

# **DM LP Nd:YAG Series**

**DM Nanosecond Lasers** 

## Multimode, Long Pulse, Q-Switched Lasers

Since 2002, Photonics Industries' DM Series Nd:YAG green nanosecond lasers have set the standard for high-energy, long pulse operation in a compact, industrial-grade platform. Now available in Long Pulsed (LP) versions with pulse widths extending up to 300ns, these lasers deliver exceptional energy per pulse (up to 20mJ) or high average powers (up to 200W) from a single resonator. For even higher output needs, Dual Head configurations can reach up to 40mJ of energy or 400W of power.

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**

- Laser Shock Peening (LSP)
- Surface Heating & Modification
- Thermal Annealing of Thin Films
- Laser Thermal Processing (LTP)
- Semiconductor Lithography
- Polymer Welding & Surface Activation
- Water-Jet Assisted Laser cutting
- Laser Induced Plasma Channels
- Sintering of Nanoparticles

#### FEATURES

- Up to ~400W of Average Power at 10 kHz
- Up to 40mJ/P Multimode Output
- Standard short pulse and long pulse versions
- Proprietary Twin Pulse mode option
- Water Cooled
- Robust Form Factor
- Dynamic Pulse Energy Control PEC
- Power Monitoring and Auto-attenuation
- Unmatched Reliability



Specifications – DM Nd:Y	AG Single Head Long F	Pulse Series				
	DM1-532-60-LP	DM1-532-100-LP	DM1-532-150-LP	DM1-532-200-LP		
Wavelength (nm)	532					
Average Power (W) @10kHz	60	100	150	200		
Pulse Energy (mJ) @10kHz	6	10	15	20		
Pulse Width (ns) @ 10kHz	~150	~150	~300	~200		
Pulse repetition rate (kHz) <sup>2</sup>	1 to 50	1 to 30	1 to 30	1 to 30		
Pulse-to-pulse stability (RMS %) <sup>3</sup>	<1.0		<1.5			
Long-term power stability (RMS %) <sup>4</sup>	<0.5					
Beam spatial mode⁵	Multimode M <sup>2</sup> ~15	Multimode M <sup>2</sup> <~ 18	Multimode M <sup>2</sup> <~18	Multimode M <sup>2</sup> <~18		
Beam divergence (mrad)	< 4					
Beam diameter at exit (mm)	~ 4.0					
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		200-24	OVAC			
Line frequency (Hz)	50-60					
Power consumption (kW) <sup>6</sup>	~1.1	~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 <sup>7</sup>	15 x 10.2 x 3.5 in [381 x 259.08 x 88.9mm]					
Weight	~49lbs [22.2kg] ~84lbs [38.1kg]					
	Environmental Requirements					
Ambient temperature <sup>2</sup>	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					
Storage conditions	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:	AG Long Pulse Dual He	ead Series				
	DM2-532-60-LP	DM2-532-100-LP	DM2-532-150-LP	DM2-532-200-LP		
Wavelength (nm)	532					
Average Power (W) @10kHz	120	200	300	400		
Pulse Energy (mJ) @10kHz	12	20	30	40		
Pulse Width (ns) @ 10kHz	~150		~300	~200		
Pulse repetition rate (kHz) <sup>2</sup>	1 to 50	1 to 30	1 to 50			
Pulse-to-pulse stability (RMS %) <sup>3</sup>	<1.0					
Long-term power stability (RMS %) <sup>4</sup>	<0.5					
Beam spatial mode⁵	Multimode M <sup>2</sup> ~15	Multimode M <sup>2</sup> ~ 18	Multimode M <sup>2</sup> ~ 18			
Beam divergence (mrad)	5					
Beam diameter at exit (mm)	~ 4		~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) <sup>6</sup>	~3	~3.5	~4.5	~5		
Laser Head Dimensions	26 x 11 x 4.25 in 26x18.5x4.25 in   [660.4 x 279.4 x 107.95mm] [660.4 x 355.6x 107.95mm]		x4.25 in 5x 107.95mm]			
Power Supply Dimensions <sup>7</sup>	16 x 16.2 x 3.5 in [406.4 x 411.48 x 88.9mm]					
Weight	~84lbs [38.1kg] ~115lbs [52kg]					
	Environmental Requirements					
Ambient temperature 2		Ambient 15°C to 30°C (59°	°F to 86°F) Operating Range			
Ambient temperature <sup>2</sup>		Ambient 15°C to 30°C (59° Relative humidity 0% to 8	PF to 86°F) Operating Range			
Ambient temperature <sup>2</sup>		Ambient 15°C to 30°C (59° Relative humidity 0% to 8 -10°C to 40°C; se	PF to 86°F) Operating Range 10% max, non-condensing a level to 12000 m			
Ambient temperature <sup>2</sup> Storage conditions		Ambient 15°C to 30°C (59° Relative humidity 0% to 8 -10°C to 40°C; se 0% to 80% relative Hur	PF to 86°F) Operating Range 0% max, non-condensing a level to 12000 m midity, non-condensing			

[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.





### DM Nd: YAG Long Pulse Series

**Dimensional Drawings** 



-DESICCANT CAP ONLY FOR DM1-532-150SP AND DM1-532-100LP



### DM Nd: YAG Long Pulse Series

# **Dimensional Drawings**

DM1-532-150/200-LP





### DM Nd: YAG Long Pulse Series

-DESICCANT CAP



DM2-532-60/100-LP





## **Dimensional Drawings**

DM2-532-150-200-LP



