



# Genesis MX STM-Series

## TEM<sub>00</sub> Visible OEM and End-User OPS Laser Systems

Applications like Flow Cytometry, Particle Counting, DNA Sequencing and Microscopy are enabled by low noise, visible true CW lasers. The Genesis MX STM-Series provides up to 1W 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

- Single transverse mode (TEM<sub>00</sub>)
- OEM or end-user versions
- Air- or water-cooled solutions

### APPLICATIONS

- Flow Cytometry
- Particle Counting
- DNA Sequencing
- Microscopy



SPECIFICATIONS <sup>1</sup>	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 <sub>00</sub>			
Beam Quality (M <sup>2</sup> )	<1.1			
Beam Circularity <sup>2</sup>	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e <sup>2</sup> )	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e <sup>2</sup> )	0.7 ±0.1			
Beam Waist Location <sup>3</sup> (m)	±0.25			
Beam Pointing Stability <sup>4,5</sup> (μrad/°C)	<5			
Horizontal Beam Position Tolerance <sup>5</sup> (mm)	±<1.0			
Vertical Beam Position Tolerance <sup>5</sup> (mm)	±<1.0			
Beam Pointing Tolerance <sup>5</sup> (mrad)	<5			
Polarization Ratio	Linear, >100:1			
Polarization Direction	Vertical, ±5°			
Noise (% rms) (10 Hz to 10 MHz)	<0.1			
Power Stability <sup>6</sup> (%) (peak-to-peak)	±<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 (°C)				
Operating	10 to 40			
Non-Operating	-10 to 60			
Relative Humidity <sup>7</sup> (%)	5 to 95			
CE Marking	IEC 61010-1/EN 61010-1			
Dimensions (L x W x H)				
Laser Head <sup>8</sup>	281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.)			
Cables (laser head to controller)	2m (6.5 ft.)			

<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> Circularity defined as vertical diameter divided by horizontal diameter.

<sup>3</sup> Negative value corresponds to a location inside head.

<sup>4</sup> After 2-hour warm-up.

<sup>5</sup> Measured at the output window.

<sup>6</sup> Measured over 8 hrs.

<sup>7</sup> Non-condensing.

<sup>8</sup> Back connector not included in laser head length dimension.

SPECIFICATIONS <sup>1</sup>	Genesis MX 532	Genesis MX 561 <sup>2</sup>	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 <sub>00</sub>			
Beam Quality (M <sup>2</sup> )	<1.1			
Beam Circularity <sup>2</sup>	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e <sup>2</sup> )	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e <sup>2</sup> )	0.7 ±0.1			
Beam Waist Location <sup>3</sup> (m)	±0.25			
Beam Pointing Stability <sup>4,5</sup> (μrad/°C)	<5			
Horizontal Beam Position Tolerance <sup>5</sup> (mm)	±<1.0			
Vertical Beam Position Tolerance <sup>5</sup> (mm)	±<1.0			
Beam Pointing Tolerance <sup>5</sup> (mrad)	<5			
Polarization Ratio	Linear, >100:1			
Polarization Direction	Vertical, ±5°			
Noise (% rms) (10 Hz to 10 MHz)	<0.1			
Power Stability <sup>6</sup> (%) (peak-to-peak)	±<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 (°C)				
Operating	10 to 40			
Non-Operating	-10 to 60			
Relative Humidity <sup>7</sup> (%)	5 to 95			
CE Marking	IEC 61010-1/EN 61010-1			
Dimensions (L x W x H)				
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<sup>4</sup> After 2-hour warm-up.

<sup>5</sup> Measured at the output window.

<sup>6</sup> Measured over 8 hrs.

<sup>7</sup> Non-condensing.

<sup>8</sup> Back connector not included in laser head length dimension.

SPECIFICATIONS <sup>1</sup>	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 <sub>00</sub>			
FWHM Linewidth (GHz)	<30			
Pulse Format	CW			
Beam Circularity	1.0 ±0.1			
Beam Position Tolerance (mm)				
Horizontal	±<1.0			
Vertical	±<1.0			
Beam Waist Diameter (mm) (FW, 1/e <sup>2</sup> )	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e <sup>2</sup> )	0.7 ±0.1			
Beam Waist Location <sup>2,3</sup> (m)	±0.25			
M <sup>2</sup>				
Horizontal	<1.1			
Vertical	<1.1			
Pointing Stability <sup>4</sup> (μrad/°C)	<5			
Noise				
10 Hz to 10 MHz (%) (rms)	<0.1			
10 Hz to 5 kHz <sup>5</sup> (%) (peak-to-peak)	<1			
Polarization Ratio	Horizontal, >100:1			
CDRH Compliance	No			
Warm-up Time (minutes)	<10			
Direct Modulation <sup>6</sup>	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 <sup>7</sup>	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			

<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> Measured at the output of the laser head.

