SN IR Series

SN Sub-nanosecond Lasers

TEM_{00}, Infrared, Sub-Nanosecond Lasers

Photonics Industries' SN Series sub-nanosecond lasers redefine precision and power in a compact, all-in-one design. With industry-leading high pulse energies and adjustable pulse widths from 5 nanoseconds to an ultra-fast 200 picoseconds, these lasers deliver unparalleled performance for your most demanding applications.

Unlock the potential of the SN Series in diverse applications, from advanced micro processing to cutting-edge scientific innovations like airborne laser ranging (LIDAR). Achieve faster, more accurate results with high-energy pulses tailored to your needs. Elevate your processes with the SN Series—where performance meets possibility.

APPLICATIONS

- Laser Scribing and Texturing
- Laser-Induced Fluorescence and Imaging (LIF)
- PCB & Polymer Cutting & Drilling
- Glass Cutting and Shaping
- Time-Resolved Spectroscopy and Diagnostics
- High-Precision Marking
- Resistor Trimming
- Medical Micro structuring

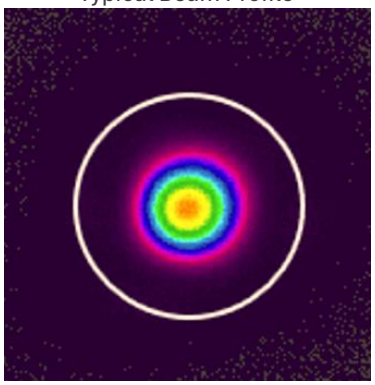
FEATURES

- Up to 5mJ Pulse Energy at 20kHz
- True TEM_{00} Output, M^2 <1.3
- Exceptional point stability (<25urad)
- Ultra-Short Pulse Widths (200ps-5ns @1064nm)
- Burst Mode for Pulse Control
- Robust & Compact Form Factor
- Dynamic **P**ulse **E**nergy **C**ontrol - **PEC**
- Power Monitoring and Self-Calibration

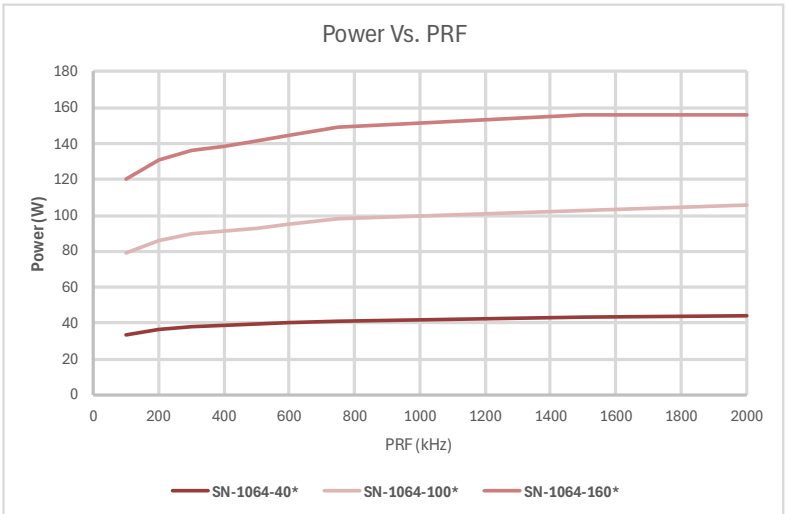
Specifications – SN **Series**			
	SN-1064-40	**SN-1064-100**	**SN-1064-150**
Wavelength	1064nm		
Average Power[1] @1MHz	40W	100W	150W
Max Pulse Energy @ 20kHz	~1mJ	~2mJ	~3mJ
Pulse Width [3]	200ps – 5ns		
Pulse repetition rate[4]	Single shot to 2MHz		
Pulse-to-pulse stability[5]	<2% rms		
Long-term power stability [2]	≤1% rms		
Beam spatial mode & M^2	TEM_{00} - M^2 <1.2		
Beam divergence (nominal)	<1.5 mrad		
Beam bore sight accuracy	≤ 1 mm lateral (to specified exit location), ≤ 5 mrad angular (to specified exit direction)		
Beam roundness	>90%		
Beam pointing stability	<25 µrad		
Polarization ratio	Vertical; >100:1		
	Operational Specifications and Characteristics		
Interface	RS232, Ethernet, Software GUI, External TTL Triggering		
Warm-up time	< 5 minutes from standby, <15 minutes from cold start		
Electrical requirement	32 V DC, 15 A	32 V DC, 28 A	60/32 V DC, 20/18 A
Line frequency	50-60 Hz		
Power consumption [6]	<500W	<900W	<1300W
Dimensions[7]	16 x 8.5 x 4.5 in. [406.4 x 215.9 x 114.3mm]	20 x 8.5 x 4.5 in. [508 x 215.9 x 114.3mm]	20 x 10 x 4.5 in. [508 x 254 x 114.3mm]
Weight	~38lbs [17.2kg]	~47lbs [21.3kg]	~57lbs [25.9kg]
	Environmental Requirements		
Ambient temperature [2]	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	Water-Cooled		

