

RX1 Series Picosecond Lasers

www.photonix.com

Photonics Industries' RX1 Series low power picosecond lasers offer high performance, high precision, and robust form factor for the most demanding industrial as well as scientific applications. Photonics Industries is proven, with over a thousand picosecond lasers shipped worldwide, to meet and fulfill precision needs in manufacturing, scientific research, and new, emerging requirements necessitating ever smaller pulse widths in the ultrafast regime.



Applications

- Cutting/Drilling/Scribing Thin Metal/Metal Foil, Ceramic, Glass, Ultra Thin Glass (UTG), Plastic, Glass-reinforced Plastic
- Flat Panel Display, LCD/LED/OLED Repair/Microprocessing
- Ink-Jet Nozzle Hole Drilling, Laser Milling Ink-Jet Nozzle Holes, Laser Ablation Ink-Jet Nozzle Holes
- Brittle Material Microprocessing
- Medical Stents, Medical Device Laser Microprocessing
- Low- κ Dielectric Wafers, Silicon Wafers, Flexible Printed Circuit Boards (FPCB), Printed Circuit Boards (PCB) Microprocessing
- Hydrophobic Material Manufacturing, Hydrophilic Material Manufacturing, Ultrafast Laser Assisted Etching (ULAE) Systems

Features

- Short pulse laser:
~10 ps for IR, ~7 ps for Green & UV
Option up to ~50 ps available
- Wide range of wavelengths:
1064 nm, 532 nm, 355 nm
MWB, MWS, & 266 nm options on request
- Smallest, all-in-one (AIO), high power picosecond laser on the market
- Highest efficiency picosecond laser with the lowest power consumption:
< 400 W typical
- High repetition rates:
Up to 8 MHz
- Excellent TEM00 beam, and Pointing Stability:
Typical $M^2 < 1.2$; < 20 μ rad
- Exceptional and Versatile Pulse Control:
PEC (Power or Pulse Energy Control)
PSO (Position Synchronized Output) support for external triggering to any arbitrary PRF while maintaining a constant, stable pulse energy with low jitter
Burst Mode for individually controllable bursts of up to 10 pulses with a separation of 14 ns
POD (Pulse-On-Demand) pulse bursts can be triggered internally, externally, or continuously, while maintaining constant pulse energy
- Air-cooled option available

Specifications – **RX1 Series Picosecond Lasers, Low Power IR Models**

IR Models	RX1-1064-10	RX1-1064-30	RX1-1064-40
Beam and output specifications			
Wavelength	1064 nm		
Average power	10 W at 2 MHz	30 W at 2 MHz	40 W at 2 MHz
Pulse width	~10 ps		
Pulse repetition rate ¹	Single shot to 2 MHz (option up to 8 MHz)		
Pulse-to-pulse stability ²	~1% rms		
Long term power stability ³	≤ 1% rms		
Beam diameter, at exit	~1.5 mm		
Beam spatial mode	TEM ₀₀ M ² ~1.2		
Beam pointing stability	< 20 μrad		
Beam divergence	< 2 mrad		
Beam roundness	> 90%		
Beam bore sight accuracy	≤ 1 mm lateral (to specified exit location), ≤ 5 mrad angular (to specified exit direction)		
Operational specifications and system characteristics			
Interface	RS232, Ethernet, Software GUI, External TTL Triggering		
Warm-up time	< 15 minutes		
Electrical requirement	100-240 V AC; or 32 V DC, 10 A		
Line frequency	50-60 Hz		
Climate	Ambient 15°C to 30°C (59°F to 86°F) Operating Range, Relative Humidity 90% Maximum, non-condensing		
Power consumption ⁴	< 400 W		
Dimensions (LxWxH) ⁵	21 x 8.5 x 3.75 in.		
Weight	~50 lbs		
Vibrational tolerance	Up to 3g		
Cooling system ⁶	Closed-loop chiller		

