



DP Series Lasers

High Pulse Energy Air Cooled Diode Pulse Pumped Laser

Consuming no more than ~50W of electrical power, the DP Series remarkably produces up to 20mJ of optical output energy at 100Hz rep rate. Photonics Industries' line of pulsed diode pumped lasers fit applications that require short pulse requirement (<10ns) with high pulse energy in a low power consumption air cooled package. The DP Series is available in 2 versions: High pulse energy or High rep rate.

The High pulse energy version is available in combinations of: IR (1053nm), green (527nm), UV (351nm) and/or DUV (263nm). These IR, green, UV and DUV wavelengths also can be Blended (MWB) or individually Selectable (MWS) outputted for fast wavelength selection enabling novel material processing applications.

The High rep rate version, the DP2K Series, fit applications that require high pulse energies at up to 2kHz rep rates with low power consumption. The DP2K Series is available in IR (1064nm), green (532nm) and/or DUV (266nm).



Applications

- ❖ FPD/LCD circuit repair (ZAP process)
 - Cut metal or remove ITO shorts
- ❖ Semiconductor IC Failure analysis
- ❖ Micromachining/Ablation
- ❖ Thin film or polyimide removal
- ❖ Cavity ring down spectroscopy
- ❖ Laser Induced Breakdown Spectroscopy (LIBS)
- ❖ Laser Induced Fluorescence (LIF)
- ❖ LIDAR - Military/Aerospace
- ❖ THz generation
- ❖ Laser Cleaning
- ❖ PIV
- ❖ Pulsed Laser Deposition (PLD)
- ❖ Acoustoptic non destructive testing
- ❖ Specialty/intra-glass marking

PI Advantages

- ❖ Highest efficiency with Power Consumption ~10x lower than competition
- ❖ High Pulse energy up to 20mJ
- ❖ Short pulse <10ns
- ❖ Air Cooled - End pumped design generates only a fraction of the heat compared to side pumped laser.
- ❖ Exceptional Energy & Beam Pointing Stability (~10x better than competition)
- ❖ Continuously externally variable repetition rates from single shot up to 2kHz available
- ❖ Compact all-in-one laser head for convenient mounting/simple installation
- ❖ Simple GUI/RS-232 interface
- ❖ Blended or user selectable MultiWavelength (MW) outputs for fast wavelength selection
- ❖ Gaussian or Flat-top output available in all wavelengths



Photronics Industries
International, Inc.

DP System Specifications

High Energy Version					
Model Number	DP20				
Wavelength		1053 nm	527 nm	351 nm	263 nm
Pulse Energy (@ 100Hz)*	-a IR only	20 mJ	-	-	-
	-b Green only	-	18mJ	-	-
	-c UV only	-	-	8mJ	-
	-d IR or Green	18mJ	10mJ	-	-
	-e Green or DUV	-	16mJ	-	2mJ
	-f IR or Green or UV	18mJ	10mJ	4mJ	-
	-g IR or Green or DUV	18mJ	10mJ	-	1.5mJ
Pulse Width		~8 ns	~7 ns	~7 ns	~6 ns
Medium Energy Version					
Model Number	DP5				
Wavelength		1053 nm	527 nm	351 nm	263 nm
Pulse Energy (@ 100Hz)*	-a IR only	5 mJ	-	-	-
	-b Green only	-	4mJ	-	-
	-c UV only	-	-	2mJ	-
	-d IR or Green	4mJ	2.5mJ	-	-
	-e Green or DUV	-	3mJ	-	0.3mJ
	-f IR or Green or UV	4mJ	2mJ	1mJ	-
	-g IR or Green or DUV	4mJ	2mJ	-	0.15mJ
Pulse Width		~5 ns	~4 ns	~4 ns	~4 ns
Low Energy Version					
Model Number	DP1				
Wavelength		1053 nm	527 nm	351 nm	263 nm
Pulse Energy (@ 100Hz)*	-a IR only	1.2 mJ	-	-	-
	-b Green only	-	1.2mJ	-	-
	-c UV only	-	-	500uJ	-
	-d IR or Green	1mJ	0.5mJ	-	-
	-e Green or DUV	-	1mJ	-	0.1mJ
	-f IR or Green or UV	1mJ	0.5mJ	0.25mJ	-
	-g IR or Green or DUV	1mJ	0.5mJ	-	0.05mJ
Pulse Width		~5 ns	~4 ns	~4 ns	~4 ns
Pulse to Pulse Stability		2% rms		< 3% rms	
Repetition Rate		Single Shot to 100 Hz**			
Spatial Mode		TEM ₀₀ M ² <2			
Output Beam Diameter		1.0 mm (nominal)			
Beam Divergence		< 4 mrad			
Beam Ellipticity		< 10%			
Beam Pointing Stability		< 25 μrad			
Long-Term Stability (8h±3 °C)		3% rms			
Ambient Temperature		15 - 30 °C (59 - 86 °F) Operating Range			
Relative Humidity		Non-condensing, 90% Max			
Power Consumption		~50W			
Cooling		air-cooled			
Laser Head Dimensions:					
DP20		4.06 in x 5 in x 14.13 in			
DP5 and DP1		3.25 in x 5 in x 11 in			

* Max pulse energy achievable. Multiwavelength options (i.e., -d thru -g) reduce these values depending on the Multiwavelength option selected (i.e., MWB, MWS or MWB/S)

