail.

6 Non-Condensing. See User Manual for more detail.

7 For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

8 Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.

SPECIFICATIONS	OBIS FP 633LX	OBIS FP 637LX	OBIS FP 640LX
Wavelength ¹ (nm)	633	637	640
Output Power ² (mW)	50	100, 120	75
Output from Fiber	FC/APC; 8° angled	FC/APC; 8° angled	FC/APC; 8° angled
Fiber Cable Type	3 mm Mono-Coil	3 mm Mono-Coil	3 mm Mono-Coil
Fiber Cable Length (m) (minimum)	1	1	1
Fiber Numerical Aperture (NA) (1/e ²)	0.09	0.09	0.09
Fiber Core Diameter (µm) (typical)	4.5	4.5	4.5
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1	≤1:1.1
RMS Noise (%) (20 Hz to 20 MHz)	≤0.2	≤0.2	≤0.2
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	≤2	≤2	≤2
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2
Long-term Output Power Average (%/hrs.)	≤3/1000	≤3/1000	≤3/1000
Warm-up Time ⁴ (minutes) (from cold start)	<5	<5	<5
Polarization Ratio	Minimum 100:1	Minimum 100:1	Minimum 100:1
Laser Drive Modes	CW, Analog Modulation, Digital Modulation and Computer Control		
Digital Modulation			
Maximum Bandwidth (MHz)	150	150	150
Rise Time (10% to 90%) (nsec)	<2	<2	<2
Fall Time (90% to 10%) (nsec)	<2	<2	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz
Analog Modulation			
Maximum Bandwidth (kHz)	500	500	500
Rise Time (10% to 90%) (nsec)	<700	<700	<700
Fall Time (90% to 10%) (nsec)	<700	<700	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>1,000,000:1
Laser Safety Classification	3b	3b	3b
ESD Protection	EN61326-1	EN61326-1	EN61326-1
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temperature (Max., °C)	50	50	50
Heat Dissipation of Laser Head ⁵ (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature ⁶			
Operating Condition ⁷ (°C)	10 to 50	10 to 50	10 to 50
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30

OBIS LX/LS FP

¹ Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 445LX at 200 mW with a 435 nm to 450 nm range; 458LX at 200 mW with a 450 nm to 465 nm range; 522LX with a 520 nm to 530 nm range; 633LX with a 629 nm to 636 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 750LX, 785LX, 808LX, and 980LX with a ±10 nm range.
² Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power.
³ M² measured with ModeMaster with 90/10 clip levels.
⁴ For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay of 0.1 minutes.
⁵ Typically 85% of heat load through the base plate. See Users Manual for more detail.
⁶ Non-Condensing. See User Manual for more detail.
⁷ For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

SPECIFICATIONS	OBIS FP 647LX	OBIS FP 660LX	OBIS FP 785LX
Wavelength ¹ (nm)	647	660	785
Output Power ² (mW)	100	75	70
Output from Fiber	FC/APC; 8° angled	FC/APC; 8° angled	FC/APC; 8° angled
Fiber Cable Type	3 mm Mono-Coil	3 mm Mono-Coil	3 mm Mono-Coil
Fiber Cable Length (m) (minimum)	1	1	1
Fiber Numerical Aperture (NA) (1/e ²)	0.09	0.09	0.12
Fiber Core Diameter (μm) (typical)	4.5	4.5	4.5
Spatial Mode	TEM ₀₀	TEM ₀₀	TEM ₀₀
M ² (Beam Quality) ³	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤1:1.1	≤1:1.1
RMS Noise (%) (20 Hz to 20 MHz)	≤0.2	≤0.2	≤0.2
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	≤2	≤2	≤2
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	≤2	≤2
Long-term Output Power Average (%/hrs.)	≤3/1000	≤3/1000	≤3/1000
Warm-up Time ⁴ (minutes) (from cold start)	<5	<5	<5
Polarization Ratio	Minimum 100:1	Minimum 100:1	Minimum 100:1
Laser Drive Modes			
Digital Modulation			
Maximum Bandwidth (MHz)	150	150	150
Rise Time (10% to 90%) (nsec)	<2	<2	<2
Fall Time (90% to 10%) (nsec)	<2	<2	<2
Modulation Depth (extinction ratio)	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz
Analog Modulation			
Maximum Bandwidth (kHz)	500	500	500
Rise Time (10% to 90%) (nsec)	<700	<700	<700
Fall Time (90% to 10%) (nsec)	<700	<700	<700
Modulation Depth (extinction ratio)	>1,000,000:1	>1,000,000:1	>1,000,000:1
Laser Safety Classification	3b	3b	3b
ESD Protection	EN61326-1	EN61326-1	EN61326-1
Power Consumption (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Laser Head Baseplate Temperature (Max., °C)	50	50	50
Heat Dissipation of Laser Head ⁵ (W)	Typical 5, Max. 13	Typical 5, Max. 13	Typical 5, Max. 13
Ambient Temperature ⁶			
Operating Condition ⁷ (°C)	10 to 50	10 to 50	10 to 50
Non-operating Condition (°C)	-20 to 60	-20 to 60	-20 to 60
Shock Tolerance (g) (6 ms)	30	30	30

¹ Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 445LX at 200 mW with a 435 nm to 450 nm range; 458LX at 200 mW with a 450 nm to 465 nm range; 522LX with a 520 nm to 530 nm range; 633LX with a 629 nm to 636 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 750LX, 785LX, 808LX, and 980LX with a ±10 nm range.

² Output power is variable in CW Mode from 1 mW (1% for LX Models) to 110% of rated power. Specifications are valid for 100% power.

³ M² measured with ModeMaster with 90/10 clip levels.

⁴ For LS versions typical power-on delay 1 minute. For LX versions typical power-on delay of 0.1 minutes.

⁵ Typically 85% of heat load through the base plate. See Users Manual for more detail.

⁶ Non-Condensing. See User Manual for more detail.

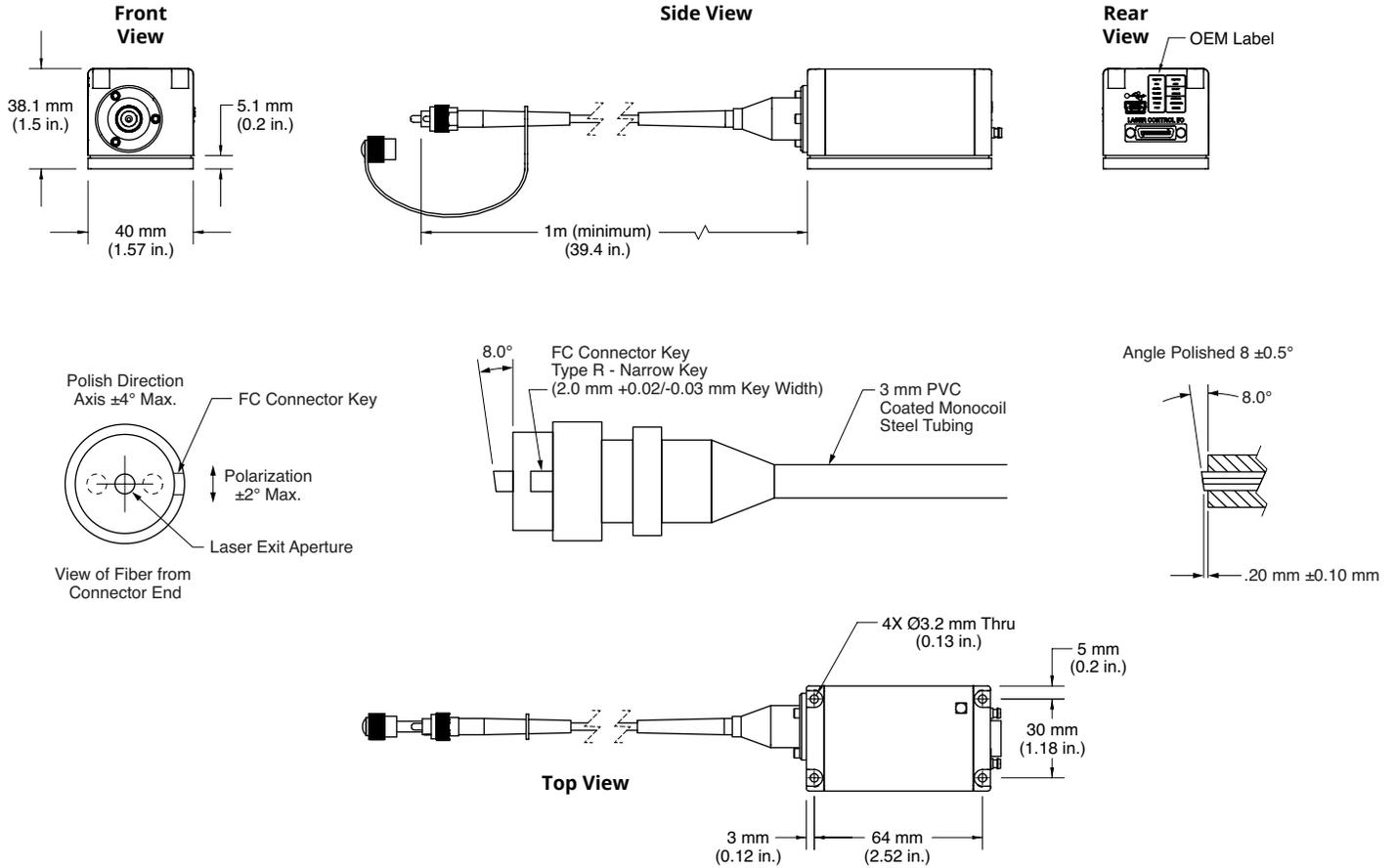
⁷ For LS versions laser head baseplate temperature needs to be maintained at ≤40°C.

UTILITY AND ENVIRONMENTAL REQUIREMENTS	
Operating Voltage ¹ (VDC)	12 ±2
Dimensions (L x W x H)	
Laser	70 x 40 x 38 mm (2.75 x 1.57 x 1.5 in.)
OBIS Remote (optional)	105 x 68 x 36 mm (4.13 x 2.68 x 1.42 in.)
DC Power Supply (optional)	105 x 42 x 33 mm (4.13 x 1.65 x 1.3 in.)
Cable, Laser to OBIS Remote (optional)	1 m (3.28 ft.) (3 meter and 0.3 meter sold separately)
Fiber Minimum Bend Radius	51 mm (2.0 in.)
Weight	
Laser	0.23 kg (0.5 lbs.)
OBIS Remote (optional)	0.23 kg (0.5 lbs.)
DC Power Supply (optional)	0.36 kg (0.79 lbs.)
Cable, Laser to OBIS Remote (optional)	0.1 kg (0.22 lbs.) for 1 meter
Fiber Tensile Load (max.)	1 kg (2.2 lbs.)

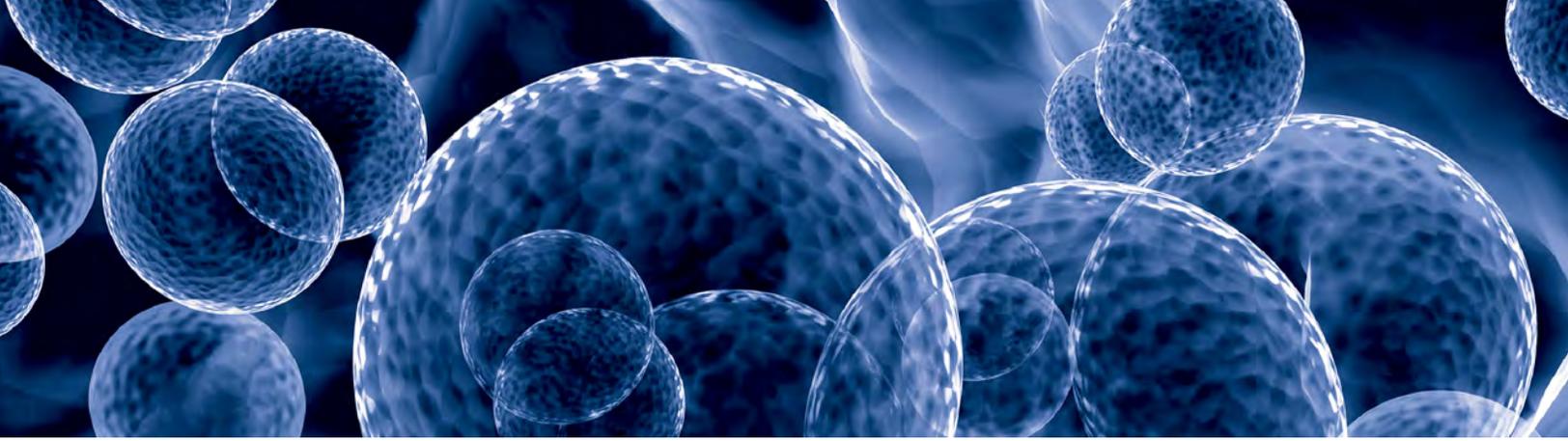
¹ If user supplied, the DC power supply has to meet the following requirements: power >20W; ripple <5% peak-to-peak; line regulation <0.5%.

MECHANICAL SPECIFICATIONS

OBIS LX FP



OBIS LX/LS FP



OBIS XT

Powerful Compact CW DPSS Laser Platform

The new and powerful OBIS XT DPSS laser both extends and complements the wavelength range of the successful OBIS LS/LX and Sapphire lasers into the UV and into high-power VIS.

The lasers' compact size, integrated controller, and low heat dissipation simplify integration, saving time and costs. OEM and end-user configuration, as well as versatile interfacing with RS-232, RS-485, and USB provide exceptional flexibility and control in users' instruments and experimental set-ups.

With UV power of up to 100 mW at 360 nm and 349 nm and red power of up to 500 mW at 640 nm with industry-leading reliability, OBIS XT enables more applications in the field of life sciences.

FEATURES & BENEFITS

- Integrated control electronics for a reduced footprint in instruments
- Low heat dissipation simplifies the integration into compact set-ups
- Perfect TEM₀₀ beam quality and low noise helps deliver more precise data
- All models and power levels in the same compact package supports powerful applications without redesigning the instrument
- Versatile interfacing with RS-232, RS-485, and USB provides easy and flexible configuration

APPLICATIONS

- Flow Cytometry
- Confocal Microscopy
- Superresolution Microscopy
- Genomics and Proteomics
- Semiconductor Inspection
- Metrology

OBIS XT



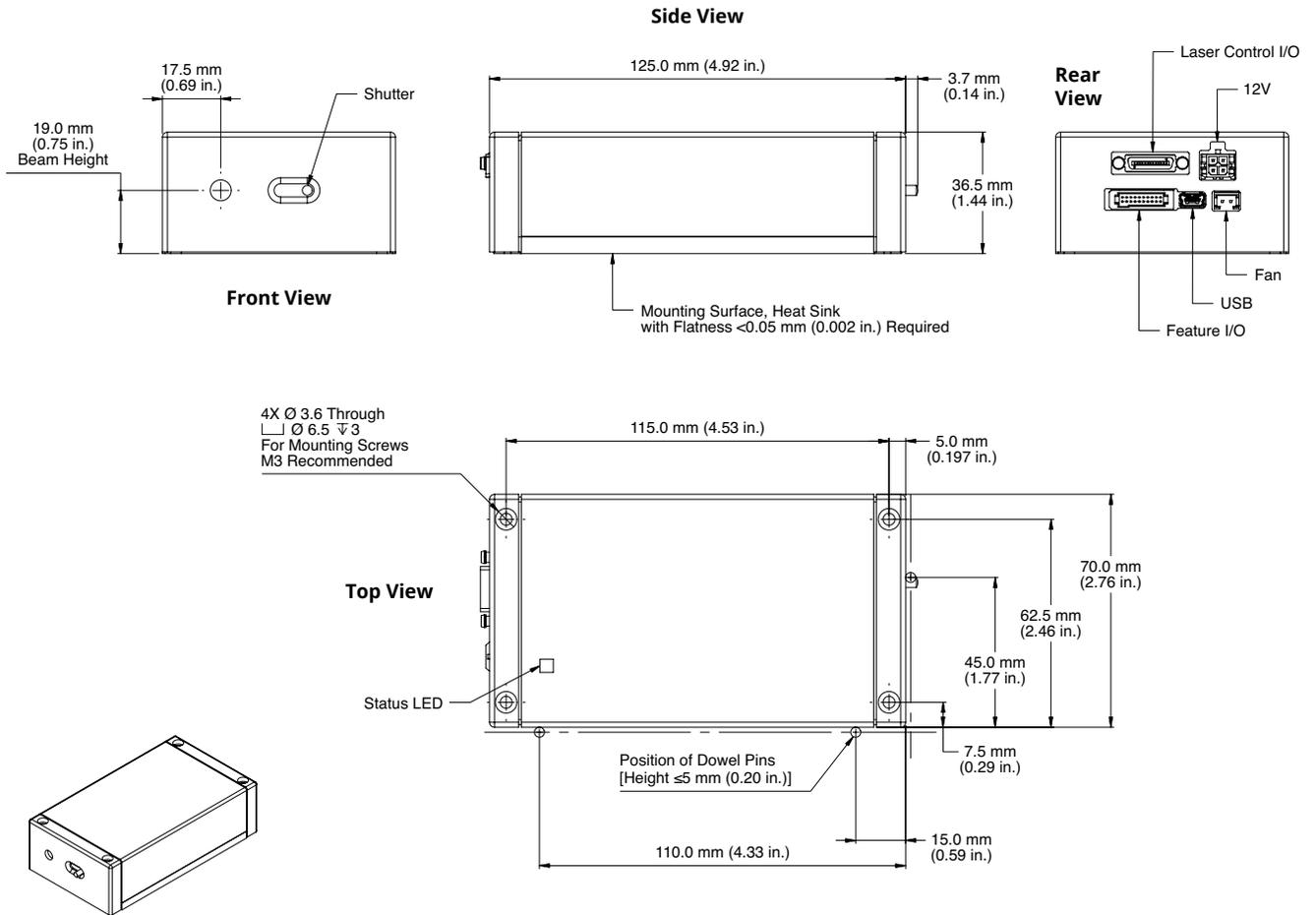
SPECIFICATIONS	OBIS 349 XT	OBIS 360 XT	OBIS 640 XT
Wavelength ¹ (nm)	348.8	360.4	639.5
Output Power ² (mW)	20, 60, 100		300, 400, 500
Spatial Mode	TEM ₀₀		
Beam Quality (M ²)	≤1.1		
Beam Asymmetry	≤1:1.1		
Beam Diameter (mm) (1/e ²)	0.7 ±0.05		
Beam Divergence (mrad) (full-angle)	<0.8		<1.4
Beam Pointing Stability (over 2 hours after warm-up and ±3°C) (μrad)	<30		
Beam Pointing Stability Over Temperature (μrad/°C)	<5		
Noise (% RMS) (20 Hz to 20 MHz)	≤0.25		
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<1		
Long-Term Power Stability (%) (8 hours, ±3°C)	<2		
Warm-Up Time ³ (minutes) (from cold start)	<5		
Polarization Ratio	Minimum 100:1, Vertical ±5°		
Laser Drive Modes	CW, Computer Control, Coherent Connection Compatible		
Static Alignment Tolerances			
Beam Position from Reference ⁴ (mm)	<0.5		<0.5
Beam Angle (mrad)	<2.5		<2.5
Beam Waist Position at Exit Window (mm)	±250		±150
Laser Safety Classification	3B		4
Power Consumption (W)	Typical 18, Max. 42		
Laser Head Baseplate Temperature (Maximum, °C)	45 at 35 ambient on OBIS XT Heat Sink		
Heat Dissipation of Laser Head ⁵ (W)	Typical 18, Max. 42		
Ambient Temperature			
Operating Condition ⁶	10 to 35 °C (50 to 122°F)		
Non-Operating Condition ⁷	-20 to +60 °C (-4 to 140°F)		
Shock Tolerance (6 ms)	7 g laterally, 15 g vertically		
UTILITY AND ENVIRONMENTAL REQUIREMENTS			
Operating Voltage ⁸ (VDC)	12 ±2		
Dimensions (L x W x H)			
Laser Head	125.0 x 70.0 x 36.5 mm (4.92 x 2.76 x 1.44 in.)		
Weights			
Laser Head	450 g (0.99 lbs)		

1 Laser-to-laser tolerance, wavelength in air, all OBIS XT versions ±1 nm.
 2 Specifications are valid for 100% power. Residual laser emission at 697.6/720.8 nm fundamental within beam at 100 mm distance <0.1 mW.
 3 For XT versions typical power-on delay 1 minute.
 4 See mechanical drawing for exit beam location.
 5 Max. 42 W for 100 mW OBIS XT laser.
 6 Non-condensing; with OBIS XT Heat Sink or equivalent heat sink. Note: The laser baseplate temperature must be maintained at ≤45°C (113°F).
 7 Non-condensing.
 8 DC power supply has to meet the following requirements: power >50 W; ripple <5% peak-to-peak; line regulation <0.5%.

OBIS XT

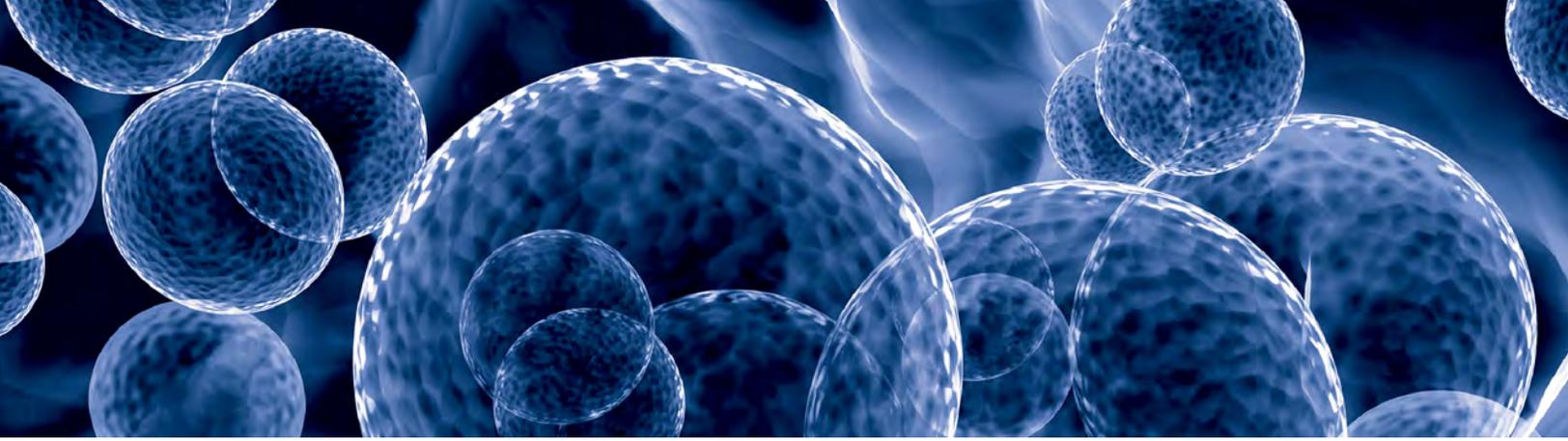
MECHANICAL SPECIFICATIONS

OBIS XT



OBIS XT

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 StingRay and BioRay 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.



OBIS LG

Highly Compact CW UV Lasers

The OBIS LG is a highly compact and reliable low-noise CW UV laser providing up to 50 mW at 355 nm, ideal for OEM instrumentation applications in flow cytometry, confocal microscopy, and semiconductor inspection.

Based on Coherent's unique Optically Pumped Semiconductor Laser (OPSL) technology, the OBIS LG produces a diffraction limited power-invariant beam with inherently low noise and high stability.

High reliability and robustness is further ensured by the use of Coherent's patented PermAlign™ technology for optimal alignment and solder-bonding of the optics.

Control electronics are integrated within the laser head to provide a "one-box integrated system" that is extremely compact for ease of integration.

Featuring superior performance and reliability within an industry-leading compact package, the OBIS LG is the ideal solution for your OEM instrumentation needs.

FEATURES & BENEFITS

- Up to 50 mW output power at 355 nm
- TEM₀₀ power-invariant beam
- Low noise
- PermAlign™ technology
- Integrated control electronics

APPLICATIONS

- Flow Cytometry
- Confocal Microscopy
- Semiconductor Inspection



SPECIFICATIONS ¹	OBIS LG 355-20	OBIS LG 355-50
Wavelength	355 ±2	355 ±2
FWHM Linewidth (GHz)	<50	
Pulse Format	CW	
Spectral Purity (%)	>99	
Output Power (mW)	>20	>50
Spatial Mode	TEM ₀₀	
Beam Quality (M ²)	<1.2	
Beam Circularity ²	1.0 ± 0.15	
Beam Waist Diameter (mm) (FW, 1/e ²)	<1.2	
Beam Divergence (mrad) (FW, 1/e ²)	<0.5	
Beam Waist Location ³ (mm)	±500	
Beam Pointing (mrad)	±<5.0	
Beam Pointing Stability (µrad/°C)	<10	
Beam Position Tolerance (mm)		
Horizontal	±<1.0	
Vertical	±<1.0	
Polarization Ratio	Linear, >100:1	
Polarization Direction	Vertical, ±5°	
Noise (% RMS) (10 Hz to 1 MHz)	<0.3	<0.25
Power Stability (%) (pk-pk)	±1	
CDRH Compliant ⁴	No	
UTILITY REQUIREMENTS		
Operating Voltage (VDC)	24 ±10%	
Power Consumption (W)	<150	
Cooling Requirements	Heat sink required with <0.3°C/W thermal impedance, e.g., Coherent OBIS LG Air-Cooled Riser Option	
ENVIRONMENTAL CONDITIONS		
Ambient Temperature		
Operating	10 to 40°C (50 to 104°F)	
Non-Operating	-10 to 60°C (-14 to 160°F)	
Relative Humidity ⁵ (%)	5 to 95	
UTILITY AND ENVIRONMENTAL REQUIREMENTS		
CE Marking	EN 61010-1, EN 60825-1, EN 61326-1, EN 55011, EN 50581	
Dimensions (L x W x H)		
Laser Head ⁶	125.0 x 70.0 x 36.2 mm (4.9 x 2.76 x 1.43 in.)	
Power Supply ⁷		
Cables (laser head to power supply ⁷)	2m (6.5 ft.)	
Weight	581 g (1.28 lbs.)	

¹ Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.

² Circularity defined as vertical diameter divided by horizontal diameter.

³ Negative value corresponds to a location inside the laser head.

⁴ Ready to be integrated in compliant system.

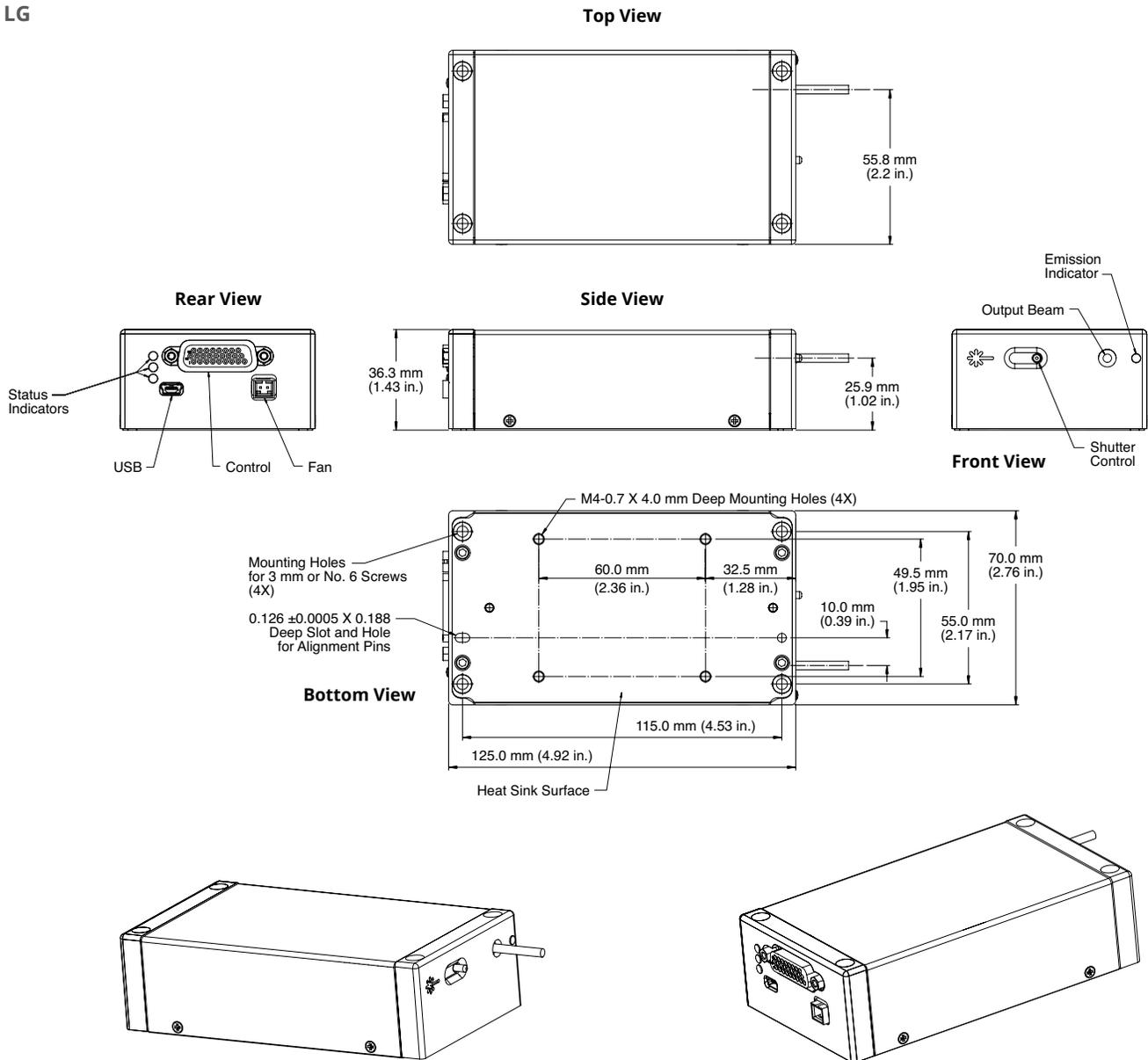
⁵ Non-condensing.

⁶ Back connector not included in laser head length dimension.

⁷ Power supply not included.

MECHANICAL SPECIFICATIONS

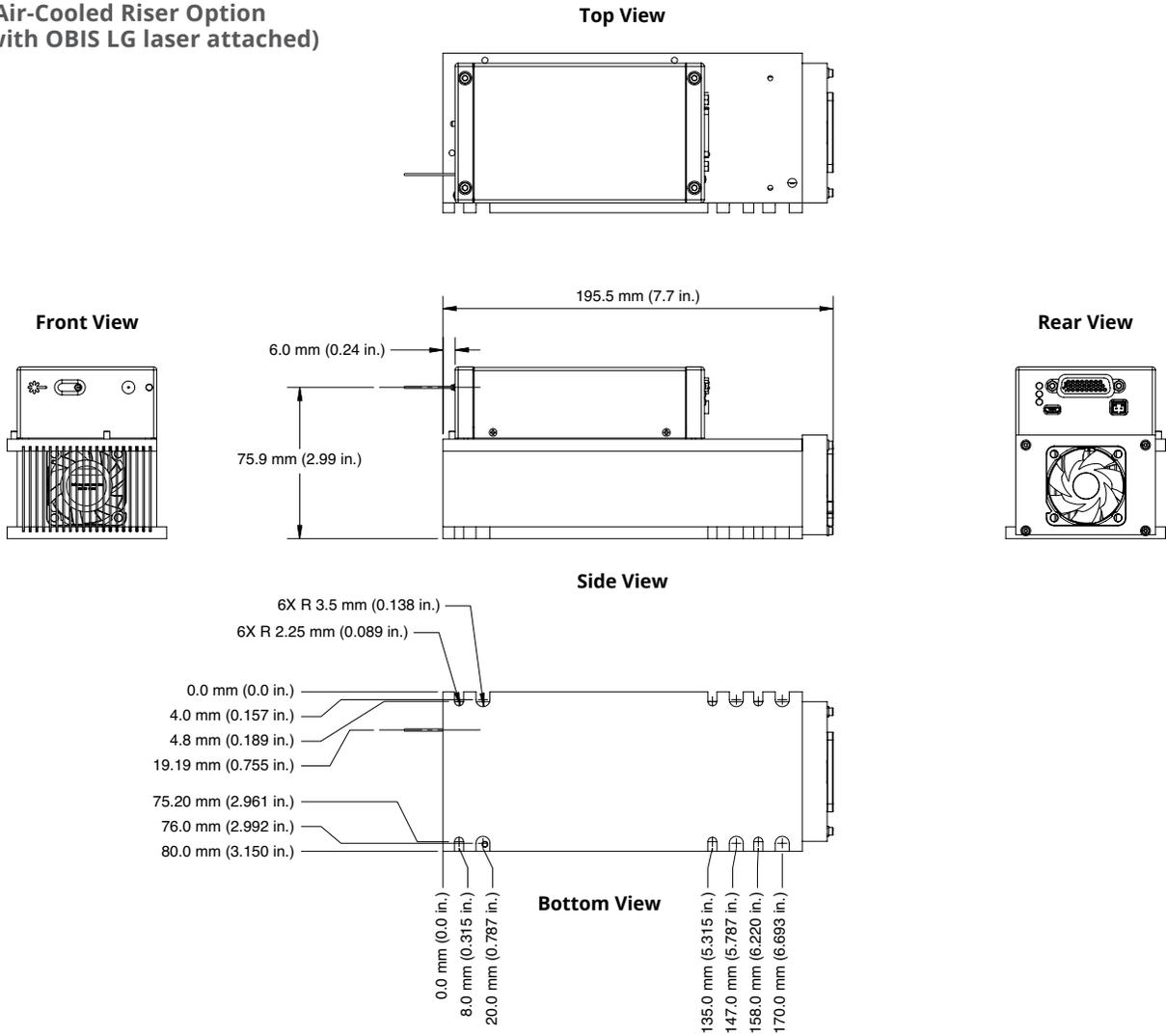
OBIS LG



OBIS LG

MECHANICAL SPECIFICATIONS

**OBIS LG Air-Cooled Riser Option
(shown with OBIS LG laser attached)**



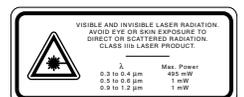
OBIS LG

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CE ISO 9001 Registered





Sapphire LP

CW Visible Lasers from Deep Blue to Orange

Sapphire LP is a series of compact CW visible lasers based on Coherent's unique OPSSL (Optically Pumped Semiconductor Laser) technology. OPSSL technology not only provides 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 LP lasers are manufactured in cleanrooms using Coherent's patented PermAlign™ technology for optimal aligning and solder-bonding the optics. This patented technology results in the best beam quality and power stability as well as the lowest noise over the complete lifetime of the laser.

Sapphire LP lasers come with a flexible interface concept: Analog, RS-232 or USB – it is up to the user to select the appropriate communication channel.

Sapphire LP lasers feature superior performance, proven reliability and low cost of ownership making them the ideal laser solution for a variety of applications e.g. in life sciences, environmental protection, semiconductor inspection and metrology.



FEATURES & BENEFITS

- Wavelength versatility
- 458 nm to 594 nm
- Broad spectrum of output power
- 10 mW up to 300 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 35,000 installations
- OEM and end-user versions

APPLICATIONS

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

SPECIFICATIONS	Sapphire 458 LP	Sapphire 488 LP
Wavelength ¹ (nm)	458 ±2	488 ±2
Output Power ² (mW)	20, 50, 75	10, 20, 25, 30, 40, 50, 75, 100, 150, 200, 300
Spatial Mode	TEM ₀₀ , M ² <1.1	
Beam Asymmetry	0.9 to 1.1	
Beam Diameter at 1/e ²	0.70 ±0.05 mm	
Beam Divergence (mrad)	<1.2	
Pointing Stability (µrad) (over 2 hours after warm-up and ±3°C)	<30	
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 (minutes)	<5	
Polarization Ratio	>100:1, vertical	
Static Alignment Tolerances ³		
Beam Position (mm)	±0.25	
Beam Angle (mrad)	±2.5	
Beam Waist Position with respect to Exit Window	±200 ⁴	
UTILITY AND ENVIRONMENTAL REQUIREMENTS		
Operating Voltage ⁵ (VDC)		
Maximum Rated	+10.8 to 15.0	
Nominal	+12.0 to 13.2	
Power Consumption (W)	<60	
Max. Laser Head Baseplate Temperature ⁶	+50°C (122°F)	+55°C (131°F), +50°C (122°F) ⁷
Max. Heat Dissipation of Head (W)	25 (baseplate at 50°C)	25 (baseplate at 55°C/50°C) ⁷
Ambient Temperature		
Operating Condition	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)	7 g laterally, 15 g vertically	
Dimensions (L x W x H)		
Laser Head	125 x 70 x 34 mm (4.9 x 2.8 x 1.3 in.)	
Controller	117.8 x 76.2 x 30 mm (4.6 x 3.0 x 1.2 in.)	
Heat Sink (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	2 m (6.56 ft.), optional 5 m (16.4 ft.)	
Weights		
Laser Head	0.35 kg (0.77 lbs.)	
Controller	0.25 kg (0.55 lbs.)	
Heat Sink (optional)	0.75 kg (1.65 lbs.)	
DC Power Supply (optional)	0.95 kg (incl. line cable) (2.1 lbs.)	
Packaged System (head+controller+cable>manual)	1.7 kg (3.7 lbs.)	
Cable — Laser Head to Controller	0.3 kg (0.66 lbs.)	

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 110%. Specifications are valid for 100% power. Recommended power range is 70 to 110% power.

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

⁴ 200 mm is ~30% of Raleigh Range at 514/532/561/568 nm; 200 mm is ~25% of Raleigh Range at 458/488 nm.

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

⁶ With factory-provided or other adequate heat sink.

⁷ Sapphire 488-10/20/25/30 has a maximum baseplate temperature of +55°C (+131°F). Sapphire 488-40/50/75/100/150/200 and 300 mW models are limited to a maximum baseplate temperature of +50°C (+122°F).

SPECIFICATIONS	Sapphire 514 LP	Sapphire 532 LP	Sapphire 552 LP
Wavelength ¹ (nm)	514 ±2	532 ±2	552 ±2
Output Power ² (mW)	20, 50, 75, 100, 150	20, 50, 75, 100, 150, 200, 300	50, 75, 100, 150, 200
Spatial Mode	TEM ₀₀ , M ² <1.1		
Beam Asymmetry	0.9 to 1.1		
Beam Diameter at 1/e ²	0.70 ±0.05 mm		
Beam Divergence (mrad)	<1.3		
Pointing Stability (µrad) (over 2 hours after warm-up and ±3°C)	<30		
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 (minutes)	<5		
Polarization Ratio	>100:1, vertical		
Static Alignment Tolerances ³			
Beam Position (mm)	±0.25		
Beam Angle (mrad)	±2.5		
Beam Waist Position with respect to Exit Window	±200 ⁴		
UTILITY AND ENVIRONMENTAL REQUIREMENTS			
Operating Voltage ⁵ (VDC)			
Maximum Rated	+10.8 to 15.0		
Nominal	+12.0 to 13.2		
Power Consumption (W)	<60		
Max. Laser Head Baseplate Temperature ⁶	+50°C (122°F)		
Max. Heat Dissipation of Head (W)	25 (baseplate at 50°C)		
Ambient Temperature			
Operating Condition	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)	7 g laterally, 15 g vertically		
Dimensions (L x W x H)			
Laser Head	125 x 70 x 34 mm (4.9 x 2.8 x 1.3 in.)		
Controller	117.8 x 76.2 x 30 mm (4.6 x 3.0 x 1.2 in.)		
Heat Sink (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	2 m (6.56 ft.), optional 5 m (16.4 ft.)		
Weights			
Laser Head	0.35 kg (0.77 lbs.)		
Controller	0.25 kg (0.55 lbs.)		
Heat Sink (optional)	0.75 kg (1.65 lbs.)		
DC Power Supply (optional)	0.95 kg (incl. line cable) (2.1 lbs.)		
Packaged System (head+controller+cable>manual)	1.7 kg (3.7 lbs.)		
Cable — Laser Head to Controller	0.3 kg (0.66 lbs.)		

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 110%. Specifications are valid for 100% power. Recommended power range is 70 to 110% power.
 3 Static alignment tolerances are relative to the right bottom edge (in beam direction).
 4 200 mm is ~30% of Raleigh Range at 514/532/561/568 nm; 200 mm is ~25% of Raleigh Range at 458/488 nm.
 5 If user-supplied, the DC power supply has to meet the following requirements: Power >60W; ripple <5% peak-to-peak; line regulation <0.5%.
 6 With factory-provided or other adequate heat sink.

Sapphire

SPECIFICATIONS	Sapphire 561 LP	Sapphire 568 LP	Sapphire 588 LP	Sapphire 594 LP
Wavelength ¹ (nm)	561 ±2	568 ±2	588 ±2	594 ±2
Output Power ² (mW)	20, 50, 75, 100, 150, 200, 300	50, 75, 100, 150, 200	20, 50, 75, 100	20, 50, 75
Spatial Mode	TEM ₀₀ , M ² <1.1			
Beam Asymmetry	0.9 to 1.1			
Beam Diameter at 1/e ²	0.70 ±0.05 mm			
Beam Divergence (mrad)	<1.3			
Pointing Stability (µrad) (over 2 hours after warm-up and ±3°C)	<30			
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 (minutes)	<5			
Polarization Ratio	>100:1, vertical			
Static Alignment Tolerances ³				
Beam Position (mm)	±0.25			
Beam Angle (mrad)	±2.5			
Beam Waist Position with respect to Exit Window	±200 ⁴			
UTILITY AND ENVIRONMENTAL REQUIREMENTS				
Operating Voltage ⁵ (VDC)				
Maximum Rated	+10.8 to 15.0			
Nominal	+12.0 to 13.2			
Power Consumption (W)	<60			
Max. Laser Head Baseplate Temperature ⁶	+50°C (122°F)			
Max. Heat Dissipation of Head (W)	25 (baseplate at 50°C)			
Ambient Temperature				
Operating Condition	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)	7 g laterally, 15 g vertically			
Dimensions (L x W x H)				
Laser Head	125 x 70 x 34 mm (4.9 x 2.8 x 1.3 in.)			
Controller	117.8 x 76.2 x 30 mm (4.6 x 3.0 x 1.2 in.)			
Heat Sink (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	2 m (6.56 ft.), optional 5 m (16.4 ft.)			
Weights				
Laser Head	0.35 kg (0.77 lbs.)			
Controller	0.25 kg (0.55 lbs.)			
Heat Sink (optional)	0.75 kg (1.65 lbs.)			
DC Power Supply (optional)	0.95 kg (incl. line cable) (2.1 lbs.)			
Packaged System (head+controller+cable>manual)	1.7 kg (3.7 lbs.)			
Cable — Laser Head to Controller	0.3 kg (0.66 lbs.)			

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 110%. Specifications are valid for 100% power. Recommended power range is 70 to 110% power.

