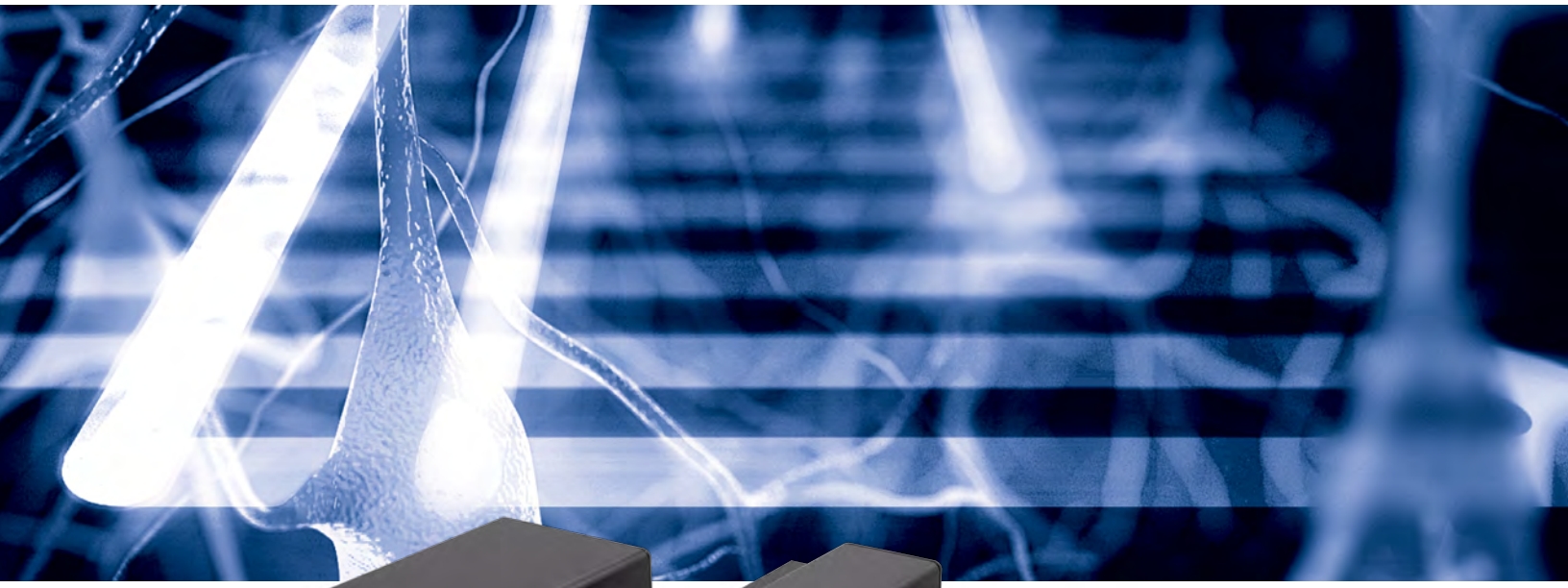
LASERS FOR LIFE SCIENCES

Product Catalog



COHERENT®

Superior Reliability & Performance


COHERENT

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Ultimate Choice. Perfect Match.

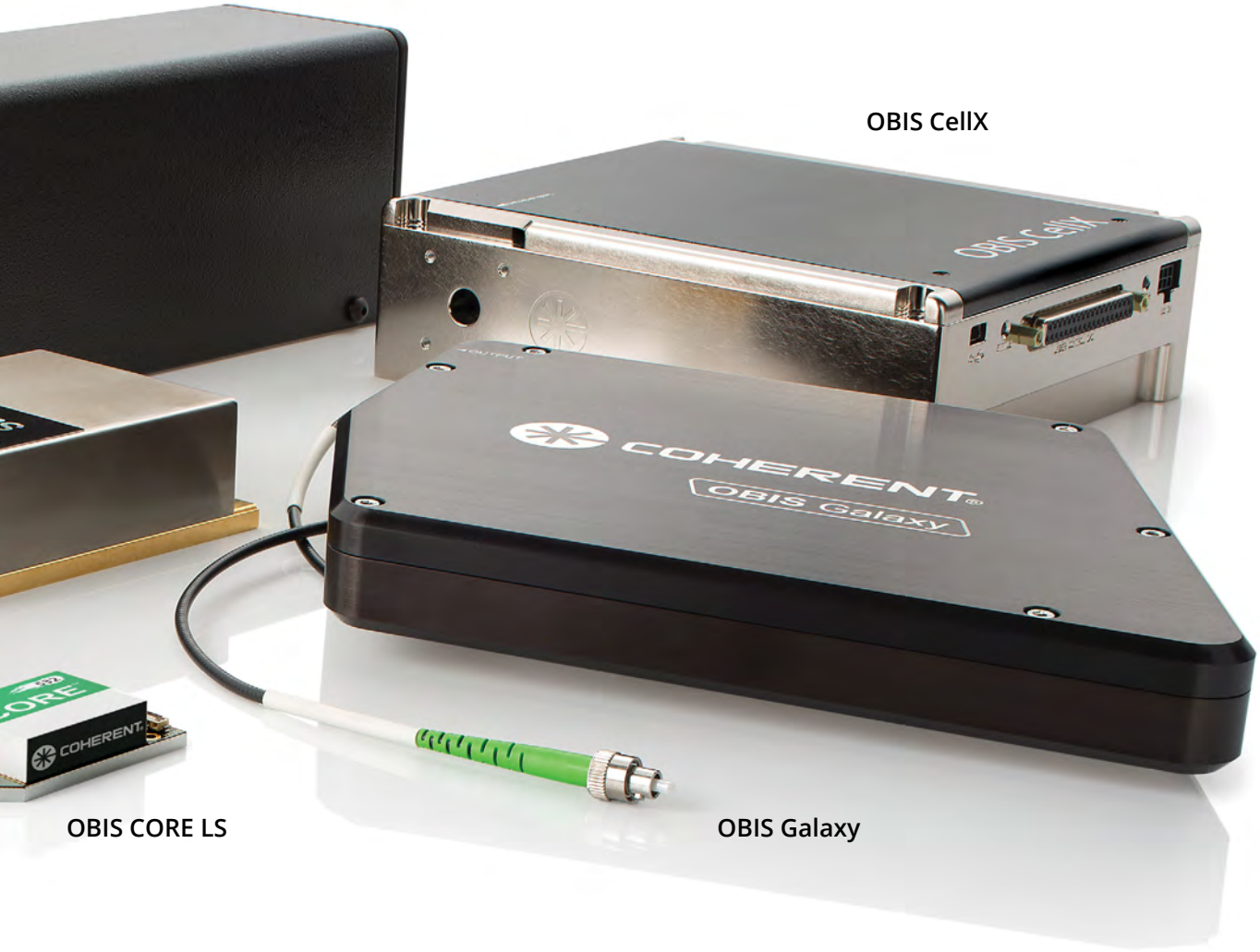
With 50 years of experience in life sciences, Coherent understands that getting the best results requires a laser that perfectly integrate with your application. That's why we offer the widest choice of laser technologies and performance options.

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.

Select your product by wavelength, power, or features. Coherent makes it easy for you to optimize the laser to the task... the perfect match for value and performance.

Genesis MX

OBIS CellX

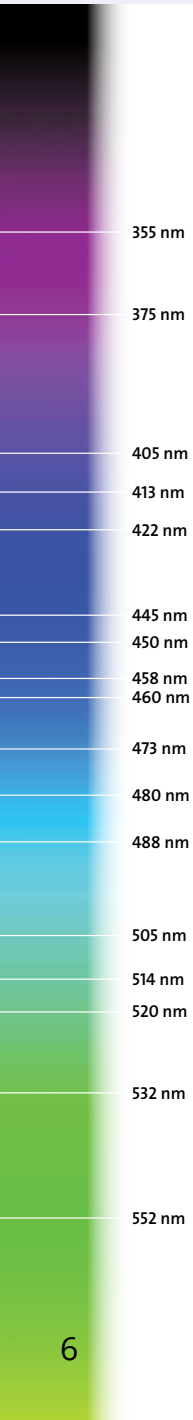


OBIS CORE LS

OBIS Galaxy

Ultimate Choice. Perfect Match.

Choose Your Laser by **Wavelength and Power**

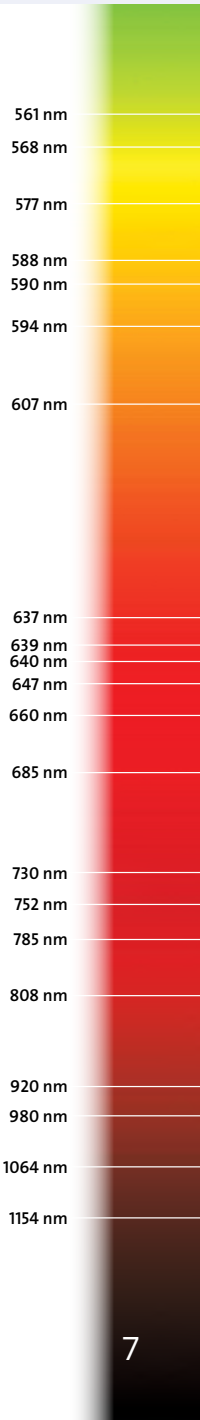


355 nm	OBIS LG up to 50 mW. Genesis CX up to 250 mW.
375 nm	OBIS LX up to 50 mW
405 nm	OBIS LX up to 250 mW. OBIS LX Fiber Pigtailed up to 100 mW. OBIS CellX up to 100 mW. StingRay and BioRay at 50 mW.
413 nm	OBIS LX at 100 mW
422 nm	OBIS LX at 100 mW
445 nm	OBIS LX at 75 mW. OBIS LX Fiber Pigtailed at 45 mW.
450 nm	StingRay and BioRay at 50 mW
458 nm	OBIS LX at 75 mW. OBIS LX Fiber Pigtailed at 45 mW. Sapphire up to 75 mW. Sapphire FP at 40 mW.
460 nm	Genesis CX up to 1W. Genesis MX up to 2W.
473 nm	OBIS LX at 75 mW. OBIS LX Fiber Pigtailed at 50 mW.
480 nm	Genesis CX up to 4W. Genesis MX up to 2W.
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 4W. Genesis MX up to 5W.
505 nm	OBIS LX at 50 mW. OBIS LX Fiber Pigtailed at 40 mW. OBIS LS/OBIS CORE LS up to 100 mW.
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 4W. Genesis MX up to 5W.
520 nm	OBIS LX at 40 mW. StingRay and BioRay at 50 mW.
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 8W.
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 3W. Genesis MX up to 2W.
568 nm	Sapphire up to 200 mW. Sapphire Fiber Pigtailed up to 120 mW
577 nm	Genesis CX up to 3W. Genesis MX up to 5W.
588 nm	Sapphire up to 100 mW. Sapphire Fiber Pigtailed at 40 mW.
590 nm	Genesis CX up to 3W. Genesis MX up to 3W.
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.
607 nm	Genesis MX up to 1.25W
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 2W
640 nm	OBIS LX up to 100 mW. OBIS LX Fiber Pigtailed at 75 mW. StingRay and BioRay at 40 mW.
647 nm	OBIS LX at 120 mW. OBIS LX Fiber Pigtailed at 100 mW.
660 nm	OBIS LX at 100 mW. OBIS LX Fiber Pigtailed at 75 mW.
685 nm	OBIS LX at 40 mW
730 nm	OBIS LX at 30 mW
752 nm	OBIS LX at 150 mW
785 nm	OBIS LX at 100 mW
808 nm	OBIS LX at 150 mW
920 nm	Genesis MX at 4W
980 nm	OBIS LX up to 150 mW
1064 nm	Genesis MX at 10W
1154 nm	Genesis MX at 6W



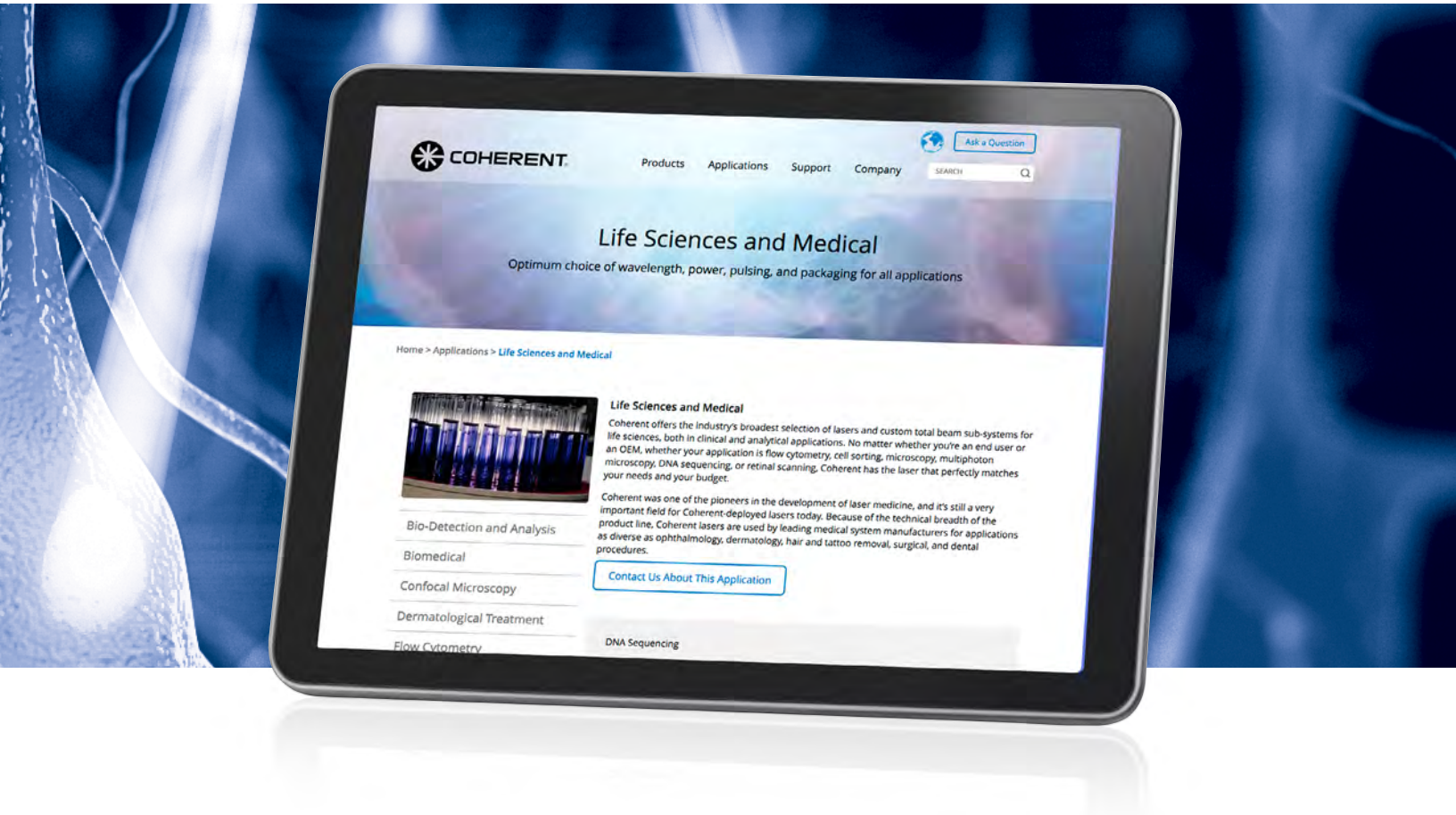
Ultimate Choice. Perfect Match.

Choose Your Laser by **Features**

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

Elevate Your Life Sciences Application

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



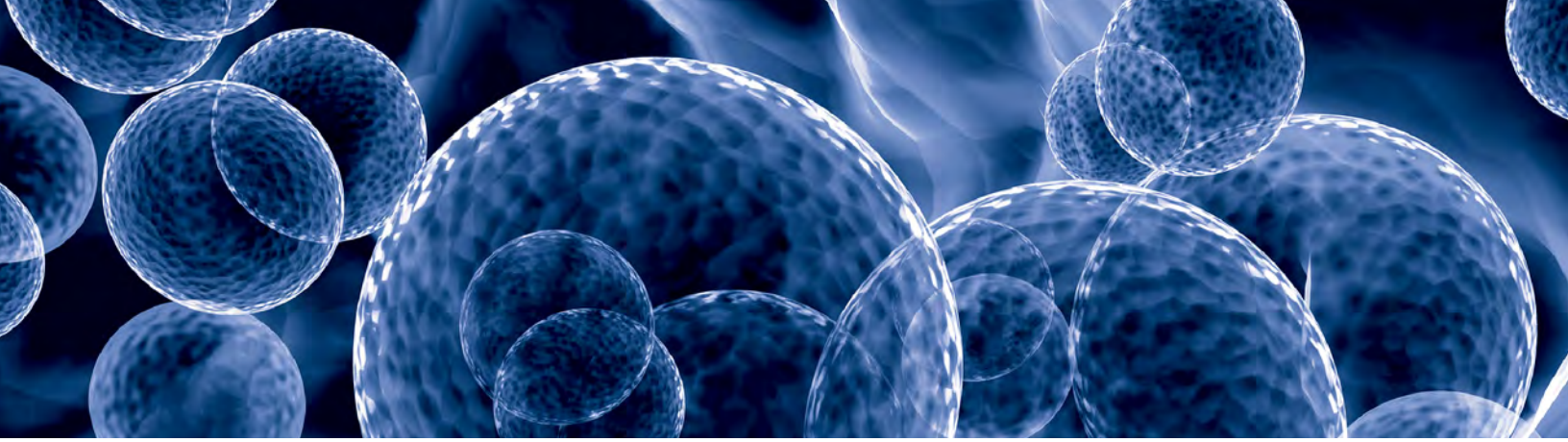
Accessories

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
- Opthalmology

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) Rise Time (10% to 90%) (ms) Fall Time (10% to 90%) (µs) Extinction Ratio	 1 <1 <100 on/no emission	 1 <1 <100 on/no emission	 1 <1 <100 on/no emission	 1 <1 <100 on/no emission
Analog Modulation Maximum Bandwidth (kHz) Rise Time (10% to 90%) (ms) Fall Time (10% to 90%) (µs)	 1 <1 <1	 1 <1 <1	 1 <1 <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) Beam Angle[4] (mrad) Beam Waist Position at Exit Window (mm)	 <0.5 <2.5 ±215	 <0.5 <2.5 ±215	 <0.5 <2.5 ±215	 <0.5 <2.5 ±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) Non-Operating Condition (°C)	 15 to 40 -20 to +60	 15 to 40 -20 to +60	 15 to 40 -20 to +60	 15 to 40 -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 throught baseplate of laser head or controller.
6 Non-Condensing.
7 CORE LS laser head baseplate temperature needs to be maintained at ≤40°C

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) Rise Time (10% to 90%) (ms) Fall Time (10% to 90%) (µs) Extinction Ratio	 1 <1 <100 on/no emission	 1 <1 <100 on/no emission	 1 <1 <100 on/no emission
Analog Modulation Maximum Bandwidth (kHz) Rise Time (10% to 90%) (ms) Fall Time (10% to 90%) (µs)	 1 <1 <1	 1 <1 <1	 1 <1 <1
Dynamic Power Range (%)	20 to 110	20 to 110	20 to 110
Static Alignment Tolerances Beam Position from Reference[4] (mm) Beam Angle[4] (mrad) Beam Waist Position at Exit Window (mm)	 <0.5 <2.5 ±215	 <0.5 <2.5 ±215	 <0.5 <2.5 ±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) Non-Operating Condition (°C)	 15 to 40 -20 to +60	 15 to 40 -20 to +60	 15 to 40 -20 to +60
Shock Tolerance (g) (6 ms)	30	30	30

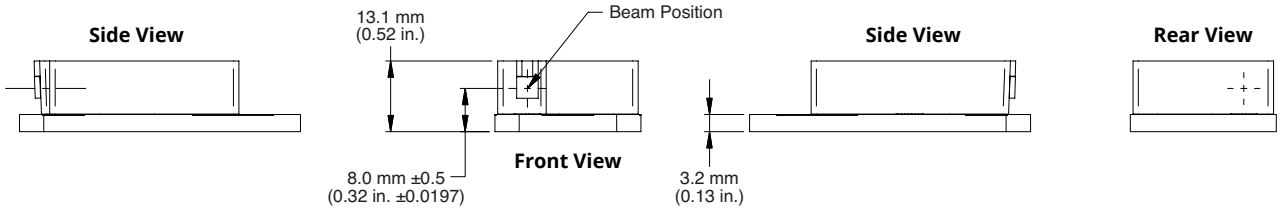
1 Laser-to-laser tolerance. All CORE LS versions ±2 nm.
2 Residual laser emission at 808 nm fundamental within beam at 100 mm distance <0.1 mW.
3 For LS versions typical power-on delay 3 minute.
4 See mechanical drawing for exit beam location.
5 Heat load depends on laser power level. Heat dissipation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

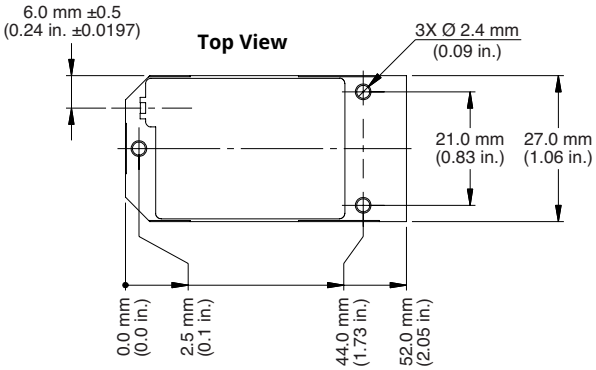
UTILITY AND ENVIRONMENTAL REQUIREMENTS	
Operating Voltage[1] (VDC)	12 ±2
Dimensions (L x W x H)	
Laser Head (mm)	52 x 27 x 13 mm (2.05 x 1.06 x 0.51 in.)
CORE LS Controller Kit (mm)	115 x 33 x 16 mm (4.53 x 1.30 x 0.63 in.)
Cable, Laser Head to Controller (mm) (3 different lengths available)	150, 300, 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.)

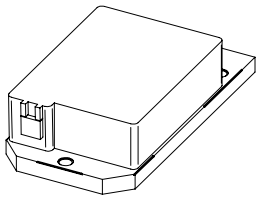
1 DC power supply has to meet the following requirements: power >12W; ripple <5% peak-to-peak; line regulation <0.5%. The power supply must comply with SELV and LPS regulations.

MECHANICAL SPECIFICATIONS

OBIS CORE LS

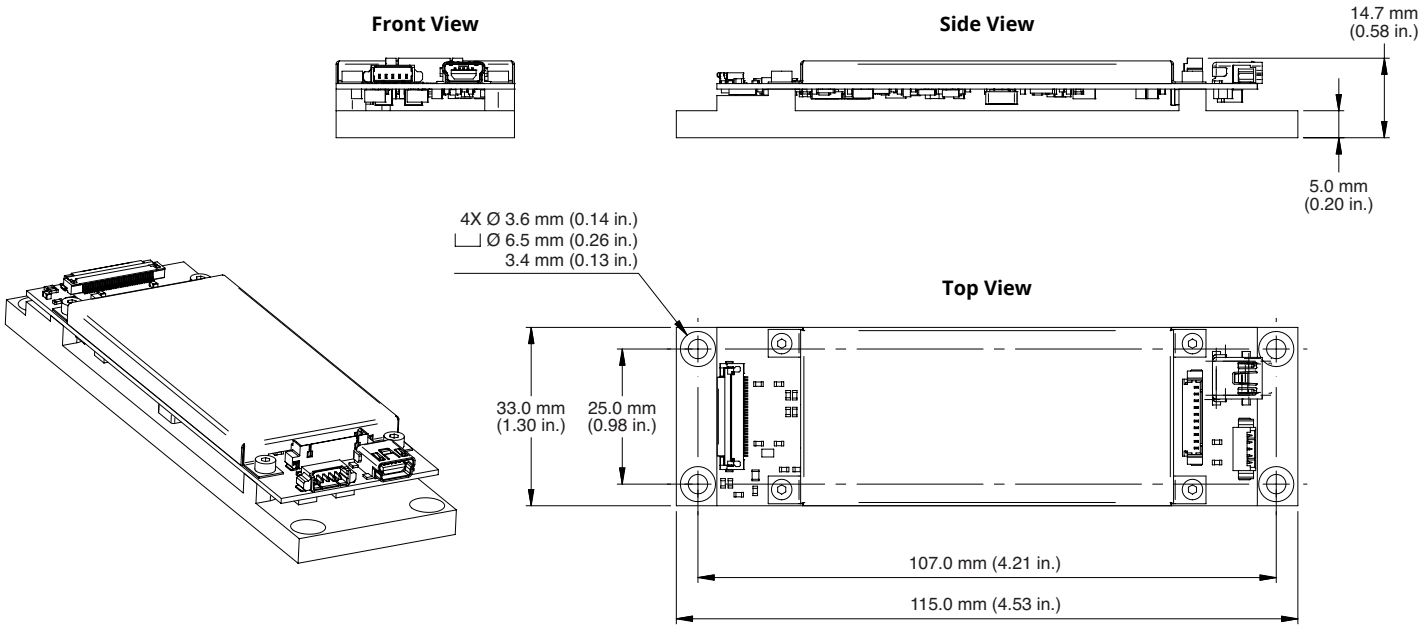






MECHANICAL SPECIFICATIONS

OBIS CORE LS Controller

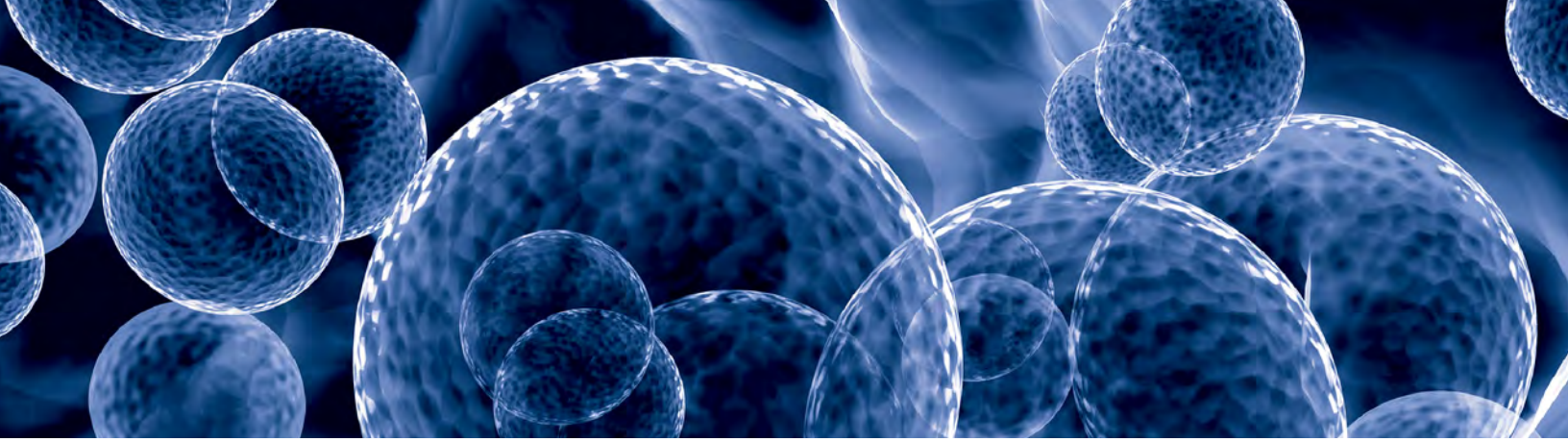


Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

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 µFocus 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 µrad/°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		
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

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 Control

STEP 4: Control Mode

STEP 5: Beam Shape

STEP 6: Focus Distance

STEP 7: Communication Option (RS-232)

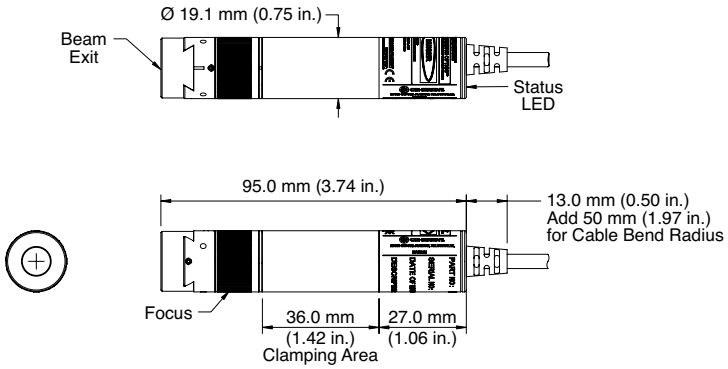
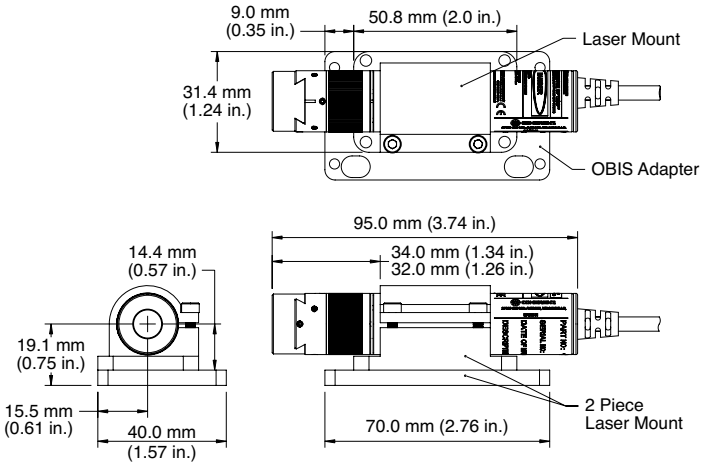
STEP 8: Cable Length/Connector

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.

Standard StingRay	Mechanical Specifications[1]
☐ 	
StingRay in Mount, BioRay	**Mechanical Specifications[1]**
☐ 	

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

STEP 1 (continued):

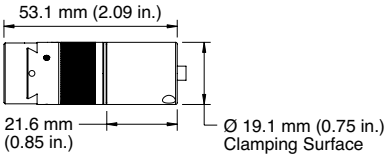
Separate Driver, Compact Laser Head

(select cable length between laser head and driver)

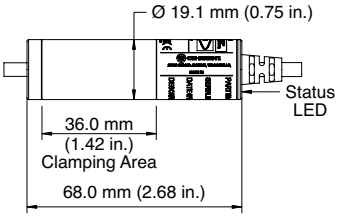
☐ 75 mm ☐ 150 mm ☐ 250 mm ☐ 500 mm

Mechanical Specifications[1]

Laser Head



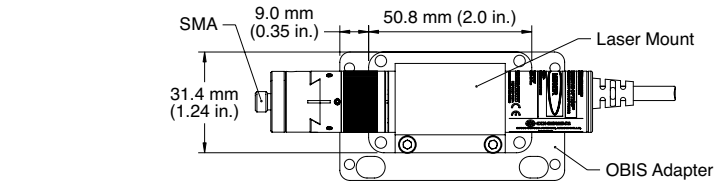
Driver

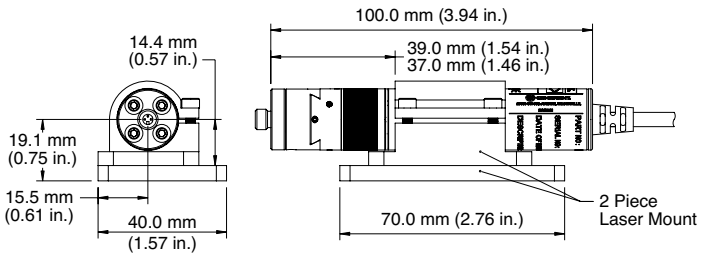


BioRay FR (Fiber-Ready with SMA)

☐

Mechanical Specifications[1]





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
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

1 BioRay FR available in 405 nm, 450 nm, 488 nm and 640 nm. Laser-to-laser wavelength tolerance of 405 nm is ±5 nm, 450 nm ±10 nm, 488 nm ±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 is ±5 nm, 685 ±15 nm, 785 nm is ±19 nm, 830 nm is 815 nm to 840 nm.

STEP 3:

Choose your power.

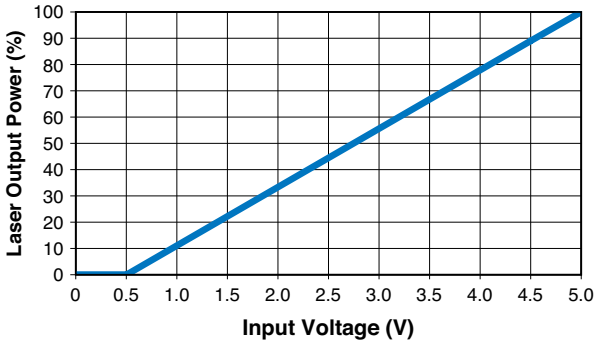
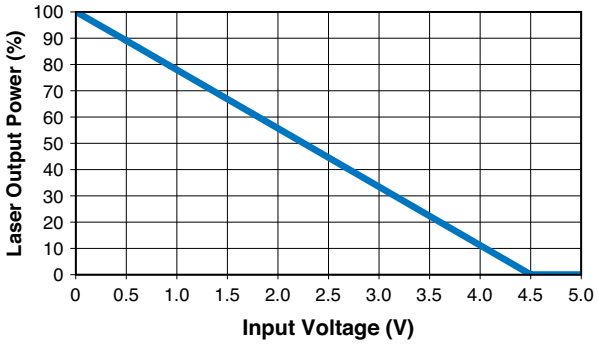
Choose only one of the following selections.

Wavelength Choices[1] (nm)	405	450	488	520	525	639	640	655	660	685	785	830
Output Power Available (mW)												
1						☐		☐				
5				☐	☐	☐		☐				
10		☐		☐	☐	☐			☐			
20		☐	☐	☐	☐		☐		☐	☐	☐	
25					☐							
35		☐		☐			☐		☐	☐	☐	
50	☐	☐	☐	☐	☐				☐	☐	☐	
75					☐						☐	☐
90											☐	
100									☐			☐
150												☐
200												☐

1 405 nm 50 mW BioRay only. 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:

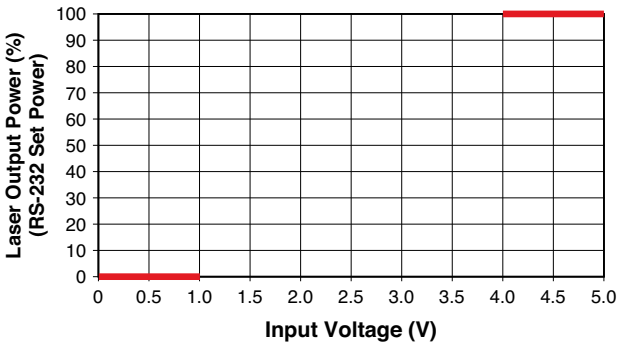
Choose your output power control: CW, analog modulation (variable output power), or digital modulation. Choose only one of the following selections.

CW Mode	Function
☐ 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	**Function**
☐ Analog[1] (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 Maximum bandwidth of 500 KHz Rise time (10% to 90%) <1 msec Fall time (90% to 10%) <1 msec Also can be used with a DC voltage input to simply vary the output power  No adjustable output power through RS-232
☐ 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 Maximum bandwidth of 500 KHz Rise time (10% to 90%) <1 msec Fall time (90% to 10%) <1 msec Also can be used with a DC voltage input to simply vary the output power	 No adjustable output power through RS-232

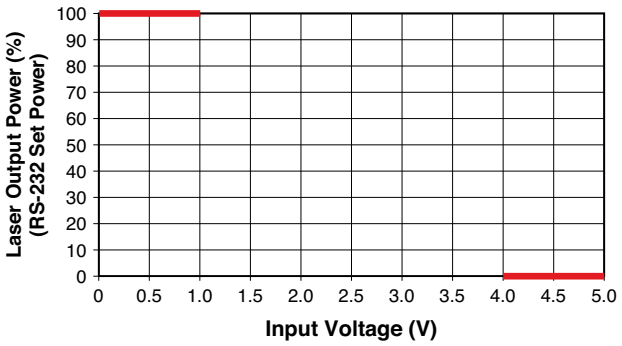
1 BioRay is standard with Analog Modulation, and will require a 5V input signal to operate CW.

STEP 4 (continued):

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



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

D01 – Coherent's high-quality elliptical collimated beam with user adjustable focus to change the beam divergence.

☐ D01-XX, Standard ~1 mm by ~3 mm beam diameter

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.

☐ µFL D01-XX, Large beam diameter 2X with less divergence

Line Beam Generator

L01 – Coherent's Premier Flat-Top Line Technology, with nine choices for the fan angle at which the line expands out from the laser.