<sup>3</sup> Negative value corresponds to a location within the head.

<sup>4</sup> Measured at the output window: tolerance relative to the nominal center of the output window and perpendicular to the mounting plane.

<sup>5</sup> Over 8 hours.

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

<sup>7</sup> Contact integration support for options on air-cooling TEC or waterplate.

SPECIFICATIONS <sup>1</sup>	Genesis MX 532 OEM	Genesis MX 561 OEM <sup>2</sup>	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	TEM00			
FWHM Linewidth (GHz)	<30			
Pulse Format	CW			
Beam Circularity	1.0 ±0.1			
Beam Position Tolerance (mm)				
Horizontal	±<1.0			
Vertical	±<1.0			
Beam Waist Diameter (mm) (FW, 1/e <sup>2</sup> )	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e <sup>2</sup> )	0.7 ±0.1			
Beam Waist Location <sup>2,3</sup> (m)	±0.25			
M <sup>2</sup>				
Horizontal	<1.1			
Vertical	<1.1			
Pointing Stability <sup>4</sup> (μrad/°C)	<5			
Noise				
10 Hz to 10 MHz (%) (rms)	<0.1			
10 Hz to 5 kHz <sup>5</sup> (%) (peak-to-peak)	<1			
Polarization Ratio	Horizontal, >100:1			
CDRH Compliance	No			
Warm-up Time (minutes)	<10			
Direct Modulation <sup>6</sup>	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 <sup>7</sup>	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			

<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> Measured at the output of the laser head.

<sup>3</sup> Negative value corresponds to a location within the head.

<sup>4</sup> Measured at the output window: tolerance relative to the nominal center of the output window and perpendicular to the mounting plane.

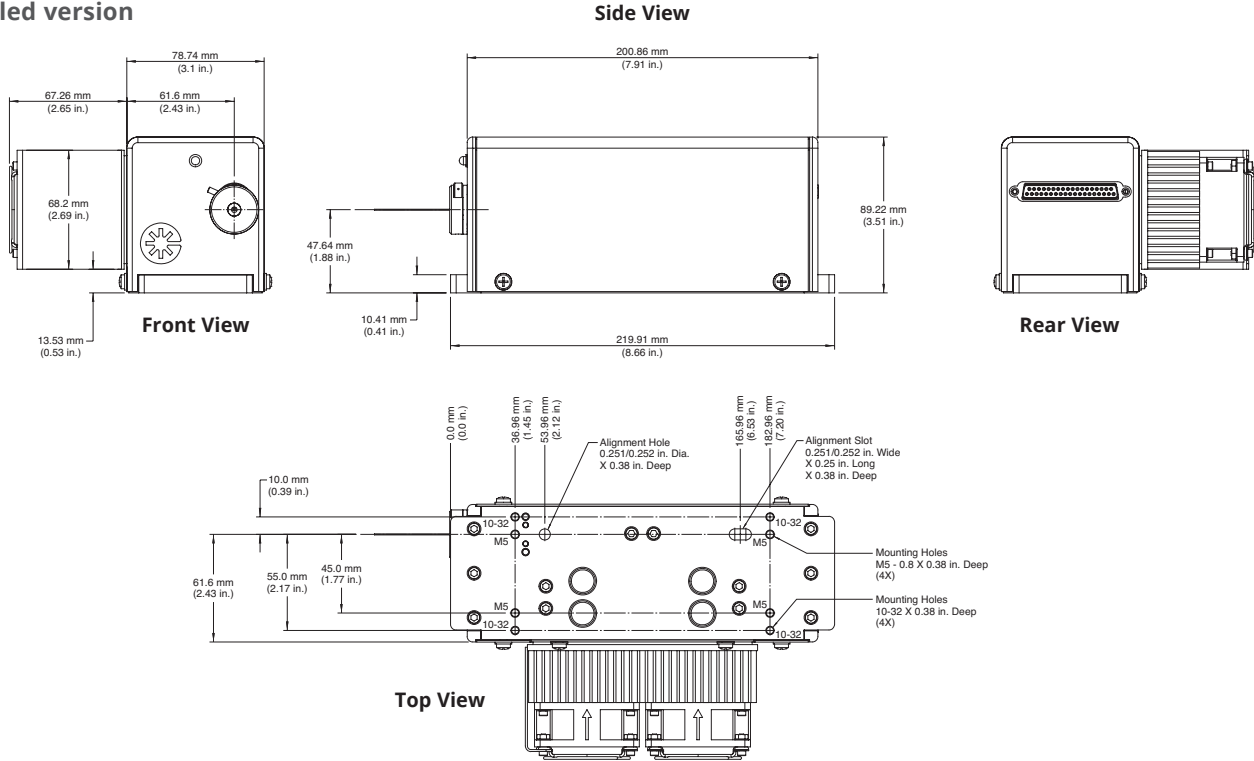
<sup>5</sup> Over 8 hours.

