SN IR/Green/UV Series Sub-nanosecond Lasers

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Overview

A pioneer of intracavity UV and green generation with 28+ years of manufacturing experience and tens of thousands of shipments worldwide, Photonics Industries offers the broadest sub-nanosecond (ns) product selection from 30W to 100W at 1064nm, 16W to 60W at 532nm and 10W to 40W at 355nm in water cooled versions and 10W at 1064nm, 5W at 532nm and 3W at 355nm in an air-cooled version.

The SN Series fills the gap for high power laser availability in the subnanosecond (i.e., ~50ps to 5ns) pulse width range. Such lasers have been identified as beneficial for a variety of micromachining and LIDAR applications, but until now, have been limited to only a few Watts of average power. Photonics Industries now offers a unique high intensity (i.e., high brightness/high peak power) sub-ns laser alterative for novel laser-based material processing, research and development, as well as, scientific applications. The longer pulse widths of the SN laser allows it to be run at higher pulse energies at lower rep rates than conventional 10 to 20ps lasers.

Features

- ***Up to 100W of power at 1064nm***
- ***Up to 3mJ of pulse energy at 1064nm***
- ***Sub ns Pulse Width***
  - ***specifiable from ~50ps to 5ns***
- ***Repetition rate from Single Shot to 8MHz***
- ***Excellent beam quality (M2<1.3)***
- ***Air-cooled and Closed loop chilled versions***
- ***Small compact all-in-one form factor***
- ***Diode pumped technology***
- ***Harmonic options available (i.e., 532 & 355nm)***
- ***Low jitter <500ps***
- ***Burst Mode***

Applications

- **Solar cell processing (PERC, CIGS, etc.)**
- **Glass, sapphire, ceramic cutting, scribing, and ablative drilling**
- **Low K wafers and LED substrates scribing/dicing**
- **Via hole drilling**
- **PCB processing**
- **ITO patterning/FPD processing**
- **Intraglass/subsurface marking**
- **LIDAR**
- **Bathymetry CZMIL**
- **Cryosphere and Biomass Measurements**

System Specifications

Model	SN 1064-10	SN 1064-30	SN 1064-70	SN 1064-100
Output Characteristics				
Wavelength (nm)	1064			
Average Power (W) @ 1 MHz[a]	10	30	70	100
Pulse Width (ps)[b]	~500			
Repetition Rate[c]	Single shot to 8 MHz			
Pulse to Pulse Stability	~2% rms at 1 MHz			
Long Term Stability[d]	≤ 1% rms			
Beam Characteristics				
Beam Diameter at exit	~1 mm			
Spatial Mode (M2)	TEM_{oo} M^2<1.3			
Beam Pointing Stability	< 50 µrad			
Beam Circularity	≥ 90%			
Beam Divergence	< 3 mrad			
Beam Bore Sight Accuracy	≤ 1 mm Lateral (to specified exit location); ≤ 6 mrad Angular (to specified exit direction)			
Operating Specifications				
Interface	Ethernet / RS 232 / GUI / External TTL Triggering			
Warm-up Time	< 15 min			
Electrical Requirement	100 to 240 V AC; or 32 V DC, 15 A			
Power Consumption	~120 W	< 600 W (Excluding Chiller)		
Ambient Temperature	15°C to 30°C (59°F to 86°F) Operating Range, RH 90% Max, non-condensing			
Physical Characteristics				
Dimensions	8.5 in x 3.75 in x 15 in (WxLxH)	10 in x 3.75 in x 24 in (WxLxH)		12 in x 3.75 in x 24 in (WxLxH)
Weight	~31 lbs	~58 lbs		~74 lbs
Vibration	Up to 3g			
Cooling System	Air-cooled	Closed Loop Chiller		

a) At nominal pulse width
b) Pulse widths down to ~50 ps and up to 5 ns available upon request
c) Lower repetition rates, down to single shot, achieved by selecting higher repetition rate pulses with the AOM
d) 8 hours ± 3°C