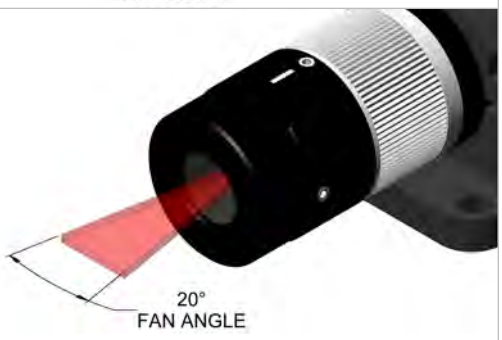
☐ L01-1 Line with 1 degree fan angle
Fan angle 1º with tolerance ±10%
Relative intensity floor >75%
Contained Power ≥90%

Note: Not available in 488 nm

☐ L01-5 Line with 5 degree fan angle
Fan angle 5º with tolerance ±10%
Straightness <0.1%
Relative intensity floor >75%
Contained Power ≥95%

Note: Not available in 488 nm

STEP 5 (continued):

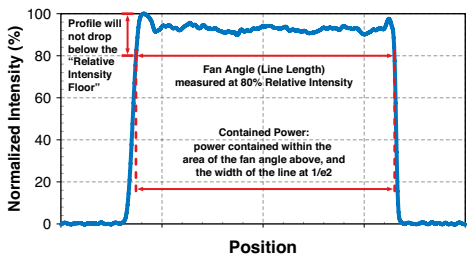
Line Beam Generator (cont.)	
☐ L01-10 Line with 10 degree fan angle Fan angle 10º with tolerance ±5% Straightness <0.1% Relative intensity floor >75% Contained Power ≥95% Note: Not available in 488 nm	
☐ L01-15 Line with 15 degree fan angle Fan angle 15º with tolerance ±5% Straightness <0.1% Relative intensity floor >75% Contained Power ≥95% Note: Not available in 488 nm	
☐ L01-20 Line with 20 degree fan angle Fan angle 20º 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 30º 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.)	
☐ L01-45 Line with 45 degree fan angle ☐ L01-45 Line with 45 degree fan angle, micro-focus (µFL) Fan angle 45º with tolerance ±5% Straightness <0.1% Relative intensity floor >60% Contained Power ≥95% Note: Not available in 488 nm. Micro-focus (µFL) only available in 520 nm to 785 nm.	
☐ L01-60 Line with 60 degree fan angle ☐ L01-60 Line with 60 degree fan angle, micro-focus (µFL) Fan angle 60º with tolerance ±5% Straightness <0.1% Relative intensity floor >60% Contained Power ≥95% Note: Not available in 488 nm. Micro-focus (µFL) only available in 520 nm to 785 nm.	
☐ L01-75 Line with 75 degree fan angle Fan angle 75º with tolerance ±5% Straightness <0.1% Relative intensity floor >50% Contained Power ≥95% Note: Not available in 488 nm	

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
☐ 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.
☐ 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”.

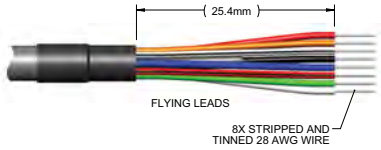
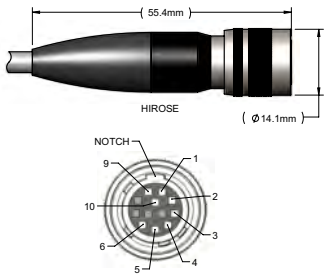
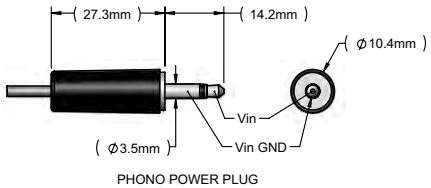
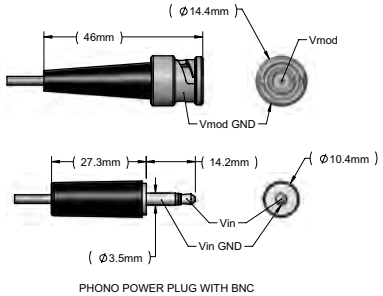
STEP 7:

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

Focus	Description
☐ None	No communications. RS-232 disabled.
☐ 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	**Flying Leads** Choose Length (mm) ☐ 250 ☐ 500 ☐ 1000 ☐ 1500 ☐ 2000 ☐ 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	**Hirose** **R10A-10P-12SC(73)** ☐ 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	**Power Plug, Phono** **3.5 mm** ☐ 500 mm Note: Only for CW mode		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	**Power Plug, Phono** **3.5 mm and BNC for** **Modulation** ☐ 500 mm Note: Do not order with CW mode		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

STEP 9:

Choose data report.

Data Reports	Description
☑ Basic	Every laser includes a final quality test report
☐ 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
☐ None	Laser will start emission at power-on
☐ 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 in-stock for immediate delivery on the next two pages.

MOST POPULAR CONFIGURATIONS READY FOR IMMEDIATE DELIVERY:

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, 75º 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, 20º 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, 45º 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, 75º 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, 10º 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, 20º 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, 60º 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, 1º 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 READY FOR IMMEDIATE DELIVERY (continued):

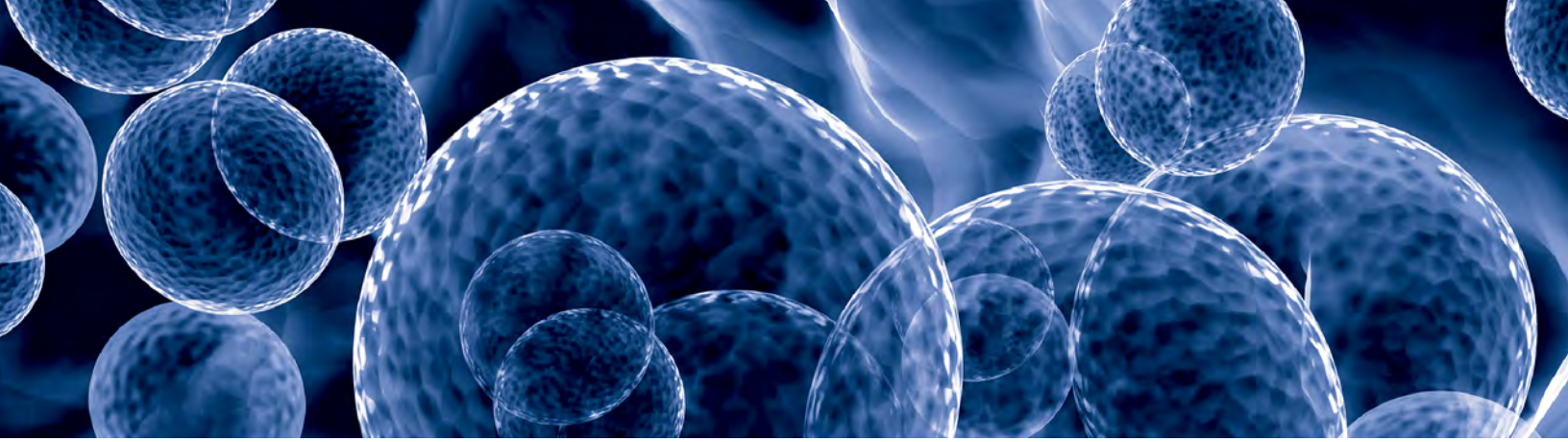
Part Number	Description
1288507	**STR-660-35-CW-HR-L01-20-S-XX-8** StingRay, 660 nm, 35 mW, Single Line, 20º Fan Angle, Pre-focused to 500 mm distance, ~1 Meter cable with Hirose Connector. NOTE: Does not have 5-second power-on delay for laser emission.
1280731	**STR-660-100-T-FL-L01-10-S-TX** StingRay, 660 nm, 100 mW, Single Line, 10º 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, 15º 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, 30º 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, 45º 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, 60º 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 Keyswitch 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.

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.

CE ISO 9001 Registered



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 com-bined 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 customers 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
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; 520LX with a 520 nm to 530 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 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 M^2 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 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	75	50 150	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)	0.8 ±0.1	0.8 ±0.1	0.8 ±0.1 0.7 ±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; 520LX with a 520 nm to 530 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 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 M^2 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 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 505LX	OBIS 505LS	OBIS 514LX	OBIS 514LS	OBIS 520LX
Wavelength[1] (nm)	505	505	514	514	520
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; 520LX with a 520 nm to 530 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 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 M^2 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 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

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; 520LX with a 520 nm to 530 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 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 M^2 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 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 637LX	OBIS 640LX	OBIS 647LX
Wavelength[1] (nm)	637	640	647
Output Power[2] (mW)	140	40, 100	120
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)	0.7 ±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
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)	300	500	500
Rise Time (10% to 90%) (nsec)	<1200	<700	<700
Fall Time (90% to 10%) (nsec)	<800	<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

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; 520LX with a 520 nm to 530 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 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 M^2 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 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

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; 520LX with a 520 nm to 530 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 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 M^2 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 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 785LX	OBIS 808LX	OBIS 980LX
Wavelength[1] (nm)	785	808	980
Output Power[2] (mW)	100	150	100, 150
Spatial Mode	TEM_{00}	TEM_{00}	TEM_{00}
M^2 (Beam Quality)[3]	≤1.2	≤1.2	≤1.3
Beam Asymmetry	≤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
Beam Divergence (mrad, full-angle)	<1.7	<2.1	<2.8
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°	Minimum 50:1, Vertical ±10°	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

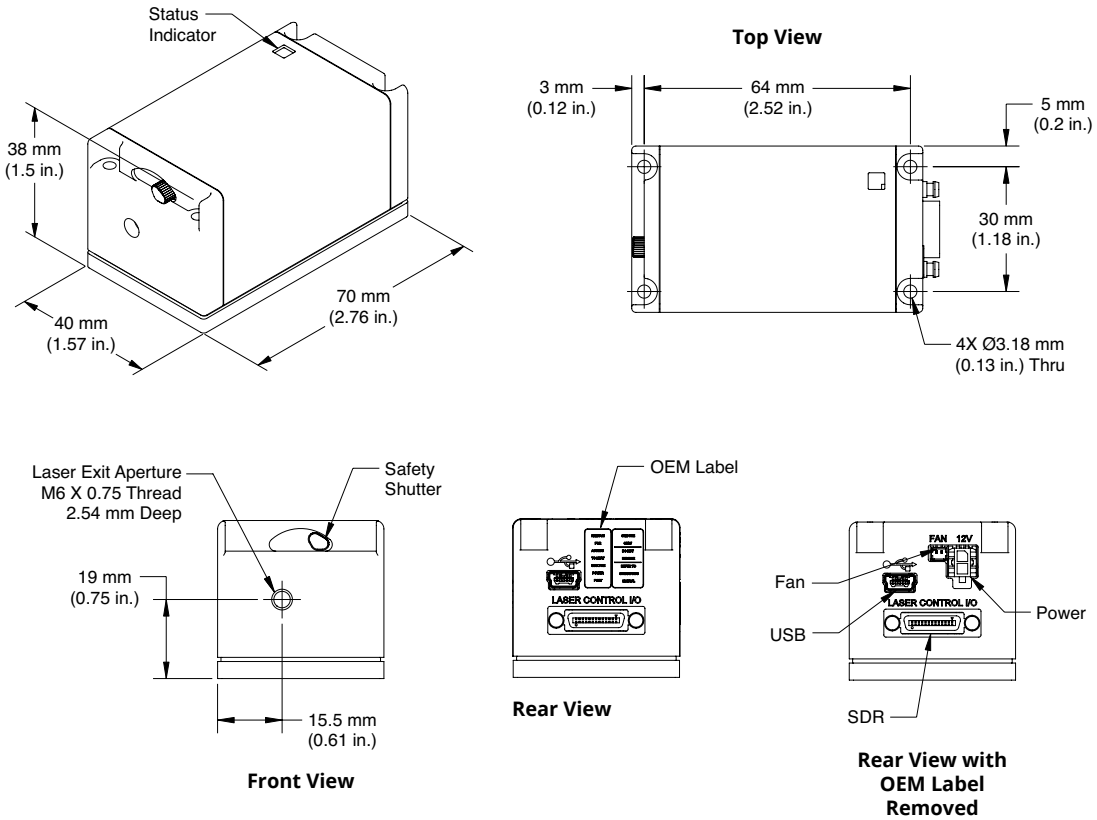
1 Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range; 520LX with a 520 nm to 530 nm range; 640LX with 635 nm to 644 nm range; 660LX with 652 nm to 665 nm range; and 685LX, 730LX, 785LX, 808LX, and 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 M^2 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 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.

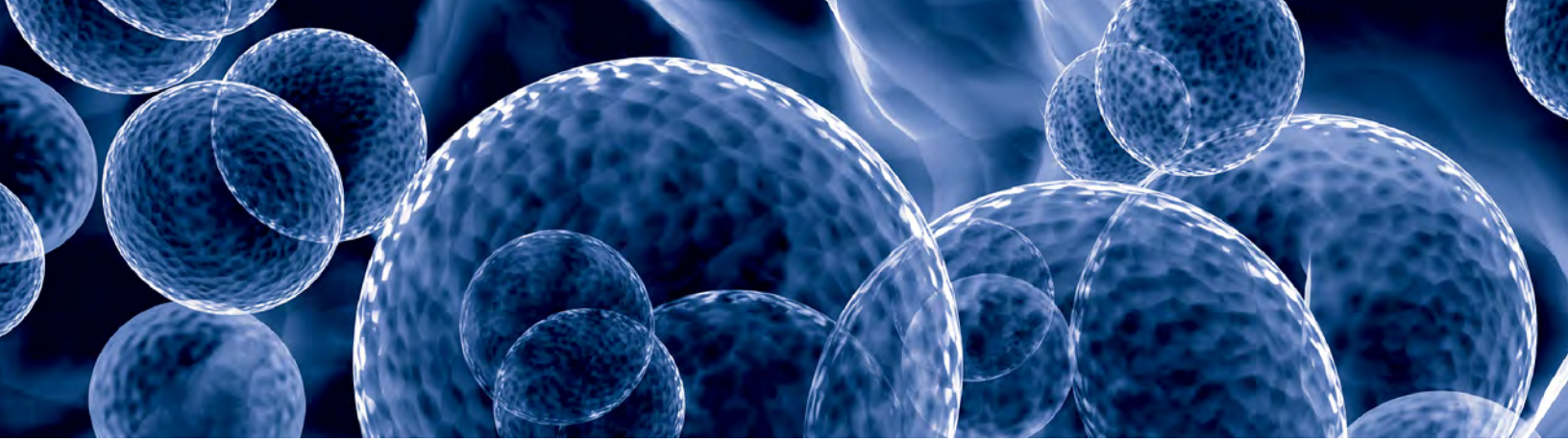
UTILITY AND ENVIRONMENTAL REQUIREMENTS	
Operating Voltage[1] (VDC)	12 ±2
Dimensions (L x W x H)	
Laser	70 x 40 x 38 mm (2.75 x 1.57 x 1.5 in.)
OBIS Remote (optional)	105 x 68 x 36 mm (4.13 x 2.68 x 1.42 in.)
DC Power Supply (optional)	105 x 42 x 33 mm (4.13 x 1.65 x 1.3 in.)
Cable, Laser to OBIS Remote (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 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 µManager 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

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
Output from Fiber	FC/APC; 8° angled[7]	FC/APC; 8° angled[7]	FC/APC; 8° angled[7]	FC/APC; 8° angled[7]
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.)	≤10/100	≤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)	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
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[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, 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range, 660LX with 652 nm to 665 nm range, 685LX with 675 nm to 695 nm range, and 785LX 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 M^2 measured with ModeMaster with 90/10 clip levels.
4 Typical power-on delay 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 Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.
* Preliminary version.

SPECIFICATIONS	OBIS FP 473LX	OBIS FP 488LX	OBIS FP 488LS
Wavelength[1] (nm)	473	488	488
Output Power[2] (mW)	50	30, 100	15 40, 60, 80, 120
Output from Fiber	FC/APC; 8° angled[7]	FC/APC; 8° angled[7]	FC/APC; 8° angled FC/APC; 8° angled[7]
Fiber Cable Type	3 mm Mono-Coil	3 mm Mono-Coil	5 mm Protective Tubing
Fiber Cable Length (m) (minimum)	1	1	0.94
Fiber Numerical Aperture (NA) ($1/e^2$)	0.05	0.05	0.1 0.06
Fiber Core Diameter (µm) (typical)	3.5	3.5	4
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	≤0.25
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	≤2	≤2	≤1
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2
Long-term Output Power Average (%/hrs.)	≤4/1000	≤4/1000	–
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	0.05
Rise Time (10% to 90%) (nsec)	<2	<2	<18,000
Fall Time (90% to 10%) (nsec)	<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	Infinite at 0 Hz to 50 kHz
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[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

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, 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range, 660LX with 652 nm to 665 nm range, 685LX with 675 nm to 695 nm range, and 785LX 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 M^2 measured with ModeMaster with 90/10 clip levels.
4 Typical power-on delay 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 Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.
* Preliminary version.

SPECIFICATIONS	OBIS FP 505LX	OBIS FP 514LX	OBIS FP 514LS	OBIS FP 520LX
Wavelength[1] (nm)	505	514	514	520
Output Power[2] (mW)	50	30	15	25
Output from Fiber	FC/APC; 8° angled[7]	FC/APC; 8° angled[7]	FC/APC; 8° angled	FC/APC; 8° angled[7]
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[8] (°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

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, 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range, 660LX with 652 nm to 665 nm range, 685LX with 675 nm to 695 nm range, and 785LX 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 M^2 measured with ModeMaster with 90/10 clip levels.
4 Typical power-on delay 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 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[7]	FC/APC; 8° angled[7]	FC/APC; 8° angled[7]	FC/APC; 8° angled[7]
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[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

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, 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range, 660LX with 652 nm to 665 nm range, 685LX with 675 nm to 695 nm range, and 785LX 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 M^2 measured with ModeMaster with 90/10 clip levels.
4 Typical power-on delay 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 Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.

SPECIFICATIONS	OBIS FP 637LX	OBIS FP 640LX	OBIS FP 647LX	OBIS FP 660LX	OBIS FP 785LX
Wavelength[1] (nm)	637	640	647	660	785
Output Power[2] (mW)	100	75	100	75	70
Output from Fiber	FC/APC; 8° angled	FC/APC; 8° angled	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	3 mm Mono-Coil	3 mm Mono-Coil
Fiber Cable Length (m) (minimum)	1	1	1	1	1
Fiber Numerical Aperture (NA) ($1/e^2$)	0.09	0.09	0.09	0.09	0.12
Fiber Core Diameter (µm) (typical)	4.5	4.5	4.5	4.5	4.5
Spatial Mode	TEM_{00}	TEM_{00}	TEM_{00}	TEM_{00}	TEM_{00}
M^2 (Beam Quality)[3]	≤1.1	≤1.1	≤1.1	≤1.1	≤1.1
Beam Asymmetry	≤1:1.1	≤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	≤0.2
Peak-to-Peak Noise (%) (20 Hz to 20 kHz)	≤2	≤2	≤2	≤2	≤2
Long-term Power Stability (%) (8 hrs., ±3°C)	<2	<2	<2	≤2	≤2
Long-term Output Power Average (%/hrs.)	≤3/1000	≤3/1000	≤3/1000	≤3/1000	≤3/1000
Warm-up Time[4] (minutes) (from cold start)	<5	<5	<5	<5	<5
Polarization Ratio	Minimum 100:1	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	150	150
Rise Time (10% to 90%) (nsec)	<2	<2	<2	<2	<2
Fall Time (90% to 10%) (nsec)	<2	<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	>1,000,000:1 at 0 Hz, >250:1 at 150 MHz
Analog Modulation					
Maximum Bandwidth (kHz)	300	500	500	500	500
Rise Time (10% to 90%) (nsec)	<1200	<700	<700	<700	<700
Fall Time (90% to 10%) (nsec)	<800	<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
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 Temperature (Max., °C)	50	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	Typical 5, Max. 13
Ambient Temperature[6]					
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

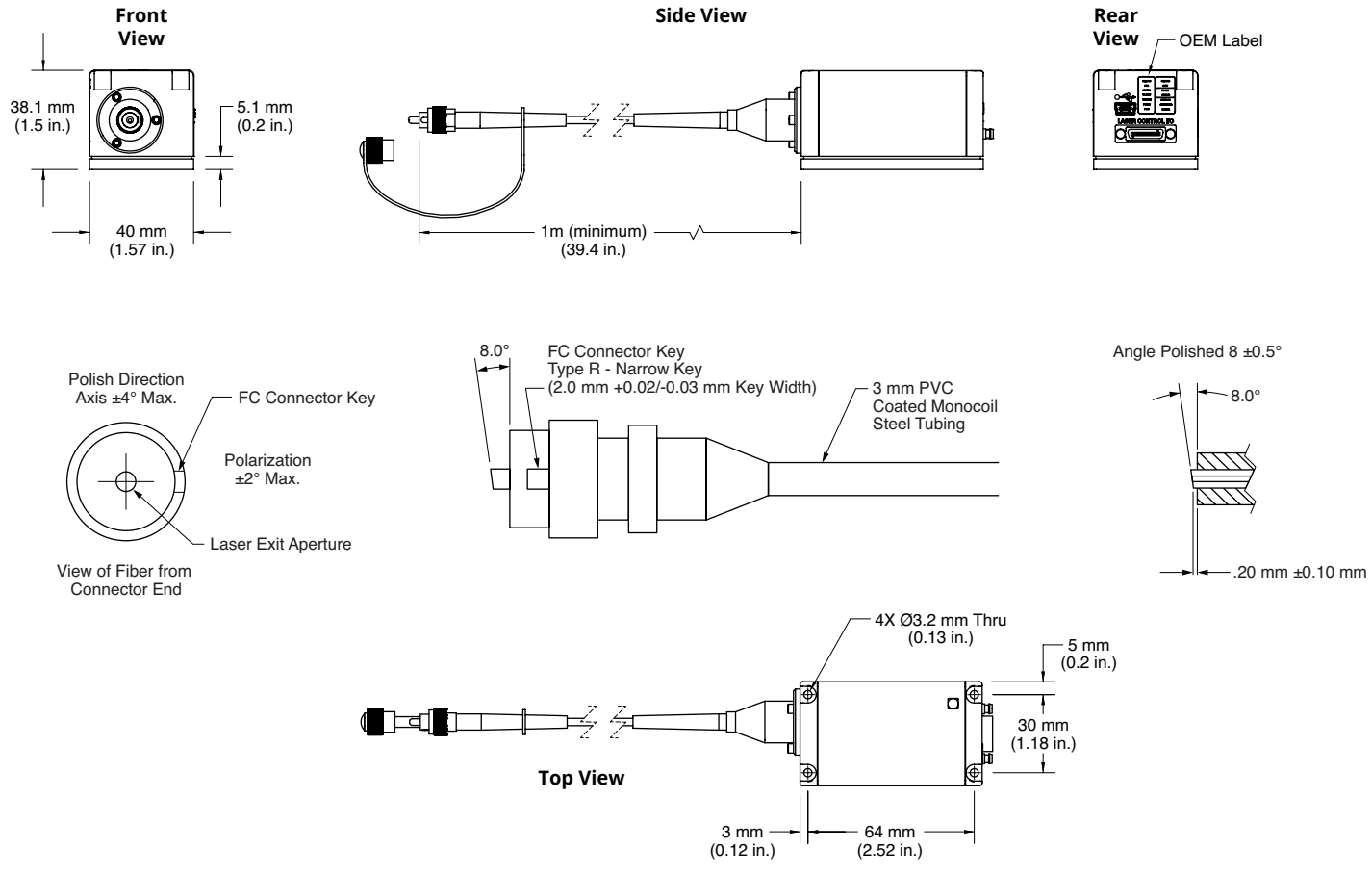
1 Laser-to-laser wavelength tolerance ±2 nm for all OBIS LS versions. For OBIS LX wavelength tolerance of ±5 nm except for 413LX with a 410 nm to 420 nm range, 520LX with a 520 nm to 530 nm range, 640LX with 635 nm to 644 nm range, 660LX with 652 nm to 665 nm range, 685LX with 675 nm to 695 nm range, and 785LX 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 M^2 measured with ModeMaster with 90/10 clip levels.
4 Typical power-on delay 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 Fiber FC/APC connector output not compatible for patchcord-to-patchcord connection.

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%.

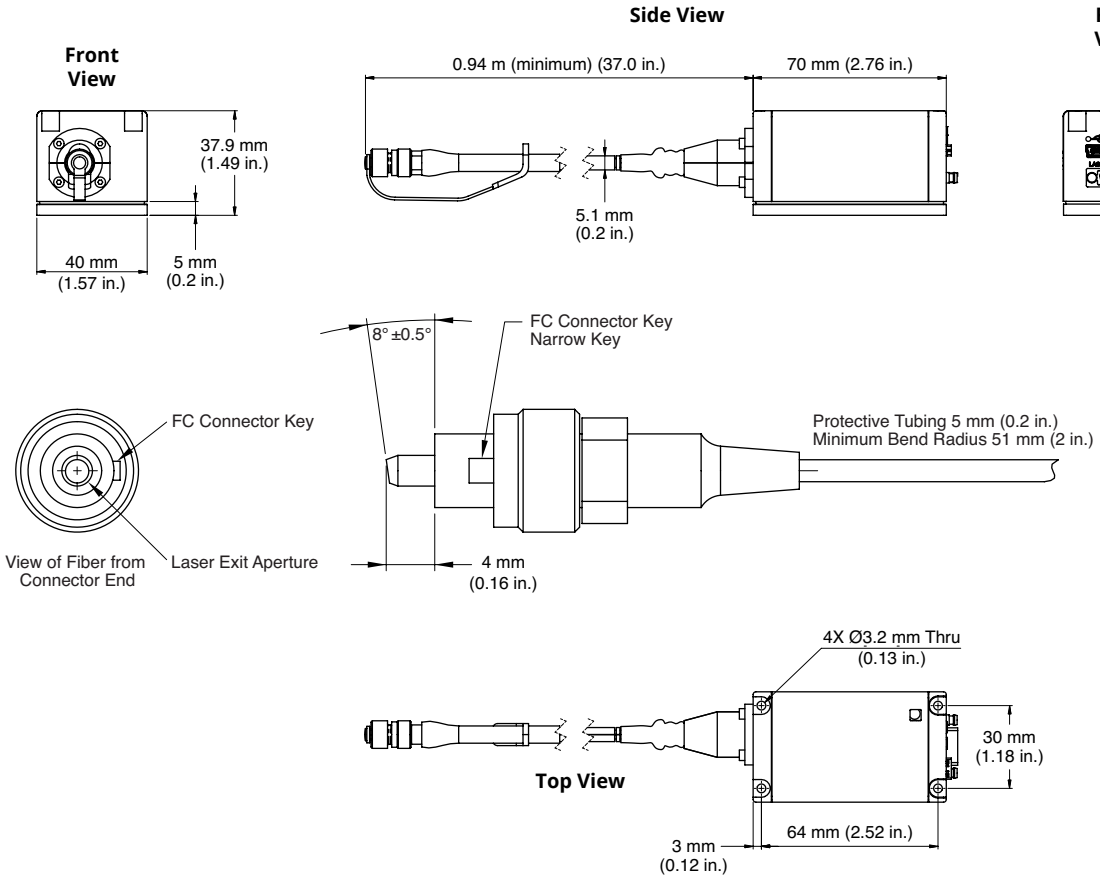
MECHANICAL SPECIFICATIONS

OBIS LX FP



MECHANICAL SPECIFICATIONS

OBIS LS FP

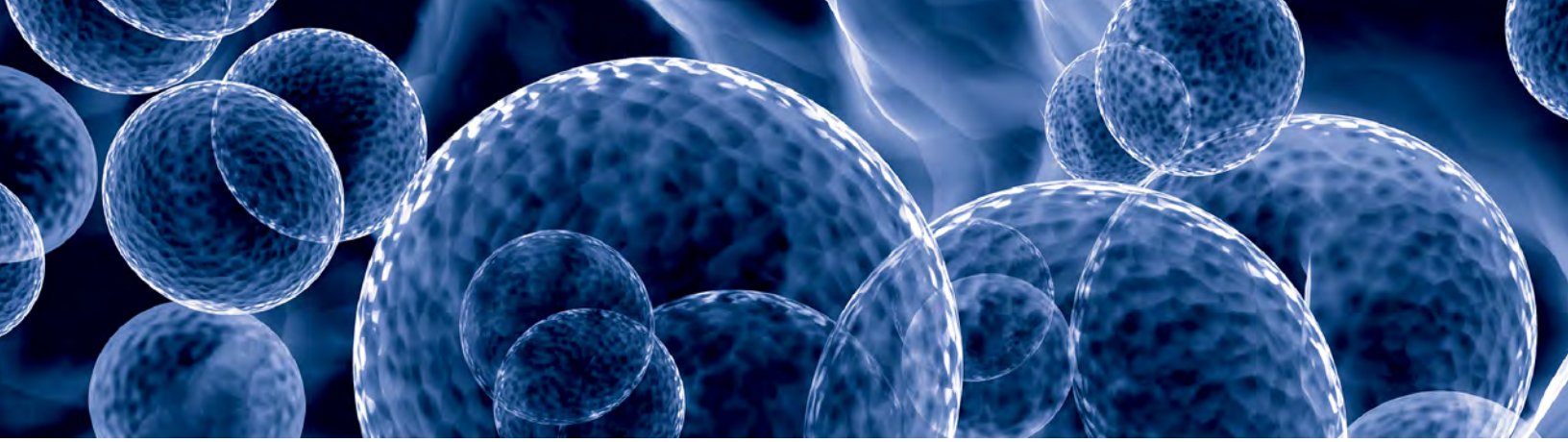


Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

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 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**



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
- TEM_{00} power-invariant beam
- Low noise
- PermAlign™ technology
- Integrated control electronics

APPLICATIONS

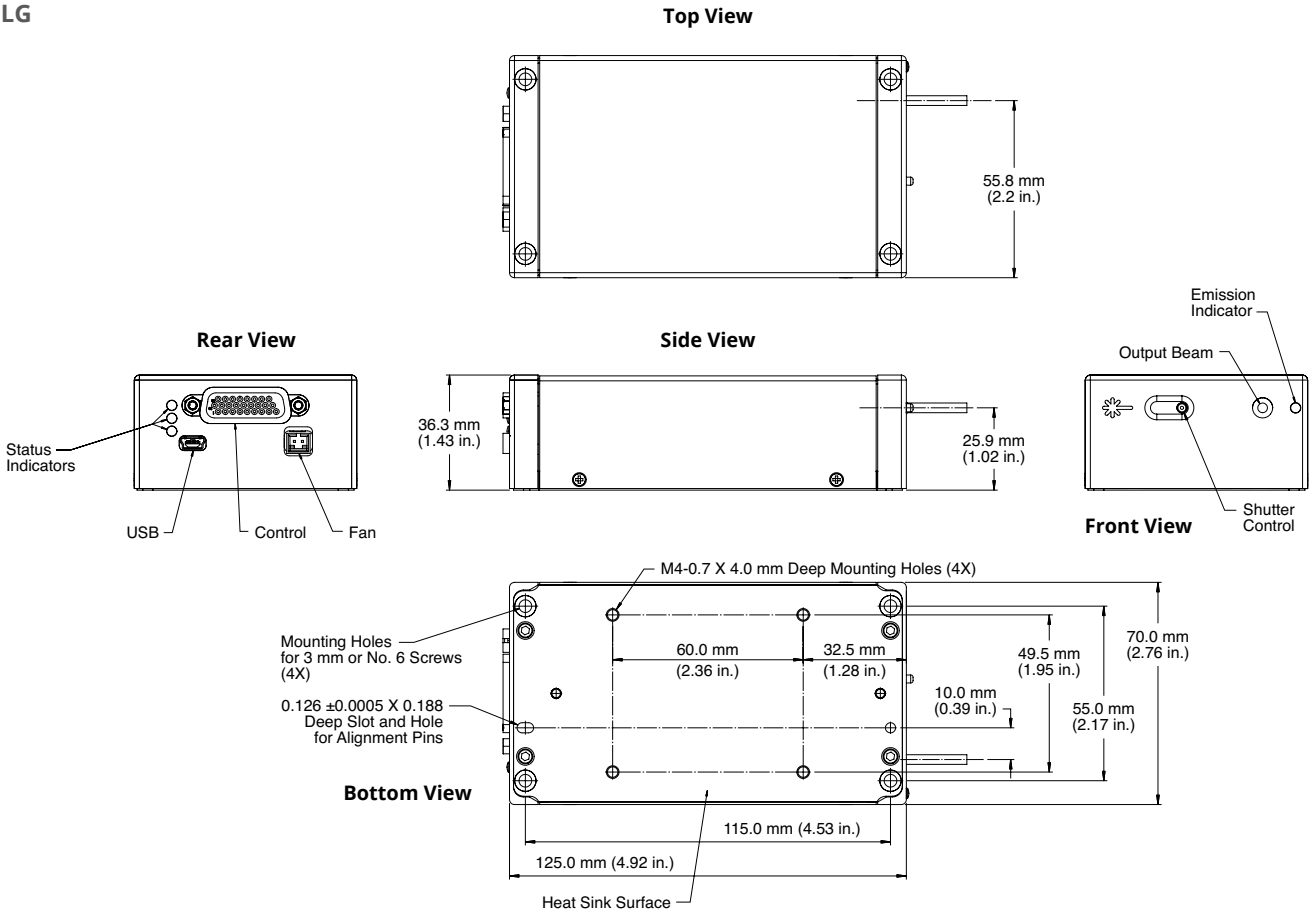
- Flow Cytometry
- Confocal Microscopy
- Semiconductor Inspection

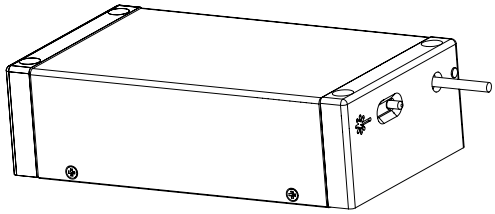
SPECIFICATIONS[1]	OBIS LG 355-20	OBIS LG 355-50
Wavelength	355 ±2	355 ±2
FWHM Linewidgh (GHz)	<50	
Pulse Format	CW	
Spectral Purity (%)	>99	
Output Power (mW)	>20	>50
Spatial Mode	TEM_{00}	
Beam Quality (M^2)	<1.2	
Beam Circularity[2]	1.0 ± 0.15	
Beam Waist Diameter (mm) (FW, $1/e^2$)	<1.2	
Beam Divergence (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 Vertical	 ±<1.0 ±<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 Non-Operating	 10 to 40°C (50 to 104°F) -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] Power Supply[7] Cables (laser head to power supply[7])	 125.0 x 70.0 x 36.2 mm (4.9 x 2.76 x 1.43 in.) 2m (6.5 ft.)	
Weight	581 g (1.28 lbs.)	

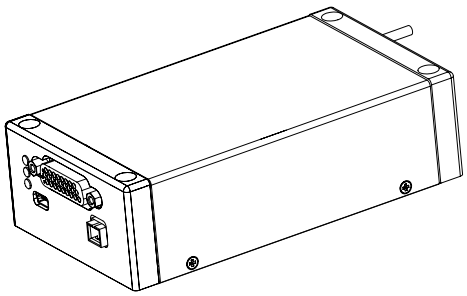
1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
2 Circularity defined as vertical diameter divided by horizontal diameter.
3 Negative value corresponds to a location inside the laser head.
4 Ready to be integrated in compliant system.
5 Non-condensing.
6 Back connector not included in laser head length dimension.
7 Power supply not included.

