



DP Series

High Pulse Energy Diode Pulse Pumped Laser

Photronics Industries' line of pulsed diode pumped lasers, the DP Series, are for applications that need high pulse energy with low power consumption. The DP Series is available in IR (1053nm), green (527nm), UV (351nm) and/or DUV (263nm). These IR, green, UV and DUV wavelengths also can be User Selectable Wavelength (USW) outputted for fast wavelength selection enabling novel material processing applications.

Features

- For short pulse requirement (<10ns)
- Exceptional Energy & Beam Pointing Stability (~10x better than competition)
- Air Cooled - End pumped design generates only a fraction of the heat compared to side pumped laser.
- Low Power Consumption ~10x lower than competition
- Field replaceable diodes
- Continuously externally variable repetition rates from single shot up to 100Hz (200Hz option)
- Compact all-in-one industrial grade laser head for convenient mounting/simple installation
- Simple GUI/RS-232 interface
- User Selectable Wavelength (USW) output for fast wavelength selection
- Gaussian or Flat-top output available in all wavelengths
- Utilizing novel Patent Pending technology

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
- Harmonic and parametric generation
- Nonlinear spectroscopy
- Laser Ultrasound
- Medical diagnosis
- Mass spectroscopy
- Holography

DP System Specifications

High Energy Version

| Model Number | DP20 | 1053 nm | 527 nm | 351 nm | 263 nm |
|------------------------|-----------------------|---------|--------|--------|--------|
| Wavelength | | | | | |
| Pulse Energy (@ 100Hz) | -a IR only | 20 mJ | - | - | - |
| | -b Green only | - | 18mJ | - | - |
| | -c IR or Green | 18mJ | 10mJ | - | - |
| | -d Green or DUV | - | 16mJ | - | 2mJ |
| | -e IR or Green or UV | 18mJ | 10mJ | 4mJ | - |
| | -f IR or Green or DUV | 18mJ | 10mJ | - | 1.5mJ |
| Pulse Width | | ~8 ns | ~7 ns | ~7 ns | ~6 ns |

Med Energy Version

| Model Number | DP5 | 1053 nm | 527 nm | 351 nm | 263 nm |
|------------------------|-----------------------|---------|--------|--------|--------|
| Wavelength | | | | | |
| Pulse Energy (@ 100Hz) | -a IR only | 5 mJ | - | - | - |
| | -b Green only | - | 4mJ | - | - |
| | -c IR or Green | 4mJ | 2.5mJ | - | - |
| | -d Green or DUV | - | 3mJ | - | 0.3mJ |
| | -e IR or Green or UV | 4mJ | 2mJ | 1mJ | - |
| | -f 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 | 1053 nm | 527 nm | 351 nm | 263 nm |
|------------------------|-----------------------|---------|--------|--------|--------|
| Wavelength | | | | | |
| Pulse Energy (@ 100Hz) | -a IR only | 1.2 mJ | - | - | - |
| | -b Green only | - | 1.2mJ | - | - |
| | -c IR or Green | 1mJ | 0.5mJ | - | - |
| | -d Green or DUV | - | 1mJ | - | 0.1mJ |
| | -e IR or Green or UV | 1mJ | 0.5mJ | 0.25mJ | - |
| | -f IR or Green or DUV | 1mJ | 0.5mJ | - | 0.05mJ |
| Pulse Width | | ~5 ns | ~4 ns | ~4 ns | ~4 ns |

