DM Nd:YAG Series

DM Series Multimode, Q-Switched Lasers

Since 2002, Photonics Industries' DM Series Nd: YAG green nanosecond lasers have been delivering exceptional performance with high pulse energies (up to 20mJ) or high average powers (up to 200 W) in a compact, rugged design from a single laser resonator. For even greater capability, Dual Head configurations can double these values, offering up to 40mJ of pulse energy or 400 W of power, making them versatile across a wide range of applications.

Photonics Industries offers two types of DM Nd: YAG laser: standard short pulse version with about 60ns pulse width @10kHz, and Long Pulse version (LP) with about 150ns to 200ns @10kHz.

This proprietary single-resonator design meets the demands of both research and industrial applications. From PIV studies to laser thermal processing and annealing, it provides the high energy required in a durable, efficient, and space-saving form factor.

APPLICATIONS

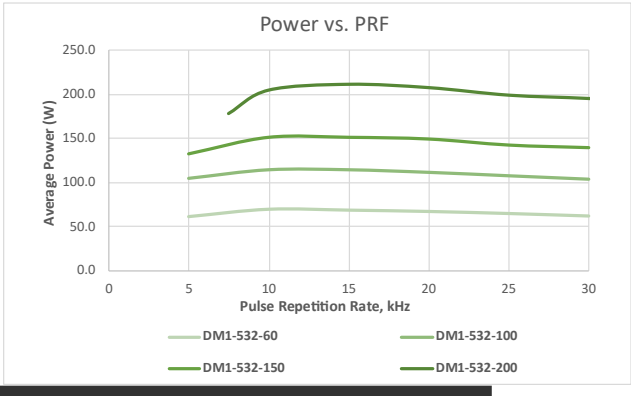
- Particle Image Velocimetry (PIV)
- Pumping Ti: Sapphire, Ultrafast Amplifier Systems
- High Power cutting, drilling, welding, marking, patterning
- Laser Thermal Processing (LTP)
- Semiconductor Lithography
- Surface Cleaning and Ablation
- Water-Jet Assisted Laser cutting
- Diamond Cutting
- Precision Layer Removal for Additive Manufacturing

FEATURES

- Up to ~400W of Average Power at 10 kHz
- Multimode Output
- Proprietary Twin Pulse mode option
- Water Cooled
- Robust Form Factor
- Dynamic **P**ulse **E**nergy **C**ontrol - **PEC**
- Power Monitoring and Auto-attenuation
- Unmatched Reliability

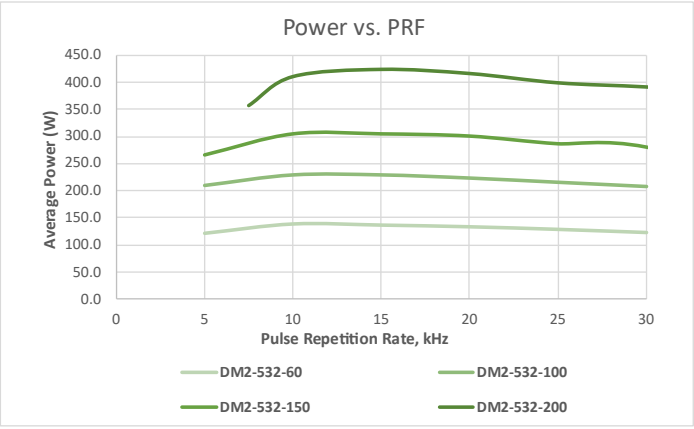
Specifications – **DM Nd:YAG Single Head Series**				
	DM1-532-60	**DM1-532-100**	**DM1-532-150**	**DM1-532-200**
Wavelength (nm)	532			
Average Power @10kHz (W)	60	100	150	200
Pulse Energy @10kHz (mJ)	6	10	15	20
Pulse Width @ 10kHz (ns)	~70	~75	~70	~65
Pulse repetition rate (kHz)[2]	1 to 50	1 to 30	1 to 50	
Pulse-to-pulse stability (% RMS)[3]	<1.0		<1.5	
Long-term power stability (% RMS) [4]	<0.5			
Beam spatial mode[5]	Multimode M^2 ~15±2	Multimode M^2 16-18		
Beam divergence (nominal) (mrad)	< 5			
Beam diameter at exit (mm)	~ 3.0			
Beam roundness (%)	>90			
Beam pointing stability (µrad)	<25			
Polarization ratio	Horizontal; 100:1			
	Operational Specifications and Characteristics			
Interface	RS232, Ethernet, Software GUI, External TTL Triggering			
Warm-up time	< 5 minutes from standby, <10 minutes from cold start			
Electrical requirement	200-240 V AC			
Line frequency (Hz)	50-60			
Power consumption (kW)[6]	~1	~1.5	~2.1	~2.5
Laser Head Dimensions	26 x 6.5 x 4.25 in [660.4 x 165.1 x 107.95m]		26 x 8 x 4.25 in [660.4 x 203.2 x 107.95mm]	
Power Supply Dimensions[7]	15 x 10.2 x 3.5 in [381 x 259.08 x 88.9mm]			
Weight	~49lbs [22.2kg]		~70lbs [32kg]	
	Environmental Requirements			
Ambient temperature [2]	Ambient 15°C to 30°C (59°F to 86°F) Operating Range			
	Relative humidity 0% to 80% max, non-condensing			
Storage conditions	-10°C to 40°C; sea level to 12000 m			
	0% to 80% relative Humidity, non-condensing			
Cooling system	Water-Cooled			