MECHANICAL SPECIFICATIONS

OBIS LG

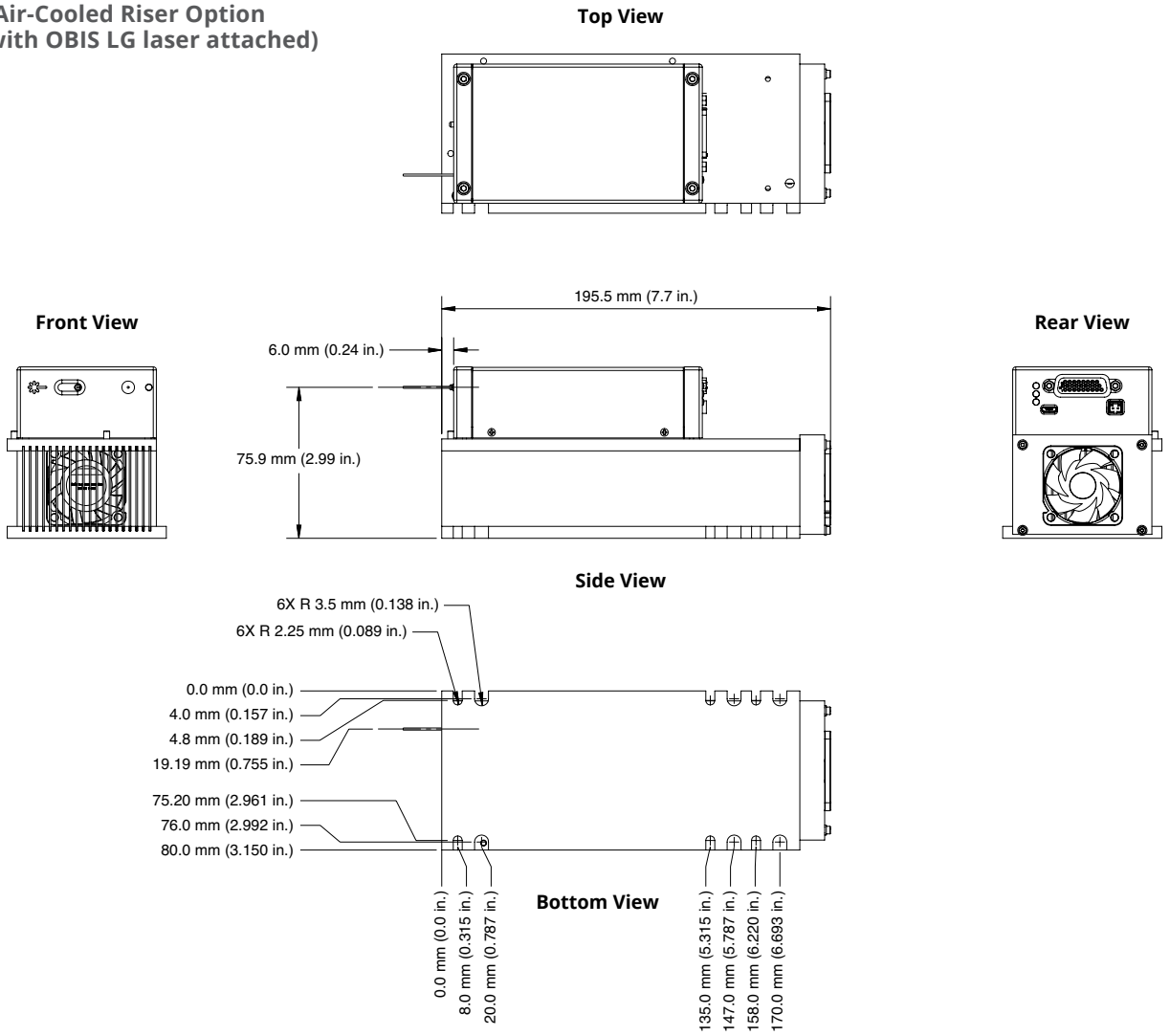






MECHANICAL SPECIFICATIONS

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



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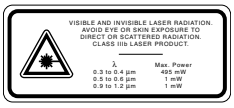


Sapphire LP

CW Visible Lasers from Deep Blue to Orange

Sapphire LP is a series of compact CW visible lasers based on Coherent's unique OPSL (Optically Pumped Semiconductor Laser) technology. OPSL 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 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 20 Hz to 20 kHz, peak-to-peak	 <0.25 <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) Beam Angle (mrad) Beam Waist Position with respect to Exit Window	 ±0.25 ±2.5 ±200[4]	
UTILITY AND ENVIRONMENTAL REQUIREMENTS		
Operating Voltage[5] (VDC)	+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 Non-Operating Condition	 10 to 40°C (50 to 104°F) non-condensing -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 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 30 mm (4.6 x 3.0 x 1.2 in.) 200 x 80 x 50 mm (7.9 x 3.2 x 2 in.) 171 x 104 x 55 mm (6.7 x 4.1 x 2.2 in.) 2 m (6.56 ft.), optional 5 m (16.4 ft.)	
Weights Laser Head Controller Heat Sink (optional) DC Power Supply (optional) Packaged System (head+controller+cable+manual) Cable — Laser Head to Controller	 0.35 kg (0.77 lbs.) 0.25 kg (0.55 lbs.) 0.75 kg (1.65 lbs.) 0.95 kg (incl. line cable) (2.1 lbs.) 1.7 kg (3.7 lbs.) 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)	+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.

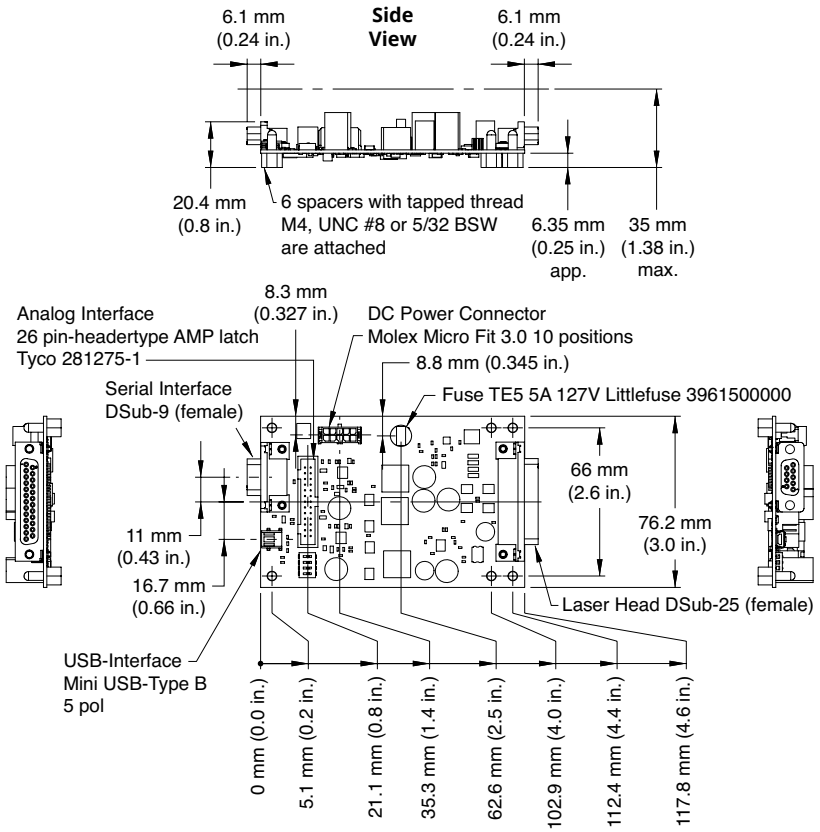
SPECIFICATIONS	Sapphire 561 LP	Sapphire 568 LP	Sapphire 588 LP	Sapphire 594 LP
Wavelength[1] (nm)	561 ±2	568 ±2	588 ±2	594 ±2
Output Power[2] (mW)	20, 50, 75, 100, 150, 200, 300	50, 75, 100, 150, 200	20, 50, 75, 100	20, 50, 75
Spatial Mode	TEM_{00}, M^2 <1.1			
Beam Asymmetry	0.9 to 1.1			
Beam Diameter 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)	+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.

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

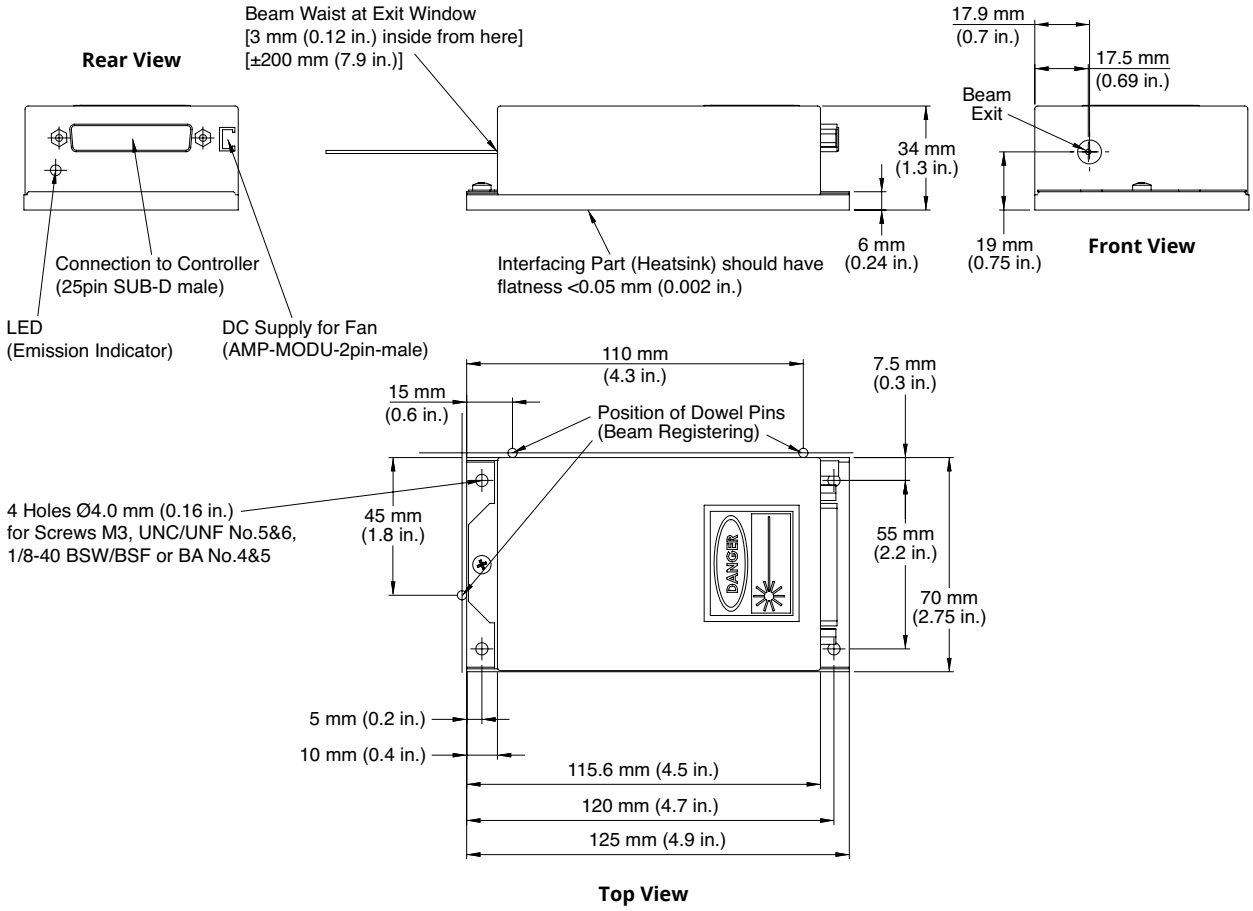
MECHANICAL SPECIFICATIONS

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
- 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 version

OPTIONS & ACCESSORIES

- Flow Cytometry
- Confocal Microscopy
- DNA Sequencing
- Super-Resolution Microscopy
- Medical Diagnostics
- Semiconductor Inspection
- Metrology

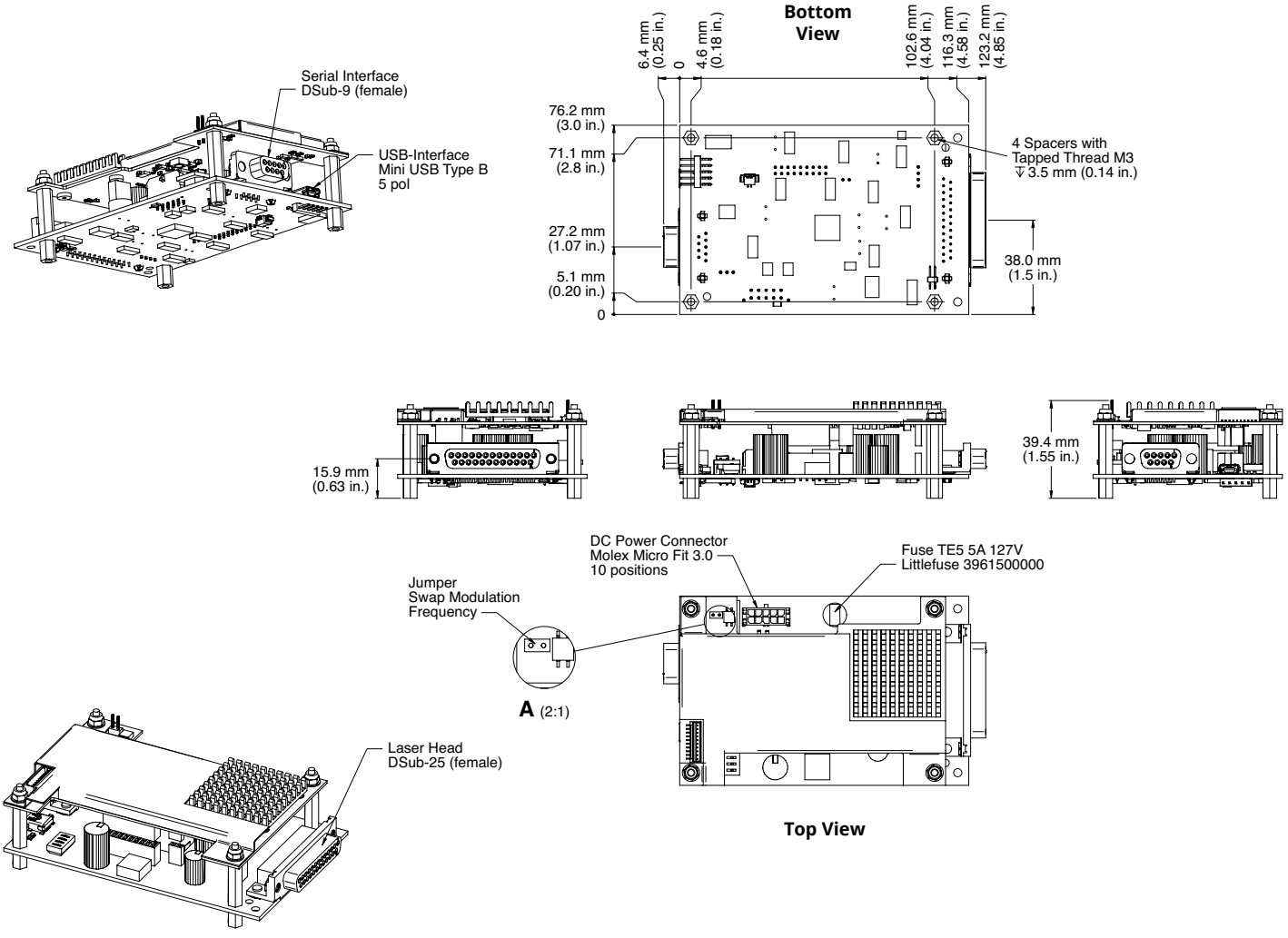
SPECIFICATIONS	Sapphire 488 LPX	Sapphire 532 LPX	Sapphire 561 LPX
Wavelength[1] (nm)	488 ±2	532 ±2	561 ±2
Output Power[2] (mW)	300, 400, 500		
Spatial Mode	TEM_{00}, M^2 <1.1		
Beam Asymmetry	0.9 to 1.1		
Beam Diameter at $1/e^2$ (mm)	0.70 ±0.05		
Beam Divergence (mrad)	<1.2	<1.3	<1.3
Pointing Stability (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)	+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. Recommended power range is 70 to 100% power.
3 Static alignment tolerances are relative to the right bottom edge (in beam direction).
4 200 mm is ~30% of Raleigh Range at 532/561 nm; 200 mm is ~25% of Raleigh Range at 488 nm.
5 Power between 50% and 100% nominal.
6 If user-supplied, the DC power supply has to meet the following requirements: Power >60W; ripple <5% peak-to-peak; line regulation <0.5%.

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

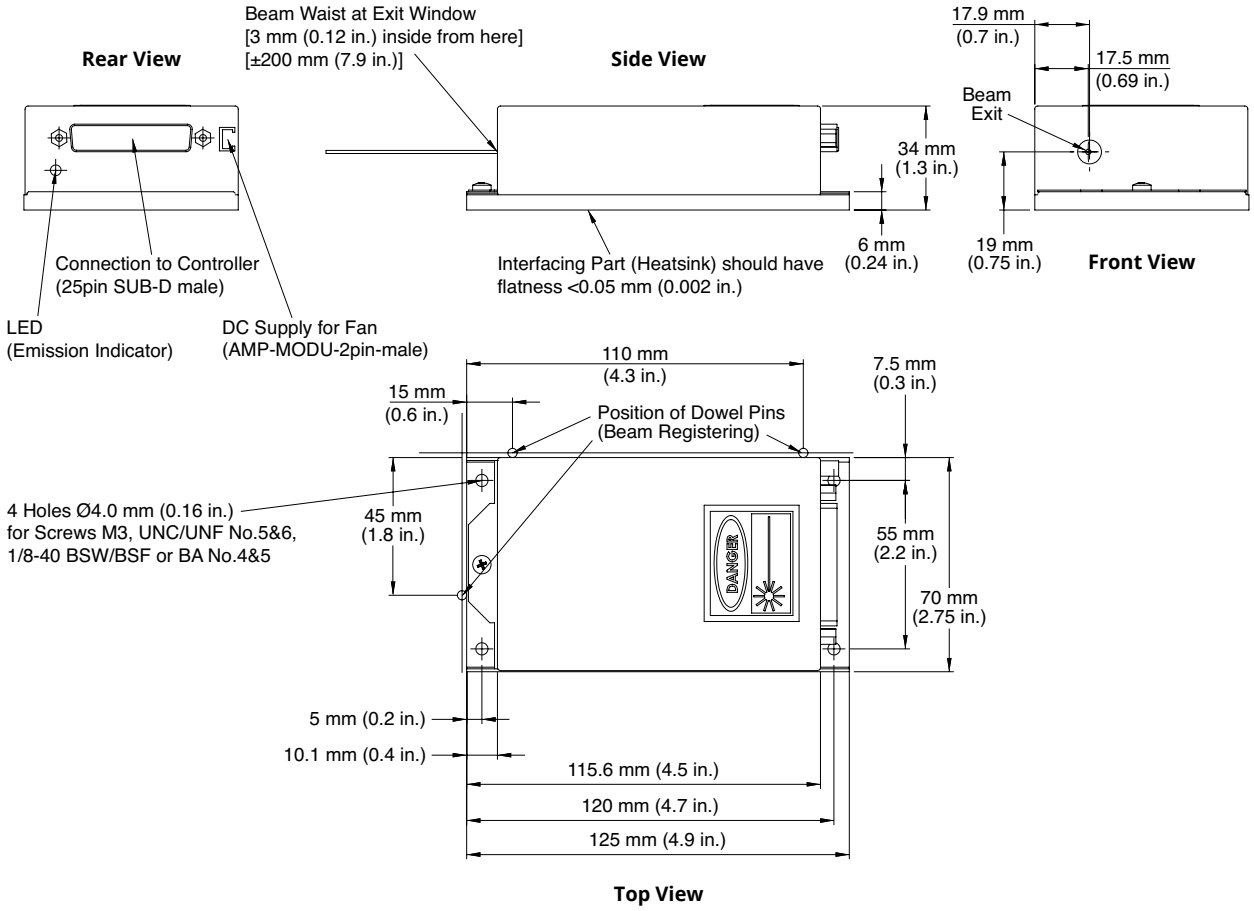
MECHANICAL SPECIFICATIONS

Controller



MECHANICAL SPECIFICATIONS

Sapphire LPX



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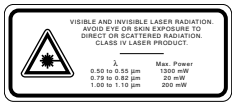
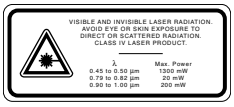
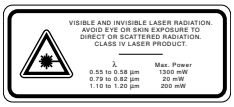






Sapphire FP

Fiber Pigtailed Lasers from Deep Blue to Orange

Sapphire FP is a series of true fiber-pigtailed lasers based on Coherent's unique OPSL (Optically Pumped Semiconductor Laser) technology. OPSL 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 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 (%) 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	
Warm-up Time (minutes)	<5	
Polarization Ratio	>100:1, linear, vertical	
UTILITY AND ENVIRONMENTAL REQUIREMENTS		
Laser Safety Classification	3b	
Operating Voltage[5] (VDC)	+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 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	
Shock Tolerance (11 ms)	15 g laterally, 15 g vertically	
Dimensions (L x W x H) Laser Head[7] 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.) 118 x 76 x 30 mm (4.6 x 3.0 x 1.2 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.) 2 m (6.56 ft.) and options	
Weights Laser Head[7] Controller Heat Sink (optional) DC Power Supply (optional) Cable — Laser Head to Controller	 0.35 kg (0.77 lbs.) 0.25 kg (0.55 lbs.) 0.75 kg (1.65 lbs.) 0.95 kg (incl. line cable) (2.1 lbs.) 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 20 Hz to 20 kHz, peak-to-peak	 <0.25 <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)	+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 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		
Shock Tolerance (11 ms)	15 g laterally, 15 g vertically		
Dimensions (L x W x H) Laser Head[7] 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.) 118 x 76 x 30 mm (4.6 x 3.0 x 1.2 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.) 2 m (6.56 ft.) and options		
Weights Laser Head[7] Controller Heat Sink (optional) DC Power Supply (optional) Cable — Laser Head to Controller	 0.35 kg (0.77 lbs.) 0.25 kg (0.55 lbs.) 0.75 kg (1.65 lbs.) 0.95 kg (incl. line cable) (2.1 lbs.) 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.

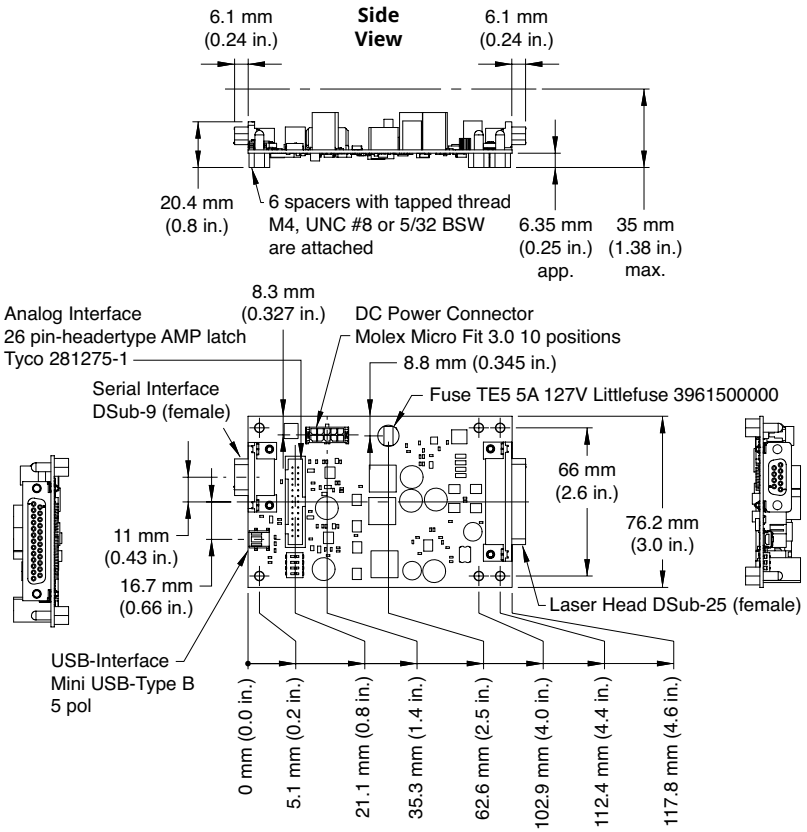
SPECIFICATIONS	Sapphire 561 FP	Sapphire 588 FP	Sapphire 594 FP
Wavelength[1] (nm)	561 ±2	588 ±2	594 ±2
Output Power at Fiber Exit[2] (mW)	40, 80, 120, 200	40	40
Fiber Type	SM-PM[3]		
Fiber Length (m)	1		
Fiber Output	FC/APC; 8° angled[4]		
Spatial Mode	TEM_{00}, M^2 <1.1		
Beam Asymmetry	<1:1.1		
Noise (%) 20 Hz to 2 MHz, rms 20 Hz to 20 kHz, peak-to-peak	 <0.25 <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)	+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 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		
Shock Tolerance (11 ms)	15 g laterally, 15 g vertically		
Dimensions (L x W x H) Laser Head[7] 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.) 118 x 76 x 30 mm (4.6 x 3.0 x 1.2 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.) 2 m (6.56 ft.) and options		
Weights Laser Head[7] Controller Heat Sink (optional) DC Power Supply (optional) Cable — Laser Head to Controller	 0.35 kg (0.77 lbs.) 0.25 kg (0.55 lbs.) 0.75 kg (1.65 lbs.) 0.95 kg (incl. line cable) (2.1 lbs.) 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.

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

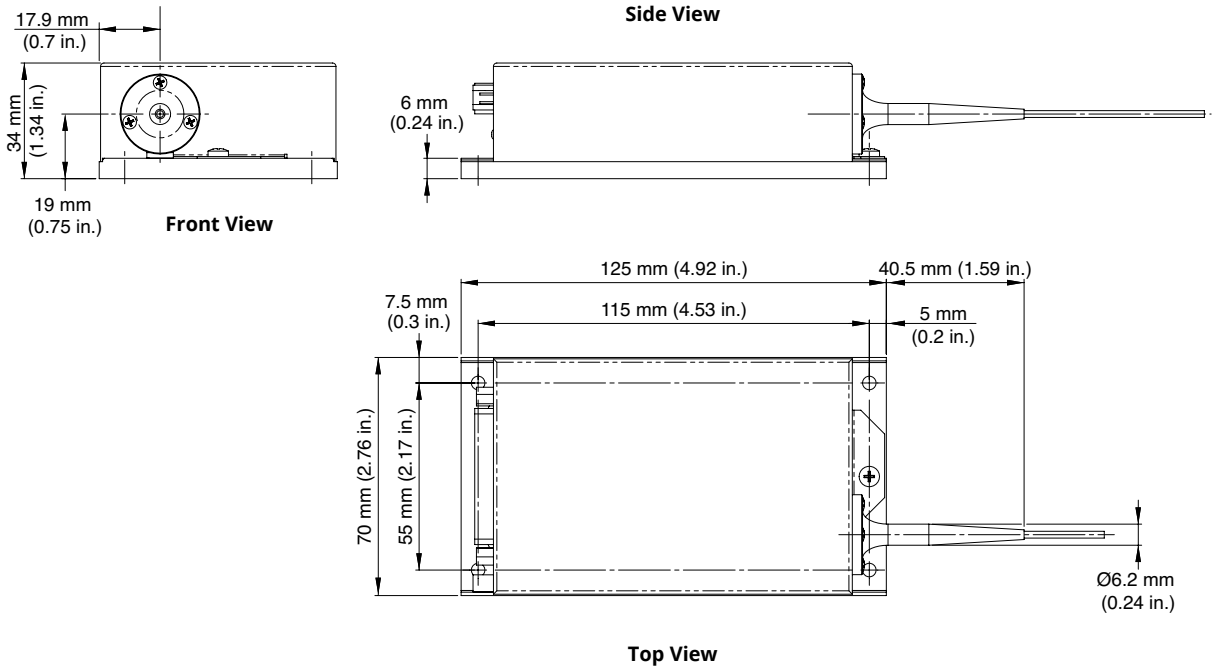
MECHANICAL SPECIFICATIONS

Controller



MECHANICAL SPECIFICATIONS

Sapphire FP



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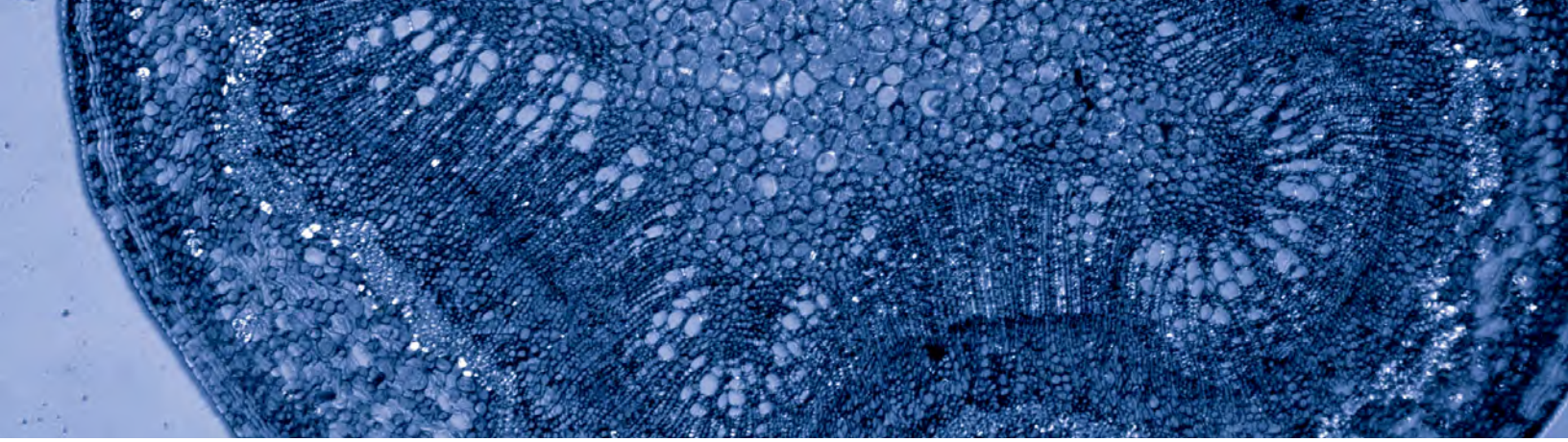


Sapphire SF

CW Blue and Green Single-Frequency Lasers

Sapphire SF is a series of compact CW visible single-frequency lasers based on Coherent's unique OPSL (Optically Pumped Semiconductor Laser) technology. Sapphire SF lasers come with an ultra-narrow linewidth of <1.5 MHz, 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 lasers come with a flexible interface concept: Analog, RS-232 or USB – it is up the user to select the appropriate communication channel.

Sapphire SF 488 overcomes the disadvantages of ion lasers (size, power consumption, background light, cost of ownership) and diode lasers (beam quality, wavelength precision).

Sapphire SF 532 is the alternative to Nd:YAG or Nd:YVO4 based lasers eliminating their thermal lensing and green noise effects, a phenomenon causing power instability due to intracavity frequency-doubling mechanisms.

FEATURES & BENEFITS

- Ultra-narrow linewidth
- High single-frequency power
  - Up to 100 mW at 488 nm
  - Up to 150 mW at 532 nm
- Outstanding power stability
- Ultra-low noise, esp. no discharge background or green noise (cf. ion, diode, DPSS lasers)
- Superior beam quality
- Flexible interface concept
  - Analog, RS-232 & USB
- PermAlign technology
  - Permanent optimal alignment
  - Unsurpassed robust and stable
- OEM and end-user versions
- Proven Sapphire reliability

OPTIONS & ACCESSORIES

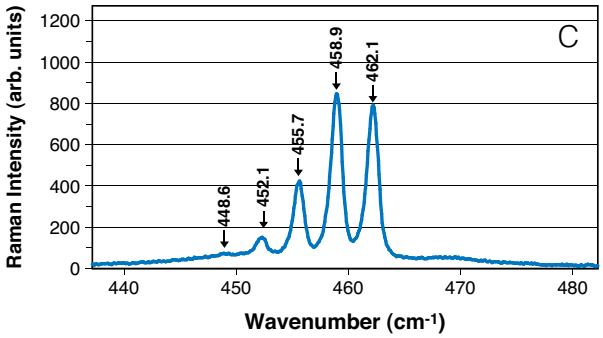
- Raman Spectroscopy
- Holography
- Metrology
- Inspection

SPECIFICATIONS	Sapphire 488 SF	Sapphire 532 SF
Wavelength[1] (nm)	488	532
Wavelength Accuracy (nm)	0.1	
Single-longitudinal Mode, Linewidth (MHz)	<1.5	
Output Power[1] (mW)	20, 50, 100	20, 50, 100, 150
Spatial Mode	TEM_{00}, M^2 <1.1, single longitudinal mode	
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 20 Hz to 20 kHz, peak-to-peak	 <0.25 <1	
Long-term Power Stability (%) (2 hours, ±3°C)	<2	
Warm-up Time (minutes)	<5	
Polarization Ratio	>100:1, vertical	
Static Alignment Tolerances[2] Beam Position (mm) Beam Angle (mrad) Beam Waist Position with respect to Exit Window	 ±0.25 ±2.5 ±200[3]	
UTILITY AND ENVIRONMENTAL REQUIREMENTS		
Interfacing	Analog, RS-232, USB	
Operating Voltage[4] (VDC)	+12.0 to 13.2	
Power Consumption (W)	<60	
Max. Laser Head Baseplate Temperature[5]	+50°C (122°F)	
Max. Heat Dissipation of Head (W)	25 (baseplate at 50°C)	
Ambient Temperature Operating Condition Non-Operating Condition	 10 to 40°C (50 to 104°F) non-condensing -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 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 30 mm (4.6 x 3.0 x 1.2 in.) 200 x 80 x 50 mm (7.9 x 3.2 x 2 in.) 171 x 104 x 55 mm (6.7 x 4.1 x 2.2 in.) 2 m (6.56 ft.), optional 5 m (16.4 ft.)	
Weights Laser Head Controller Heat Sink (optional) DC Power Supply (optional) Packaged System (head+controller+cable+manual) Cable — Laser Head to Controller	 0.35 kg (0.77 lbs.) 0.25 kg (0.55 lbs.) 0.75 kg (1.65 lbs.) 0.95 kg (incl. line cable) (2.1 lbs.) 1.7 kg (3.7 lbs.) 0.3 kg (0.66 lbs.)	

1 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.
2 Static alignment tolerances are relative to the right bottom edge (in beam direction).
3 200 mm is ~25% of Raleigh Range at 488 nm and ~30% of Raleigh Range at 532 nm.
4 If user-supplied, the DC power supply has to meet the following requirements: Power >60W; ripple <5% peak-to-peak; line regulation <0.5%.
5 With factory-provided or other adequate heat sink.

