Photonics Industries International, Inc.

# DP $TEM_{00}$ Series

## Diode Pulse Pumped DP $TEM_{00}$ Series Q-Switched Lasers

The DP Series offers two configurations, $TEM_{00}$ and multi-mode, both delivering 2X to 10X higher efficiency and up to 10X the repetition rate of competing products. With repetition rates up to 1kHz and high efficiency reducing heat generation, these lasers enable broader applications and simpler thermal management in air-cooled systems.

The DP $TEM_{00}$ Series provides up to 50mJ/pulse at 100Hz, 20mJ/pulse at 1kHz, all in $TEM_{00}$ mode with pulse widths of 6ns to 12ns. Available in IR wavelengths (1064nm/1030nm) and harmonics (GRN, UV, DUV), it offers three cooling options: no-fan, fan-cooled with optional water-cooling, and water- or radiator-cooled, ensuring flexibility for varying thermal requirements.


**APPLICATIONS**

- Material Processing: Marking, scribing, grooving
- Ion generation, atomic excitation, and quantum physics.
- LCD/LED/OLED panel repair systems.
- LIBS and advanced spectroscopy systems.
- Non-Destructive Testing: Incorporates laser ultrasonics, acoustic microscopy, and photoacoustic.
- Thin Film Technology: Specializes in pulsed laser deposition (PLD).
- OPO Pumping: Supports optical parametric oscillator systems.

**FEATURES**

- Up to ~50mJ Pulse Energy at 100Hz
- True $TEM_{00}$ Output
- Short Pulse Widths
- Air-cooled with Radiator Cooled Option
- Robust & Compact Form Factor
- Dynamic **P**ower **C**ontrol - **PWC**
- Optional Low Jitter operation w/ short-shot energy control [<1ns]
- Power Monitoring and Self-Calibration

| Specifications – **DP $TEM_{00}$ Series** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | **DP5** | **DP20** | **DP50** | **DP1k-5** | **DP1k-10** | **DP1k-20** |
| Wavelengths† | | 1064nm, 532nm, 355nm, 266nm[1] | 1053nm, 527nm, 351nm, 263nm | 1030nm, 515nm, 343nm, 257nm[1] | 1064nm, 532nm, 355nm, 266nm[1] | | |
| Max Pulse Energy[2,4] | IR | 2.5mJ* | 20mJ | 50mJ | 5mJ | 10mJ* | 20mJ |
| | GRN | 1.5mJ* | 10mJ | 25mJ* | 3mJ | 5mJ* | 10mJ |
| | UV | 1mJ* | 5mJ | 15mJ* | 2mJ | 3mJ* | 5mJ* |
| | DUV | .15mJ* | 1mJ | 2.5mJ* | .3mJ* | .5mJ* | 1mJ* |
| Pulse Width Range[3] | | ~6-10 ns | | | | | |
| Pulse repetition rate | | Single shot to 100 Hz | | | Single shot to 1 kHz | | |
| Pulse-to-pulse stability | | <3% rms | | | | | |
| Long-term power stability | | <3% rms | | | | | |
| Beam spatial mode[5] & $M^2$ | | $TEM_{00}$ - $M^2$ <1.5 | | | | | |
| Beam divergence (nominal) | | <2 mrad | | | | | |
| Beam diameter at exit (nominal)[5] | | 1 mm – 2.5mm | | | | | |
| Beam roundness | | ~90% | | | | | |
| Beam pointing stability | | <25 µrad | | | | | |
| Polarization ratio (IR) § | | Vertical; >100:1 | | | | | |
| | | **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 | | 15 V DC, 7A | 24V DC, 3A | 32V DC, 11A | | | |
| Line frequency | | 50-60 Hz | | | | | |
| Power consumption | | ~10W | ~50W | ~150W | ~50W | ~100W | ~200W |
| Dimensions[7] | | 11 x 5 x 3.25 in | 12.5 x 6.75 x 3.88in | | | | |
| Weight | | ~10 lbs | ~15.5 lbs [~7 kg] | | | | |
| | | **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 | | Passively Cooled | Air-Cooled | Rad-Cooled[6] | | | |