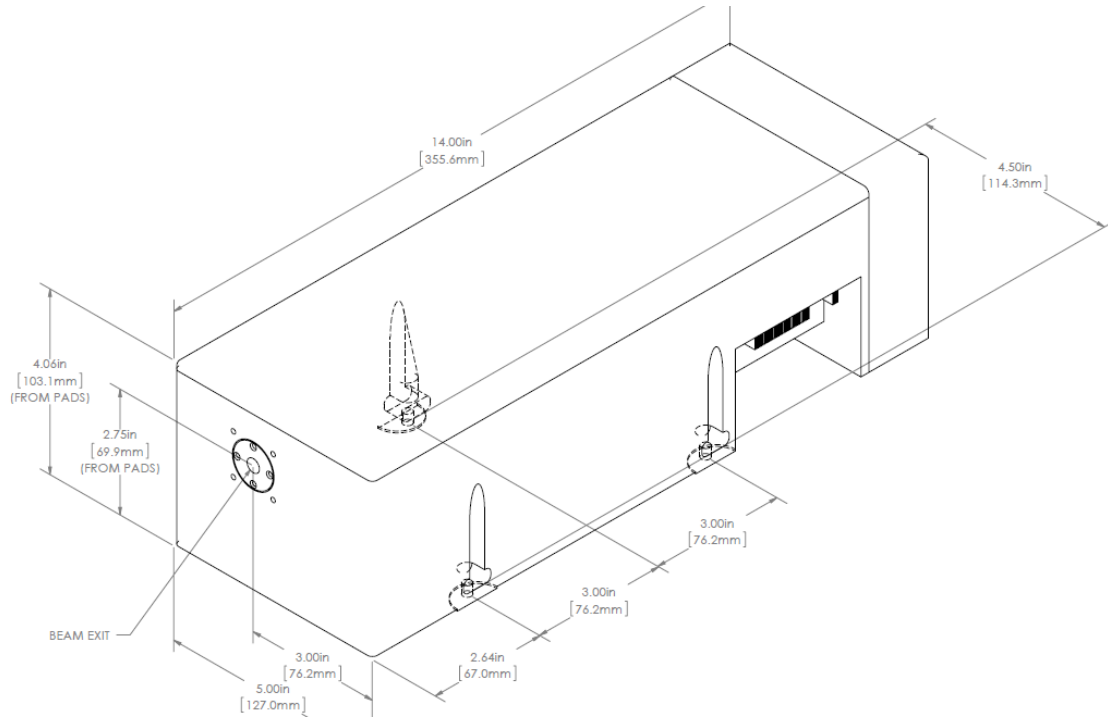
| | | | | | |
|-------------------------------|--------|--|---|--|----------|
| Pulse to Pulse Stability | 2% rms | | | | < 3% rms |
| Repetition Rate | | | Single Shot to 100 Hz* | | |
| Spatial Mode | | | TEM ₀₀ M ² <2 | | |
| Output Beam Diameter | | | 1.0 mm (nominal) | | |
| Beam Divergence | | | < 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 in | | |
| DP5 and DP1 | | | 3.25 in x 5 in x 10 in | | |

* Option to 200Hz

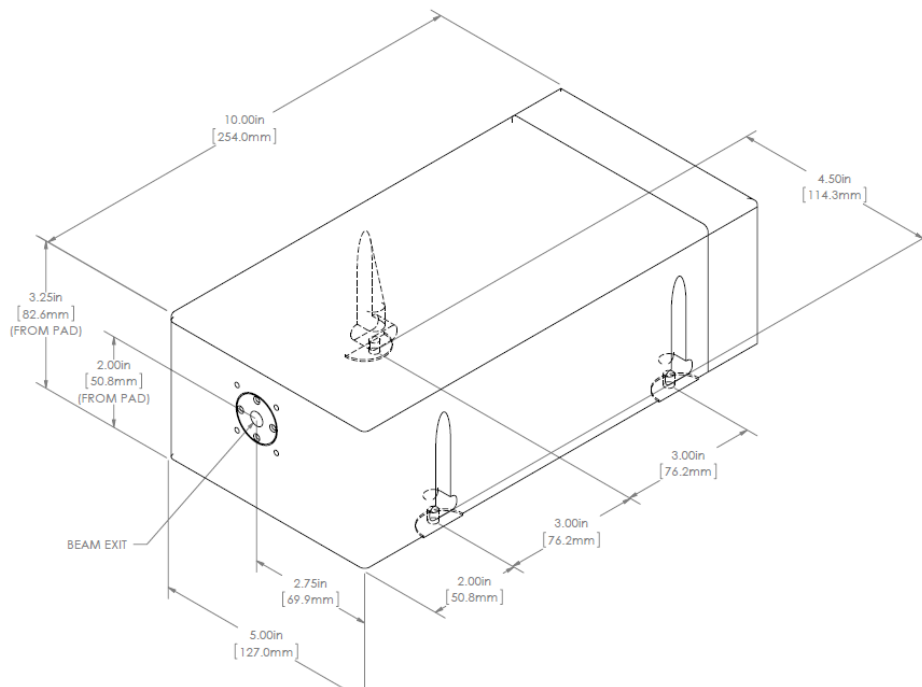
For higher repetition rate, please contact the factory about our other High Pulse Energy Diode Pulse Pumped Laser products: the DP1K (up to 1kHz) and DP2K (up to 2kHz) Series lasers.

Dimensional Drawings

DP20 Laser



DP5 and 1 Laser



User Selectable Wavelength (USW) Output

With the User Selectable Wavelength (USW) output, all wavelengths (i.e., DUV, UV, green and IR) come out of a single exit port. However, the user selects which individual single wavelength is emitted at any given time. The advantage is having access all the available wavelengths from a single exit port enabling fast wavelength switching (on the fly) without sacrificing beam characteristics.

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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: 9,531,147, 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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