[1.] Standard power optimization is at 1 MHz. Output power is specifiable at different pulse repetition rates. Pulse energy varies depending on the repetition rate optimization and specified pulse width. > 3 mJ single pulse energy optimization is available. [2.] Measured over 8 hours ± 1°C. [3.] Specifiable pulse width. Pulse energy varies depending on the specified pulse width. [4.] Lower pulse repetition rate operation, down to single shot, achieved by utilizing POD features. Higher pulse repetition rates are available [5.] Measured at ambient temperature ± 2°C. [6.] Power consumption data does not include an external chiller's power consumption. [7.] SN Series sub-nanosecond lasers are all-in-one (AIO) and do not require a separate controller or utility module. All connections for operation and control of the laser can be found on the back panel of the AIO laser. [8.] 60V/20A and 32V/28A two connections between laser head and PSU. *Illustration includes some simulated data for conceptual visualization.

Typical Beam Profile

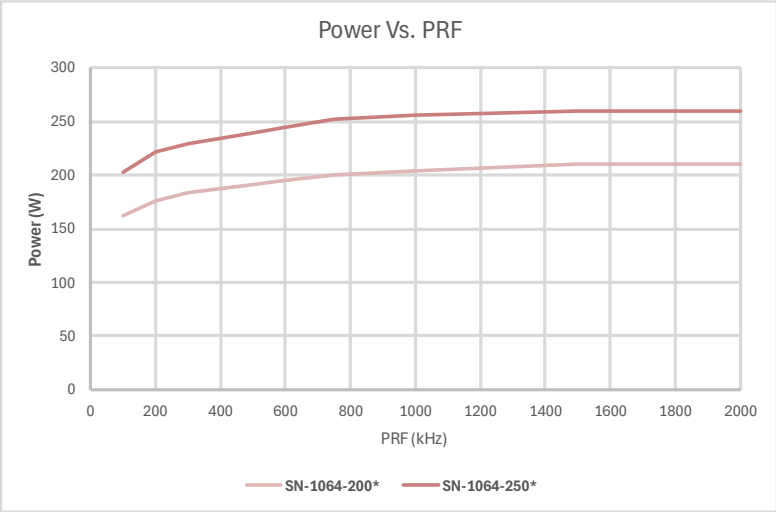


SN-1064-100



Specifications – **SN Series**		
	SN-1064-200	**SN-1064-250**
Wavelength	1064nm	
Average Power[1] @600kHz	200W	250W
Max Pulse Energy @20kHz	~4mJ	~5mJ
Pulse Width [3]	200ps – 5ns	
Pulse repetition rate[4]	Single shot - 2MHz	
Pulse-to-pulse stability[5]	<1% rms	
Long-term power stability [2]	≤2% rms	
Beam spatial mode & M^2	TEM_{00} - M^2 ≤1.2	
Beam divergence (nominal)	<1.5 mrad	
Beam bore sight accuracy	≤ 1 mm lateral (to specified exit location), ≤ 5 mrad angular (to specified exit direction)	
Beam roundness	>90%	
Beam pointing stability	<25 µrad	
Polarization ratio	Vertical; >100:1	
	Operational Specifications and Characteristics	
Interface	RS232, Ethernet, Software GUI, External TTL Triggering	
Warm-up time	< 5 minutes from standby, <15 minutes from cold start	
Electrical requirement	100-240 V AC	200-240 V AC
Line frequency	50-60 Hz	
Power consumption [6]	~1.8kW	~2.6kW
Dimensions[7]	20 x 12 x 4.5in [508 x 304.8 x 114.3mm]	28 x 14 x 4.5 in. [711.2 x 355.6 x 114.3mm]
Weight	~65lbs	~100lbs
	Environmental Requirements	
Ambient temperature [2]	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	Water-Cooled	