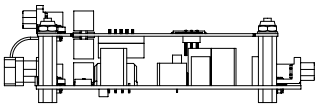
MEASUREMENT TOOLS		Part Number
Meter	FieldMax™II-TO	1098579
Sensor	PS10Q	1098400

High Resolution Raman Spectra

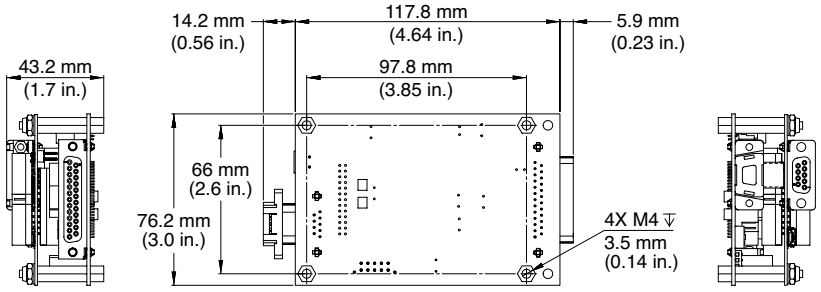


MECHANICAL SPECIFICATIONS

Controller



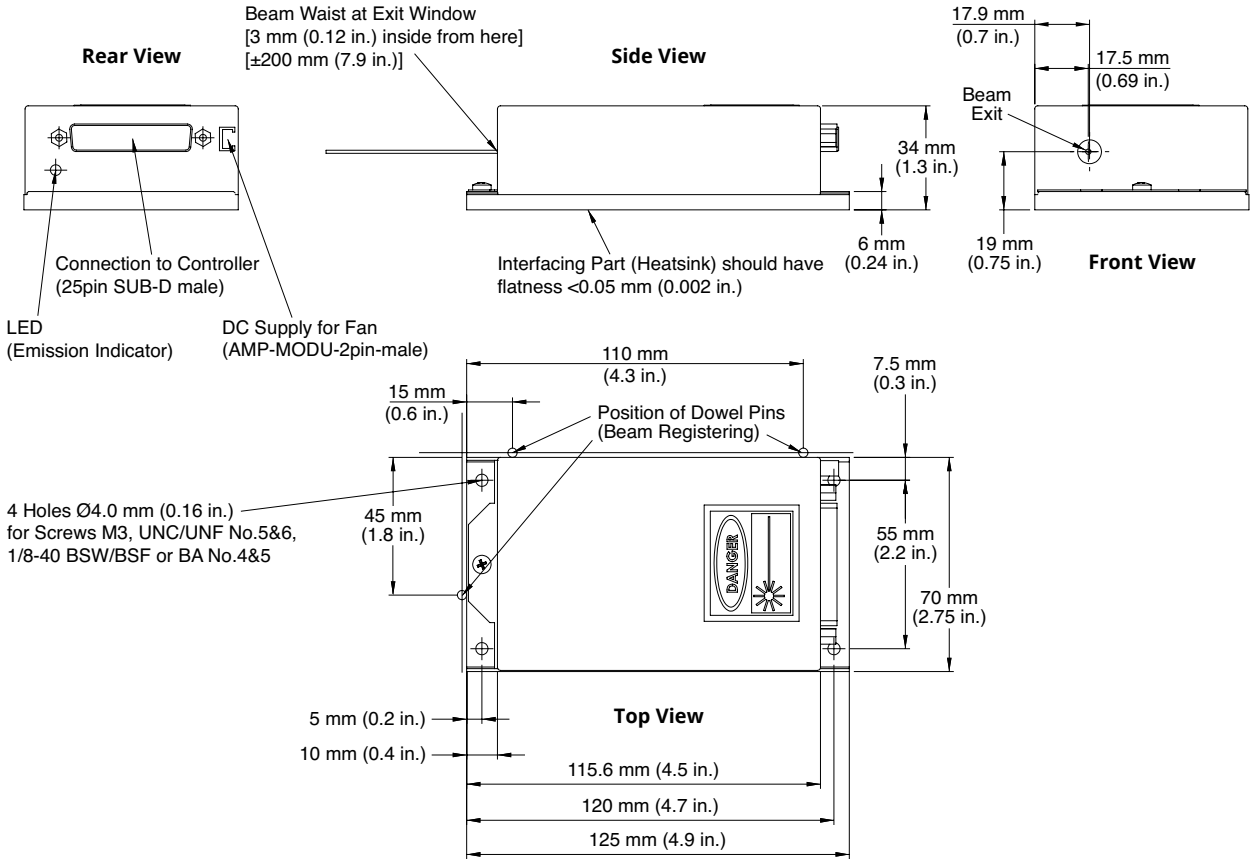
Side View



Top View

MECHANICAL SPECIFICATIONS

Sapphire SF



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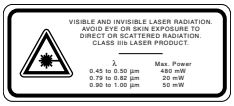

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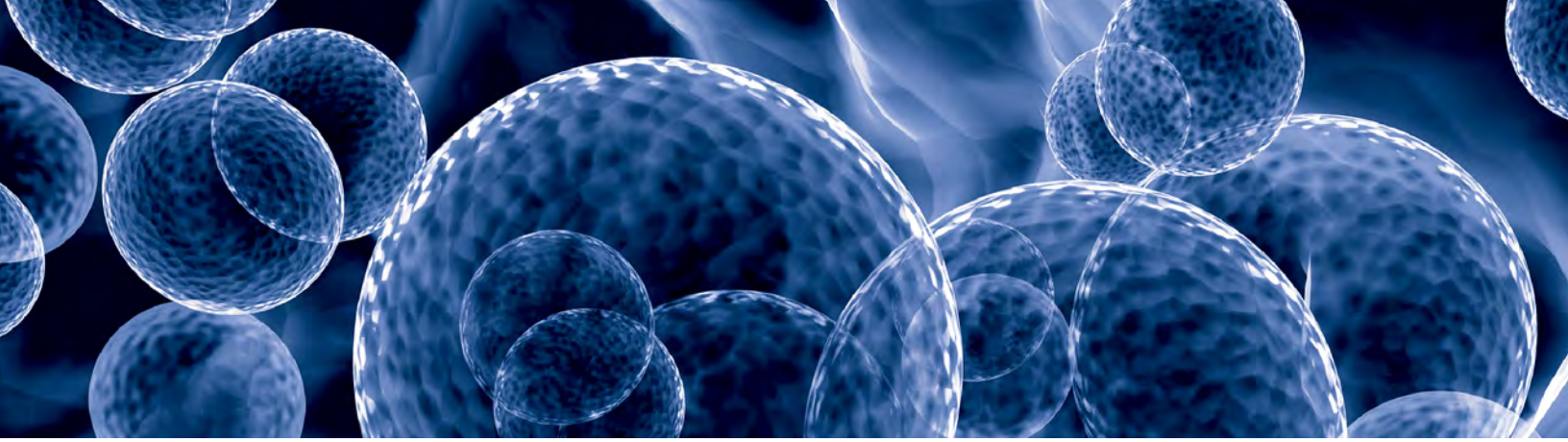


OBIS Galaxy

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

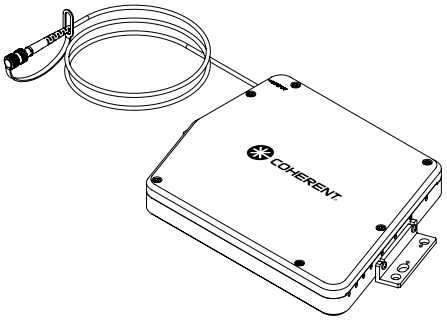
- Optogenetics
- Endoscopy
- Spinning Disk and TIRF Microscopy
- Cytometry
- Genomics

SPECIFICATIONS[1]	OBIS Galaxy Laser Combiner
8 Input Fiber Connections[2] (nm)	405 445 or 458 488 514 532 552 or 561 590 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

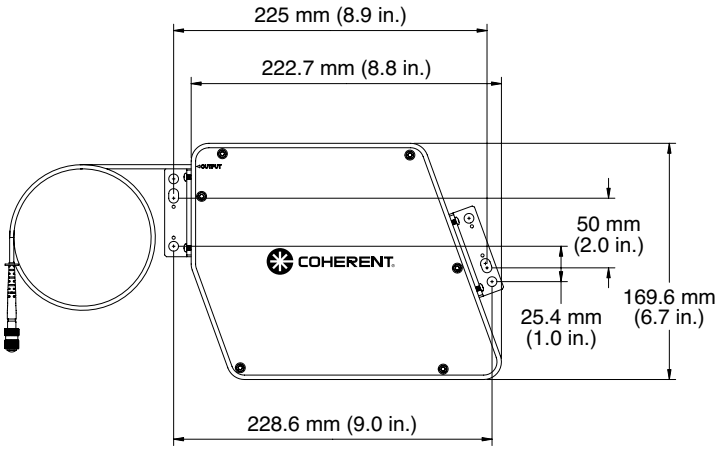
1 System specifications measured at 25°C.
2 All input channels require a ±1 nm center wavelength tolerance. Required wavelength tolerances specifically: 405 nm with 404 nm to 406 nm, 445 nm with 444 nm to 446 nm, 458 nm with 457 nm to 459 nm, 488 nm with 487 nm to 489 nm, 514 nm with 513 nm to 515 nm, 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, 590 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 M^2 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

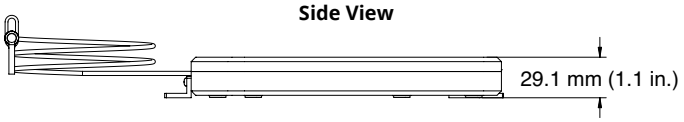
OBIS Galaxy



Top View

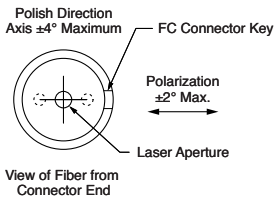


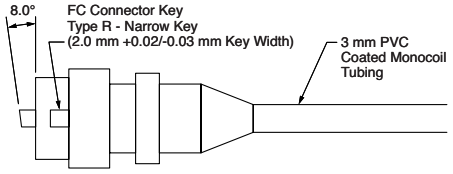
Side View



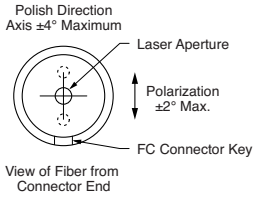
MECHANICAL SPECIFICATIONS

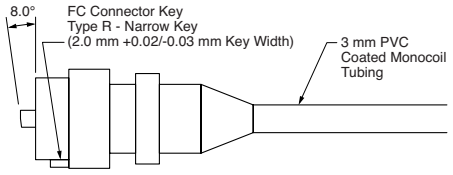
FC/APC
Distal End - Output



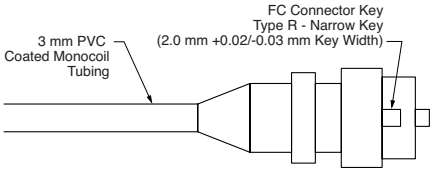


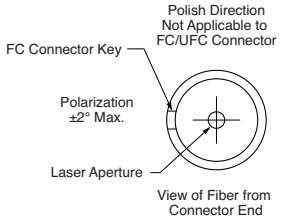
Optional FC/PC8
Angled Flat Connector
Distal End – Output





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, 590 nm, 640 nm	1253553
8 Input FC/UFC, Single Output FC/APC, 405 nm, 458 nm, 488 nm, 514 nm, 532 nm, 552 nm, 590 nm, 640 nm	1253554
8 Input FC/UFC, Single Output FC/APC, 405 nm, 445 nm, 488 nm, 514 nm, 532 nm, 561 nm, 590 nm, 640 nm	1253555
8 Input FC/UFC, Single Output FC/APC, 405 nm, 458 nm, 488 nm, 514 nm, 532 nm, 561 nm, 590 nm, 640 nm	1253556
8 input FC/UFC, Single Output FC/PC8, 405 nm, 445 nm, 488 nm, 514 nm, 532 nm, 561 nm, 590 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

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 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, 593 nm to 595 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.

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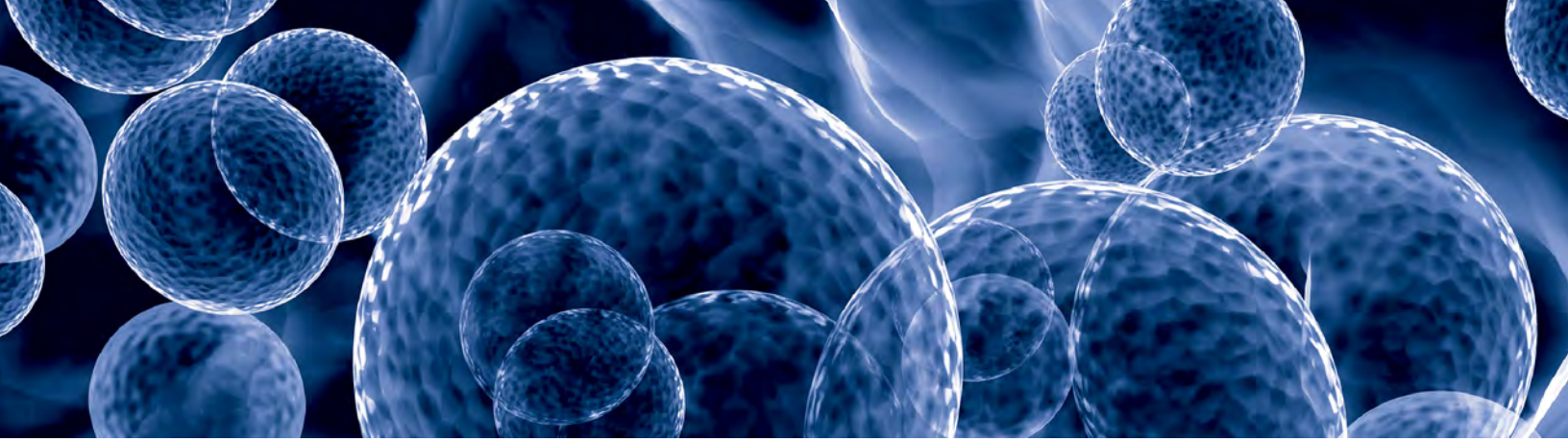
Coherent offers a limited warranty for all OBIS Galaxy beam combiners. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative.



OBIS CellX

The Universal Light Engine

OBIS CellX is a multi-wavelength platform for use as the laser excitation "Light Engine" in applications requiring 3 or 4 laser wavelengths 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 CellX 405	OBIS CellX 488	OBIS CellX 561	OBIS CellX 637
Wavelength[1] (nm)	405	488	561	637
Output Power[2] (mW)	50 50 100 100	50 50 100 100	n/a 50 n/a 100	50 50 100 100
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)	<5			
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	Pin 3	Pin 23	Pin 6	Pin 26
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			
Power Range	Modulate from 0% to 110% with 0 to 5V in Analog Mode			

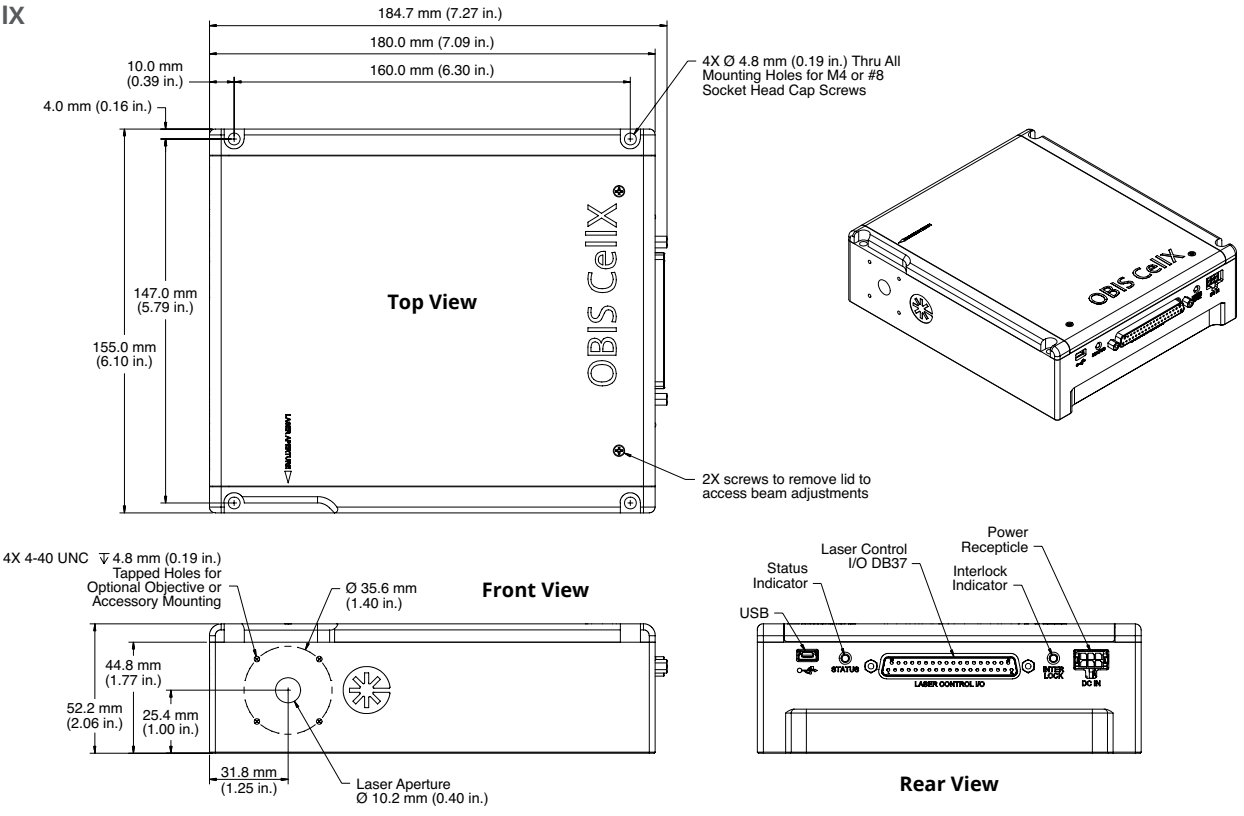
1 Laser-to-laser center wavelength tolerance: 405 nm ±5 nm. 488 nm and 561 nm with ±2 nm, 640 nm with 632 to 643 nm range. Short pass filter suppression of out-of-band emission for 640 nm.
2 Output power is measured at the output window of CellX. Power is variable in CW Mode from 5% (405 nm and 640 nm) to 110% of rated power. Output power is variable in CW Mode from 10 mW (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 ModeMaster 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 Users Manual for more detail.
4 Non-Condensing. See User Manual for more detail.

MECHANICAL SPECIFICATIONS

OBIS CellX

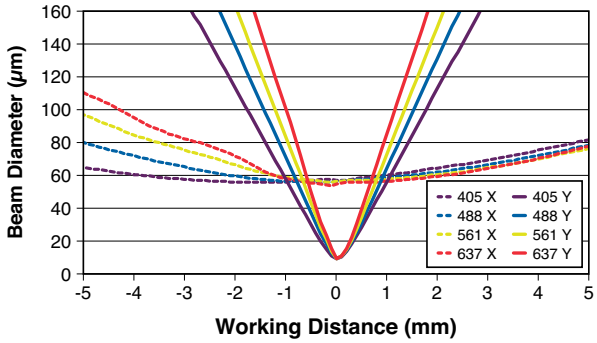


OPTICAL PERFORMANCE SPECIFICATIONS	OBIS CellX Objective Lens Accessories	
	OL10-VIS	OL15-VIS
Part Number	1319845	1319846
Wavelength Range (nm)	400 to 700	
Beam Profile at Focus (Vertical, Horizontal)	Gaussian, Gaussian	
Focus Spot Size Vertical (µm) ($1/e^2$)	10 ±2	15 ±2
Focus Side-lobes Vertical (% of peak)	<10	
Focus Spot Size Horizontal[1] (µm) ($1/e^2$)	Adjustable from 60 ±15 to 80 ±20	Adjustable from 90 ±20 to 110 ±20
Working Distance[2] (mm)	36.6	61.7
Dimensions (mm)	22 x 22 x 56	22 x 22 x 73.7
Vertical Adjustment[3,4] (µm)	±250	
Horizontal Adjustment[3,4] (µm)	±250	
Focus Adjustment[5]	Independent focus adjustment of all wavelengths	

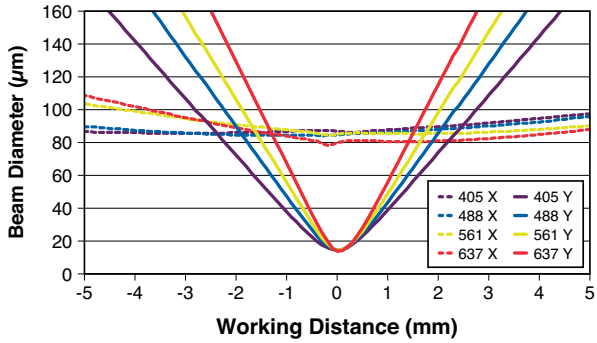
1 Measured at location of best vertical focus. System aligned to lower limit on delivery. Horizontal beam size can be adjusted up to the upper limit. Pre-alignment to a wider horizontal waist is available.
2 Measured from mechanical surface (output end) of the objective assembly - see drawing.
3 Measured 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.

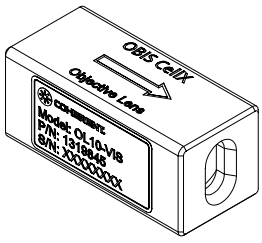
MECHANICAL SPECIFICATIONS

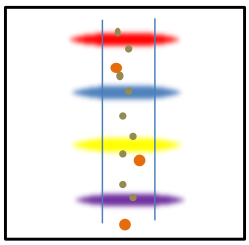
Nominal optical performance through focus OL10-VIS

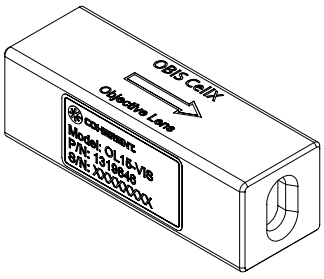


Nominal optical performance through focus OL15-VIS









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

PART NUMBER	Laser
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
1321203	Accessory Kit for CellX (Alignment Tools, Interlock Plug, USB Cable, Coherent Connection, User Manual)
1319845	Accessory, Objective Lens, OL10-VIS 10 µm Focus, CellX
1319846	Accessory, Objective Lens, OL10-VIS 15 µm 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

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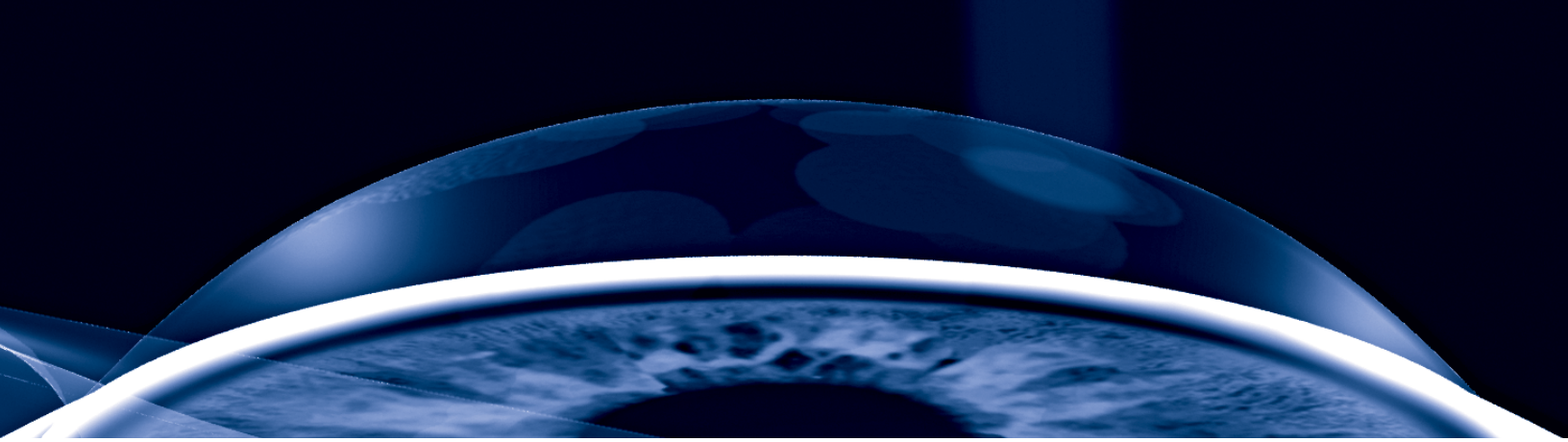


Genesis MX MTM-Series

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

Applications like Ophthalmology, Microscopy and Photocoagulation are enable 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 <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)	 <1 <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 Non-Operating	 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)			
Relative Humidity[9] (%)	5 to 95			
CE Marking	IEC 61010-1/EN 61010-1			
Dimensions (L x W x H) Laser Head[10] Cables (laser head to controller)	 281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.) 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.

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 Vertical	 <7 <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) 10 Hz to 5 kHz (%) (pk-pk)	 <1 <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 Non-Operating	 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)			
Relative Humidity[9] (%)	5 to 95			
CE Marking	IEC 61010-1/EN 61010-1			
Dimensions (L x W x H) Laser Head[10] Cables (laser head to controller)	 281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.) 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.

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			

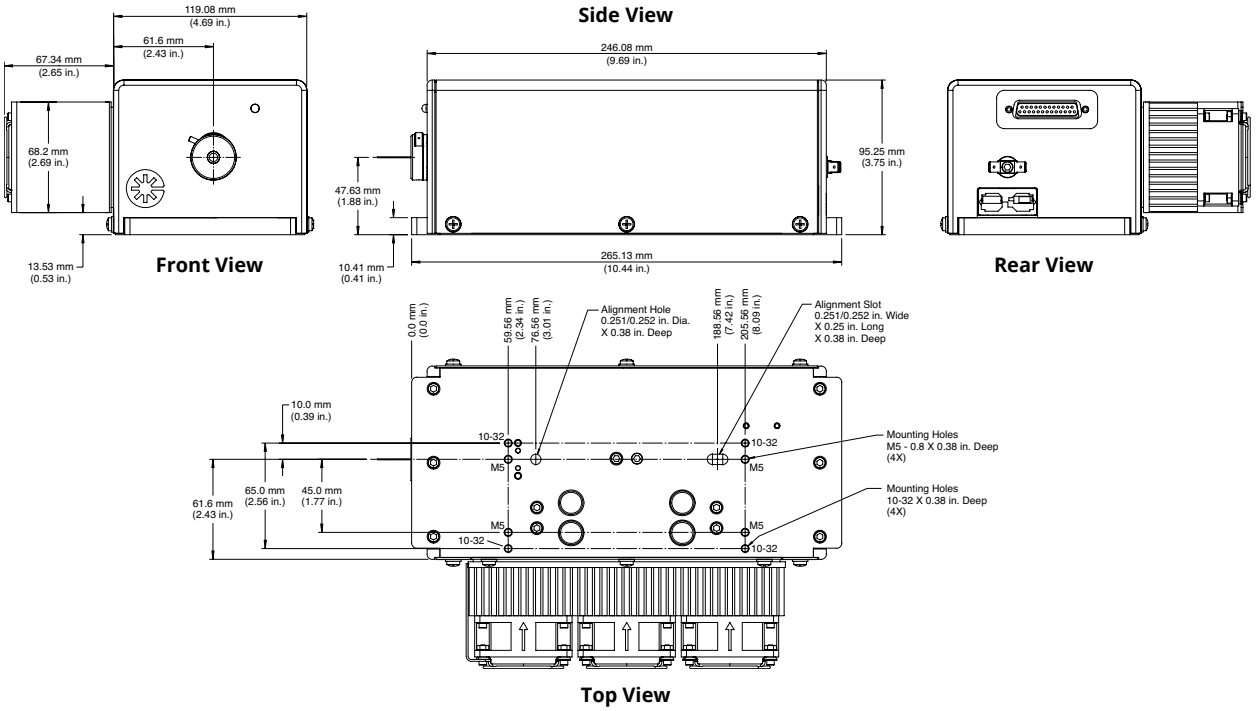
1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
2 Typical value.
3 Measured from the output face, negative value corresponds to a location inside the head; positive outside.
4 Measured at the output window: tolerance 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.

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			

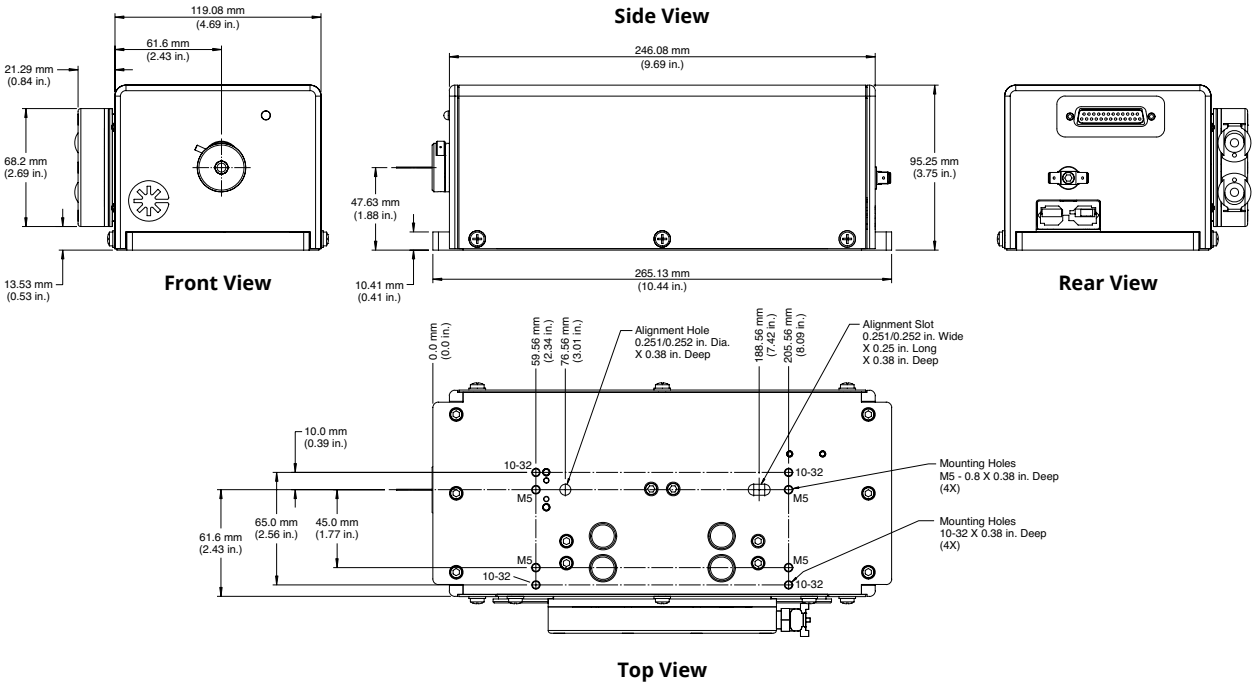
1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
2 Typical value.
3 Measured from the output face, negative value corresponds to a location inside the head; positive outside.
4 Measured at the output window: tolerance 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

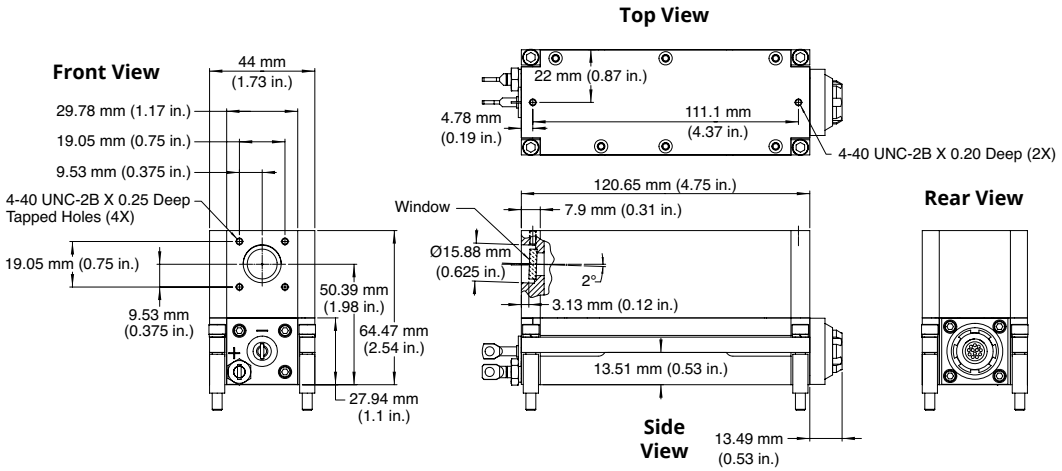


Genesis MX MTM-Series
(End-User) Water-cooled version

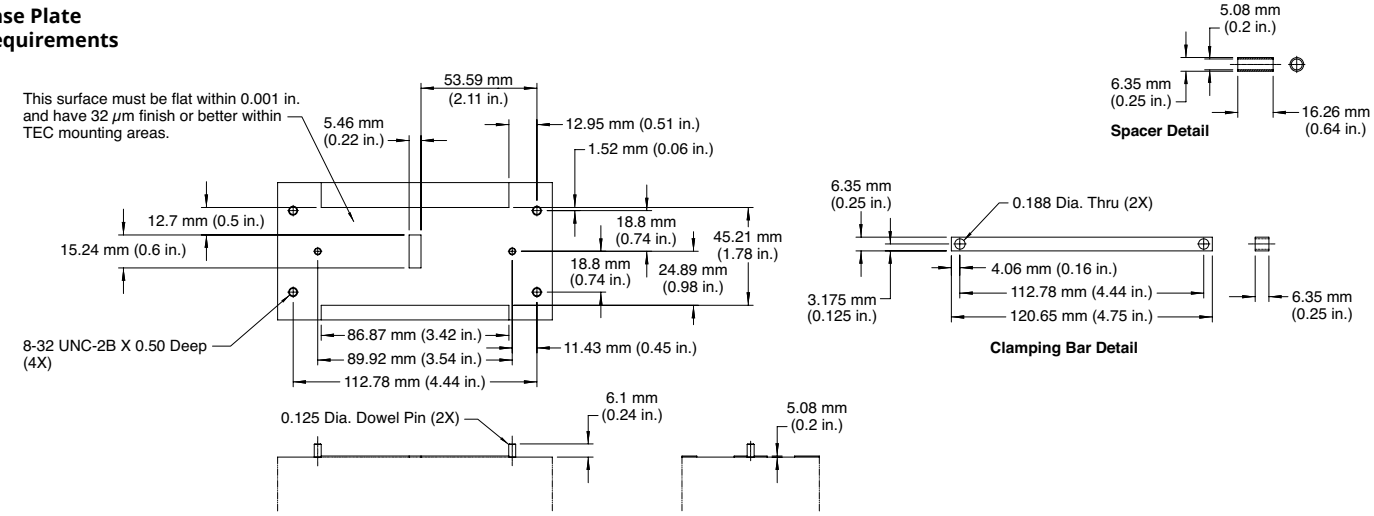


MECHANICAL SPECIFICATIONS

Genesis MX MTM-Series (OEM)

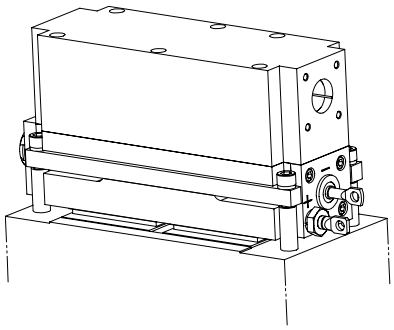


Base Plate Requirements

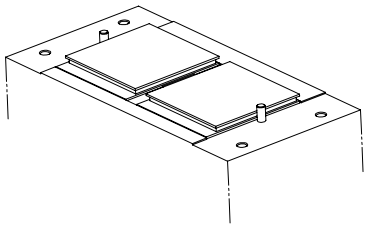


MECHANICAL SPECIFICATIONS

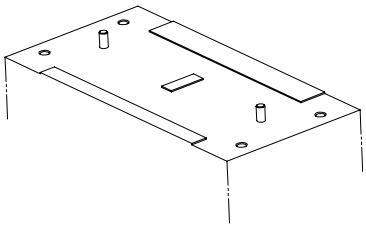
Genesis MX-Series Heat Sink



OPS Head Mounted on Heat Sink



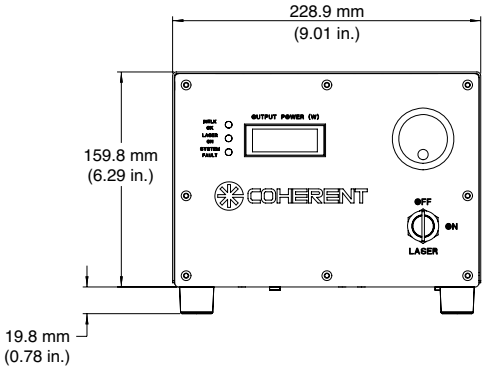
Heat Sink with Thermoelectric Coolers Installed



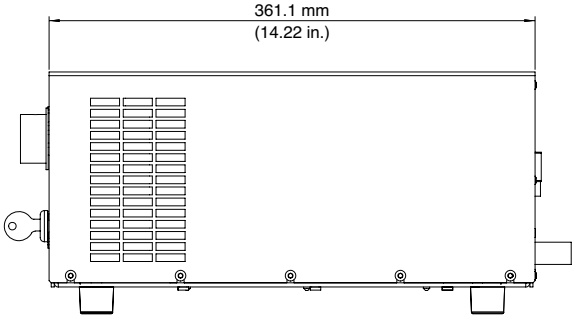
Heat Sink Top Features

Genesis MX MTM-Series Benchtop Power Supply

Front View



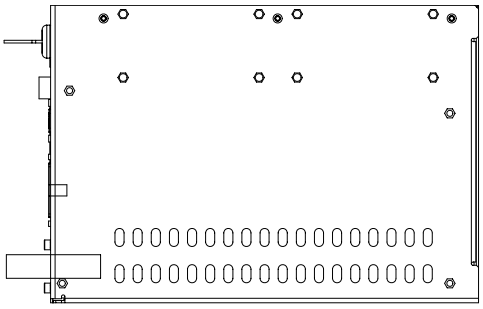
Side View

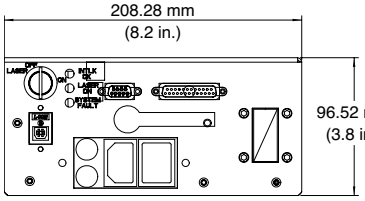


MECHANICAL SPECIFICATIONS

Genesis MX MTM-Series
OEM Benchtop Power Supply

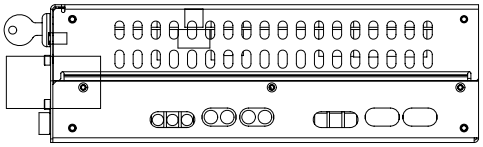
Top View

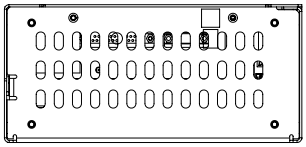




Front View

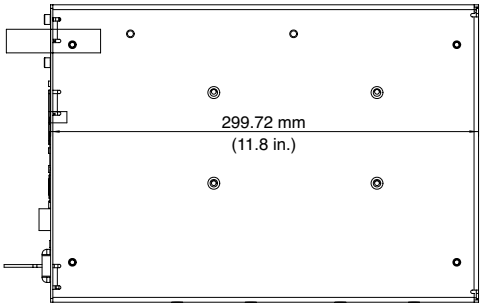
Side View





Rear View

Bottom View



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Genesis MX STM-Series

TEM_{00} Visible OEM and End-User OPS Laser Systems

Applications like Flow Cytometry, Particle Counting, DNA Sequencing and Microscopy are enable 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 (TEM_{00})
- 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 Operating Non-Operating	 10 to 40°C (50 to 104°F) -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) Laser Head[8] Cables (laser head to controller)	 281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.) 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)	<30			
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 Operating Non-Operating	 10 to 40°C (50 to 104°F) -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) Laser Head[8] Cables (laser head to controller)	 281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.) 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 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) Horizontal Vertical	 ±<1.0 ±<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 Horizontal Vertical	 <1.1 <1.1			
Beam Pointing Stability[4] (µrad/°C)	<5			
Noise 10 Hz to 10 MHz (%) (rms) 10 Hz to 5 kHz[5] (%) (pk-pk)	 <0.1 <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) Laser Head	 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 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.

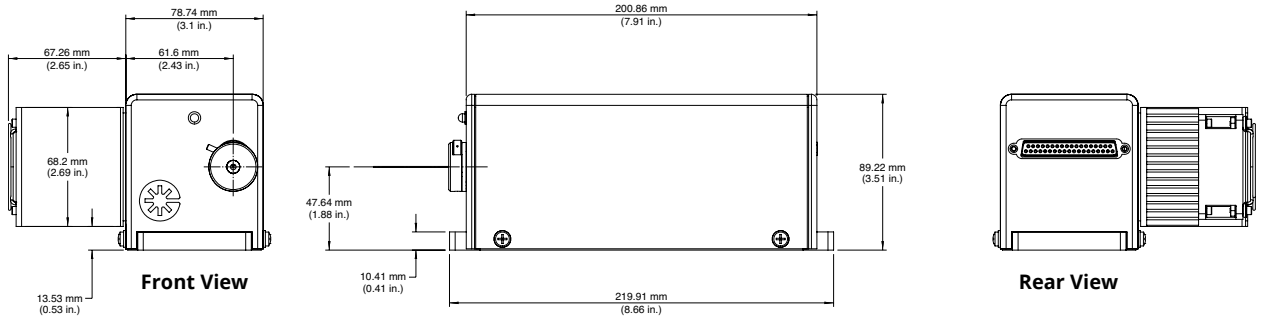
SPECIFICATIONS[1]	Genesis MX 532 OEM	Genesis MX 561 OEM	Genesis MX 577 OEM	Genesis MX 590 OEM
Wavelength (nm)	532 ±3	561 ±3	577 ±3	590 ±3
Output Power (mW)	500, 1000	500	500, 1000	500, 1000
Spatial Mode	TEM_{00}			
FWHM Linewidth (GHz)	<30			
Pulse Format	CW			
Beam Circularity	1.0 ±0.1			
Beam Position Tolerance (mm) Horizontal Vertical	 ±<1.0 ±<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 Horizontal Vertical	 <1.1 <1.1			
Beam Pointing Stability[4] (µrad/°C)	<5			
Noise 10 Hz to 10 MHz (%) (rms) 10 Hz to 5 kHz[5] (%) (pk-pk)	 <0.1 <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) Laser Head	 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 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.