1. Lower repetition rates, down to single shot, achieved by utilizing PSO or POD features.

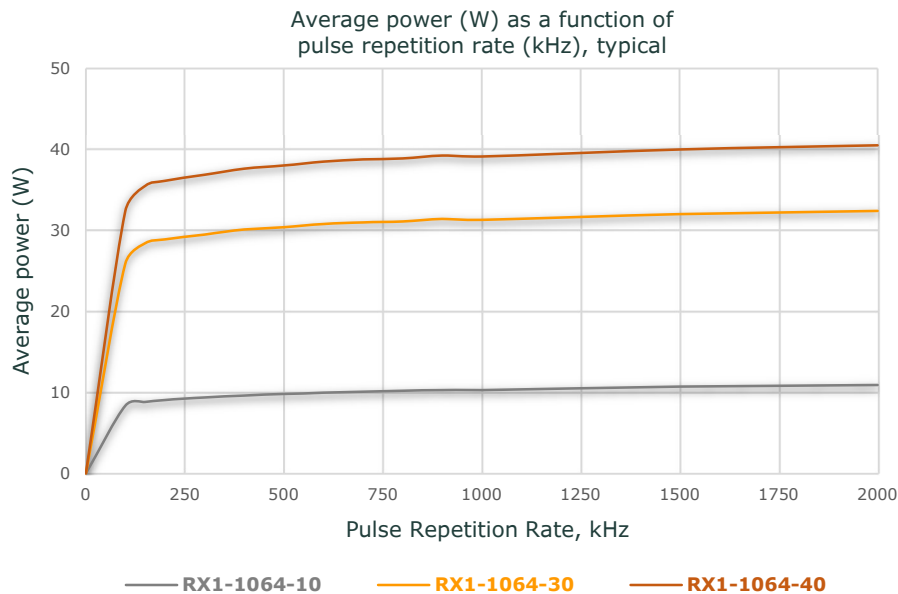
2. Measured at a pulse repetition rate of 1 MHz, and at an ambient temperature of ± 2°C.

3. Measured over 8 hours ± 1°C.

4. Power consumption data does not include an external chiller's power consumption.

5. RX Series picosecond 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.

6. Air-cooled option available for low power RX Series models. Contact us.



Specifications – **RX1 Series Picosecond Lasers**, Low Power GRN Models

GRN Models	RX1-532-5	RX1-532-20	RX1-532-25
Beam and output specifications			
Wavelength	532 nm		
Average power	-L 5 W at 200 kHz	20 W at 200 kHz	25 W at 200 kHz
	-M 5 W at 400 kHz	20 W at 400 kHz	25 W at 400 kHz
	-H 5 W at 1 MHz	20 W at 1 MHz	25 W at 1 MHz
Pulse width	~7 ps		
Pulse repetition rate ¹	Single shot to 2 MHz (option up to 8 MHz)		
Pulse-to-pulse stability ²	~1% rms		
Long term power stability ³	≤ 1% rms		
Beam diameter, at exit	~1 mm	~1.5 mm	
Beam spatial mode	TEM ₀₀ M ² < 1.2		
Beam pointing stability	< 20 μrad		
Beam divergence	≤ 1 mrad		
Beam roundness	> 90%		
Beam bore sight accuracy	≤ 1 mm lateral (to specified exit location), ≤ 5 mrad angular (to specified exit direction)		
Operational specifications and system characteristics			
Interface	RS232, Ethernet, Software GUI, External TTL Triggering		
Warm-up time	< 15 minutes		
Electrical requirement	100-240 V AC; or 32 V DC, 10 A		
Line frequency	50-60 Hz		
Climate	Ambient 15°C to 30°C (59°F to 86°F) Operating Range, Relative Humidity 90% Maximum, non-condensing		
Power consumption ⁴	< 400 W		
Dimensions (LxWxH) ⁵	21 x 8.5 x 3.75 in.		
Weight	~50 lbs		
Vibrational tolerance	Up to 3g		
Cooling system ⁶	Closed-loop chiller		

1. Lower repetition rates, down to single shot, achieved by utilizing PSO or POD features.

2. Measured at a pulse repetition rate of 1 MHz, and at an ambient temperature of ± 2°C.

3. Measured over 8 hours ± 1°C.

4. Power consumption data does not include an external chiller's power consumption.

5. RX Series picosecond 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.

6. Air-cooled option available for low power RX Series models. Contact us.

Specifications – **RX1 Series Picosecond Lasers**, Low Power UV Models

UV Models	RX1-355-3	RX1-355-10	RX1-355-15
Beam and output specifications			
Wavelength	355 nm		
Average power	-L 3 W at 200 kHz	10 W at 200 kHz	15 W at 200 kHz
	-M 3 W at 400 kHz	10 W at 400 kHz	15 W at 400 kHz
	-H 3 W at 1 MHz	10 W at 1 MHz	15 W at 1 MHz
Pulse width	~7 ps		
Pulse repetition rate ¹	Single shot to 2 MHz (option up to 8 MHz)		
Pulse-to-pulse stability ²	< 2% rms		
Long term power stability ³	≤ 1% rms		
Beam diameter ⁴ , at exit	~0.75 mm	~1 mm	
Beam spatial mode	TEM ₀₀ M ² < 1.2		
Beam pointing stability	< 25 μrad		
Beam divergence	≤ 1 mrad		
Beam roundness	> 90%		
Beam bore sight accuracy	≤ 1 mm lateral (to specified exit location), ≤ 5 mrad angular (to specified exit direction)		
Operational specifications and system characteristics			
Interface	RS232, Ethernet, Software GUI, External TTL Triggering		
Warm-up time	< 15 minutes		
Electrical requirement	100-240 V AC; or 32 V DC, 10 A		
Line frequency	50-60 Hz		
Climate	Ambient 15°C to 30°C (59°F to 86°F) Operating Range, Relative Humidity 90% Maximum, non-condensing		
Power consumption ⁵	< 400 W		
Dimensions (LxWxH) ⁶	21 x 8.5 x 3.75 in.		
Weight	~50 lbs		
Vibrational tolerance	Up to 3g		
Cooling system ⁷	Closed-loop chiller		