[2.] Lower pulse repetition rates (down to < 1 kHz) performance achieved by pulse energy capping [3] Measured at ambient temperature ± 2°C [4] Measured over 8 hours ± 1°C [5] TEM00 beam option available (contact us) [6] Power consumption data does not include an external chiller's power consumption [7] Total width with rack mount option is 19 in. Please note the height in rack units is 2U. [NB] Specifications are subject to change. For customized or non-standard operational specifications, please contact us.



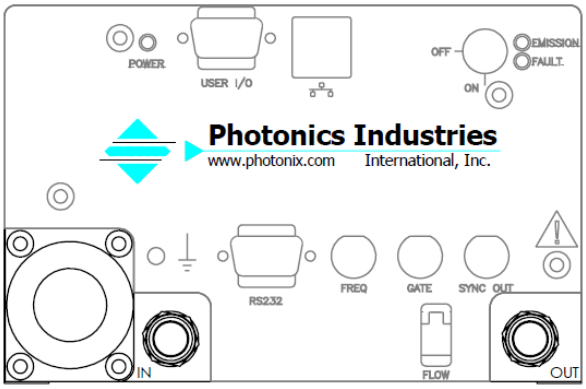
Specifications – **DM Nd:YAG Dual Head Series**				
	DM2-532-60	**DM2-532-100**	**DM2-532-150**	**DM2-532-200**
Wavelength (nm)	532nm			
Average Power @10kHz (W)	120	200	300	400
Pulse Energy @10kHz (mJ)	12	20	30	40
Pulse Width @ 10kHz (ns)	~70	~75	~70	~65
Pulse repetition rate (kHz)[2]	1 to 50	1 to 30	1 to 50	
Pulse-to-pulse stability (% RMS)[3]	<1.0		<1.5	
Long-term power stability (% RMS) [4]	<0.5			
Beam spatial mode[5]	Multimode M^2 ~15±2	Multimode $M^2$16-18		
Beam divergence (nominal) (mrad)	5			
Beam diameter at exit (mm)	~ 3.7		~4.5	
Beam roundness (%)	>90			
Beam pointing stability (µrad)	<25			
Polarization ratio	N/A			
	Operational Specifications and Characteristics			
Interface	RS232, Ethernet, Software GUI, External TTL Triggering			
Warm-up time	< 5 minutes from standby, <10 minutes from cold start			
Electrical requirement	200-240 V AC			
Line frequency (Hz)	50-60			
Power consumption (kW)[6]	~3	~3.5	~4.5	~5
Laser Head Dimensions	26 x 11 x 4.25 in [660.4 x 279.4 x 107.95mm]		26x14x4.25 in [685.8 x 355.6 x 107.95mm]	
Power Supply Dimensions[7]	16 x 16.2 x 3.5 in [406.4 x 411.48 x 88.9mm]			
Weight	~84lbs [38.1kg]		~100lbs [45.4kg]	
	Environmental Requirements			
Ambient temperature [2]	Ambient 15°C to 30°C (59°F to 86°F) Operating Range			
	Relative humidity 0% to 80% max, non-condensing			
Storage conditions	-10°C to 40°C; sea level to 12000 m			
	0% to 80% relative Humidity, non-condensing			
Cooling system	Water-Cooled			