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

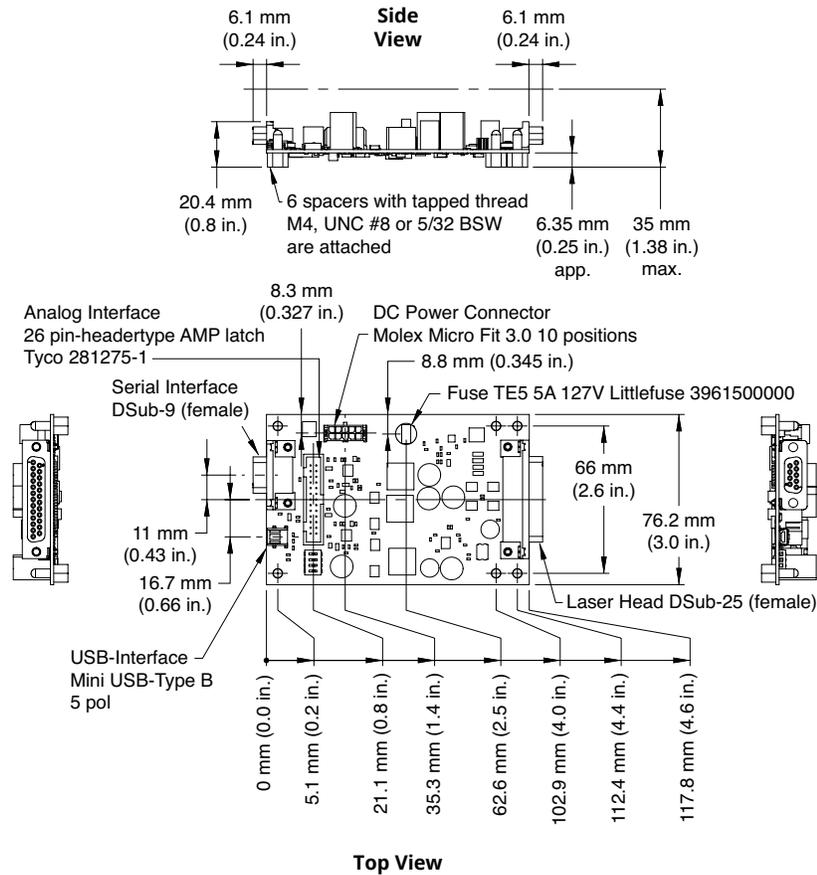
⁴ 200 mm is ~30% of Raleigh Range at 514/532/561/568 nm; 200 mm is ~25% of Raleigh Range at 458/488 nm.

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

⁶ With factory-provided or other adequate heat sink.

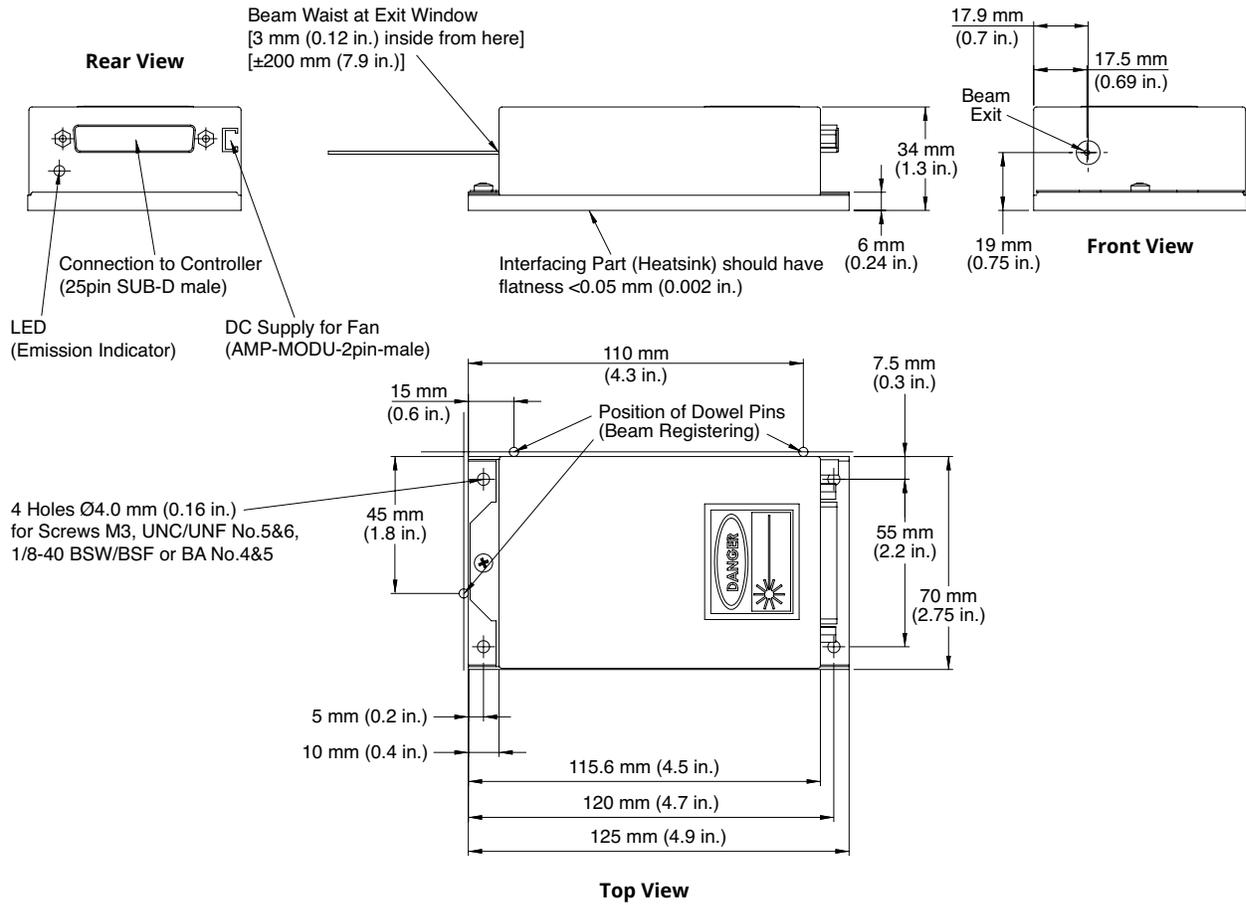
MECHANICAL SPECIFICATIONS

Controller



MECHANICAL SPECIFICATIONS

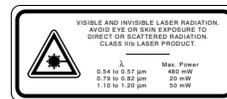
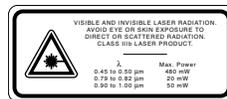
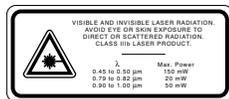
Sapphire LP



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Sapphire LPX

Optically-Pumped Semiconductor Lasers (OPSL)

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

Sapphire 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 using Coherent's patented PermAlign™ technology for optimal aligning and solder-bonding the optics to provide the best beam quality, power stability, and lowest noise over the complete lifetime of the laser.

Sapphire lasers feature superior performance, proven reliability, and low-cost of ownership making them the ideal laser solution for a multitude of applications.



FEATURES & BENEFITS

- Three standard wavelengths with custom options available
- Up to 500 mW output power at 488 nm, 532 nm, and 561 nm
- Outstanding power stability and low noise
- Superior beam quality
- Flexible interface to fit all needs: analog, RS-232, and USB
- PermAlign technology for permanent optical alignment
- Proven reliability with more than 50,000 installed systems
- OEM and CDRH version

APPLICATIONS

- Flow Cytometry
- Confocal Microscopy
- DNA Sequencing
- Super-Resolution Microscopy
- Medical Diagnostics
- 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, 500		
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) Maximum Rated Nominal	+10.8 to 15.0 +12.0 to 13.2		
Power Consumption (W)	<60		
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.) 1 m (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.

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.

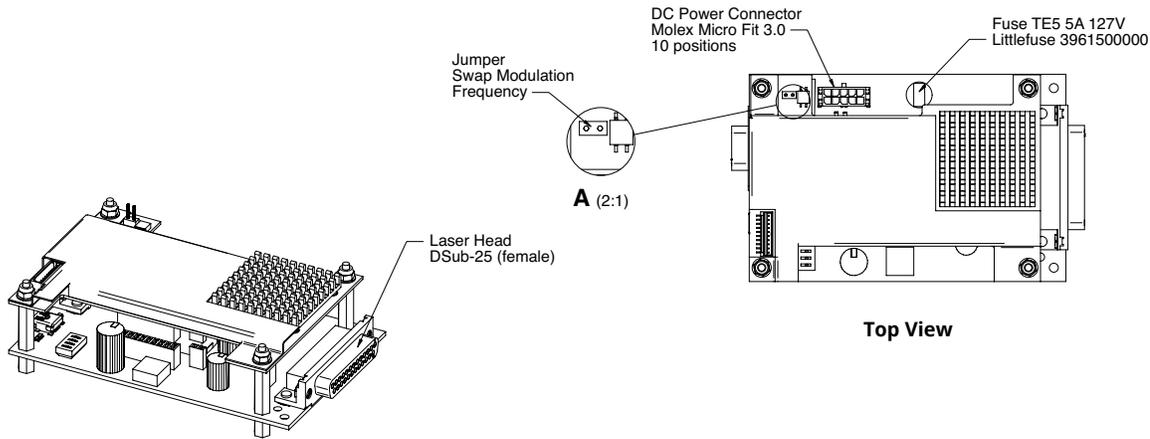
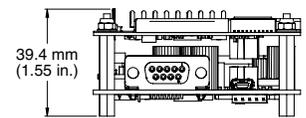
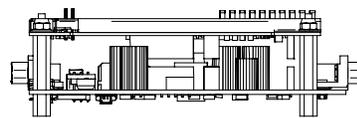
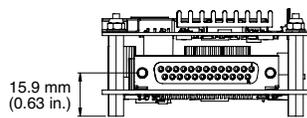
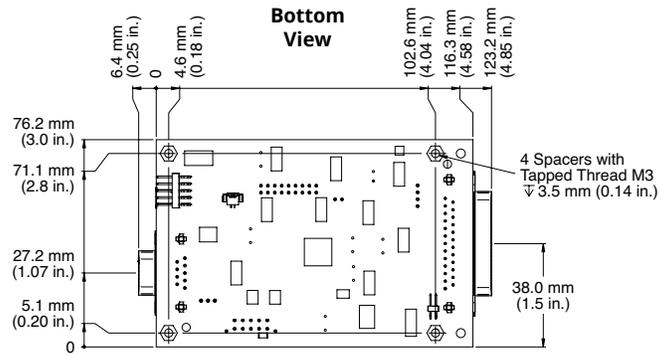
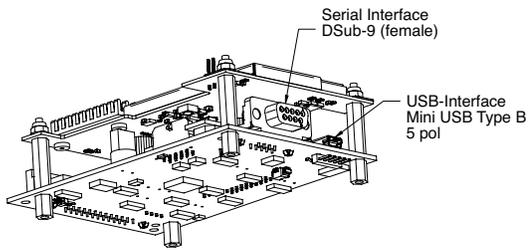
5 Power between 50% and 100% nominal.

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

7 With factory-provided or other adequate heat sink.

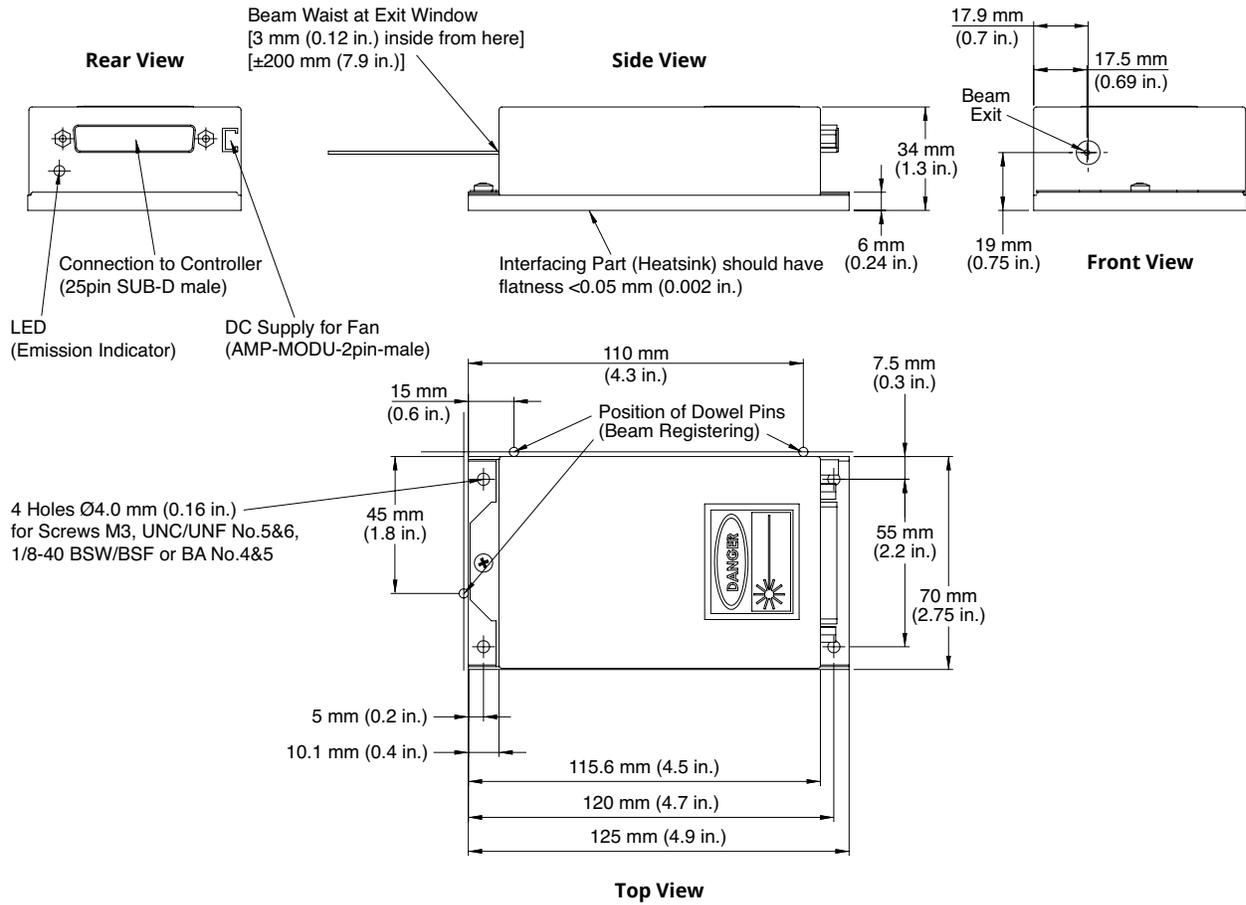
MECHANICAL SPECIFICATIONS

Controller



MECHANICAL SPECIFICATIONS

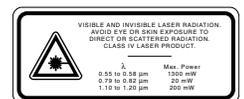
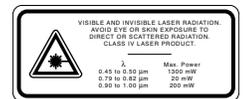
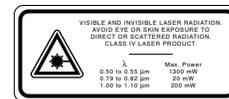
Sapphire LPX



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Sapphire FP

Fiber Pigtailed Lasers from Deep Blue to Orange

Sapphire FP is a series of true fiber-pigtailed lasers based on Coherent's unique OPSSL (Optically Pumped Semiconductor Laser) technology. OPSSL technology not only provides 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 FP lasers are manufactured in cleanrooms using Coherent's patented PermAlign™ technology for optimal aligning and solder-bonding the optics. The fiber is an integral part of the resonator, completely independent of the outer housing. A Coherent proprietary fiber design allows the operation at short wavelengths and/or high powers without fiber degradation or damage.

As a result, Sapphire FP lasers deliver excellent output stability, lowest noise, and superior polarization (PER) over a broad ambient temperature operating range (10°C to 40°C).

Sapphire FP lasers come with a flexible interface concept: Analog, RS-232, or USB – it is up to the user to select the appropriate communication channel.



FEATURES & BENEFITS

- Wavelength versatility
- 458 nm to 594 nm
- Powers: up to 300 mW
- Outstanding power stability
- Low noise
- Broad ambient temperature range:
operational and non-operational
- PermAlign and fiber-pigtail technology
- Permanent optimal alignment
- Unsurpassed robust and stable
- Flexible interface concept
- Analog, RS-232 & USB
- Unsurpassed reliability and lifetime

APPLICATIONS

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

SPECIFICATIONS	Sapphire 458 FP	Sapphire 488 FP
Wavelength ¹ (nm)	458 ±2	488 ±2
Output Power at Fiber Exit ² (mW)	40	40, 80, 120, 200
Fiber Type	SM-PM ³	
Fiber Length (m)	1	
Fiber Output	FC/APC; 8° angled ⁴	
Spatial Mode	TEM ₀₀ , M ² <1.1	
Beam Asymmetry	<1:1.1	
Noise (%)	<0.25	
20 Hz to 2 MHz, rms	<1	
20 Hz to 20 kHz, peak-to-peak	<1	
Long-term Power Stability (%) (2 hours, ±3°C)	<2	
Warm-up Time (minutes)	<5	
Polarization Ratio	>100:1, linear, vertical	
UTILITY AND ENVIRONMENTAL REQUIREMENTS		
Laser Safety Classification	3b	
Operating Voltage ⁵ (VDC)	+10.8 to 15.0	
Maximum Rated	+10.8 to 15.0	
Nominal	+12.0 to 13.2	
Power Consumption (W)	<60	
Max. Laser Head Baseplate Temperature ⁶	50°C (122°F)	
Max. Heat Dissipation of Head (W)	25 (baseplate at 50°C)	
Ambient Temperature	10 to 40°C (50 to 104°F)	
Operating Condition	10 to 40°C (50 to 104°F)	
Non-Operating Condition	-20 to 60°C (-4 to 140°F)	
Humidity	0 to 95%, non-condensing	
Operating Condition	0 to 95%, non-condensing	
Non-Operating Condition	0 to 100%, non-condensing	
Shock Tolerance (11 ms)	15 g laterally, 15 g vertically	
Dimensions (L x W x H)	125 x 70 x 34 mm (4.9 x 2.8 x 1.3 in.)	
Laser Head ⁷	118 x 76 x 30 mm (4.6 x 3.0 x 1.2 in.)	
Controller	200 x 80 x 50 mm (7.9 x 3.2 x 2.0 in.)	
Heat Sink (optional)	171 x 104 x 55 mm (6.7 x 4.1 x 2.2 in.)	
DC Power Supply (optional)	2 m (6.56 ft.) and options	
Cable — Laser Head to Controller	2 m (6.56 ft.) and options	
Weights	0.35 kg (0.77 lbs.)	
Laser Head ⁷	0.25 kg (0.55 lbs.)	
Controller	0.75 kg (1.65 lbs.)	
Heat Sink (optional)	0.95 kg (incl. line cable) (2.1 lbs.)	
DC Power Supply (optional)	0.3 kg (0.66 lbs.)	
Cable — Laser Head to Controller	0.3 kg (0.66 lbs.)	

1 Laser-to-laser tolerance.
2 Output power is adjustable via analog or digital interface from 10% to 110%. Specifications are valid for 100% power.
3 Single-mode, polarization maintaining fiber, bending radius min. 50 mm.
4 Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.
5 If user-supplied, the DC power supply has to meet the following requirements: power >60W; ripple <5% peak-to-peak; line regulation <0.5%.
6 With factory-provided or other adequate heat sink.
7 Dimensions respectively weight without fiber-pigtail part.

SPECIFICATIONS	Sapphire 514 FP	Sapphire 532 FP	Sapphire 552 FP
Wavelength ¹ (nm)	514 ±2	532 ±2	552 ±2
Output Power at Fiber Exit ² (mW)	40, 80, 120	40, 80, 120, 200, 300	40, 80, 120
Fiber Type	SM-PM ³		
Fiber Length (m)	1		
Fiber Output	FC/APC; 8° angled ⁴		
Spatial Mode	TEM ₀₀ , M ² <1.1		
Beam Asymmetry	<1:1.1		
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 (minutes)	<5		
Polarization Ratio	>100:1, linear, vertical		
UTILITY AND ENVIRONMENTAL REQUIREMENTS			
Laser Safety Classification	3b		
Operating Voltage ⁵ (VDC)			
Maximum Rated	+10.8 to 15.0		
Nominal	+12.0 to 13.2		
Power Consumption (W)	<60		
Max. Laser Head Baseplate Temperature ⁶	50°C (122°F)		
Max. Heat Dissipation of Head (W)	25 (baseplate at 50°C)		
Ambient Temperature			
Operating Condition	10 to 40°C (50 to 104°F)		
Non-Operating Condition	-20 to 60°C (-4 to 140°F)		
Humidity			
Operating Condition	0 to 95%, non-condensing		
Non-Operating Condition	0 to 100%, non-condensing		
Shock Tolerance (11 ms)	15 g laterally, 15 g vertically		
Dimensions (L x W x H)			
Laser Head ⁷	125 x 70 x 34 mm (4.9 x 2.8 x 1.3 in.)		
Controller	118 x 76 x 30 mm (4.6 x 3.0 x 1.2 in.)		
Heat Sink (optional)	200 x 80 x 50 mm (7.9 x 3.2 x 2.0 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	2 m (6.56 ft.) and options		
Weights			
Laser Head ⁷	0.35 kg (0.77 lbs.)		
Controller	0.25 kg (0.55 lbs.)		
Heat Sink (optional)	0.75 kg (1.65 lbs.)		
DC Power Supply (optional)	0.95 kg (incl. line cable) (2.1 lbs.)		
Cable — Laser Head to Controller	0.3 kg (0.66 lbs.)		

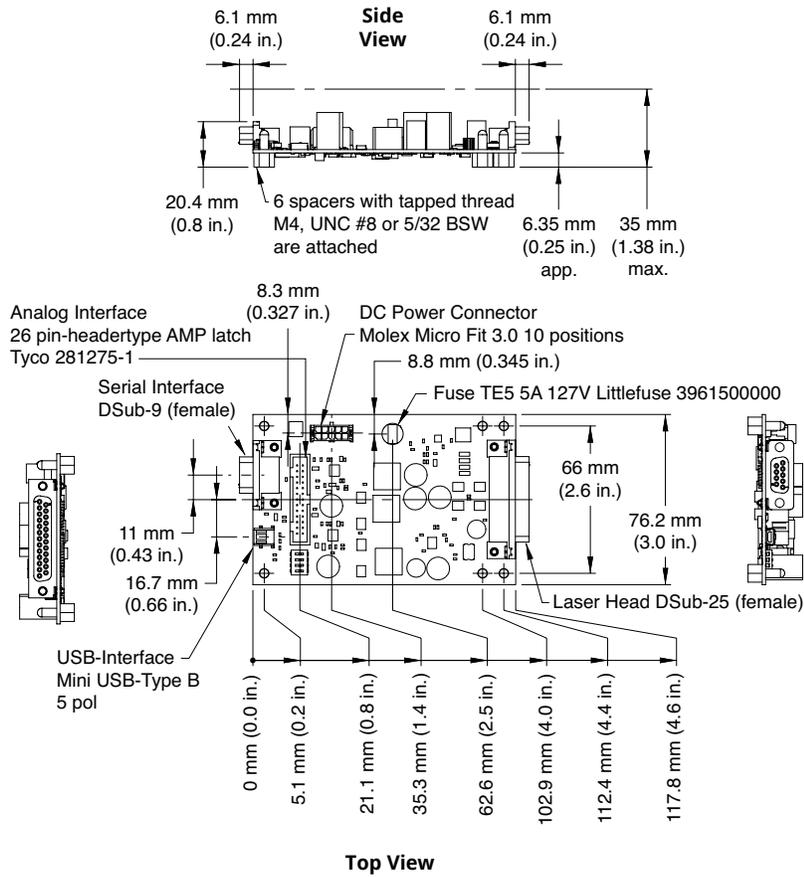
1 Laser-to-laser tolerance.
 2 Output power is adjustable via analog or digital interface from 10% to 110%. Specifications are valid for 100% power.
 3 Single-mode, polarization maintaining fiber, bending radius min. 50 mm.
 4 Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.
 5 If user-supplied, the DC power supply has to meet the following requirements: power >60W; ripple <5% peak-to-peak; line regulation <0.5%.
 6 With factory-provided or other adequate heat sink.
 7 Dimensions respectively weight without fiber-pigtail part.

SPECIFICATIONS	Sapphire 561 FP	Sapphire 588 FP	Sapphire 594 FP
Wavelength ¹ (nm)	561 ±2	588 ±2	594 ±2
Output Power at Fiber Exit ² (mW)	40, 80, 120, 200	40	40
Fiber Type	SM-PM ³		
Fiber Length (m)	1		
Fiber Output	FC/APC; 8° angled ⁴		
Spatial Mode	TEM ₀₀ , M ² <1.1		
Beam Asymmetry	<1:1.1		
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 (minutes)	<5		
Polarization Ratio	>100:1, linear, vertical		
UTILITY AND ENVIRONMENTAL REQUIREMENTS			
Laser Safety Classification	3b		
Operating Voltage ⁵ (VDC)			
Maximum Rated	+10.8 to 15.0		
Nominal	+12.0 to 13.2		
Power Consumption (W)	<60		
Max. Laser Head Baseplate Temperature ⁶	50°C (122°F)		
Max. Heat Dissipation of Head (W)	25 (baseplate at 50°C)		
Ambient Temperature			
Operating Condition	10 to 40°C (50 to 104°F)		
Non-Operating Condition	-20 to 60°C (-4 to 140°F)		
Humidity			
Operating Condition	0 to 95%, non-condensing		
Non-Operating Condition	0 to 100%, non-condensing		
Shock Tolerance (11 ms)	15 g laterally, 15 g vertically		
Dimensions (L x W x H)			
Laser Head ⁷	125 x 70 x 34 mm (4.9 x 2.8 x 1.3 in.)		
Controller	118 x 76 x 30 mm (4.6 x 3.0 x 1.2 in.)		
Heat Sink (optional)	200 x 80 x 50 mm (7.9 x 3.2 x 2.0 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	2 m (6.56 ft.) and options		
Weights			
Laser Head ⁷	0.35 kg (0.77 lbs.)		
Controller	0.25 kg (0.55 lbs.)		
Heat Sink (optional)	0.75 kg (1.65 lbs.)		
DC Power Supply (optional)	0.95 kg (incl. line cable) (2.1 lbs.)		
Cable — Laser Head to Controller	0.3 kg (0.66 lbs.)		

1 Laser-to-laser tolerance.
2 Output power is adjustable via analog or digital interface from 10% to 110%. Specifications are valid for 100% power.
3 Single-mode, polarization maintaining fiber, bending radius min. 50 mm.
4 Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.
5 If user-supplied, the DC power supply has to meet the following requirements: power >60W; ripple <5% peak-to-peak; line regulation <0.5%.
6 With factory-provided or other adequate heat sink.
7 Dimensions respectively weight without fiber-pigtail part.

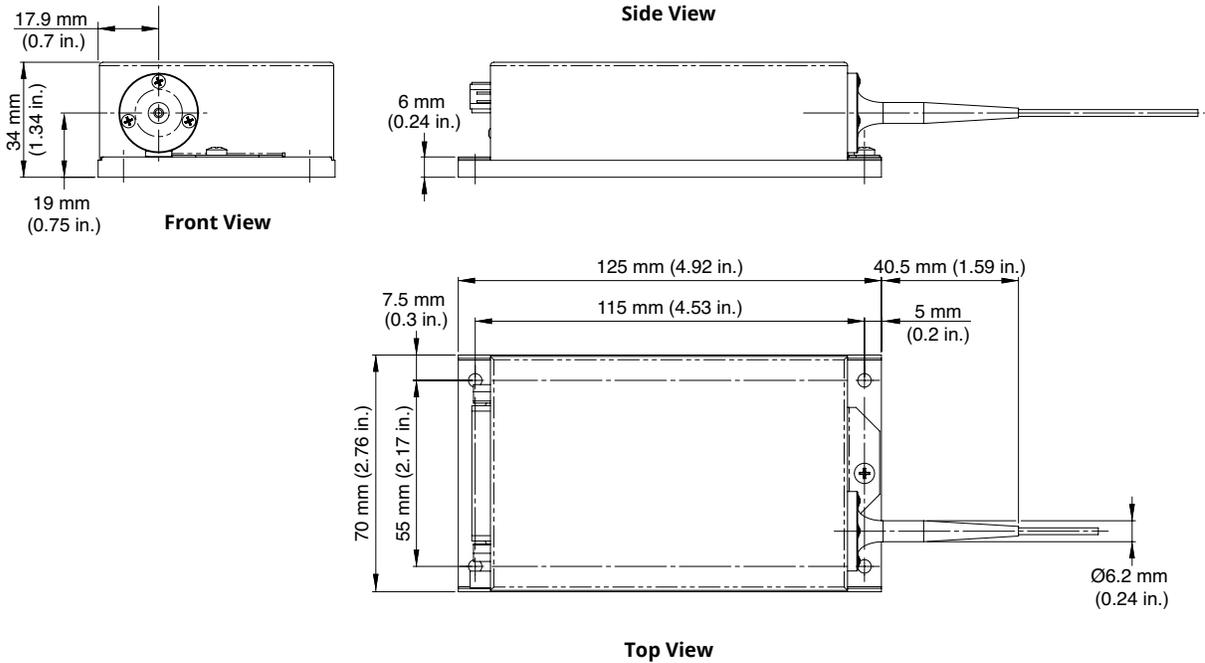
MECHANICAL SPECIFICATIONS

Controller



MECHANICAL SPECIFICATIONS

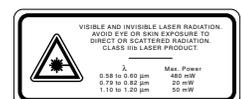
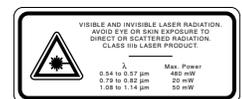
Sapphire FP

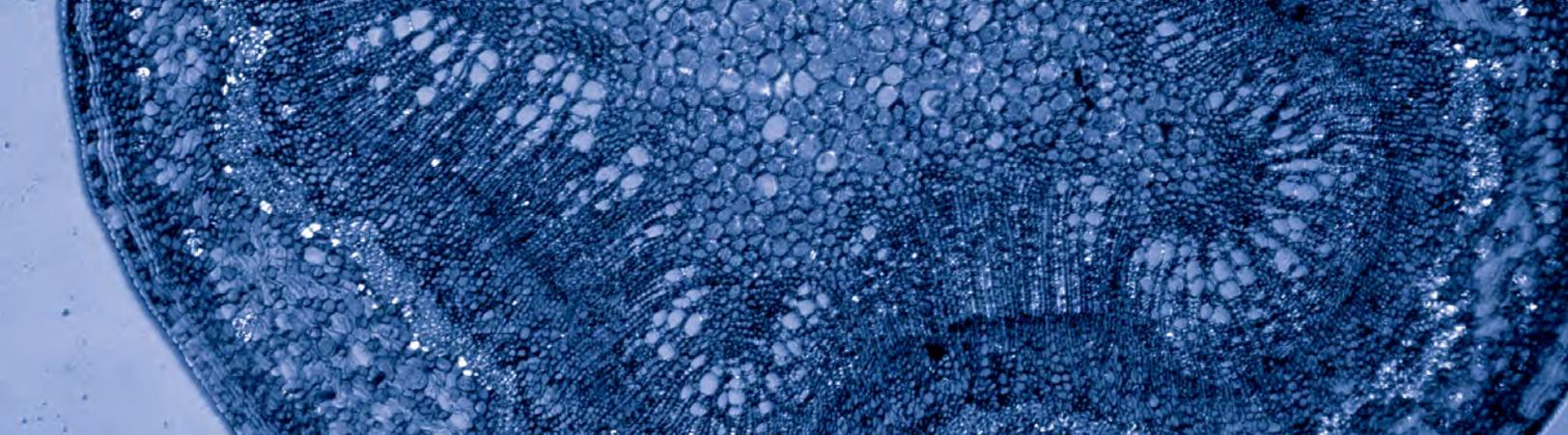


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Sapphire SF NX

CW Free Space and Fiber Pigtailed Single-Frequency Lasers

Sapphire SF NX is a series of compact CW visible single-frequency lasers based on Coherent's unique OPSSL (Optically Pumped Semiconductor Laser) technology. Sapphire SF NX lasers come with an ultra-narrow linewidth of <math><1.5\text{ MHz}</math>, a high quality diffraction-limited beam with excellent pointing stability, high power stability and low noise.

Sapphire lasers are manufactured in cleanrooms using Coherent's patented PermAlign™ technology for optimal aligning and solder-bonding the optics. Sapphire SF NX lasers come with a flexible interface concept: Analog, RS-232 or USB – it is up to the user to select the appropriate communication channel.

Sapphire SF NX lasers are intended for applications that need narrow and ultra-narrow linewidth light such as Raman spectroscopy, interferometry, holography, metrology, and inspection.

FEATURES & BENEFITS

- Ultra-narrow linewidth
- Outstanding power and wavelength stability
- Output power
 - Up to 150 mW at 488 nm / 100 mW fiber pigtailed
 - Up to 200 mW at 532 nm / 150 mW fiber pigtailed
- Ultra-low noise
- Superior beam quality
- PermAlign technology
 - Permanent optimal alignment
 - Unsurpassed robust and stable
- OEM and end-user versions
- Proven Sapphire reliability

APPLICATIONS

- Raman Spectroscopy
- Interferometry
- Holography
- Metrology
- Inspection



SPECIFICATIONS	Sapphire 488 SF NX	Sapphire 532 SF NX
Wavelength ¹ (nm)	488.0	532.0
Wavelength Accuracy ² (nm)	±0.1	
Single-longitudinal Mode, Linewidth (MHz)	<1.5	
Output Power ³ (mW)	20, 50, 75, 100, 150	20, 50, 75, 100, 150, 200
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)	<1.3	
Pointing Stability (µrad) (over 2 hours after warm-up and ±3°C)	<30	
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 (minutes)	<5	
Polarization Ratio	>100:1, vertical	
Static Alignment Tolerances ⁴		
Beam Position (mm)	±0.25	
Beam Angle (mrad)	±2.5	
Beam Waist Position with respect to Exit Window	±200 ⁵	
UTILITY AND ENVIRONMENTAL REQUIREMENTS		
Interfacing	Analog, RS-232, USB	
Operating Voltage ⁶ (VDC)		
Maximum Rated	+10.8 to 15.0	
Nominal	+12.0 to 13.2	
Power Consumption (W)	<60	
Max. Laser Head Baseplate Temperature ⁷	+50°C (122°F)	
Max. Heat Dissipation of Head (W)	25 (baseplate at 50°C)	
Ambient Temperature		
Operating Condition	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)	7 g laterally, 15 g vertically	
Dimensions (L x W x H)		
Laser Head	125 x 70 x 34 mm (4.9 x 2.8 x 1.3 in.)	
Controller	123.3 x 76.2 x 38.1 mm (4.9 x 3.0 x 1.5 in.)	
Heat Sink (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	1.52 m (5.0 ft.)	
Weights		
Laser Head	0.35 kg (0.77 lbs.)	
Controller	0.25 kg (0.55 lbs.)	
Heat Sink (optional)	0.75 kg (1.65 lbs.)	
DC Power Supply (optional)	0.95 kg (incl. line cable) (2.1 lbs.)	
Packaged System (head+controller+cable>manual)	1.7 kg (3.7 lbs.)	
Cable — Laser Head to Controller	0.3 kg (0.66 lbs.)	

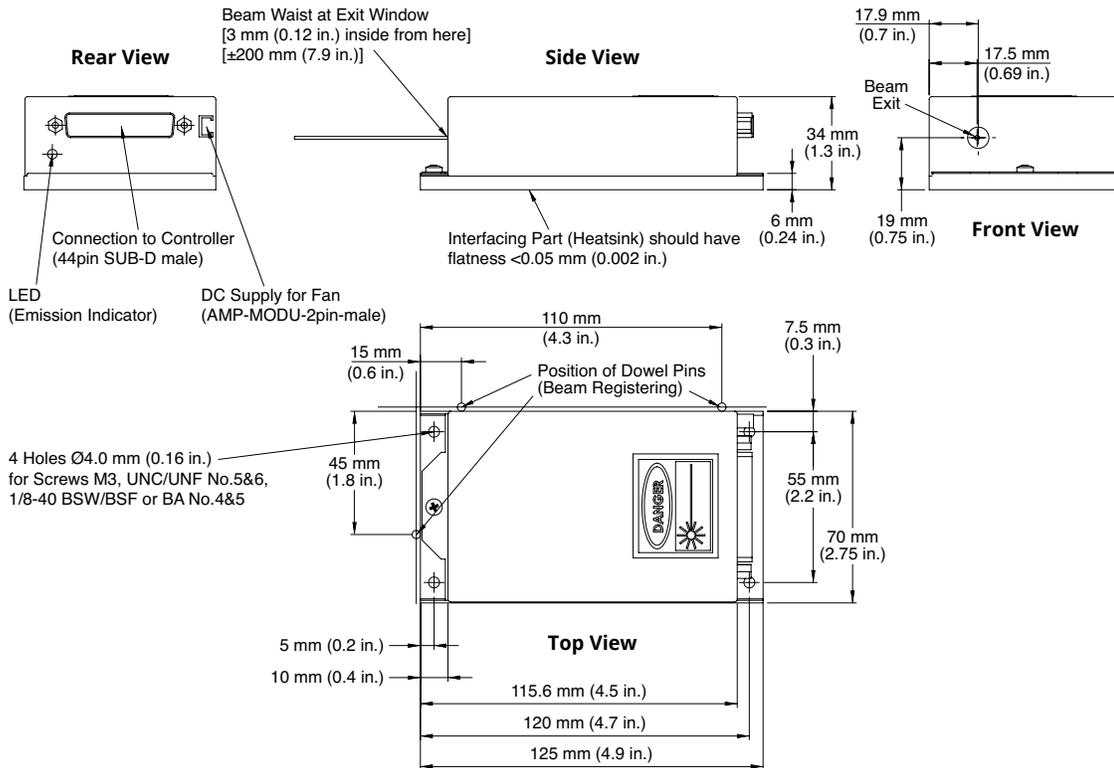
1 Measured in air.
2 Laser-to-laser tolerance and wavelength tolerance over guaranteed lifetime.
3 Output power is adjustable via analog or digital interface from 10% to 110%. Specifications are valid for 100% power.
4 Static alignment tolerances are relative to the right bottom edge (in beam direction).
5 200 mm is ~25% of Rayleigh Range at 488 nm and ~30% of Rayleigh Range at 532 nm.
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.

SPECIFICATIONS	Sapphire 488 SF FP NX	Sapphire 532 SF FP NX
Wavelength ¹ (nm)	488.0	532.0
Wavelength Accuracy ² (nm)	±0.1	
Single-longitudinal Mode, Linewidth (MHz)	<1.5	
Output Power at Fiber Exit ³ (mW)	20, 50, 100	20, 50, 100, 150
Fiber Type	SM-PM ⁴	
Fiber Length (m)	1	
Fiber Numerical Aperture (NA) (1/e ²)	0.06	
Fiber Output	FC/APC; 8° angled ⁵	
Spatial Mode	TEM ₀₀ , M ² <1.1	
Beam Asymmetry	<1:1.1	
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 (minutes)	<5	
Polarization Ratio	>100:1, linear, vertical	
UTILITY AND ENVIRONMENTAL REQUIREMENTS		
Interfacing	Analog, RS-232, USB	
Operating Voltage ⁶ (VDC)		
Maximum Rated	+10.8 to 15.0	
Nominal	+12.0 to 13.2	
Power Consumption (W)	<60	
Max. Laser Head Baseplate Temperature ⁷	+50°C (122°F)	
Max. Heat Dissipation of Head (W)	25 (baseplate at 50°C)	
Ambient Temperature		
Operating Condition	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)	7 g laterally, 15 g vertically	
Dimensions (L x W x H)		
Laser Head ⁸	125 x 70 x 34 mm (4.9 x 2.8 x 1.3 in.)	
Controller	123.3 x 76.2 x 38.1 mm (4.9 x 3.0 x 1.5 in.)	
Heat Sink (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	1.52 m (5.0 ft.)	
Weights		
Laser Head ⁸	0.35 kg (0.77 lbs.)	
Controller	0.25 kg (0.55 lbs.)	
Heat Sink (optional)	0.75 kg (1.65 lbs.)	
DC Power Supply (optional)	0.95 kg (incl. line cable) (2.1 lbs.)	
Packaged System (head+controller+cable>manual)	1.7 kg (3.7 lbs.)	
Cable — Laser Head to Controller	0.3 kg (0.66 lbs.)	

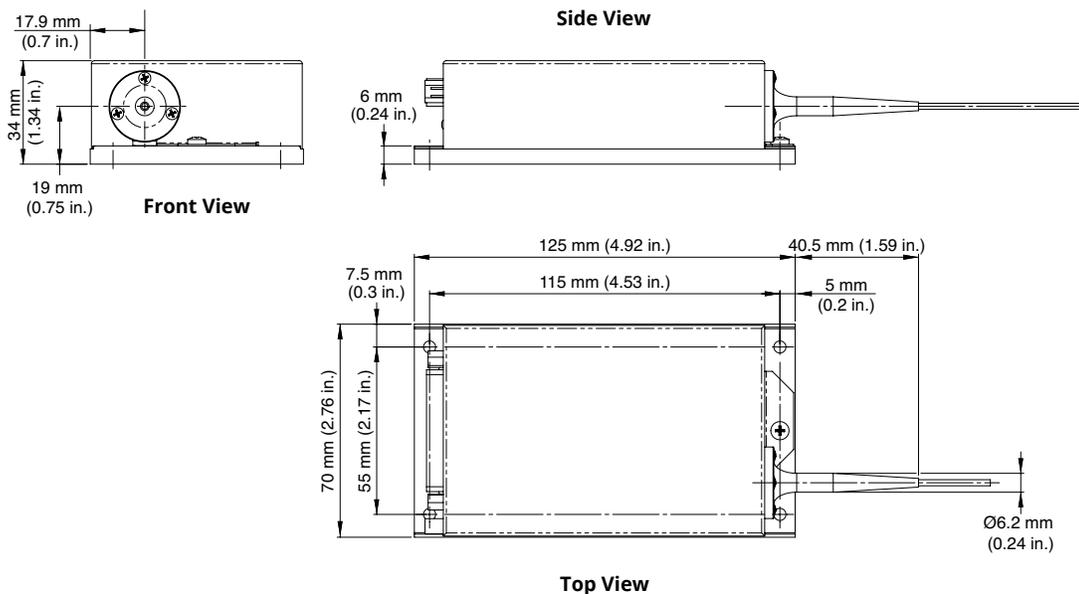
1 Measured in air.
 2 Laser-to-laser tolerance and wavelength tolerance over guaranteed lifetime.
 3 Output power is adjustable via analog or digital interface from 10% to 110%. Specifications are valid for 100% power.
 4 Single-mode, polarization maintaining fiber, bending radius min. 50 mm.
 5 Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.
 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.
 8 Dimensions respectively weight without fiber pigtail part.