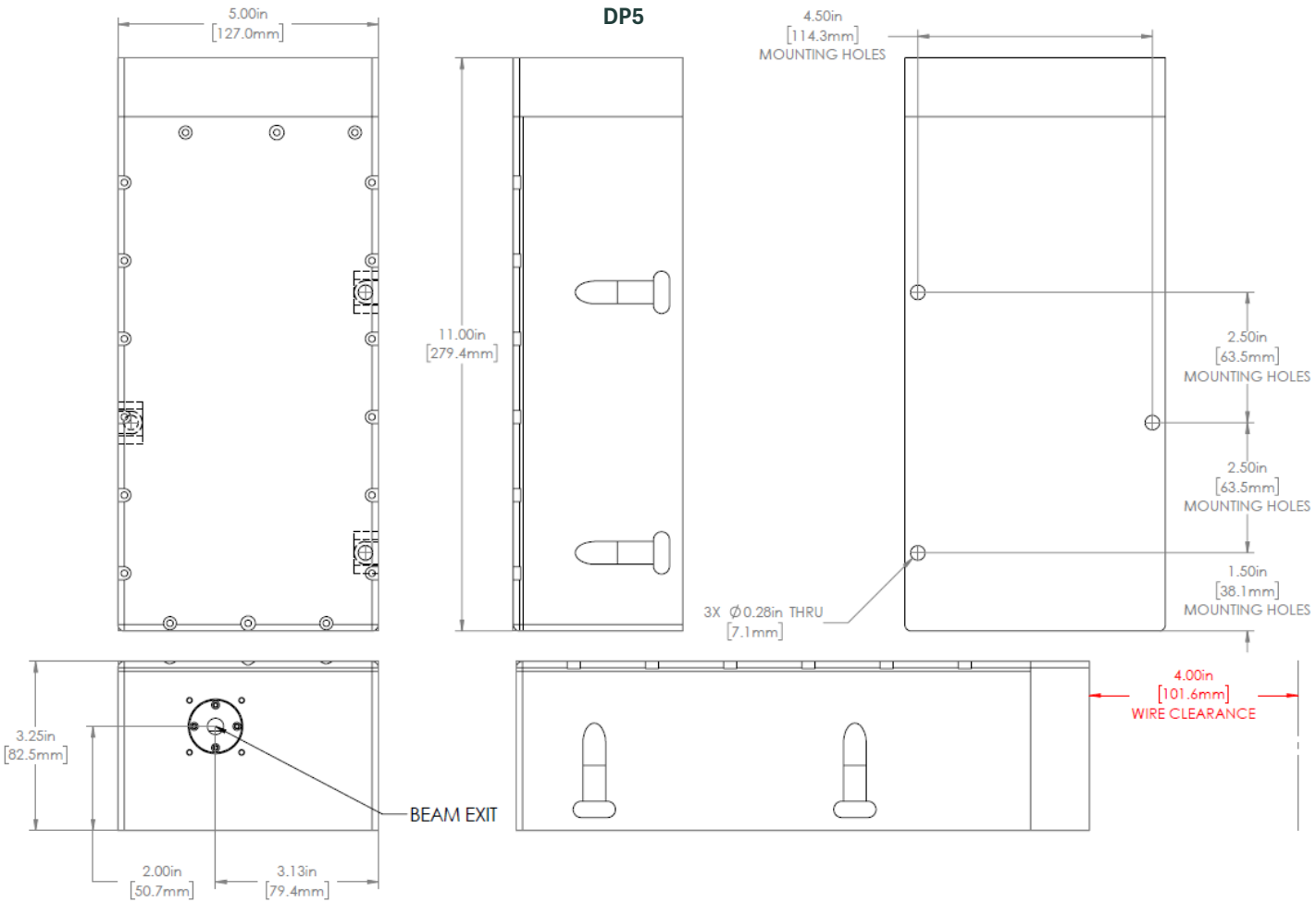
[1] For DUV 257 nm, 263 nm, or 266 nm outputs, please contact us. [2] Air-cooling or Rad cooling™ systems can be used for laser head heat removal based on pulse energy. [3] Pulse width is model and configuration dependent. [4] Pulse energy efficiency varies with multi-wavelength output options. [5] Values are wavelength and model dependent. [6] Rad cooling™ isolates vibrational noise (low dB) while effectively removing heat. [7] DP Series Lasers are all-in-one (AIO) with back-panel connections for operation and control. [†] For multi-wavelength output options, please contact us. [§] Polarizations vary for blended options. [*] Preliminary specification