1. Lower repetition rates, down to single shot, achieved by utilizing PSO or POD features.

2. Measured at a pulse repetition rate of 1 MHz, and at an ambient temperature of ± 2°C.

3. Measured over 8 hours ± 1°C.

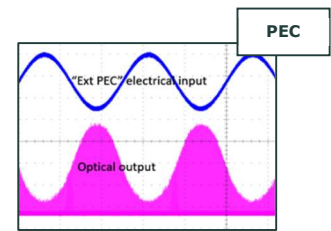
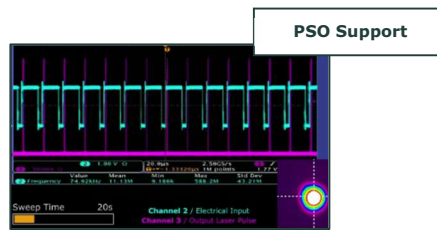
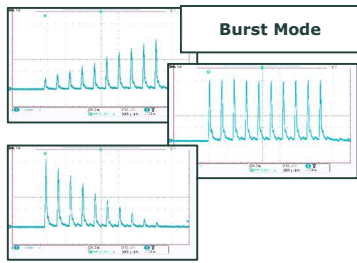
4. Expanded beam diameters (~4 mm) are available. Contact us.

5. Power consumption data does not include an external chiller's power consumption.

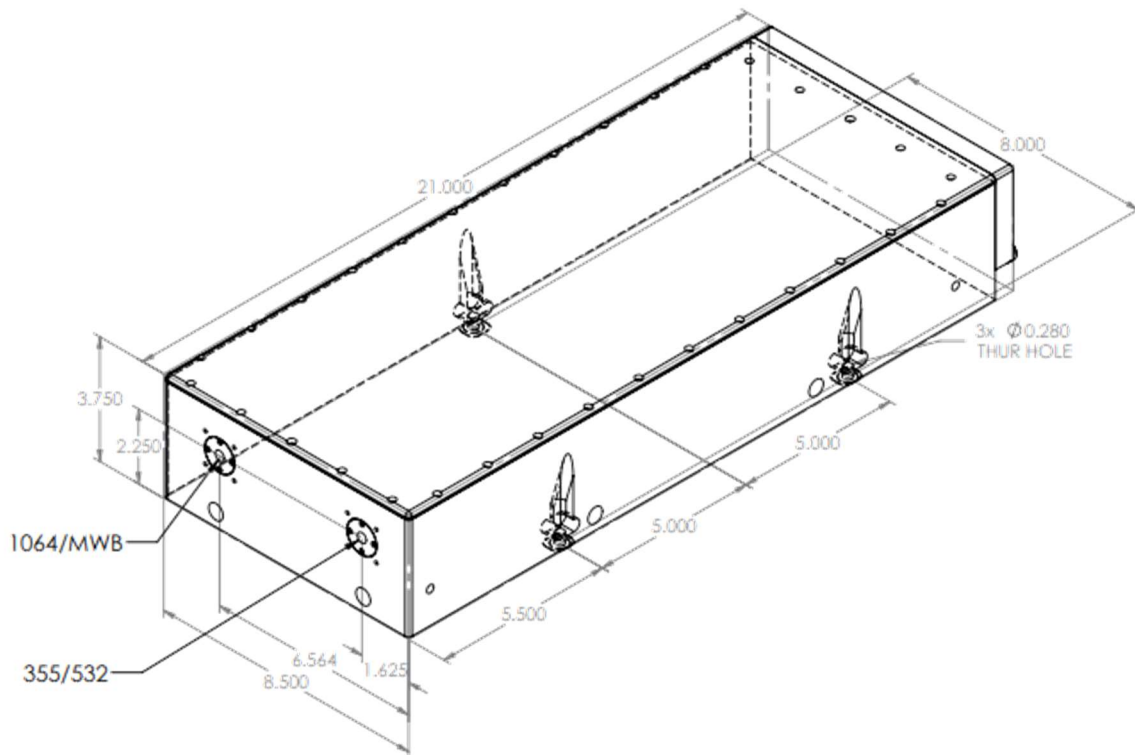
6. RX Series picosecond lasers are all-in-one (AIO) and do not require a separate controller or utility module. All connections for operation and control of the laser can be found on the back panel of the AIO laser.

7. Air-cooled option is available for low power RX Series models. Contact us.

Features



Dimensional Drawing



Photonics Industries RX Series picosecond 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.

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.

Copyright © 2022 by Photonics Industries International, Inc.

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

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.

[Website](#) - [Products](#) - [Applications](#) - [Company](#) - [Contact](#) - [International Network](#)