MECHANICAL SPECIFICATIONS

Sapphire SF NX



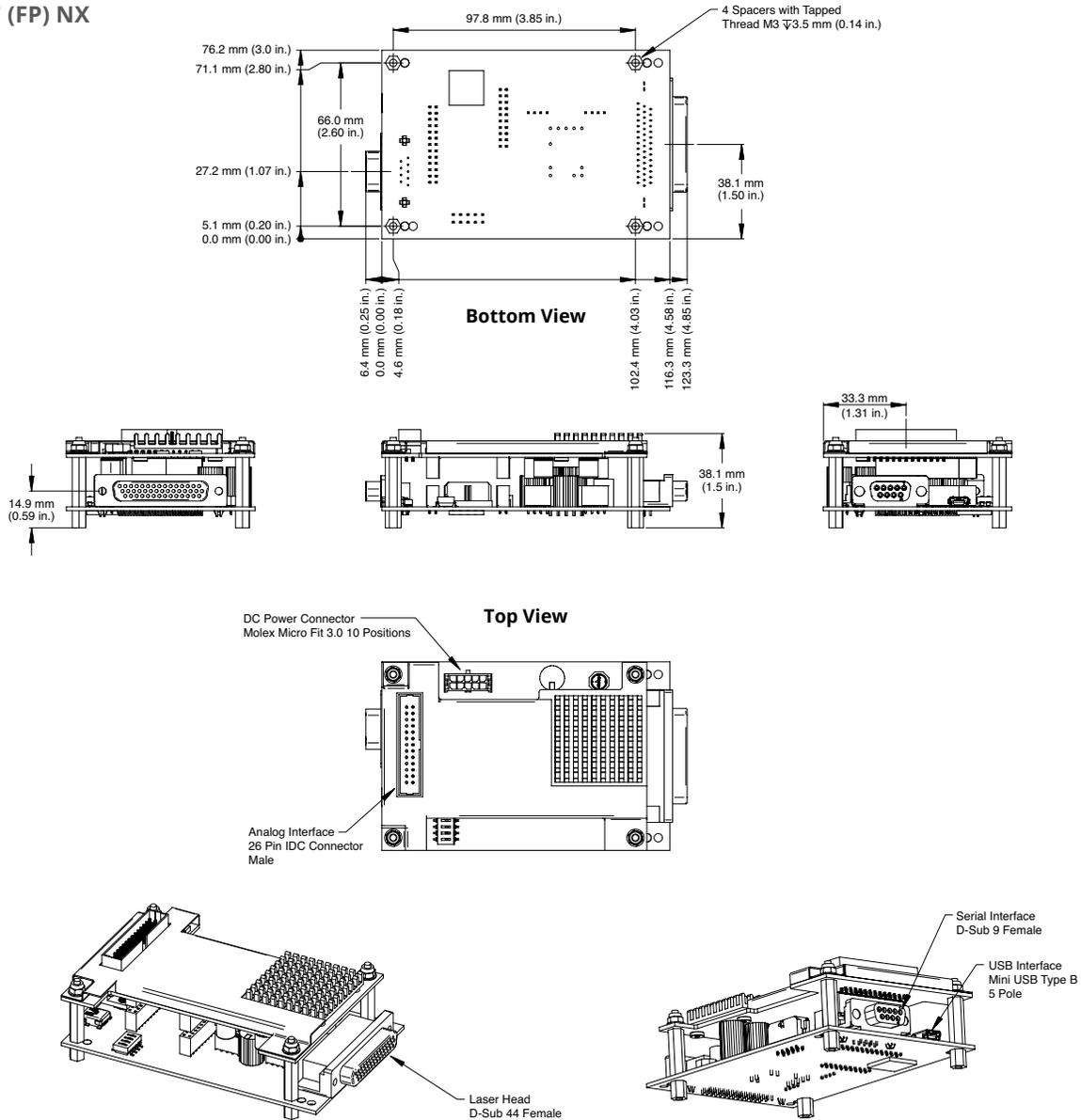
Sapphire SF FP NX



Sapphire

MECHANICAL SPECIFICATIONS

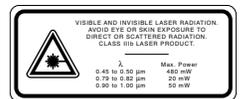
Sapphire SF (FP) NX Controller

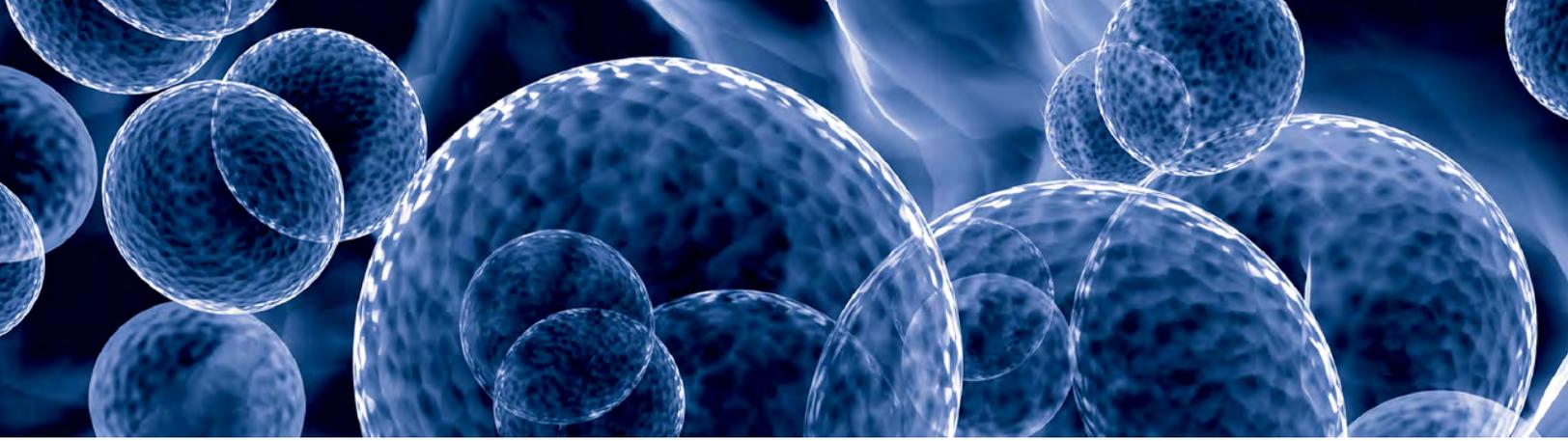


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Coherent offers a limited warranty for all Sapphire lasers. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative.





OBIS Galaxy

8-Laser Beam Combiner

OBIS Galaxy is offering plug-and-play capabilities in laser combining.

The OBIS Galaxy is equipped with 8 FC fiber inputs, and can accept any Galaxy compatible laser using a plug-and-play integration. Each input is optimized to accept the fiber with a FC connection, and Coherent's patented beam combining technology integrates all 8 inputs.

The OBIS Galaxy provides a fiber output of the combined 8 lasers in a single-mode polarization-maintaining fiber, 2 meters in length, with a FC connector for any application.

The OBIS Galaxy matches Coherent's rigorous standards and advanced stress-testing benchmarks, offering the ease of integration, robustness, superior performance, and reliability.

FEATURES & BENEFITS

- Plug-and-play 8-input, single-output beam combiner
- Compact and low profile
- High transmission beam combiner with typical 60% throughput per channel
- Fiber FC/APC output connector; FC/PC8 output connector available as an option

APPLICATIONS

- Optogenetics
- Endoscopy
- Spinning Disk and TIRF Microscopy
- Cytometry
- Genomics

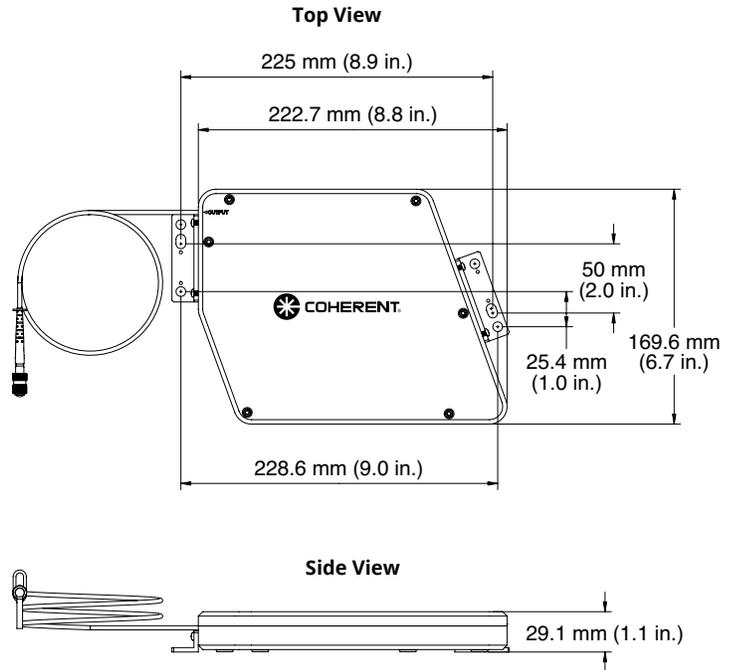


SPECIFICATIONS ¹	OBIS Galaxy Laser Combiner
8 Input Fiber Connections ² (nm)	405 445 or 458 488 or 473 514 532 552 or 561 588 or 594 640
Power Throughput ³ (%) (when used with Coherent OBIS Galaxy Compatible Lasers) for 405 nm to 594 nm for 640 nm	>45, Typical >60 >55, Typical >70
Maximum Power Per Channel (mW)	120
Maximum Total Output Power (mW)	<500
RMS Noise (%) (20 Hz to 2 MHz)	<0.5
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	<2
Fiber Connector Type (Input Connectors)	FC form-factor, ultra-flat contact FC/UFC with extended-life interface, anti-reflection (AR) coated tip
Polarization Extinction Ratio Loss (%)	<50
Long-term Power Throughput (%) (8 hours, ±3°C)	>95
Long-term Power Throughput (%) (average)	≤2 over 1000 hours
OUTPUT FIBER	
Fiber Connector Type ⁴ (distal end) FC/APC Optional FC/PC8	8° angled, with extended-life interface 8° angled, with extended-life interface
Fiber Cable Type	3 mm mono-coil
Fiber Cable Length (m) (minimum)	2
Fiber Numerical Aperture (NA) (1/e ²) FC/APC Optional FC/PC8	0.055 0.065
Mode Field Diameter (µm) (typical)	3
Spatial Mode	TEM ₀₀
M ² (Beam Quality) ⁵	≤1.1
Fiber Minimum Bend Radius	51 mm (2.0 in.)
Fiber Tensile Load (maximum)	1 kg (2.2 lbs.)
Fiber Connector Type (internal to OBIS Galaxy)	FC form-factor, ultra-flat contact FC/UFC with extended-life interface
UTILITY AND ENVIRONMENTAL REQUIREMENTS	
Dimensions	229 x 170 x 29 mm (9.0 x 6.7 x 1.1 in.)
Weight	1.4 kg (3 lbs.)
Shock Tolerance ⁶ (g) (11 ms)	30
Vibration ⁶ (g-RMS) (20 Hz to 2 kHz)	7.7
Ambient Temperature Operating Temperature Storage Temperature	10 to 50°C (50 to 122°F) ⁷ -20 to 60°C (-4 to 140°F)
Laser Safety Classification ⁸	Not Applicable

¹ System specifications measured at 25°C.
² All input channels require a ±1 nm center wavelength tolerance. Required wavelength tolerances specifically: 405 nm with 404 nm to 406 nm, 445 nm with 444 nm to 446 nm, 458 nm with 457 nm to 459 nm, 488 nm with 487 nm to 489 nm, 514 nm with 513 nm to 515 nm, 532 nm with 531 nm to 533 nm, 552 nm with 551.5 nm to 553.5 nm, 561 nm with 560.5 nm to 562.5 nm, 588 nm with 587 nm to 589 nm, 594 nm with 593 nm to 595 nm, 640 nm with 641 nm to 643 nm.
³ The OBIS Galaxy Beam Combiner as tested and certified will be >60% power transmission per wavelength as measured with production tooling fixtures.
⁴ Fiber connector output not compatible for patchcord-to-patchcord connection.
⁵ M² measured with ModeMaster with 90/10 Clip Levels.
⁶ Non-Operational with a before/after change of <10%.
⁷ OBIS LS laser with Operating Temperature of 15 to 40°C (59 to 104°F).
⁸ OBIS Galaxy is not a laser and therefore the Laser Safety Classification is determined by the end-user and application. Refer to CDRH 21 CFR 1040 subchapter J or IEC 60825-1.

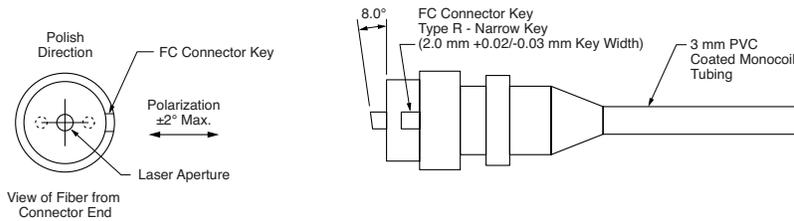
MECHANICAL SPECIFICATIONS

OBIS Galaxy

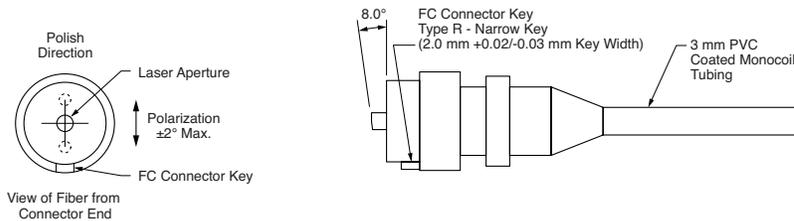


MECHANICAL SPECIFICATIONS

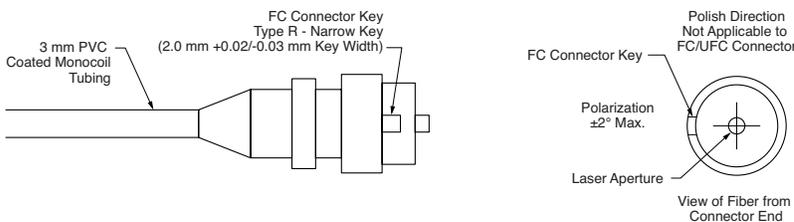
**FC/APC
Distal End - Output**



**Optional FC/PC8
Angled Flat Connector
Distal End - Output**



**FC/UFC
Launch End - Input**



OBIS Galaxy Laser Combiner	Part Number
8 Input FC/UFC, Single Output FC/APC, 405 nm, 445 nm, 488 nm, 514 nm, 532 nm, 552 nm, 588 nm, 640 nm	1253553
8 Input FC/UFC, Single Output FC/APC, 405 nm, 458 nm, 488 nm, 514 nm, 532 nm, 552 nm, 588 nm, 640 nm	1253554
8 Input FC/UFC, Single Output FC/APC, 405 nm, 445 nm, 488 nm, 514 nm, 532 nm, 561 nm, 588 nm, 640 nm	1253555
8 Input FC/UFC, Single Output FC/APC, 405 nm, 458 nm, 488 nm, 514 nm, 532 nm, 561 nm, 588 nm, 640 nm	1253556
8 input FC/UFC, Single Output FC/PC8, 405 nm, 445 nm, 488 nm, 514 nm, 532 nm, 561 nm, 588 nm, 640 nm	1343303
8 input FC/UFC, Single Output FC/APC, 405 nm, 445 nm, 488 nm, 514 nm, 532 nm, 561 nm, 594 nm, 640 nm	1363484
8 input FC/UFC, Single Output FC/APC, 405 nm, 445 nm, 473 nm, 514 nm, 532 nm, 561 nm, 594 nm, 640 nm	1399474

OBIS FP LX Lasers ¹ for OBIS Galaxy	Part Number
OBIS 405 nm LX 50 mW Laser: Fiber Pigtail: UFC, Galaxy, 404 nm to 406 nm	1236438
OBIS 405 nm LX 100 mW Laser: Fiber Pigtail: UFC, Galaxy, 404 nm to 406 nm	1236439
OBIS 445 nm LX 45 mW Laser: Fiber Pigtail: UFC, Galaxy, 444 nm to 446 nm	1236441
OBIS 458 nm LX 45 mW Laser: Fiber Pigtail: UFC, Galaxy, 457 nm to 459 nm	1236442
OBIS 473 nm LX 50 mW Laser: Fiber Pigtail: UFC, Galaxy, 472 nm to 474 nm	1399476
OBIS 488 nm LX 30 mW Laser: Fiber Pigtail: UFC, Galaxy, 487 nm to 489 nm	1236443
OBIS 488 nm LX 100 mW Laser: Fiber Pigtail: UFC, Galaxy, 487 nm to 489 nm	1236444
OBIS 514 nm LX 50 mW Laser: Fiber Pigtail: UFC, Galaxy, 513 nm to 515 nm	1311150
OBIS 640 nm LX 75 mW Laser: Fiber Pigtail: UFC, Galaxy, 641 nm to 643 nm	1236445

OBIS FP LS Lasers ¹ for OBIS Galaxy	Part Number
OBIS 532 nm LS 80 mW Laser: Fiber Pigtail: UFC, Galaxy, 531 nm to 533 nm	1276599
OBIS 552 nm LS 80 mW Laser: Fiber Pigtail: UFC, Galaxy, 551.5 nm to 553.5 nm	1275619
OBIS 561 nm LS 80 mW Laser: Fiber Pigtail: UFC, Galaxy, 560.5 nm to 562.5 nm	1275608
OBIS 594 nm LS 60 mW Laser: Fiber Pigtailed: UFC, Galaxy, 592 nm to 594 nm	1363485

Sapphire FP Lasers ¹ for OBIS Galaxy	Part Number
Sapphire 514-FP UFC OEM Laser System, 120 mW, Galaxy, 513 nm to 515 nm	1276125
Sapphire 532-FP UFC OEM Laser System, 120 mW, Galaxy, 531 nm to 533 nm	1276167
Sapphire 552-FP UFC OEM Laser System, 120 mW, Galaxy, 551.5 nm to 553.5 nm	1276186
Sapphire 561-FP UFC OEM Laser System, 120 mW, Galaxy, 560.5 nm to 562.5 nm	1276187
Sapphire 588-FP UFC OEM Laser System, 40 mW, Galaxy, 587 nm to 589 nm	1276188

¹ All lasers same as standard product except FC connector changed to UFC type.

NOTE: OBIS Laser includes: laser and mounting hardware. The following needs to be ordered separately: OBIS LaserBox (part numbers 1228877 or 1343229), OBIS Remote (part number 1214875), and OBIS Heat Sink (part number 1193289). See individual OBIS accessory data sheets for details.

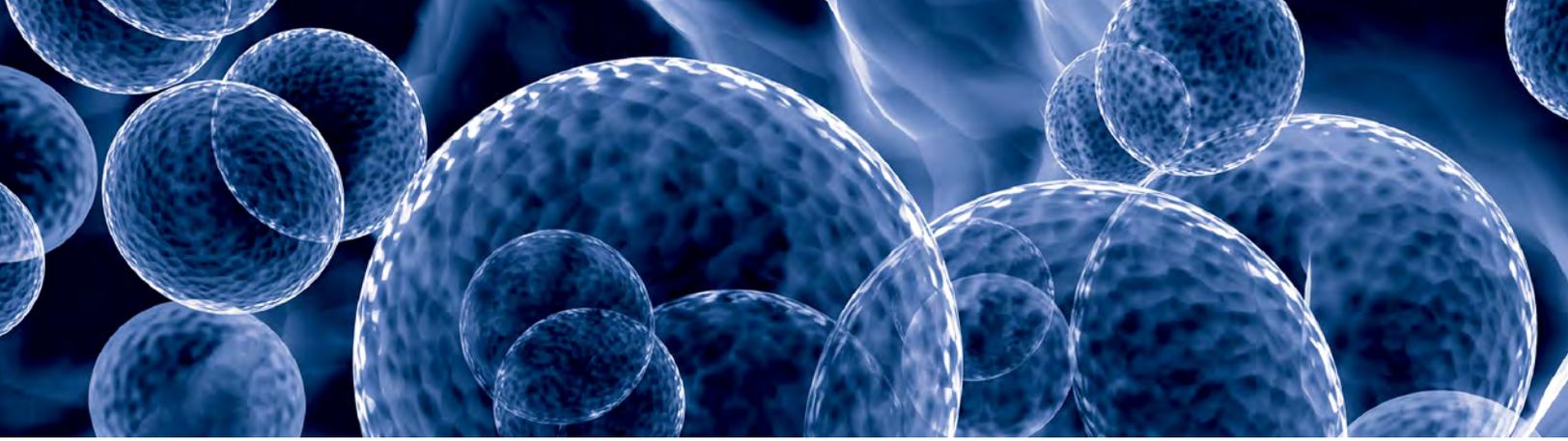
NOTE: Sapphire Lasers include: Laser, OEM USB Controller, 2 meter head cable and connector kit. The following needs to be ordered separately: Sapphire laser power supply (part number 1105375), Sapphire laser heat sink and mounting hardware (part number 1110061)

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OBIS CellX

The Universal Light Engine

OBIS CellX is a multi-wavelength platform for use as the laser excitation “Light Engine” in applications requiring up to 4 lasers from a single module.

CellX delivers up to four wavelengths from a single, compact module that includes user-adjustable steering and telescopes used to optimize the beams to your target requirements. For example, CellX can be aligned to give flexible patterns of focused stripes in a flow cytometer.

Using the same optical Cores that are at the heart of Coherent’s OBIS suite of lasers, CellX delivers best-in-class optical performance and reliability. By consolidating control, thermal management and packaging, CellX reduces complexity encountered when integrating multiple separate lasers. The savings that come from deleting redundant elements is reinvested into features to benefit your application.

CellX has a single electrical interface for ease of installation. Each laser wavelength can be individually controlled via RS-232 or USB computer interface, or via analog and digital control lines.

With its low cost, alignment flexibility and ease-of-integration, CellX is the universal laser Light Engine for your application.

FEATURES & BENEFITS

- Up to 4 wavelengths
- OBIS Performance
- Common power, control and I/O interfaces
- User-adjustable beam steering and telescopes

APPLICATIONS

- Flow Cytometry
- Microscopy
- Medical Imaging
- Optogenetics



OPTICAL SPECIFICATIONS		OBIS CellIX 405	OBIS CellIX 488	OBIS CellIX 561	OBIS CellIX 637
Wavelength ¹ (nm)		405	488	561	637
Output Power ² (mW)	Part Number				
	1426532	-	50	-	-
	1426531	-	50	-	50
	1426530	-	50	50	-
	1426529	50	50	-	-
	1318680	50	50	n/a	50
	1318682	50	50	50	50
	1318681	100	100	n/a	100
	1318683	100	100	100	100
Spatial Mode		TEM ₀₀			
M ² (Beam Quality) ³		≤1.3			
Beam Asymmetry		≤1:1.2			
Beam Diameter at 1/e ² (mm)		2.6	3.0	3.5	4.5
Beam Divergence (mrad, full angle)		0.2			
Pointing Stability Over Temperature (μrad/°C)		<10			
Beam Colinearity ⁴ (μrad)		<100			
RMS Noise ⁵ (%) (20 Hz to 20 MHz)		<0.25			
Peak-to-Peak Noise ⁵ (%) (20 Hz to 20 kHz)		<1			
Long-term Power Stability (%) (8 hours, ±3°C)		<2			
Warm-up Time ⁶ (minutes) (from cold start)		<5			
Polarization Extinction Ratio		>50:1	>75:1	>50:1	>50:1
Polarization Azimuth		Vertical ±5°			
CONTROL SPECIFICATIONS					
Interface for Computer Control		USB (mini-B) and RS-232 (from DB37, 115200 Baud)			
Laser Drive Modes (Four Operating Modes, individually selected for each wavelength thru USB or RS-232)		1) CW with Power Control via USB/RS-232 2) Analog Modulation 3) Digital Modulation 4) Mixed Analog and Digital Modulation (simultaneous Analog and Digital)			
Digital Modulation					
Connection on DB37 Interface		Pin 21	Pin 4	Pin 24	Pin 7
Voltage and Impedance		0-3.3V ⁷ , 2 kOhm input impedance each, Normally Low (off)			
Maximum Bandwidth (kHz)		50			
Rise Time (10% to 90%) (μsec)		<5			
Fall Time (90% to 10%) (μsec)		Pin 3	Pin 23	Pin 6	Pin 26
Modulation Depth (extinction ratio)		Infinite			
Power Range		Modulate from 0% to Set Power (USB or RS-232) in Digital Mode			
Analog Modulation					
Connection on DB37 Interface					
Voltage and Impedance		0 to 5V, 2 kOhm input impedance each, Normally Low (off)			
Maximum Bandwidth, 3dB (kHz)		50			
Rise Time (10% to 90%) (μsec)		<5			
Fall Time (90% to 10%) (μsec)		<5			
Modulation Depth (extinction ratio)		>50:1, Typical 100:1			
Power Range		Modulate from 0% to 110% with 0 to 5V in Analog Mode			

1 Laser-to-laser center wavelength tolerance: 405 nm ±5 nm, 488 nm and 561 nm with ±2 nm, 640 nm with 632 to 643 nm range. Short pass filter suppression of out-of-band emission for 640 nm.
 2 Output power is measured at the output window of CellIX. Power is variable in CW Mode from 1% (405 nm and 640 nm) to 110% of rated power. Output power is variable in CW Mode from 10% (488 nm and 561 nm) to 110% of rated power. Specifications are valid for 100% power. For 488 nm and 561 nm any residual laser emission at 808 nm fundamental is <0.1 mW.

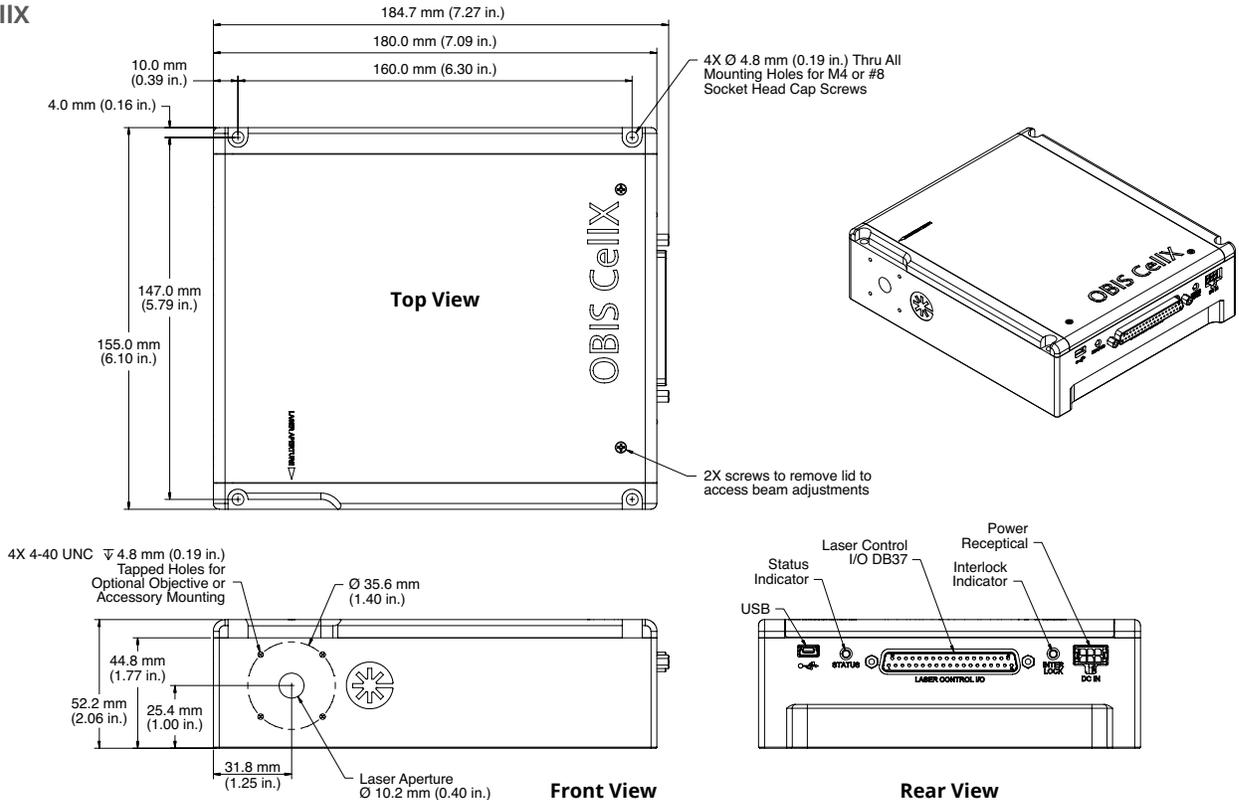
3 Beam Quality (M²) measured per laser channel using ModelMaster with 90/10 clip levels.
 4 Standard alignment. User adjustable.
 5 RMS Noise and Peak-to-Peak Noise Specifications are per laser channel, during CW operation.
 6 Typical power-on delay of 1 minute from cold start.
 7 Digital input is 5V tolerant.

MECHANICAL AND ENVIRONMENTAL SPECIFICATIONS	OBIS CellX
Dimensions ¹ (mm) (L x D x H)	155 x 180 x 52.2
Beam Position from Reference ¹ (mm)	<0.5
Beam Angle (mrad)	<5
Laser Safety Classification ²	4
ESD Protection	EN61326-1 (8 kV Air Discharge, 4 kV Contact Discharge)
Baseplate Operating Temperature (°C)	10 to 45
Heat Dissipation of Laser Head ³ (Watts)	Typical 20, Maximum 60
Ambient Temperature ⁴ (°C)	10 to 45
Non-Operating Condition (°C)	-20 to +60
Shock Tolerance (6 ms)	30g
Weight (kg)	2.2
ELECTRICAL SPECIFICATIONS	
Power Input Connector	Use Molex 0430250600 for Power Cable Connector, Pins 1,2,3 for Power, Pins 4,5,6 for Ground
Supply Voltage (V DC)	12 ± 2 (100 Watt minimum)
Power Consumption (W)	Typical 20, Maximum 60

1 See mechanical drawing.
 2 OEM Product - does not comply with CDRH 21CFR 1040.10 and 1040.11 without appropriate integration.
 3 Typically 85% of heat load through the base plate. See User Manual for more detail.
 4 Non-Condensing. See User Manual for more detail.

MECHANICAL SPECIFICATIONS

OBIS CellX



OBIS CellX ACCESSORIES

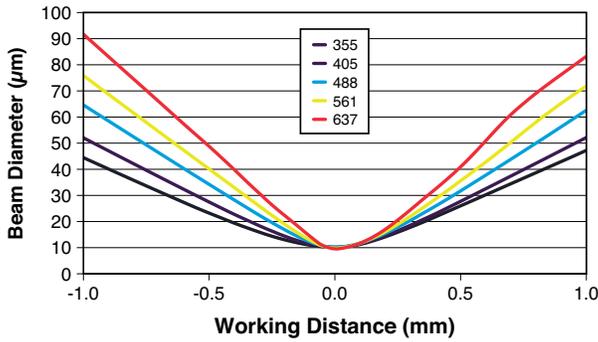
OPTICAL PERFORMANCE SPECIFICATIONS	OBIS CellX Objective Lens Accessories	
	OL10-UV	OL15-UV
Part Number	1365935	1383130
Wavelength Range (nm)	345 to 700	
Beam Profile at Focus (Vertical, Horizontal)	Gaussian, Gaussian	
Focus Spot Size Vertical (μm) ($1/e^2$)	10 \pm 2	15 \pm 3
Focus Spot Size Horizontal ¹ (μm) ($1/e^2$)	60 \pm 15	90 \pm 20
Working Distance ² (mm)	36.4	60.9
Dimensions (mm)	22 x 22 x 47.2	22 x 22 x 59.7
Vertical Adjustment ^{3,4} (μm)	\pm 250	
Horizontal Adjustment ^{3,4} (μm)	\pm 250	
Focus Adjustment ⁵	Independent focus adjustment of all wavelengths	

1 Measured at location of best vertical focus. System aligned to lower limit on delivery. Horizontal beam size can be adjusted up to the upper limit. System may be adjusted to reduce or expand the horizontal focus width. See User Manual.
 2 Measured from mechanical surface (output end) of the objective assembly - see drawing.
 3 Measured from nominal beam axis. Adjustment using tilt/yaw adjustment internal to CellX, while meeting all optical specifications.
 4 Assumes the objective assembly mounted within less than 200 mm (optical path length) from the output face of CellX.
 5 Adjustment using telescope adjustment internal to CellX, while meeting all optical specifications.

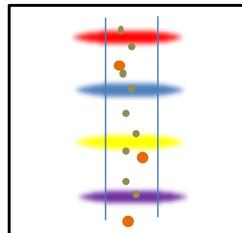
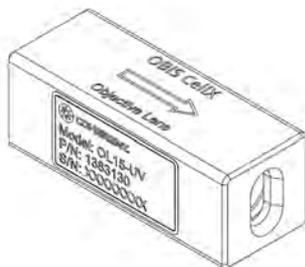
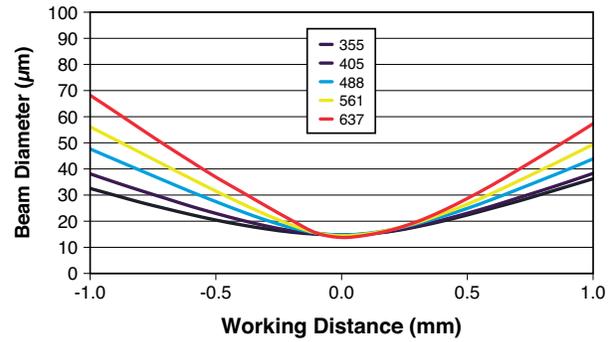
OBIS CellX

NOMINAL OPTICAL PERFORMANCE

Nominal optical performance through focus OL10-UV



Nominal optical performance through focus OL15-UV

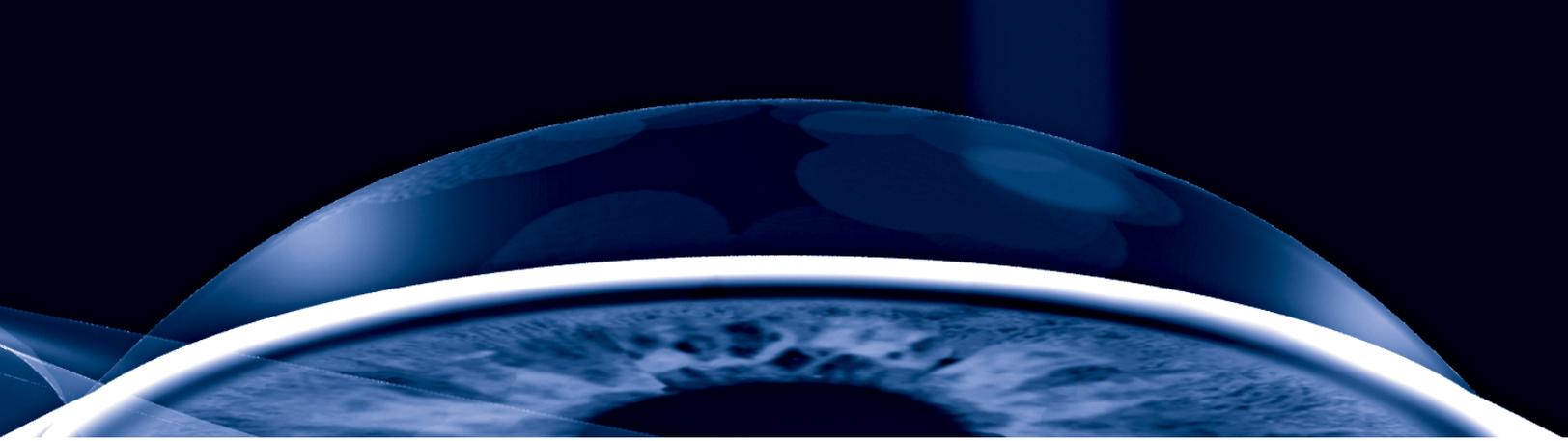


Flow cytometry example:
four laser focus with separated positions - user adjustable

PART NUMBER	Laser
1426532	CellX Laser 1x50 mW 488 nm
1426531	CellX Laser 2x50 mW 488, 637 nm
1426530	CellX Laser 2x50 mW 488, 561 nm
1426529	CellX Laser 2x50 mW 405, 488 nm
1318680	CellX Laser 3x50 mW 405, 488, 637 nm
1318682	CellX Laser 4x50 mW 405, 488, 561, 637 nm
1318681	CellX Laser 3x100 mW 405, 488, 637 nm
1318683	CellX Laser 4x100 mW 405, 488, 561, 637 nm
PART NUMBER	Accessory
1323532	CellX System 4x100 mW 405, 488, 561, 637 nm Developers Kit, includes CellX and all parts below
1321203	Accessory Kit for CellX (Alignment Tools, Interlock Plug, USB Cable, Coherent Connection, User Manual)
1365935	Accessory, Objective Lens, OL10-UV 10 μ m Focus, CellX
1383130	Accessory, Objective Lens, OL15-UV 15 μ m Focus, CellX
1321963	Accessory, Mount, Front Aperture Objective Holder, CellX
1321964	Accessory, Translation Stage with Mount for Objective Lens, CellX
1323285	Heatsink, Fan-Cooled with Stage Platform Extension, CellX
1315322	Heatsink, OEM, CellX
1299911	Accessory, Control Board, Adjustable Power, CellX
1298365	Accessory, Control Board, Key-Switch, RS-232, Digital/Analog SMB, CellX
1313160	Accessory, Interlock Plug, DB37, CellX
1323597	Accessory, Control Board, 4 Analog Modulation Inputs, RS-232
1211389	Power Supply, OBIS for 6L Remote, CellX, Laser Box



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Genesis MX MTM-Series

Multitransverse Mode Visible and Infrared OEM and End-User OPS Laser Systems

Applications like Ophthalmology, Microscopy and Photocoagulation are enabled by low noise, visible and infrared true CW lasers. The Genesis MX MTM-Series provides up to 8W of visible laser light or 10 W of infrared laser light from either OEM or CDRH-compliant end-user systems.

Based on Coherent's unique Optically Pumped Semiconductor Laser (OPSL) technology, the Genesis MX MTM-Series features variable output power without changing the beam parameters. This, combined with low noise and high stability, provides unparalleled laser performance in a convenient package.

Genesis MX MTM-Series is the perfect match for customers in need of the highest performing CW laser technology for research and instrumentation in medical and therapeutic applications.

FEATURES & BENEFITS

- Multitransverse mode
- OEM or end-user versions
- Air- or water-cooled solutions

APPLICATIONS

- Ophthalmology
- Microscopy
- Photocoagulation



SPECIFICATIONS ¹	Genesis MX-460	Genesis MX-480	Genesis MX-488	Genesis MX-514
Wavelength (nm)	460 ±3	480 ±3	488 ±3	514 ±3
Pulse Format	CW			
Spectral Purity (%)	>99			
Output Power (mW)	1000, 2000	2000	3000, 5000	3000, 5000
Spatial Mode	Multimode			
Beam Quality (M ²)				
Horizontal				
Vertical	<7			
Beam Circularity ^{2,3,4}	1.25			
Beam Waist Diameter ^{2,4} (mm) (FW, 1/e ²)	1.4	1.6	1.6	1.8
Beam Divergence ^{2,4} (mrad) (FW, 1/e ²)	1.3	1.5	1.5	<1.4
Beam Waist Location ^{2,4,5} (mm)	0.25 ±0.25			
Beam Pointing Stability ^{2,6} (µrad/°C)	<5			
Horizontal Beam Position Tolerance ⁷ (mm)	±<1.0			
Vertical Beam Position Tolerance ⁷ (mm)	±<1.0			
Beam Pointing Tolerance ⁷ (mrad)	<5			
Polarization Ratio	Linear, >100:1			
Polarization Direction	Vertical, ±5°			
Noise				
10 Hz to 10 MHz (%) (rms)				
10 Hz to 5 kHz (%) (pk-pk)	<10			
Power Stability ⁸ (%) (pk-pk)	±<1			
Warm-up Time (minutes)	<10			
CDRH Compliant	Yes			
ELECTRICAL SPECIFICATIONS				
Operating Voltage (VAC)	100 to 240			
Frequency (Hz)	50 to 60			
Power Consumption (W)	500			
ENVIRONMENTAL CONDITIONS				
Ambient Temperature	10 to 40°C (50 to 104°F) water-cooled, 10 to 35°C (50 to 95°F) air-cooled -10 to 60°C (14 to 140°F)			
Operating				
Non-Operating				
Relative Humidity ⁹ (%)	5 to 95			
CE Marking	IEC 61010-1/EN 61010-1			
Dimensions (L x W x H)	281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.) 2 m (6.5 ft.)			
Laser Head ¹⁰				
Cables (laser head to controller)				

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.

2 Contact Coherent for any specific application requirements.

3 Circularity defined as vertical diameter divided by horizontal diameter.

4 Typical value.

5 Negative value corresponds to a location inside head.

6 After 2-hour warm-up.

7 Measured at the output window.

8 Measured over 8 hrs.

9 Non-condensing.

10 Back connector not included in laser head length dimension.

SPECIFICATIONS ¹	Genesis MX-532	Genesis MX-561	Genesis MX-577	Genesis MX-590
Wavelength (nm)	532 ±3	561 ±3	577 ±3	590 ±3
Pulse Format	CW			
Spectral Purity (%)	>99			
Output Power (mW)	3000, 5000, 8000	2000	3000, 5000	1000, 2000
Spatial Mode	Multimode			
Beam Quality (M ²)				
Horizontal	<7			
Vertical	<7			
Beam Circularity ^{2,3,4}	1.25			
Beam Waist Diameter ^{2,4} (mm) (FW, 1/e ²)	1.8			
Beam Divergence ^{2,4} (mrad) (FW, 1/e ²)	<1.4			
Beam Waist Location ^{2,4,5} (mm)	0.25 ±0.25			
Beam Pointing Stability ^{2,6} (µrad/°C)	<5			
Horizontal Beam Position Tolerance ⁷ (mm)	±<1.0			
Vertical Beam Position Tolerance ⁷ (mm)	±<1.0			
Beam Pointing Tolerance ⁷ (mrad)	<5			
Polarization Ratio	Linear, >100:1			
Polarization Direction	Vertical, ±5°			
Noise				
10 Hz to 10 MHz (%) (rms)	<1			
10 Hz to 5 kHz (%) (pk-pk)	<10			
Power Stability ⁸ (%) (pk-pk)	±<1			
Warm-up Time (minutes)	<10			
CDRH Compliant	Yes			
ELECTRICAL SPECIFICATIONS				
Operating Voltage (VAC)	100 to 240			
Frequency (Hz)	50 to 60			
Power Consumption (W)	500			
ENVIRONMENTAL CONDITIONS				
Ambient Temperature				
Operating	10 to 40°C (50 to 104°F) water-cooled, 10 to 35°C (50 to 95°F) air-cooled			
Non-Operating	-10 to 60°C (14 to 140°F)			
Relative Humidity ⁹ (%)	5 to 95			
CE Marking	IEC 61010-1/EN 61010-1			
Dimensions (L x W x H)				
Laser Head ¹⁰	281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.)			
Cables (laser head to controller)	2 m (6.5 ft.)			

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
 2 Contact Coherent for any specific application requirements.
 3 Circularity defined as vertical diameter divided by horizontal diameter.
 4 Typical value.
 5 Negative value corresponds to a location inside head.
 6 After 2-hour warm-up.
 7 Measured at the output window.
 8 Measured over 8 hrs.
 9 Non-condensing.
 10 Back connector not included in laser head length dimension.