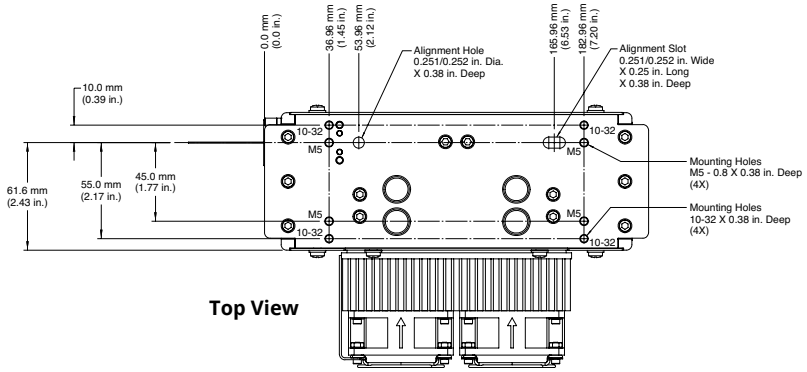
MECHANICAL SPECIFICATIONS

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

Side View



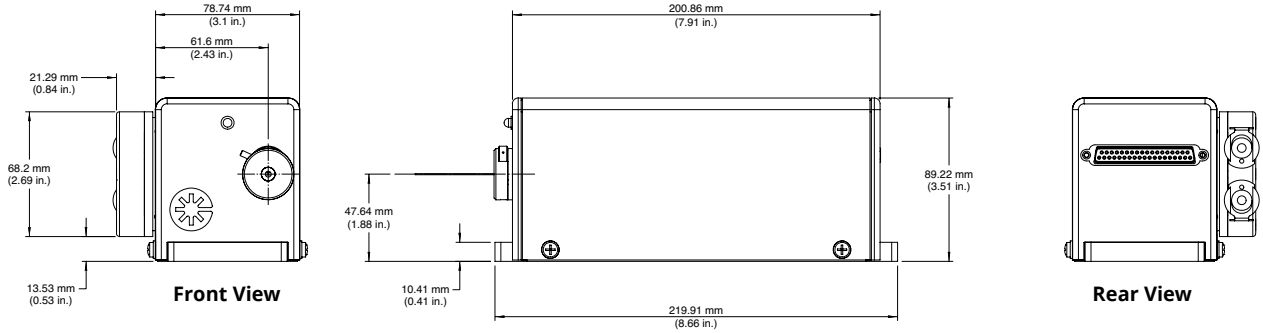
Front View **Rear View**



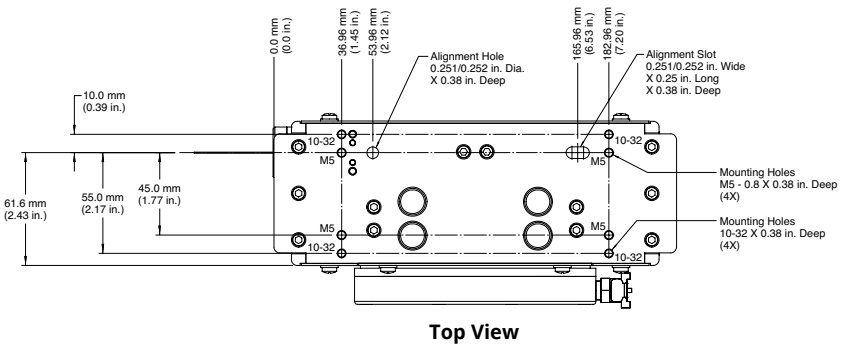
Top View

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

Side View



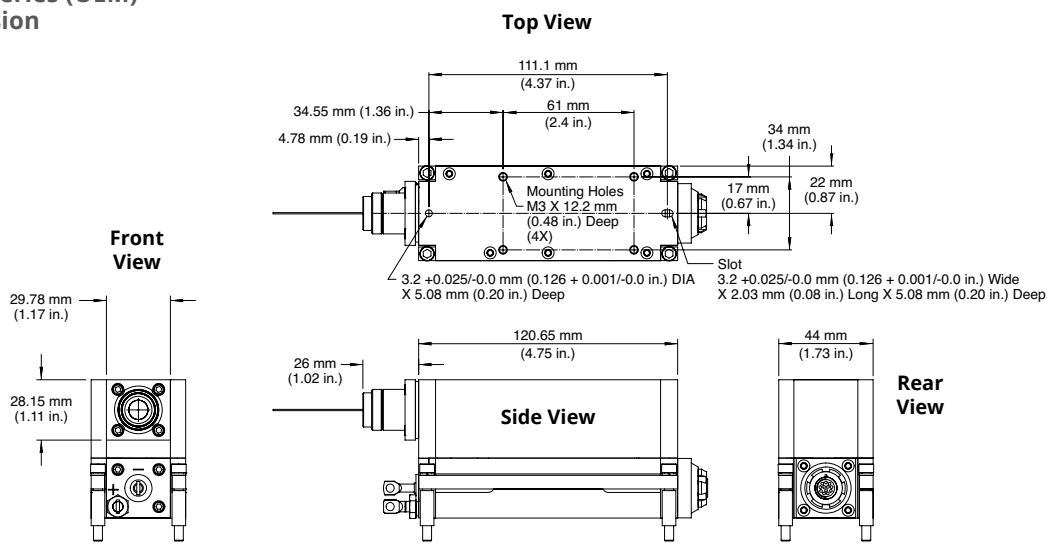
Front View **Rear View**



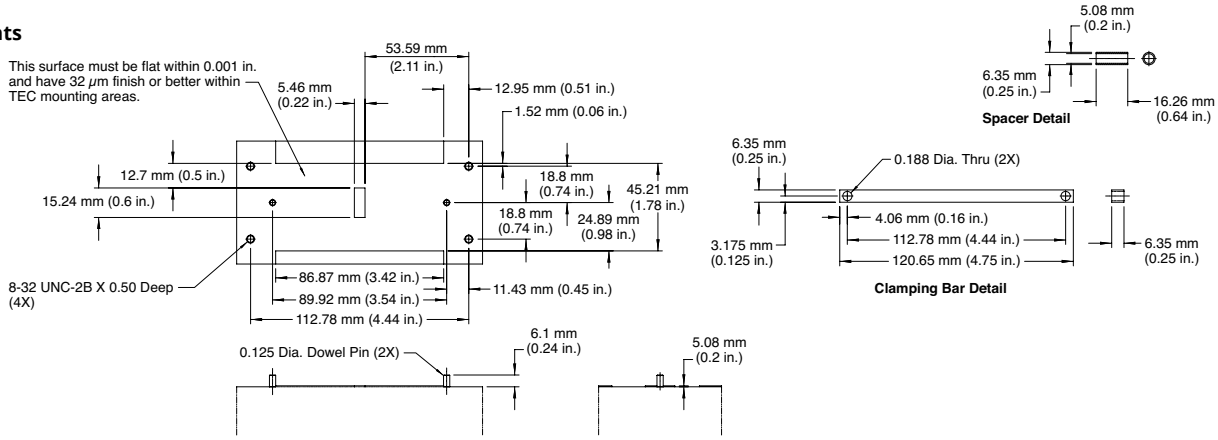
Top View

MECHANICAL SPECIFICATIONS

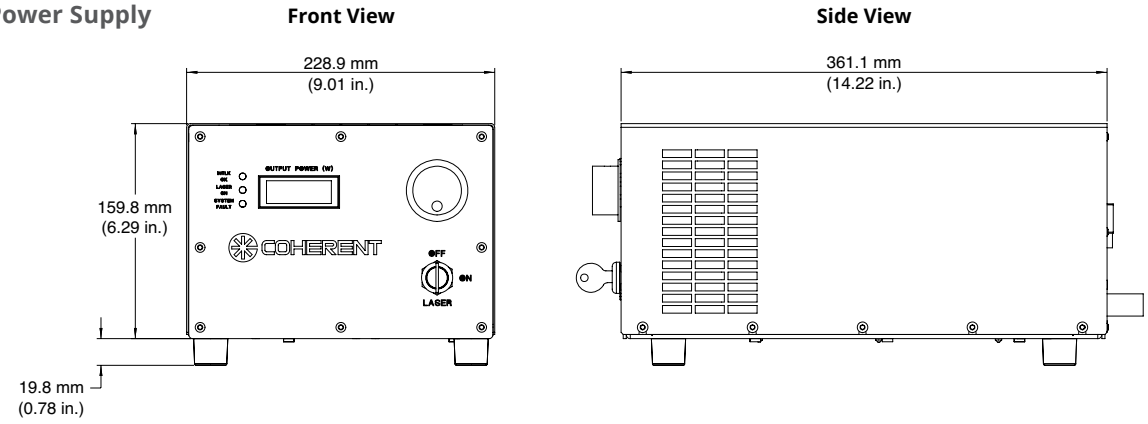
Genesis MX STM-Series (OEM) Water-cooled version



Base Plate Requirements

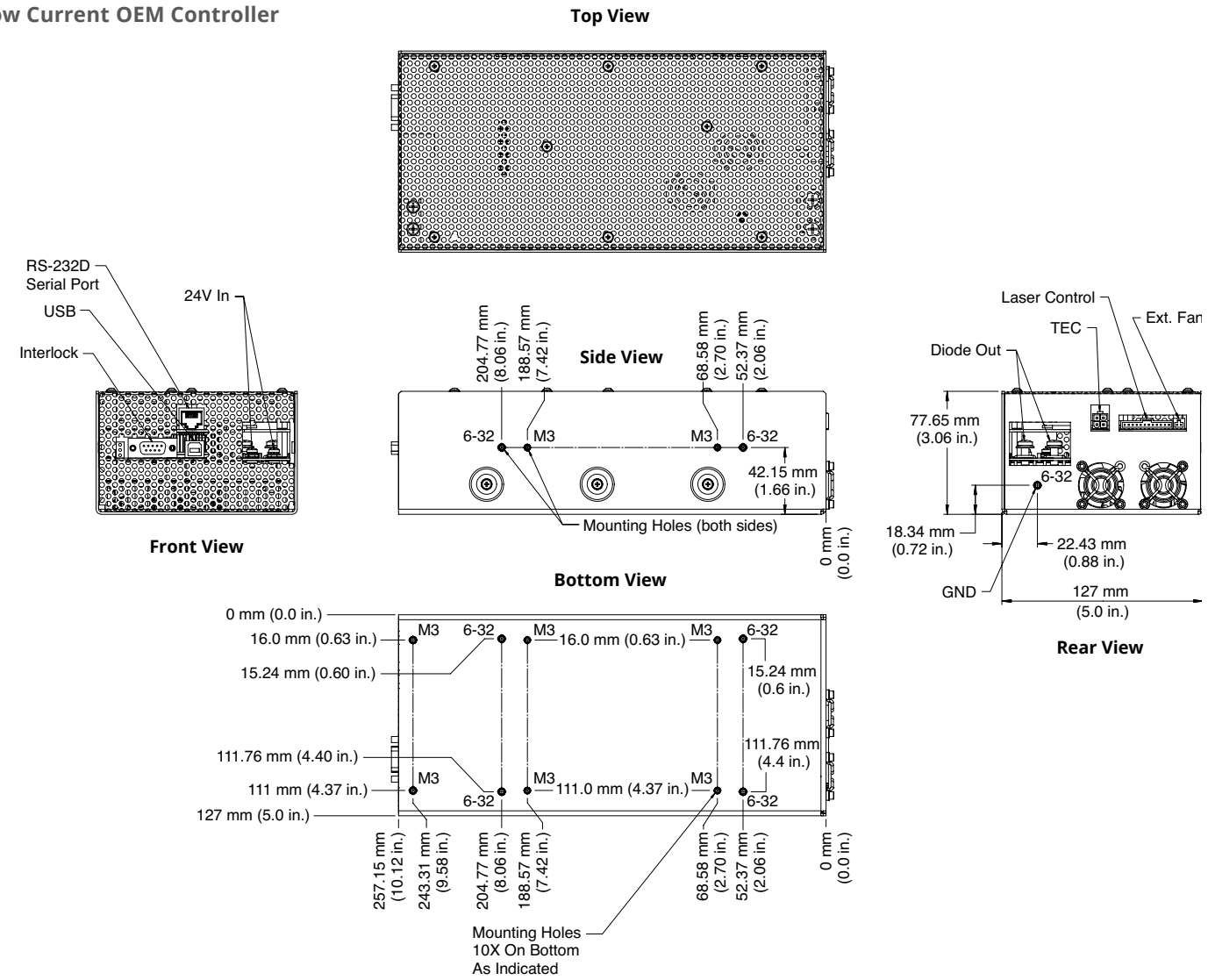


Genesis MX STM-Series Benchtop Power Supply



MECHANICAL SPECIFICATIONS

Genesis MX STM-Series
Low Current OEM Controller



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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 enable 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 Operating Non-Operating	 10 to 40°C (50 to 104°F) -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) Laser Head[8] Cables (laser head to controller)	 281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.) 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 Operating Non-Operating	 10 to 40°C (50 to 104°F) -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) Laser Head[8] Cables (laser head to controller)	 281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.) 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 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) Horizontal Vertical	 ±<1.0 ±<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 Horizontal Vertical	 <1.1 <1.1			
Beam Pointing Stability[4] (µrad/°C)	<5			
Noise 10 Hz to 10 MHz (%) (rms) 10 Hz to 5 kHz[5] (%) (pk-pk)	 <0.1 <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) Laser Head	 121 x 44 x 65 mm (4.76 x 1.73 x 2.56 in.)			
Weight Laser Head (g)	 730 ±10			

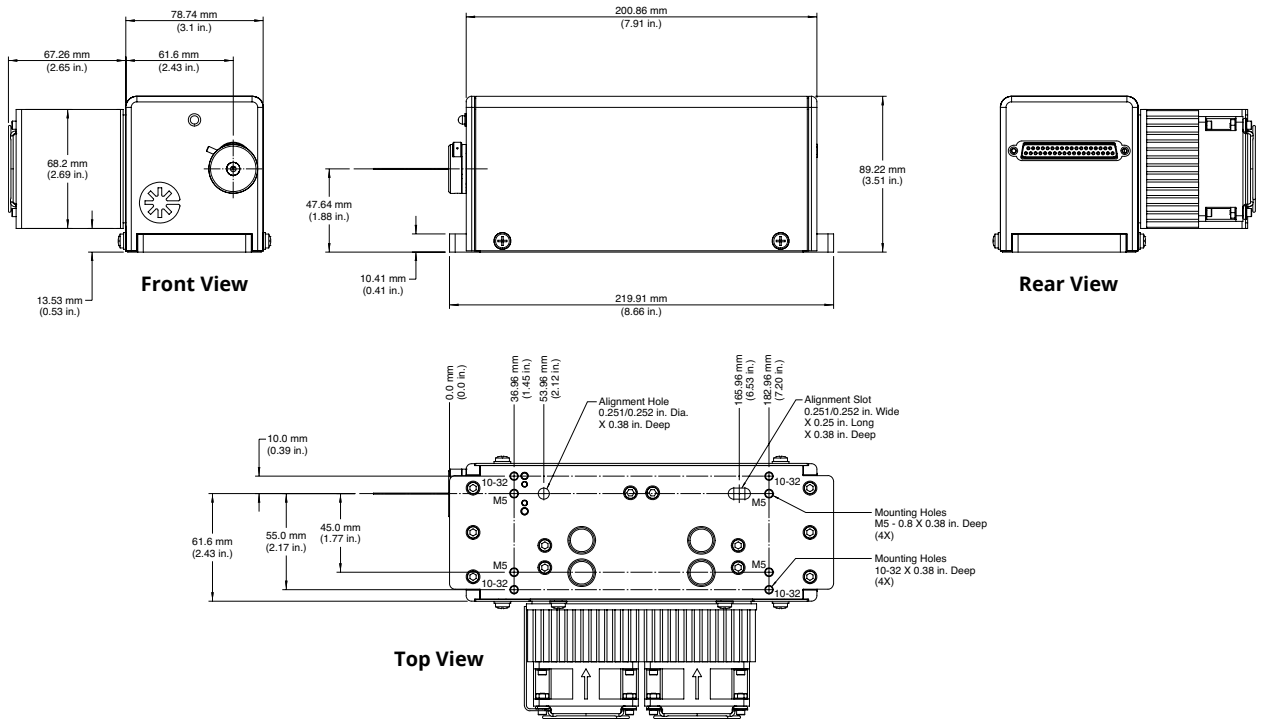
1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
2 Measured at the output of the laser head.
3 Negative value corresponds to a location within the head.
4 Measured at the output window: tolerance relative to the nominal 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) Horizontal Vertical	 ±<1.0 ±<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 Horizontal Vertical	 <1.1 <1.1			
Beam Pointing Stability[4] (µrad/°C)	<5			
Noise 10 Hz to 10 MHz (%) (rms) 10 Hz to 5 kHz[5] (%) (pk-pk)	 <0.1 <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) Laser Head	 121 x 44 x 65 mm (4.76 x 1.73 x 2.56 in.)			
Weight Laser Head (g)	 730 ±10			

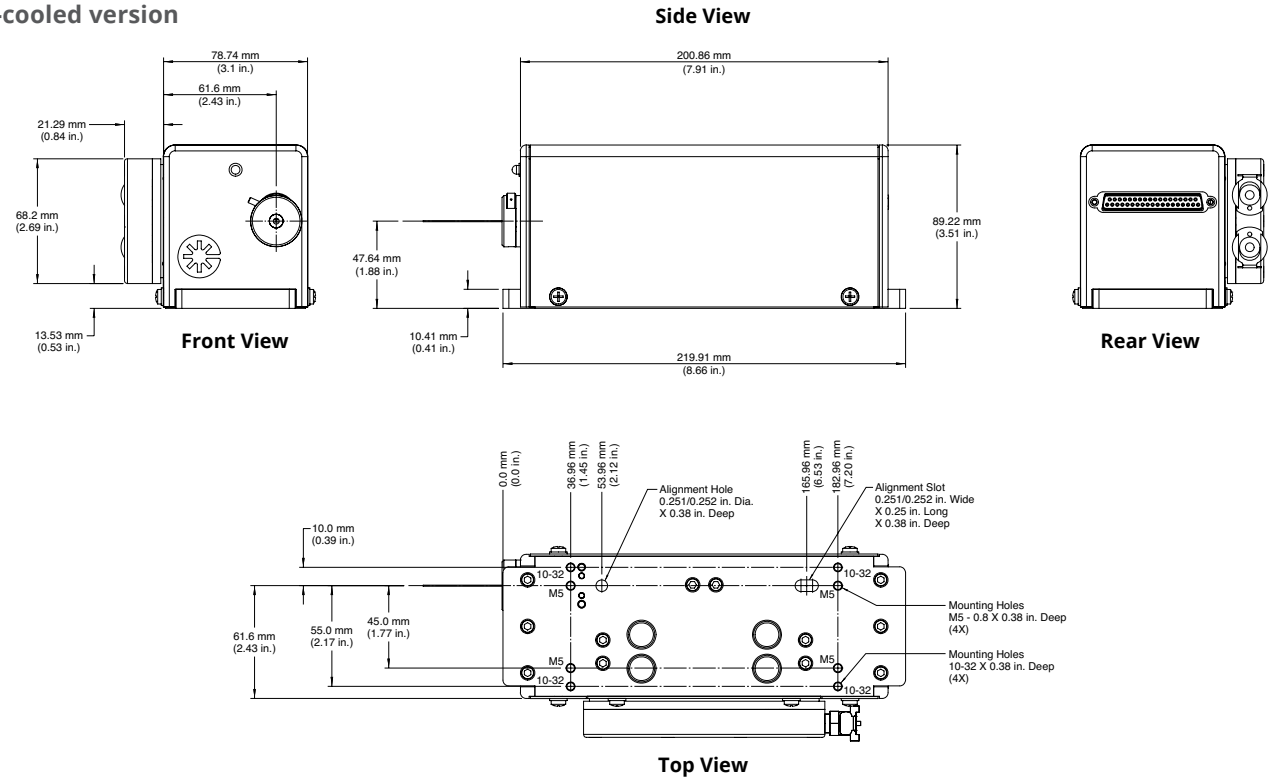
1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
2 Measured at the output of the laser head.
3 Negative value corresponds to a location within the head.
4 Measured at the output window: tolerance relative to the nominal 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.

MECHANICAL SPECIFICATIONS

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

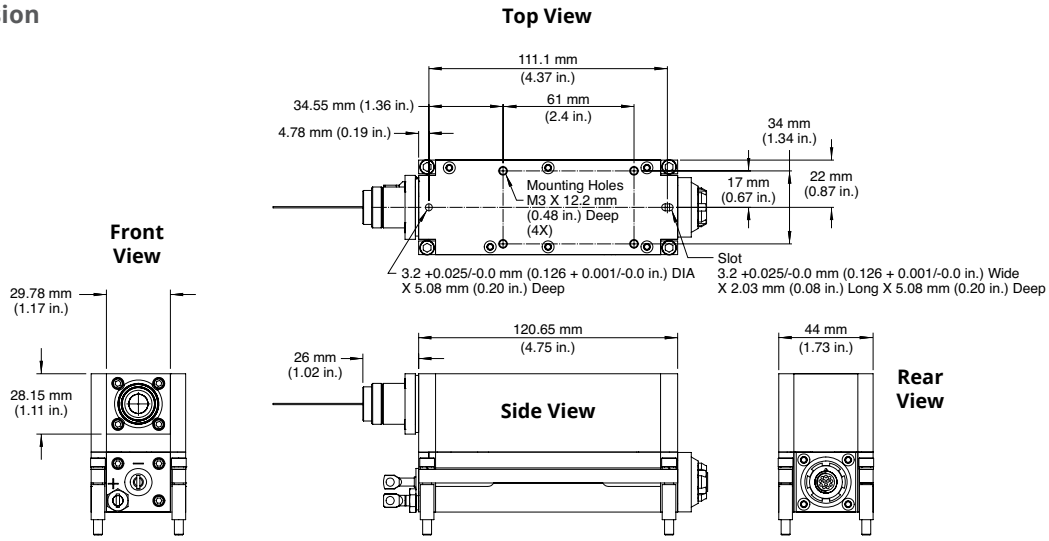


Genesis MX SLM-Series (End-User)
Water-cooled version

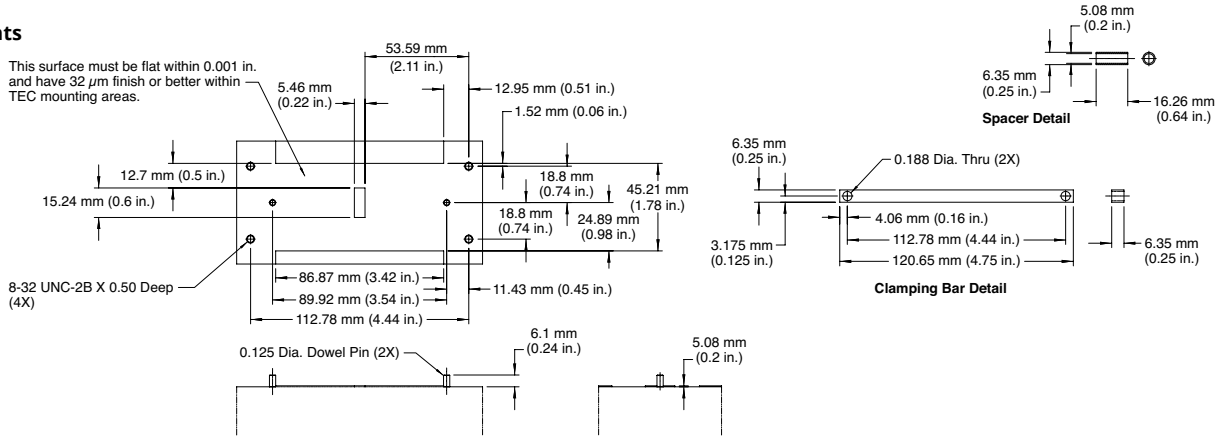


MECHANICAL SPECIFICATIONS

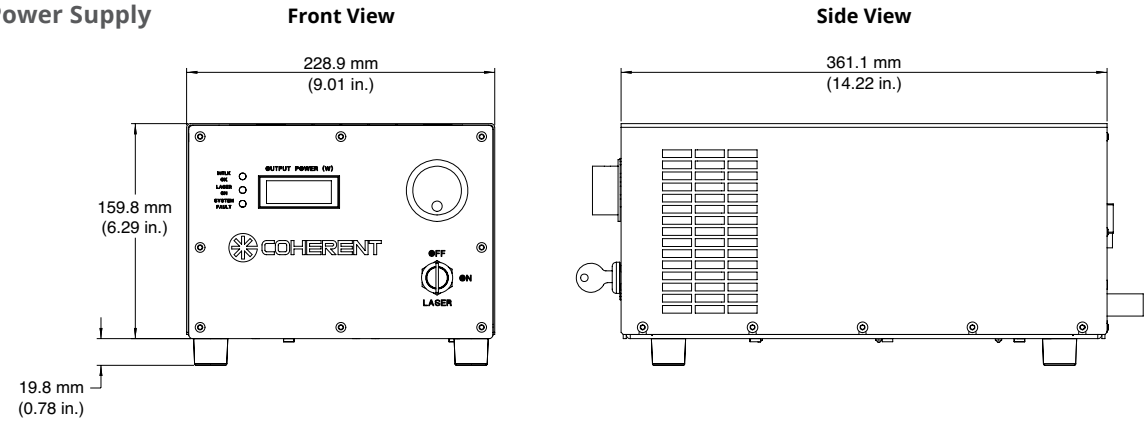
Genesis MX SLM-Series (OEM) Water-cooled version



Base Plate Requirements

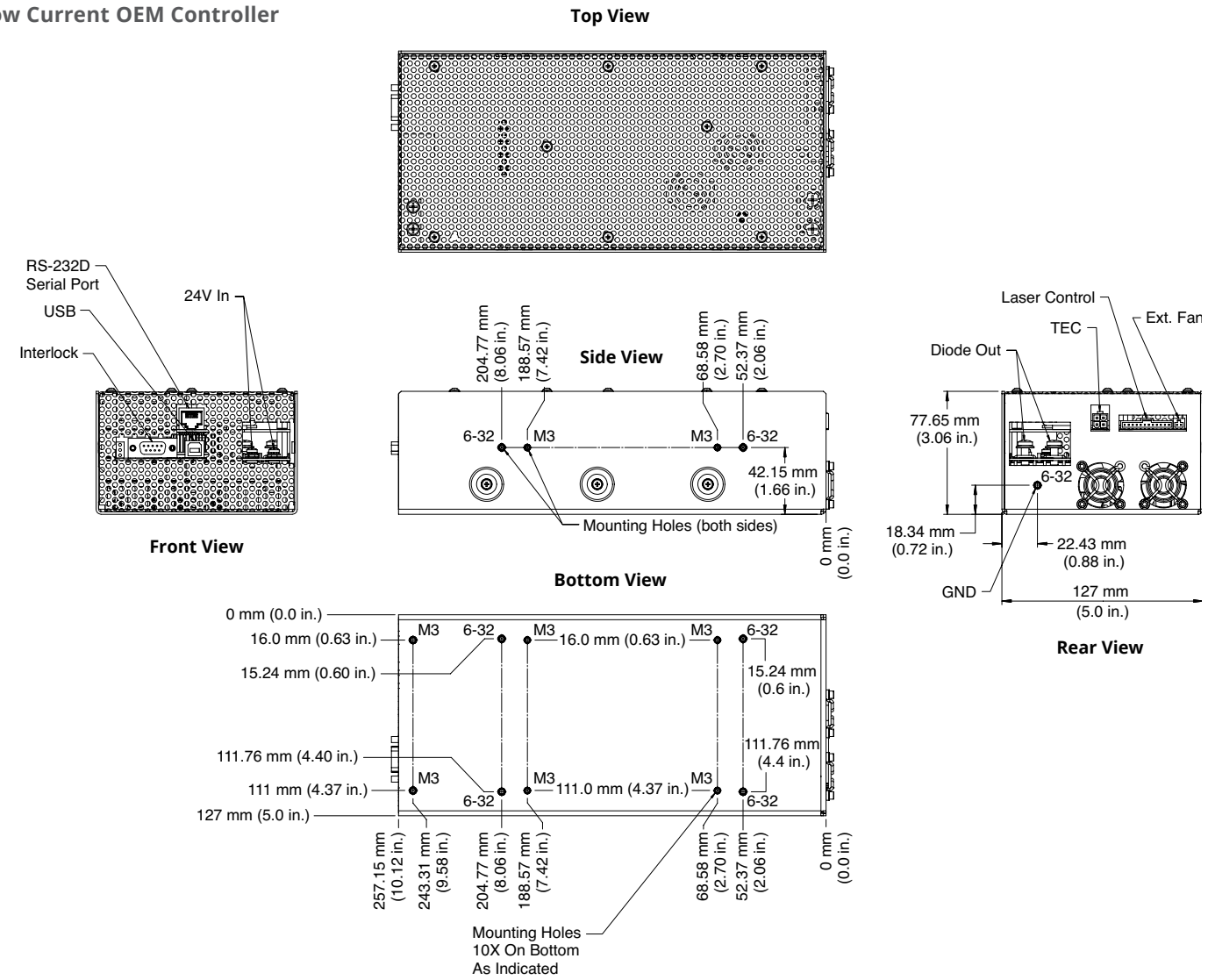


Genesis MX SLM-Series Benchtop Power Supply



MECHANICAL SPECIFICATIONS

Genesis MX SLM-Series
Low Current OEM Controller



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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.

CE ISO 9001 Registered

Genesis CX STM-Series

TEM_{00} UV and Visible OEM and End-User OPS Laser Systems

Coherent's unique Optically Pumped Semiconductor Laser (OPSL) technology powers the Genesis CX-STM Series, providing up to 250 mW of UV laser light or up to 10 W of visible light from either a simple, CDRH-compliant turn-key system or an OEM system designed for easy mechanical integration into commercial instruments and production tools.

Ideal for applications such as Flow Cytometery, Particle Counting, DNA Sequencing and Microscopy, these lasers provide a TEM_{00} power invariant beam with low noise and high stability in a convenient package.

The Genesis CX STM-Series is the perfect laser platform for customers requiring high-performing CW laser technology for research and instrumentation in life science and biological applications.

FEATURES & BENEFITS

- Single Transverse Mode (TEM_{00})
- OEM or end-user versions
- Air or water-cooled solutions
- Power invariant beam quality

APPLICATIONS

- Flow Cytometry
- Particle Counting
- DNA Sequencing
- Microscopy

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
Spatial Mode	TEM_{00}
Beam Quality (M^2)	<1.2
Beam Circularity[3]	1.0 ±0.1
Beam Waist Diameter (mm) (FW, $1/e^2$) Horizontal Vertical	 0.975 ±0.2 0.915 ±0.2
Beam Divergence (mrad) (FW, $1/e^2$)	<1.2
Beam Waist Location[4] (mm)	±325
Beam Pointing Stability[5] (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	Vertical, ±5°
Noise (%, rms) (10 Hz to 1 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[9]
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[7] (%)	5 to 95
CE Marking	IEC 61010-1/EN 61010-1
Dimensions (L x W x H) Laser Head[8] Cables (laser head to controller)	 281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.) 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 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 over 8 hours.
7 Non-condensing.
8 Back connector not included in laser head length dimension.
9 Power consumption for the CX 355-250 is 600W.

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, 4000	1000, 2000, 3000, 4000	2000, 4000, 6000
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	2.2 ±0.3
Beam Divergence (mrad) (FW, $1/e^2$)	<0.5			
Beam Waist Location[4] (mm)	±0.5			
Beam Pointing Stability[5] (µrad/°C)	<2			
Horizontal Beam Position Tolerance[6] (mm)	±<1.0			
Vertical Beam Position Tolerance[6] (mm)	±<1.0			
Beam Pointing Tolerance (mrad)	<5			
Polarization Ratio	Linear, >100:1			
Polarization Direction	Vertical, ±5°			
Noise (%, rms) (10 Hz to 1 MHz)	<0.1			
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			
Cooling Requirements	Actively cooled heat sink required e.g. Genesis CX Air-Cooled Riser or Genesis CX Water-Cooled Riser			
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[8] (%)	5 to 95			
CE Marking	IEC 61010-1/EN 61010-1			
Dimensions (L x W x H) Laser Head[9] Cables (laser head to controller)	 281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.) 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 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 2-hour warm-up.
6 Measured at the output window.
7 Measured over 8 hrs.
8 Non-condensing.
9 Back connector not included in laser head length dimension.

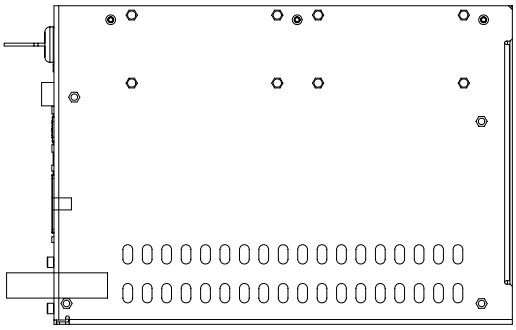
SPECIFICATIONS[1]	Genesis CX-532[2]	Genesis CX-532[2]	Genesis CX-561[2]	Genesis CX-577[2]	Genesis CX-590[2]
Wavelength (nm)	532 ±3	532 ±3	561 ±3	577 ±3	590 ±3
FWHM Linewidth (GHz)	<30				
Pulse Format	CW				
Spectral Purity (%)	>99				
Output Power (mW)	2000, 4000, 5000, 6000, 7000	8000, 10,000	3000	1000, 2000, 3000	2000, 3000
Spatial Mode	TEM_{00}				
Beam Quality (M^2)	<1.1				
Beam Circularity[3]	1.0 ±0.1				
Beam Waist Diameter (mm) (FW, $1/e^2$)	2.3 ±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[4] (mm)	±0.5				
Beam Pointing Stability[5] (µrad/°C)	<2				
Horizontal Beam Position Tolerance[6] (mm)	±<1.0				
Vertical Beam Position Tolerance[6] (mm)	±<1.0				
Beam Pointing Tolerance (mrad)	<5				
Polarization Ratio	Linear, >100:1				
Polarization Direction	Vertical, ±5°				
Noise (%, rms) (10 Hz to 1 MHz)	<0.1				
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	700	700	500	500
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[8] (%)	5 to 95				
CE Marking	IEC 61010-1/EN 61010-1				
Dimensions (L x W x H) Laser Head[9] Cables (laser head to controller)	 281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.) 2 m (6.5 ft.)				

