

DP Series High Pulse Energy Nanosecond Lasers

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Photonics Industries' DP Series high energy, short pulse nanosecond lasers combine high mJ pulse energy levels (up to 20 mJ) with exceptionally short pulse widths (~8-4 ns). With the ability to select and/or blend multiple wavelengths, the DP Series is an ideal, compact air-cooled package for industrial applications, from intra-marking glass, to repairing displays. Scientific applications also benefit where the high pulse energies align well for atomic excitation research or spectroscopy systems.



Applications

- Cutting, drilling, welding, scribing, marking, intra-marking, patterning, dielectric grooving, de-paneling, annealing, repair
- Ion Generation Systems, Atomic Excitation, Atomic/Quantum Physics Research
- Flat Panel Display Repair Systems, LCD/LED/OLED ZAP Repair
- Laser Induced Breakdown Spectroscopy (LIBS), Spectroscopy Systems
- Non-destructive Testing (NDT), Laser Ultrasonics, Acoustic Microscopy, Photoacoustics
- Pulsed Laser Deposition (PLD)

Features

- High pulse energy with low pulse widths:
Up to 20 mJ at ~4-8 ns pulse width
- Reliable, low COO, non-consumable design
Patented intracavity harmonic UV & Green generation, no damaging indexing of the harmonic crystals
- Small, air-cooled form factor
Water-cooling option available
- Exceptional power consumption
Consumes only ~50 W of power
- Multiwavelength Selectable (MWS) & Multiwavelength Blended (MWB) options
Select and/or blend IR, Green, UV, & DUV
- Continuously variable pulse repetition rates
Single shot to 100 Hz, option up to 200 Hz.
For higher pulse repetition rates up to 2 kHz, see DP2k models.
- Superior beam pointing stability:
< 25 μ rad
- Total Pulse Control for ideal integration into systems:
Duty Control
PEC (Power or Pulse Energy Control)

Specifications – DP Series High Pulse Energy Nanosecond Lasers, DP20 Models

	DP20	DP20-MWB	DP20-MWS	DP20-MWB/S
Beam and output specifications				
Wavelength output type	Standard, single-wavelength output	Multi-wavelength blended output	Multi-wavelength selectable output	Multi-wavelength blended/selectable output ²
Pulse energy, at 100 Hz				
-a. 1053 nm	20 mJ			
-b. 527 nm	18 mJ			
-c. 351 nm	8 mJ			
-d. 1053 nm		10 mJ	16 mJ	18 mJ
527 nm		8 mJ	8 mJ	9 mJ
-e. 527 nm		10 mJ	14 mJ	16 mJ
263 nm		5 mJ	4 mJ	5 mJ
-f. 1053 nm		8 mJ	14 mJ	16 mJ
527 nm		2 mJ	4 mJ	6 mJ
351 nm		4 mJ	4 mJ	4 mJ
-g. 1053 nm		10 mJ	14 mJ	16 mJ
527 nm		2 mJ	4 mJ	6 mJ
263 nm		2 mJ	1.5 mJ	2 mJ
Operational and system characteristics				
Dimensions (LxWxH)	12.50 x 6.75 x 3.88 in			

¹ For higher pulse repetition rates up to 2 kHz, see DP2k model

² Only maximum values are listed for the multi-wavelength blended/selectable output

Beam and output specifications

Wavelengths available: **1053 nm, 527 nm, 351 nm, 263 nm**

Pulse repetition rate: **Single shot to 100 Hz (option up to 200 Hz)**

Pulse width: **~4-8 ns**

Pulse energy stability, measured at ambient temperature of $\pm 2^{\circ}\text{C}$: **< 3% rms**

Long term stability, measured over 8 hours $\pm 1^{\circ}\text{C}$: **3% rms**

Beam spatial mode: **TEM₀₀ M² < 2**

Beam pointing stability: **< 25 μrad**

Beam divergence: **< 4 mrad**

Beam diameter, at exit: **1 mm**

Operational and system characteristics

Interface: **RS232, Ethernet, Software GUI, External TTL Triggering**

Warm-up time: **< 5 minutes from standby, < 10 minutes from cold start**

Electrical requirement: **100-240 V AC; or 32 V DC, 15 A**

Line frequency: **50-60 Hz**

Ambient temperature: **15°C to 30°C (59°F to 86°F) Operating Range, RH 90% Max, non-condensing**