Genesis MX

SPECIFICATIONS ¹	Genesis MX-920	Genesis MX-1064	Genesis MX-1154
Wavelength (nm)	920 ±10	1064 ±10	1154 ±15
Output Power (mW)	4000	10,000	6000
Spatial Mode	Multimode		
Bandwidth (nm)	<5.0		
Beam Waist Dimensions			
Horizontal ² (FW, 1/e ² , mm)	0.6		
Vertical ² (FW, 1/e ² , mm)	0.6		
Location ^{2,3} (mm)	-150		
Beam Divergence			
Horizontal ⁴ (FW, 1/e ² , mrad)	3.5		
Vertical ⁴ (FW, 1/e ² , mrad)	3.5		
M ²			
Horizontal	<3		
Vertical	<3		
Beam Pointing Stability ⁴ (μrad/°C)	<5		
Noise			
10 Hz to 10 MHz (%) (rms)	<0.5		
10 Hz to 5 kHz (%) (pk-pk)	<10		
Polarization Ratio	Vertical, >100:1		
UTILITY AND ENVIRONMENTAL REQUIREMENTS			
Operating Diode Current (A)	<30	<38	<32
Maximum Diode Current (A)	<36	<45	<38.5
Diode Voltage (V)	500		
Cooling Requirements ⁵	Active cooling required		
Case Temperature (°C)	25 ±2		
Humidity	Non-condensing		
Dimensions (L x W x H)			
Laser Head ⁵	256 x 49 x 71 mm (10.07 x 1.93 x 2.76 in.)		
Weight			
Laser Head (g)	730 ±10		

¹ Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.

² Typical value.

³ Measured from the output face, negative value corresponds to a location inside the head; positive outside.

⁴ Measured at the output window; tolerance relative to the nominal center of the output window and perpendicular to the mounting plane.

⁵ Contact integration support for options on air-cooling TEC or waterplate.

SPECIFICATIONS ¹	Genesis MX 460 OEM	Genesis MX 480 OEM	Genesis MX 488 OEM	Genesis MX 514 OEM
Wavelength (nm)	460 ±3	480 ±3	488 ±3	514 ±3
Output Power (mW)	1000, 2000	2000	3000, 5000	3000, 5000
Spatial Mode	Multimode			
Bandwidth (nm)	<5.0			
Beam Waist Dimensions				
Horizontal ² (FW, 1/e ² , mm)	0.14	0.17	0.17	0.17
Vertical ² (FW, 1/e ² , mm)	0.11	0.13	0.16	0.13
Location ^{2,3} (mm)	-60	-60	-60	-60
Beam Divergence				
Horizontal ² (FW, 1/e ² , mrad)	<18	<20	<20	<20
Vertical ² (FW, 1/e ² , mrad)	<16	<20	<20	<20
Collimated Version				
Beam Waist Diameter ² (1/e ² , mm)	1.4	1.6	1.6	1.8
Beam Divergence ² (1/e ² , mrad)	1.3	1.5	1.5	1.4
Beam Waist Location ² (m)	0.25 ±0.25	0.25 ±0.25	0.25 ±0.25	0.25 ±0.25
M ²				
Horizontal	<7			
Vertical	<7			
Beam Pointing Stability ⁴ (μrad/°C)	<5			
Noise				
10 Hz to 10 MHz (%) (rms)	<1			
10 Hz to 5 kHz (%) (pk-pk)	<10			
Polarization Ratio	Horizontal, >100:1			
Direct Modulation ⁵	Available			
UTILITY AND ENVIRONMENTAL REQUIREMENTS				
Operating Diode Current (A)	<22.5, <27	<27	<30, <33	<30, <33
Maximum Diode Current (A)	<27, <32	<32	<36, <40	<36, <40
Diode Voltage (V)	1.5 to 2.2			
Cooling Requirements ⁶	Active cooling required			
Case Temperature (°C)	25 ±2			
Humidity	Non-condensing			
Dimensions (L x W x H)				
Laser Head ⁵	121 x 44 x 65 mm (4.76 x 1.73 x 2.56 in.)			
Weight				
Laser Head (g)	730 ±10			

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
 2 Typical value.
 3 Measured from the output face, negative value corresponds to a location inside the head; positive outside.
 4 Measured at the output window; tolerance relative to the nominal center of the output window and perpendicular to the mounting plane.
 5 Theoretical limit is >1 MHz; actual performance will be limited by the diode-driver (not included).
 6 Contact integration support for options on air-cooling TEC or waterplate.

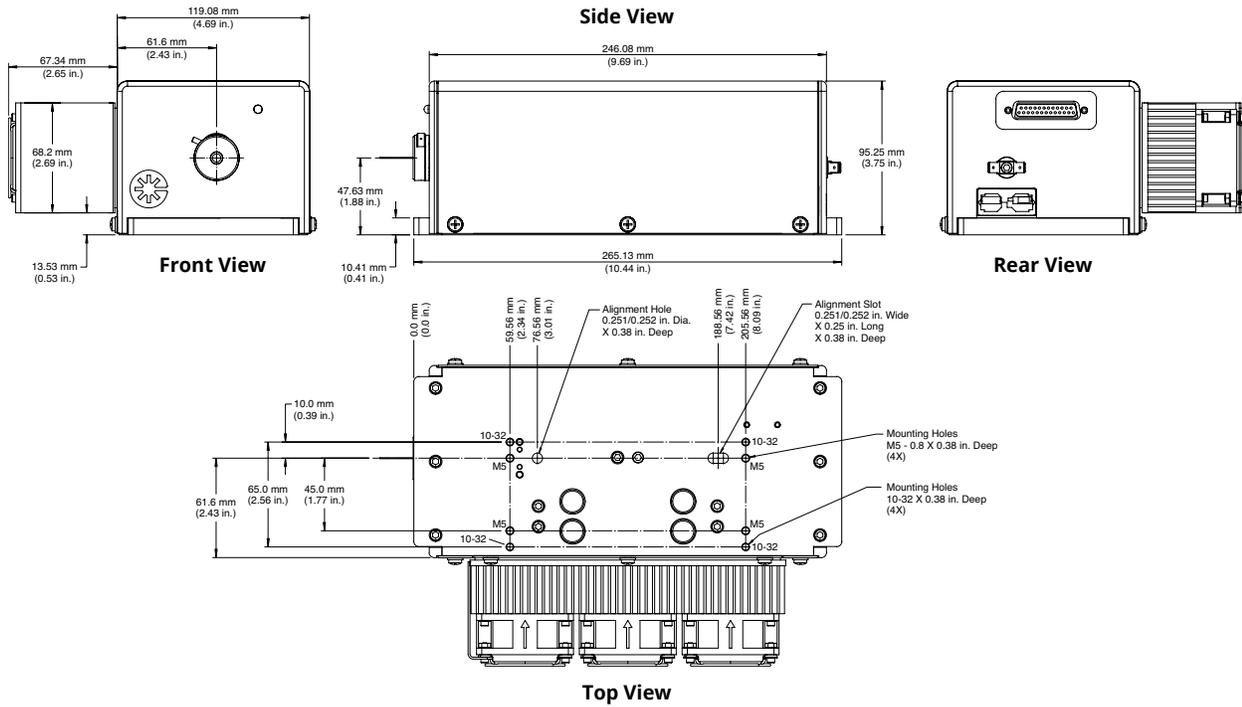
Genesis MX

SPECIFICATIONS ¹	Genesis MX 532 OEM	Genesis MX 561 OEM	Genesis MX 577 OEM	Genesis MX 590 OEM
Wavelength (nm)	532 ±3	561 ±3	577 ±3	590 ±3
Output Power (mW)	3000, 5000, 8000	2000	3000, 5000	1000, 2000
Spatial Mode	Multimode			
Bandwidth (nm)	<0.5			
Beam Waist Dimensions				
Horizontal ² (FW, 1/e ² , mm)	0.17	0.17	0.13	0.13
Vertical ² (FW, 1/e ² , mm)	0.13	0.13	0.13	0.13
Location ^{2,3} (mm)	-60	-60	-60	-60
Beam Divergence				
Horizontal ² (FW, 1/e ² , mrad)	<20			
Vertical ² (FW, 1/e ² , mrad)	<20			
Collimated Version				
Beam Waist Diameter ² (1/e ² , mm)	1.8			
Beam Divergence ² (1/e ² , mrad)	1.4			
Beam Waist Location ² (m)	0.25 ±0.25			
M ²				
Horizontal	<7			
Vertical	<7			
Beam Pointing Stability ⁴ (µrad/°C)	<5			
Noise				
10 Hz to 10 MHz (%) (rms)	<1			
10 Hz to 5 kHz (%) (pk-pk)	<10			
Polarization Ratio	Horizontal, >100:1			
Direct Modulation ⁵	Available			
UTILITY AND ENVIRONMENTAL REQUIREMENTS				
Operating Diode Current (A)	<30, <33, <38	<33	<30, <33	<30, <32
Maximum Diode Current (A)	<36, <40, <45	<40	<36, <40	<36, <38
Diode Voltage (V)	1.5 to 2.2			
Cooling Requirements ⁶	Active cooling required			
Case Temperature (°C)	25 ±2			
Humidity	Non-condensing			
Dimensions (L x W x H)				
Laser Head ⁵	121 x 44 x 65 mm (4.76 x 1.73 x 2.56 in.)			
Weight				
Laser Head (g)	730 ±10			

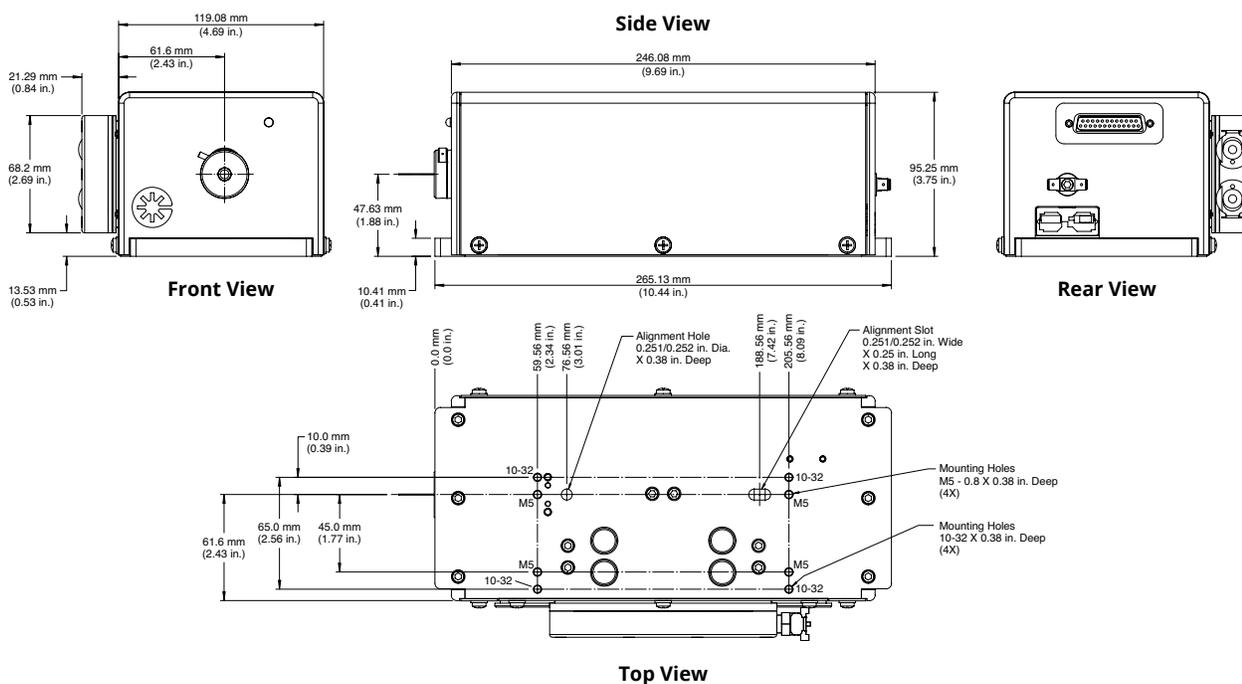
1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
 2 Typical value.
 3 Measured from the output face, negative value corresponds to a location inside the head; positive outside.
 4 Measured at the output window; tolerance relative to the nominal center of the output window and perpendicular to the mounting plane.
 5 Theoretical limit is >1 MHz; actual performance will be limited by the diode-driver (not included).
 6 Contact integration support for options on air-cooling TEC or waterplate.

MECHANICAL SPECIFICATIONS

Genesis MX MTM-Series (End-User) Air-cooled version



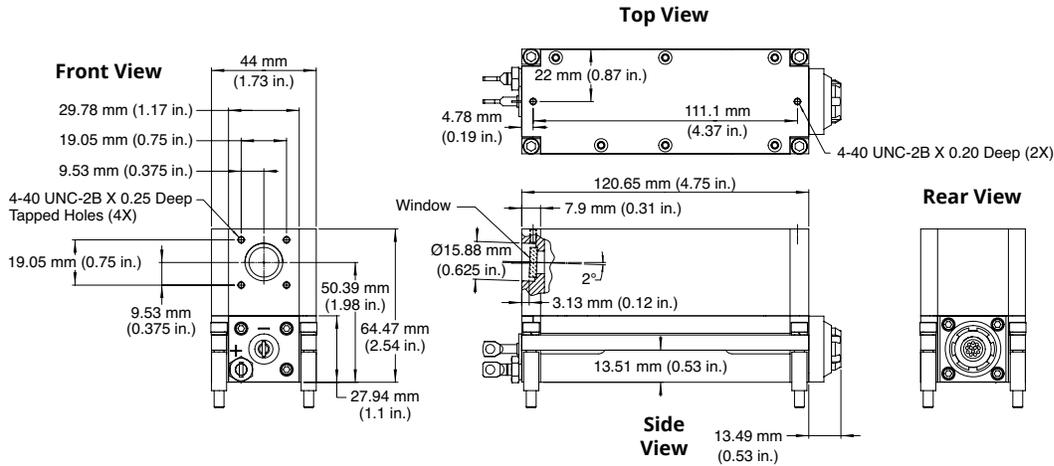
Genesis MX MTM-Series (End-User) Water-cooled version



Genesis MX

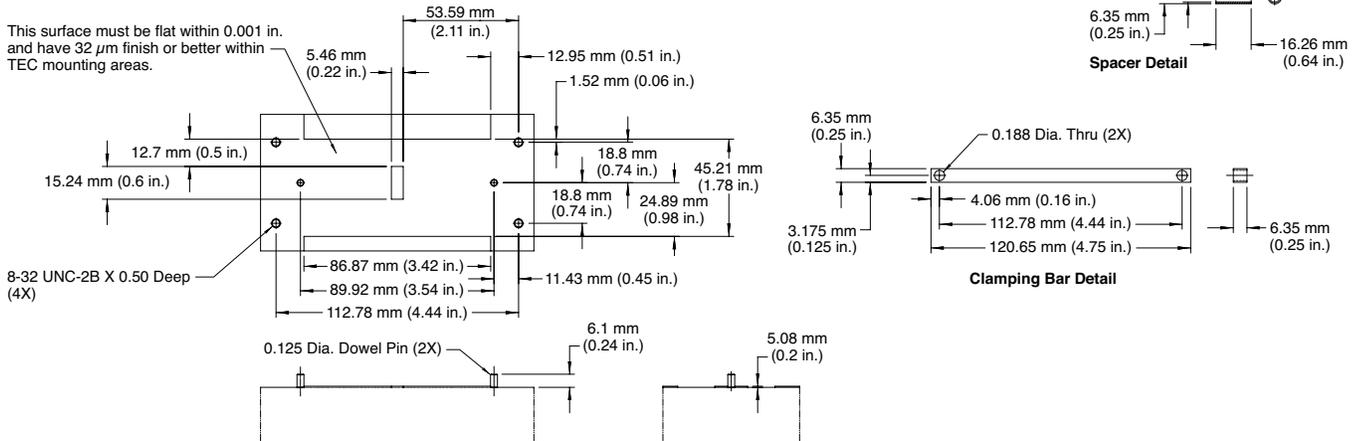
MECHANICAL SPECIFICATIONS

Genesis MX MTM-Series (OEM)



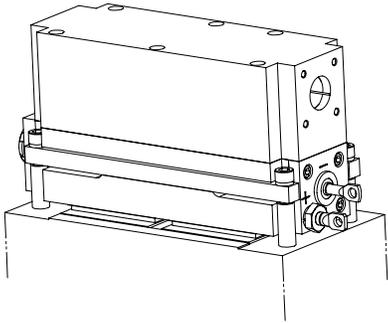
Base Plate Requirements

This surface must be flat within 0.001 in. and have 32 µm finish or better within TEC mounting areas.

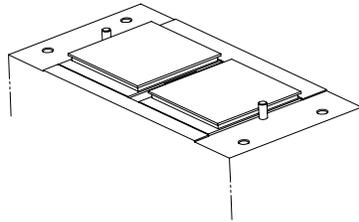


MECHANICAL SPECIFICATIONS

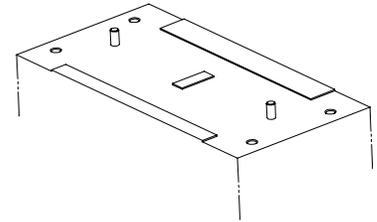
Genesis MX-Series Heat Sink



OPS Head Mounted on Heat Sink



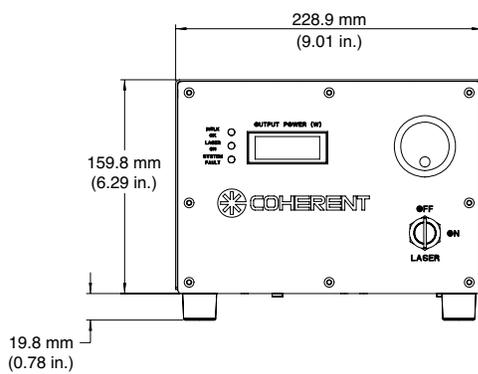
Heat Sink with Thermoelectric Coolers Installed



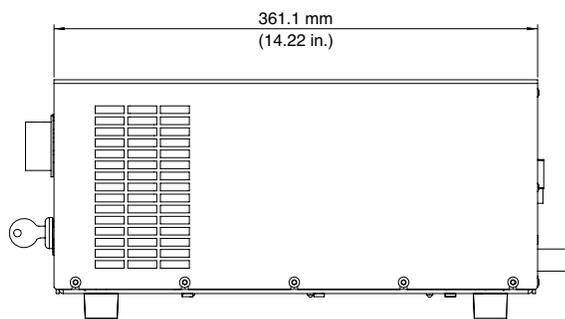
Heat Sink Top Features

Genesis MX MTM-Series Benchtop Power Supply

Front View



Side View

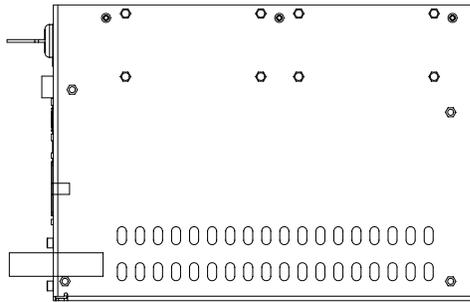


MECHANICAL SPECIFICATIONS

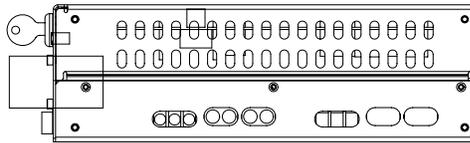
**Genesis MX MTM-Series
OEM Benchtop Power Supply**

Genesis MX

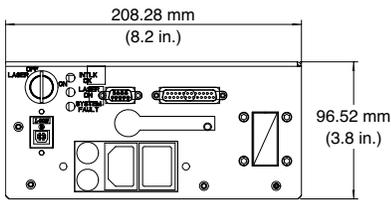
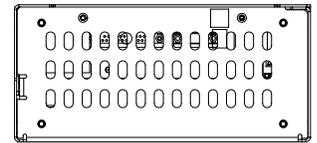
Top View



Side View

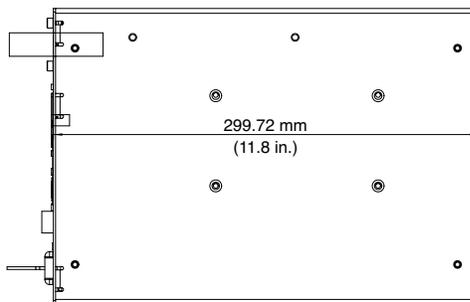


Rear View



Front View

Bottom View



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 Genesis MX MTM 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.



Genesis MX STM-Series

TEM₀₀ Visible OEM and End-User OPS Laser Systems

Applications like Flow Cytometry, Particle Counting, DNA Sequencing and Microscopy are enabled by low noise, visible true CW lasers. The Genesis MX STM-Series provides up to 1 W of visible laser light from either OEM or CDRH-compliant end-user systems.

Based on Coherent's unique Optically Pumped Semiconductor Laser (OPSL) technology, the Genesis MX STM-Series features variable output power without changing the beam parameters. This, combined with a diffraction-limited beam, low noise and high stability, provides unparalleled laser performance in a convenient package.

Genesis MX STM-Series is the perfect match for customers in need of the highest performing CW laser technology for research and instrumentation in life science and biological applications.

FEATURES & BENEFITS

- Single Transverse Mode (TEM₀₀)
- OEM or end-user versions
- Air- or water-cooled solutions

APPLICATIONS

- Flow Cytometry
- Particle Counting
- DNA Sequencing
- Microscopy



SPECIFICATIONS ¹	Genesis MX-460	Genesis MX-480	Genesis MX-488	Genesis MX-514
Wavelength (nm)	460 ±3	480 ±3	488 ±3	514 ±3
FWHM Linewidth (GHz)	<30			
Operating Mode	CW			
Output Power (mW)	500	500	500, 1000	500, 1000
Power Tunability ² (mW)	50 (to 100% full rated power)			
Spectral Purity (%)	>99			
Spatial Mode	TEM ₀₀			
Beam Quality (M ²)	<1.1			
Beam Circularity ³	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e ²)	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e ²)	0.7 ±0.1			
Beam Waist Location ^{3,4} (mm)	0.25 ±0.25 m			
Beam Pointing Stability ^{5,6} (μrad/°C)	<5			
Horizontal Beam Position Tolerance ⁶ (mm)	±<1.0			
Vertical Beam Position Tolerance ⁶ (mm)	±<1.0			
Beam Pointing Tolerance ⁶ (mrad)	<5			
Polarization Ratio	>100:1			
Polarization Direction	Vertical, ±5° (normal to mounting plane)			
Noise ² (% rms) (10 Hz to 10 MHz)	<0.1			
Noise ^{2,6} (% peak to peak) (10 Hz to 5 kHz)	<1			
Power Stability ⁷ (%) (pk-pk)	±<1			
Warm-up Time (minutes)	<10			
CDRH Compliant	Yes			
ELECTRICAL SPECIFICATIONS				
Operating Voltage (VAC)	100 to 240			
Frequency (Hz)	50 to 60			
Power Consumption (W)	500			
Operating Diode Current	n/a			
Maximum Diode Current	n/a			
Diode Voltage	n/a			
ENVIRONMENTAL CONDITIONS				
Head Cooling Requirements	Forced air cooled or water cooled heatsink comes included (integrated with laser); chiller for water cooled model is sold separately.			
Ambient Temperature				
Operating	10 to 40°C (50 to 104°F)			
Non-Operating ⁸	-10 to 60°C (14 to 140°F)			
Relative Humidity ⁹ (%)	5 to 95, non-condensing			

¹ Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
² Noise specification applies at full rated power. Noise is expected to increase roughly inversely proportionally to the output power.
³ Circularity defined as vertical diameter divided by horizontal diameter.
⁴ Negative value corresponds to a location inside head.
⁵ After 2-hour warm-up.
⁶ Measured at the output window.
⁷ Measured over 8 hrs.
⁸ Water cooled model needs to be completely purged of residual water before exposure to freezing temperatures.
⁹ Non-condensing.

SPECIFICATIONS ¹	Genesis MX 532	Genesis MX 561	Genesis MX 577	Genesis MX 590
Wavelength (nm)	532 ±3	561 ±3	577 ±3	590 ±3
FWHM Linewidth (GHz)	<30			
Operating Mode	CW			
Output Power (mW)	500, 1000, 1500	500	500, 1000	500, 1000
Power Tunability (mW)	50 (to 100% full rated power)			
Spectral Purity (%)	>99			
Spatial Mode	TEM ₀₀			
Beam Quality (M ²)	<1.1			
Beam Circularity ³	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e ²)	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e ²)	0.7 ±0.1			
Beam Waist Location ^{3,4} (mm)	0.25 ±0.25 m			
Beam Pointing Stability ^{5,6} (μrad/°C)	<5			
Horizontal Beam Position Tolerance ⁶ (mm)	±<1.0			
Vertical Beam Position Tolerance ⁶ (mm)	±<1.0			
Beam Pointing Tolerance ⁶ (mrad)	<5			
Polarization Ratio	>100:1			
Polarization Direction	Vertical, ±5° (normal to mounting plane)			
Noise ² (% rms) (10 Hz to 10 MHz)	<0.1			
Noise ^{2,6} (% peak to peak) (10 Hz to 5 kHz)	<1			
Power Stability ⁷ (%) (pk-pk)	±<1			
Warm-up Time (minutes)	<10			
CDRH Compliant	Yes			
ELECTRICAL SPECIFICATIONS				
Operating Voltage (VAC)	100 to 240			
Frequency (Hz)	50 to 60			
Power Consumption (W)	500			
Operating Diode Current	n/a			
Maximum Diode Current	n/a			
Diode Voltage	n/a			
ENVIRONMENTAL CONDITIONS				
Head Cooling Requirements	Forced air cooled or water cooled heatsink comes included (integrated with laser); chiller for water cooled model is sold separately.			
Ambient Temperature	10 to 40°C (50 to 104°F)			
Operating	10 to 40°C (50 to 104°F)			
Non-Operating ⁸	-10 to 60°C (14 to 140°F)			
Relative Humidity ⁹ (%)	5 to 95, non-condensing			

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
 2 Noise specification applies at full rated power. Noise is expected to increase roughly inversely proportionally to the output power.
 3 Circularity defined as vertical diameter divided by horizontal diameter.
 4 Negative value corresponds to a location inside head.
 5 After 2-hour warm-up.
 6 Measured at the output window.
 7 Measured over 8 hrs.
 8 Water cooled model needs to be completely purged of residual water before exposure to freezing temperatures.
 9 Non-condensing.

Genesis MX

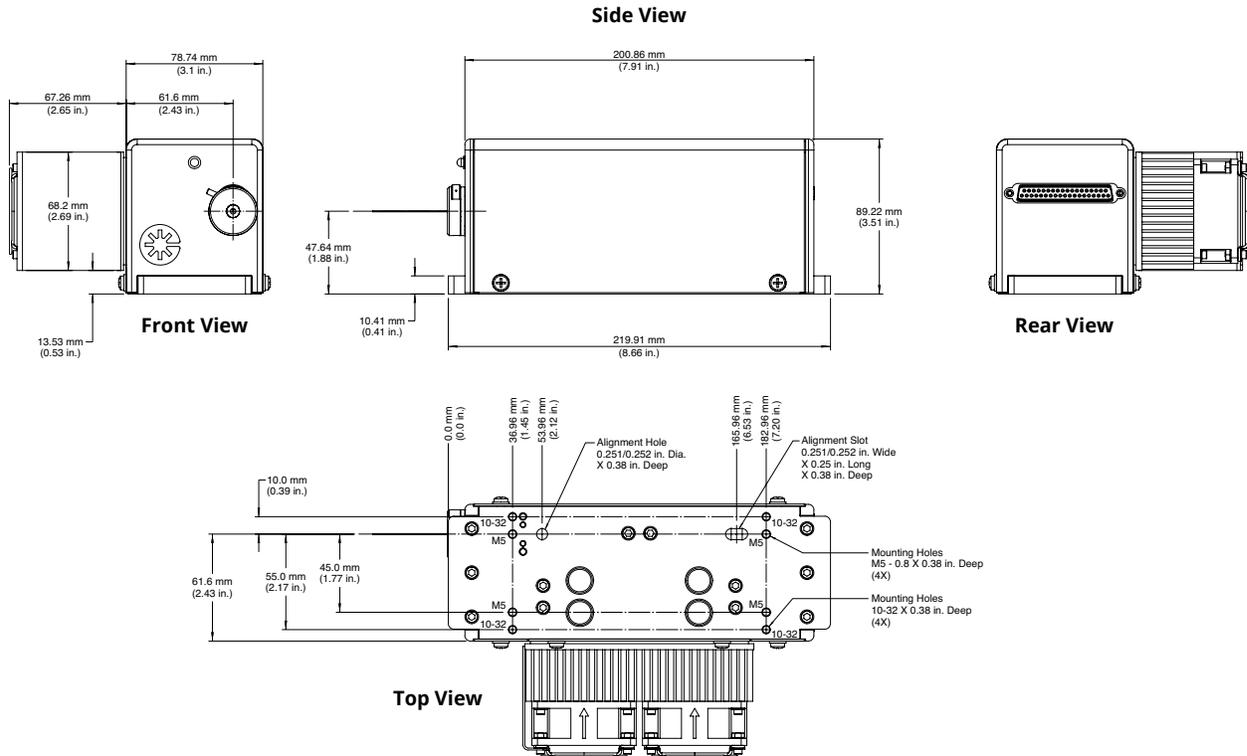
MECHANICAL SPECIFICATIONS

Dimensions (L x W x H)	
Laser Head ¹ with Air-Cooled Heatsink (End User)	201 x 146 x 89 mm (7.9 x 5.7 x 3.5 in.)
Laser Head ¹ with Water-Cooled Heatsink (End User)	201 x 100 x 89 mm (7.9 x 3.9 x 3.5 in.)
Power Supply (End User)	361 x 229 x 180 mm (14.2 x 9.0 x 7.1 in.)
Laser Head (OEM)	n/a
Power Supply (OEM)	n/a
Cables (laser head to controller)	3 m (9.8 ft.)
Weight	
Laser Head (End User)	Water-Cooled 4.9 kg / Air-Cooled 3.8 kg
Power Supply (End User)	6.0 kg
Laser Head (OEM)	n/a
Power Supply (OEM)	n/a

¹ Back connector not included in laser head length dimension.

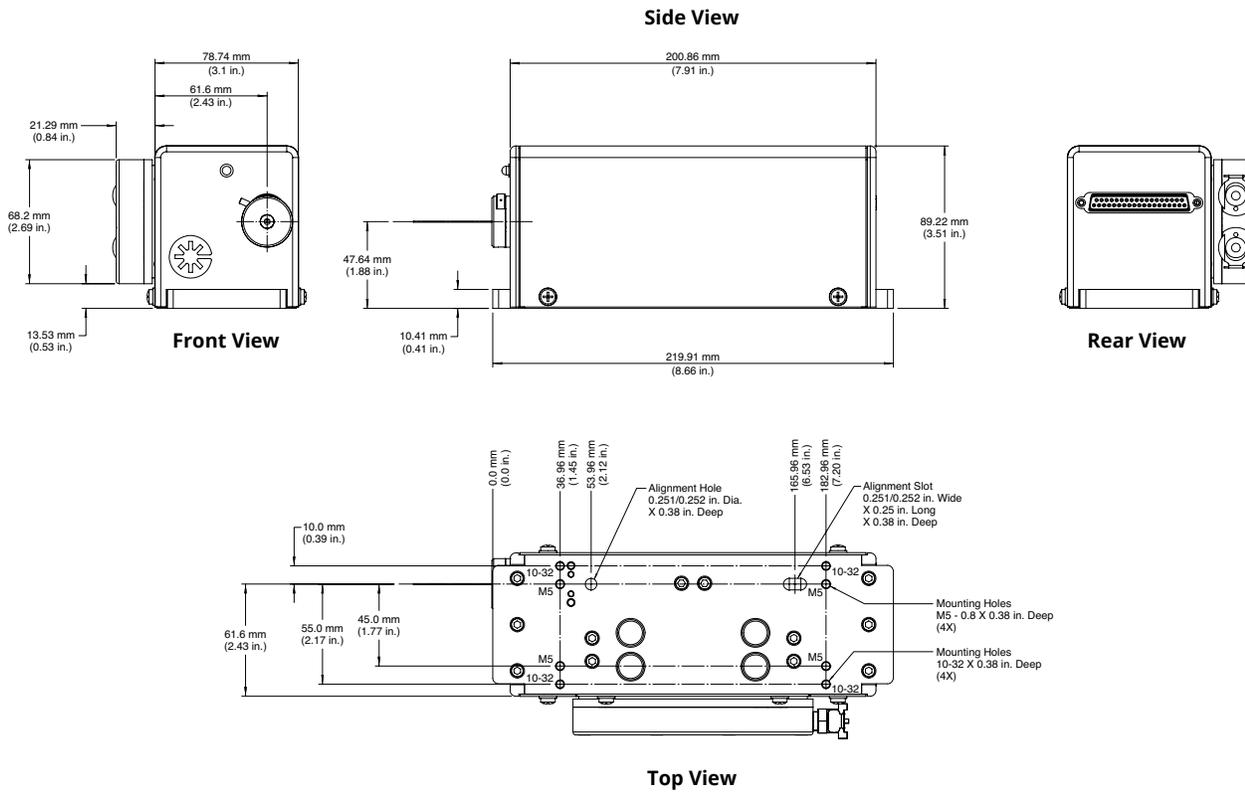
MECHANICAL SPECIFICATIONS

Genesis MX STM-Series (End-User)
Air-Cooled version



MECHANICAL SPECIFICATIONS

Genesis MX STM-Series (End-User) Water-Cooled version



Genesis MX

SPECIFICATIONS ¹	Genesis MX 460 OEM	Genesis MX 480 OEM	Genesis MX 488 OEM	Genesis MX 514 OEM
Wavelength (nm)	460 ±3	480 ±3	488 ±3	514 ±3
FWHM Linewidth (GHz)	<30			
Operating Mode	CW			
Output Power (mW)	500	500	500, 1000	500, 1000
Power Tunability ² (mW)	Range is dependent on driving electronics; 50 mW to 100% full rated power with Coherent controller / power supply			
Spectral Purity (%)	>99			
Spatial Mode	TEM ₀₀			
Beam Quality (M ²)	<1.1			
Beam Circularity ³	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e ²)	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e ²)	0.7 ±0.1			
Beam Waist Location ^{3,4} (mm)	0.25 ±0.25 m			
Beam Pointing Stability ^{5,6} (μrad/°C)	<5			
Horizontal Beam Position Tolerance ⁶ (mm)	±<1.0			
Vertical Beam Position Tolerance ⁶ (mm)	±<1.0			
Beam Pointing Tolerance ⁶ (mrad)	<5			
Polarization Ratio	>100:1			
Polarization Direction	Horizontal (parallel to heatsink)			
Noise ² (% rms) (10 Hz to 10 MHz)	<0.1			
Noise ^{2,6} (% peak to peak) (10 Hz to 5 kHz)	<1			
Power Stability ⁷ (%) (pk-pk)	±<1 (with Coherent controller/power supply)			
Warm-up Time (minutes)	<10 (with Coherent controller/power supply and heatsink)			
CDRH Compliant	No			
ELECTRICAL SPECIFICATIONS				
Operating Voltage (VAC)	n/a			
Frequency (Hz)	n/a			
Power Consumption (W)	n/a			
Operating Diode Current	<12.5	<10	<10, <12.5	<10, <12.5
Maximum Diode Current	<15	<12	<12, <15	<12, <15
Diode Voltage	1.5 to 2.2			
ENVIRONMENTAL CONDITIONS				
Head Cooling Requirements	Heat sink required (available from Coherent); case temperature must be maintained at 25 ±1°C			
Ambient Temperature Operating Non-Operating ⁸	Dependent on laser head mounting and heatsinking; 10 to 40°C with Coherent heatsink -10 to 60°C (14 to 140°F)			
Relative Humidity ⁹ (%)	5 to 95, non-condensing			

¹ Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
² Noise specification applies at full rated power. Noise is expected to increase roughly inversely proportionally to the output power.
³ Circularity defined as vertical diameter divided by horizontal diameter.
⁴ Negative value corresponds to a location inside head.
⁵ After 2-hour warm-up.
⁶ Measured at the output window.
⁷ Measured over 8 hrs.
⁸ Water cooled model needs to be completely purged of residual water before exposure to freezing temperatures.
⁹ Non-condensing.

SPECIFICATIONS ¹	Genesis MX 532 OEM	Genesis MX 561 OEM	Genesis MX 577 OEM	Genesis MX 590 OEM
Wavelength (nm)	532 ±3	561 ±3	577 ±3	590 ±3
FWHM Linewidth (GHz)	<30			
Operating Mode	CW			
Output Power (mW)	500, 1000, 1500	500	500, 1000	500, 1000
Power Tunability ² (mW)	Range is dependent on driving electronics; 50 mW to 100% full rated power with Coherent controller / power supply			
Spectral Purity (%)	>99			
Spatial Mode	TEM ₀₀			
Beam Quality (M ²)	<1.1			
Beam Circularity ³	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e ²)	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e ²)	0.7 ±0.1			
Beam Waist Location ^{3,4} (mm)	0.25 ±0.25 m			
Beam Pointing Stability ^{5,6} (µrad/°C)	<5			
Horizontal Beam Position Tolerance ⁶ (mm)	±<1.0			
Vertical Beam Position Tolerance ⁶ (mm)	±<1.0			
Beam Pointing Tolerance ⁶ (mrad)	<5			
Polarization Ratio	>100:1			
Polarization Direction	Horizontal (parallel to heatsink)			
Noise ² (% rms) (10 Hz to 10 MHz)	<0.1			
Noise ^{2,6} (% peak to peak) (10 Hz to 5 kHz)	<1			
Power Stability ⁷ (%) (pk-pk)	±<1 (with Coherent controller/power supply)			
Warm-up Time (minutes)	<10 (with Coherent controller/power supply and heatsink)			
CDRH Compliant	No			
ELECTRICAL SPECIFICATIONS				
Operating Voltage (VAC)	n/a			
Frequency (Hz)	n/a			
Power Consumption (W)	n/a			
Operating Diode Current	<12.5	<10	<10, <12.5	<10, <12.5
Maximum Diode Current	<15	<12	<12, <15	<12, <15
Diode Voltage	1.5 to 2.2			
ENVIRONMENTAL CONDITIONS				
Head Cooling Requirements	Heat sink required (available from Coherent); case temperature must be maintained at 25 ±1°C			
Ambient Temperature Operating Non-Operating ⁸	Dependent on laser head mounting and heatsinking; 10 to 40°C with Coherent heatsink -10 to 60°C (14 to 140°F)			
Relative Humidity ⁹ (%)	5 to 95, non-condensing			

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
 2 Noise specification applies at full rated power. Noise is expected to increase roughly inversely proportionally to the output power.
 3 Circularity defined as vertical diameter divided by horizontal diameter.
 4 Negative value corresponds to a location inside head.
 5 After 2-hour warm-up.
 6 Measured at the output window.
 7 Measured over 8 hrs.
 8 Water cooled model needs to be completely purged of residual water before exposure to freezing temperatures.
 9 Non-condensing.

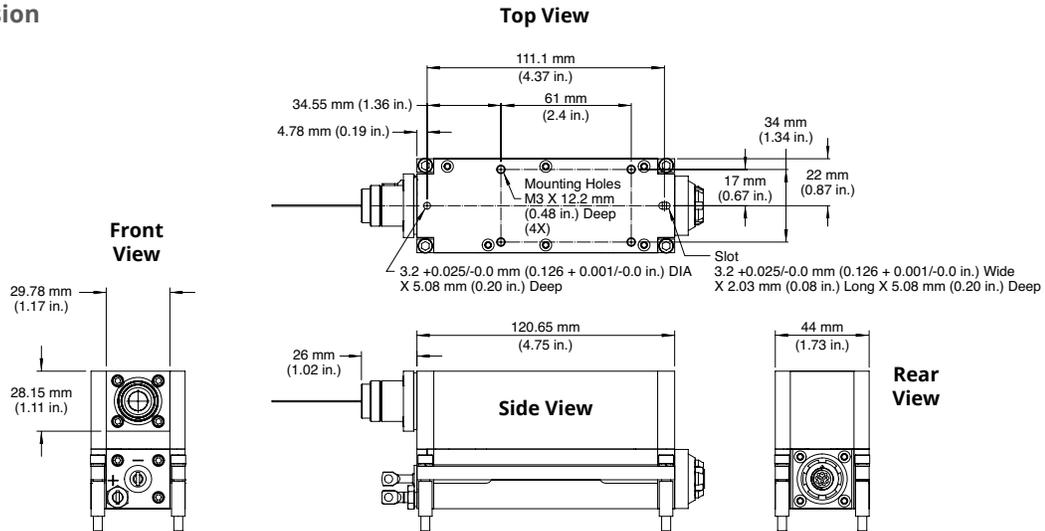
Genesis MX

MECHANICAL SPECIFICATIONS	
Dimensions (L x W x H)	
Laser Head ¹ with Air-Cooled Heatsink (End User)	201 x 146 x 89 mm (7.9 x 5.7 x 3.5 in.)
Laser Head ¹ with Water-Cooled Heatsink (End User)	201 x 100 x 89 mm (7.9 x 3.9 x 3.5 in.)
Power Supply (End User)	361 x 229 x 180 mm (14.2 x 9.0 x 7.1 in.)
Laser Head (OEM)	n/a
Power Supply (OEM)	n/a
Cables (laser head to controller)	3 m (9.8 ft.)
Weight	
Laser Head (End User)	Water-Cooled 4.9 kg / Air-Cooled 3.8 kg
Power Supply (End User)	6.0 kg
Laser Head (OEM)	n/a
Power Supply (OEM)	n/a

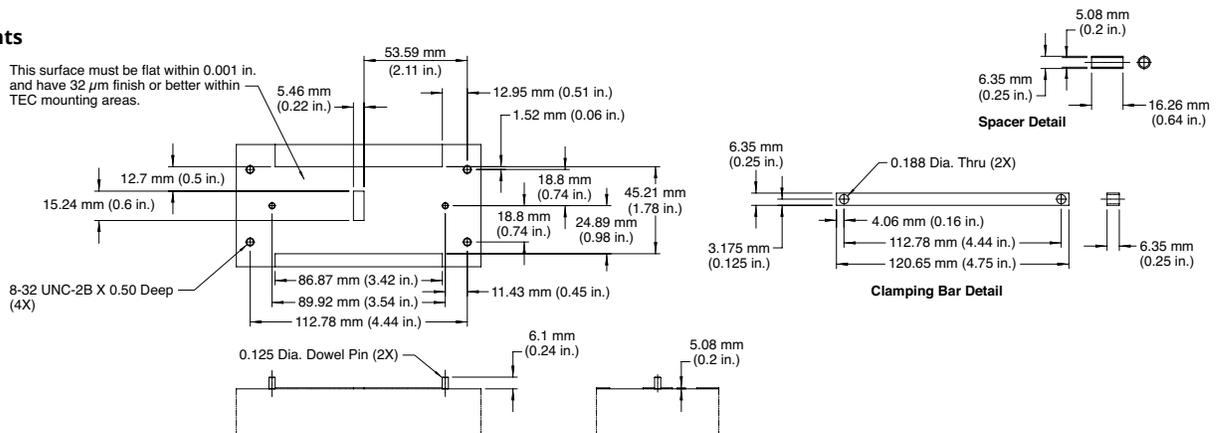
¹ Back connector not included in laser head length dimension.