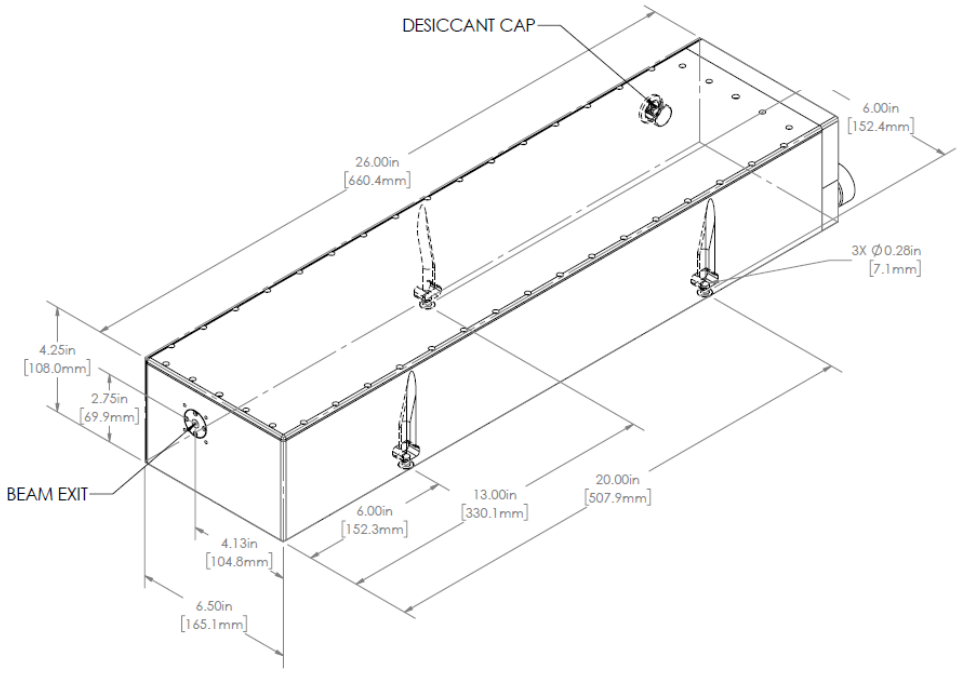
[2.] Lower pulse repetition rates (down to < 1 kHz) performance achieved by pulse energy capping [3] Measured at ambient temperature ± 2°C [4] Measured over 8 hours ± 1°C [5] TEM00 beam option available contact us) [6] Power consumption data does not include an external chiller's power consumption [7] Total width with rack mount option is 19 in. Please note the height in rack units is 2U. [NB] Specifications are subject to change. For customized or non-standard operational specifications, please contact us.