Model	SN 532-5	SN 532-16	SN 532-40	SN 532-60
Output Characteristics				
Wavelength (nm)	532			
Average Power (W) @ 1 MHz[a]	5	16	40	60
Pulse Width (ps)[b]	~350			
Repetition Rate[c]	Single shot to 8 MHz			
Pulse to Pulse Stability	~2% rms at 1 MHz			
Long Term Stability[d]	≤ 1% rms			
Beam Characteristics				
Beam Diameter at exit	~1 mm	~2 mm		
Spatial Mode (M2)	TEM_{oo} M^2<1.3			
Beam Pointing Stability	< 50 µrad			
Beam Circularity	≥ 90%			
Beam Divergence	< 3 mrad	< 2 mrad		
Beam Bore Sight Accuracy	≤ 1 mm Lateral (to specified exit location); ≤ 6 mrad Angular (to specified exit direction)			
Operating Specifications				
Interface	Ethernet / RS 232 / GUI / External TTL Triggering			
Warm-up Time	< 15 min			
Electrical Requirement	100 to 240 V AC; or 32 V DC, 15 A			
Power Consumption	~120 W	< 600 W (Excluding Chiller)		
Ambient Temperature	15°C to 30°C (59°F to 86°F) Operating Range, RH 90% Max, non-condensing			
Physical Characteristics				
Dimensions	8.5 in x 3.75 in x 15 in (WxLxH)	10 in x 3.75 in x 24 in (WxLxH)		12 in x 3.75 in x 24 in (WxLxH)
Weight	~31 lbs	~58 lbs		~74 lbs
Vibration	Up to 3g			
Cooling System	Air-cooled	Closed Loop Chiller		

a) At nominal pulse width
b) Pulse widths down to ~50 ps and up to 5 ns available upon request
c) Lower repetition rates, down to single shot, achieved by selecting higher repetition rate pulses with the AOM
d) 8 hours ± 3°C

Model	SN 355-3	SN 355-10	SN 355-25	SN 355-40
Output Characteristics				
Wavelength (nm)	355			
Average Power (W) @ 1 MHz[a]	3	10	25	40
Pulse Width (ps)[b]	~300			
Repetition Rate[c]	Single shot to 8 MHz			
Pulse to Pulse Stability	~2% rms at 1 MHz			
Long Term Stability[d]	≤ 1% rms			
Beam Characteristics				
Beam Diameter at exit	~1 mm	~2 mm		
Spatial Mode (M2)	TEM_{oo} M^2<1.3			
Beam Pointing Stability	< 50 µrad			
Beam Circularity	≥ 90%			
Beam Divergence	< 3 mrad	< 1.5 mrad		
Beam Bore Sight Accuracy	≤ 1 mm Lateral (to specified exit location); ≤ 6 mrad Angular (to specified exit direction)			
Operating Specifications				
Interface	Ethernet / RS 232 / GUI / External TTL Triggering			
Warm-up Time	< 15 min			
Electrical Requirement	100 to 240 V AC; or 32 V DC, 15 A			
Power Consumption	~120 W	< 600 W (Excluding Chiller)		
Ambient Temperature	15°C to 30°C (59°F to 86°F) Operating Range, RH 90% Max, non-condensing			
Physical Characteristics				
Dimensions	8.5 in x 3.75 in x 15 in (WxLxH)	10 in x 3.75 in x 24 in (WxLxH)		12 in x 3.75 in x 24 in (WxLxH)
Weight	~31 lbs	~58 lbs		~74 lbs
Vibration	Up to 3g			
Cooling System	Air-cooled	Closed Loop Chiller		

