Photonics Industries
International, Inc.

DP Series High Pulse Energy TEM00 Mode Nanosecond Lasers

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Photonics Industries' DP Series diode-pumped solid-state (DPSS), Q-Switched, high energy, short pulse width lasers combine up to 50mJ pulse energy levels, TEM_{00} output, and exceptional power efficiency with 10X lower heat load vs. closest competitors. 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.

Features

- **High pulse energy, TEM_{00} output, with low pulse widths:**
  Up to 50 mJ at 6-10 ns pulse width range
- **Extremely efficient with 5X to 10X lower heat vs. the competition**
  5% to 10% conversion from wall power.
- **Reliable, low COO, non-consumable design**
  Patented intracavity harmonic UV & Green generation, with no indexing of the harmonic crystals
- **Small, air-cooled form factor**
  Rad-cooling™ option available
- **Multiwavelength Selectable (MWS) & Multiwavelength Blended (MWB) options**
  Select and/or blend IR, Green, UV, & DUV
- **Continuously variable pulse repetition rates**
  1 Hz to 100 Hz, or up to 1 kHz and higher
- **Superior beam pointing stability:**
  < 25 µrad
- **Total Pulse Control for ideal integration into systems:**
  Duty Control
  PEC (Power or Pulse Energy Control)

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)**
- **OPO pumping**

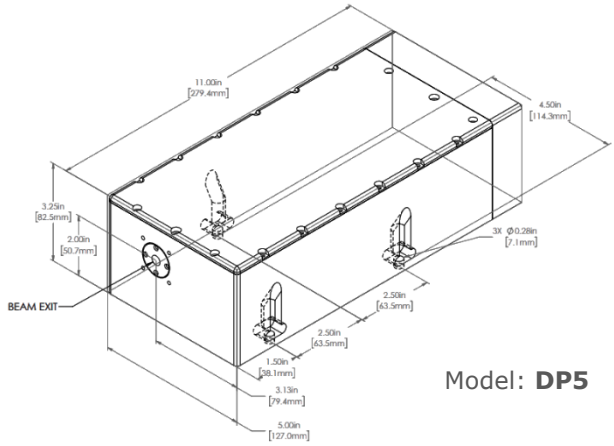
Specifications – **DP Series High Pulse Energy Nanosecond Lasers**

		DP5	DP20	DP1k-20	DP50
Beam and output specifications					
Wavelengths[1] available, single or multi-wavelength selectable and/or blended output		1064 nm, 532 nm, 355 nm, 266 nm			1030 nm, 515 nm, 343 nm, 257 nm
Maximum pulse energy[1,2], single-wavelength output	IR	5 mJ	20 mJ	20mJ	50 mJ
	GRN	3 mJ	10 mJ	10 mJ	30 mJ
	UV	2 mJ	6 mJ	6 mJ	20 mJ
Pulse repetition rate		Single shot to 100 Hz		Single shot to 1 kHz	Single shot to 100 Hz
Pulse width range[3]		6-10 ns			
Multi-wavelength output types		[IR/GRN], [GRN/DUV], [IR/GRN/UV], or [IR/GRN/DUV]			
	Blended (-MWB)	All wavelengths come out of a single exit port blended.			
	Blended/Selectable (-MWB/S)	One, two, or three different wavelengths come out of a single exit port blended. The specific wavelength blend combination is user-selectable via the software GUI.			
	Selectable (-MWS)	Each individual wavelength is isolated and user-selectable via the software GUI.			
Pulse energy stability		< 3% rms, measured at ambient temperature of ± 2°C			
Long-term stability		3% rms, measured over 8 hours ± 1°C			
Beam spatial mode[5]		TEM_{00} M^2 < 1.3			
Beam pointing stability		< 25 µrad			
Beam divergence		< 4 mrad			
Beam diameter[6]		~1 mm, at exit			
Operational and system characteristics					
Interface		RS232, Ethernet, Software GUI, External TTL Triggering			
Electrical requirement		100-240 V AC, Line Frequency 50-60 Hz			
		15 V DC, 7 A	24 V DC, 3 A	32 V DC, 11 A	
Power consumption		< 10 W	< 50W	< 200 W	< 100 W
Warm-up time		< 5 minutes from standby, < 10 minutes from cold start			
Ambient		15°C to 30°C (59°F to 86°F) Operating Range, RH 90% Max, non-condensing			
Cooling system[7]		Passively cooled, no air-cooling fan required	Air-cooling fan	Rad-cooling™ or option for air-cooling fans	Rad-cooling™
Dimensions[8] (LxWxH)		11 x 5 x 3.25 in	12.50 x 6.75 x 3.88 in	12.50 x 6.75 x 3.88 in (air-cooling H = 5.95 in)	12.50 x 6.75 x 3.88 in