Power consumption, typical: **~50 W**

Cooling system: **Air-cooled**

Specifications – DP Series High Pulse Energy Nanosecond Lasers, DP2k Models

	DP2k	DP2k-MWB	DP2k-MWS	DP2k-MWB/S
Beam and output specifications				
Wavelength output type	Standard, single-wavelength output	Multi-wavelength blended output	Multi-wavelength selectable output	Multi-wavelength blended/selectable output ²
Pulse energy ¹ , at 2 kHz				
-a. 1064 nm	1 mJ			
-b. 532 nm	800 μJ			
-c. 355 nm	400 μJ			
-d. 1064 nm		500 μJ	500 μJ	
532 nm		400 μJ	200 μJ	
-e. 532 nm		500 μJ	700 μJ	
266 nm		100 μJ	100 μJ	
Operational and system characteristics				
Dimensions (LxWxH)	12.50 x 6.75 x 3.88 in			

¹ For higher pulse energies, see DP20, DP5, and DP1 models

² For multi-wavelength blended/selectable output options of the DP2k, please contact us

Beam and output specifications

Wavelengths available: **1064 nm, 532 nm, 355 nm, 266 nm**

Pulse repetition rate: **Single shot to 2 kHz**

Pulse width: **~4-5 ns**

Pulse energy stability, measured at ambient temperature of ± 2°C: **≤ 3% rms**

Long term stability, measured over 8 hours ± 1°C: **3% rms**

Beam spatial mode: **TEM₀₀, M² < 1.2**

Beam pointing stability: **< 25 μrad**

Beam divergence: **< 4 mrad**

Beam diameter, at exit: **1 mm**

Operational and system characteristics

Interface: **RS232, Ethernet, Software GUI, External TTL Triggering**

Warm-up time: **< 5 minutes from standby, < 10 minutes from cold start**

Electrical requirement: **100-240 V AC; or 32 V DC, 15 A**

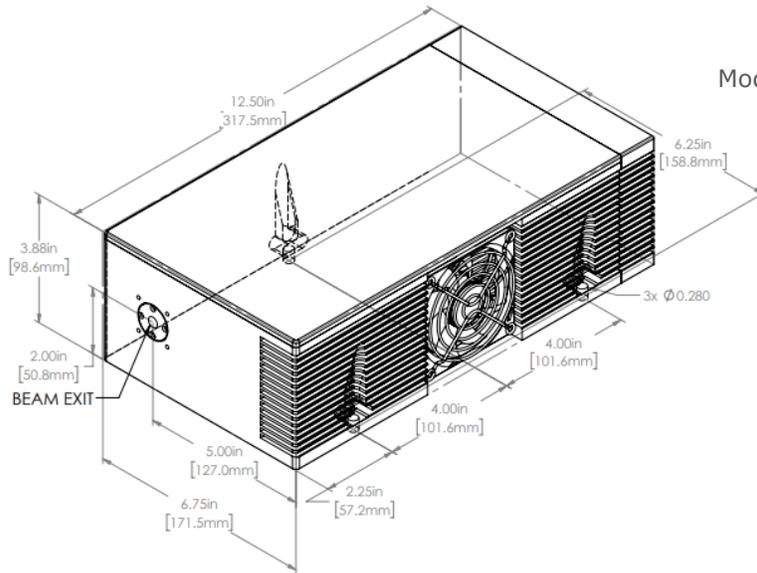
Line frequency: **50-60 Hz**

Ambient temperature: **15°C to 30°C (59°F to 86°F) Operating Range, RH 90% Max, non-condensing**

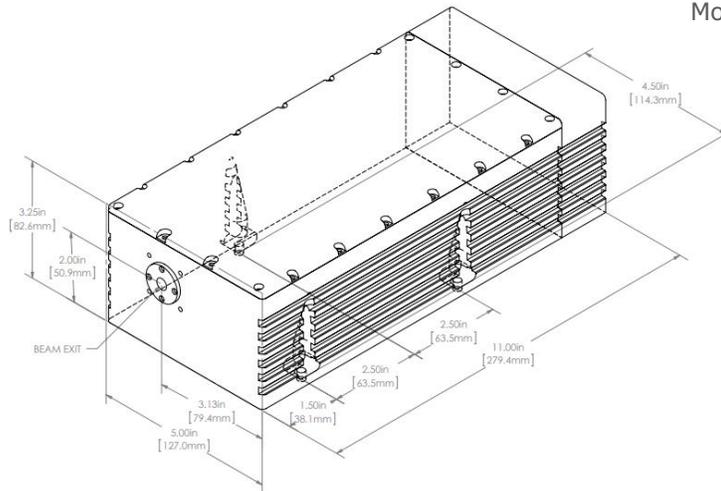
Power consumption, typical: **~50 W**

Cooling system: **Air-cooled**

Dimensional Drawings



Models: **DP20** and **DP2k**



Models: **DP5** and **DP1**

Product specifications, characteristics, and dimensional drawings are subject to change without notice.

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