[1.] Standard power optimization is at 600kHz. Output power is specifiable at different pulse repetition rates. Pulse energy varies depending on the repetition rate optimization and specified pulse width. > 3 mJ single pulse energy optimization is available. [2.] Measured over 8 hours ± 1°C. [3.] Specifiable pulse width. Pulse energy varies depending on the specified pulse width. [4.] Lower pulse repetition rate operation, down to single shot, achieved by utilizing POD features. Higher pulse repetition rates are available [5.] Measured at ambient temperature ± 2°C. [6.] Power consumption data does not include an external chiller's power consumption. [7.] SN Series sub-nanosecond lasers are all-in-one (AIO) and do not require a separate controller or utility module. All connections for operation and control of the laser can be found on the back panel of the AIO laser. [8.] 60V/20A and 32V/28A two connections between laser head and PSU. *Illustration includes some simulated data for conceptual visualization.



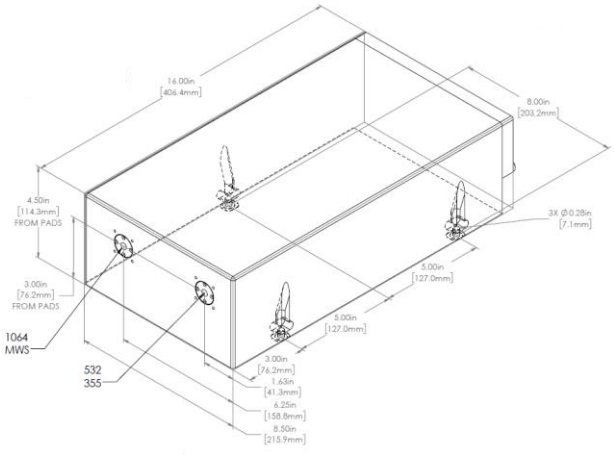
Photonics Industries International, Inc.