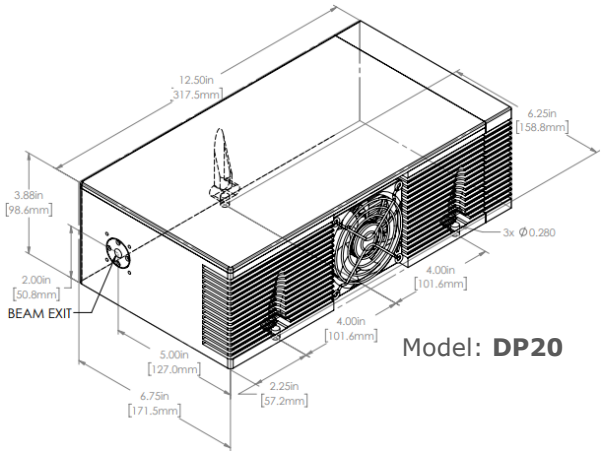
[1] For DUV 257 nm or 266 nm output, please contact us. [2] Depending on pulse energy needed, air-cooling or rad-cooling™ systems can be used for laser head heat removal. [3] Precise pulse width range dependent on model and configuration chosen. [4] Pulse energy output efficiency for each wavelength dependent on multi-wavelength output option chosen. [5] Typical M^2 values are lower depending on wavelength output type and model. [6] Specified value in the IR. [7] Rad-cooling™ is a special cooling system for highly effective heat removal while also isolating vibrational noise away from the laser head (low dB). Please contact us for more information. [8] The DP Series Lasers are all-in-one (AIO) and do not require a separate controller. All connections for operation and control of the laser are found on the back panel of the AIO laser. [NB] For further details on the multi-wavelength output options, please contact us.

How to order						
Format	DP	xx	-	xxx		[xx/xx/xx]
Designation criteria	DP	5, 20, 1k-20, or 50	-	MWB, MWB/S, or MWS		IR, GRN, UV, or DUV
Examples	DP20-MWB/S [GRN/DUV], DP1k-15 [IR], DP5 [GRN], etc.					

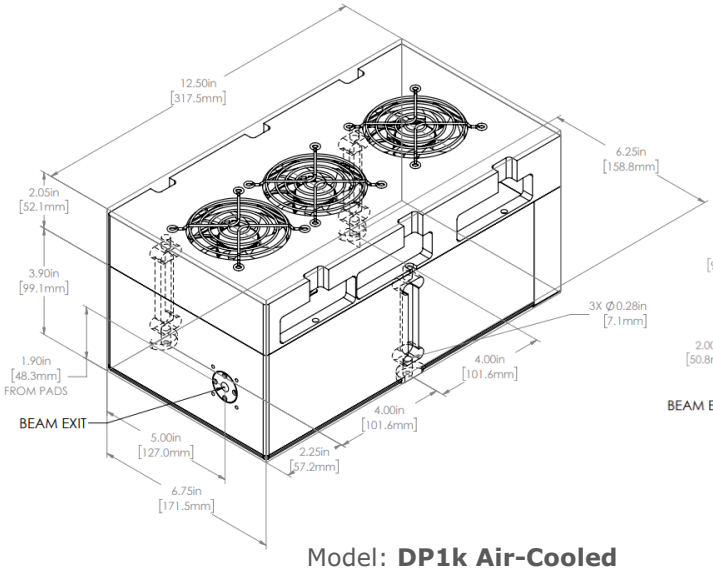
Dimensional Drawings



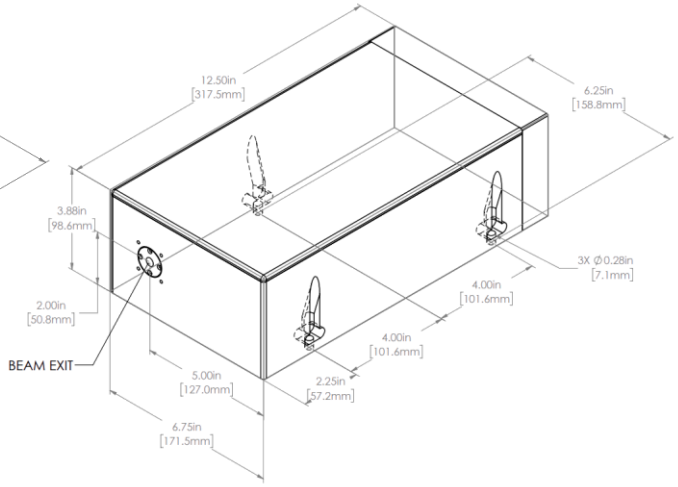
Model: **DP5**



Model: **DP20**



Model: **DP1k Air-Cooled**



Model: **DP1k, DP50 Rad-Cooled™**

Main Headquarters: 1800 Ocean Ave, Ronkonkoma, New York 11779, United States

Photonics Industries International 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 industrial, scientific, defense, and medical industries. Check out our products and see how we can help you apply our lasers to your needs.

LASER RADIATION

Photonics Industries International, Inc.