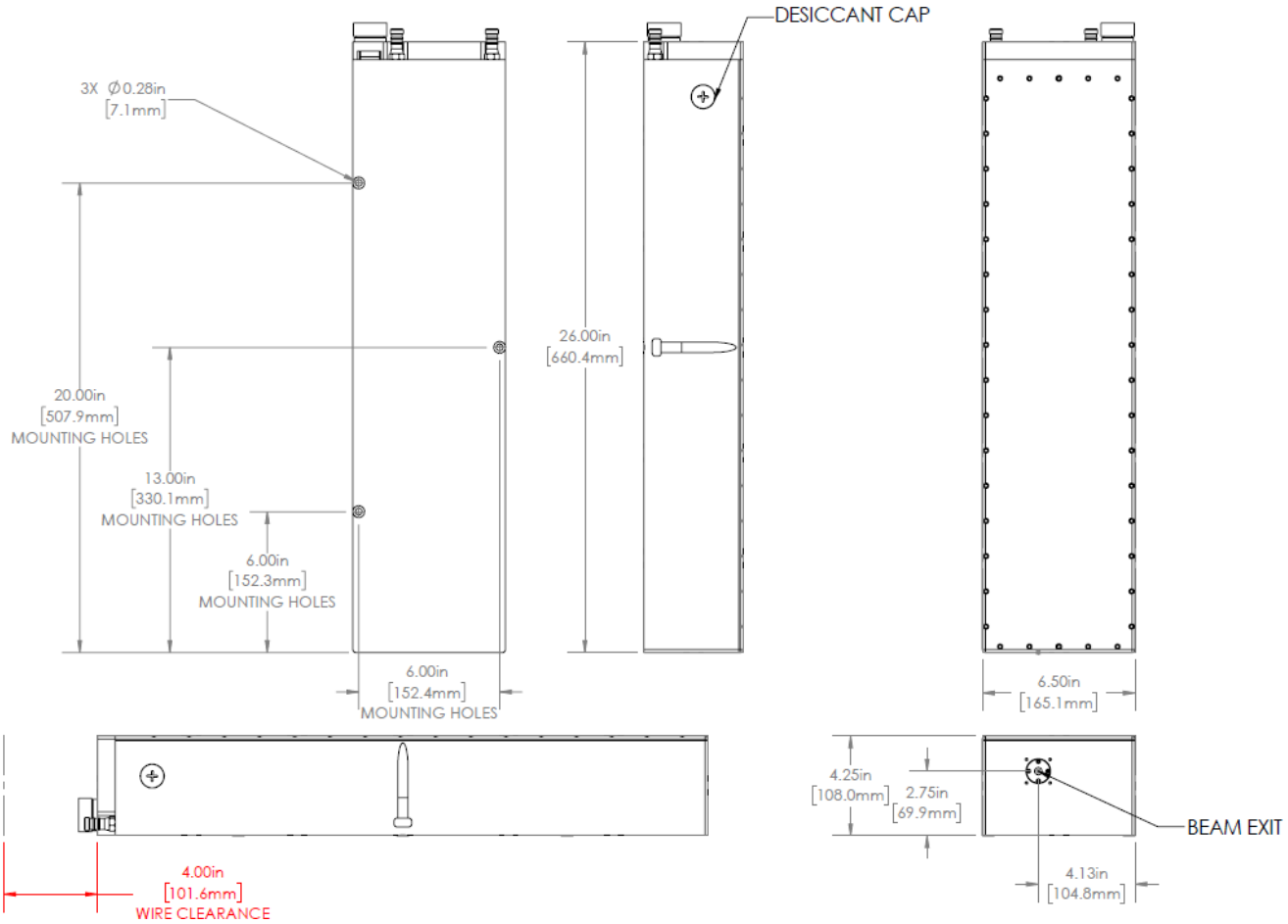


Dimensional Drawings

DM1-532-60/100

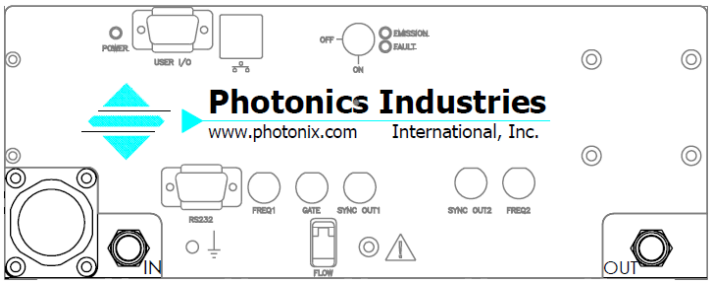


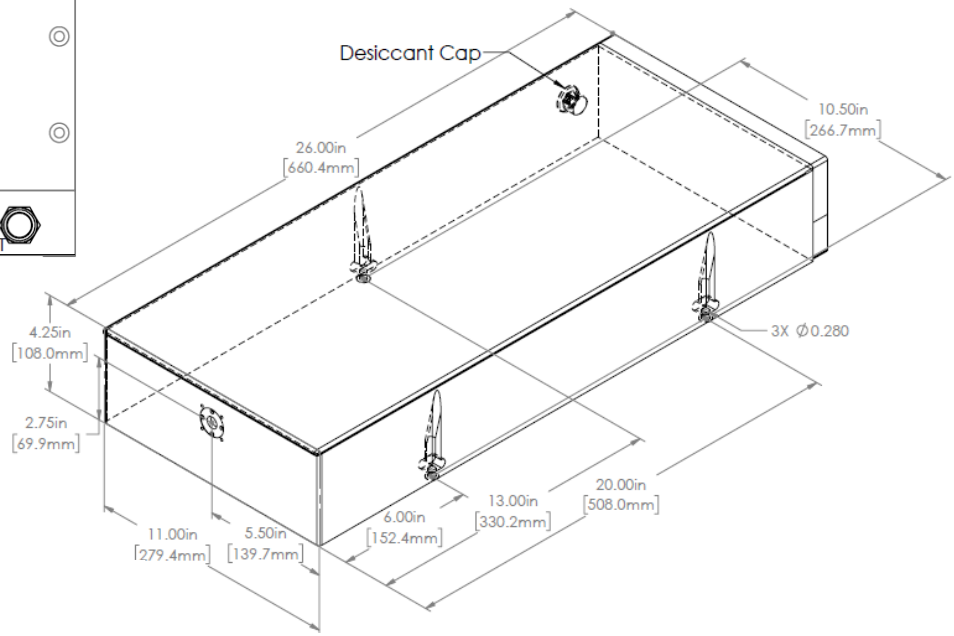


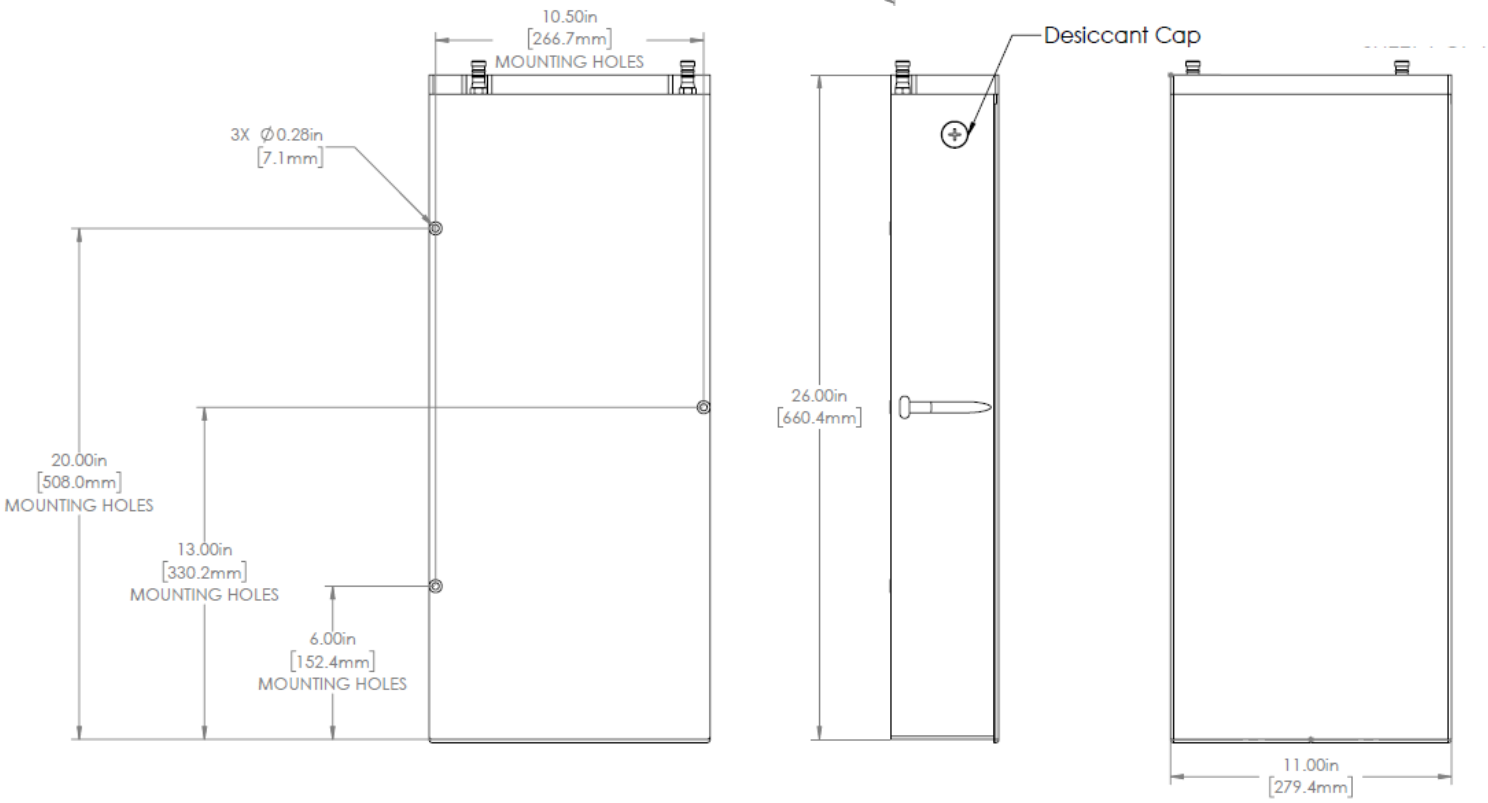