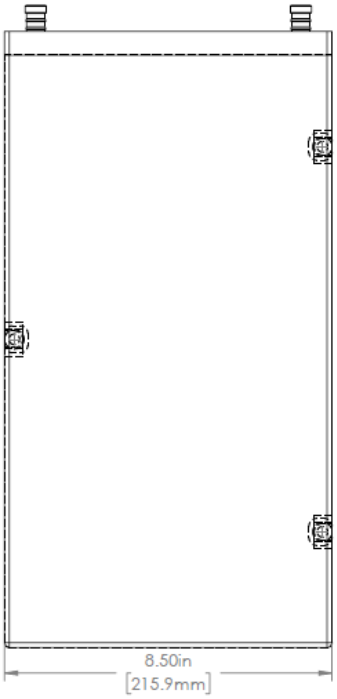
SN Series

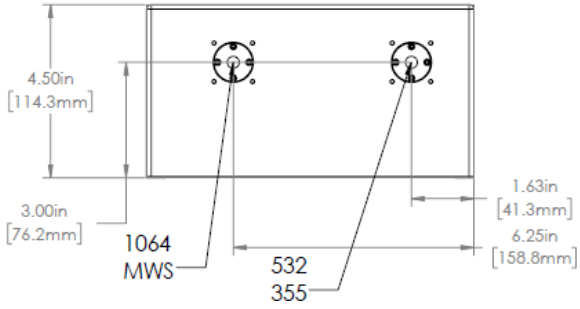
Dimensional Drawings

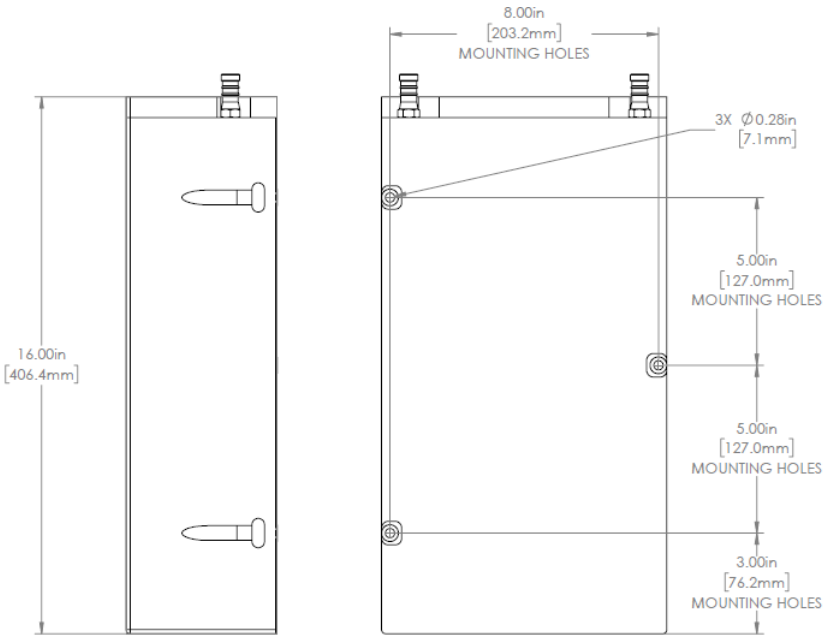
SN-1064-40

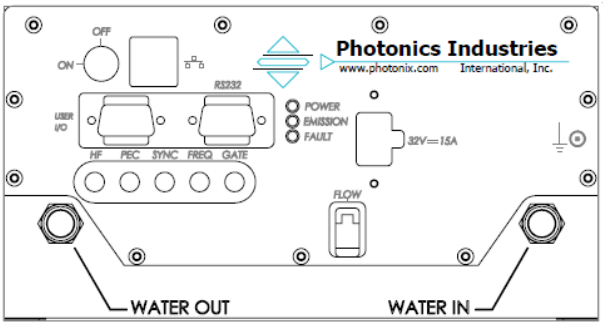
*The SN1 model depicted is a future release and is expected to be available in Q3 2025. Specifications and availability are subject to change. For information on currently available models, please contact us