** Option to 200Hz

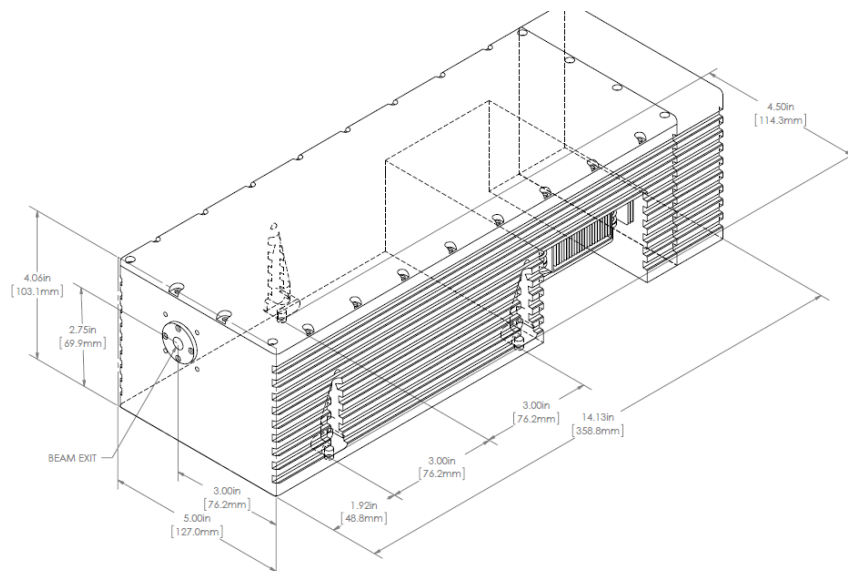
High Rep Rate Version

Model Number	DP2K			
Wavelength		1064 nm	532 nm	266 nm
Pulse Energy (@ 2kHz)	-a IR only	1 mJ	-	-
	-b Green only	-	1mJ	-
	-d Green or DUV	-	1mJ	0.05mJ
Pulse Width		~5 ns	~5 ns	~4 ns
Pulse to Pulse Stability		2% rms		3% rms
Repetition Rate	Single Shot to 2kHz			
Spatial Mode	TEM ₀₀ M ² <1.5			
Output Beam Diameter	1.0 mm (nominal)			
Beam Divergence	< 4 mrad			
Beam Ellipticity	< 10%			
Beam Pointing Stability	< 25 μrad			
Long-Term Stability (8h±3 °C)	3% rms			
Ambient Temperature	15 - 30 °C (59 - 86 °F) Operating Range			
Relative Humidity	Non-condensing, 90% Max			
Power Consumption	~50W			
Cooling	air-cooled			
Laser Head Dimensions	5.32 in x 5 in x 11 in			

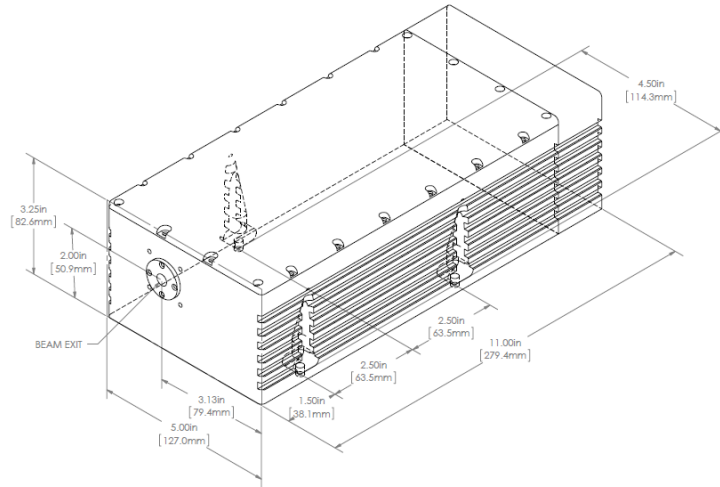
Higher pulse energies are available. Please contact us.

Dimensional Drawings

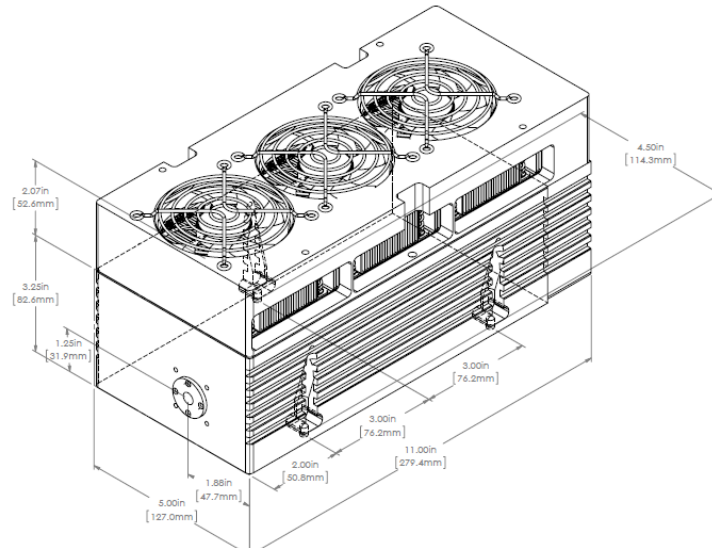
DP20 Laser



DP5 and 1 Laser



DP2K Laser



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Due to Photonics Industries' commitment to continuous product improvement, specifications and drawings are subject to change without notice.



Photonics Industries conforms to provisions of US 21 CFR 1040.10 & 1040.11 and is made under one or more US patents listed below: 9,882,335, 9,531,147, 8,817,831, 7,869,471, 7,346,092, 7,082,149, 7,079,557, 6,999,483, 6,980,574, 6,961,355, 6,842,293, 6,762,405, 6,690,692, 6,587,487, 6,584,134, 6,366,596, 6,356,578, 6,327,281, 6,246,707, 6,229,829, 6,108,356, 6,061,370, 6,028,620, 5,936,983, 5,898,717 and Pending Patents

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