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

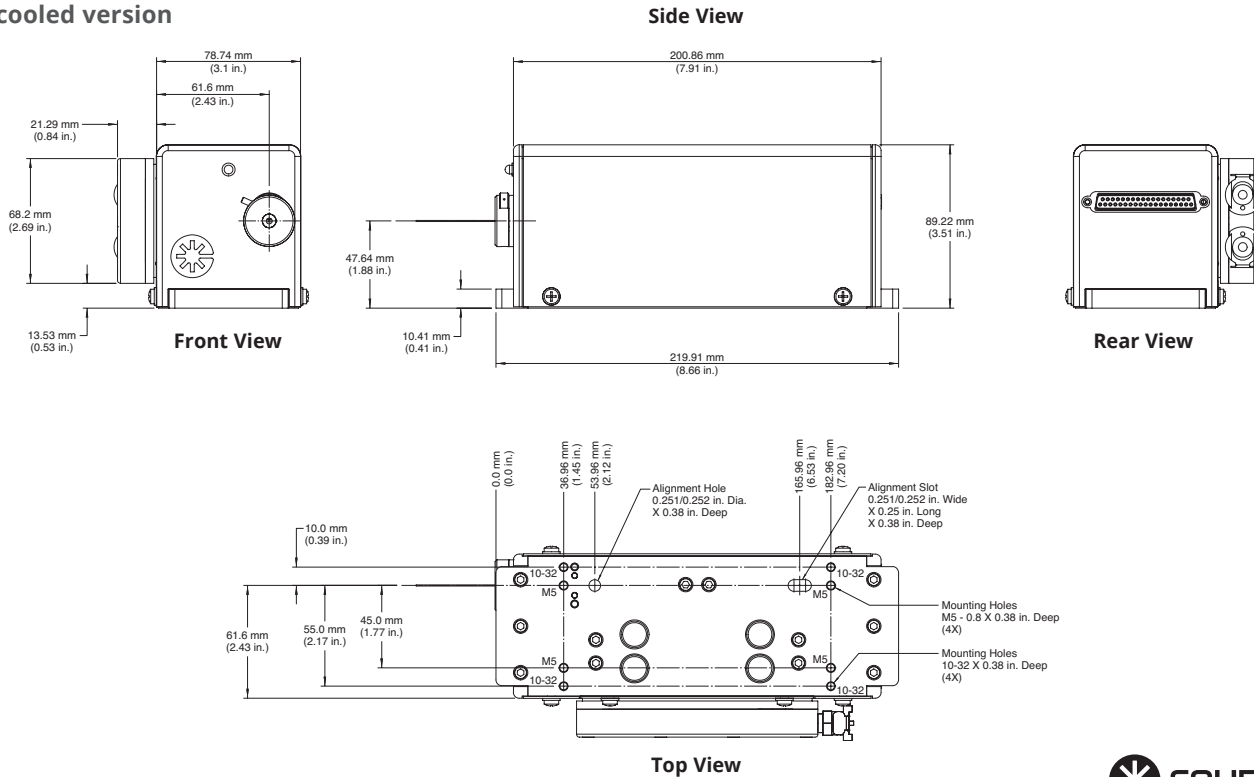
<sup>7</sup> Contact integration support for options on air-cooling TEC or waterplate.