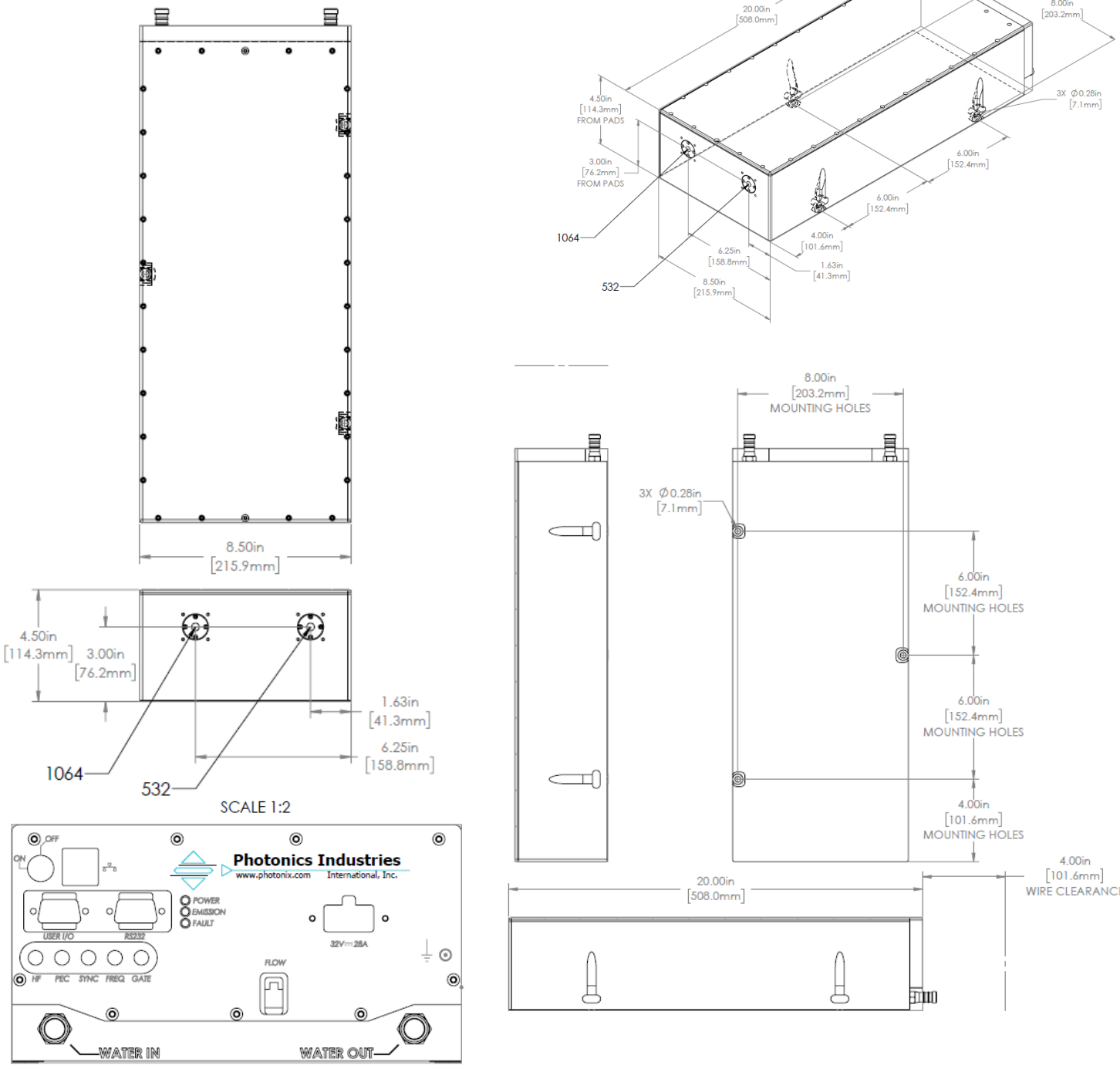


Options:		
High PRF	Up to 15 MHz operational pulse repetition rate	[15M]
Quasi-CW	~32 MHz fixed pulse repetition rate	[QCW]
Multi-wavelength	Multi-wavelength output, blended or selectable	[MWB], [MWS]

Format	SN-1064	-	[Power Level]	-	[xxx]

Dimensional Drawings

SN-1064-100

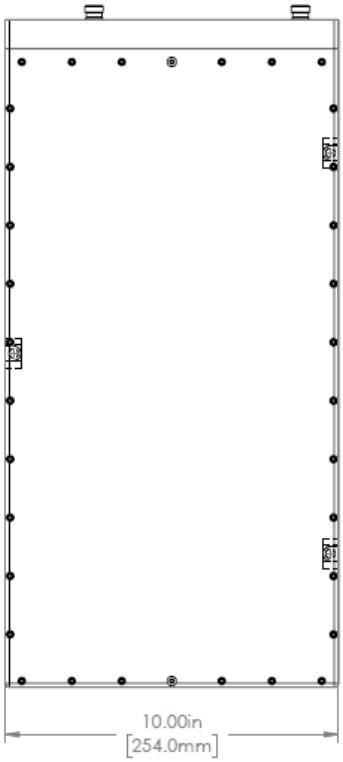


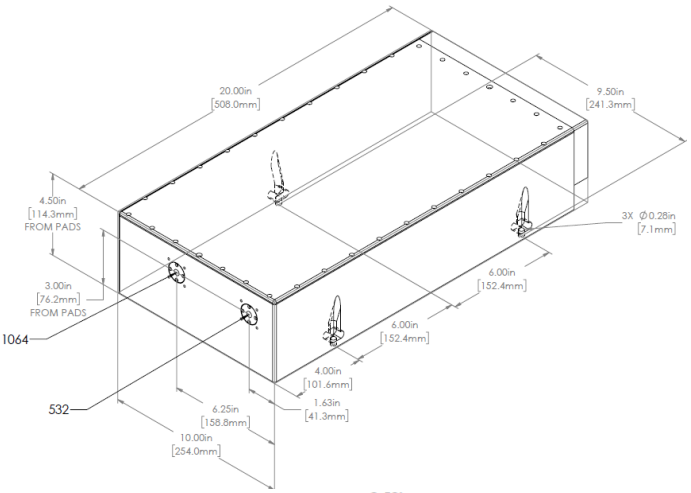
Options:		
High PRF	Up to 15 MHz operational pulse repetition rate	[15M]
Quasi-CW	~32 MHz fixed pulse repetition rate	[QCW]
Multi-wavelength	Multi-wavelength output	[MWB]

