

# Genesis CX SLM-Series

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

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

Standard wavelengths and powers include:

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

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



### FEATURES & BENEFITS

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

### APPLICATIONS

- Holography
- Spectroscopy
- Interferometry

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

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

<sup>2</sup> Available in OEM or end user versions.

<sup>3</sup> Circularity defined as vertical diameter divided by horizontal diameter.

<sup>4</sup> Negative value corresponds to a location inside head.

<sup>5</sup> After warm-up over 2 hours.

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

<sup>7</sup> Measured over 8 hours.

<sup>8</sup> Non-condensing.

<sup>9</sup> Vertical + normal to laser base plane.

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

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

<sup>2</sup> Available in OEM or end user versions.

<sup>3</sup> Circularity defined as vertical diameter divided by horizontal diameter.

<sup>4</sup> Negative value corresponds to a location inside head.

<sup>5</sup> After warm-up over 2 hours.

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

<sup>7</sup> Measured over 8 hours.

<sup>8</sup> Non-condensing.

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

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<sup>5</sup> After warm-up over 2 hours.

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

<sup>7</sup> Measured over 8 hours.

<sup>8</sup> Non-condensing.

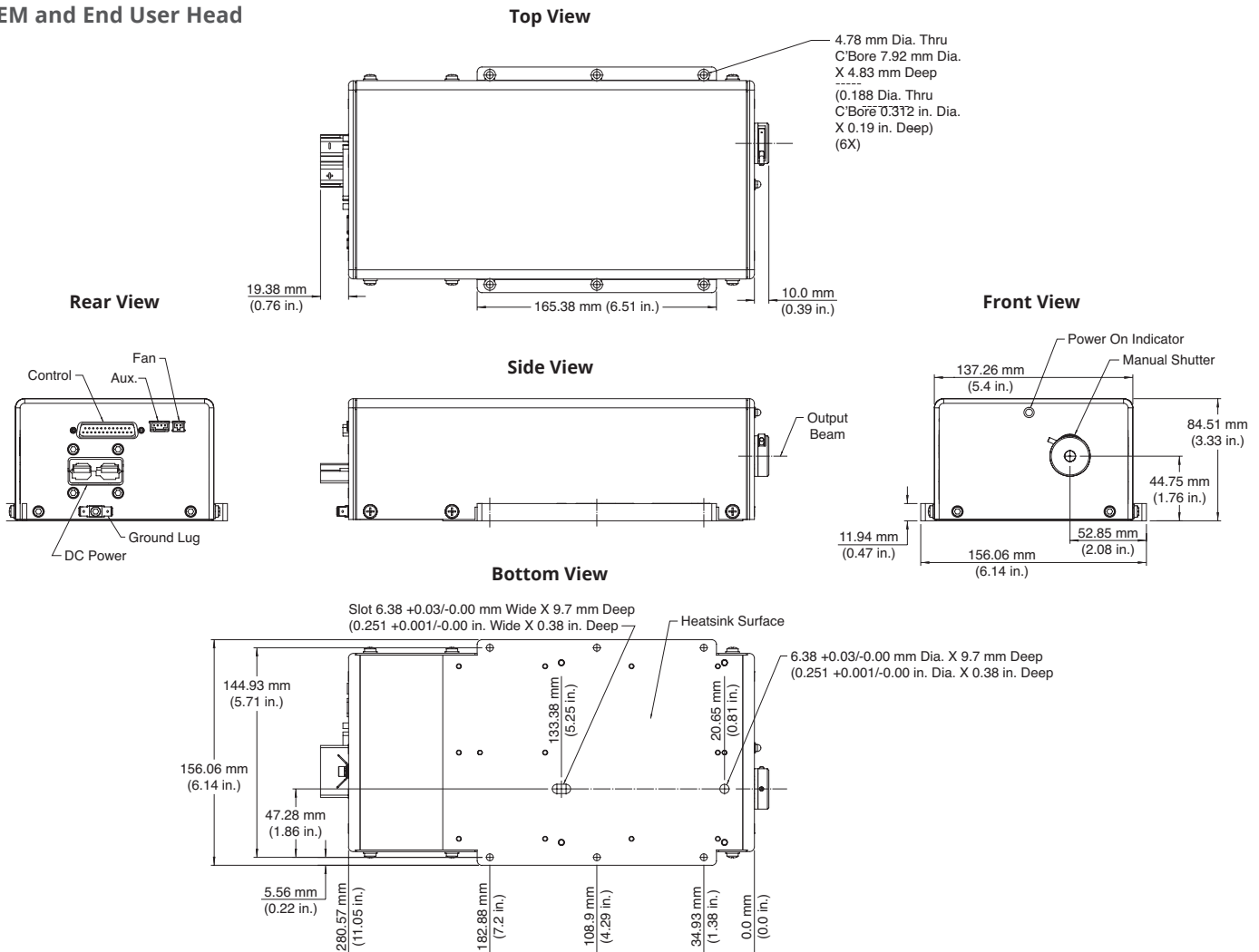
**MECHANICAL SPECIFICATIONS**

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

<sup>1</sup> Back connector not included in laser head length dimension.