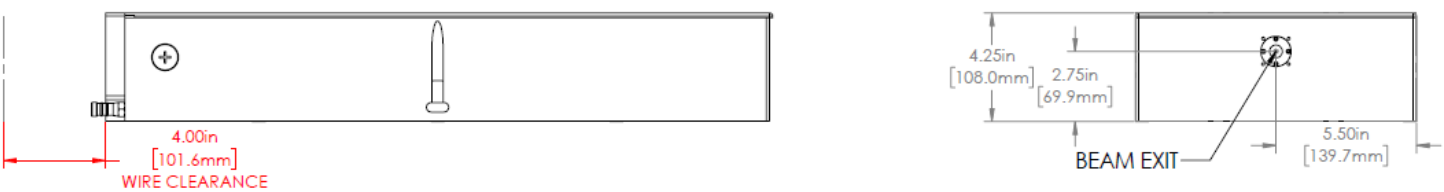
Dimensional Drawings

DM1-532-150/200
DM2-532-60/100



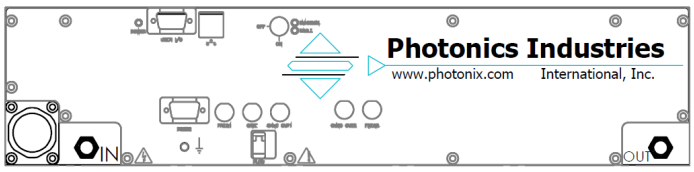


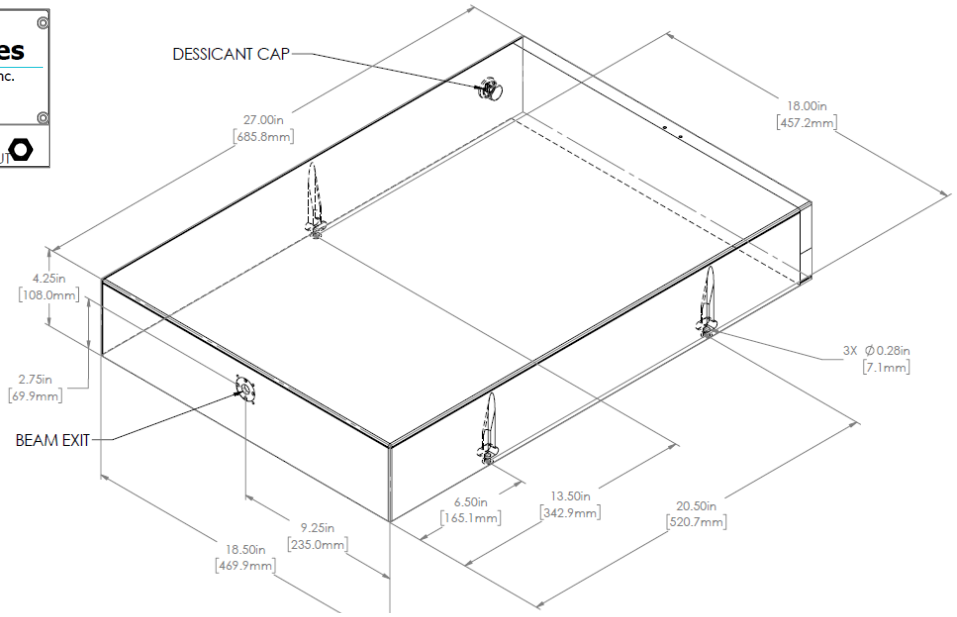


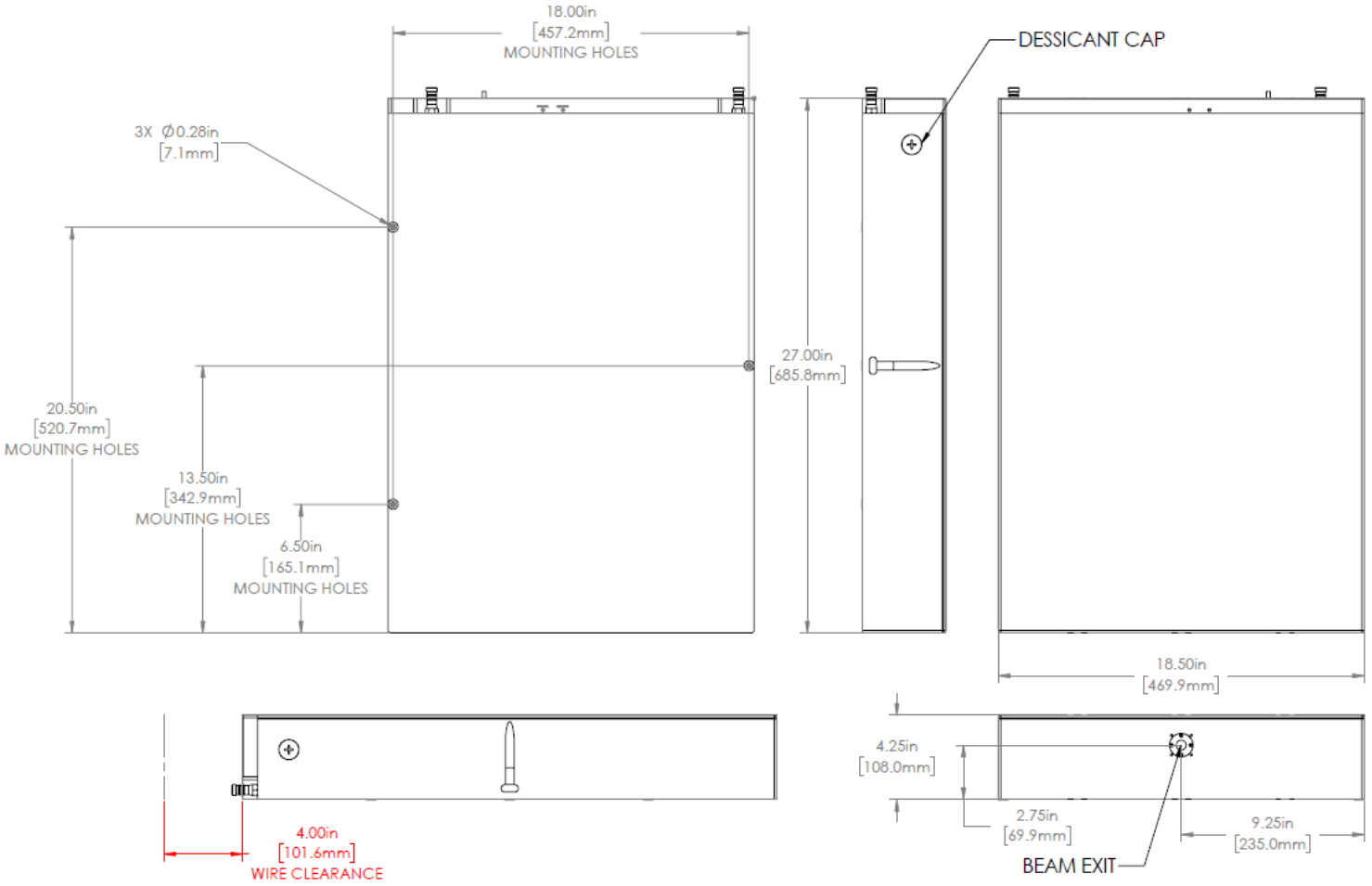


Dimensional Drawings