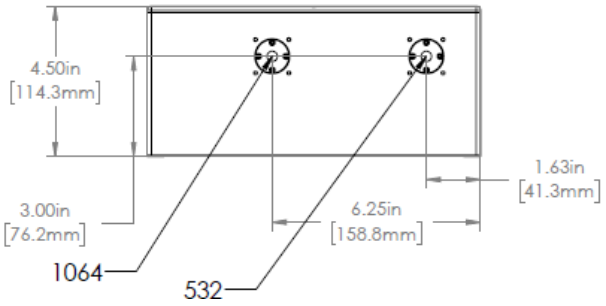
Format	SN-1064	-	[Power Level]	-	[xxx]

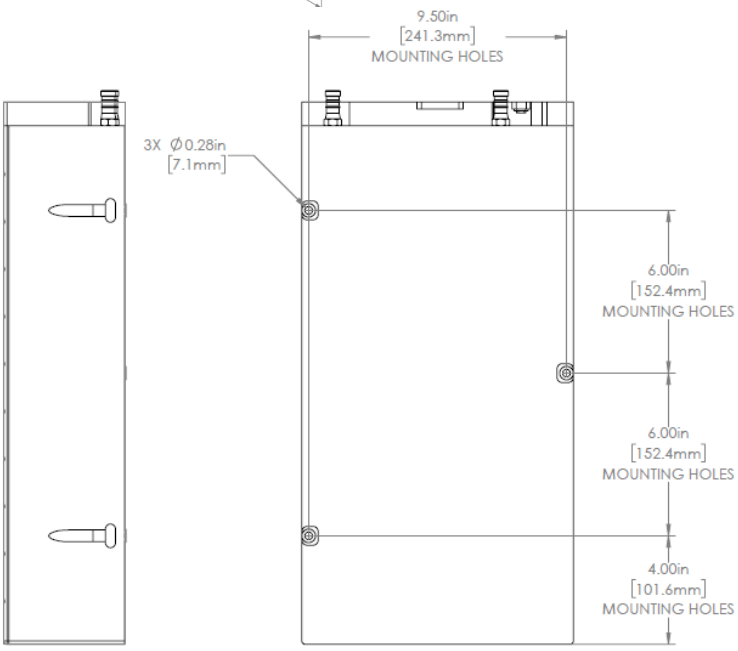
Dimensional Drawings

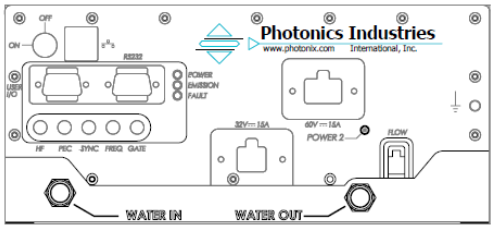
SN-1064-150

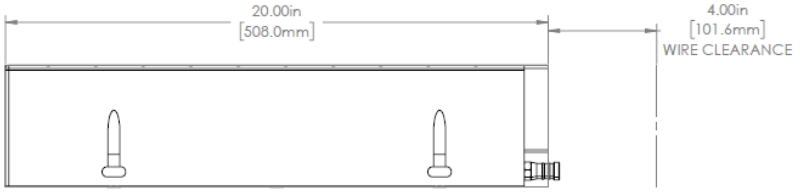