## MECHANICAL SPECIFICATIONS

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

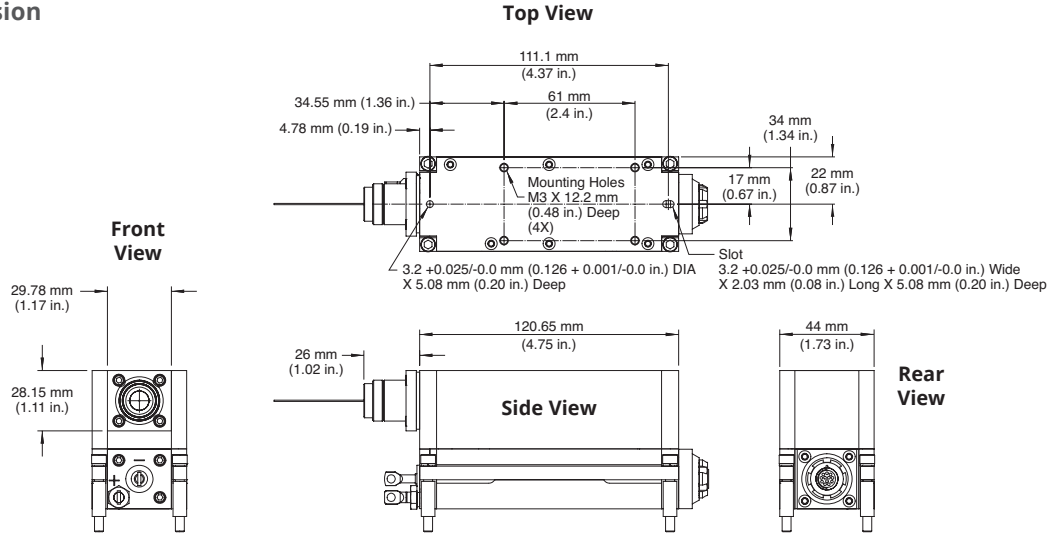


### Genesis MX STM-Series (End-User) Water-cooled version

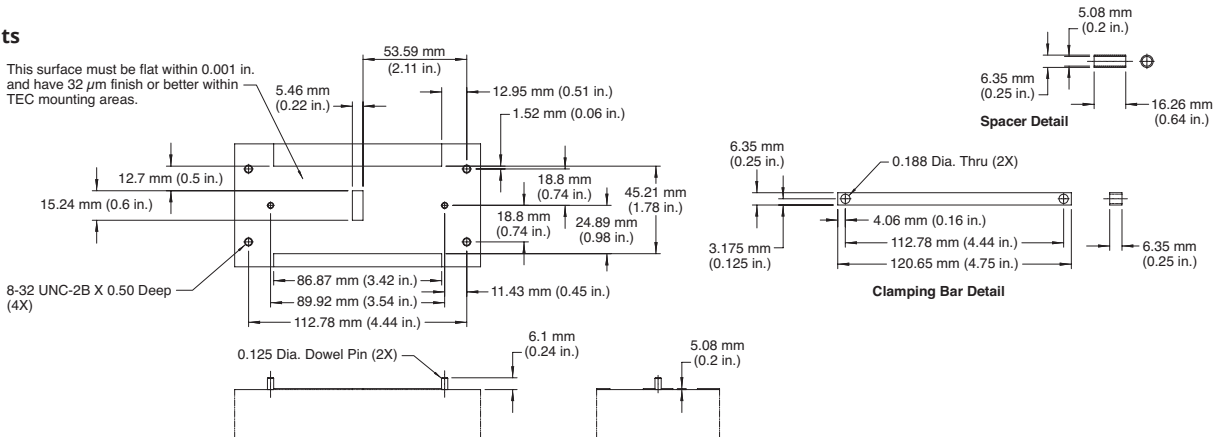


**MECHANICAL SPECIFICATIONS**

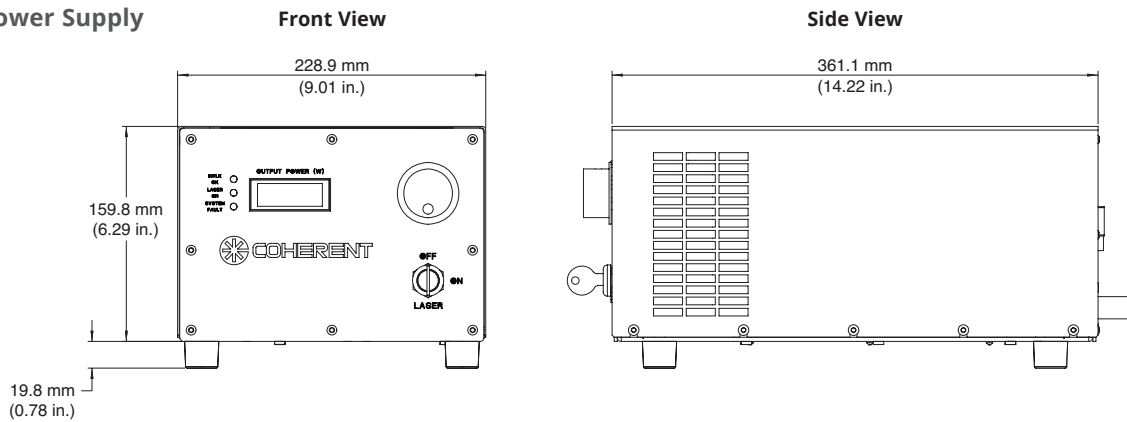
**Genesis MX STM-Series (OEM)  
Water-cooled version**



**Base Plate Requirements**



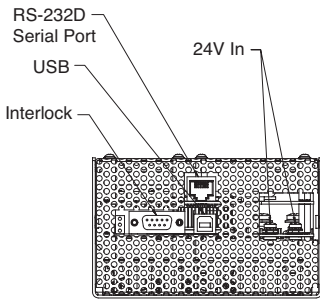
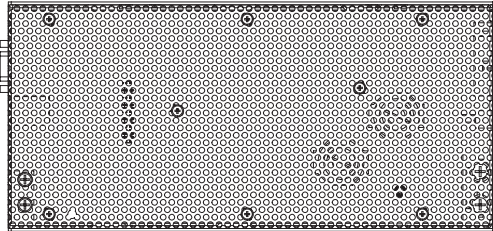
**Genesis MX STM-Series  
Benchtop Power Supply**



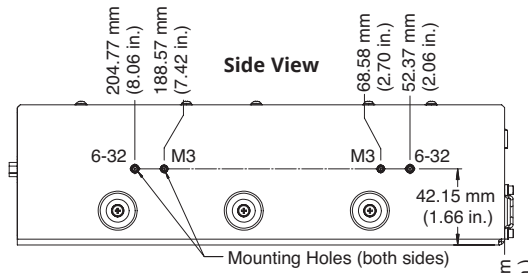