a) At nominal pulse width
b) Pulse widths down to ~50 ps and up to 5 ns available upon request
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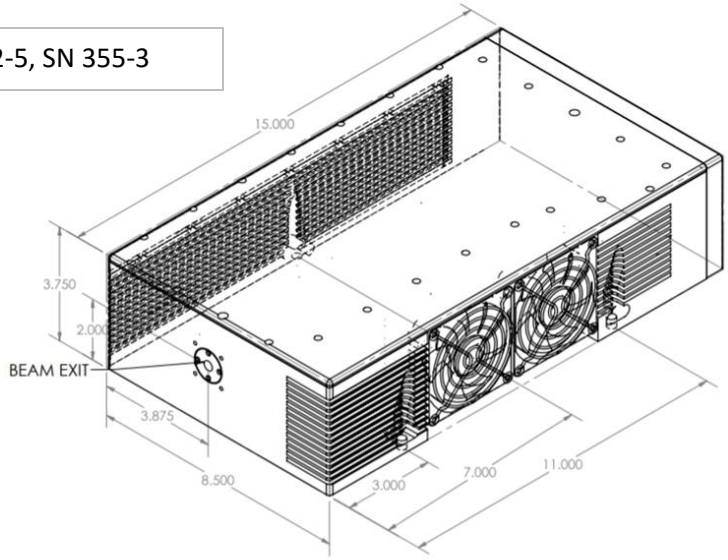
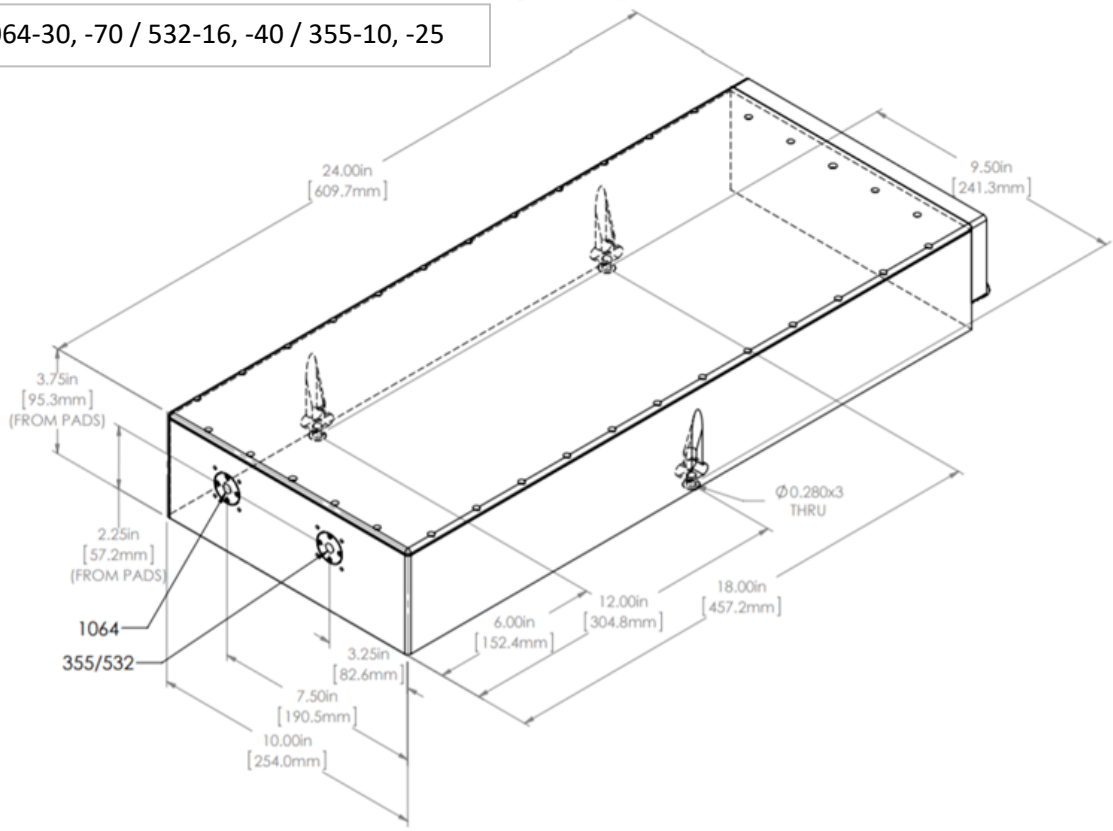
Dimensional Drawings