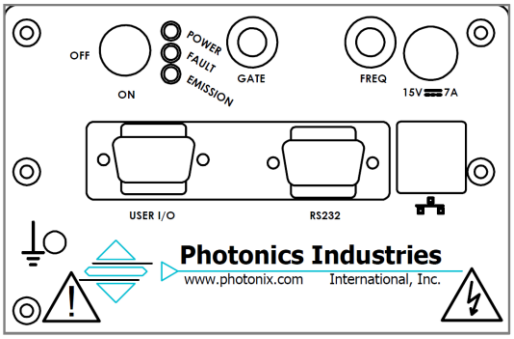
| **Options:** | | |
|---|---|---|
| Multi-wavelength | [IR/GRN], [GRN/DUV], [IR/GRN/UV] OR [IR/GRN/UV] | |
| Blended | All wavelengths come out of single exit port | [MWB] |
| Blended/Selectable | A single exit port can emit one, two, or three blended wavelengths, selectable via the software GUI. | [MWB/S] |
| Selectable | Each Individual wavelength is isolated and user-selectable via the software GUI | [MWS] |

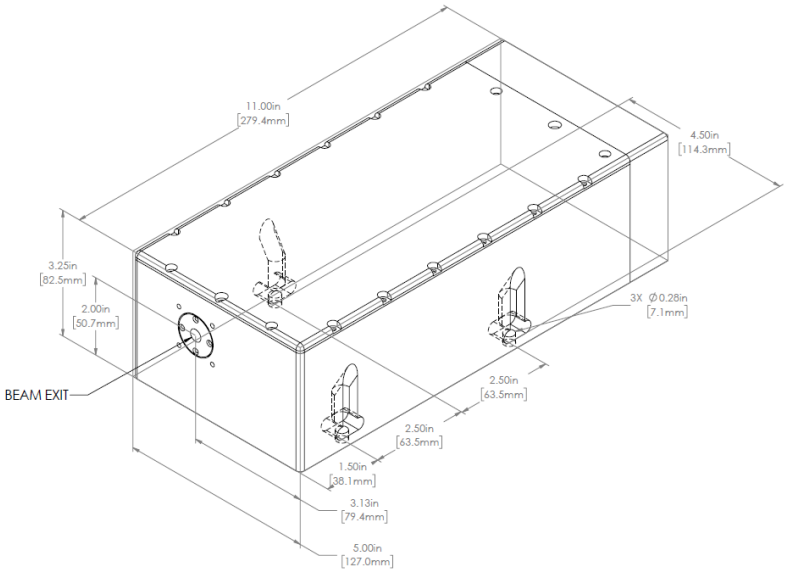
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Format | DP | - | [Model] | - | [Power Level] | - | [xxx] |