MECHANICAL SPECIFICATIONS

Genesis MX STM-Series (OEM) Water-cooled version



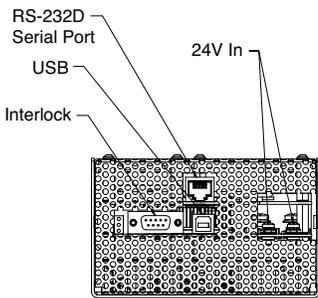
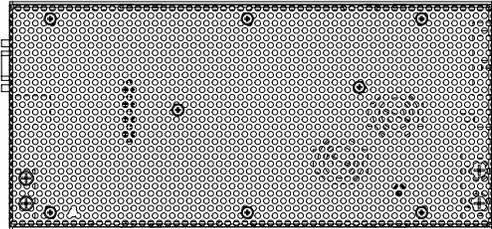
Base Plate Requirements



MECHANICAL SPECIFICATIONS

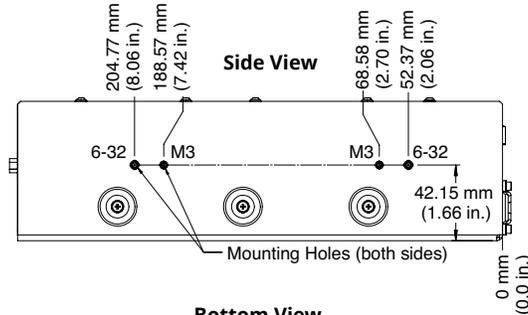
Genesis MX STM-Series Low Current OEM Controller

Top View

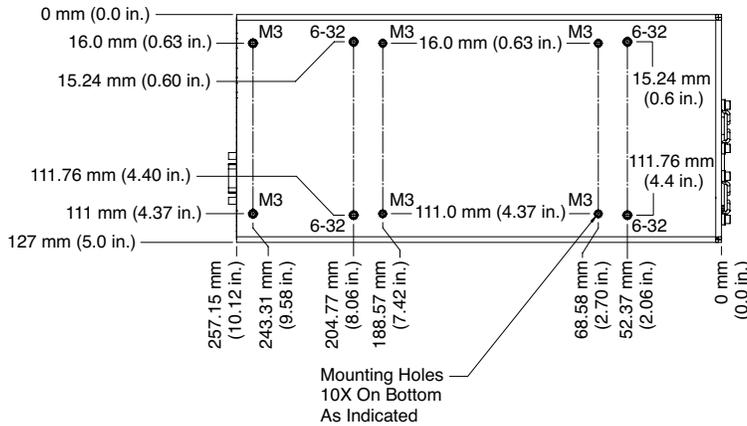


Front View

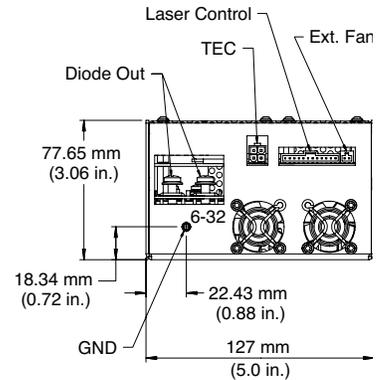
Side View



Bottom View

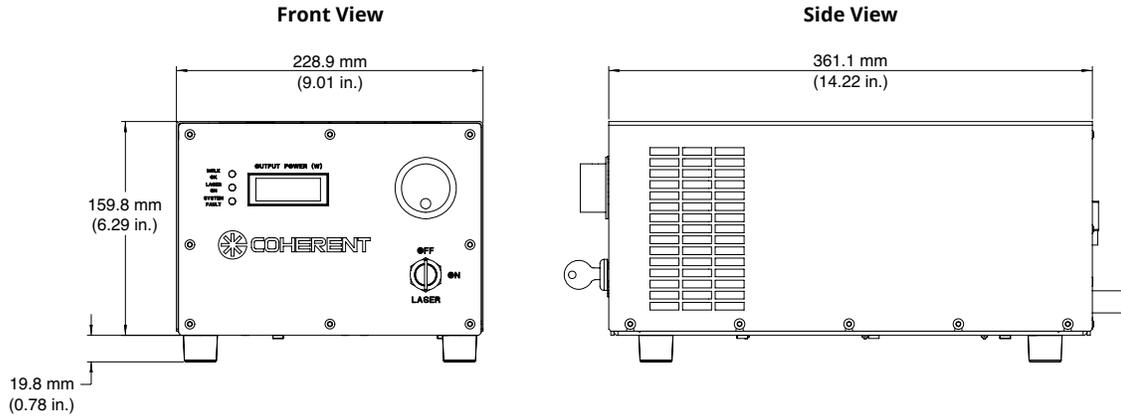


Rear View



MECHANICAL SPECIFICATIONS

**Genesis MX STM-Series
Benchtop Power Supply**



Genesis MX

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 Genesis MX SLM 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.



Genesis MX SLM-Series

Single Frequency Visible OEM and End-User OPS Laser Systems

Applications like Flow Cytometry, Particle Counting, DNA Sequencing and Microscopy are enabled by low noise, visible true CW lasers. The Genesis MX SLM-Series provides up to 1 W of visible laser light from either OEM or CDRH-compliant end-user systems.

Based on Coherent's unique Optically Pumped Semiconductor Laser (OPSL) technology, the Genesis MX SLM-Series features single frequency operation for the most demanding applications. This, combined with stable beam parameters across output powers, a diffraction-limited beam, low noise and high stability, provides unparalleled laser performance in a convenient package.

Genesis MX SLM-Series is the perfect match for customers in need of the highest performing CW laser technology for research and instrumentation in life science and biological applications.

FEATURES & BENEFITS

- All Genesis MX advantages with single-frequency output
- OEM or end-user versions
- Air- or water-cooled solutions

APPLICATIONS

- Flow Cytometry
- Particle Counting
- DNA Sequencing
- Microscopy



SPECIFICATIONS ¹	Genesis MX-460	Genesis MX-480	Genesis MX-488	Genesis MX-514
Wavelength (nm)	460 ±3	480 ±3	488 ±3	514 ±3
FWHM Linewidth (GHz)	<5			
Pulse Format	CW			
Spectral Purity (%)	>99			
Output Power (mW)	500	500	500, 1000	500, 1000
Spatial Mode	TEM ₀₀			
Beam Quality (M ²)	<1.1			
Beam Circularity ²	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e ²)	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e ²)	0.7 ±0.1			
Beam Waist Location ³ (mm)	±0.25			
Beam Pointing Stability ^{4,5} (μrad/°C)	<5			
Horizontal Beam Position Tolerance ⁵ (mm)	±<1.0			
Vertical Beam Position Tolerance ⁵ (mm)	±<1.0			
Beam Pointing Tolerance ⁵ (mrad)	<5			
Polarization Ratio	Linear, >100:1			
Polarization Direction	Vertical, ±5°			
Noise (% rms) (10 Hz to 10 MHz)	<0.1			
Power Stability ⁶ (%) (pk-pk)	±<1			
Warm-up Time (minutes)	<10			
CDRH Compliant	Yes			
ELECTRICAL SPECIFICATIONS				
Operating Voltage (VAC)	100 to 240			
Frequency (Hz)	50 to 60			
Power Consumption (W)	500			
ENVIRONMENTAL CONDITIONS				
Ambient Temperature	10 to 40°C (50 to 104°F)			
Operating	10 to 40°C (50 to 104°F)			
Non-Operating	-10 to 60°C (14 to 140°F)			
Relative Humidity ⁷ (%)	5 to 95			
CE Marking	IEC 61010-1/EN 61010-1			
Dimensions (L x W x H)	281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.)			
Laser Head ⁸	281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.)			
Cables (laser head to controller)	2 m (6.5 ft.)			

¹ Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.

² Circularity defined as vertical diameter divided by horizontal diameter.

³ Negative value corresponds to a location inside head.

⁴ After 2-hour warm-up.

⁵ Measured at the output window.

⁶ Measured over 8 hrs.

⁷ Non-condensing.

⁸ Back connector not included in laser head length dimension.

SPECIFICATIONS ¹	Genesis MX 532	Genesis MX 561	Genesis MX 577	Genesis MX 590
Wavelength (nm)	532 ±3	561 ±3	577 ±3	590 ±3
FWHM Linewidth (GHz)	<5			
Pulse Format	CW			
Spectral Purity (%)	>99			
Output Power (mW)	500, 1000	500	500, 1000	500, 1000
Spatial Mode	TEM ₀₀			
Beam Quality (M ²)	<1.1			
Beam Circularity ²	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e ²)	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e ²)	0.7 ±0.1			
Beam Waist Location ³ (mm)	±0.25			
Beam Pointing Stability ^{4,5} (µrad/°C)	<5			
Horizontal Beam Position Tolerance ⁵ (mm)	±<1.0			
Vertical Beam Position Tolerance ⁵ (mm)	±<1.0			
Beam Pointing Tolerance ⁵ (mrad)	<5			
Polarization Ratio	Linear, >100:1			
Polarization Direction	Vertical, ±5°			
Noise (% rms) (10 Hz to 10 MHz)	<0.1			
Power Stability ⁶ (%) (pk-pk)	±<1			
Warm-up Time (minutes)	<10			
CDRH Compliant	Yes			
ELECTRICAL SPECIFICATIONS				
Operating Voltage (VAC)	100 to 240			
Frequency (Hz)	50 to 60			
Power Consumption (W)	500			
ENVIRONMENTAL CONDITIONS				
Ambient Temperature	10 to 40°C (50 to 104°F)			
Operating	10 to 40°C (50 to 104°F)			
Non-Operating	-10 to 60°C (14 to 140°F)			
Relative Humidity ⁷ (%)	5 to 95			
CE Marking	IEC 61010-1/EN 61010-1			
Dimensions (L x W x H)	281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.)			
Laser Head ⁸	281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.)			
Cables (laser head to controller)	2 m (6.5 ft.)			

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
 2 Circularity defined as vertical diameter divided by horizontal diameter.
 3 Negative value corresponds to a location inside head.
 4 After 2-hour warm-up.
 5 Measured at the output window.
 6 Measured over 8 hrs.
 7 Non-condensing.
 8 Back connector not included in laser head length dimension.

Genesis MX

SPECIFICATIONS ¹	Genesis MX 460 OEM	Genesis MX 480 OEM	Genesis MX 488 OEM	Genesis MX 514 OEM
Wavelength (nm)	460 ±3	480 ±3	488 ±3	514 ±3
Output Power (mW)	500	500	500, 1000	500, 1000
Spatial Mode	TEM ₀₀			
FWHM Linewidth (GHz)	<30			
Pulse Format	CW			
Beam Circularity	1.0 ±0.1			
Beam Position Tolerance (mm)	±<1.0			
Horizontal	±<1.0			
Vertical	±<1.0			
Beam Waist Diameter (mm) (FW, 1/e ²)	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e ²)	0.7 ±0.1			
Beam Waist Location ^{2,3} (m)	±0.25			
M ²	<1.1			
Horizontal	<1.1			
Vertical	<1.1			
Beam Pointing Stability ⁴ (μrad/°C)	<5			
Noise	<0.1			
10 Hz to 10 MHz (%) (rms)	<0.1			
10 Hz to 5 kHz ⁵ (%) (pk-pk)	<1			
Polarization Ratio	Horizontal, >100:1			
CDRH Compliance	No			
Warm-up Time (minutes)	<10			
Direct Modulation ⁶	Available			
UTILITY AND ENVIRONMENTAL REQUIREMENTS				
Operating Diode Current (A)	<12.5	<10	<10, <12.5	<10, <12.5
Maximum Diode Current (A)	<15	<12	<12, <15	<12, <15
Diode Voltage (V)	1.5 to 2.2			
Cooling Requirements ⁷	Active cooling required			
Case Temperature (°C)	25 ±2			
Humidity	Non-condensing			
Dimensions (L x W x H)	121 x 44 x 65 mm (4.76 x 1.73 x 2.56 in.)			
Laser Head	121 x 44 x 65 mm (4.76 x 1.73 x 2.56 in.)			
Weight	730 ±10			
Laser Head (g)	730 ±10			

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.

2 Measured at the output of the laser head.

3 Negative value corresponds to a location within the head.

4 Measured at the output window: tolerance relative to the nominal center of the output window and perpendicular to the mounting plane. 5 Over 8 hours.

6 Theoretical limit is >1 MHz; actual performance will be limited by the diode-driver (not included).

7 Contact integration support for options on air-cooling TEC or waterplate.

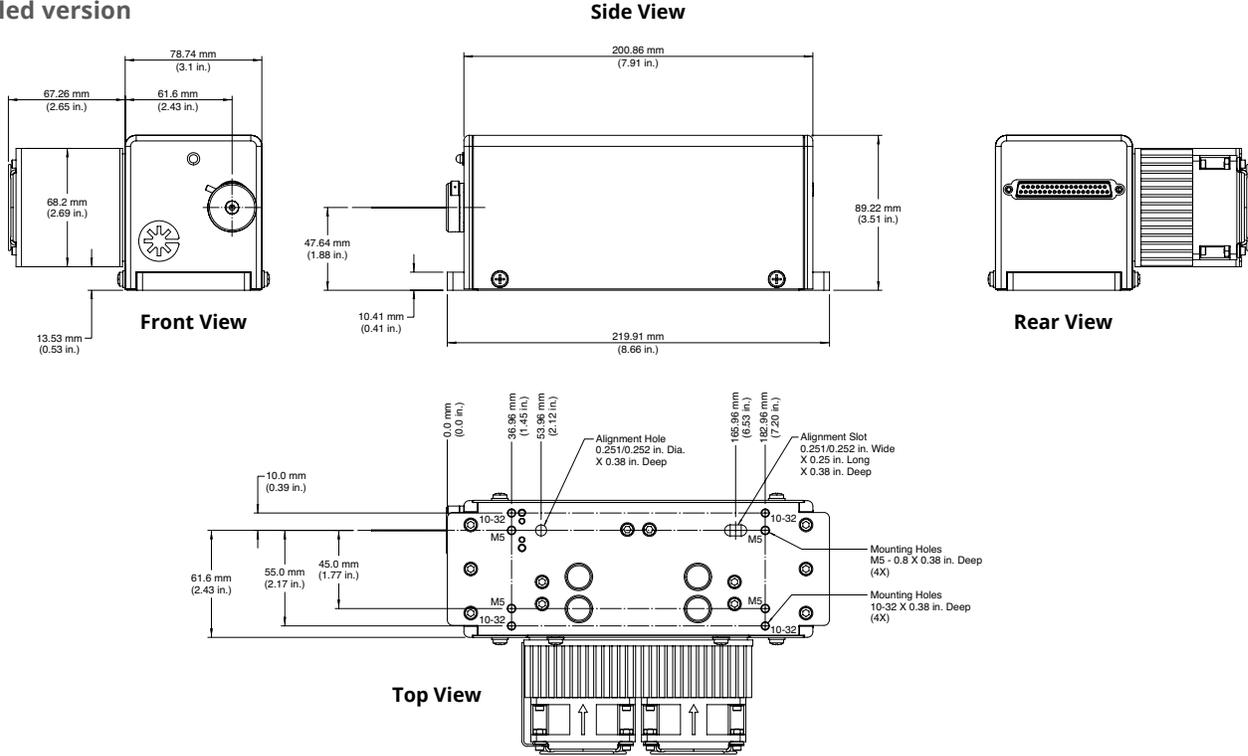
SPECIFICATIONS ¹	Genesis MX 532 OEM	Genesis MX 561 OEM	Genesis MX 577 OEM	Genesis MX 590 OEM
Wavelength (nm)	532 ±3	561 ±3	577 ±3	590 ±3
Output Power (mW)	500, 1000	500	500, 1000	500, 1000
Spatial Mode	TEM ₀₀			
FWHM Linewidth (GHz)	<5			
Pulse Format	CW			
Beam Circularity	1.0 ±0.1			
Beam Position Tolerance (mm)	±<1.0			
Horizontal	±<1.0			
Vertical	±<1.0			
Beam Waist Diameter (mm) (FW, 1/e ²)	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e ²)	0.7 ±0.1			
Beam Waist Location ^{2,3} (m)	±0.25			
M ²	<1.1			
Horizontal	<1.1			
Vertical	<1.1			
Beam Pointing Stability ⁴ (µrad/°C)	<5			
Noise	<0.1			
10 Hz to 10 MHz (%) (rms)	<0.1			
10 Hz to 5 kHz ⁵ (%) (pk-pk)	<1			
Polarization Ratio	Horizontal, >100:1			
CDRH Compliance	No			
Warm-up Time (minutes)	<10			
Direct Modulation ⁶	Available			
UTILITY AND ENVIRONMENTAL REQUIREMENTS				
Operating Diode Current (A)	<10, <12.5	<10	<10, <12.5	<10, <12.5
Maximum Diode Current (A)	<12, <15	<12	<12, <15	<12, <15
Diode Voltage (V)	1.5 to 2.2			
Cooling Requirements ⁷	Active cooling required			
Case Temperature (°C)	25 ±2			
Humidity	Non-condensing			
Dimensions (L x W x H)	121 x 44 x 65 mm (4.76 x 1.73 x 2.56 in.)			
Laser Head	121 x 44 x 65 mm (4.76 x 1.73 x 2.56 in.)			
Weight	730 ±10			
Laser Head (g)	730 ±10			

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
 2 Measured at the output of the laser head.
 3 Negative value corresponds to a location within the head.
 4 Measured at the output window: tolerance relative to the nominal center of the output window and perpendicular to the mounting plane. 5 Over 8 hours.
 6 Theoretical limit is >1 MHz; actual performance will be limited by the diode-driver (not included).
 7 Contact integration support for options on air-cooling TEC or waterplate.

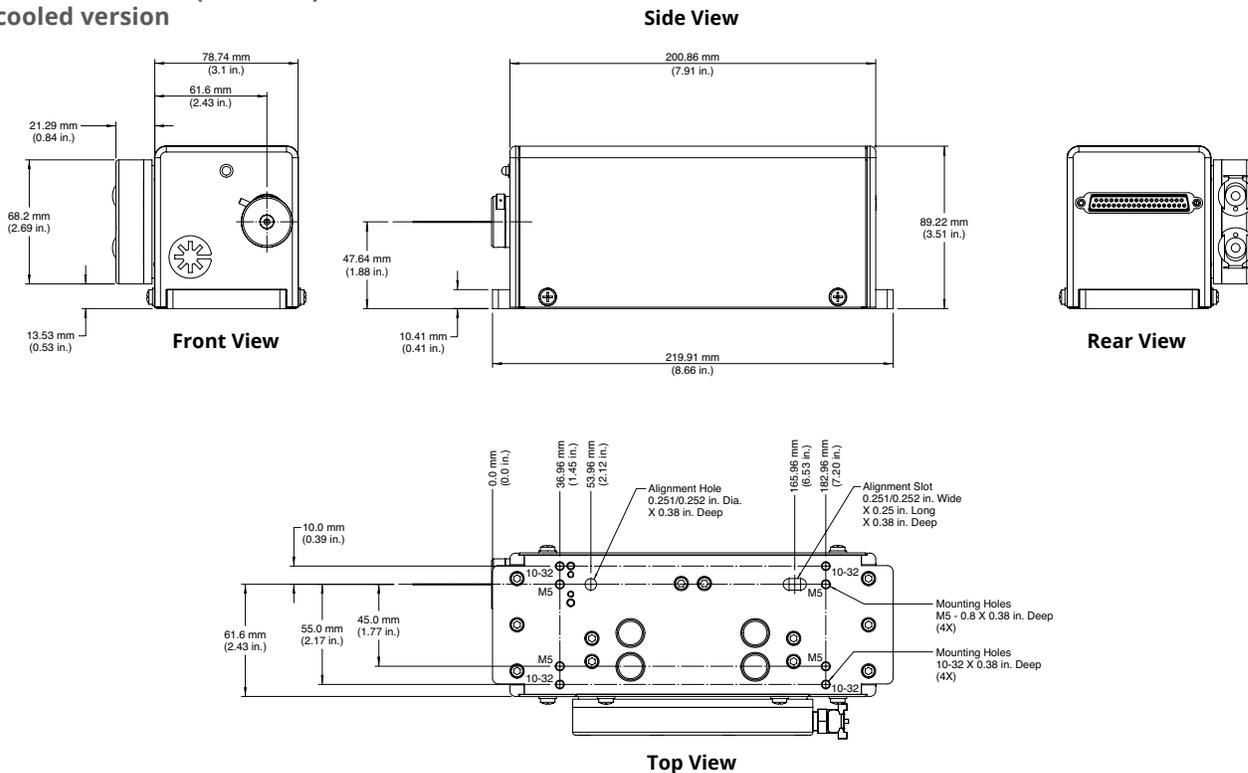
Genesis MX

MECHANICAL SPECIFICATIONS

**Genesis MX SLM-Series (End-User)
Air-cooled version**

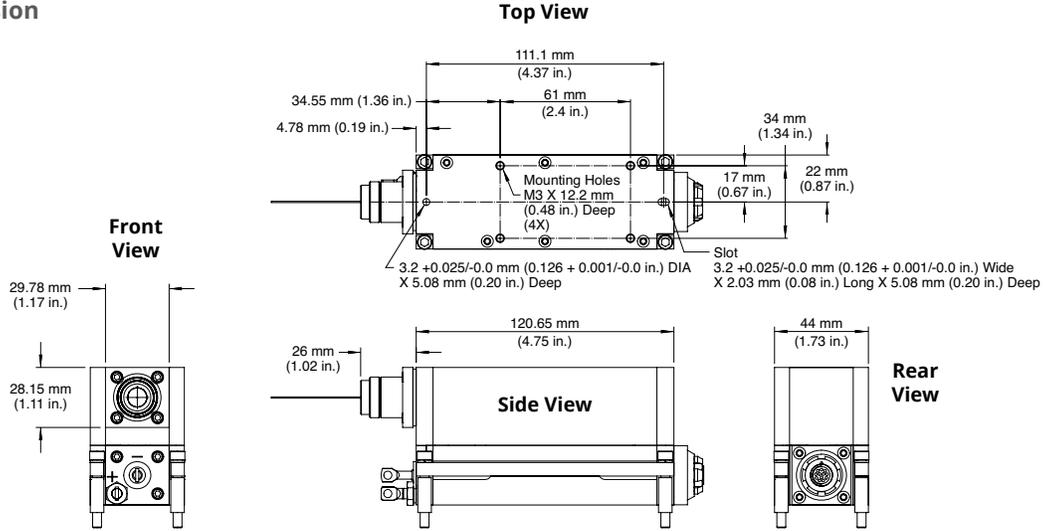


**Genesis MX SLM-Series (End-User)
Water-cooled version**

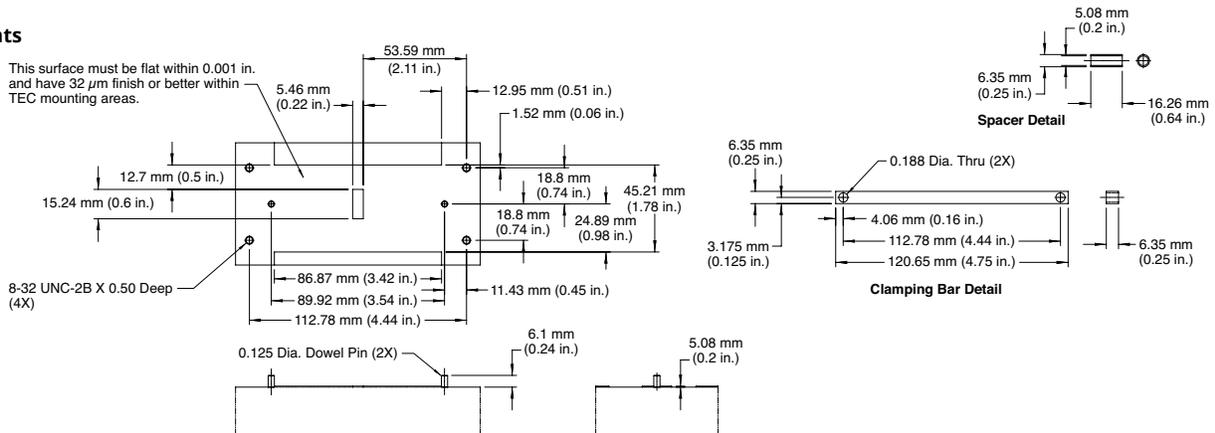


MECHANICAL SPECIFICATIONS

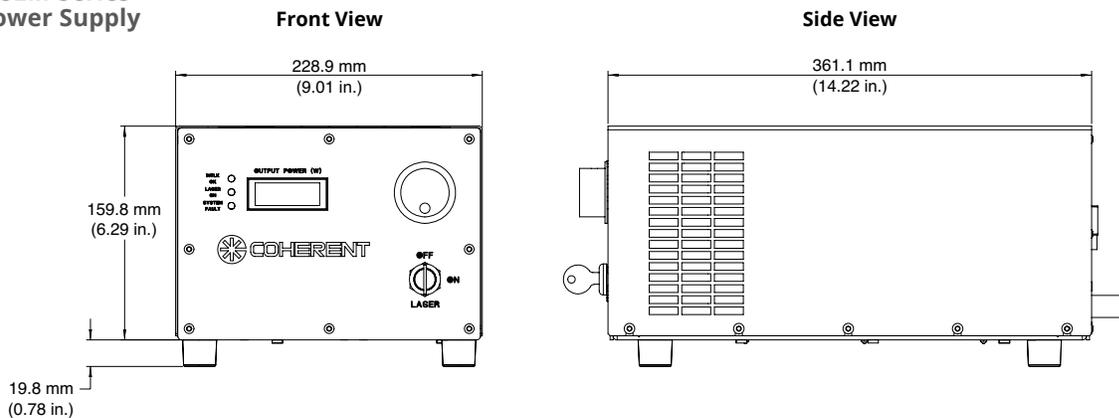
Genesis MX SLM-Series (OEM) Water-cooled version



Base Plate Requirements



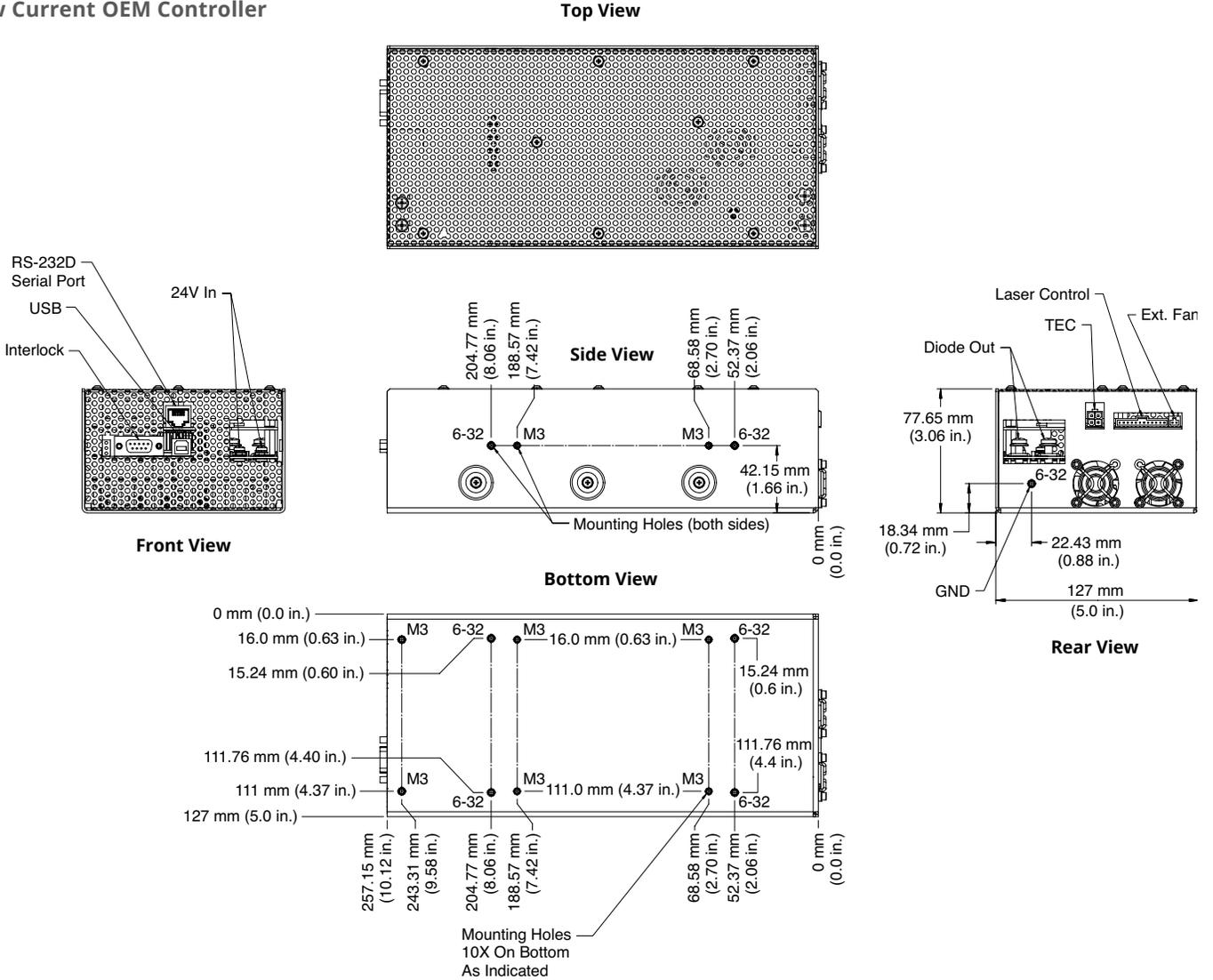
Genesis MX SLM-Series Benchtop Power Supply



MECHANICAL SPECIFICATIONS

**Genesis MX SLM-Series
Low Current OEM Controller**

Genesis MX



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Genesis CX STM-Series

High Performance High Power UV and Visible OPS Laser Systems

Based on Coherent's Optically Pumped Semiconductor Laser (OPSL) technology, the Genesis CX STM laser is a high-performance CW TEM₀₀ laser providing up to 10 W in the visible wavelength range (460 nm to 590 nm) and up to 250 mW in the UV (355 nm).

Standard wavelengths and powers include:

- 355 nm, at up to 250 mW
- 460, 480, 488, 514, 532, 561, 577, and 590 nm, at up to 10 W

OPSL technology furthermore offers the unique ability to tailor the wavelength of the laser to meet your unique applications requirement, limited only by the semiconductor material system being used. Current capabilities include 310 to 390 nm, 460 to 590 nm, and 920 to 1180 nm, with new wavelengths under development.

FEATURES & BENEFITS

- Up to 10 W output power at visible wavelengths
- Up to 250 mW output power at UV wavelengths
- Standard wavelengths at 355, 460, 480, 488, 514, 532, 561, 577, and 590 nm
- Superior mode quality
- Power-invariant beam properties
- Low noise
- PermaAlign™ solder-bonded optics technology
- AAA™ ultra-long life pump diodes
- OEM and end-user configuration options

APPLICATIONS

- Semiconductor Inspection
- Semiconductor Mask Writing
- Flow Cytometry
- DNA Sequencing
- Particle Counting
- Confocal Microscopy
- Particle Image Velocimetry



SPECIFICATIONS ¹	Genesis CX-355 ²
Wavelength (nm)	355 ±2
FWHM Linewidth (GHz)	<50
Pulse Format	CW
Spectral Purity (%)	>99
Output Power (mW)	40, 60, 80, 100, 150, 200, 250
Power Tunability ³	5 mW to 100% full rated power
Spatial Mode	TEM ₀₀
Beam Quality (M ²)	<1.2
Beam Circularity ⁴	1.0 ±0.1
Beam Waist Diameter (mm) (FW, 1/e ²)	0.975 ±0.2
Beam Divergence (mrad) (FW, 1/e ²)	<1.2
Beam Waist Location ⁵ (m)	±0.325
Beam Position Stability ⁶ (µm/°C)	<5
Beam Pointing Stability ⁶ (µrad/°C)	<6
Beam Position Tolerance ⁷ (mm)	
Horizontal	±<1.0
Vertical	±<1.0
Beam Pointing Tolerance (mrad)	<5
Polarization Ratio	Linear, >100:1
Polarization Direction	Vertical ¹⁰ , ±5°
Noise (% rms) (10 Hz to 1 MHz)	<0.1
Power Stability ⁸ (%) (pk-pk)	±<1
Warm-up Time (minutes)	<10
CDRH Compliant	Yes
UTILITY REQUIREMENTS	
Operating Voltage (VAC)	100 to 240
Frequency (Hz)	50 to 60
Power Consumption (W)	500 ¹¹
Cooling Requirements for ambient temperatures up to 35°C for ambient temperatures up to 40°C for Genesis CX-532 10 W Laser	Heat sink required Genesis CX Air-Cooled Riser, Genesis CX Water-Cooled Riser or equivalent Genesis CX Water-Cooled Riser or equivalent Genesis CX Water-Cooled Riser or equivalent
ENVIRONMENTAL CONDITIONS	
Ambient Temperature Operating Condition Non-Operating Condition	10 to 40°C (50 to 104°F) non-condensing -10 to 60°C (14 to 140°F)
Relative Humidity ⁹ (%)	5 to 95

¹ Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.

² Available in OEM or end user versions.

³ Noise specification applies at full rated power. Noise varies roughly inversely proportionally to the out power.

⁴ Circularity defined as vertical diameter divided by horizontal diameter.

⁵ Negative value corresponds to a location inside head.

⁶ After warm-up over 2 hours.

⁷ Measured at the output window. Positions are relative to the base and side of the laser as shown in the drawing.

⁸ Measured over 8 hours.

⁹ Non-condensing.

¹⁰ Vertical + normal to laser base plane.

¹¹ Power consumption for the CX 355-250 is 600 W.

SPECIFICATIONS ¹	Genesis CX-460 ²	Genesis CX-480 ²	Genesis CX-488 ²	Genesis CX-514 ²
Wavelength (nm)	460 ±3	480 ±3	488 ±3	514 ±3
FWHM Linewidth (GHz)	<30			
Pulse Format	CW			
Spectral Purity (%)	>99			
Output Power (mW)	1000	1000, 2000, 3000	1000, 2000, 3000, 4000	2000, 4000
Power Tunability ³	50 mW to 100% full rated power			
Spatial Mode	TEM ₀₀			
Beam Quality (M ²)	<1.1			
Beam Circularity ⁴	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e ²)	2.1 ±0.3	2.1 ±0.3	2.2 ±0.3	2.2 ±0.3
Beam Divergence (mrad) (FW, 1/e ²)	<0.5			
Beam Waist Location ⁵ (m)	±0.5			
Beam Position Stability ⁶ (µm/°C)	<5			
Beam Pointing Stability ⁶ (µrad/°C)	<5			
Beam Position Tolerance ⁷ (mm)	±<1.0			
Horizontal				
Vertical	±<1.0			
Beam Pointing Tolerance (mrad)	<5			
Polarization Ratio	Linear, >100:1			
Polarization Direction	Horizontal, ±5°			
Noise (% rms) (10 Hz to 10 MHz)	<0.1			
Power Stability ⁸ (%) (pk-pk)	±<1			
Warm-up Time (minutes)	<10			
CDRH Compliant	Yes			
UTILITY REQUIREMENTS				
Operating Voltage (VAC)	100 to 240			
Frequency (Hz)	50 to 60			
Power Consumption (W)	500			
Cooling Requirements for ambient temperatures up to 35°C for ambient temperatures up to 40°C for Genesis CX-532 10 W Laser	Heat sink required Genesis CX Air-Cooled Riser, Genesis CX Water-Cooled Riser or equivalent Genesis CX Water-Cooled Riser or equivalent Genesis CX Water-Cooled Riser or equivalent			
ENVIRONMENTAL CONDITIONS				
Ambient Temperature Operating Condition Non-Operating Condition	10 to 40°C (50 to 104°F) non-condensing -10 to 60°C (14 to 140°F)			
Relative Humidity ⁹ (%)	5 to 95			

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
 2 Available in OEM or end user versions.
 3 Noise specification applies at full rated power. Noise varies roughly inversely proportionally to the out power.
 4 Circularity defined as vertical diameter divided by horizontal diameter.
 5 Negative value corresponds to a location inside head.
 6 After warm-up over 2 hours.
 7 Measured at the output window. Positions are relative to the base and side of the laser as shown in the drawing.
 8 Measured over 8 hours.
 9 Non-condensing.

Genesis CX

SPECIFICATIONS ¹	Genesis CX-532 ²	Genesis CX-532 ²	Genesis CX-561 ²	Genesis CX-577 ²	Genesis CX-589/590 ²
Wavelength (nm)	532 ±3	532 ±3	561 ±3	577 ±3	590 ±3
FWHM Linewidth (GHz)	<30				
Pulse Format	CW				
Spectral Purity (%)	>99				
Output Power (mW)	2000, 4000, 5000, 6000, 7000, 8000	10,000	3000	1000, 2000, 3000	2000, 3000
Power Tunability ³	50 mW to 100% full rated power				
Spatial Mode	TEM ₀₀				
Beam Quality (M ²)	<1.1				
Beam Circularity ⁴	1.0 ±0.1				
Beam Waist Diameter (mm) (FW, 1/e ²)	2.3 ±0.3	2.3 ±0.3	2.3 ±0.3	2.3 ±0.3	2.4 ±0.3
Beam Divergence (mrad) (FW, 1/e ²)	<0.5				
Beam Waist Location ⁵ (m)	±0.5				
Beam Position Stability ⁶ (µm/°C)	<5				
Beam Pointing Stability ⁶ (µrad/°C)	<5				
Beam Position Tolerance ⁷ (mm)	±<1.0				
Horizontal					
Vertical	±<1.0				
Beam Pointing Tolerance (mrad)	<5				
Polarization Ratio	Linear, >100:1				
Polarization Direction	Horizontal, ±5°				
Noise (% rms) (10 Hz to 1 MHz)	<0.1				
Power Stability ⁸ (%) (pk-pk)	±<1				
Warm-up Time (minutes)	<10				
CDRH Compliant	Yes				
UTILITY REQUIREMENTS					
Operating Voltage (VAC)	100 to 240				
Frequency (Hz)	50 to 60				
Power Consumption (W)	500				
Cooling Requirements for ambient temperatures up to 35°C for ambient temperatures up to 40°C for Genesis CX-532 10 W Laser	Heat sink required Genesis CX Air-Cooled Riser, Genesis CX Water-Cooled Riser or equivalent Genesis CX Water-Cooled Riser or equivalent Genesis CX Water-Cooled Riser or equivalent				
ENVIRONMENTAL CONDITIONS					
Ambient Temperature Operating Condition Non-Operating Condition	10 to 40°C (50 to 104°F) non-condensing -10 to 60°C (14 to 140°F)				
Relative Humidity ⁹ (%)	5 to 95				

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.

2 Available in OEM or end user versions.

3 Noise specification applies at full rated power. Noise varies roughly inversely proportionally to the out power.

4 Circularity defined as vertical diameter divided by horizontal diameter.

5 Negative value corresponds to a location inside head.

6 After warm-up over 2 hours.

7 Measured at the output window. Positions are relative to the base and side of the laser as shown in the drawing.

8 Measured over 8 hours.

9 Non-condensing.

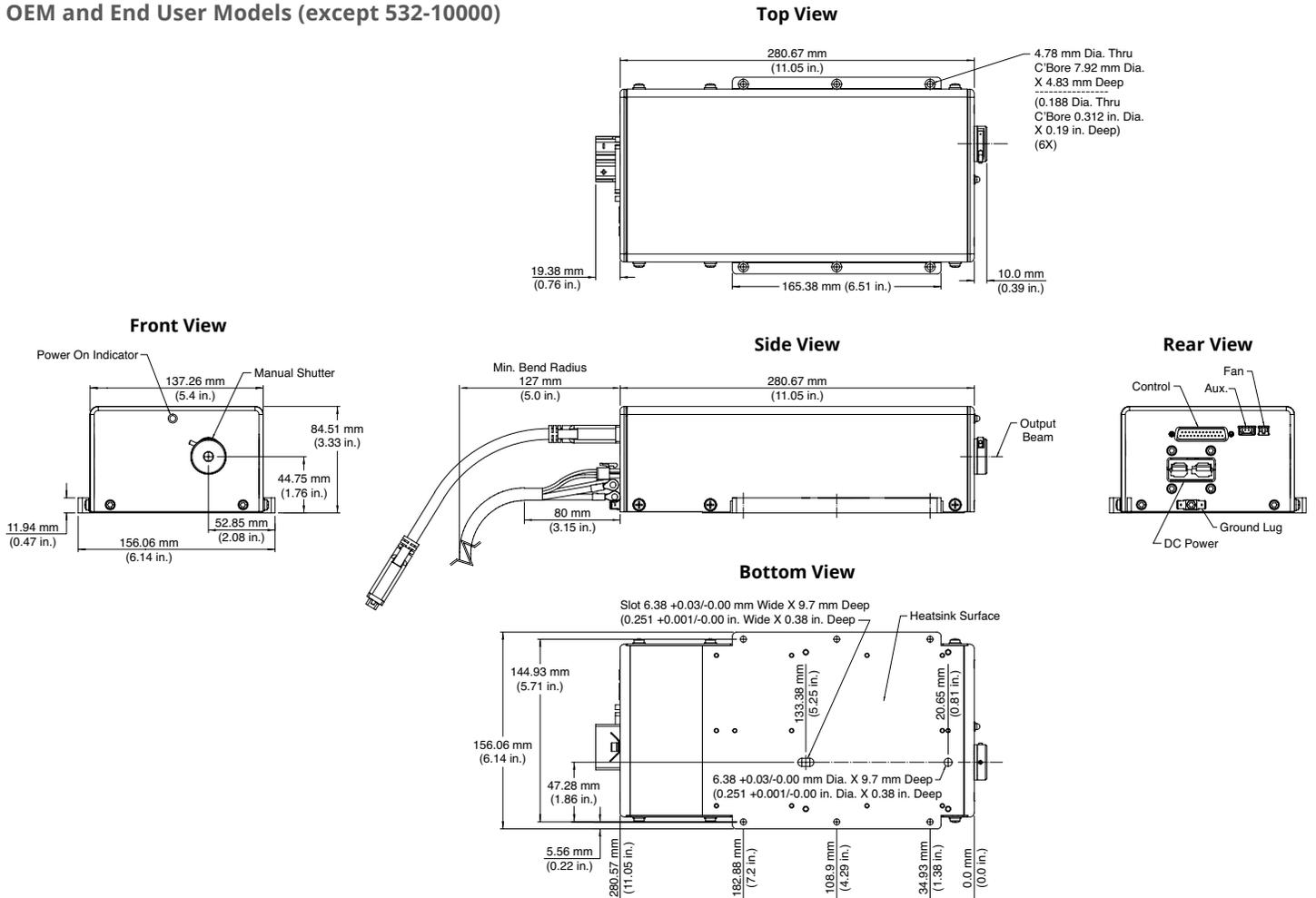
10 Vertical + normal to laser base plane.

MECHANICAL SPECIFICATIONS	
Dimensions (L x W x H)	
Laser Head ¹	281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.)
Laser Head, 532-10000	281 x 156 x 87 mm (11.1 x 6.1 x 3.4 in.)
Power Supply (End User)	361 x 229 x 180 mm (14.2 x 9.0 x 7.1 in.)
Power Supply (OEM)	300 x 208 x 97 mm (11.8 x 8.2 x 3.8 in.)
Cables (laser head to controller)	3 m (9.8 ft.)
Weight	
Laser Head	7.1 kg (15.65 lbs)
Laser Head, 532-10000	8.6 kg (18.96 lbs)
Power Supply (End User)	6.0 kg (13.23 lbs)
Power Supply (OEM)	3.8 kg (8.38 lbs)
CE Marking	IEC 61010-1/EN 61010-1

¹ Back connector not included in laser head length dimension.

