DP1k TEM_{00} Series

DP Pulse Pumped Nanosecond Lasers

Diode Pulse Pumped DP1k TEM_{00} Series Q-Switched Lasers

DPM	MultiMode	10Hz	200mJ to 4J
DP	TEMoo	100Hz	Up to 50mJ
DP1k	TEMoo	1000Hz	Up to 20mJ

The **DP Series** is a unique pulse pumped laser offering true **TEM_{00} at 1000Hz and 500Hz**. The patented and patent pending optical and electronic design delivers more than five times higher efficiency than alternative technologies and up to ten times the maximum pulse repetition frequency.

Using active and low noise Q-switching, the DP1K Series are suitable for demanding industrial material processing, drilling and instrumentation applications requiring exceptional precision and repeatability. The proprietary **Direct Access PWC Control** also provides the option for real time and dynamic pulse-to-pulse energy control at 1000Hz. The DP1K has been designed as a **Multiwavelength** laser source with several selectable options depending on your application.

The ultra-compact All-In-One (AOI) laser head requires only DC power with all TTL and I/O connections direct to the laser head. A sealed optical enclosure with integrated harmonics and an attenuator ensures a robust and reliable laser that is protected from the external environment. With high efficiency comes reduced heat generation, allowing the DP1K Series to be used with passive water to air cooling. Using software controlled self-calibration with onboard energy monitoring provides exceptional long term pulse energy stability for the lifetime of the laser.

APPLICATIONS

- Material Processing: Drilling, Cleaning, Marking
- LCD/LED/OLED panel repair
- Laser Induced Forward Transfer (LIFT)
- Pulsed Laser Deposition (PLD). – Thin Films
- LIBS /TOF Realtime spectroscopy
- Photoacoustic imaging and metrology
- Plasma and Quantum Physics
- OPO, DYE Laser and Ti:Sa Pumping

FEATURES

- Up to ~20mJ Pulse Energy at 1kHz
- True TEM_{00} Output
- Short Pulse Widths
- Water Cooled / Radiator Cooled Option
- Robust & Compact Form Factor
- Dynamic **P**ower **C**ontrol - **PWC**
- Optional Low Jitter Mode <1ns
- Power Monitoring and Self-Calibration

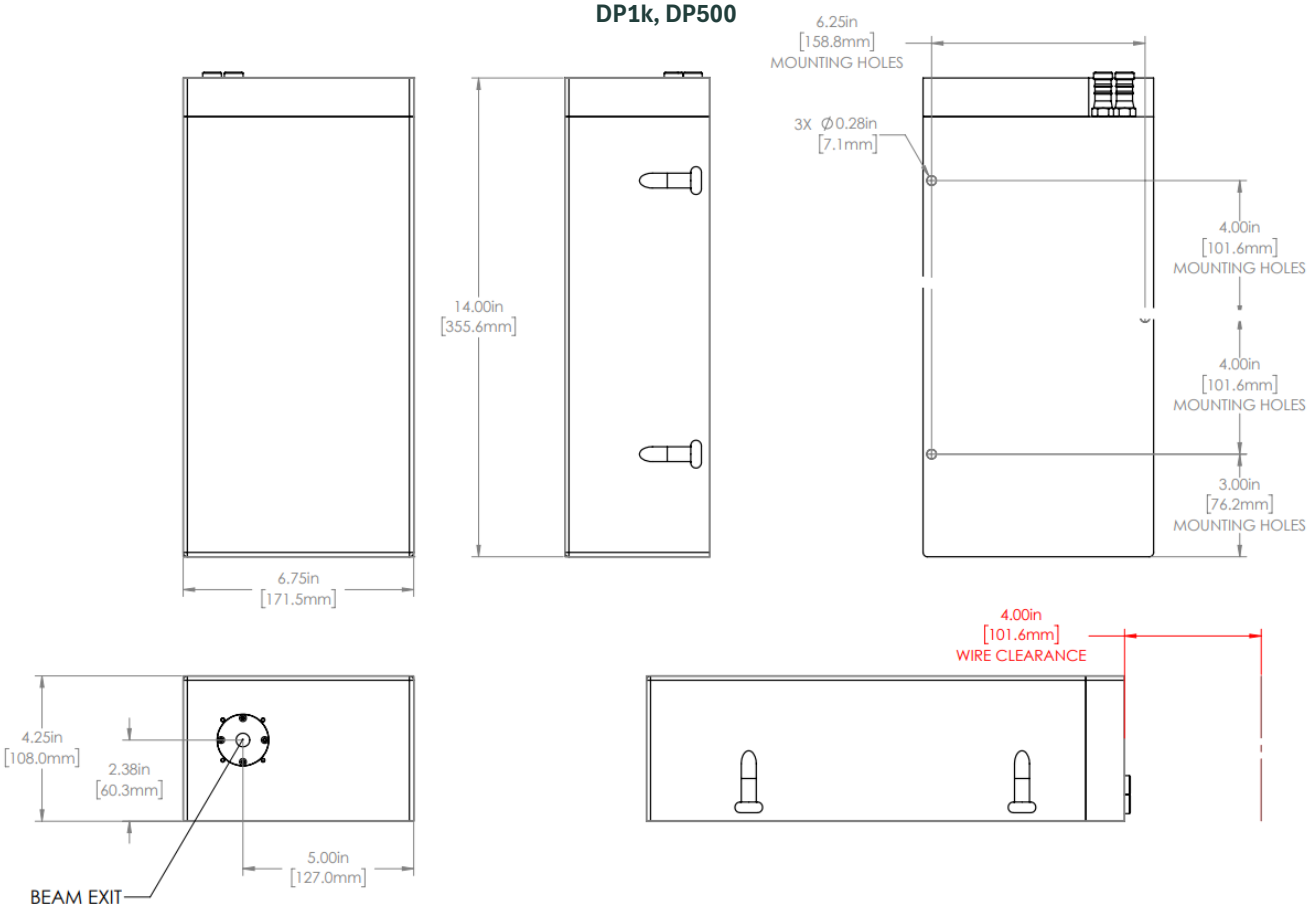
Specifications – **DP1k TEM_{00} Series**						
		DP-500-10	**DP-500-20**	**DP1k-5**	**DP1k-10**	**DP1k-20**
Pulse Repetition Frequency (Hz)[1]		500		1000		
Max Pulse Energy (mJ)[2,3]*	1064 nm	10	20	5	10	20
	532 nm	5	10	3	5	10
	355 nm	3	5	2	3	5
	266nm[4]	0.5	1	0.3	0.5	1
Pulse Width Range (ns)[5]		~6-10				
Pulse-to-pulse stability at 1064nm (RMS %)		<2				
Long-term power stability at 1064nm (RMS %)[6]		<2				
Beam spatial mode at 1064nm		TEM_{00} - M^2 <1.4				
Beam divergence (nominal) (mrad)		<2				
Beam diameter at exit (nominal) (mm)		~ 2				
Beam roundness (%)		~90				
Beam pointing stability (µrad)		<25				
Polarization ratio:[§]		>100:1 |1064nm & 355nm =Vert. | 532nm & 266nm = Hor.				
		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 AC (V, Hz)		100V-240 - 1ϕ - 50-60				
Electrical requirement DC		48V DC, 6A				
Power consumption (W)		~100	~100	~50	~100	~200
Dimensions[7]		14 x 6.75 x 4.25in | 356x 159 x 108mm				
Weight		~15.5 lbs | ~7 kg				
AC to DC PSU - Included		14 x 5.5 x 3.5 in. [356 x 140 x 89 mm]				
		Environmental Requirements				
Ambient temperature		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		Rad-Cooled ™ [8]				Water Cooled