# Dimensional Drawings

## DP5




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

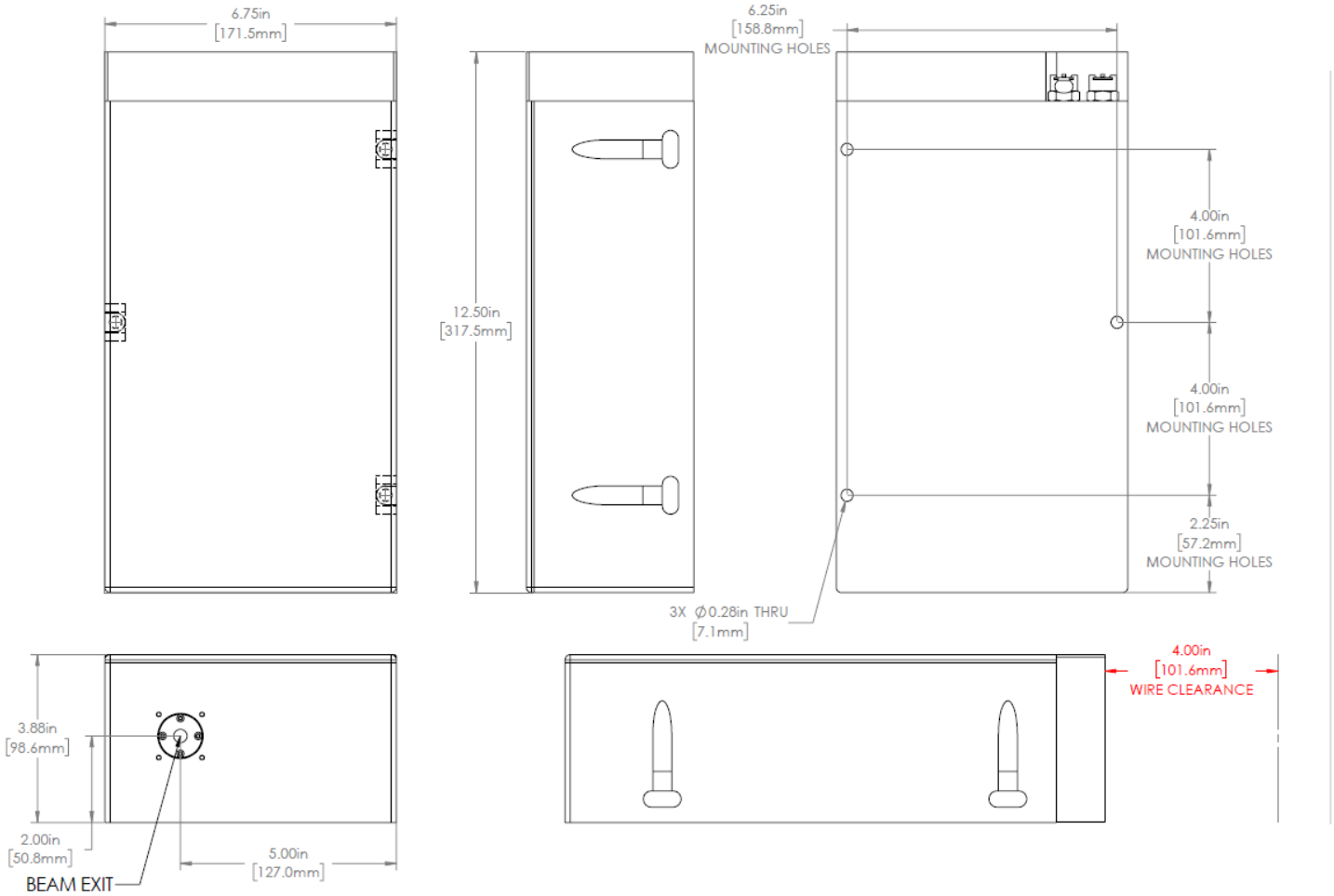
Photonics Industries International Inc. is the pioneer of intracavity harmonic lasers and is at the forefront of developing, manufacturing, and marketing a wide range of nanosecond, sub-nanosecond, picosecond, and femtosecond lasers for the industrial, scientific, defense and medical industries.