DM2-532-150/200

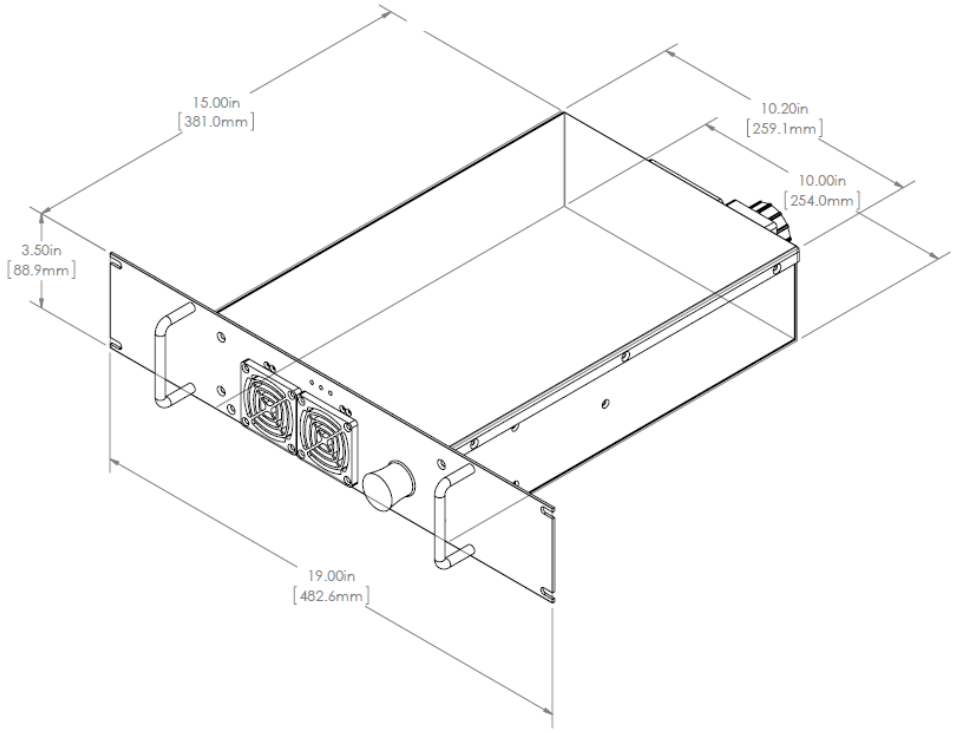




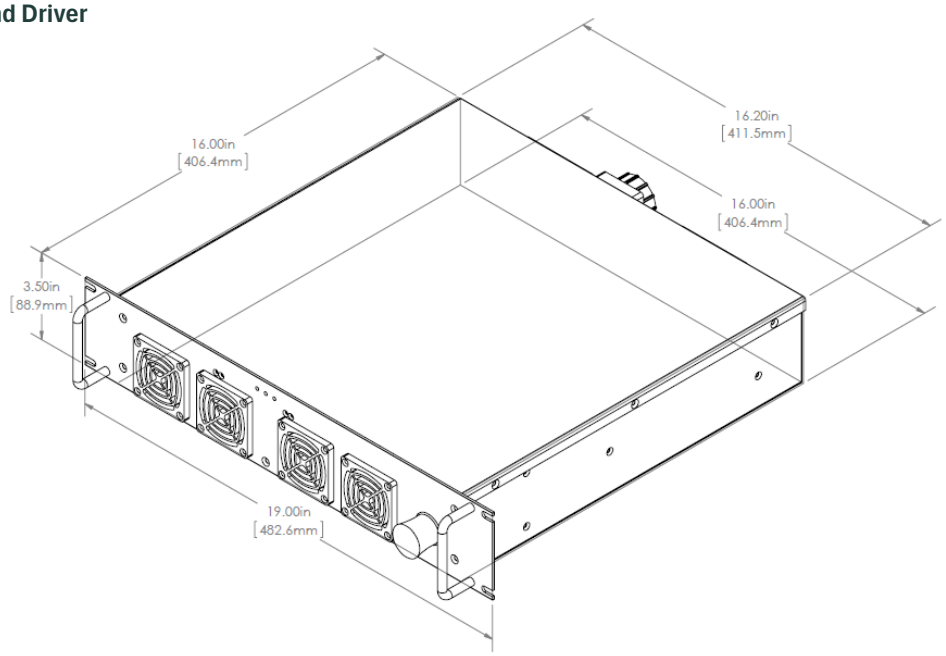


Dimensional Drawings

DM Single Head Driver



DM Dual Head Driver



Our ongoing policy is to improve the design and specification of our products. The information provided is non-binding.

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Photonics Industries International Inc. is the pioneer of intracavity harmonic lasers and is at the forefront of developing, manufacturing, and marketing a wide range of nanosecond, sub-nanosecond, picosecond, and femtosecond lasers for the industrial, scientific, defense and medical industries.

For more information www.photonix.com