MECHANICAL SPECIFICATIONS

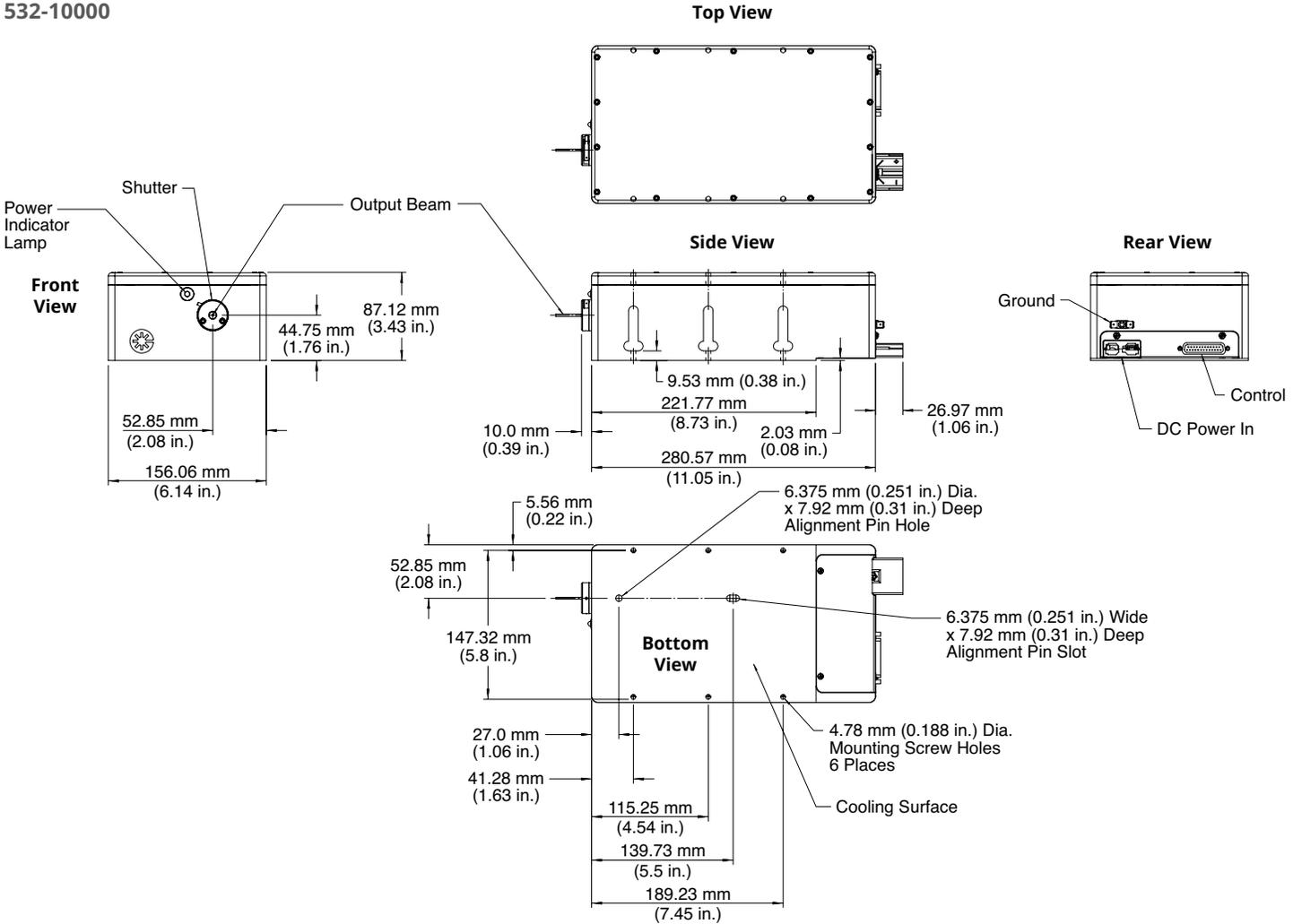
Genesis CX STM-Series Head OEM and End User Models (except 532-10000)



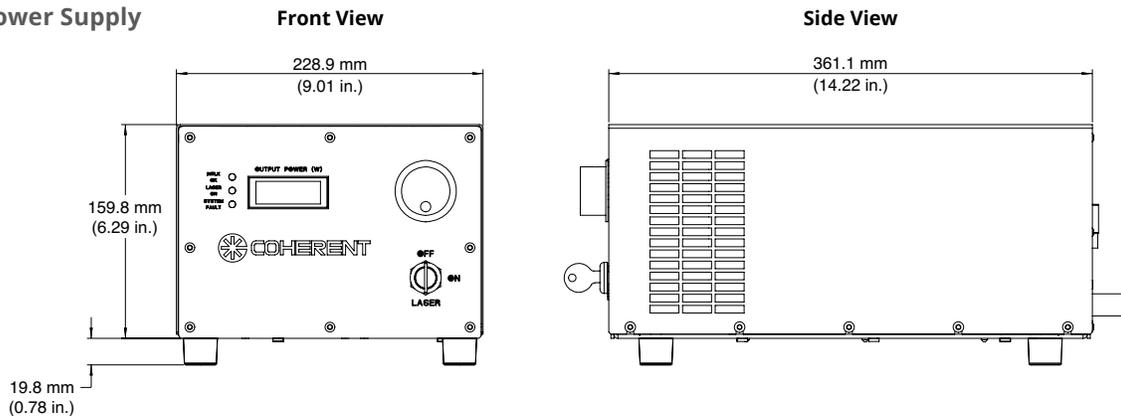
Genesis CX

MECHANICAL SPECIFICATIONS

**Genesis CX STM-Series Head
532-10000**



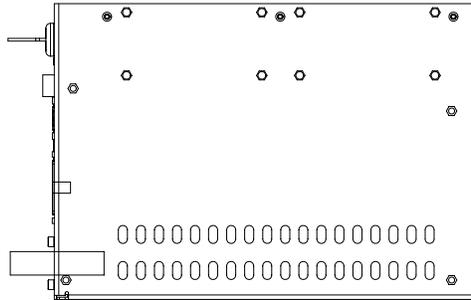
**Genesis CX-Series
Benchtop Power Supply**



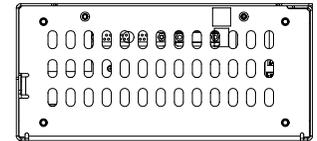
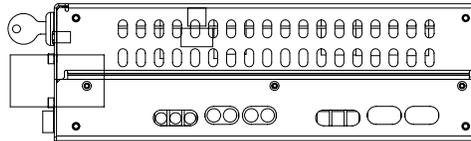
MECHANICAL SPECIFICATIONS

Genesis CX-Series High Current OEM Power Supply

Top View

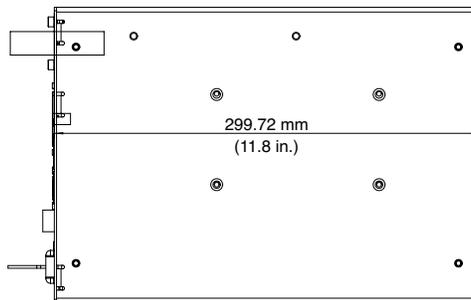


Side View

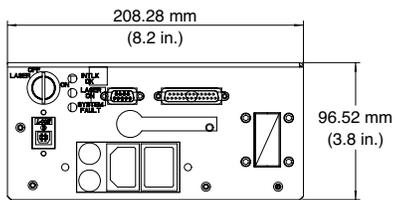


Rear View

Bottom View

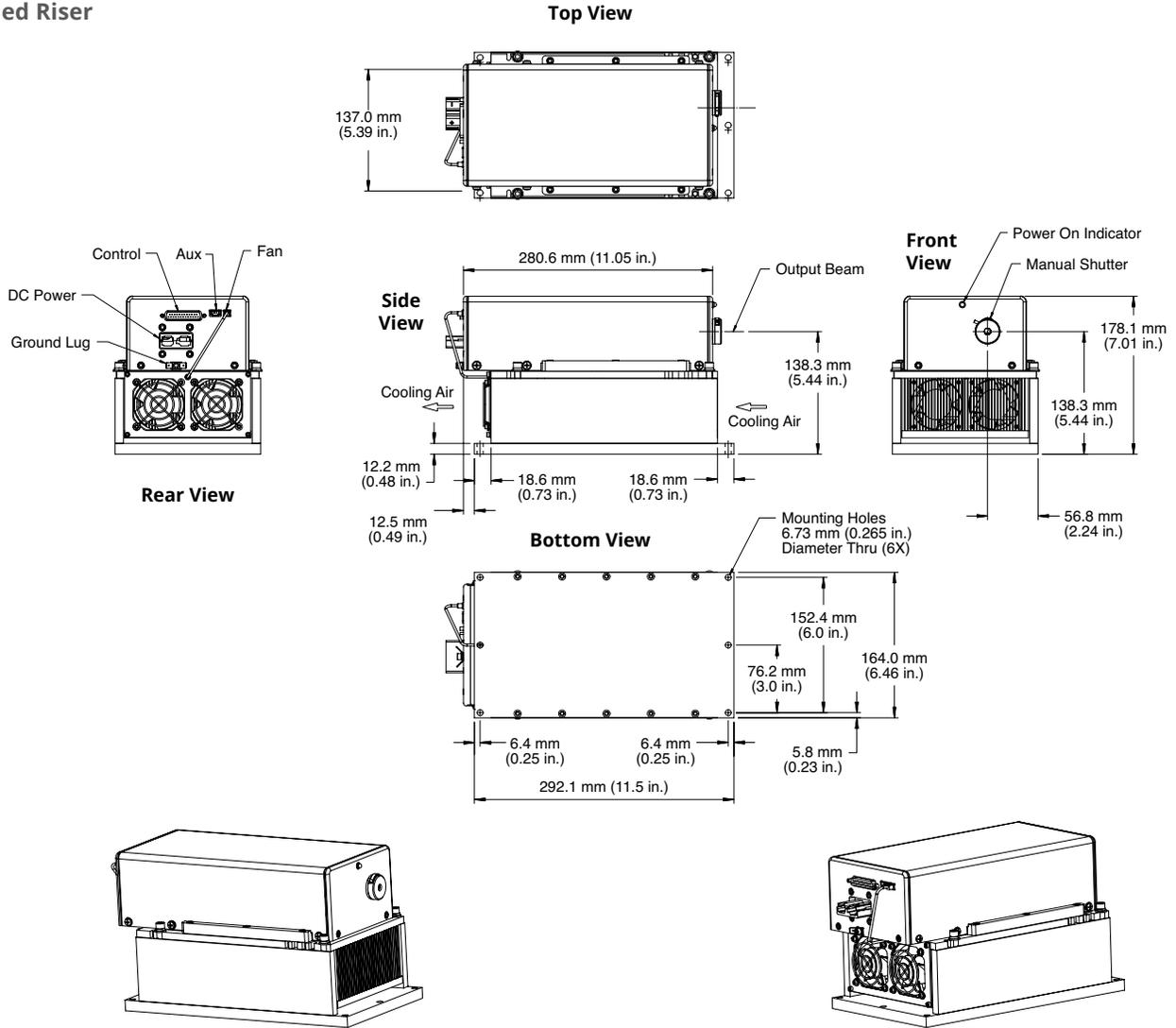


Front View



MECHANICAL SPECIFICATIONS

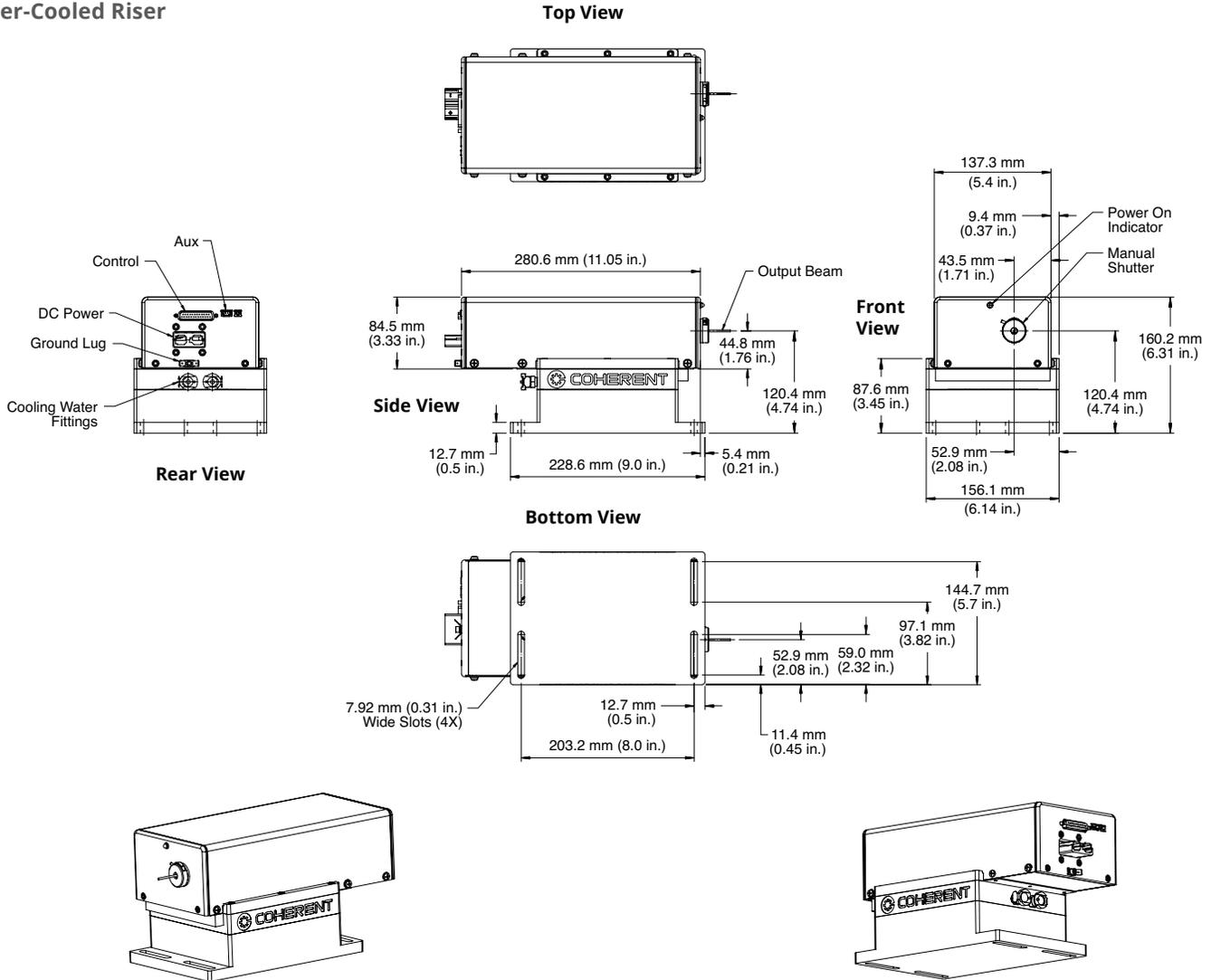
**Genesis CX STM-Series
Air-Cooled Riser**



Genesis CX

MECHANICAL SPECIFICATIONS

Genesis CX STM-Series Water-Cooled Riser



Genesis CX

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 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 Genesis CX STM 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.



Genesis CX 355 STM Compact (OEM)

TEM₀₀ 355 nm OEM OPS Laser Systems

Coherent's unique Optically Pumped Semiconductor Laser (OPSL) technology powers the Genesis CX-STM Compact, providing up to 100 mW of 355 nm laser light from an OEM system.

Ideal for applications such as Flow Cytometry and Particle Counting, these lasers provide a TEM₀₀ power invariant beam with low noise and high stability in a simple-to-integrate, air-cooled package.

The Genesis CX STM Compact is the perfect laser platform for customers requiring easy integration of high-performing CW laser technology into life science and bioinstrumentation.

FEATURES & BENEFITS

- Single Transverse Mode (TEM₀₀)
- Reduced sized OEM
- Air-cooled solution

APPLICATIONS

- Flow Cytometry
- Particle Counting
- Microscopy

Genesis CX



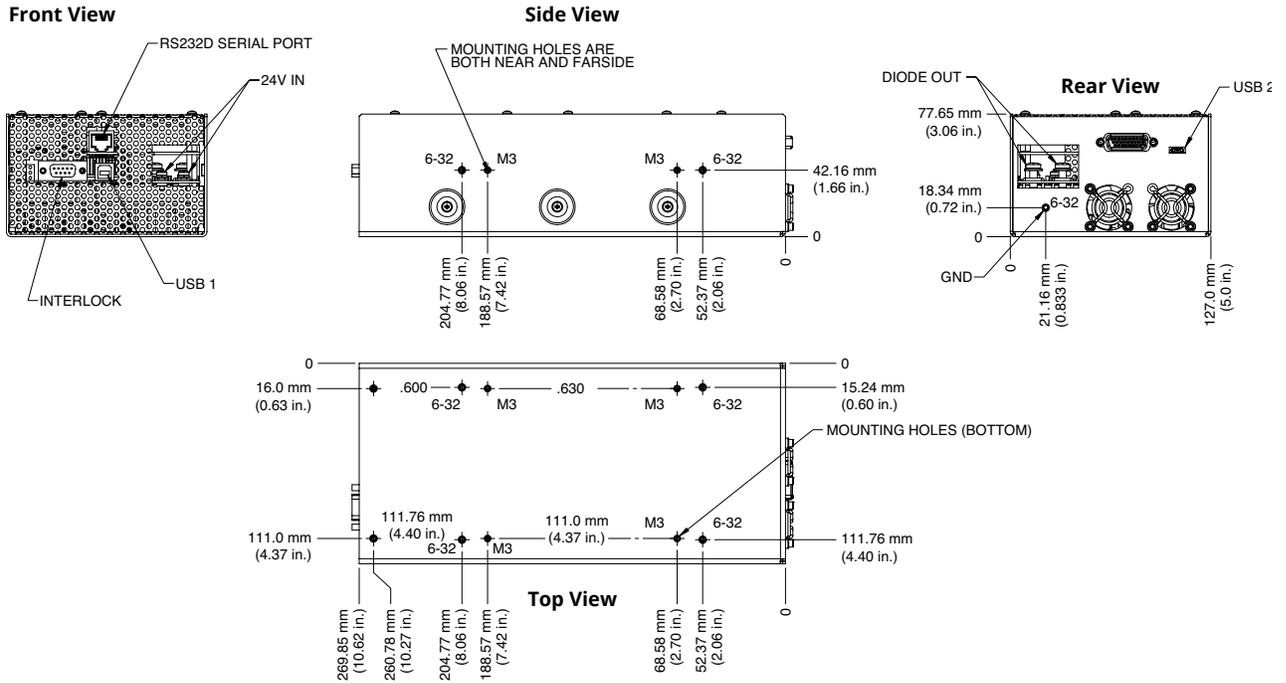
SPECIFICATIONS ¹	Genesis CX-355
Wavelength (nm)	355 ±2
FWHM Linewidth (GHz)	<50
Pulse Format	CW
Spectral Purity (%)	>99
Output Power (mW)	40, 60, 80, 100
Spatial Mode	TEM ₀₀
Beam Quality (M ²)	<1.2
Beam Circularity ²	1.0 ±0.1
Beam Waist Diameter (mm) (FW, 1/e ²)	
Horizontal	0.975 ±0.2
Vertical	0.915 ±0.2
Beam Divergence (mrad) (FW, 1/e ²)	<1.2
Beam Waist Location ³ (mm)	±325
Beam Pointing Stability ⁴ (µrad/°C)	<6
Horizontal Beam Position Tolerance (mm)	±<1.0
Vertical Beam Position Tolerance (mm)	±<1.0
Beam Pointing Tolerance (mrad)	<5
Polarization Ratio	Linear, >100:1
Polarization Direction	Horizontal, ±5°
Noise (% rms) (10 Hz to 1 MHz)	<0.1
Power Stability (%) (pk-pk)	±<1
Warm-up Time (minutes)	<10
CDRH Compliant	Yes
ELECTRICAL SPECIFICATIONS	
Operating Voltage (VAC)	100 to 240
Frequency (Hz)	50 to 60
Power Consumption (W)	500 ⁹
ENVIRONMENTAL CONDITIONS	
Ambient Temperature	
Operating Condition	10 to 40°C (50 to 104°F) non-condensing
Non-Operating Condition	-10 to 60°C (14 to 140°F)
Relative Humidity ⁵ (%)	5 to 95
CE Marking	IEC 61010-1/EN 61010-1
Dimensions (L x W x H)	
Laser Head ⁶	250.1 x 138.0 x 50.8 mm (9.84 x 5.4 x 2.0 in.)
Cables (laser head to controller)	2 m (6.5 ft.)

¹ Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
² Circularity defined as vertical diameter divided by horizontal diameter.
³ Negative value corresponds to a location inside head.
⁴ After warm-up over 2 hours.
⁵ Non-condensing.
⁶ Back connector not included in laser head length dimension.

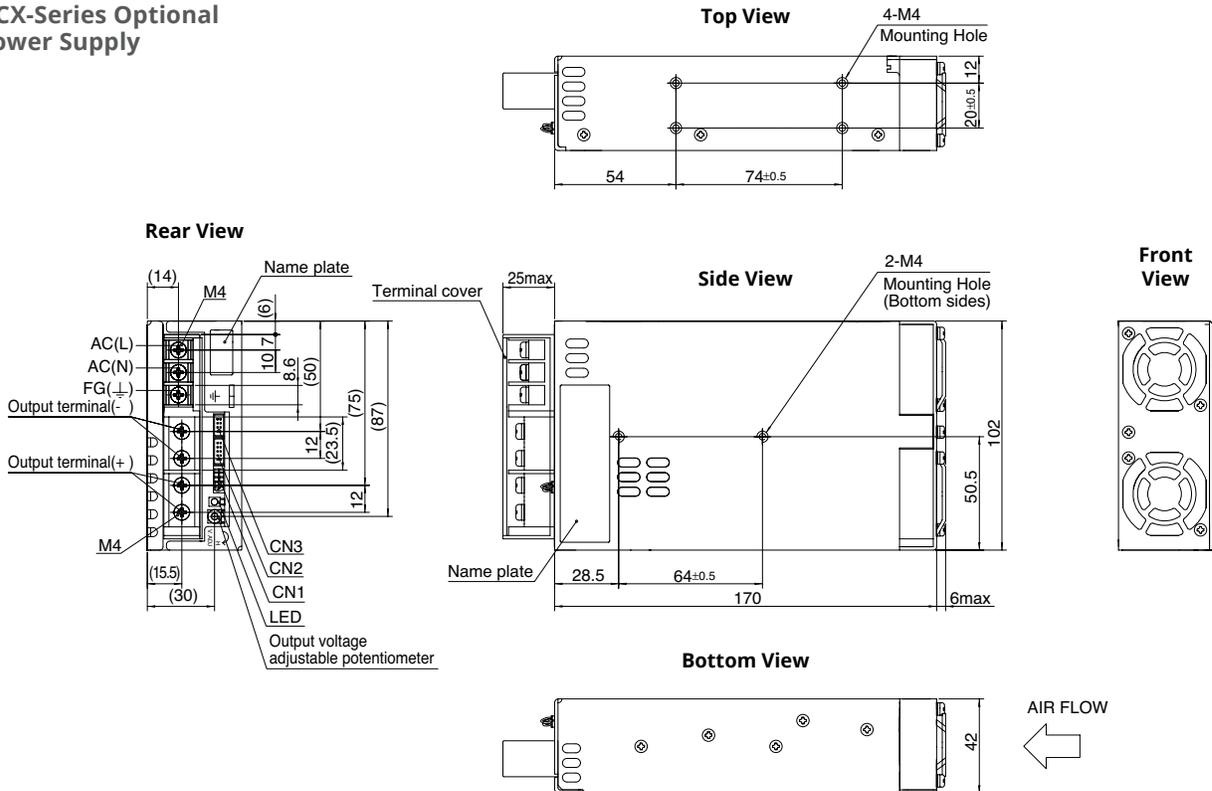
Genesis CX

MECHANICAL SPECIFICATIONS

Genesis CX Compact Controller

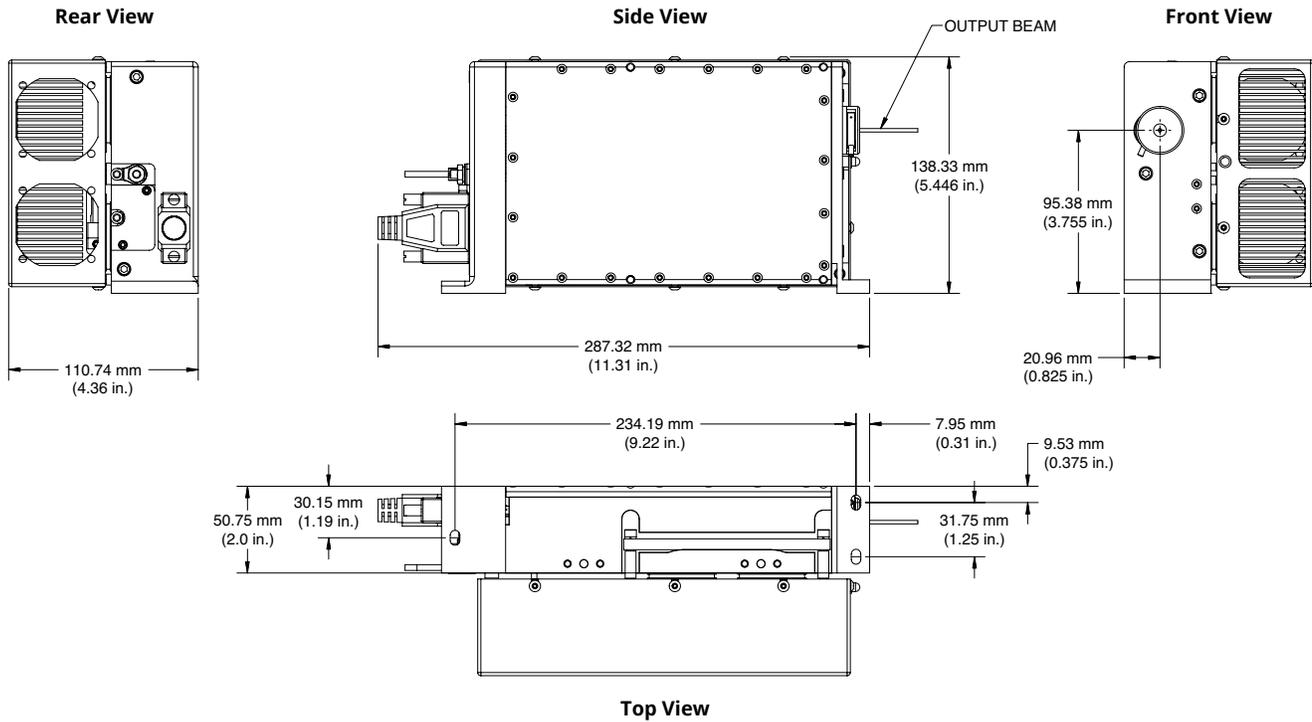


Genesis CX-Series Optional AC/DC Power Supply



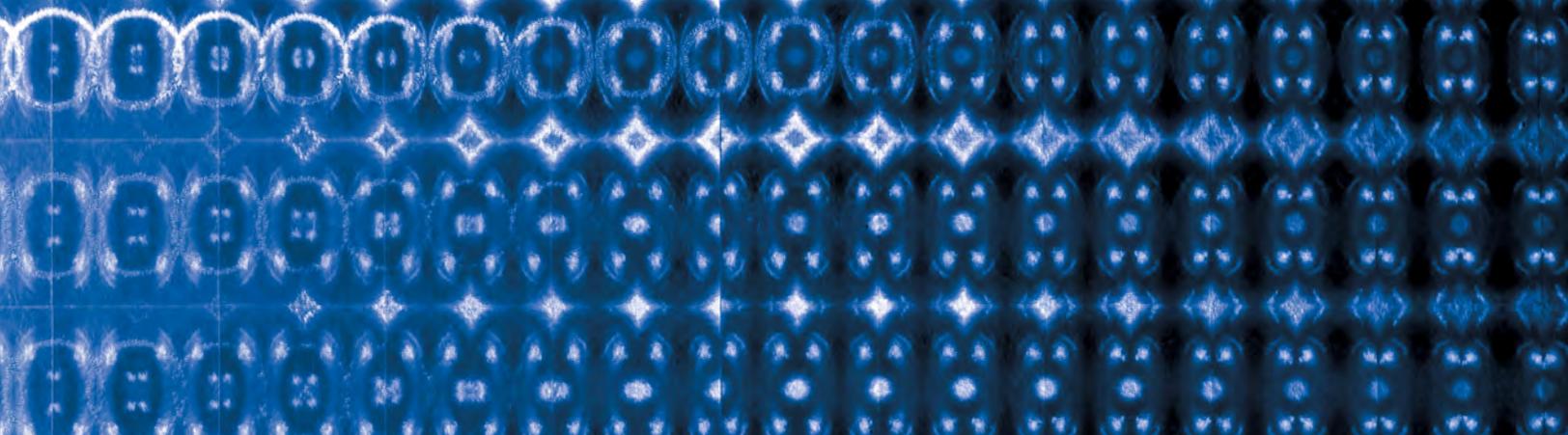
MECHANICAL SPECIFICATIONS

Genesis CX 355 STM Compact (OEM)



Genesis CX

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Genesis CX SLM-Series

High Power Single Longitudinal Mode (SLM) UV and Visible OPS Laser Systems

Based on Coherent's Optically Pumped Semiconductor Laser (OPSL) technology, the Genesis CX SLM laser is a high-performance CW laser producing a single longitudinal mode (SLM) laser beam at up to 5 W in the visible wavelength range (460 to 590 nm) and up to 100 mW in the UV (355 nm).

Standard wavelengths and powers include:

- 355 nm, at up to 100 mW
- 460, 480, 488, 514, 532, 577, and 590 nm, at up to 5 W

OPSL technology furthermore offers the unique ability to tailor the wavelength of the laser to meet your unique applications requirement, dependent only by the semiconductor material system being used. Current capabilities include 310 to 390 nm, 460 to 590 nm, and 920 to 1180 nm, with new wavelengths under development.

FEATURES & BENEFITS

- Up to 5 W output power at visible wavelengths
- Up to 100 mW output power at UV wavelengths
- Standard wavelengths at 355, 460, 480, 488, 514, 532, 577, and 590 nm
- Single longitudinal mode (<5 MHz linewidth)
- Superior mode quality
- Power-invariant beam properties
- Low noise
- PermAlign™ solder-bonded optics technology
- AAA™ ultra-long life pump diodes
- OEM and end-user configuration options

APPLICATIONS

- Holography
- Spectroscopy
- Interferometry

Genesis CX



SPECIFICATIONS ¹	Genesis CX-355 ²
Wavelength (nm)	355 ±2
FWHM Linewidth (MHz)	<5
Pulse Format	CW
Spectral Purity (%)	>99
Output Power (mW)	40, 60, 80, 100
Spatial Mode	TEM ₀₀
Beam Quality (M ²)	<1.2
Beam Circularity ³	1.0 ±0.1
Beam Waist Diameter (mm) (FW, 1/e ²)	0.975 ±0.2
Beam Divergence (mrad) (FW, 1/e ²)	<1.2
Beam Waist Location ⁴ (m)	±0.325
Beam Position Stability ⁵ (µm/°C)	<5
Beam Pointing Stability ⁵ (µrad/°C)	<6
Beam Position Tolerance ⁶ (mm)	
Horizontal	±<1.0
Vertical	±<1.0
Beam Pointing Tolerance (mrad)	<5
Polarization Ratio	Linear, >100:1
Polarization Direction	Vertical ⁹ , ±5°
Noise (% rms) (10 Hz to 1 MHz)	<0.1
Power Stability ⁷ (%) (pk-pk)	±<1
Warm-up Time (minutes)	<30
CDRH Compliant	Yes
UTILITY REQUIREMENTS	
Operating Voltage (VAC)	100 to 240
Frequency (Hz)	50 to 60
Power Consumption (W)	500
Cooling Requirements	Heat sink required Genesis CX Water-Cooled Riser and Chiller, or equivalent
ENVIRONMENTAL CONDITIONS	
Ambient Temperature	
Operating Condition	10 to 40°C (50 to 104°F) non-condensing
Non-Operating Condition	-10 to 60°C (14 to 140°F)
Relative Humidity ⁸ (%)	5 to 95

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
 2 Available in OEM or end user versions.
 3 Circularity defined as vertical diameter divided by horizontal diameter.
 4 Negative value corresponds to a location inside head.
 5 After warm-up over 2 hours.
 6 Measured at the output window. Positions are relative to the base and side of the laser as shown in the drawing.
 7 Measured over 8 hours.
 8 Non-condensing.
 9 Vertical + normal to laser base plane.

Genesis CX

SPECIFICATIONS ¹	Genesis CX-460 ²	Genesis CX-480 ²	Genesis CX-488 ²
Wavelength (nm)	460 ±3	480 ±3	488 ±3
FWHM Linewidth (MHz)		<5	
Pulse Format		CW	
Spectral Purity (%)		>99	
Output Power (mW)	1000	2000	2000
Spatial Mode		TEM ₀₀	
Beam Quality (M ²)		<1.1	
Beam Circularity ³		1.0 ±0.1	
Beam Waist Diameter (mm) (FW, 1/e ²)	2.1 ±0.3	2.1 ±0.3	2.2 ±0.3
Beam Divergence (mrad) (FW, 1/e ²)		<0.5	
Beam Waist Location ⁴ (m)		±0.5	
Beam Position Stability ⁵ (µm/°C)		<5	
Beam Pointing Stability ⁵ (µrad/°C)		<5	
Beam Position Tolerance ⁶ (mm)			
Horizontal		±<1.0	
Vertical		±<1.0	
Beam Pointing Tolerance (mrad)		<5	
Polarization Ratio		Linear, >100:1	
Polarization Direction		Horizontal, ±5°	
Noise (% rms) (10 Hz to 10 MHz)		<0.1	
Power Stability ⁷ (%) (pk-pk)		±<1	
Warm-up Time (minutes)		<30	
CDRH Compliant		Yes	
UTILITY REQUIREMENTS			
Operating Voltage (VAC)		100 to 240	
Frequency (Hz)		50 to 60	
Power Consumption (W)		500	
Cooling Requirements		Heat sink required Genesis CX Water-Cooled Riser and Chiller, or equivalent	
ENVIRONMENTAL CONDITIONS			
Ambient Temperature			
Operating Condition		10 to 40°C (50 to 104°F) non-condensing	
Non-Operating Condition		-10 to 60°C (14 to 140°F)	
Relative Humidity ⁸ (%)		5 to 95	

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.

2 Available in OEM or end user versions.

3 Circularity defined as vertical diameter divided by horizontal diameter.

4 Negative value corresponds to a location inside head.

5 After warm-up over 2 hours.

6 Measured at the output window. Positions are relative to the base and side of the laser as shown in the drawing.

7 Measured over 8 hours.

8 Non-condensing.

SPECIFICATIONS ¹	Genesis CX-514 ²	Genesis CX-532 ²	Genesis CX-577 ²	Genesis CX-590 ²
Wavelength (nm)	514 ±3	532 ±3	577 ±3	590 ±3
FWHM Linewidth (MHz)	<5			
Pulse Format	CW			
Spectral Purity (%)	>99			
Output Power (mW)	2000, 4000	2000, 4000, 5000	2000	1000
Spatial Mode	TEM ₀₀			
Beam Quality (M ²)	<1.1			
Beam Circularity ³	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e ²)	2.2 ±0.3	2.3 ±0.3	2.3 ±0.3	2.4 ±0.3
Beam Divergence (mrad) (FW, 1/e ²)	<0.5			
Beam Waist Location ⁴ (m)	±0.5			
Beam Position Stability ⁵ (µm/°C)	<5			
Beam Pointing Stability ⁵ (µrad/°C)	<5			
Beam Position Tolerance ⁶ (mm)	±<1.0			
Horizontal	±<1.0			
Vertical	±<1.0			
Beam Pointing Tolerance (mrad)	<5			
Polarization Ratio	Linear, >100:1			
Polarization Direction	Horizontal, ±5°			
Noise (% rms) (10 Hz to 10 MHz)	<0.1			
Power Stability ⁷ (%) (pk-pk)	±<1			
Warm-up Time (minutes)	<30			
CDRH Compliant	Yes			
ELECTRICAL SPECIFICATIONS				
Operating Voltage (VAC)	100 to 240			
Frequency (Hz)	50 to 60			
Power Consumption (W)	500			
Cooling Requirements	Heat sink required Genesis CX Water-Cooled Riser and Chiller, or equivalent			
ENVIRONMENTAL CONDITIONS				
Ambient Temperature	10 to 40°C (50 to 104°F) non-condensing -10 to 60°C (14 to 140°F)			
Operating Condition				
Non-Operating Condition				
Relative Humidity ⁸ (%)	5 to 95			

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
 2 Available in OEM or end user versions.
 3 Circularity defined as vertical diameter divided by horizontal diameter.
 4 Negative value corresponds to a location inside head.
 5 After warm-up over 2 hours.
 6 Measured at the output window. Positions are relative to the base and side of the laser as shown in the drawing.
 7 Measured over 8 hours.
 8 Non-condensing.

Genesis CX

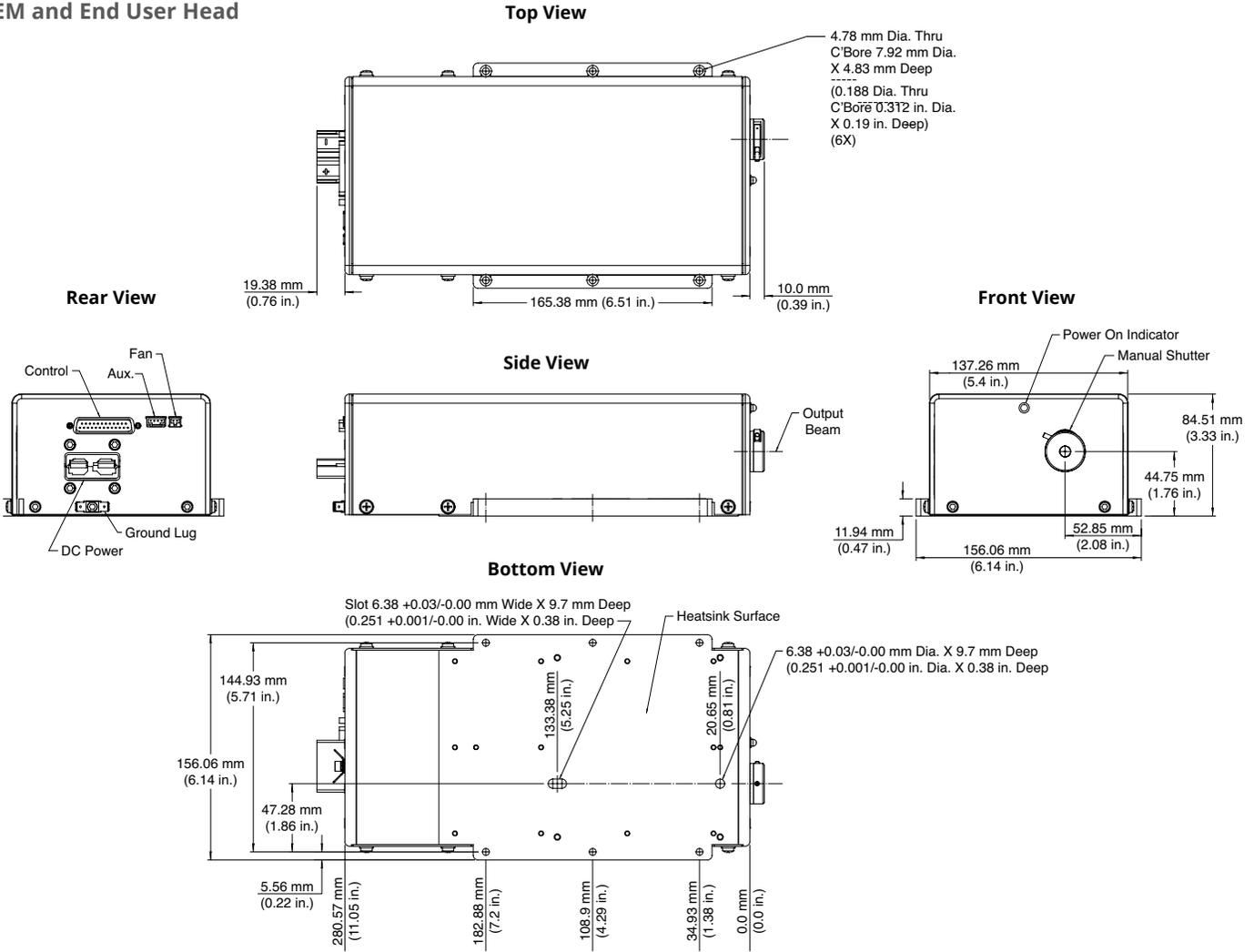
MECHANICAL SPECIFICATIONS

Dimensions (L x W x H)	
Laser Head ¹	281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.)
Power Supply (End User)	361 x 229 x 180 mm (14.2 x 9.0 x 7.1 in.)
Power Supply (OEM)	300 x 208 x 97 mm (11.8 x 8.2 x 3.8 in.)
Cables (laser head to controller)	3 m (9.8 ft.)
Weight	
Laser Head	7.1 kg (15.65 lbs)
Power Supply (End User)	6.0 kg (13.23 lbs)
Power Supply (OEM)	3.8 kg (8.38 lbs)
CE Marking	IEC 61010-1/EN 61010-1

¹ Back connector not included in laser head length dimension.