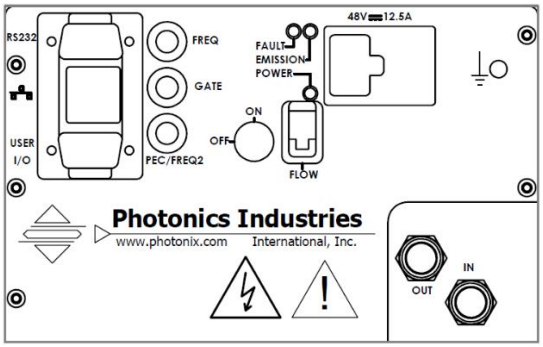
[1] Maximum Pulse Repetition Frequency [2] Pulse energy at max PRF [3] UV & DUV Pulse energy is reduced by 10% with multi-wavelength output options. **[4] For 266nm High Power outputs, please contact PI.** [5] Pulse width is model and wavelength dependent. [6] Ambient stability ± 1°C required for Rad cooling™ [7] DP Series Lasers are all-in-one (AIO) with back-panel connections for operation and control. No separate 19" control or PSU tray is required. [8] Rad cooling™ - Passive water to air radiator cooling isolates vibrational noise (low dB) from fans. [§] Polarizations vary for multiwavelength options. [*] Preliminary specifications that are subject to change without notice.

Optional: Multi-Wavelength Output – The wavelengths exit the laser via the standard beam exit port.		
Wavelength Combinations	[IR/GRN] | [GRN/DUV] | [IR/GRN/UV] | [IR/GRN/DUV]	
Blended	The selected wavelengths exit the port simultaneously. No selection option.	MWB
Blended/Selectable	The exit port can emit one, two, or three blended wavelengths. Software selectable.	MWB/S
Selectable	Each Individual wavelength is isolated and exits the same port. Software selectable.	MWS

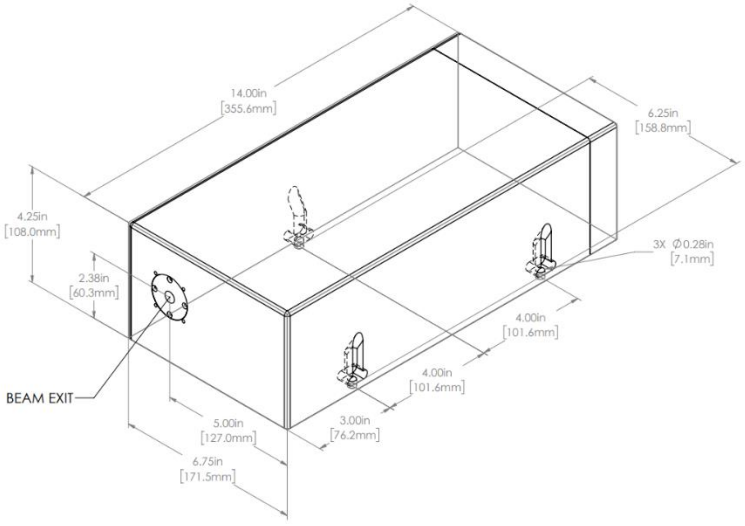
Dimensional Drawings

DP1k, DP500





Laser Head Rear Interface Panel



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

Photonics Industries International, Inc.

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

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 info **www.photonix.com**

RoHS Compliant

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Rayture Systems

レイチャーシステムズ株式会社
〒160-0006 東京都新宿区舟町７ ロクサンビル７Ｆ
TEL：03-3351-0717 FAX：03-3351-6771
URL：http://www.rayture-sys.co.jp
E-mail : laser@rayture-sys.co.jp