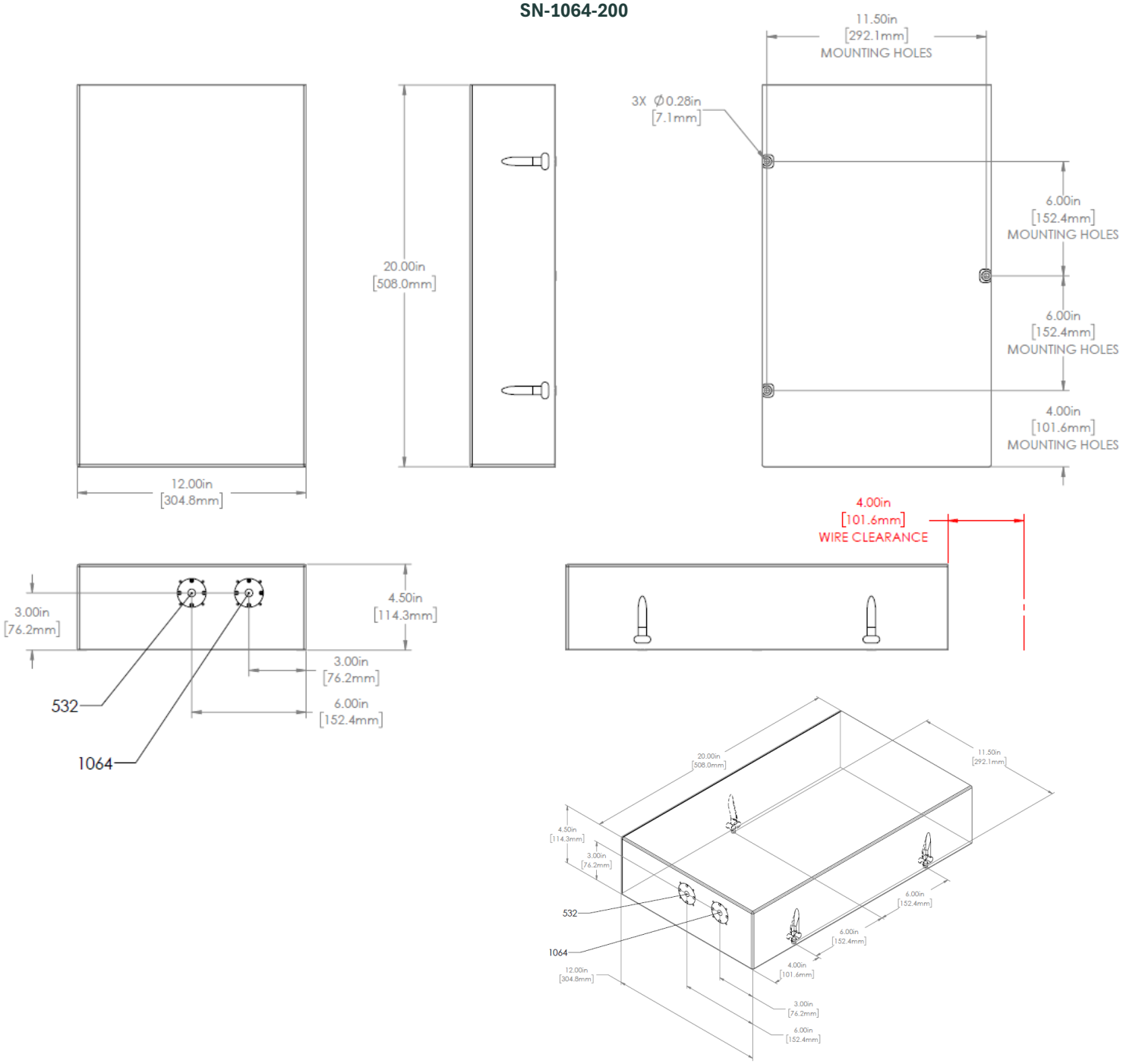


Options:		
High PRF	Up to 15 MHz operational pulse repetition rate	[15M]
Quasi-CW	~32 MHz fixed pulse repetition rate	[QCW]
Multi-wavelength	Multi-wavelength output, blended	[MWB]

Format	SN-1064	-	[Power Level]	-	[xxx]