MECHANICAL SPECIFICATIONS

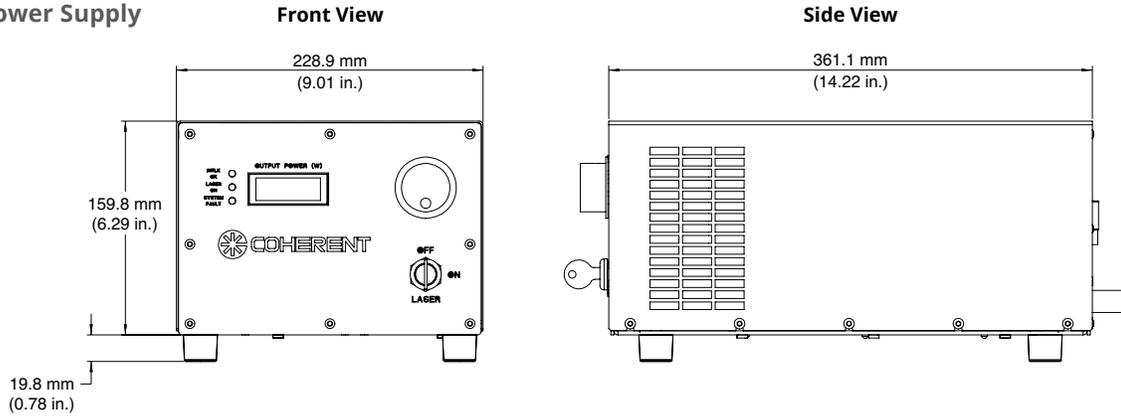
Genesis CX SLM-Series OEM and End User Head



Genesis CX

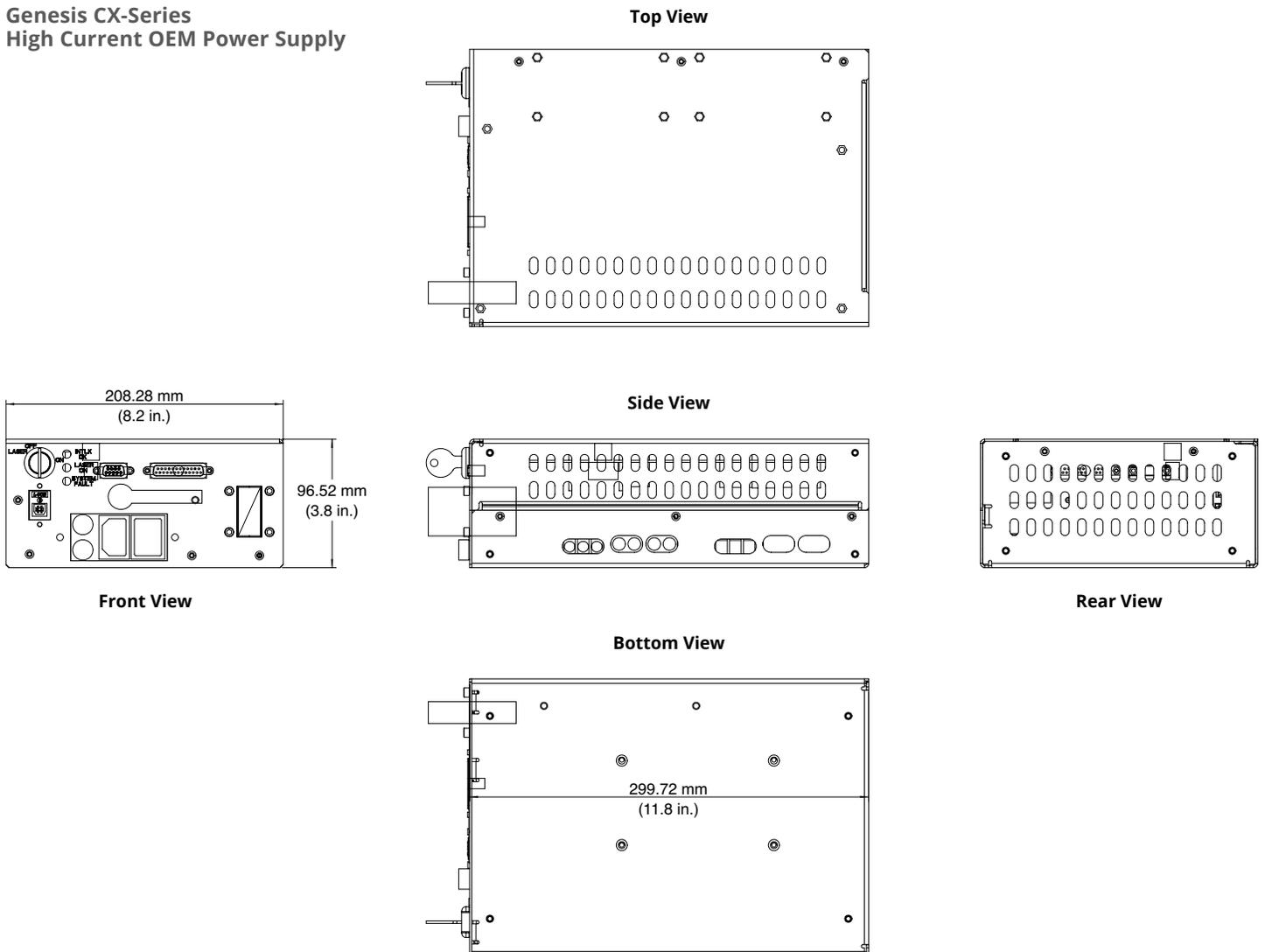
MECHANICAL SPECIFICATIONS

**Genesis CX-Series
Benchtop Power Supply**



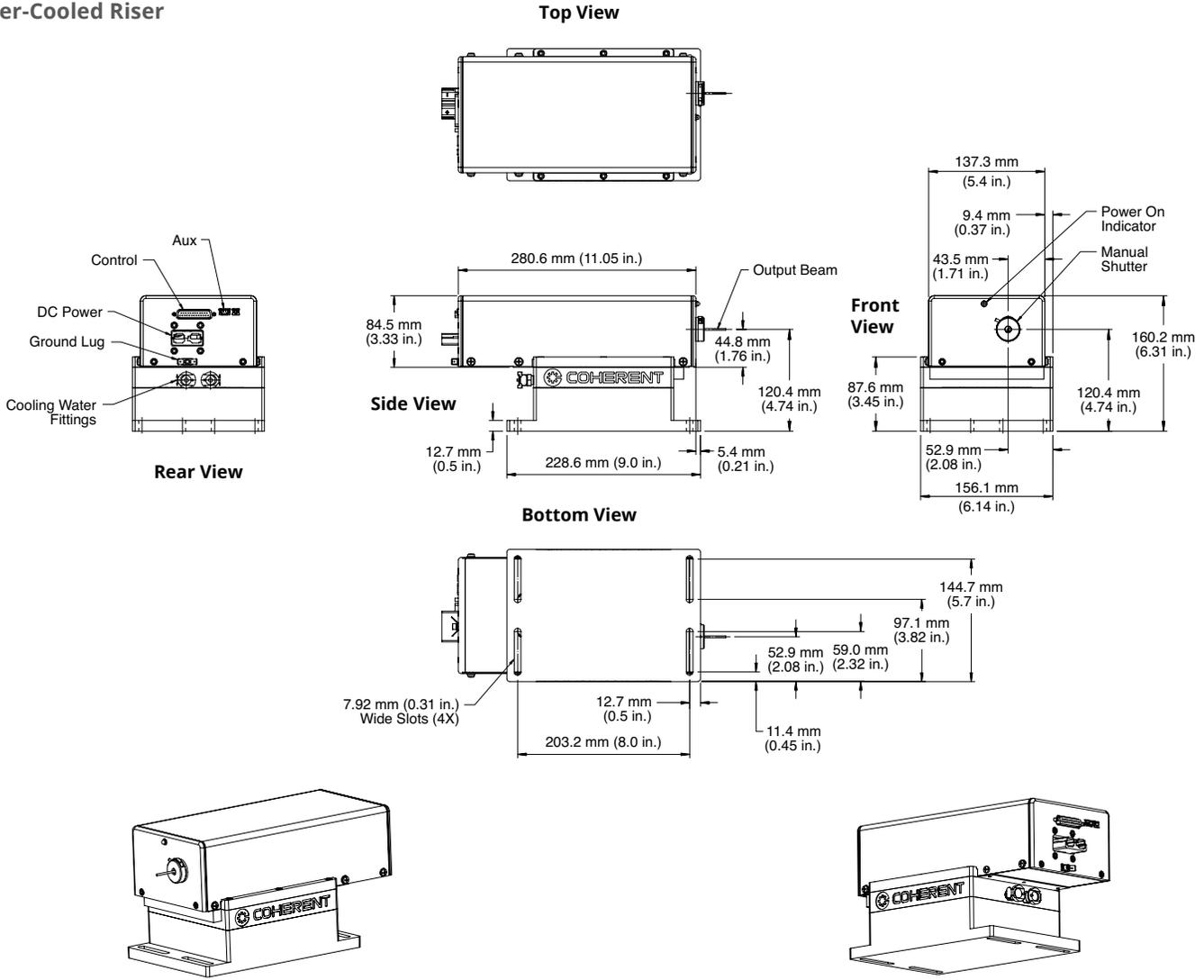
**Genesis CX-Series
High Current OEM Power Supply**

Genesis CX



MECHANICAL SPECIFICATIONS

Genesis CX SLM-Series Water-Cooled Riser



Genesis CX

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Coherent Laser Accessories

Discover More Solutions:



Accessories



**OBIS LX/LS
Scientific Remote**



**OBIS LX/LS Single
Laser Remote**



**OBIS LX/LS
Laser Box**



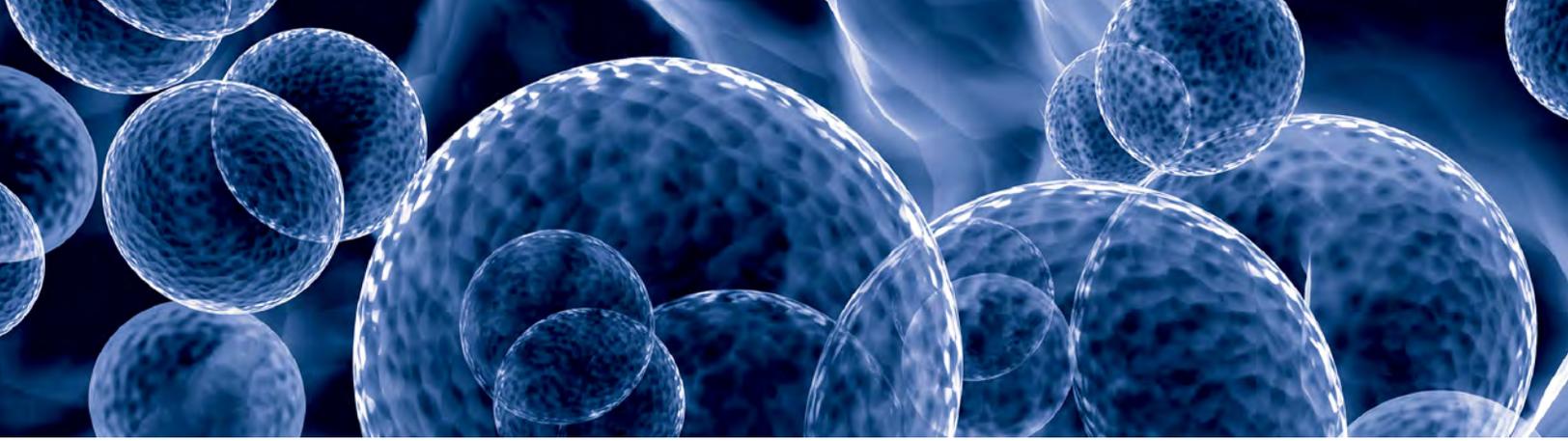
**OBIS LX/LS
6-Laser Remote**



**OBIS LX/LS
Heat Sink**



**Sapphire
Driver Unit**



OBIS LX/LS Scientific Remote

Laser Remote and Power Supply for up to Six Lasers

OBIS LX and OBIS LS laser products come with a variety of accessories to support your application needs.

The OBIS Scientific Remote for OBIS LS and OBIS LX offers all the features from the laser in a convenient CDRH-compliant interface with a touch-screen and internal power supply for up to six lasers.

As with all OBIS LX and OBIS LS lasers, the laser itself offers a stand-alone all-in-one laser solution. The OBIS laser comes with a Power Connection, USB Connection, Fan Connection and a SDR-type Connection for laser control I/O. All of these are located on the back panel of the OBIS LX/LS laser.

To simplify integration the OBIS Scientific Remote connects to the single SDR-type connector for power, signals, and communication. The OBIS Scientific Remote then brings all of these features to controls and connectors on the Remotes front panel.

OBIS Scientific Remote offers a convenient handle to angle the unit for easier display.

FEATURES & BENEFITS

- Complete remote control of up to six OBIS lasers
- Touchscreen interface with audio
- Independent voltage inputs for analog and digital modulation signals
- USB, RS-232 and Ethernet for additional control from host computer
- OBIS connection software for PC
- Single SDR connection to each laser
- Laser safety features (CDRH) such as key switch and interlock

APPLICATIONS

- Laboratories that require CDRH features
- Applications that require a simple Analog or Digital inputs to control the laser
- Applications that require laser control at a remote location away from the laser



SPECIFICATIONS ¹	OBIS LX/LS Scientific Laser Remote
Touchscreen Display Size	108 mm (4.3 in.) diagonal
Touchscreen Display Resolution, Type	480 x 272 pixel, QVGA, TFT, 24-bit color
Touchscreen Display Mode ¹	Resistive Touchscreen
Audio	Yes
Internal Power Supply	Yes
OBIS Lasers that can be connected	1 to 6 lasers with power to optional 1 to 6 heat sink cooling fans
Host Computer Remote Control via USB ²	USB 2.0, Mini B
Host Computer Remote Control via RS-232 ²	RS-232 115.2K, 8N1
Host Computer Remote via Ethernet ²	Ethernet 10/100 (Mb) RJ45
Carry Handle and Stand	9-Position
Interlock	Yes, included with shorting wire
Laser Status Indicators	Yes, Individual LED for each laser
Analog Modulation Input	SMB, 2k Ω , 0 to 5V
Digital Modulation Input ³	SMB, 50 Ω , 0 to 3V
Warm-up Time (minutes) (from cold start)	<2
Coherent Connection Software ²	Included on USB drive with user manual
UTILITY AND ENVIRONMENTAL REQUIREMENTS	
Power Consumption (W) (typical)	5 (without lasers)
Power Consumption (W) (maximum)	110 (with 6 lasers)
Internal Cooling Fan	Yes
Power Input - Universal	IEC-320
Power Cord (USA)	2.4 m (8 ft.)
Operating Condition ⁴ (°C)	0 to 50
Non-operating Condition ⁴ (°C)	-10 to +70
Shock Tolerance (6 ms)	20 g
Operating Voltage	90 to 264 VAC, 47 to 63 Hz
Dimensions (L x W x H)	180 x 293.5 x 104.4 mm (7.09 x 11.55 x 4.11 in.)
Weight	1.75 kg (3.86 lbs.)
Weight, Laser-to-Remote Cable (optional)	0.1 kg for 1 meter (0.25 kg for 3 meter)
Part Number for OBIS Scientific Remote	1234465
Part Number for OBIS Scientific Remote with	1234466
Six Laser-to-Remote SDR Cables Included	1 m each
Part Number for OBIS LX/LS SDR-Type Cable from Laser to Remote	
1-meter	1179451
3-meter	1179858
0.3-meter	1197523

¹ Resistive touchscreen will work with gloves. This is a pressure sensitive touchscreen - not capacitive.

² Host computer not provided. RS-232 and USB cable not provided.

³ Digital modulation can be driven up to 5V.

⁴ Non-condensing.

OBIS Scientific Remote

Screen Shot

1	488-20	20 mW	Ready CW Power	Start
2	405-100	100 mW	Ready CW:Power	Start
3	640-100	100 mW	Ready CW:Power	Start
4	[Searching...]			
5	[Searching...]			
6	[Searching...]			
Settings Display Off Start All Stop All				

Figure 1: OBIS LX/LS Scientific Remote for up to six lasers. Lasers sold separately.

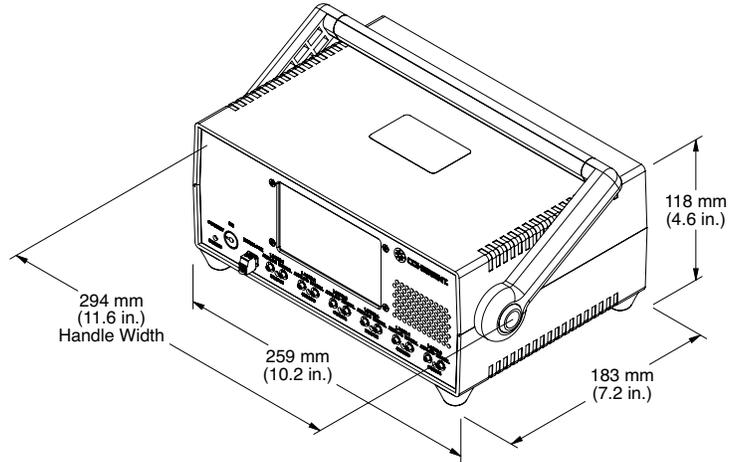
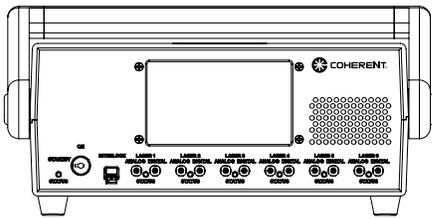


Accessories

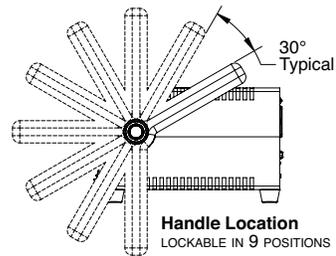
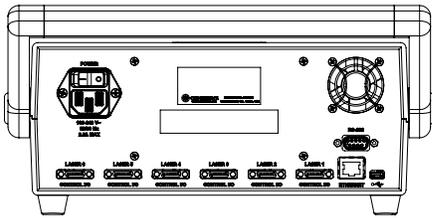
MECHANICAL SPECIFICATIONS

OBIS LX/LS Scientific Remote
(part # 1234466)

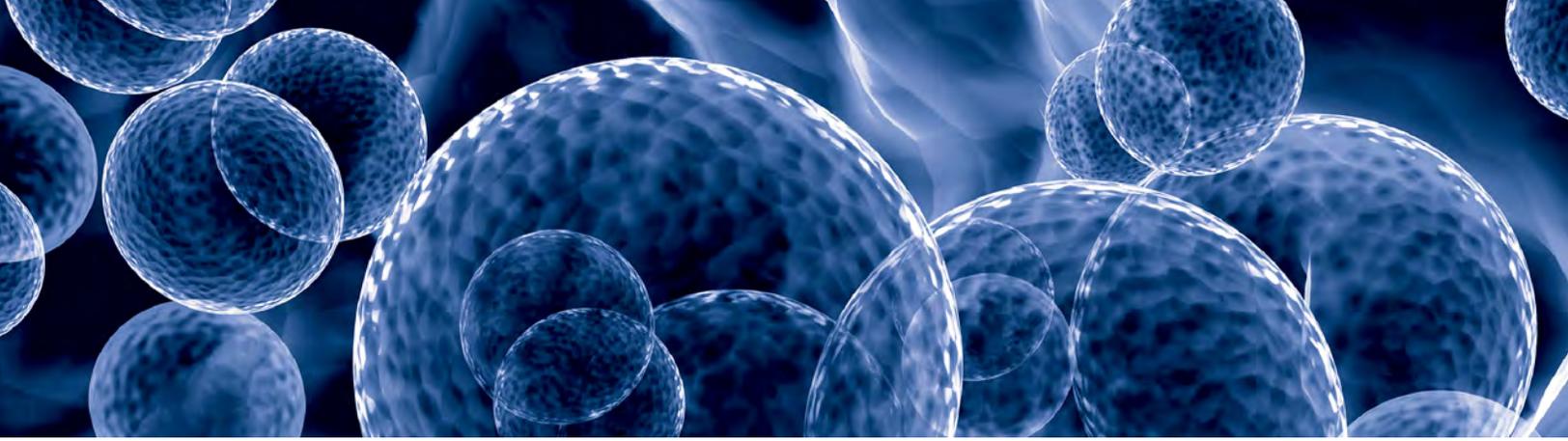
Front View



Rear View



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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 OBIS LX/LS Scientific Remotes. 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.



OBIS LX/LS Single Laser Remote

Full Feature Laser Remote and Power Supply

OBIS LX and OBIS LS laser products come with a variety of accessories to support your application needs.

The OBIS Single Laser Remote for OBIS LS and OBIS LX offers all the features from the laser in a convenient CDRH-compliant interface.

As with all OBIS LX and OBIS LS lasers, the laser itself offers a stand-alone all-in-one laser solution. The OBIS laser comes with a Power Connection, USB Connection, Fan Connection and a SDR-type Connection for laser control I/O. All of these are on the back panel of every OBIS LX/LS laser.

To simplify integration the OBIS Single Laser Remote connects to the single SDR-type connector for power, signals, and communication. The OBIS Single Laser Remote then brings all of these features to controls and connectors on the remote's front and back panel.

OBIS Single Laser Remotes can even be stacked together with the provided mounting hardware for applications using multiple OBIS LX/LS lasers.

FEATURES & BENEFITS

- Compact size
- Laser safety features (CDRH) such as key switch and interlock
- Laser status indicators
- Full input and output connections for control, analog modulation, and digital modulation
- Compact power supply for single laser included
- Brackets for mounting and stacking included

APPLICATIONS

- Laboratories that require CDRH features
- Applications that require simple analog, digital, or analog and digital combined inputs to control the laser
- Applications that require laser control at a remote location away from the laser



SPECIFICATIONS		OBIS LX/LS Single Laser Remote
Host Computer Remote Control via USB ¹	USB 2.0, Mini B	
Host Computer Remote Control via RS-232 ¹	RS-232, 115.2 K	
Interlock	Yes, included with shorting wire	
Laser Status Indicators	Yes	
Analog Modulation Input	SMB Connector, 0V to 5V, 50 Ω or 2000 Ω input impedance	
Digital Modulation Input ²	SMB Connector, 0 V to 3 V, 50 Ω input impedance	
Warm-up Time (minutes) (from cold start)	<2	
Coherent OBIS Connection Software ³	Included on USB drive with user manual	
Safety	Key switch and interlock	
UTILITY AND ENVIRONMENTAL REQUIREMENTS		
Power Consumption (W) (typical)	1 (laser not included)	
Power Consumption (W) (maximum)	2 (laser not included)	
Power Input to Remote, 2 Pin	10 to 14 Volts DC at 2A (maximum, 25 W), Molex Contact Pin P/N: 43031-0009	
Power Cord (North American)	2.4 m (8 ft.)	
Operating Condition ⁴ (°C)	0 to 40	
Non-operating Condition ⁴ (°C)	-10 to +70	
Shock Tolerance (6 ms)	20 g	
Power Input to Power Supply	90 to 264 VAC, 47 to 63 Hz	
Dimensions (L x W x H)	105 x 68 x 36 mm (4.1 x 2.7 x 1.4 in.)	
Weight		
OBIS Single Laser Remote	190 g (6.7 oz)	
Power Supply (included)	170 g (6.0 oz)	
Part Number for OBIS Single Laser Remote	1173961 (does not include SDR Laser-to-Remote Cable, order separately below) 1214875 (includes 1 meter SDR Laser-to-Remote Cable, and Power Supply with Power Cord)	
Part Numbers for Cable, SDR, OBIS LX/LS, and OBIS XT Laser-to-Remote, Male-Male		
1-meter	1179451	
3-meter	1179858	
0.3-meter	1197523	
Part Number for OBIS Power Supply, 12VDC	1184491 (Power Cord not included)	

¹ Host computer not provided. USB cable provided. RS-232 cable not provided.

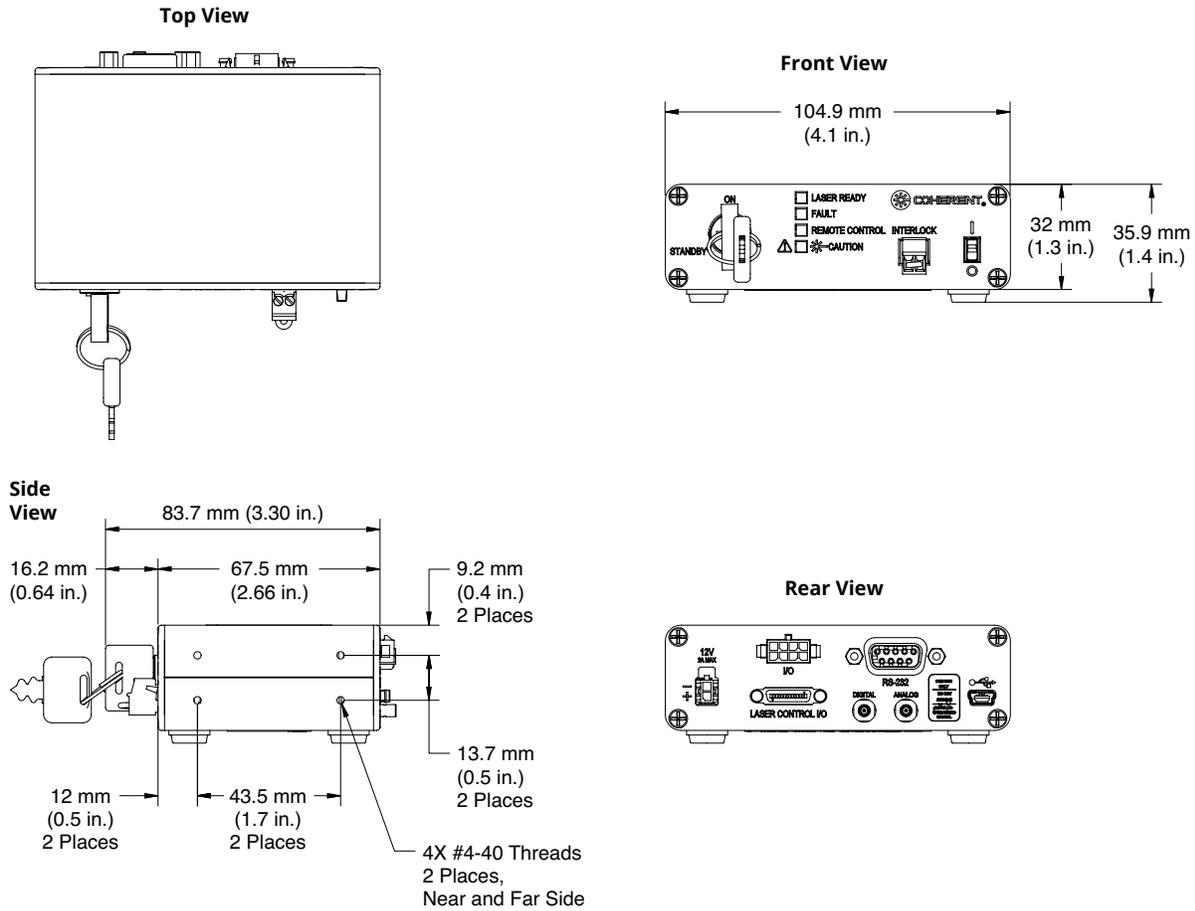
² Digital modulation can be driven up to 5V.

³ Software operates on Windows 7, 10.

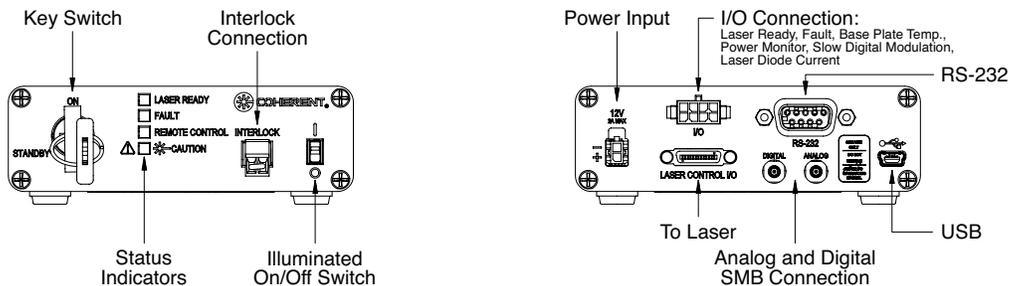
⁴ Non-condensing.

MECHANICAL SPECIFICATIONS

OBIS LX/LS Single Laser Remote



OBIS LX/LS Single Laser Remote Controls

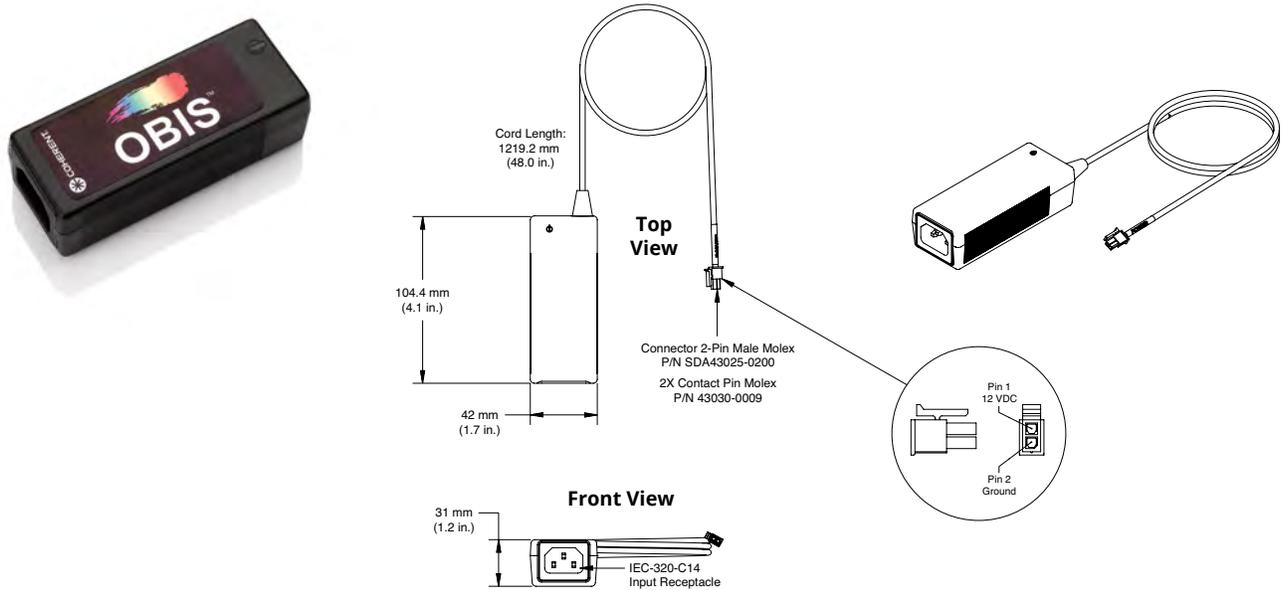


Accessories

OBIS Single Laser Remote Accessories

OBIS Single Laser Power Supply, part # 1184491

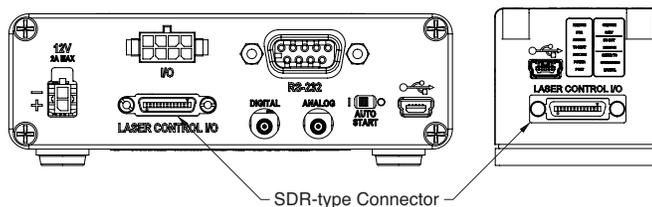
OBIS Single Laser Remote Power Supply offers 12 Volts DC output to the OBIS Remote and has an universal input of 100-240 Volts AC (47-63 Hz), Power Cord sold separately.



Accessories

Cable, SDR, OBIS LX/LS and OBIS XT Laser-to-Remote, Male-Male

OBIS Single Laser Remote requires a SDR-type cable to connect the Laser to the Remote. This cable carries power, signals and communications. Available in 0.3m, 1m and 3m lengths. Sold separately. [Note: OBIS LX/LS and OBIS XT Laser Systems include a SDR cable (1 m). OBIS Single Laser Remote for OBIS LX/LS and OBIS XT part number 1214875 also include a SDR cable (1 m).]



OBIS Single Laser Remote Accessories

Example of the OBIS LX/LS Laser System including:

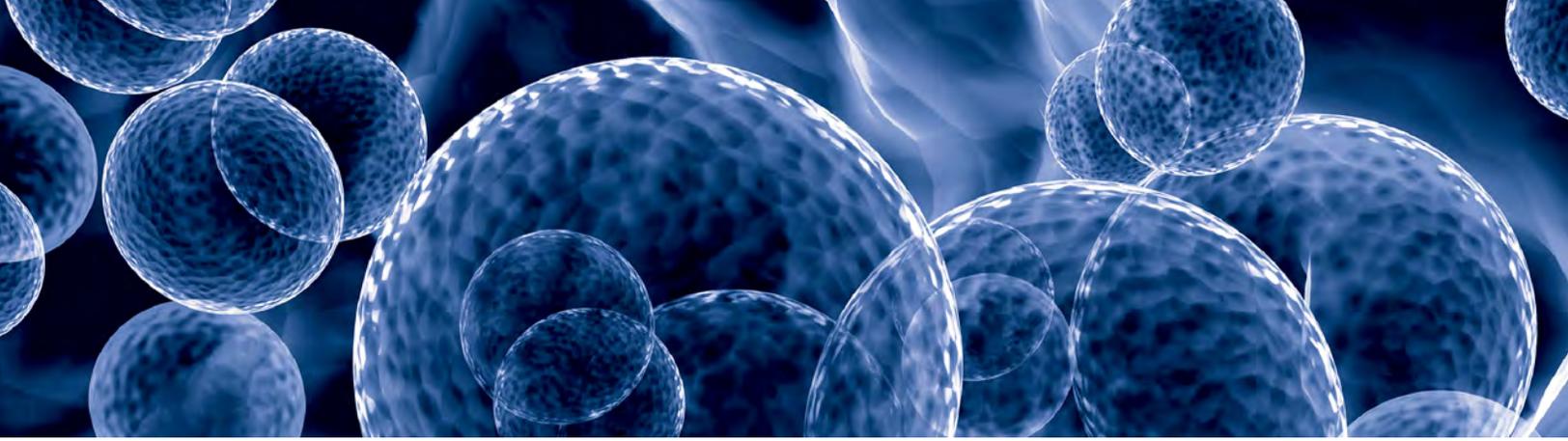
OBIS Single Laser Remote, SDR-type Cable from the Laser to the Remote, USB cable, OBIS Single Laser Power Supply.



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Coherent offers a limited warranty for all OBIS LX/LS Single Laser Remotes. 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.



OBIS LX/LS 6-Laser Remote

Laser Remote and Power Supply for up to Six Lasers

The OBIS 6-Laser Remote for OBIS LS and OBIS LX offers power to six lasers in a convenient CDRH-compliant interface.

As with all OBIS LX and OBIS LS lasers, the laser itself offers a stand-alone all-in-one laser solution. The OBIS laser comes with a Power Connection, USB Connection, Fan Connection and a SDR-type Connection for laser control I/O. All of these are located on the back panel of the OBIS LX/LS laser.

To simplify integration the OBIS 6-Laser Remote connects to the 12VDC Power Input on the back of the OBIS Laser. This allows the OBIS 6-Laser Remote to provide power On/Off to the laser.

For applications requiring laser status and control, the USB on the back of each OBIS Laser can be used to communicate with the laser directly.

The OBIS 6-Laser Remote is not recommended for applications that require Analog or Digital Modulation. OBIS 6-Laser Remote comes complete with mounting brackets and hardware to mount the remote to a table or stack remotes.

FEATURES & BENEFITS

- Compact size
- Laser safety features (CDRH) such as key switch and interlock
- Laser On/Off status indicators
- Compact single power supply included
- Brackets for mounting and stacking included

APPLICATIONS

- Laboratories that require CDRH features
- Applications that require a simple remote control to turn the lasers On and Off
- Applications that do not require Analog or Digital modulation



SPECIFICATIONS ¹	OBIS LX/LS 6-Laser Remote
Laser Power Cables	Six, 1 meter each, color coded
Interlock	Yes, included with shorting wire
Laser Status Indicators	Yes
System and Key Switch Indicator	Yes
Warm-up Time (minutes) (from cold start)	<1
Power Consumption (W) Typical Maximum	1 (laser not included) 2 (laser not included)
Power Input	Universal IEC-320
Power Cord (USA)	2.4 m (8 ft.)
Operating Condition ¹ (°C)	0 to 50°C (32 to 122°F)
Non-Operating Condition ¹ (°C)	-10 to +70°C (14 to 158°F)
Shock Tolerance (g) (6 ms)	20
Power Input to Power Supply	90 to 264 VAC, 47 to 63 Hz
Dimensions (L x W x H) OBIS 6-Laser Remote Power Supply (included)	105 x 68 x 36 mm (4.1 x 2.7 x 1.4 in.) 189 x 89.4 x 47.1 mm (7.4 x 3.5 x 1.9 in.)
Weight OBIS 6-Laser Remote Power Supply (included)	0.23 kg (0.5 lbs.) 0.9 kg (2.0 lbs.)
Part Number OBIS 6-Laser Remote with Power Supply Power Supply, 12VDC	1203909 1211389

¹ Non-condensing.

OBIS 6-Laser Remote

Figure 1: Individual labels included for the laser wavelength identification.



Figure 2: FRONT VIEW. The OBIS 6-Laser Remote comes with wavelength tags to identify each laser connected.

Accessories



320	522	785
349	532	808
355	552	830
360	561	980
375	588	
395	594	
405	633	9
413	635	8
422	637	7
445	640	6
450	647	5
458	650	4
473	660	3
488	685	2
505	730	1
514	750	0

OBIS 6-Laser Remote

Figure 3: REAR VIEW. Six color coded power cables included. Interlock included. Laser sold separately.



Figure 4: Single power supply included to drive six lasers with remote.



Accessories

OBIS 6-Laser Remote

Figure 5: Six remote-to-laser power cables (part #1209469) included. Color coded for easy installation and identification. One meter length.

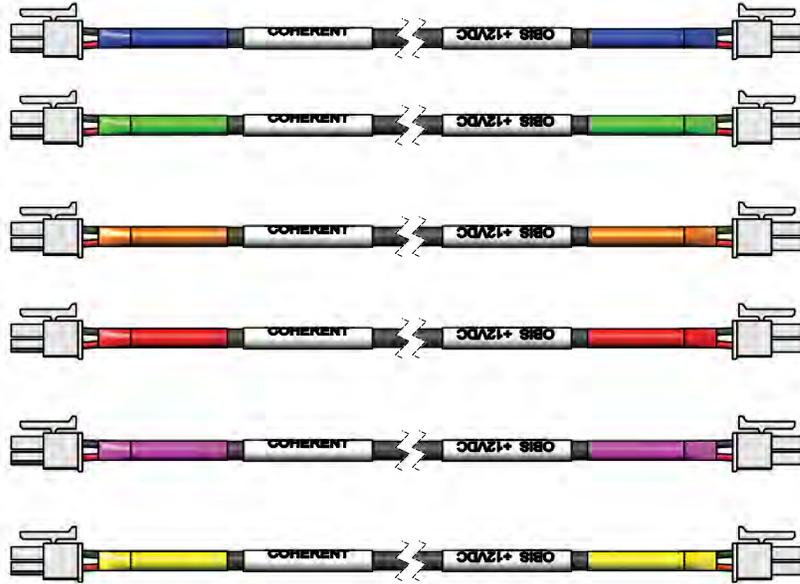
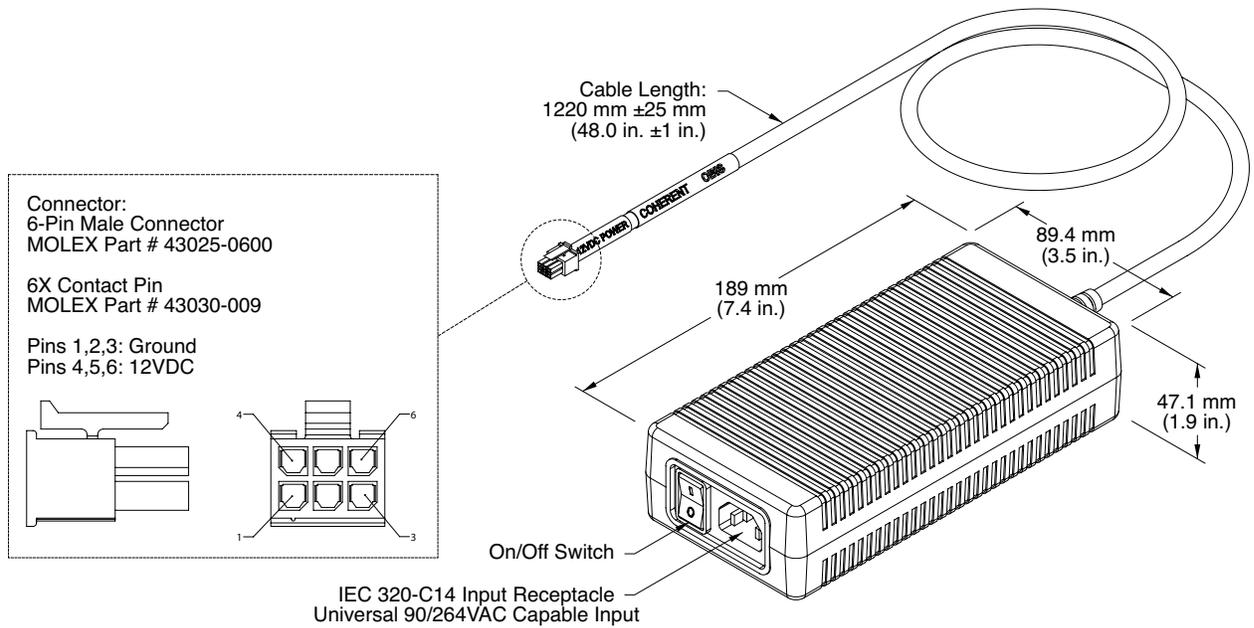
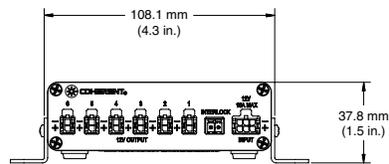
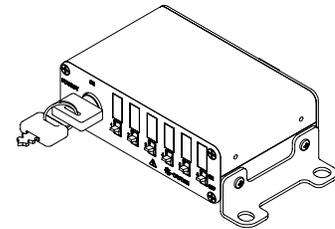
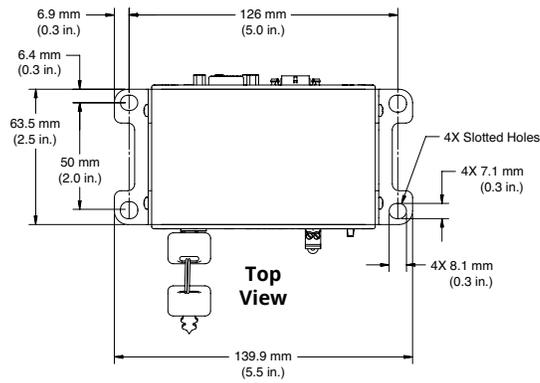


Figure 6: Power Supply (part # 1211389) with IEC-320 universal input. Includes On/Off switch.

