

p400 CO₂ Laser

Industrial pulsed laser with more than 1 kW of peak power for high speed drilling, perforating, and cutting applications



High performance pulsed CO₂ laser engineered to maximize production throughput and yield for a wide range of materials processes

- 1 kW of peak pulse power for precise perforating, drilling and cutting applications
- 400 W of average power delivers higher throughput and production yields across a wide variety of target materials
- Unmatched application flexibility with user controlled pulse/continuous wave operation modes
- Real-time performance monitoring reduces unplanned downtime with onboard advanced diagnostics that are Industry 4.0 ready
- Compact, lightweight design easily integrates onto a variety of in-line and stand-alone processing systems



Precise Thin Metal Cutting



Superior Edge Cut Quality on a Wide Variety of Materials

With 400 Watts of average power, and 1 kW of peak pulse power the p400 delivers high cut quality with faster processing speeds. The unique user switchable pulse/continuous wave modes makes the p400 the most versatile laser source available. Easier field serviceability with a modular electronics package make the p400 the first choice for high speed industrial processing systems.

Specifications

Output Specifications		
Wavelength,	10.6 μm	
Average Output Power ¹	>400 W	
Peak Pulse Power (typical) ²	1 kW	
Peak Pulse Energy (maximum) ³	1.0 J	
Power Stability (cold start) ⁴	±7%	
Power Stability (typical, after 3 min.)	±5%	
Beam Quality (M ²)	<1.2	
Beam Size Options	Option 1	Option 2
Beam Diameter ⁵	6.5 mm ± 1.0 mm	9.0 mm ± 1.0 mm
Divergence (full angle)	2.5 mrad ± 0.6 mrad	1.8 mrad ± 0.4 mrad
Ellipticity	<1.2	
Polarization	Linear (45°)	
Rise/Fall Time ⁶	<50 μs / <100 μs	
Operating Frequency	0 -100 kHz	
Duty Cycle Range	≤ 50%	
Maximum Pulse Length	1.0 ms	
Power Supply		
DC Input Voltage	48 VDC	
Maximum Current	175 A	
Pulsed Current	300 A for ≤ 1 ms	
Cooling		
Maximum Heat Load	8.5 kW	
Coolant Temperature	18 - 22° C (water)	
Minimum Flow Rate	4.0 GPM, <60 PSI	
Environmental		
Operating Ambient Temperature	15 - 40° C	
Maximum Humidity	95%, non-condensing	
Physical		
Dimensions (LxWxH) mm (inches)	1262 x 208 x 300 (49.7 x 8.2 x 11.8)	
Weight	59.0 kg (130 lbs.)	

1 - Power level guaranteed for 2 years from date of shipment, regardless of operation hours, within recommended coolant flow rate and temperature range.

2 - Measured at 1 kHz, 10% duty cycle

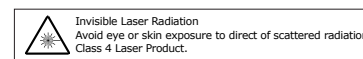
3 - Measured from average power at 100 Hz, 10% duty cycle.

4 - Measured as $\pm(P_{max}-P_{min})/(P_{max}+P_{min})$ from cold start at 5 kHz, 50% duty cycle.

5 - Measured 1/e² diameter at laser output

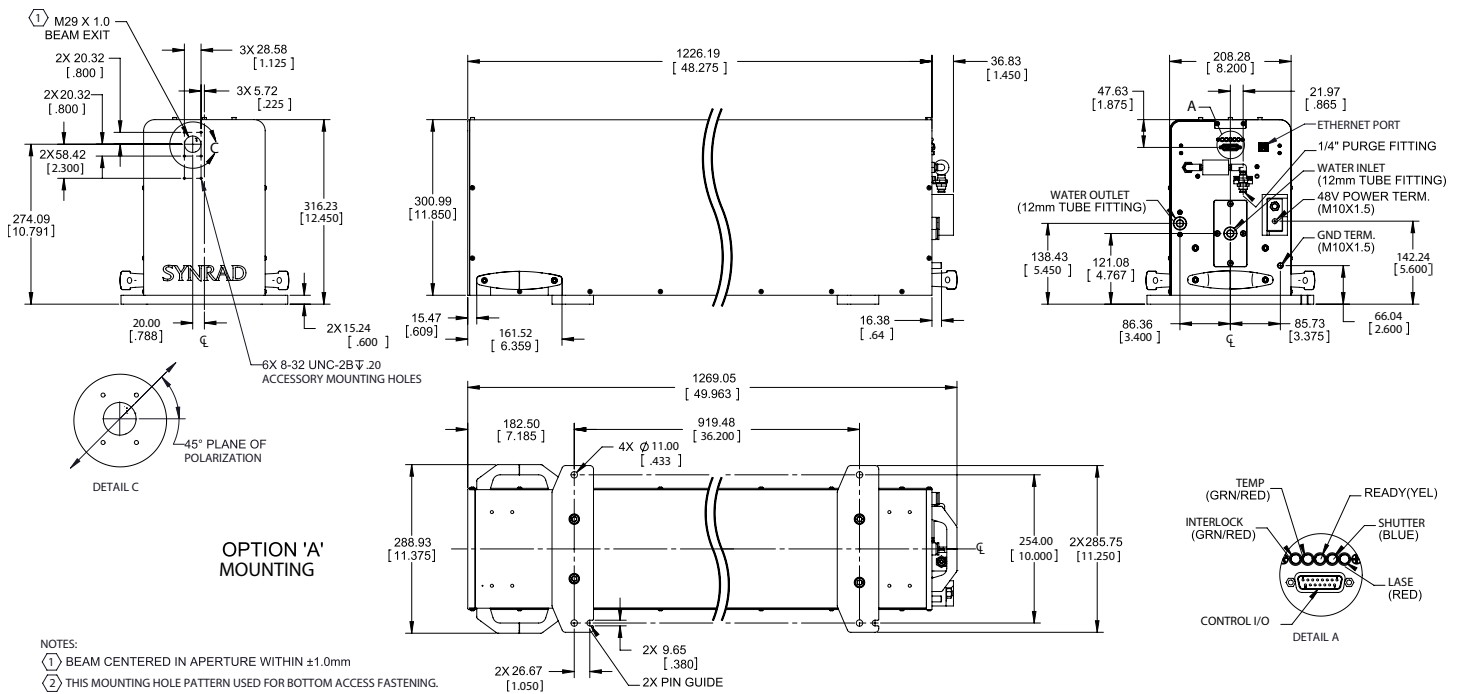
6 - Measured at 1 kHz, 10% duty cycle.

Specifications are subject to change without notice.



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Outline and Mounting Illustrations dimensions are in mm (inches)



Recommended Applications



Cutting

400 W continuous output power and 1 kW peak power combine to drive faster throughput for higher production yields on plastics, wood, composites, thin metals, and other materials.



Drilling

High peak and average power deliver the perfect laser for quality, high speed drilling and scribing applications on a wide variety of materials, including ceramics.



Perforating

1 kW peak power delivers energy more efficiently, increasing perforating or drilling speeds and reducing HAZ; a solid solution for laser finishing processes on automated packaging lines.

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