Dimensional Drawings

SN-1064-200

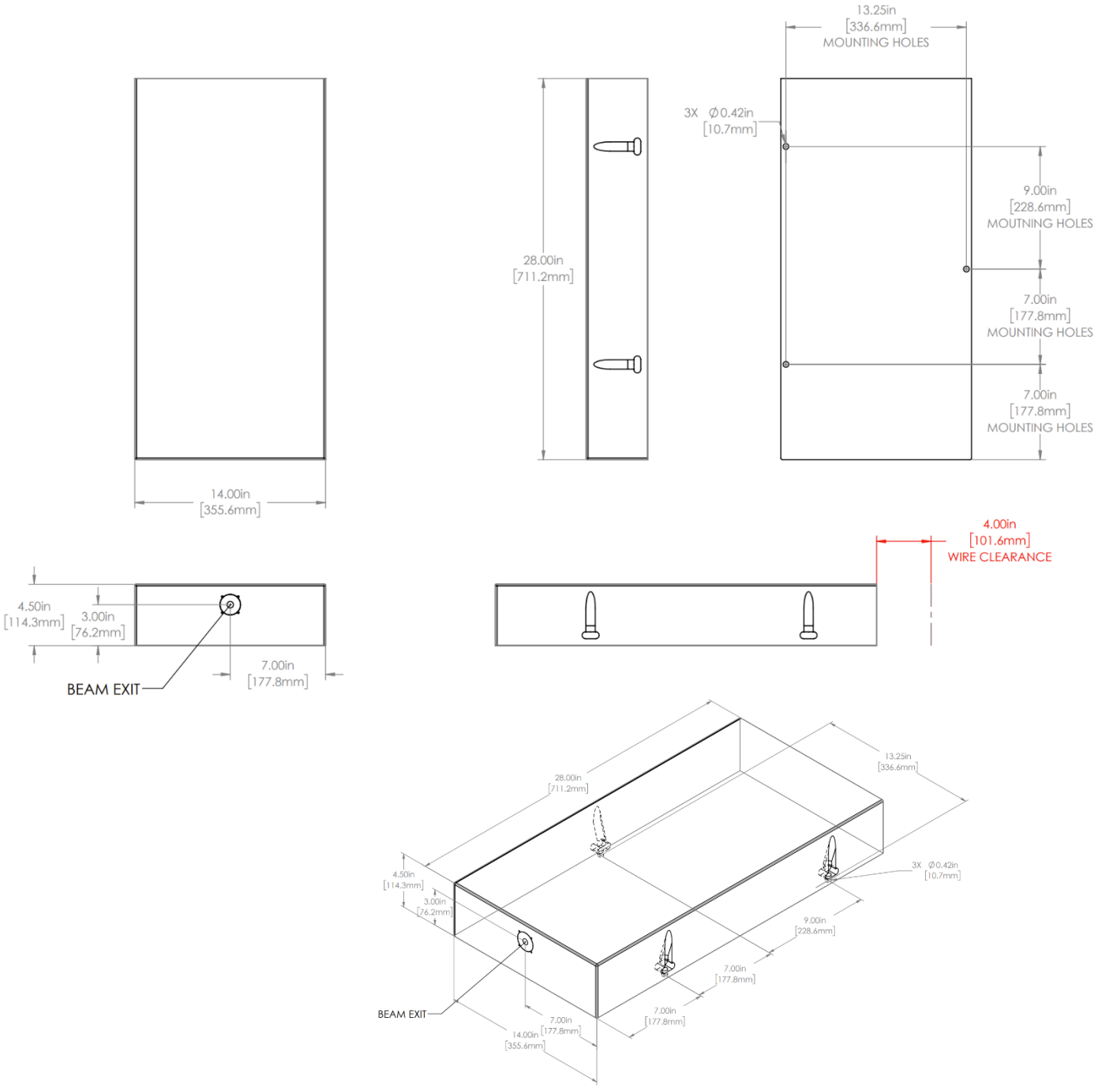


Options:		
High PRF	Up to 15 MHz operational pulse repetition rate	[15M]
Quasi-CW	~32 MHz fixed pulse repetition rate	[QCW]
Multi-wavelength	Multi-wavelength output	[MWB]

Format	SN-1064	-	[Power Level]	-	[xxx]

Dimensional Drawings

SN-1064-250



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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

光と人をつなぐ

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