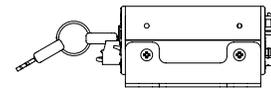


OBIS 6-Laser Remote

OBIS LX/LS 6-Laser Remote with Mounting Brackets and Stacking Brackets, part # 1203909 (included with OBIS LX/LS 6-Laser Remote)

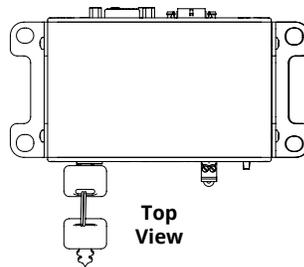


Front View

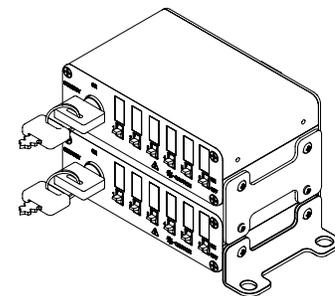


Side View

Example of Stacking OBIS LX/LS 6-Laser Remotes (mounting bracket included, second remote sold separately)



Front View

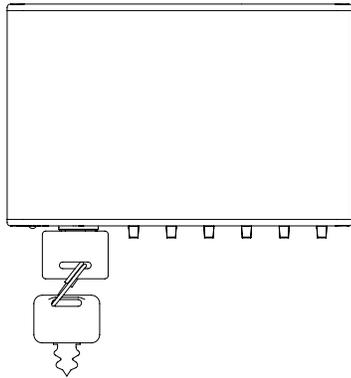


Side View

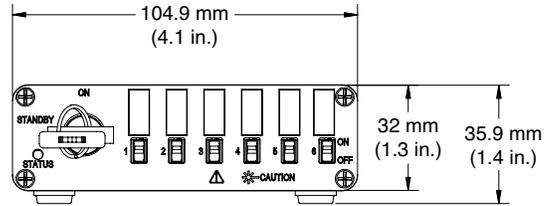
MECHANICAL SPECIFICATIONS

OBIS LX/LS 6-Laser Remote

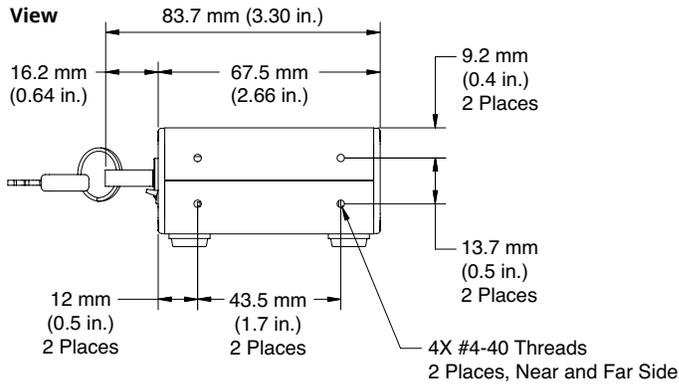
Top View



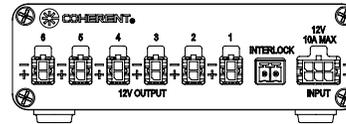
Front View



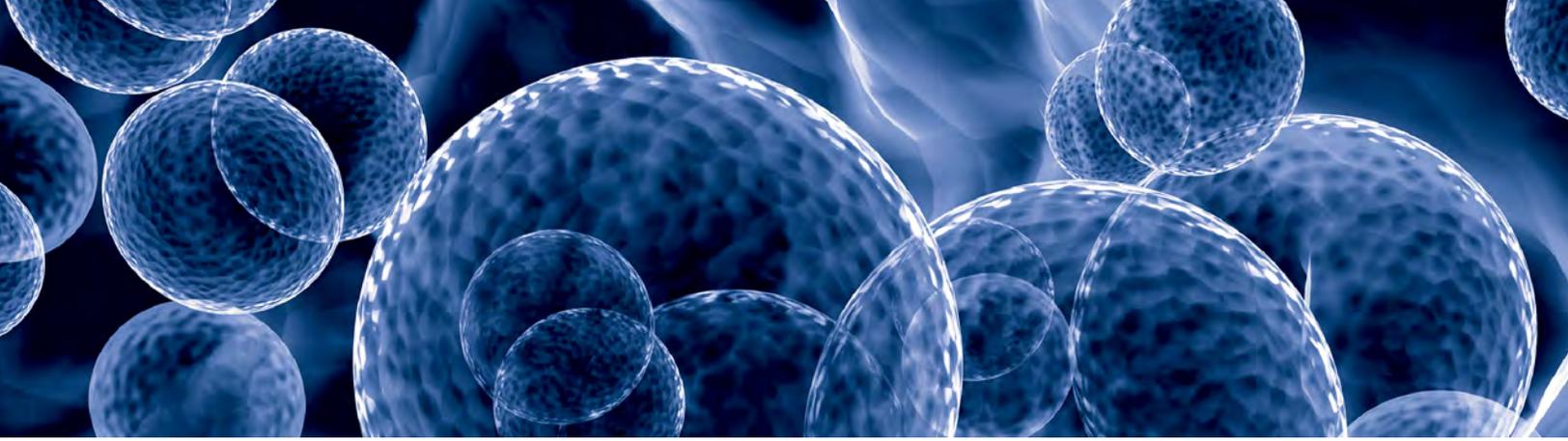
Side View



Rear View



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 Coherent offers a limited warranty for all OBIS LX/LS 6-Laser Remotes. 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.



OBIS LX/LS Heat Sink

Heat Sink with Fan for Thermal Management

OBIS LX and OBIS LS laser products come with a variety of accessories to support your application needs.

As with all OBIS LX and OBIS LS lasers, the laser itself offers a stand-alone all-in-one laser solution. The OBIS laser comes with a Power Connection, USB Connection, Fan Connection and a SDR-type Connection for laser control I/O. All of these are located on the back panel of the OBIS LX/LS laser.

To simplify integration, Coherent offers a separate OBIS LX/LS Heat Sink with an integrated fan. The Heat Sink offers a convenient way to raise the laser beam height off the table and provide thermal management. The fan simply plugs into the back of the OBIS LX or OBIS LS laser to receive 12V DC power from the OBIS LX or OBIS LS laser.

FEATURES

- Small footprint
- Rugged design
- Precision dowel pin laser positioning
- Convenient 69 mm (2.7 inch) beam height
- Integrated cooling fan with vibration isolation
- Output beam centered on standard table bolt pattern
- Universal mounting to imperial or metric bolt pattern
- Proven stable performance over time and temperature
- Fan power connector plugs directly to OBIS Laser Head
- Laser can be mounted on top for vertical polarization or side for horizontal polarization

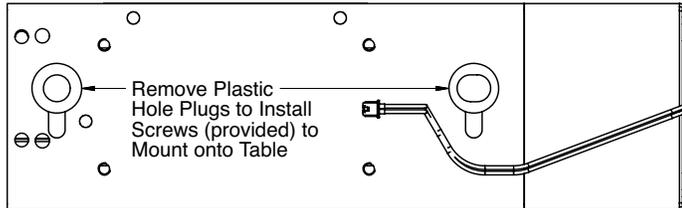


OBIS LX/LS Heat Sink (part # 1193289)

Top and Side Mount Plug Holes

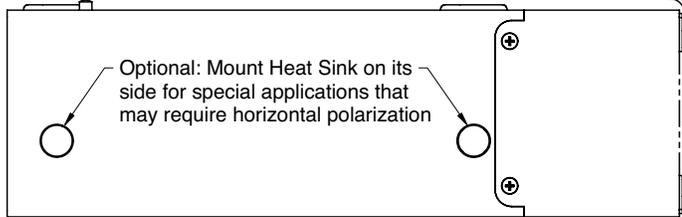
Allow for Heat Sink to be mounted in either direction. Need horizontal polarization – mount the Heat Sink with the laser on the side.

Top Mount Plug Holes



Connector 2 Pos
Vendor: Molex
Vendor Part: 51021-0200

Side Mount Plug Holes



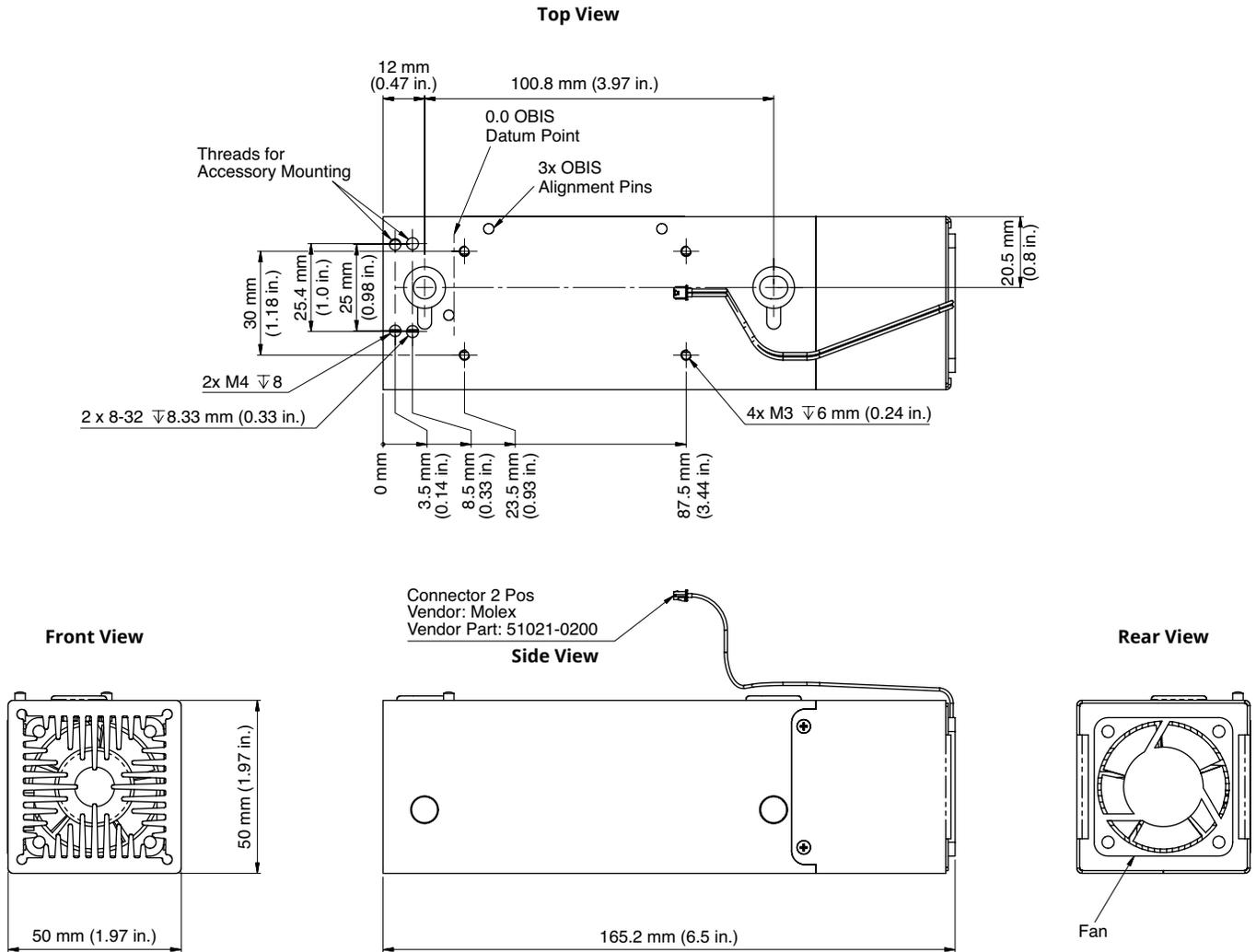
Top Mounted

Side Mounted



MECHANICAL SPECIFICATIONS

OBIS LX/LS Heat Sink

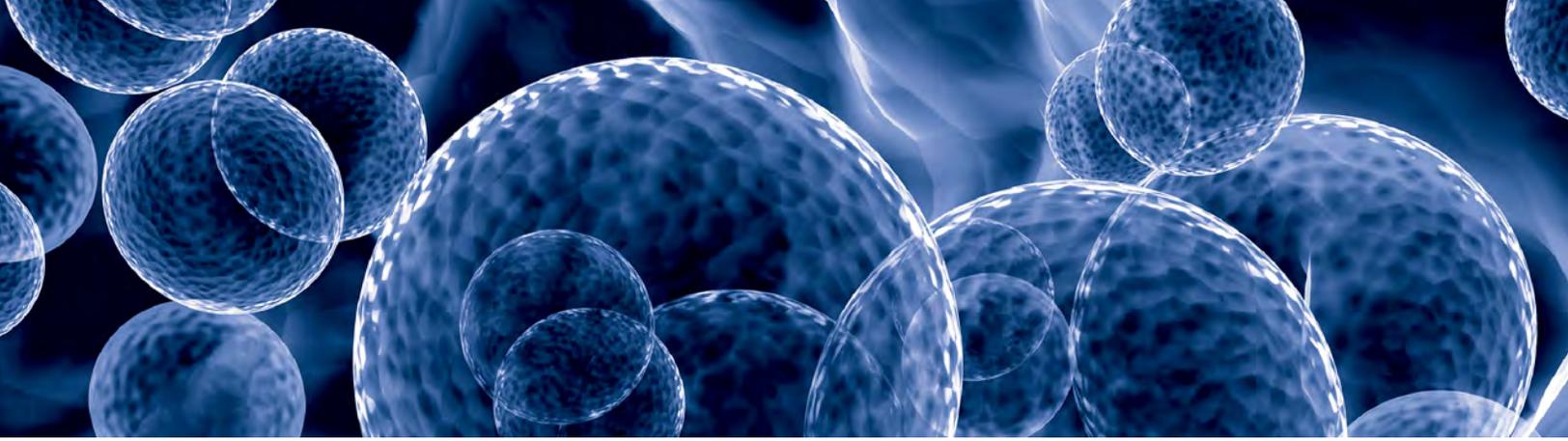


NOTE: DO NOT use thermal grease or thermal compounds. The use of thermal grease or thermal compounds will void the laser warranty.

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Coherent offers a limited warranty for all OBIS LX/LS Heat Sinks. 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.



OBIS LX/LS Laser Box

Laser Mount with Cooling, Interface and Power Supply

OBIS LX and OBIS LS laser products come with a variety of accessories to support your application needs.

The OBIS Laser Box for OBIS LS and OBIS LX offers all the features from the laser in a convenient CDRH-compliant interface with convection cooling for five lasers.

As with all OBIS LX and OBIS LS lasers, the laser itself offers a stand-alone all-in-one laser solution. OBIS lasers come with a Power Connection, USB Connection, Fan Connection and a SDR-type Connection for laser control I/O. All of these are on the back panel of every OBIS LX/LS laser.

To simplify integration, the OBIS Laser Box connects to the single SDR-type connector for power, signals and communication. The OBIS Laser Box then brings all of these features to the front panel controls and connectors.

The OBIS Laser Box offers stability over temperature with conduction cooling for the laser baseplate and cooling fans to maintain the convection cooling.

FEATURES & BENEFITS

- Integrated five bay mount for OBIS lasers
- Heat sinks and cooling fans
- Modulation inputs for analog and digital for five lasers
- USB and RS-232 interface for additional control from host computer
- Coherent Connection software for PC
- Status indicators for each laser
- External power supply
- Laser safety features such as key switch and interlock

APPLICATIONS

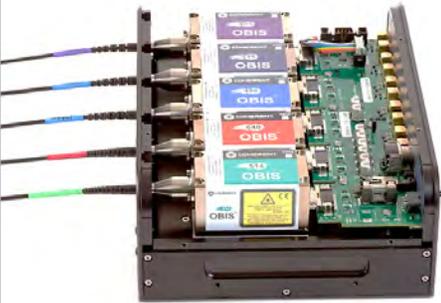
- Laboratories needing CDRH features
- Applications wanting a simple Analog or Digital inputs to control the laser
- Applications wanting thermal management (cooling) for the lasers

Accessories



SPECIFICATIONS ¹	OBIS LX/LS Laser Box	
OBIS Laser Box Laser Box - five bay ¹ Power Supply ²	Part Number 1228877 Included	Part Number 1343229 Included
Host Computer Remote Control via USB ³	USB 2.0, Mini B	
Host Computer Remote Control via RS-232 ³	RS-232, 115.2K, DB-9F	
Analog Inputs, 5 each	SMB Connector, 0V to 5V, 2000 Ω input impedance	
Digital Inputs ⁴ , 5 each	SMB Connector, 0V to 3V, 50 Ω input impedance	SMB Connector, 0V to 3V, 2000 Ω input impedance
Interlock	Yes, included with shorting wire	
Laser Status Indicators	Yes, Individual LED for each Laser	
Warm-up Time (minutes) (from cold start)	<2	
Coherent Connection Software for PC	Included on USB drive with user manual	
Safety	Key switch and interlock	
UTILITY AND ENVIRONMENTAL REQUIREMENTS		
Power Consumption (W) (typical)	5 (without lasers)	
Power Consumption (W) (maximum)	140 (with 5 lasers)	
Internal Cooling Fan	Yes, 3 each	
Power Input to Laser Box, 6 Pin (VDC)	10 to 14 at 10A maximum, Molex P/N 43025-0600 for mating connector	
Power Cord (USA)	2.4m (8 ft.)	
Operating Condition ⁵ (°C)	10 to 40 for OBIS LX, 10 to 35 for OBIS LS	
Non-operating Condition ⁵ (°C)	-10 to 60	
Shock Tolerance (g) (6 ms)	20	
Operating Voltage (VAC)	90 to 264, 47 to 63 Hz	
Dimensions (L x W x H)		
Laser Box	241 x 184 x 88 mm (9.5 x 7.3 x 3.5 in.)	
Power Supply	189 x 89.4 x 47.1 mm (7.4 x 3.5 x 1.9 in.)	
Weight		
Laser Box	3.9 kg (8.5 lbs.)	
Power Supply	0.9 kg (2.0 lbs.)	

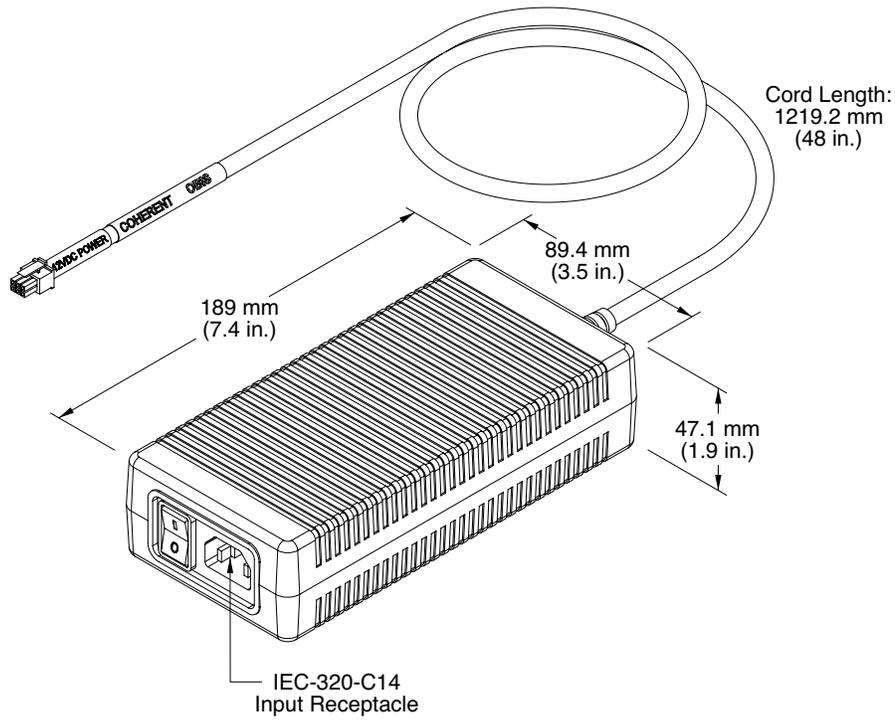
1 Lasers sold separately.
 2 Power supply included. Order item number 1211389 for spare or replacement.
 3 Host computer not provided. RS-232 cable not provided.
 4 Digital Modulation can be driven up to 5 Volts.
 5 Non-condensing.

Example of OBIS Laser System	Description
	<p>Figure 1: OBIS LX/LS Laser Box with the lid removed</p>
	<p>Figure 2: OBIS LX/LS Laser Box example as part of an OBIS Galaxy Beam Combiner System. OBIS Lasers and OBIS Galaxy Beam Combiner sold separately.</p>
	<p>Figure 3: OBIS LX/LS Laser Box example with 5 OBIS Lasers installed. OBIS Lasers sold separately.</p>

MECHANICAL SPECIFICATIONS

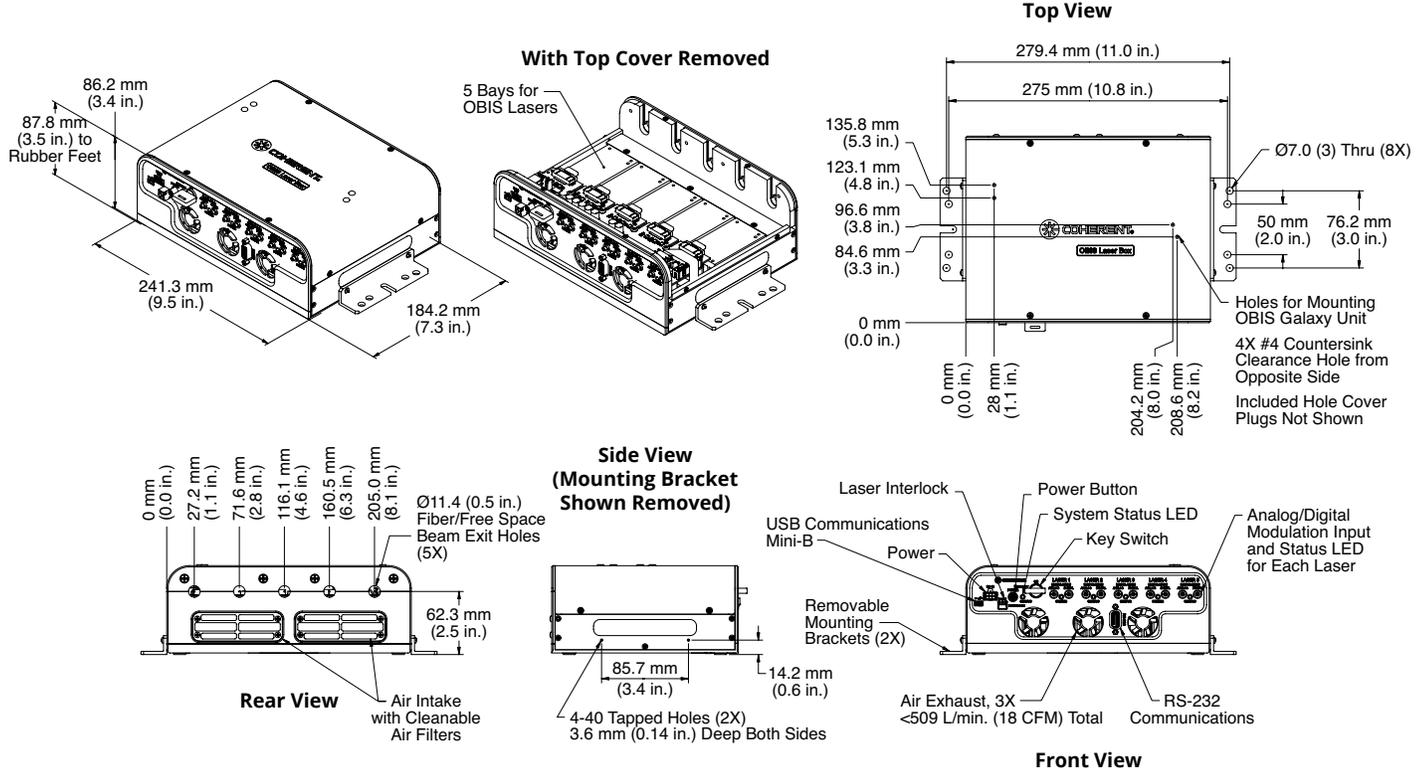
OBIS 6-Laser Remote Power Supply

Part #1211389 included



MECHANICAL SPECIFICATIONS

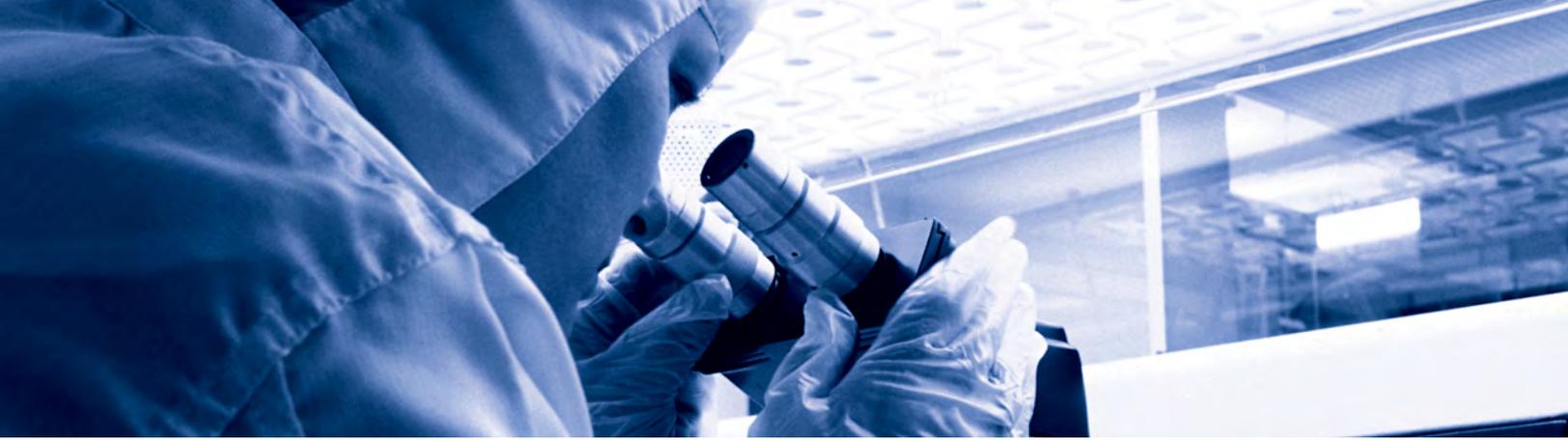
OBIS Laser Box



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Coherent offers a limited warranty for all OBIS LX/LS Laser Boxes. 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.



Sapphire CDRH Controller

Operate, Control, and Monitor Sapphire Laser Heads

The Sapphire CDRH Controller provides controller and power supply in a wall plug-ready box, featuring a standby/laser ON switch and remote control options via Analog, RS-232 and USB interface.

The CDRH Controller enables and simplifies stand-alone applications: it can operate, control and monitor all Sapphire laser heads. A Sapphire CDRH laser head and a Sapphire CDRH Controller when properly installed is CDRH-compliant.

FEATURES & BENEFITS

- One-box wall plug controller and power supply
- Enables stand-alone applications (CDRH Compliant)
- Standby/Laser ON key switch
- Remote interlock
- Remote control option via Analog, RS-232, or USB interface
- Laser power adjustment and graphic display (optional)
- Front panel control with laser power adjustment and status display (optional)
- Status LEDs

SAPPHIRE CDRH CONTROLLER FOR:

- Sapphire LP
- Sapphire FP
- Sapphire SF
- Sapphire SF NX
- Sapphire LPX



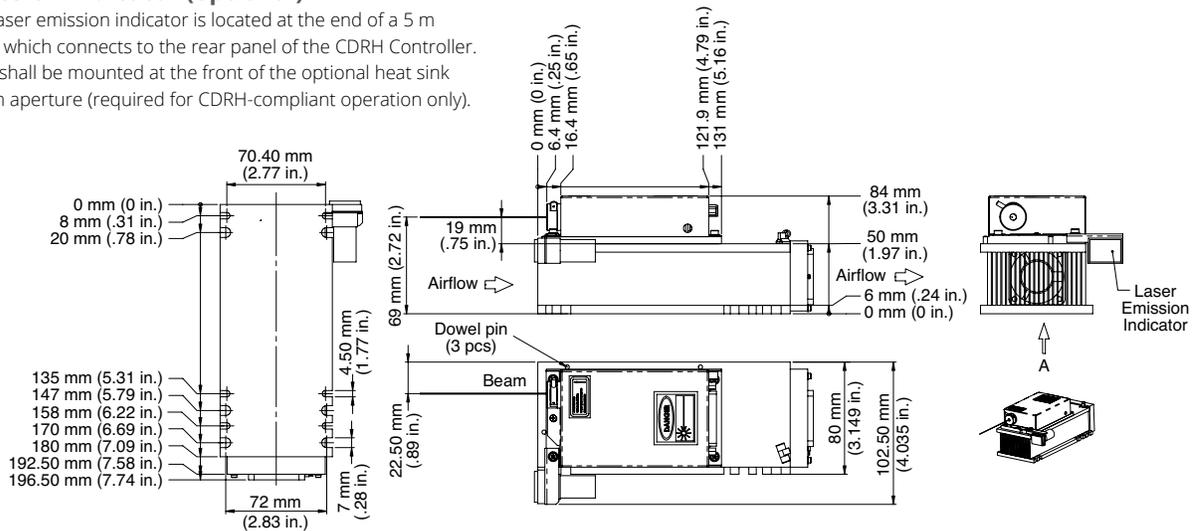
UTILITY AND ENVIRONMENTAL REQUIREMENTS	Sapphire LP/FP/SF CDRH Controller	Sapphire SF NX/LPX CDRH Controller
Power Consumption (VA)	<150	
Operating Voltage	100 to 240 VAC ±10%, 50/60 Hz	
Ambient Temperature	10 to 40°C (50 to 104°F), non-condensing	
Operating Conditions	-30 to 60°C (-22 to 140°F)	
Non-Operating Conditions		
Dimensions ¹ (L x W x H)	196 x 164 x 99.5 mm (7.72 x 6.46 x 3.92 in.)	230 x 198 x 90 mm (9.06 x 7.80 x 3.54 in.)
Cable Length (Head to Controller)	2 m (6.56 ft.), optional 5 m (16.4 ft.)	2 m (6.56 ft.)
Weight	1.85 kg (4.08 lbs.)	2.5 kg (5.51 lbs.)
Part Number	1189089 (Sapphire LP/FP/SF CDRH Controller) 1170412 (Sapphire LP/FP CDRH Controller w/o display)	1397910 (Sapphire SF NX CDRH Controller) 1398222 (Sapphire LPX CDRH Controller)

¹ Please consider additional space for the front panel switches and the cable connections on the rear panel

MECHANICAL SPECIFICATIONS

Laser Emission Indicator (optional)

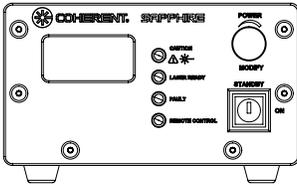
The optional laser emission indicator is located at the end of a 5 m (16.4 ft.) cable which connects to the rear panel of the CDRH Controller. This indicator shall be mounted at the front of the optional heat sink near the beam aperture (required for CDRH-compliant operation only).



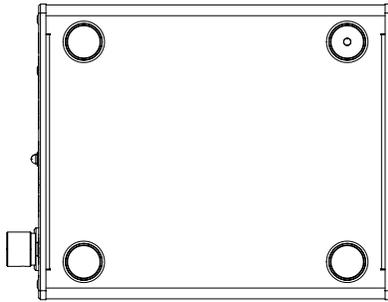
MECHANICAL SPECIFICATIONS

CDHR Controller - Sapphire LP/FP/SF

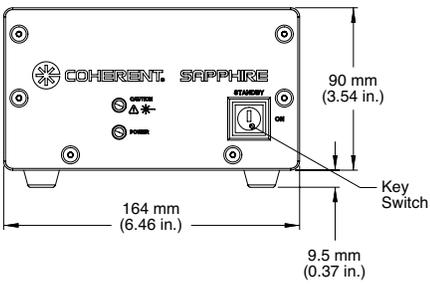
**Front View
(Display Version)**



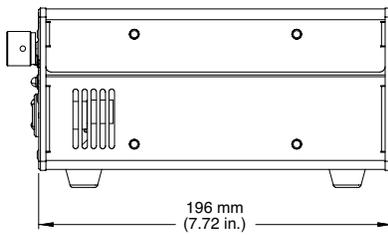
Top View



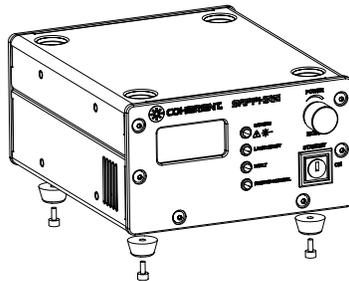
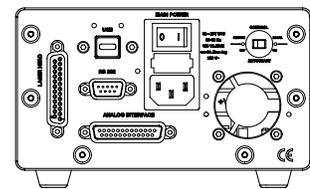
**Front View
(Non-Display Version)**



Side View



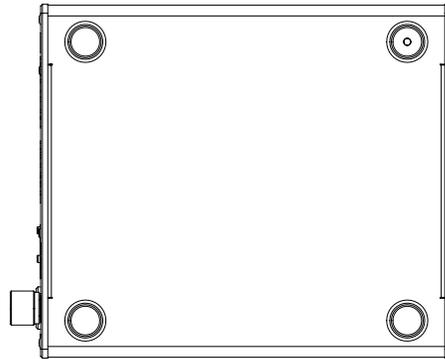
Rear View



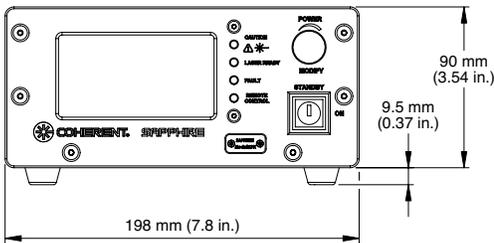
MECHANICAL SPECIFICATIONS

**CDHR Controller -
Sapphire LPX/SF NX**

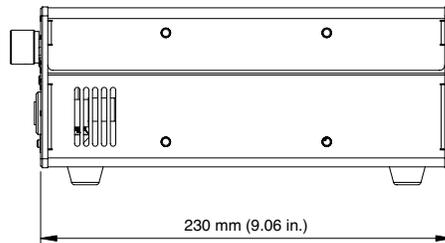
Top View



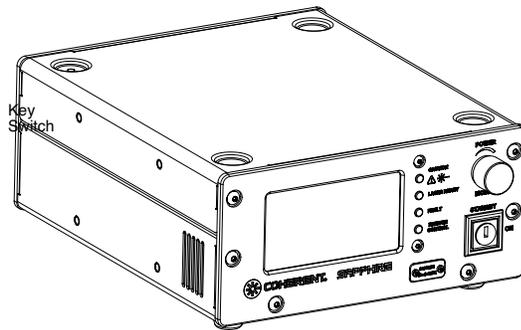
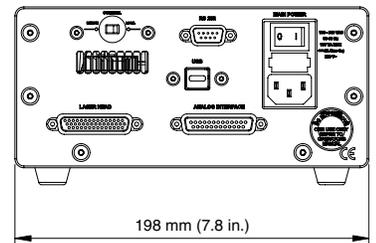
Front View



Side View



Rear View



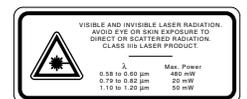
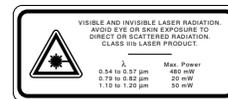
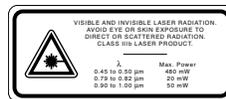
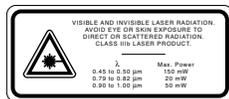
Accessories

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.

U.S. Patent No. 5,954,978
U.S. Patent No. 5,991,318
U.S. Patent No. 6,097,742
U.S. Patent No. 6,167,068
U.S. Patent No. 6,370,168



Laser Measurement and Control Accessories

METER, SENSOR, & ACCESSORY COMPATIBILITY			
LASER	Meter	Sensor	Accessory
OBIS LX/LS	FieldMaxII-TO	PS10Q	
OBIS LX/LS FP	FieldMaxII-TO	PS10	FC Fiber Adapter
OBIS LG 355	FieldMaxII-TO	PS10	
Structured Light Flat Top Projector	Please Call Factory	1-800-367-7890	
CUBE	FieldMaxII-TO	PS10Q	
OBIS CORE LS	FieldMaxII-TO	PS10Q	
OBIS Galaxy	FieldMaxII-TO	PS10, USB UV/VIS	FC Fiber Adapter
OBIS CellX	FieldMaxII-TO	PS10Q	
Miniature Diode Laser Module	FieldMaxII-TO	PS10Q	
Compass 115M	FieldMaxII-TO	PS10Q, OP-2 VIS	
Sapphire LP	FieldMaxII-TO	PS10Q	
Sapphire FP	FieldMaxII-TO	PS10Q	
Sapphire SF	FieldMaxII-TO	PS10Q	
Sapphire LPX	FieldMaxII-TO	PS10Q	
Genesis CX Series	FieldMaxII-TO	PS10Q	
Genesis MX Series STM (OEM)	FieldMaxII-TO	PM10	
Genesis MX Series MTM (OEM)	FieldMaxII-TO	PM10	
Chameleon Ultra	FieldMaxII-TO	PM10	
Chameleon Vision	FieldMaxII-TO	PM10	
Chameleon Vision-S	FieldMaxII-TO	PM10	
Chameleon PreComp	N/A	N/A	
Chameleon MPX	FieldMaxII-TO	PM10	
Product Name	Part Number		
FieldMaxII-TO	1098579		
OP-2 VIS, USB UV/VIS	1098313, 1168337		
PM10	1097901		
PS10Q	1098400		
PS10	1098350		
FC Fiber Adapter	0012-3863		

Accessories



Ultrafast Lasers for Two-Photon Imaging

Chameleon Discovery NX

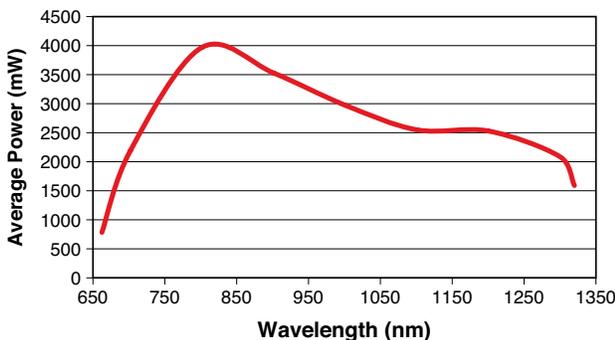
Flagship Tunable Laser for Flexible Multiphoton Microscopy



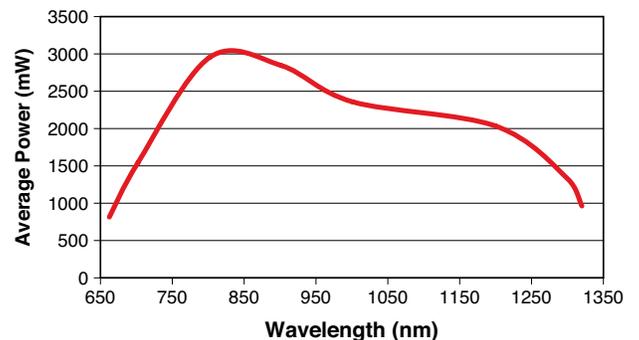
FEATURES & BENEFITS

- Highest power for deepest imaging, > 3.6 W at 800 nm
- 660 nm to 1320 nm Octave spanning tuning range
- Total Power Control: built-in fast power modulation option
- Short pulses with widest dispersion precompensation range

Chameleon Discovery NX:
Typical Tuning and Power



Chameleon Discovery NX TPC:
Typical Tuning and Power



Chameleon Ultra II

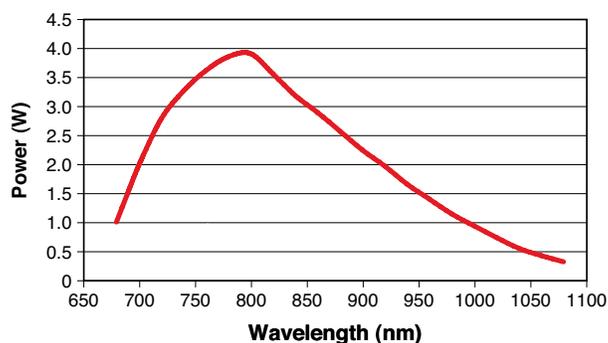
High Power and 400 nm of Tuning



FEATURES & BENEFITS

- High output powers >3.5 W for deep imaging
- Wide tuning range of 680 nm to 1080 nm
- 140 fs pulse duration
- Automated tuning and alignment for hands-free operation
- Extendable wavelength range with Compact OPO and Harmonics units

Chameleon Ultra II
Tuning Curve (typical)



Chameleon Vision and Vision-S

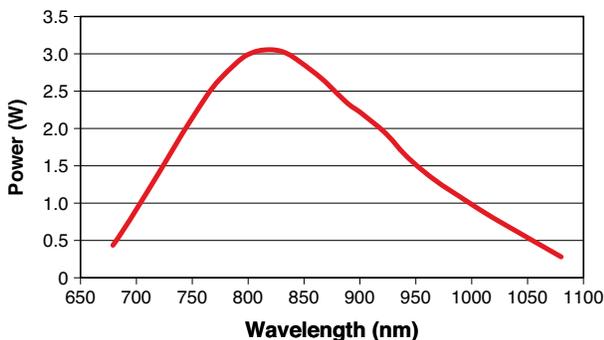
Wide Range of Dispersion Precompensation



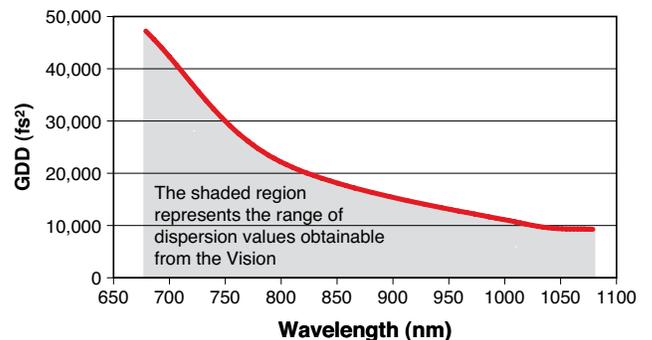
FEATURES & BENEFITS

- Output powers >3 W for Vision and >2.5 W for Vision S
- Wide wavelength tuning ranges
- Short pulses: 140 fs for Vision and 75 fs for Vision S
- Wide range of automated dispersion precompensation maximizes fluorescent efficiency at the sample plane
- Extendable wavelength range with Compact OPO and Harmonics units

Chameleon Vision II
Tuning Curve (typical)



Maximum Negative Dispersion
Capability for Vision II



Axon

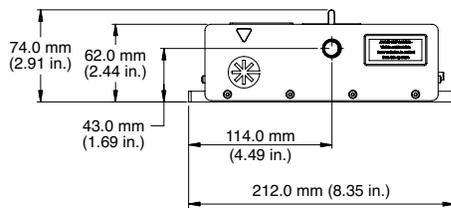
Leading the Revolution in Two-Photon Imaging



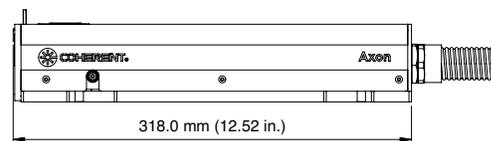
FEATURES & BENEFITS

- Fixed wavelength femtosecond lasers
- Compact and cost-effective
- 780 nm, 920 nm, and 1064 nm
- OEM friendly, maintenance-free
- Built-in fast power control and dispersion precompensation

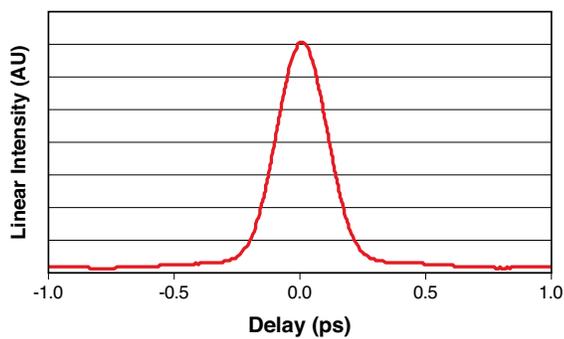
Front View



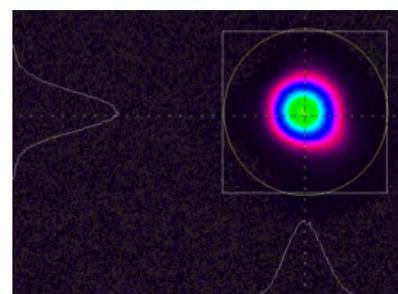
Side View



Typical Autocorrelation:
Axon 1064



Far Field Beam Profile:
Axon



Ultrafast Lasers

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How to Contact Us



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Laser Measurement: lmc.sales@coherent.com

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