



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

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

2 Contact Coherent for any specific application requirements.

3 Circularity defined as vertical diameter divided by horizontal diameter.

4 Typical value.

5 Negative value corresponds to a location inside head.

6 After 2-hour warm-up.

7 Measured at the output window.

8 Measured over 8 hrs.

9 Non-condensing.

10 Back connector not included in laser head length dimension.

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

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

2 Contact Coherent for any specific application requirements.

3 Circularity defined as vertical diameter divided by horizontal diameter.

4 Typical value.

5 Negative value corresponds to a location inside head.

6 After 2-hour warm-up.

7 Measured at the output window.

8 Measured over 8 hrs.

9 Non-condensing.

10 Back connector not included in laser head length dimension.

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.

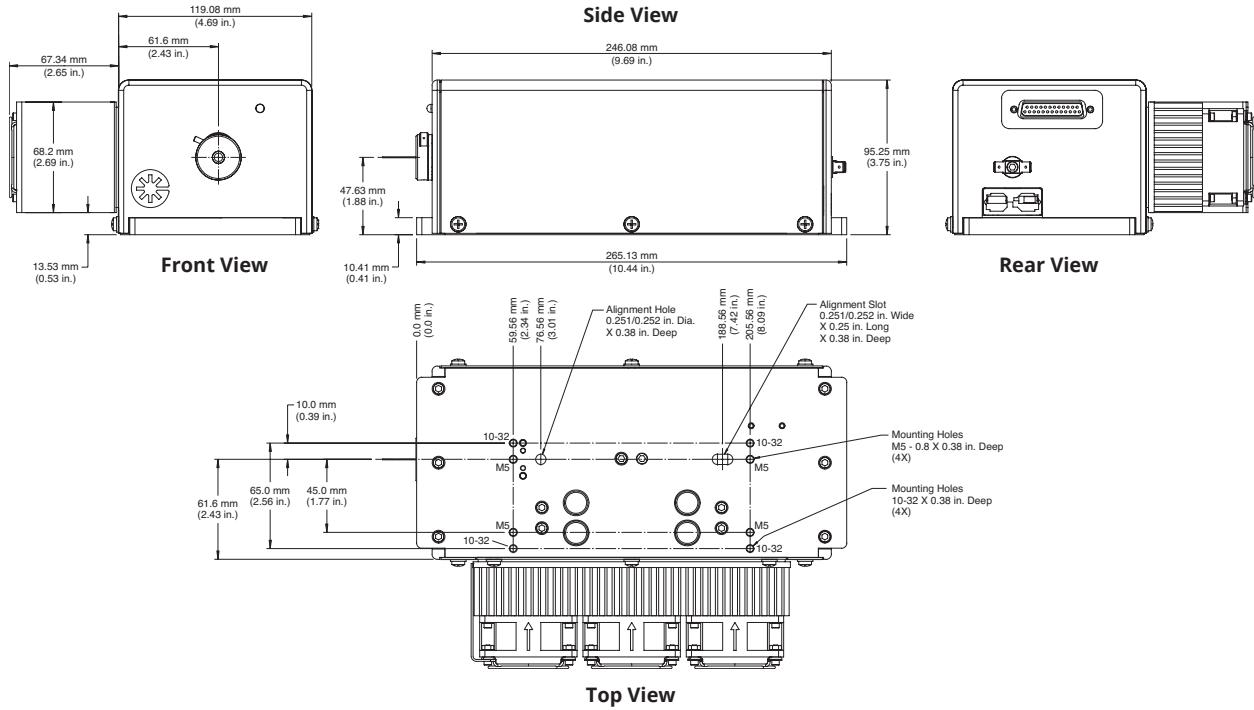
4 Measured at the output window; tolerance relative to the nominal center of the output window and perpendicular to the mounting plane.