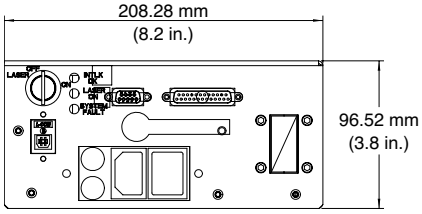
1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
2 Available in OEM or end user versions.
3 Circularity defined as vertical diameter divided by horizontal diameter.
4 Negative value corresponds to a location inside head.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

MECHANICAL SPECIFICATIONS

Genesis CX-Series
High Current OEM Power Supply

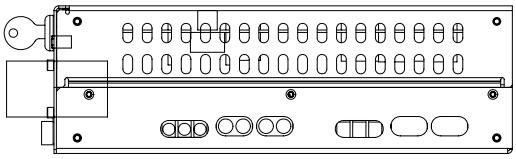
Top View

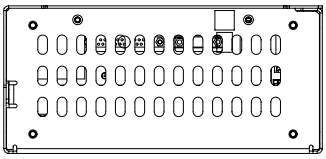




Front View

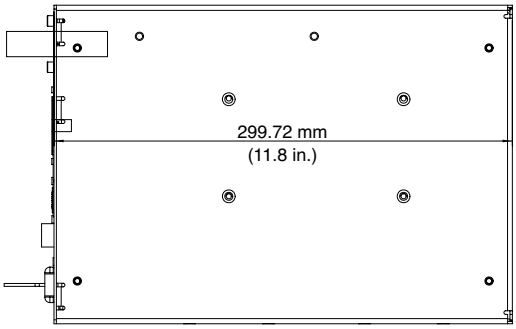
Side View





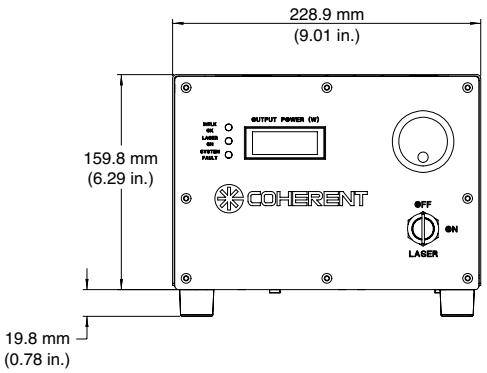
Rear View

Bottom View

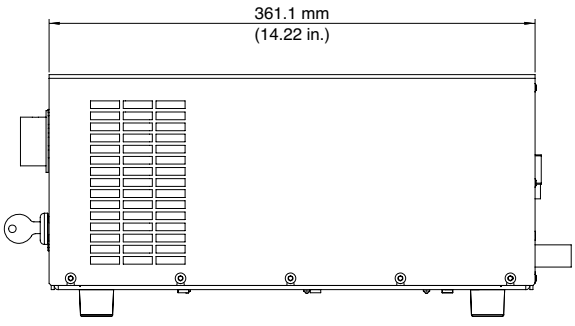


Genesis CX-Series
Benchtop Power Supply

Front View

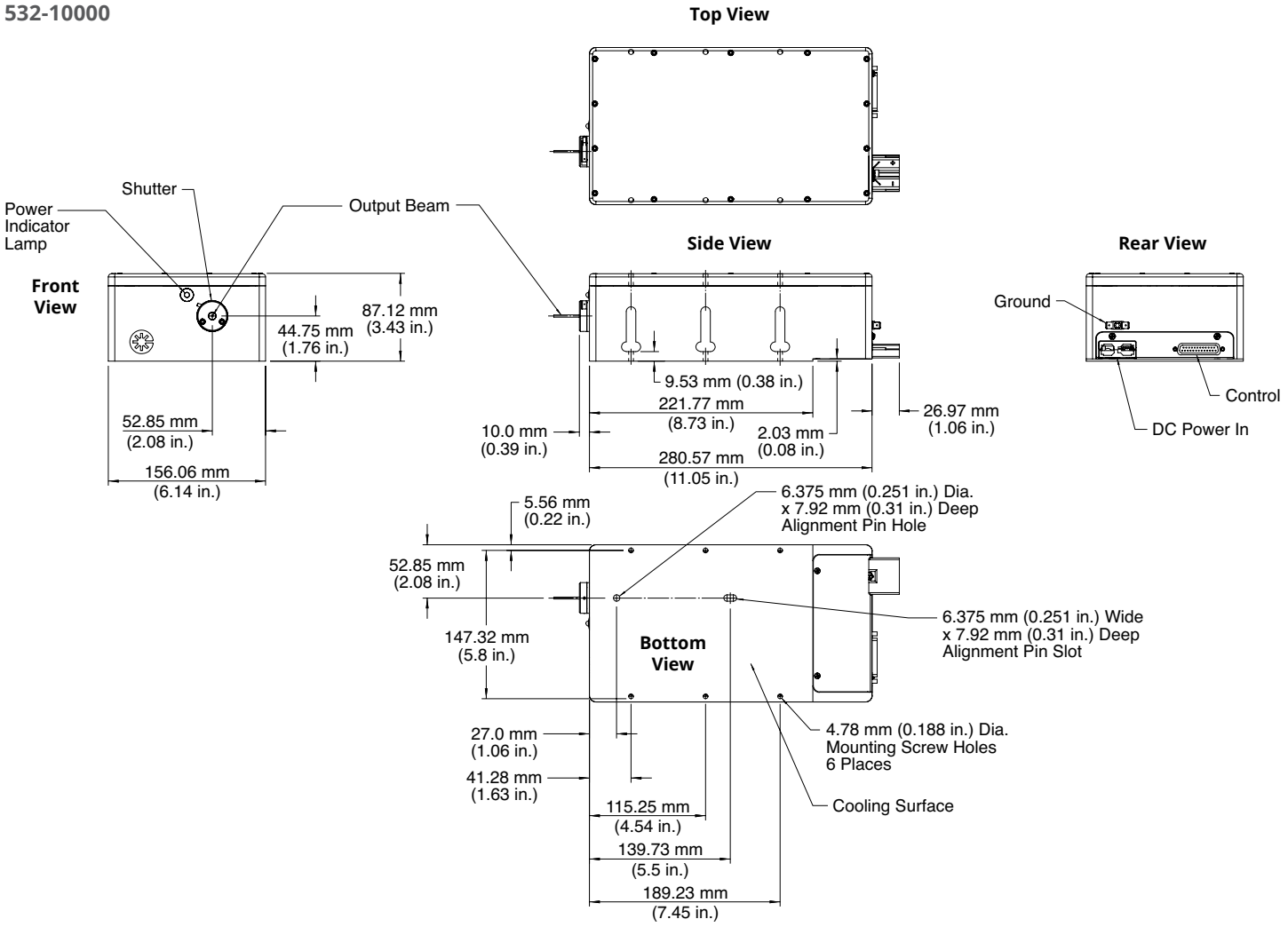


Side View



MECHANICAL SPECIFICATIONS

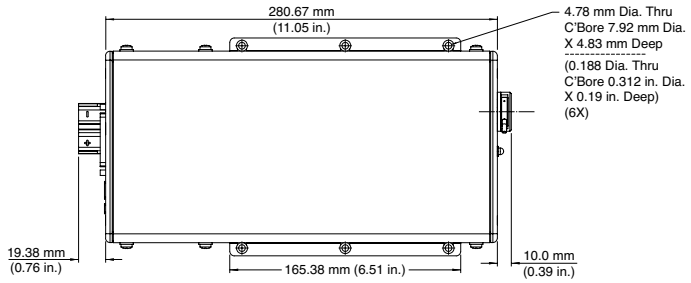
Genesis CX STM-Series
532-10000



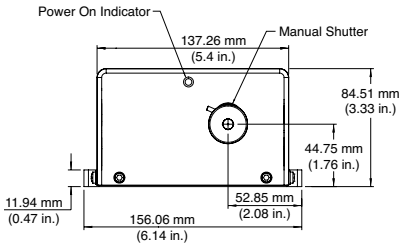
MECHANICAL SPECIFICATIONS

Genesis CX STM-Series
OEM and End User

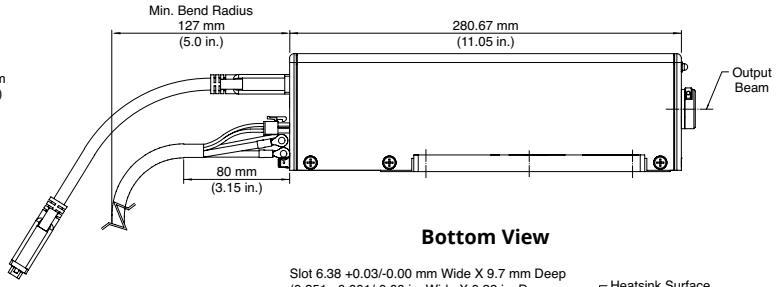
Top View



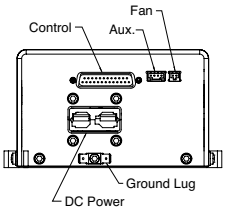
Front View



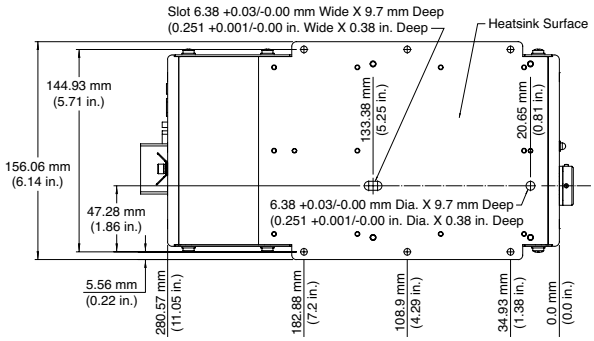
Side View



Rear View

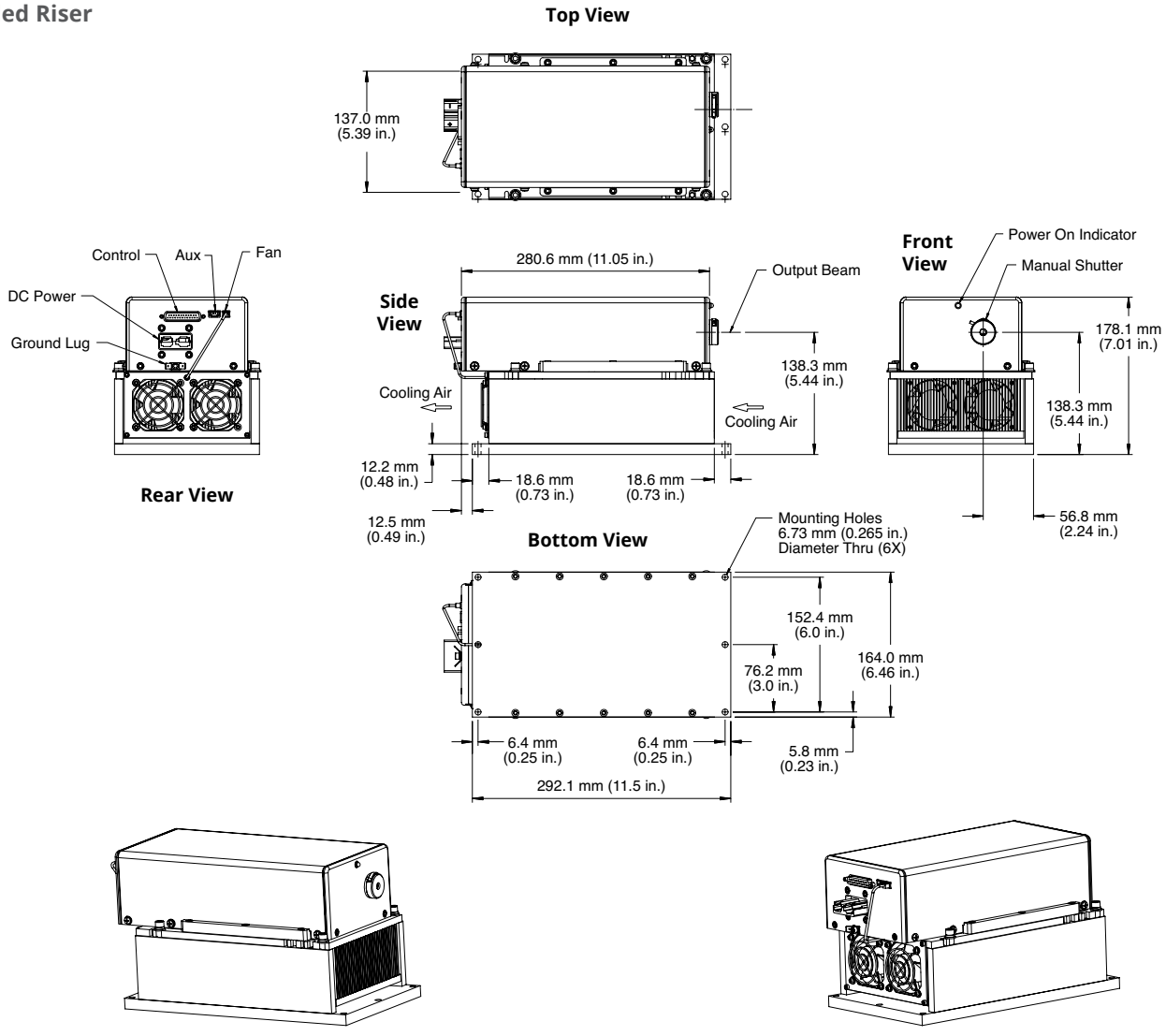


Bottom View



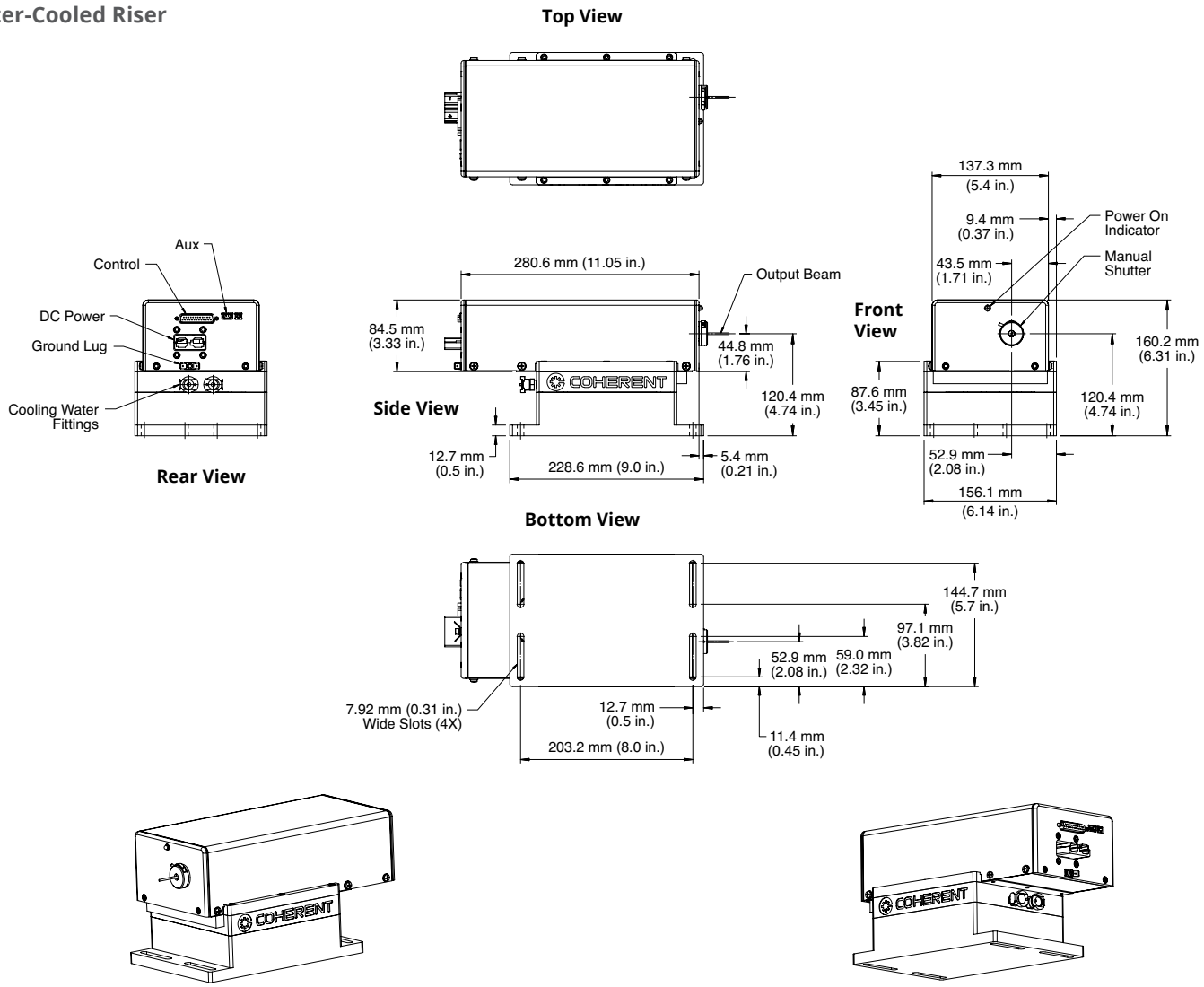
MECHANICAL SPECIFICATIONS

Genesis CX STM-Series
Air-Cooled Riser



MECHANICAL SPECIFICATIONS

Genesis CX STM-Series
Water-Cooled Riser



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CE ISO 9001 Registered

Genesis CX 355 STM Compact (OEM)

TEM_{00} 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 Cytometery 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 (TEM_{00})
- Reduced sized OEM
- Air-cooled solution

APPLICATIONS

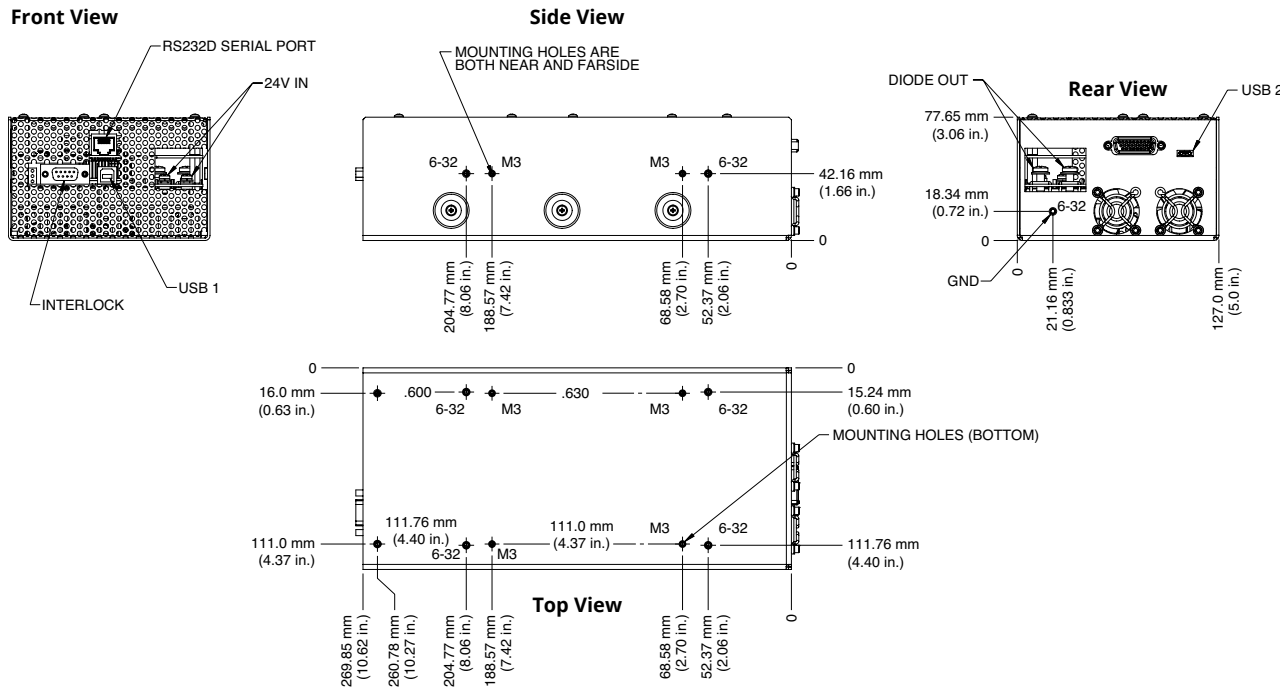
- Flow Cytometry
- Particle Counting
- Microscopy

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 Vertical	 0.975 ±0.2 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 Non-Operating Condition	 10 to 40°C (50 to 104°F) non-condensing -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] Cables (laser head to controller)	 250.1 x 138.0 x 50.8 mm (9.84 x 5.4 x 2.0 in.) 2 m (6.5 ft.)

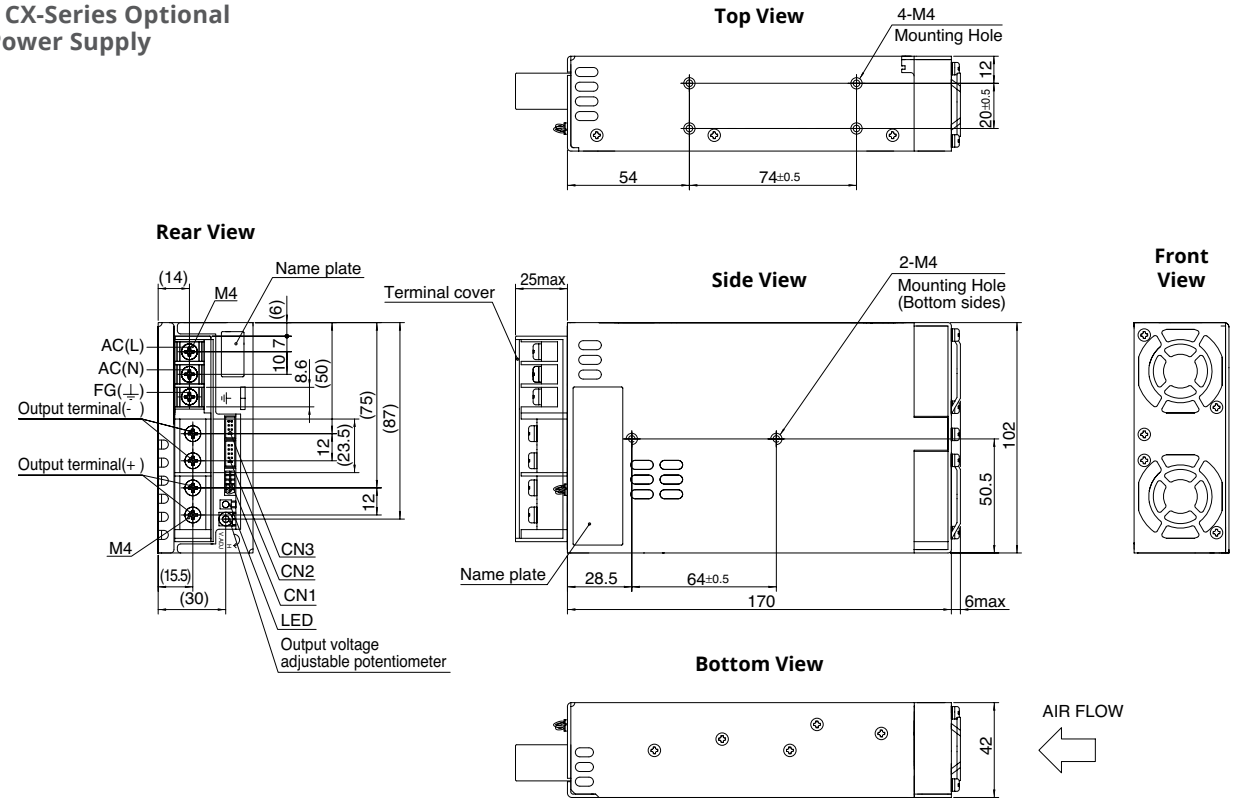
1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
2 Circularity defined as vertical diameter divided by horizontal diameter.
3 Negative value corresponds to a location inside head.
4 After warm-up over 2 hours.
5 Non-condensing.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

MECHANICAL SPECIFICATIONS

Genesis CX Compact Controller

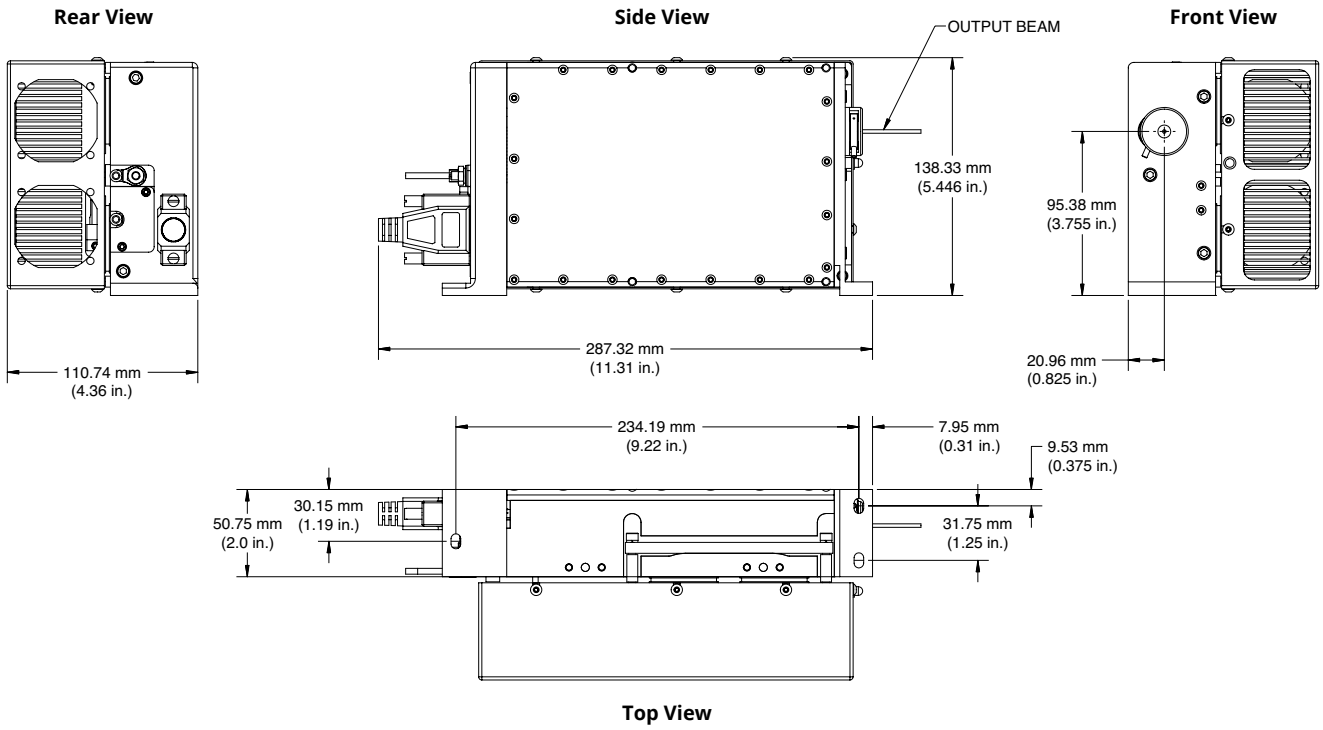


Genesis CX-Series Optional AC/DC Power Supply



MECHANICAL SPECIFICATIONS

Genesis CX 355 STM Compact (OEM)



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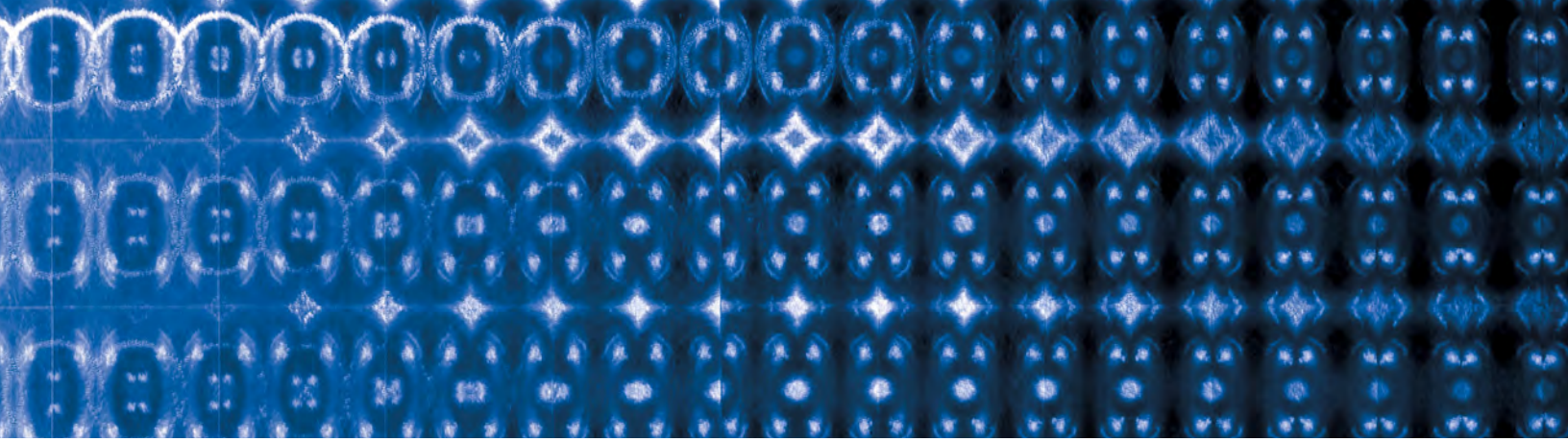


Genesis CX SLM-Series

Single Frequency UV and Visible OEM and End-User OPS Laser Systems

Applications such as spectroscopy, interferometry, and holography require single-frequency lasers with narrow linewidths and long coherence lengths. The Genesis CX SLM-Series provides up to 100 mW of UV laser light or up to 4W of visible laser light from either a simple, CDRH-compliant turn-key system or an OEM system designed for easy mechanical integration into commercial instruments and production tools.

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

Genesis CX 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

- Single Longitudinal Mode
- Single Transverse Mode (TEM_{00})
- OEM or end-user versions
- Air or water-cooled solutions
- Power Invariant beam quality

APPLICATIONS

- Spectroscopy
- Interferography
- Holography

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
Spatial Mode	TEM_{00}
Beam Quality (M^2)	<1.2
Beam Circularity[3]	1.0 ±0.1
Beam Waist Diameter (mm) (FW, $1/e^2$) Horizontal Vertical	 0.975 ±0.2 0.915 ±0.2
Beam Divergence (mrad) (FW, $1/e^2$)	<1.2
Beam Waist Location[4] (mm)	±325
Beam Pointing Stability[5] (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	Vertical, ±5°
Noise (%, rms) (10 Hz to 1 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 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[7] (%)	5 to 95
CE Marking	IEC 61010-1/EN 61010-1
Dimensions (L x W x H) Laser Head[8] Cables (laser head to controller)	 281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.) 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 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 over 8 hours.
7 Non-condensing.
8 Back connector not included in laser head length dimension.

SPECIFICATIONS[1]	Genesis CX-460[2]	Genesis CX-480[2]	Genesis CX-488[2]
Wavelength (nm)	460 ±3	480 ±3	488 ±3
FWHM Linewidth (GHz)	<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] (mm)	±0.5		
Beam Pointing Stability[5] (µrad/°C)	<2		
Horizontal Beam Position Tolerance[6] (mm)	±<1.0		
Vertical Beam Position Tolerance[6] (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[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		
Cooling Requirements	Actively cooled heat sink required e.g. Genesis CX Air-Cooled Riser or Genesis CX Water-Cooled Riser		
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[8] (%)	5 to 95		
CE Marking	IEC 61010-1/EN 61010-1		
Dimensions (L x W x H) Laser Head[9] Cables (laser head to controller)	 281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.) 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 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 2-hour warm-up.
6 Measured at the output window.
7 Measured over 8 hrs.
8 Non-condensing.
9 Back connector not included in laser head length dimension.

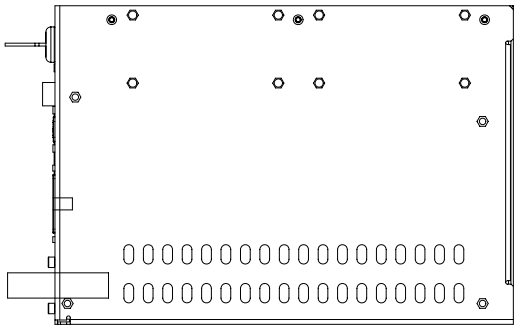
SPECIFICATIONS[1]	Genesis CX-514[2]	Genesis CX-532[2]	Genesis CX-561[2]	Genesis CX-577[2]	Genesis CX-590[2]
Wavelength (nm)	514 ±3	532 ±3	561 ±3	577 ±3	590 ±3
FWHM Linewidth (GHz)	<5				
Pulse Format	CW				
Spectral Purity (%)	>99				
Output Power (mW)	2000, 4000	2000, 4000	2000	2000	1000
Spatial Mode	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	2.3 ±0.3	2.4 ±0.3
Beam Divergence (mrad) (FW, $1/e^2$)	<0.5				
Beam Waist Location[4] (mm)	±0.5				
Beam Pointing Stability[5] (µrad/°C)	<2				
Horizontal Beam Position Tolerance[6] (mm)	±<1.0				
Vertical Beam Position Tolerance[6] (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[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				
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[8] (%)	5 to 95				
CE Marking	IEC 61010-1/EN 61010-1				
Dimensions (L x W x H) Laser Head[9] Cables (laser head to controller)	 281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.) 2m (6.5 ft.)				

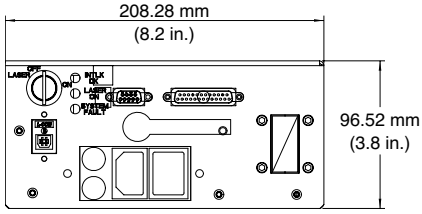
1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.
2 Available in OEM or end user versions.
3 Circularity defined as vertical diameter divided by horizontal diameter.
4 Negative value corresponds to a location inside head.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