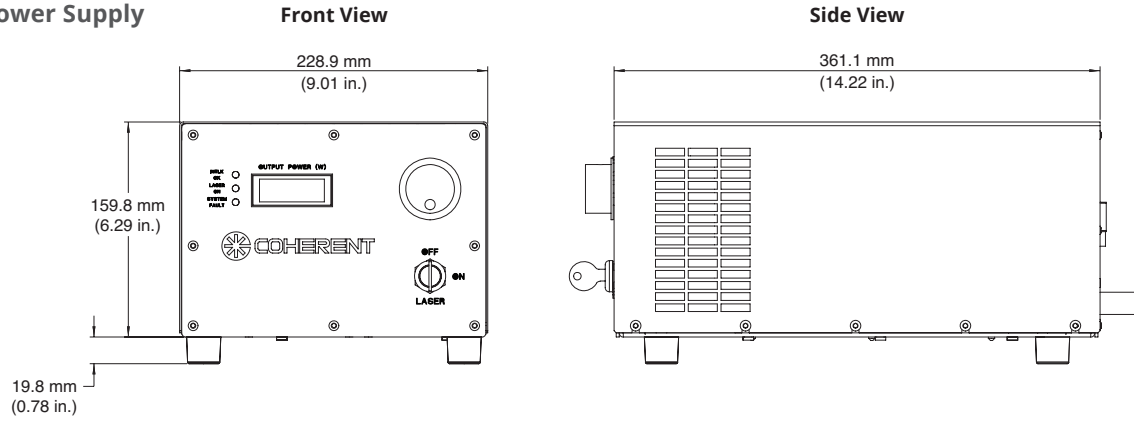
**MECHANICAL SPECIFICATIONS**

**Genesis CX SLM-Series  
OEM and End User Head**

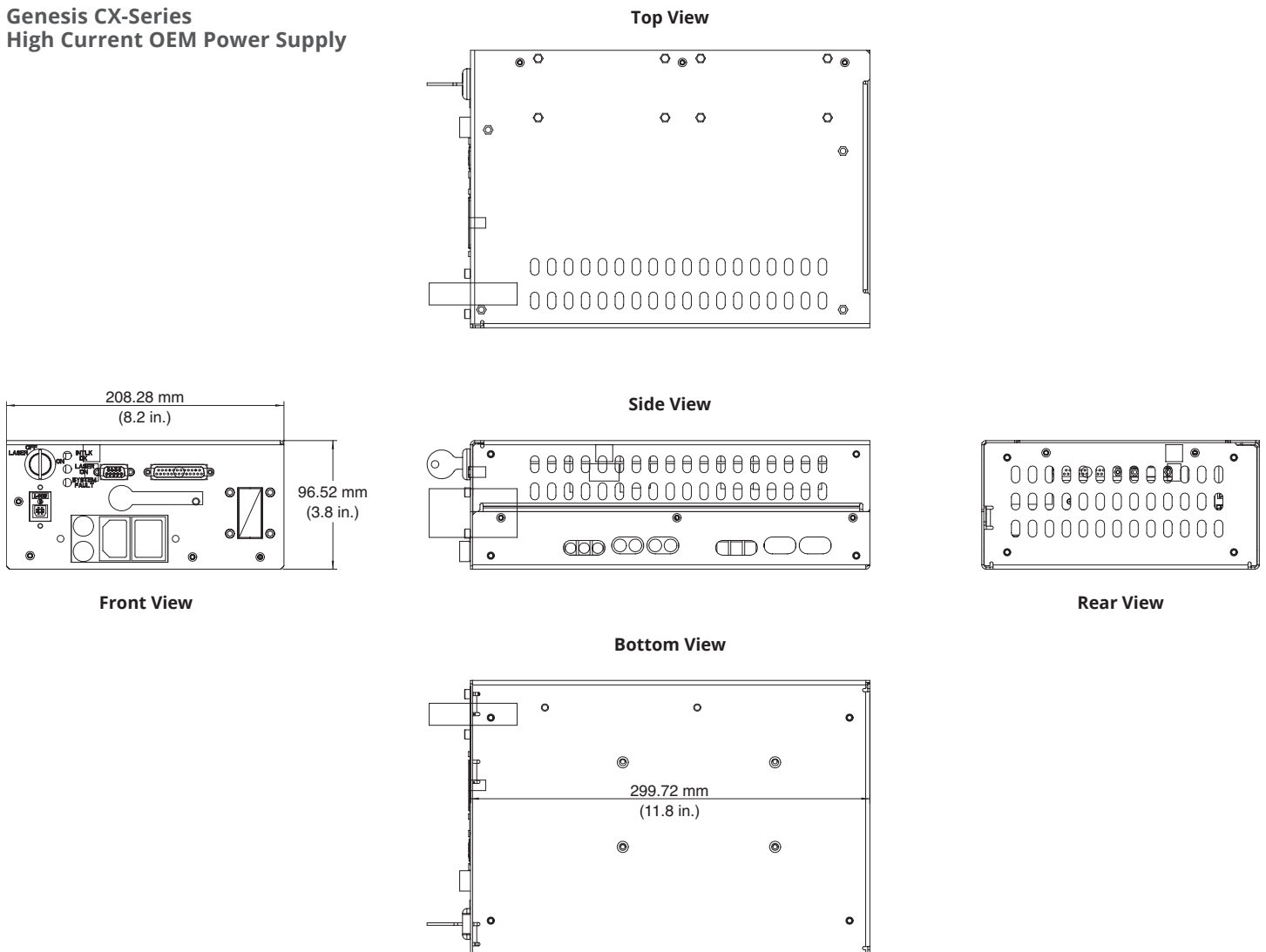


## MECHANICAL SPECIFICATIONS

### Genesis CX-Series Benchtop Power Supply

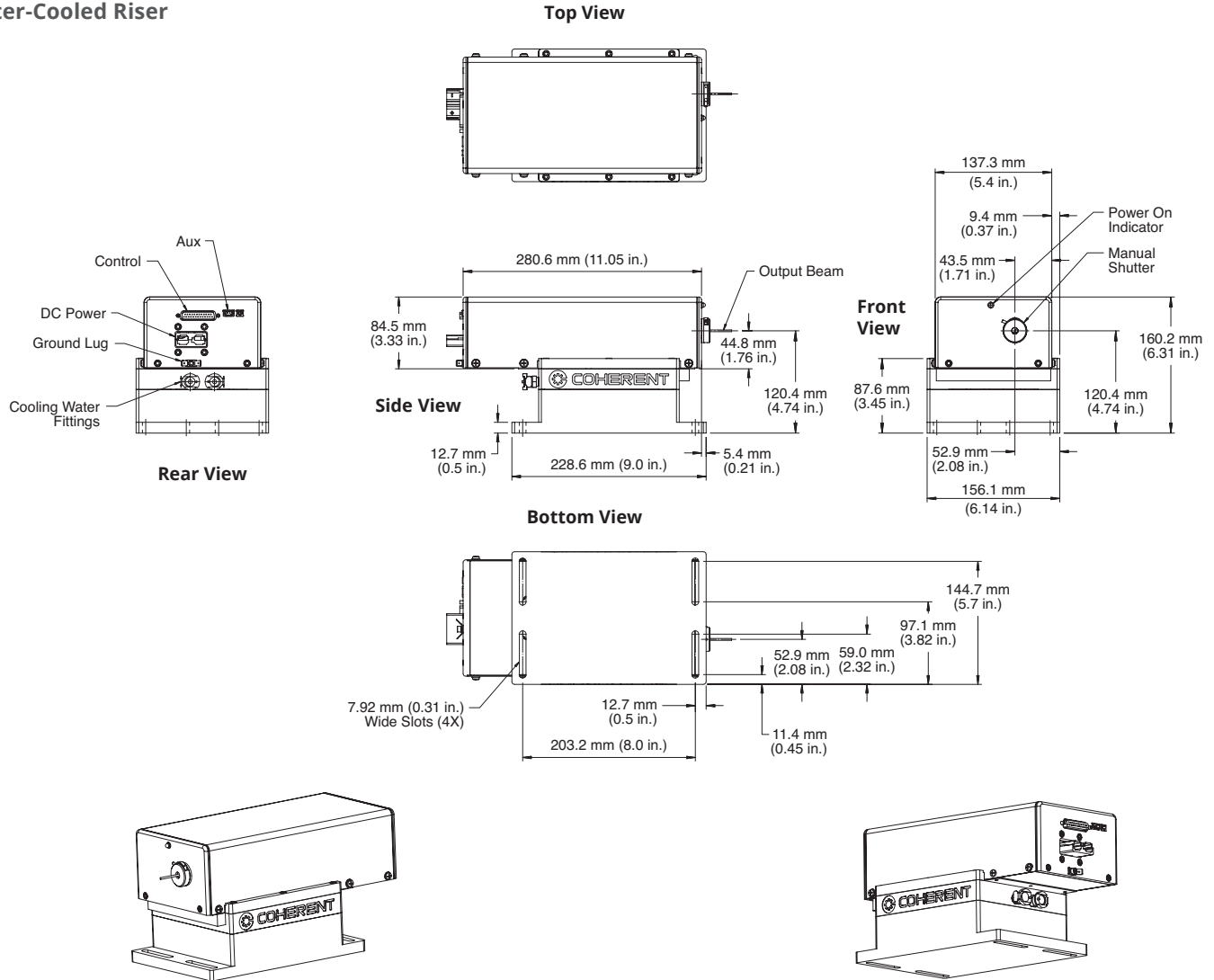


### Genesis CX-Series High Current OEM Power Supply



## MECHANICAL SPECIFICATIONS

### Genesis CX SLM-Series Water-Cooled Riser



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all Genesis CX SLM Lasers. For full details of this warranty coverage, please refer to the Service section at [www.coherent.com](http://www.coherent.com) or contact your local Sales or Service Representative.  
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