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

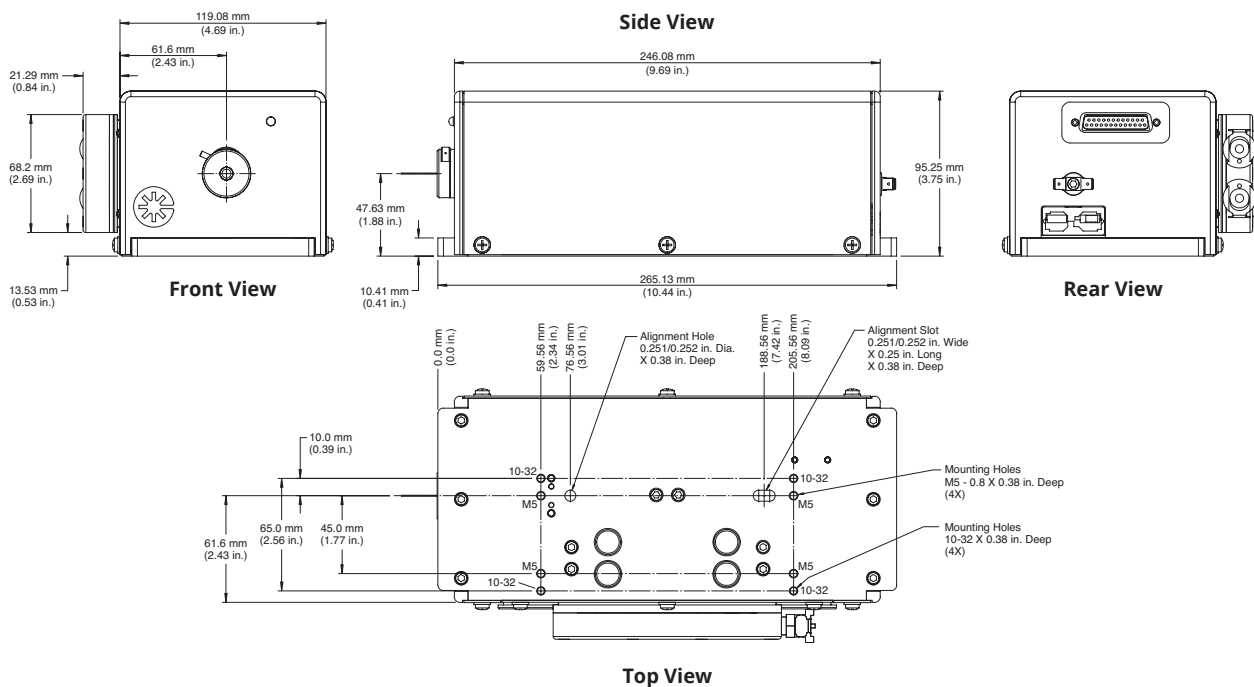
6 Contact integration support for options on air-cooling TEC or waterplate.

MECHANICAL SPECIFICATIONS

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

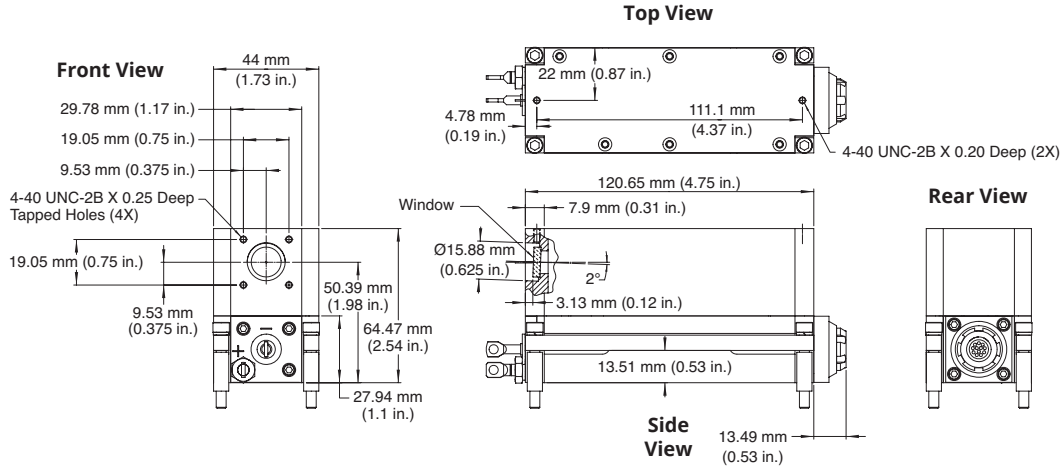


**Genesis MX MTM-Series
(End-User) Water-cooled version**



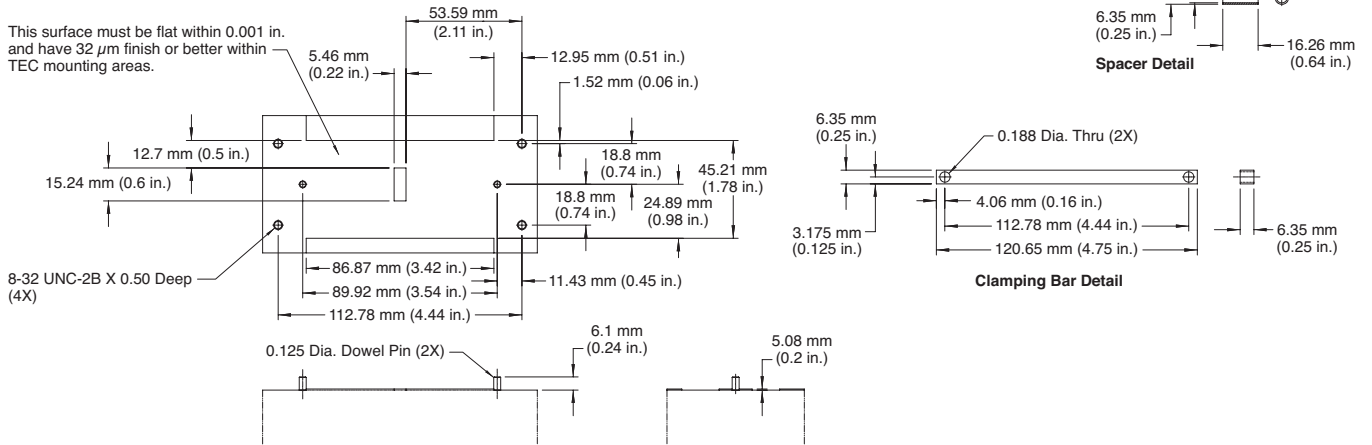
MECHANICAL SPECIFICATIONS

Genesis MX MTM-Series (OEM)