MECHANICAL SPECIFICATIONS

Genesis CX-Series
High Current OEM Power Supply

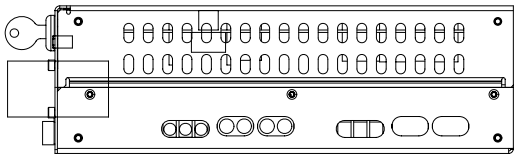
Top View

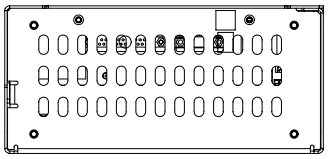




Front View

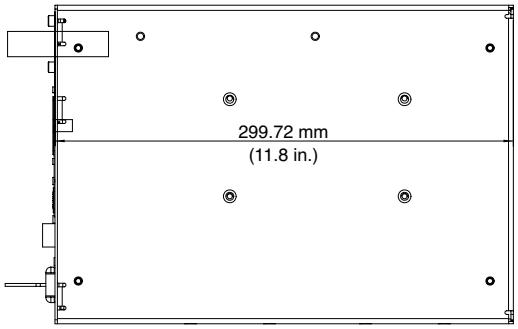
Side View





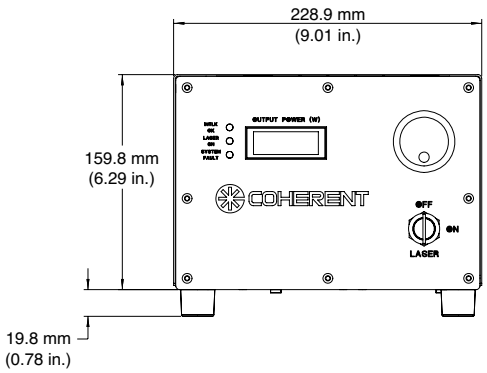
Rear View

Bottom View

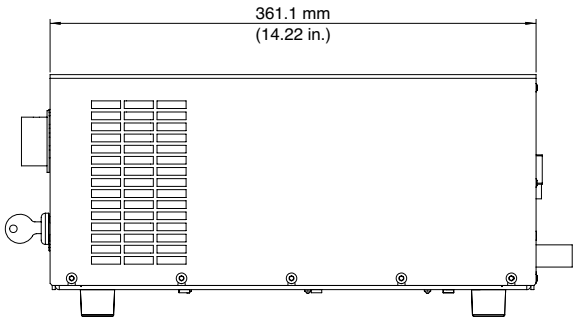


Genesis CX-Series
Benchtop Power Supply

Front View



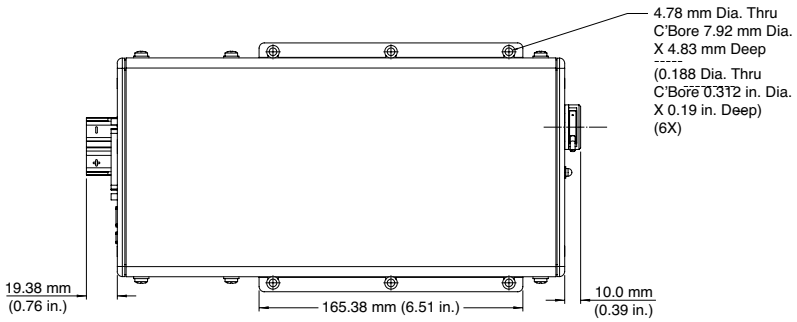
Side View



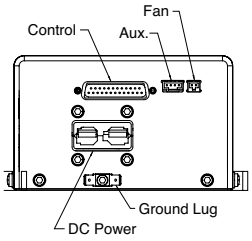
MECHANICAL SPECIFICATIONS

Genesis CX SLM-Series
OEM and End User

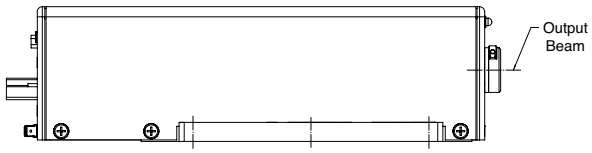
Top View



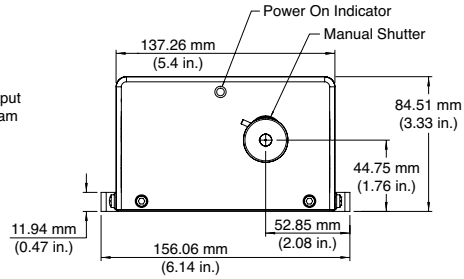
Rear View



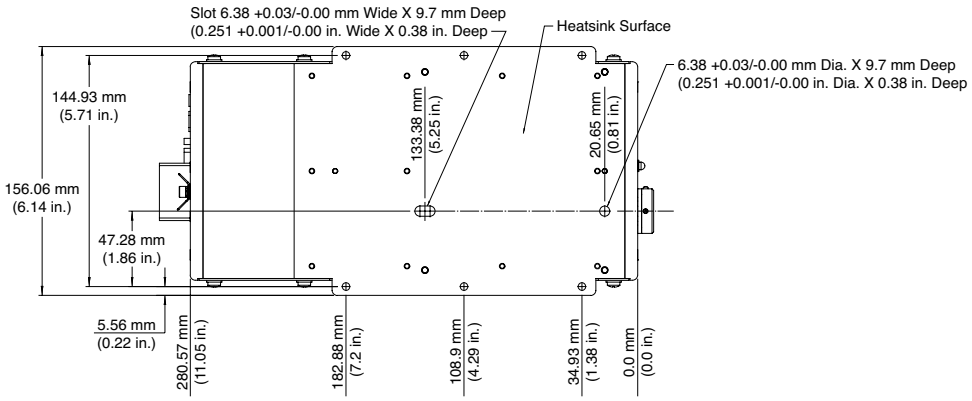
Side View



Front View

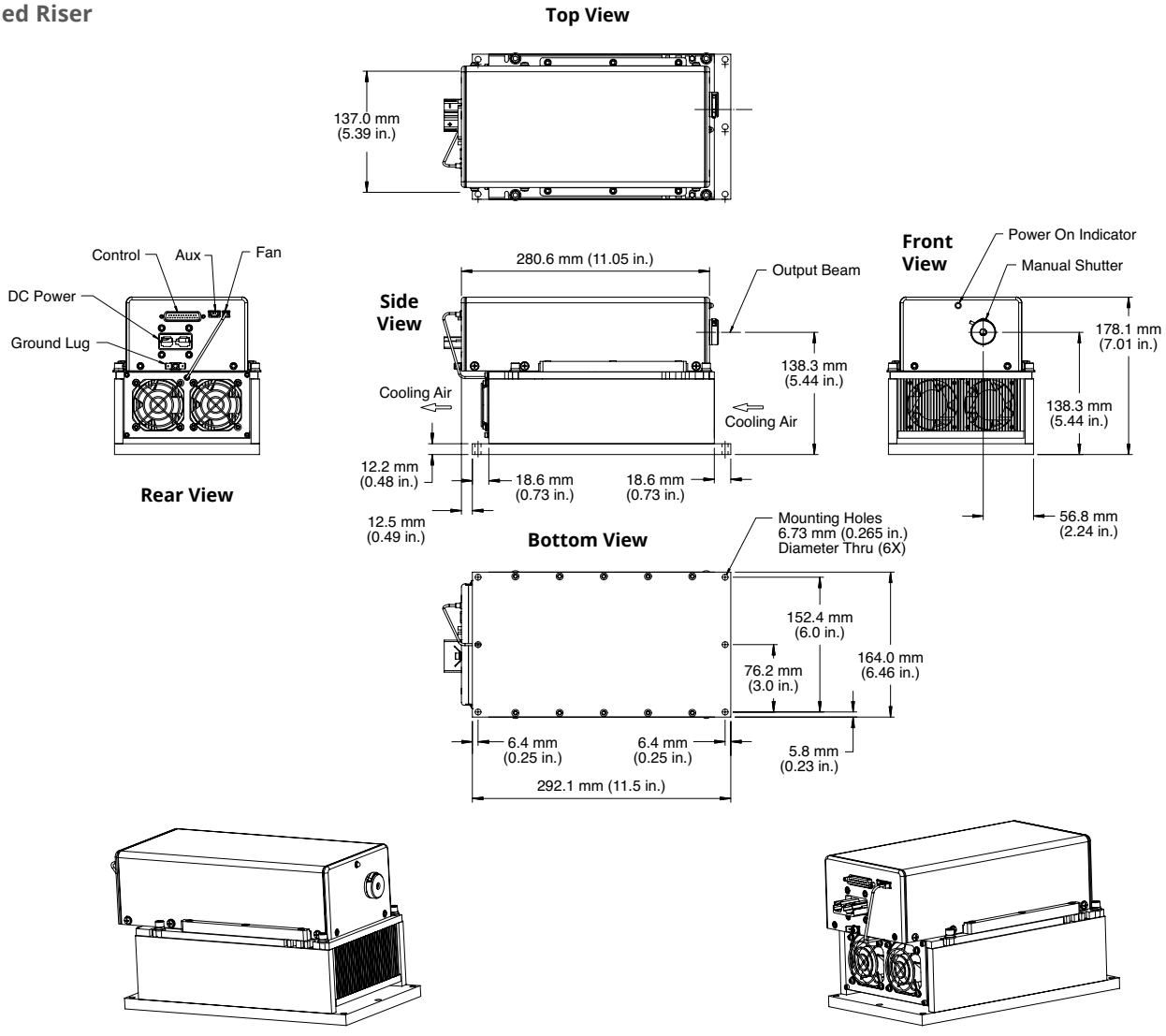


Bottom View



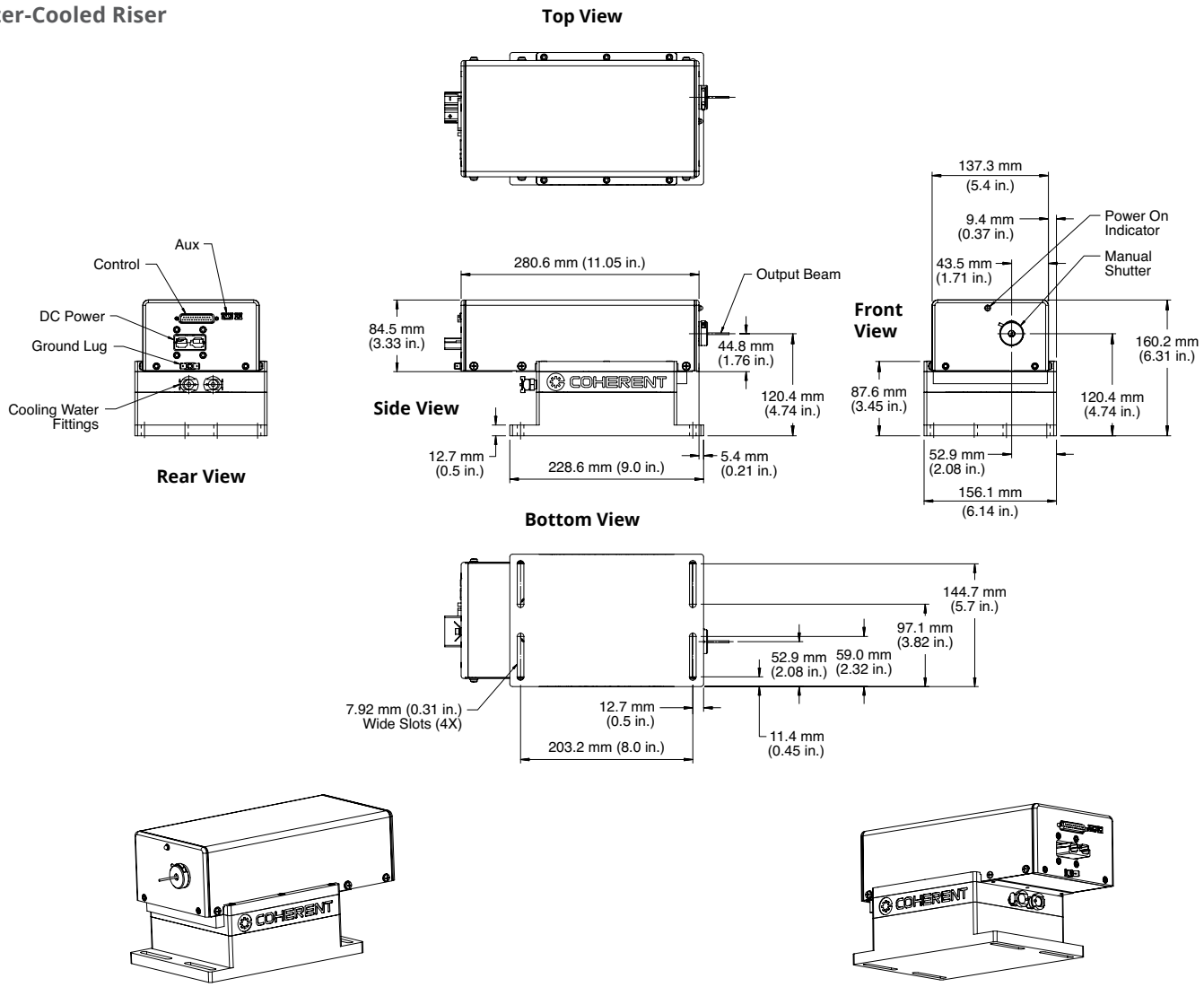
MECHANICAL SPECIFICATIONS

Genesis CX SLM-Series
Air-Cooled Riser



MECHANICAL SPECIFICATIONS

Genesis CX SLM-Series
Water-Cooled Riser



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Coherent Laser Accessories

Discover More Solutions:

OBIS LX/LS Scientific Remote

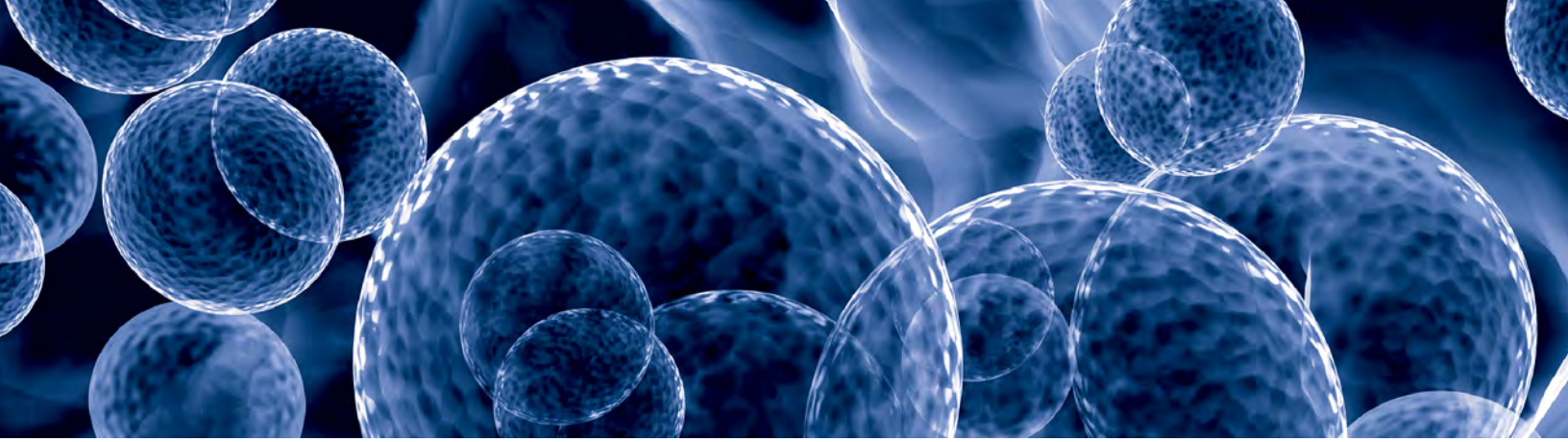
OBIS LX/LS Single Laser Remote

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 Connec-tion, Fan Connection and a SDR-type Connec-tion for laser control I/O. All of these are on the back panel of every 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
- Modulation inputs for analog and digital for six lasers
- USB, RS-232 and Ethernet for additional control from host computer
- OBIS connection software for PC
- Single SDR connection to each laser
- Internal power supply remote and six lasers
- 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 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	3-Position
Interlock	Yes, included with shorting wire
Laser Status Indicators	Yes, Individual LED for each laser
Analog Modulation Input	SMB, 2000 Ohm, 0 to 5V
Digital Modulation Input[3]	SMB, 50 Ohm, 0 to 3V
Warm-up Time (minutes) (from cold start)	<2
OBIS 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. Software operates on Windows 7.
3 Digital modulation can be driven up to 5V.
4 Non-condensing.

OBIS Scientific Remote

Screen Shot

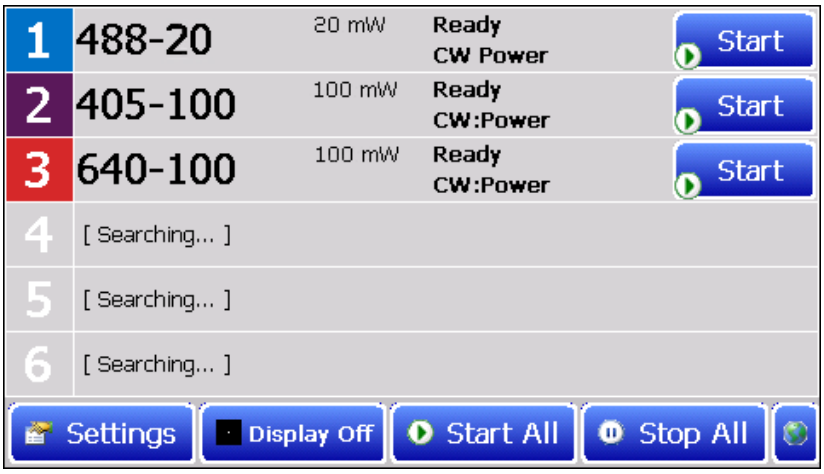
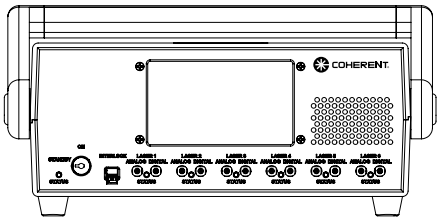


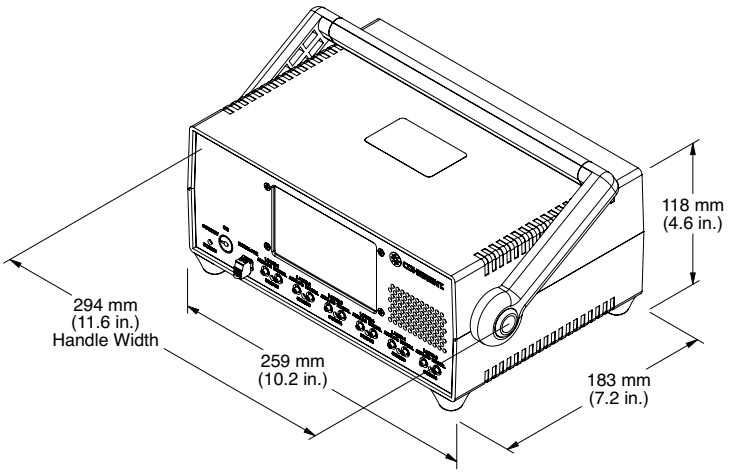
Figure 1: OBIS LX/LS Scientific Remote for up to six lasers. Lasers sold separately.

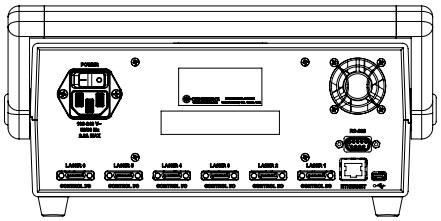
MECHANICAL SPECIFICATIONS

OBIS LX/LS Scientific Remote

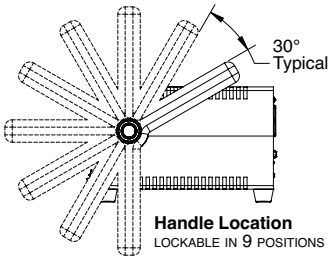
Front View







Rear View



Handle Location
LOCKABLE IN 9 POSITIONS

Accessories

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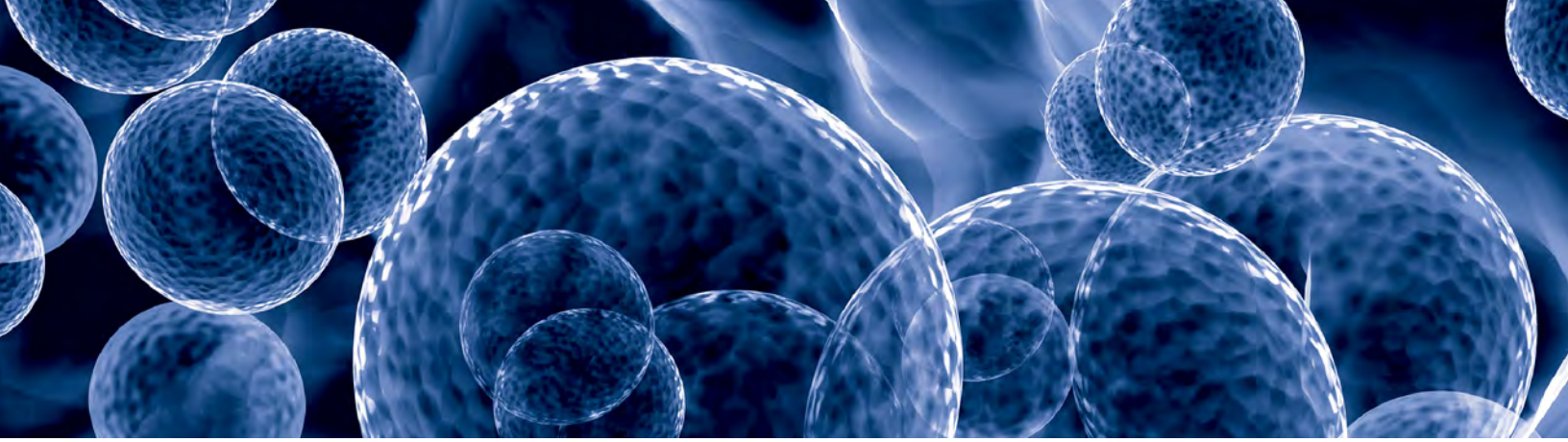


OBIS LX/LS Single Laser Remote

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 Remotes 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

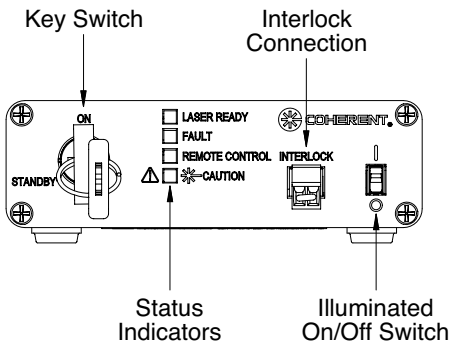
- Laboratories needing CDRH features
- Applications wanting a simple Analog or Digital inputs to control the laser
- Applications wanting laser control at a remote location away from the laser

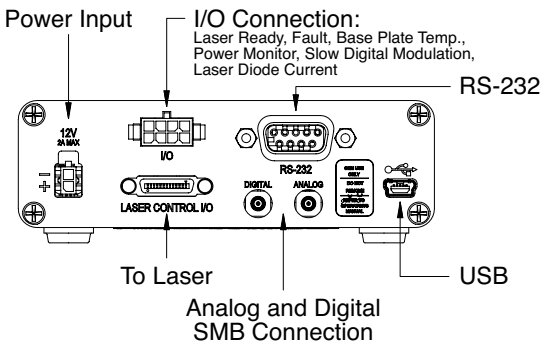
SPECIFICATIONS[1]	OBIS LX/LS Scientific Laser Remote
Host Computer Remote Control via USB1	USB 2.0, Mini B
Host Computer Remote Control via RS-232[1]	RS-232 115.2K, 8N1
Interlock	Yes, included with shorting wire
Laser Status Indicators	Yes
Analog Modulation Input	SMB, 50 Ohm OR 2KOhm, 0 to 5V
Digital Modulation Input[2]	SMB, 50 Ohm, 0 to 3V
Warm-up Time (minutes) (from cold start)	<2
OBIS Connection Software[3]	Included on USB drive with user manual
Power Consumption (W) (typical)	1 (laser not included)
Power Consumption (W) (maximum)	2 (laser not included)
Power Input	Universal IEC-320
Power Cord (USA)	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
Operating Voltage	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 on.)
Weight OBIS Single Laser Remote Power Supply (included)	 0.23 kg (0.5 lbs.) 0.23 kg (0.5 lbs.)
Part Number for OBIS Single Laser Remote	1173961
Part Number for OBIS LX/LS SDR-Type Cable from Laser to Remote 1-meter 3-meter 0.3-meter	 1179451 1179858 1197523
Part Number for OBIS Power Supply, 12VDC	1184491

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.
4 Non-condensing.

MECHANICAL SPECIFICATIONS

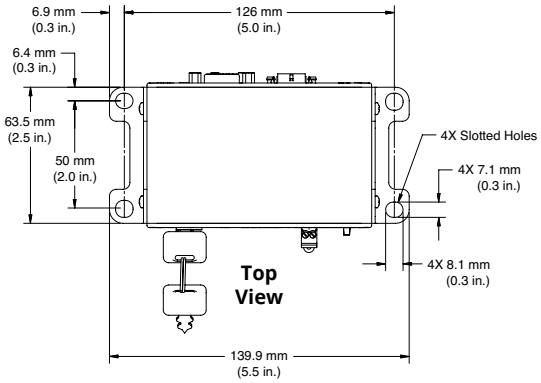
OBIS LX/LS Single Laser Remote Controls



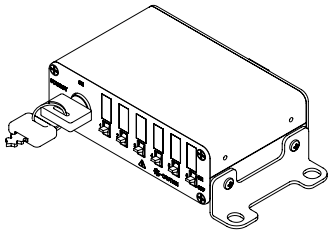


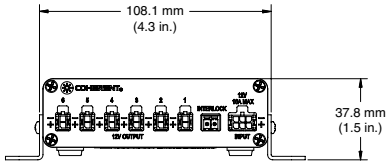
OBIS 6-Laser Remote

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

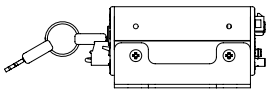


Top View



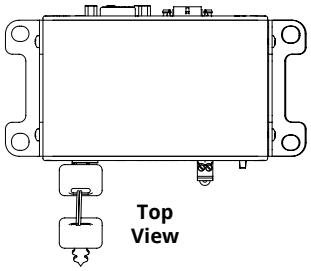


Front View

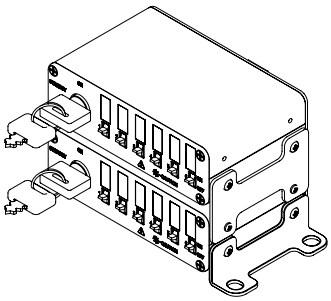


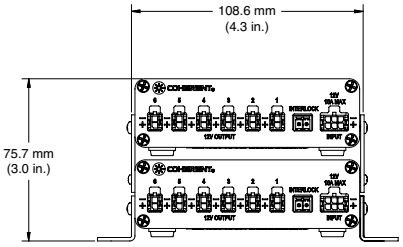
Side View

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

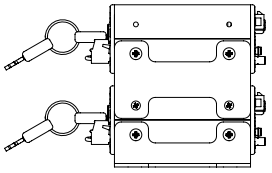


Top View





Front View

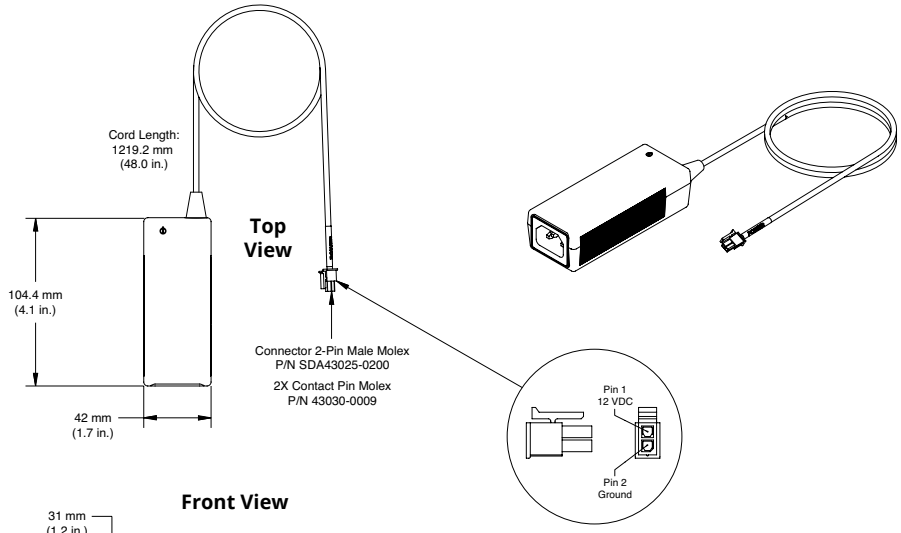


Side View

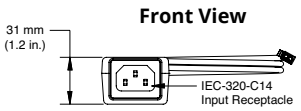
OBIS Single Laser Remote Accessories

OBIS Single Laser Power Supply (included with OBIS LX/LS Single Laser Remote)

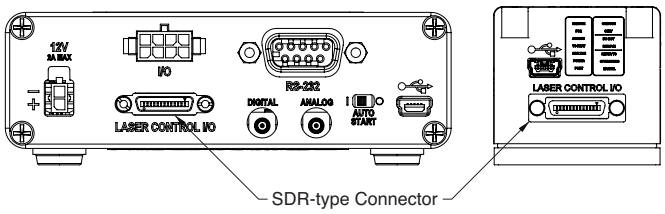
Power Cord sold separately



OBIS Single Laser Remote Power Supply offers 12VDC output to the OBIS Remote and has an universal input of 100-240 VAC (47-63 Hz).

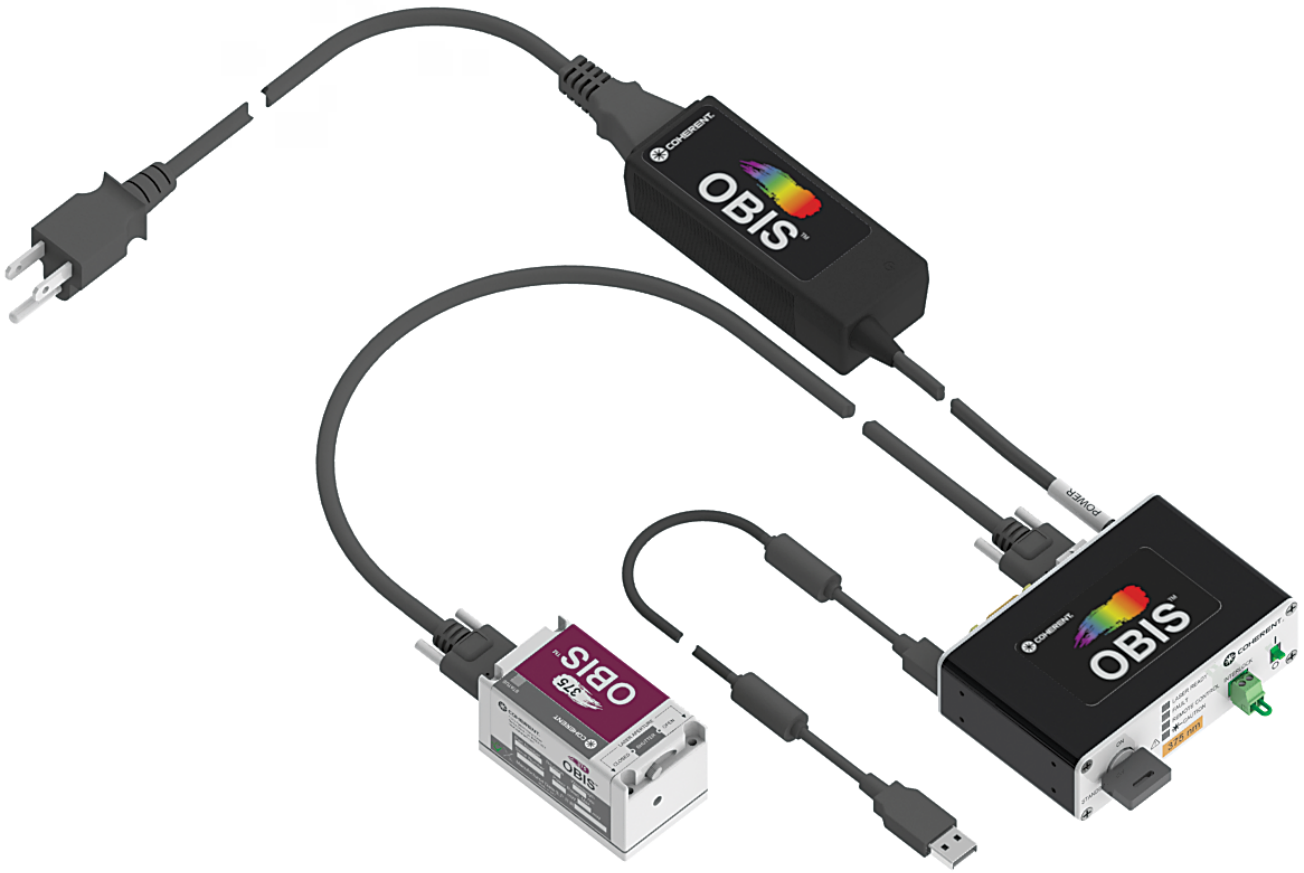


OBIS Single Laser Remote requires a SDR-type cable to connect the Laser to the Remote. This cable carries power, signals and communications. Available in 0.3m, 1m and 3m lengths. Sold separately. (Note: if buying an OBIS Laser System then the OBIS laser is shipped with the OBIS Single Laser Remote and a 1-meter SDR-type cable.)



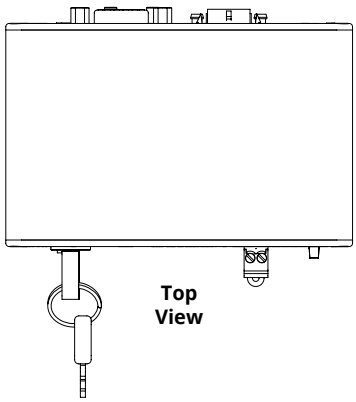
OBIS Single Laser Remote Accessories

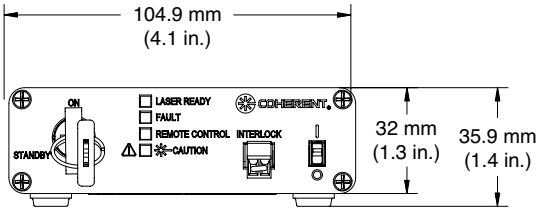
Example of the OBIS LX/LS Laser System including:
OBIS Single Laser Remote, SDR-type Cable from the Laser to the remote, USB cable, OBIS Single Laser Power Supply.



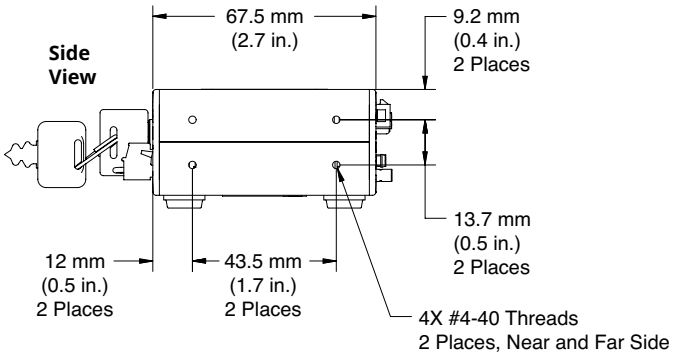
MECHANICAL SPECIFICATIONS

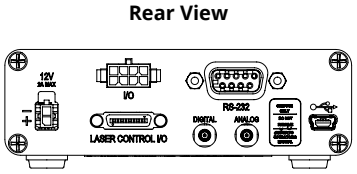
OBIS LX/LS Single Laser Remote





Front View





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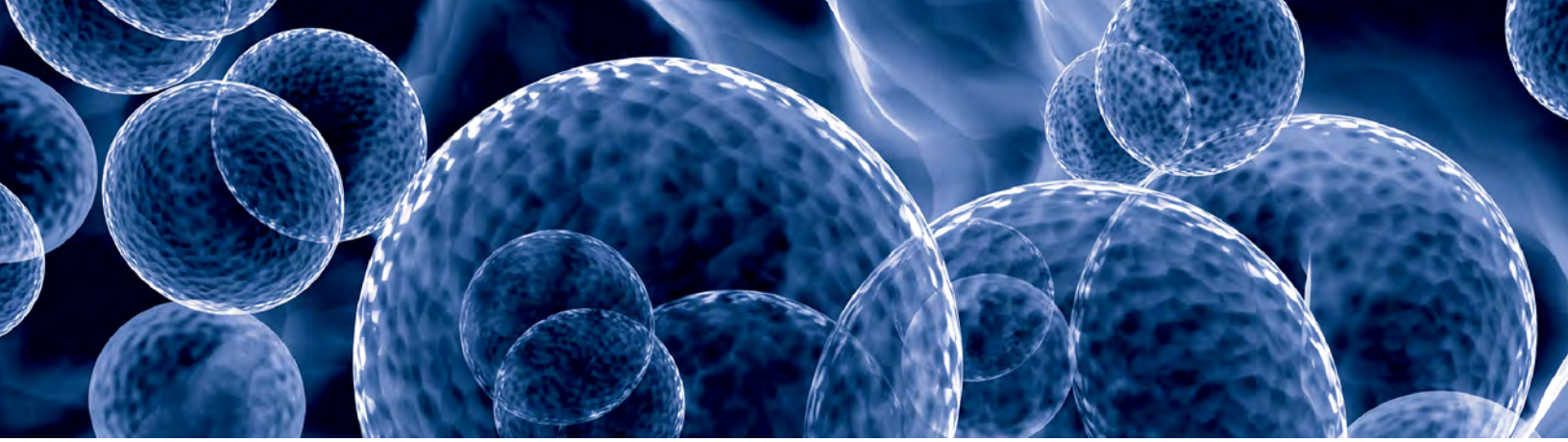
Coherent offers a limited warranty for all OBIS LX/LS Single Laser Remotes. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative.



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 on the back panel of every 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 needing CDRH features
- Applications wanting a simple remote control to turn the lasers On and Off
- Applications that do not require Analog or Digital modulation

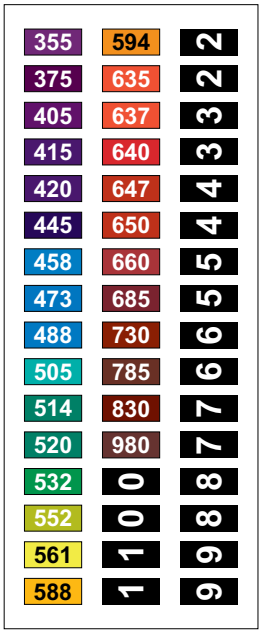
SPECIFICATIONS[1]	OBIS LX/LS 6-Laser Remote
Laser Power Cables	Six, 1 meter each, color coded
Interlock	Yes, included with shorting wire
Laser Status Indicators	Yes
System and Key Switch Indicator	Yes
Warm-up Time (minutes) (from cold start)	<1
Power Consumption (W) Typical Maximum	 1 (laser not included) 2 (laser not included)
Power Input	Universal IEC-320
Power Cord (USA)	2.4 m (8 ft.)
Operating Condition[1]	0 to 50°C (32 to 122°F)
Non-operating Condition[1]	-10 to +70°C (14 to 158°F)
Shock Tolerance (g) (6 ms)	20
Operating Voltage	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 (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 Power Supply, 12VDC	 1203909 1211389

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.
4 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.



OBIS 6-Laser Remote

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

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

OBIS 6-Laser Remote

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

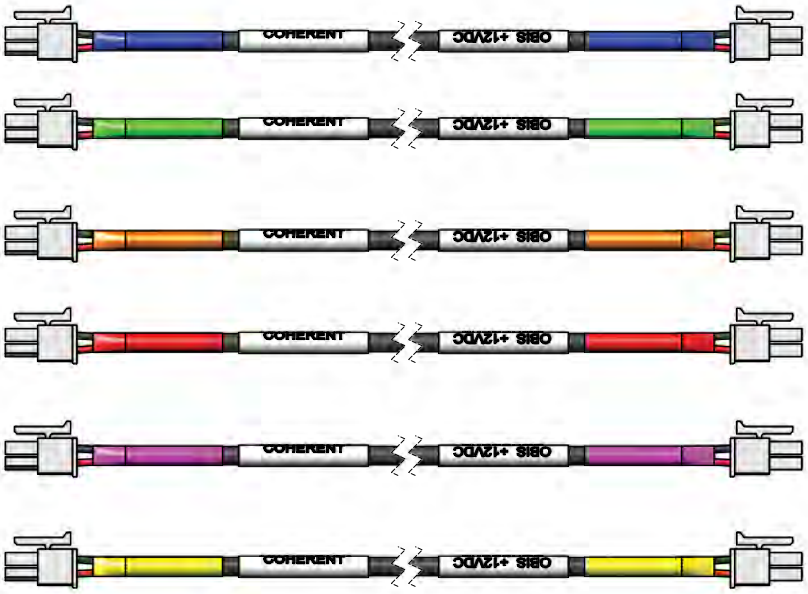
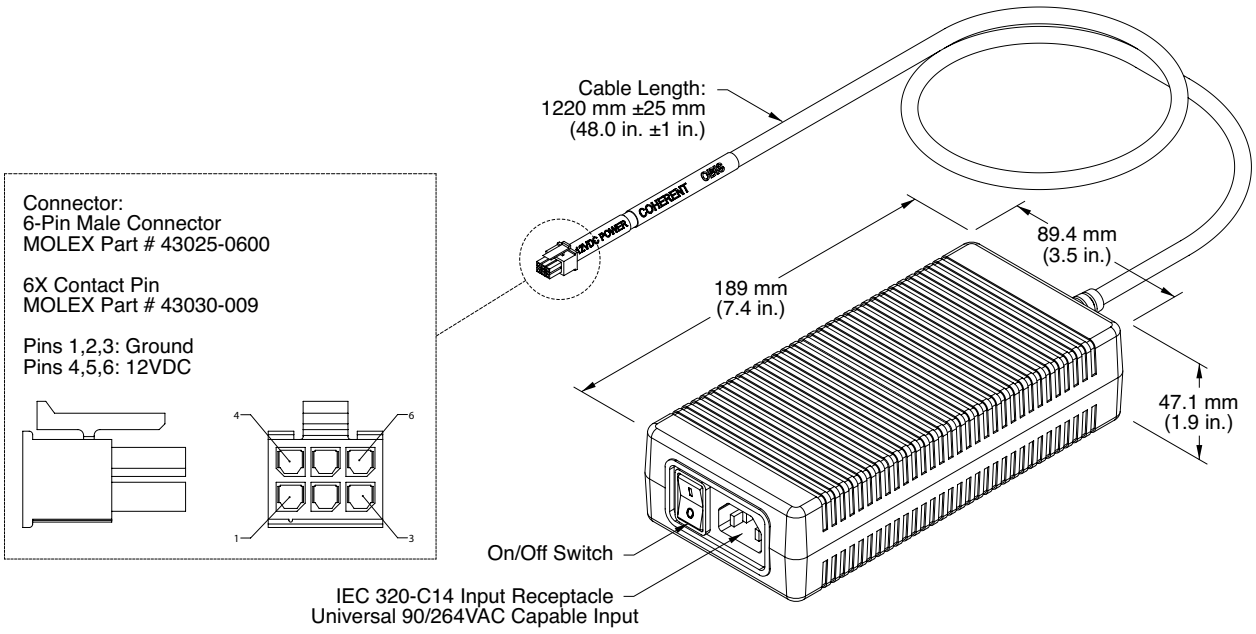
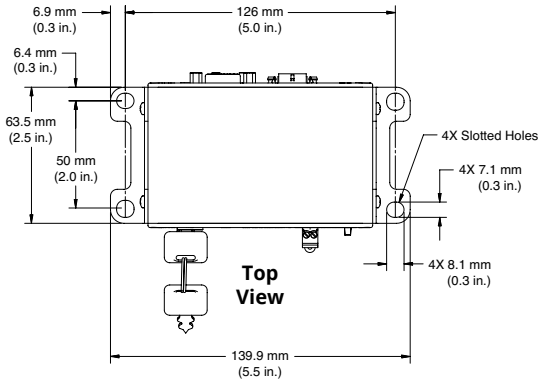


Figure 6: Power Supply with IEC-320 universal input. Includes On/Off switch.