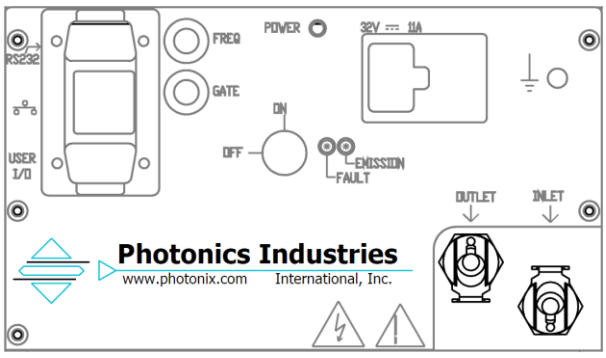
For more information www.photonix.com

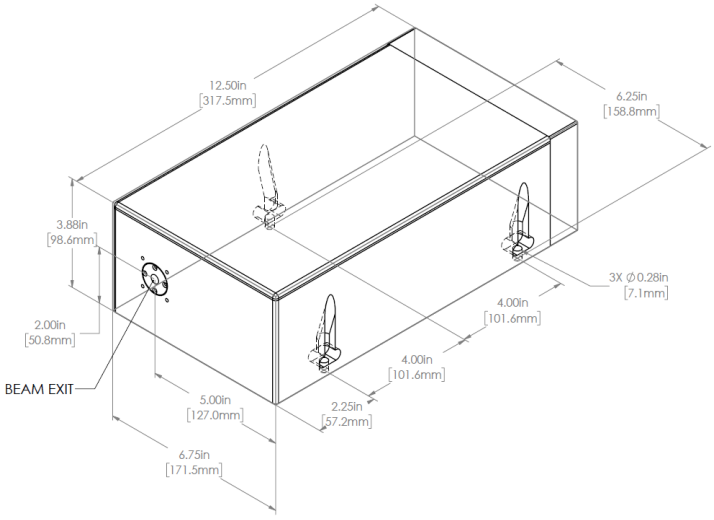
RoHS Compliant

# Dimensional Drawings

## DP1k, DP50

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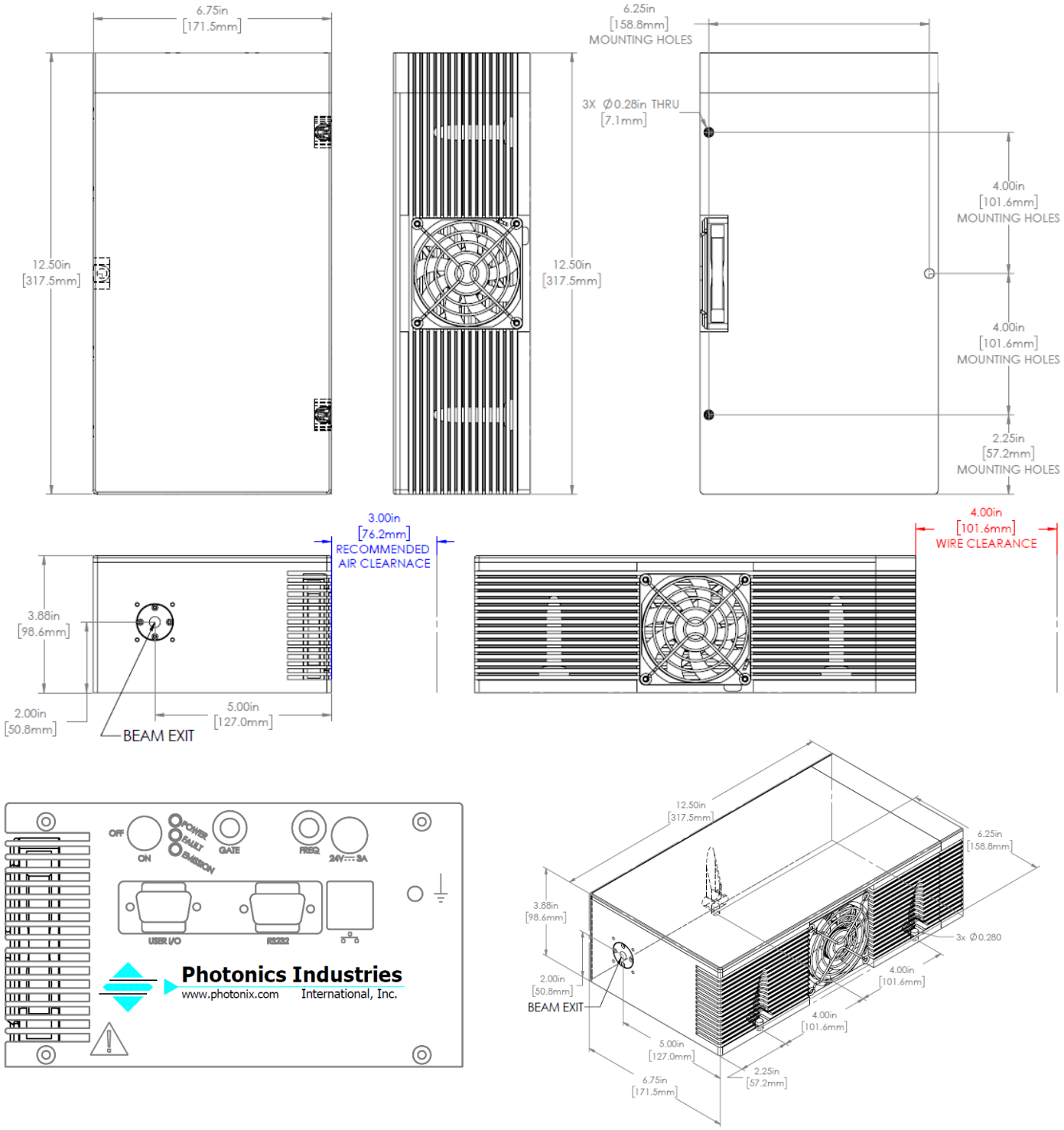
# Dimensional Drawings

## DP20

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