## MECHANICAL SPECIFICATIONS

### Genesis MX STM-Series Low Current OEM Controller

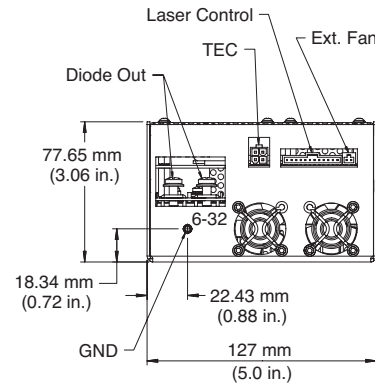
Top View



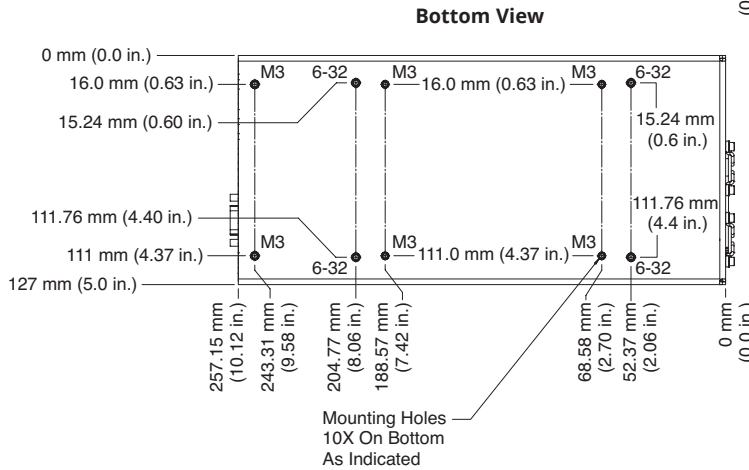
Front View



Side View



Rear View



Bottom View



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

[tech.sales@Coherent.com](mailto:tech.sales@Coherent.com) [www.Coherent.com](http://www.Coherent.com)

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

Coherent offers a limited warranty for all Genesis MX 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. Printed in the U.S.A. MC-021-10-0M0317Rev.G Copyright ©2017 Coherent, Inc.