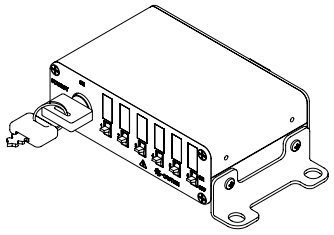


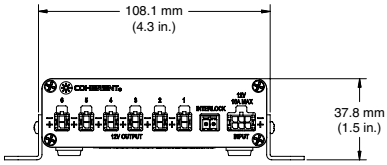
OBIS 6-Laser Remote

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

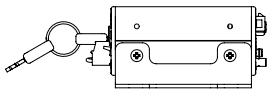


Top View



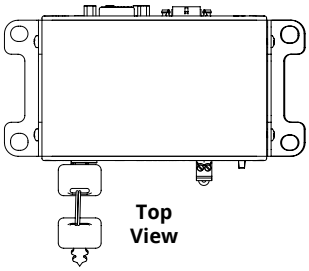


Front View

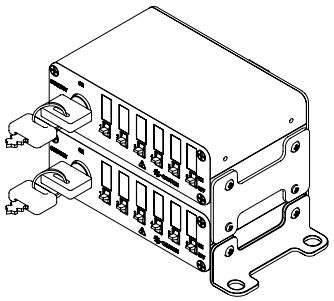


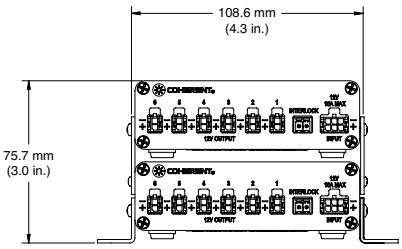
Side View

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

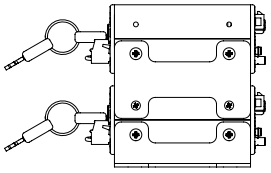


Top View





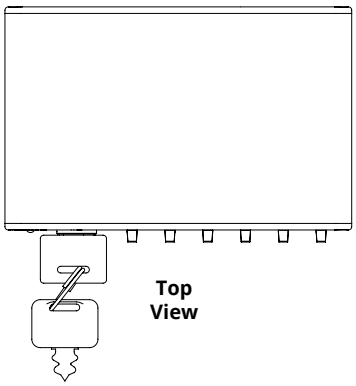
Front View



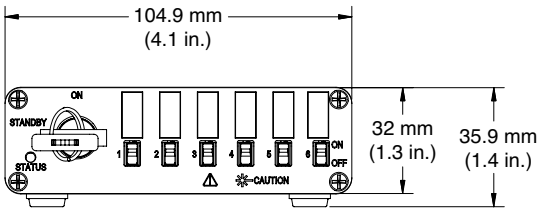
Side View

MECHANICAL SPECIFICATIONS

OBIS LX/LS 6-Laser Remote

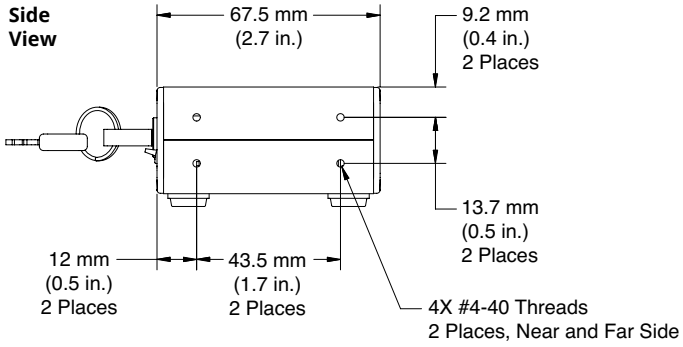


Top View

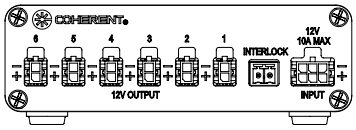


Front View

Side View



Rear View



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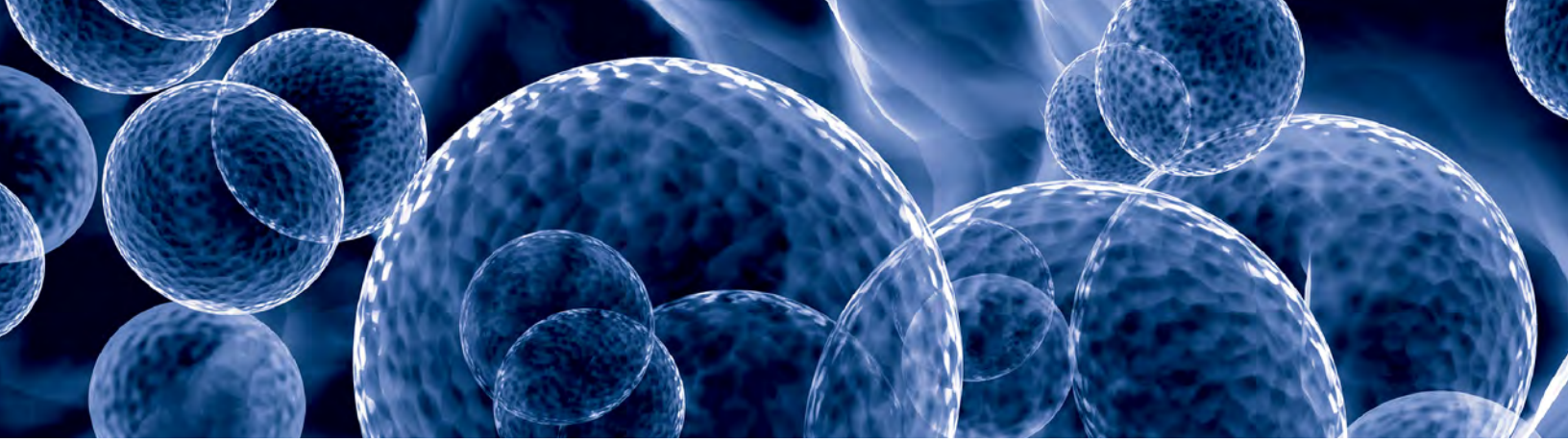


OBIS LX/LS Heat Sink

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 on the back panel of every OBIS LX/LS laser.

To simplify integration, the OBIS LX/LS accessories offer a separate 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.

FEATURES

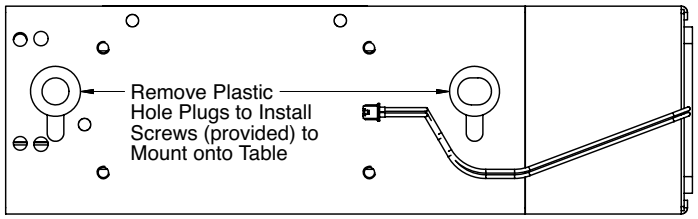
- Small footprint
- Rugged design
- Precision dowel pin laser positioning
- Convenient 69 mm (2.7 inch) beam height
- Integrated cooling fan with vibration isolation
- Output beam centered on standard table bolt pattern
- Universal mounting to imperial or metric bolt pattern
- Proven stable performance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

OBIS LX/LS Heat Sink

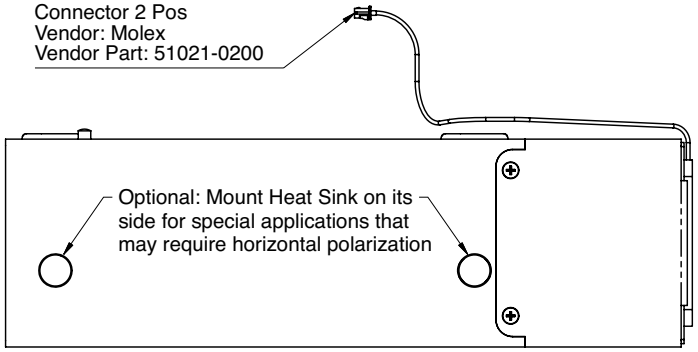
Top and Side Mount Plug Holes:

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

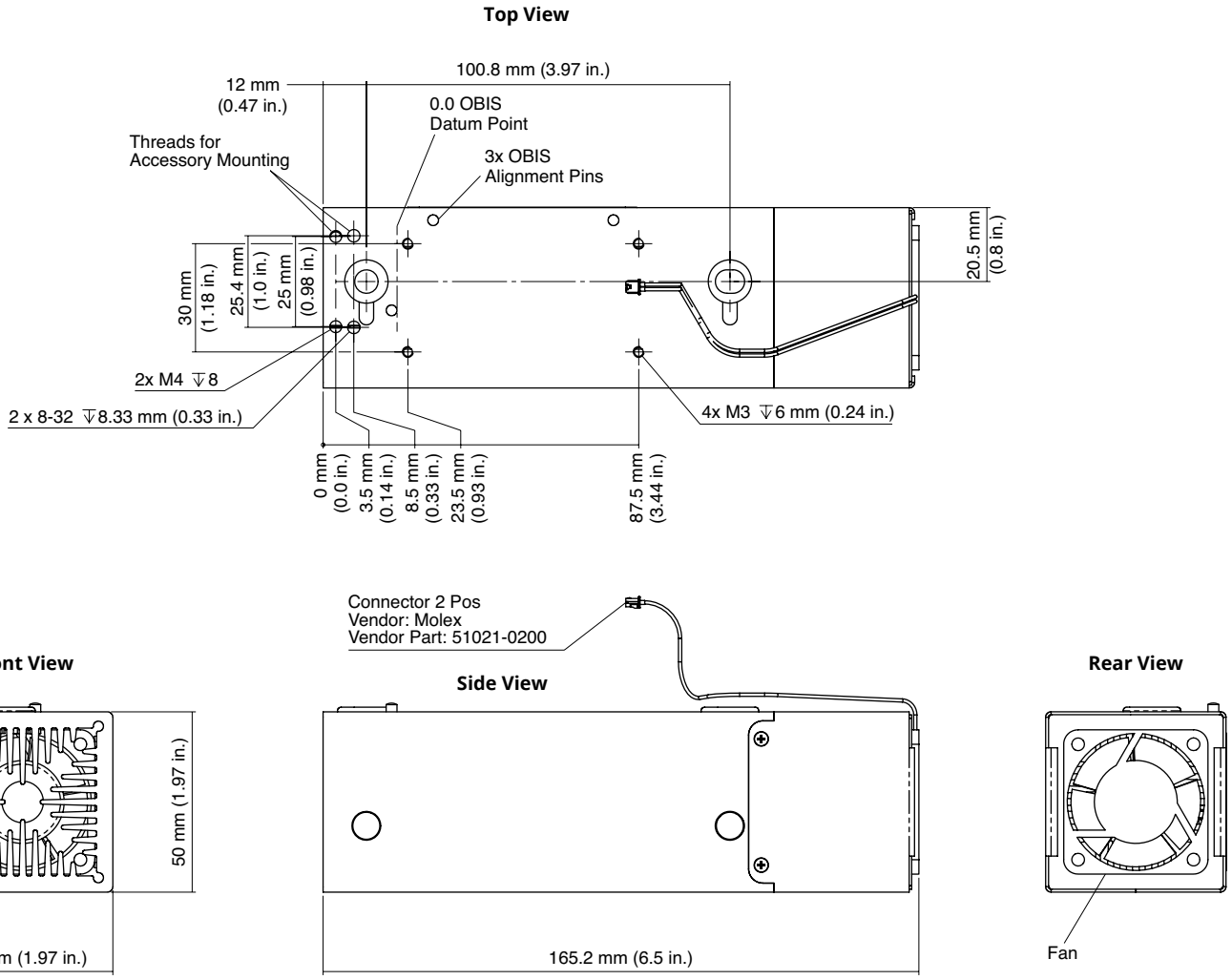


Side Mount Plug Holes



MECHANICAL SPECIFICATIONS

OBIS LX/LS Heat Sink



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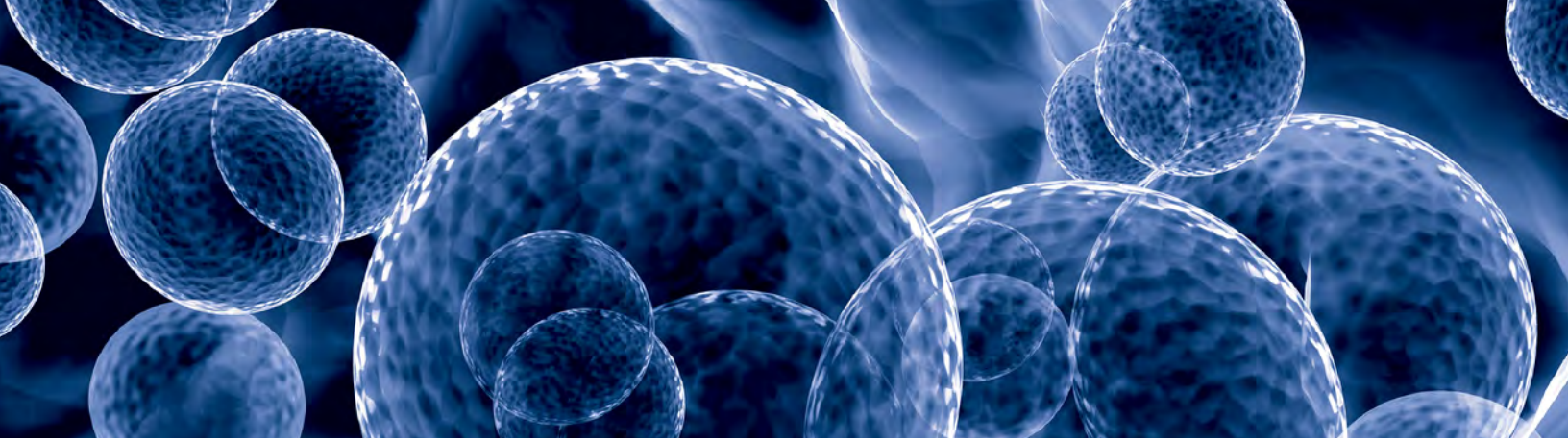


OBIS LX/LS Laser Box

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

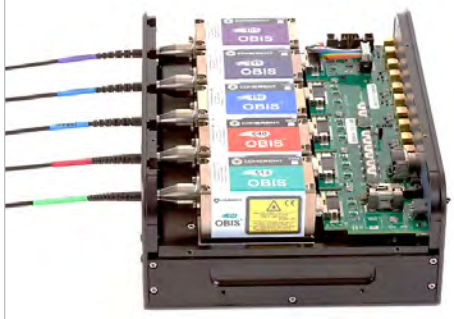
- Integrated five bay mount for OBIS lasers
- Heat sinks and cooling fans
- Modulation inputs for analog and digital for five lasers
- USB and RS-232 interface for additional control from host computer
- Coherent Connection software for PC
- Status indicators for each laser
- External power supply
-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

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 Power Supply	 241 x 184 x 88 mm (9.5 x 7.3 x 3.5 in.) 189 x 89.4 x 47.1 mm (7.4 x 3.5 x 1.9 in.)	
Weight Laser Box Power Supply	 3.9 kg (8.5 lbs.) 0.9 kg (2.0 lbs.)	

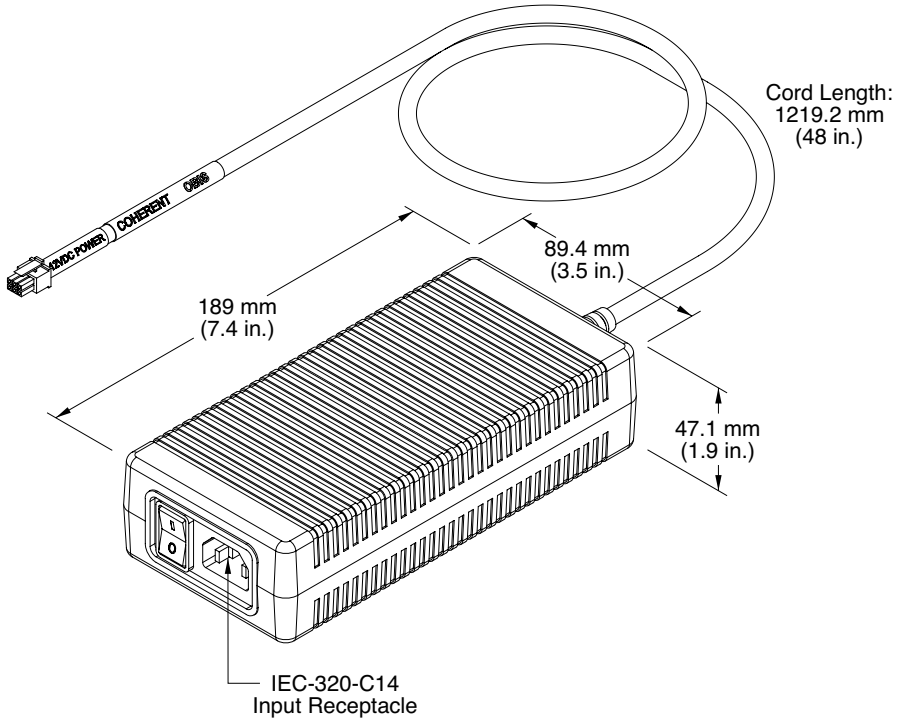
1 Lasers sold separately.
2 Power supply included. Order item number 1211389 for spare or replacement.
3 Host computer not provided. RS-232 cable not provided.
4 Digital Modulation can be driven up to 5 Volts.
5 Non-condensing.

Example of OBIS Laser System	Description
	**Figure 1:** OBIS LX/LS Laser Box with the lid removed
	**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.
	**Figure 3:** OBIS LX/LS Laser Box example with 5 OBIS Lasers installed. OBIS Lasers sold separately.

MECHANICAL SPECIFICATIONS

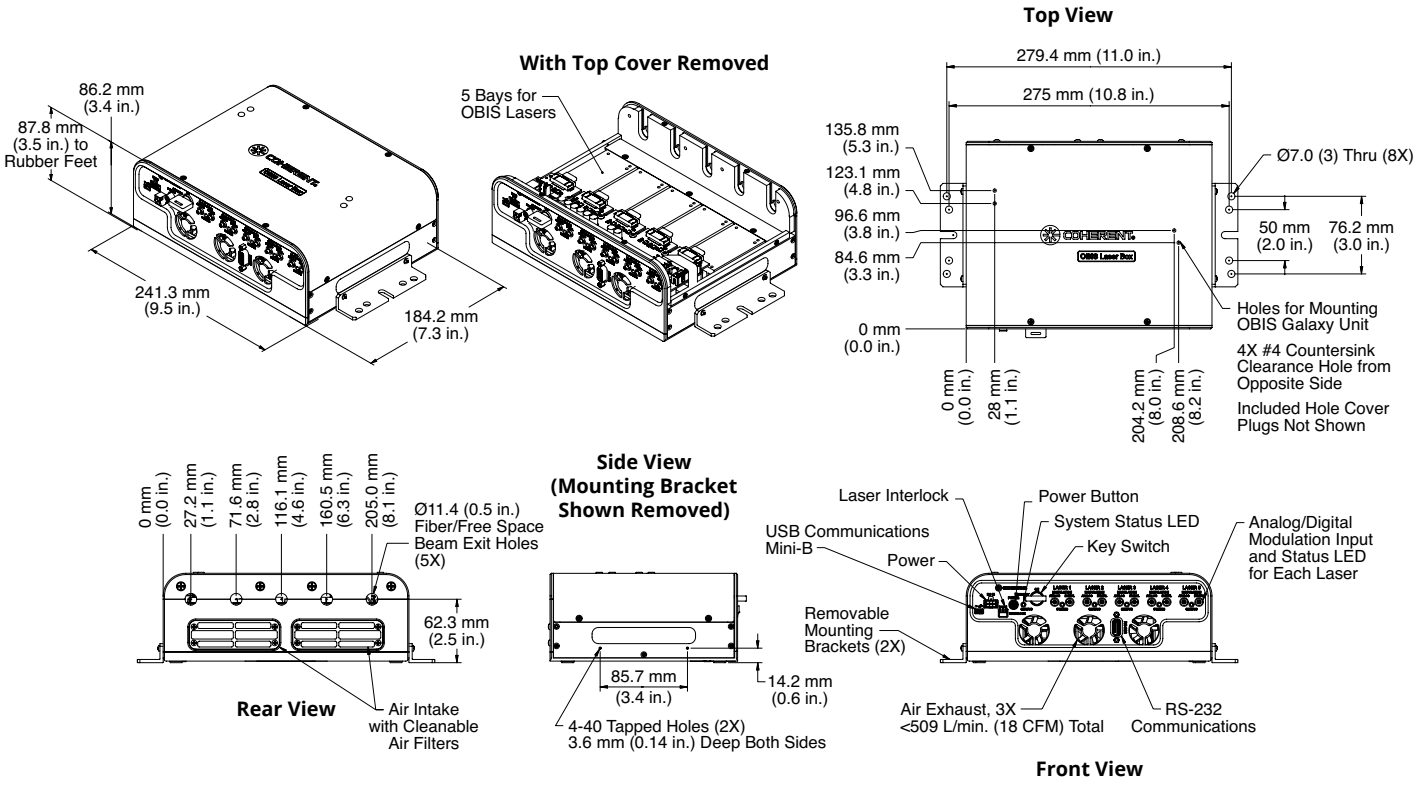
OBIS 6-Laser Remote Power Supply

Part #1211389 included



MECHANICAL SPECIFICATIONS

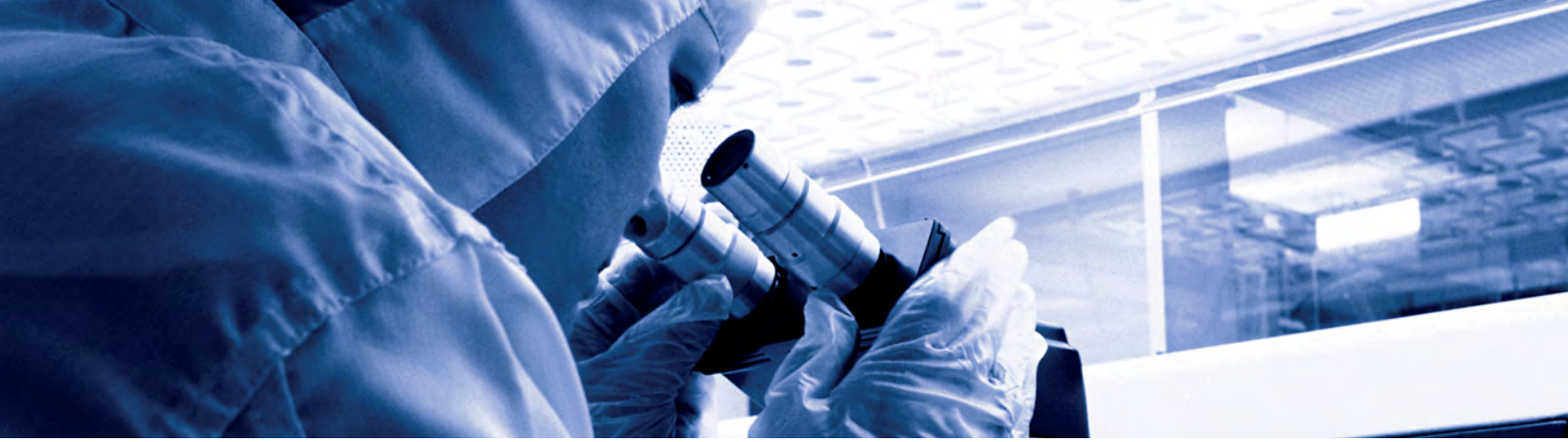
OBIS Laser Box



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 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 Driver Unit

Operate, Control and Monitor Sapphire Laser Heads

The Sapphire Driver Unit 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 Driver Unit enables and simplifies stand-alone applications: it can operate, control and monitor all laser heads of the Sapphire line: Sapphire LP, Sapphire FP, Sapphire SF. A Sapphire CDRH laser head and a Sapphire Driver Unit when properly installed will be 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 DRIVER UNIT FOR:

- Sapphire LP
- Sapphire FP
- Sapphire SF

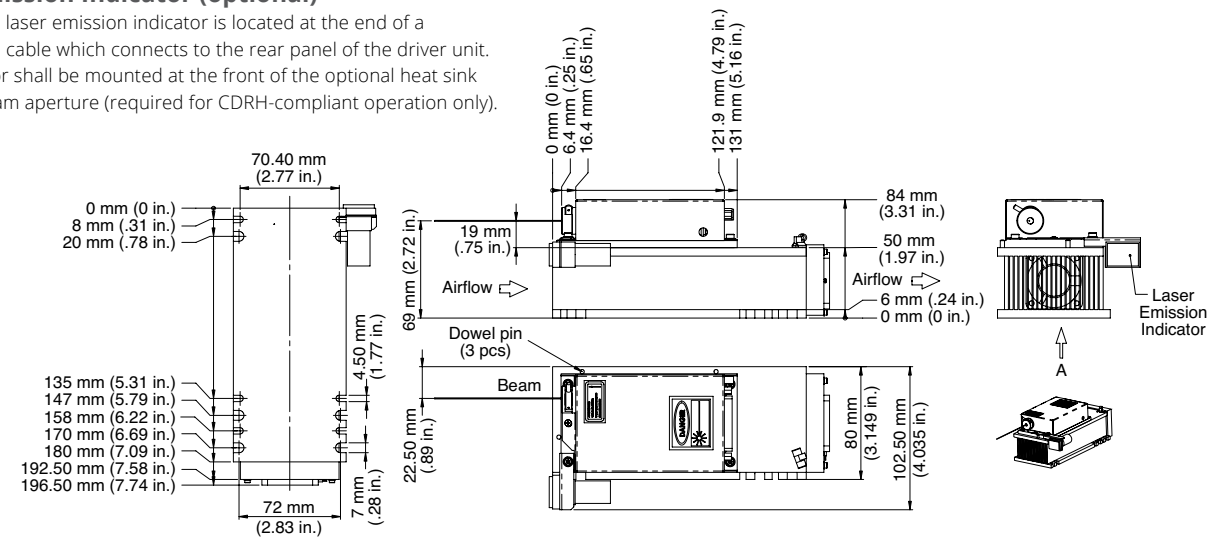
UTILITY AND ENVIRONMENTAL REQUIREMENTS	
Power Consumption (VA)	<140
Operating Voltage	88 to 264 VAC, 50/60 Hz
Ambient Temperature Operating Conditions Non-Operating Conditions	 10 to 40°C (50 to 104°F), non-condensing -30 to 60°C (-22 to 140°F)
Dimensions[1] (L x W x H)	196 x 164 x 99.5 mm (7.72 x 6.46 x 3.92 in.)
Cable Length (Head to Controller)	2 m (6.56 ft.), optional 5 m (16.4 ft.)
Weight	1.85 kg (4.08 lbs.)
MEASUREMENT TOOLS	
Meter	FieldMax™-TO
Sensor	PS10Q

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

MECHANICAL SPECIFICATIONS

Laser Emission Indicator (optional)

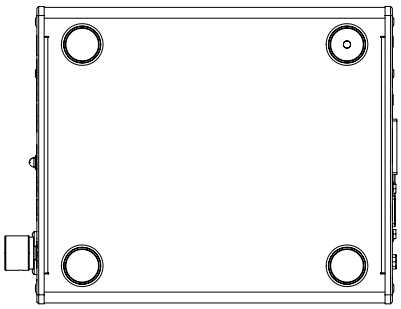
The optional laser emission indicator is located at the end of a 5 m (16.4 ft.) cable which connects to the rear panel of the driver unit. This indicator shall be mounted at the front of the optional heat sink near the beam aperture (required for CDRH-compliant operation only).



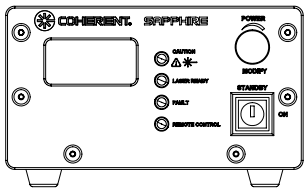
MECHANICAL SPECIFICATIONS

Sapphire Driver Unit

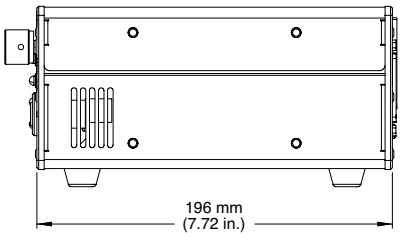
Top View



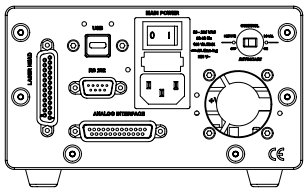
Front View (Display Version)



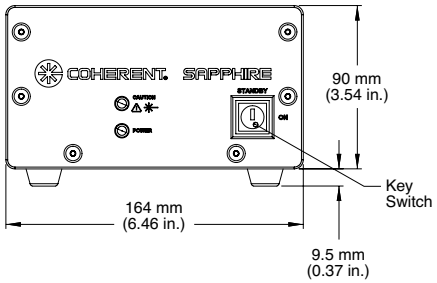
Side View

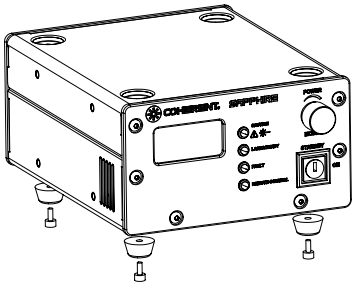


Rear View (Display Version)

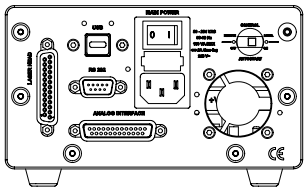


Front View (Non-Display Version)





Rear View (Non-Display Version)



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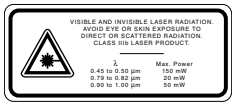
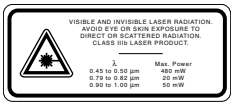
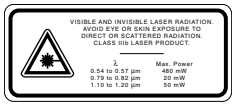
U.S. Patent No. 5,954,978
U.S. Patent No. 5,991,318
U.S. Patent No. 6,097,742
U.S. Patent No. 6,167,068
U.S. Patent No. 6,370,168







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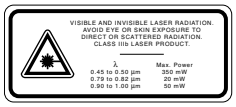
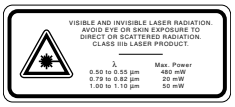




Laser Measurement and Control Accessories

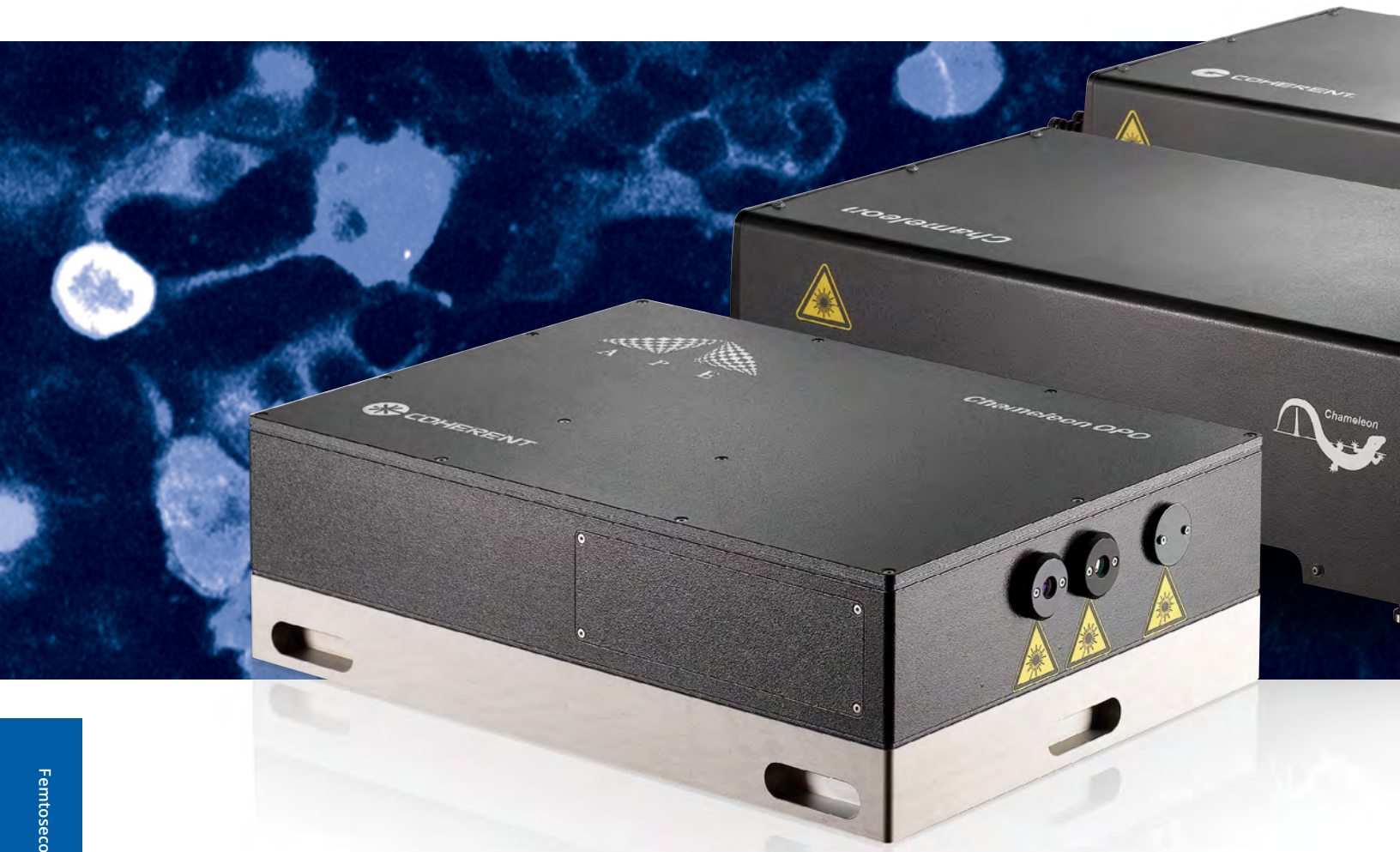
	METER, SENSOR, & ACCESSORY COMPATIBILITY		
LASER	**Meter**	**Sensor**	**Accessory**
OBIS LX/LS	FieldMaxII-TO	PS10Q	
OBIS LX/LS FP	FieldMaxII-TO	PS10	FC Fiber Adapter
OBIS LG 355	FieldMaxII-TO	PS10	
Structured Light Flat Top Projector	Please Call Factory	1-800-367-7890	
CUBE	FieldMaxII-TO	PS10Q	
OBIS 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

Femtosecond Lasers from Coherent

Chameleon Family:

Tunable Femtosecond Hands-Free Lasers and OPOs



MPX and Compact OPO-Vis

Wavelength Extension

- Wavelength range from 340 nm to 4000 nm
- Dual outputs with independent tuning
- 130 fs to 200 fs pulse duration with GDD precompensation

Ultra II

High Power Ti:Sapphire

- >3.5W
- 680 nm to 1080 nm
- 140 fs pulse duration

Vision and Vision-S

With Dispersion Precompensation

- >3W
- 680 nm to 1080 nm
- 140 fs or 75 fs pulse duration

Discovery

High Power Dual Output

- >1.4W
- 680 nm to 1300 nm
- 100 fs with GDD precompensation
- Second high power output at 1040 nm

Doing Business with Coherent

Visit Our Website for Current Terms and Conditions of Sale

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Contact Us by Email

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Laser Measurement: lmc.sales@coherent.com

Service: product.support@coherent.com

Notes

Notes

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Printed in the U.S.A. MC-012-17-0M0119