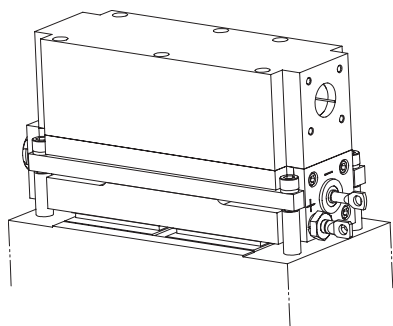
Base Plate Requirements

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

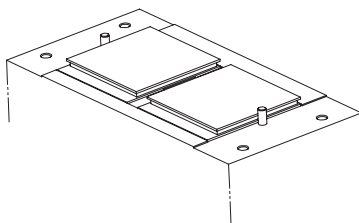


MECHANICAL SPECIFICATIONS

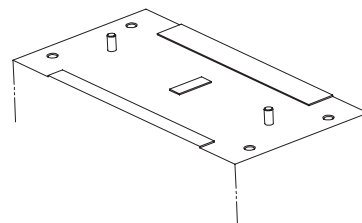
Genesis MX-Series Heat Sink



OPS Head Mounted on Heat Sink

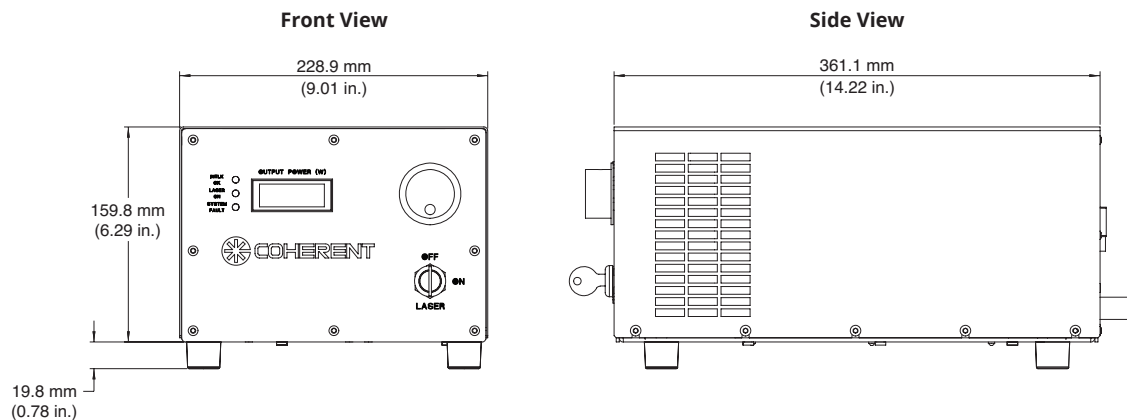


Heat Sink with Thermoelectric Coolers Installed



Heat Sink Top Features

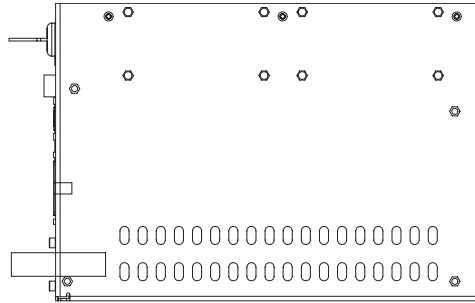
Genesis MX MTM-Series Benchtop Power Supply



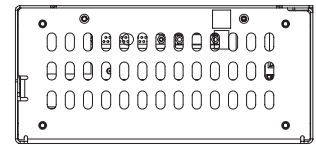
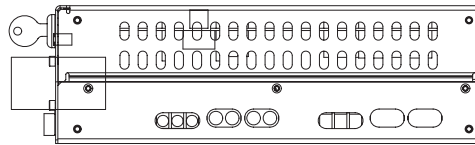
MECHANICAL SPECIFICATIONS

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

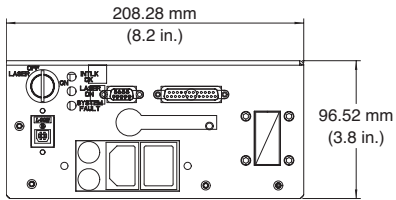
Top View



Side View

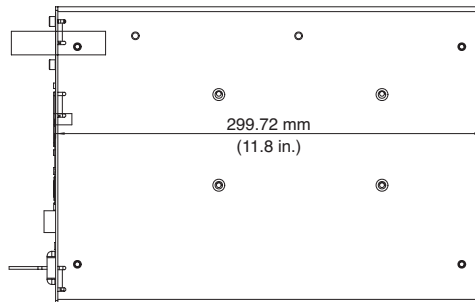


Rear View



Front View

Bottom View



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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 MX MTM Lasers. For full details of this warranty coverage, please refer to the Service section at www.coherent.com or contact your local Sales or Service Representative. MC-021-10-0M0119Rev.1 Copyright ©2019 Coherent, Inc.