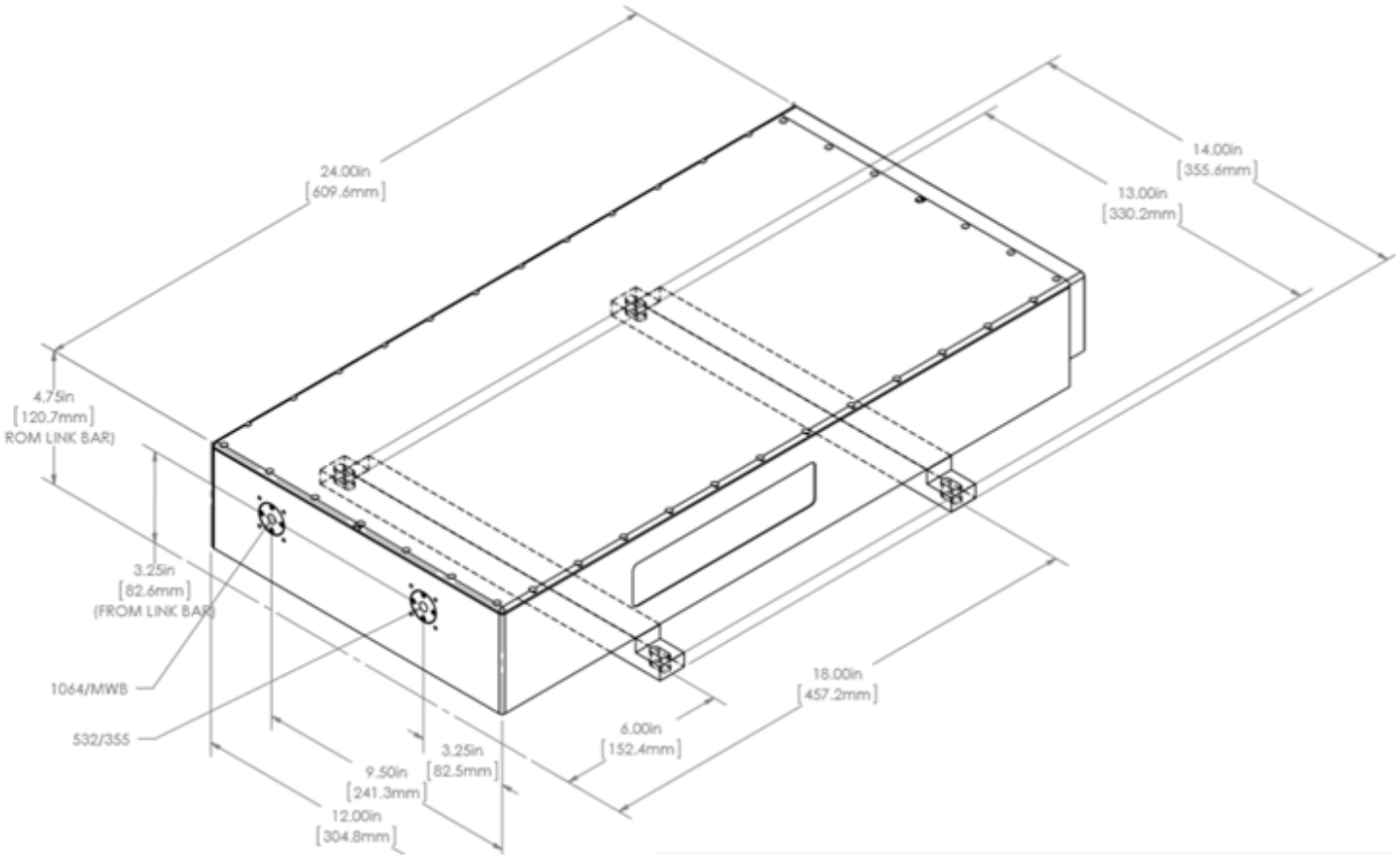
SN 1064-10, SN 532-5, SN 355-3



SN 1064-30, -70 / 532-16, -40 / 355-10, -25



SN 1064-100 / 532-60 / 355-40



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Photonics Industries International 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 industrial, scientific, defense, and medical industries. Check out our products and see how we can help you apply our lasers to your needs!

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LASER RADIATION

Photonics Industries International, Inc.