

ti100P Pulsed CO₂ Laser

Compact, pulsed laser with more than 300 Watts of peak power for precision marking and cutting applications



Pulsed CO₂ laser engineered for high performance and power at 9.3 μm, 10.2 μm, and 10.6 μm wavelengths.

- Over 100 W average power ensures excellent processing throughput, regardless of chosen wavelength
- 300 W peak power combined with <60 μs pulse rise times deliver energy more efficiently, ensuring minimal heat affected zone (HAZ) for detailed, high quality results
- Utilize space efficiently with compact footprint consistent across all the ti Series lasers
- Patented taper technology enables a hybrid unstable and waveguide resonator to maximize optical efficiency and power output at all CO₂ wavelengths
- The most economical and compact laser for processing heat sensitive materials

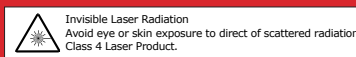


Refinishing Plastic

Partnering with Synrad Application Engineers, a major manufacturer of laser marking machines created a new system that delivers a metal-like finish on plastic cell phone frames. The 100 W power combined with the 9.3 μm wavelength ensured the proper texturing and polishing of the gloss coat. The high-quality finish reduces cost and weight while improving usability.

Specifications

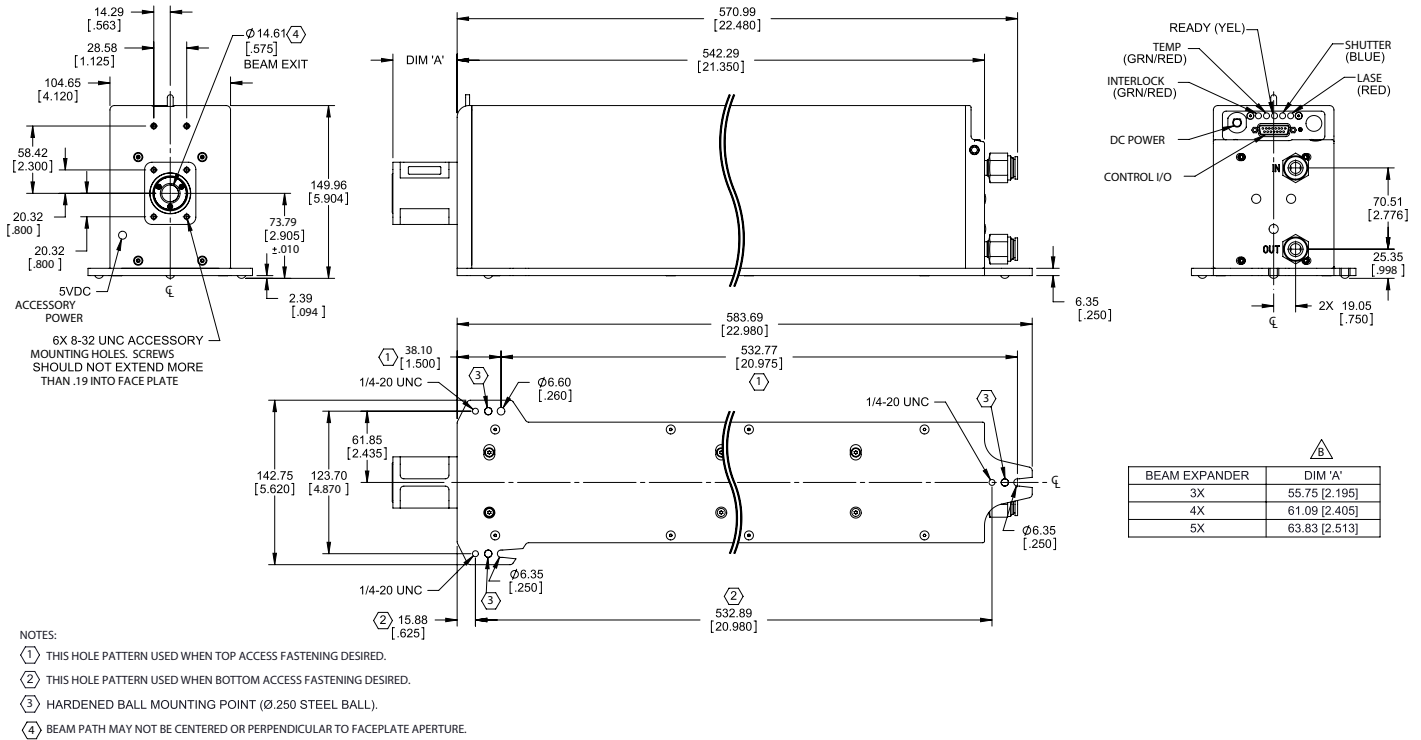
Output Specifications			
Wavelength	9.3 μm	10.2 μm	10.6 μm
Average Output Power ¹	>100 W		
Peak Pulse Power (typical) ²	300 W		
Peak Pulse Energy (maximum) ³	130 mJ		
Power Stability (cold start) ⁴	±7%		
Power Stability (typical, after 3 min.)	±3%		
Beam Quality (M ²)	<1.2		
Beam Diameter ⁵ (with 3X expander)	6.5 mm ± 2.0 mm		
Divergence (full angle with 3X expander)	2.2 mrad ± 0.5 mrad		
Ellipticity	<1.2		
Polarization	Linear (Vertical)		
Rise/Fall Time ⁶	<60 μs / <100 μs		
Operating Frequency	0 - 100 kHz		
Duty Cycle Range	≤50%		
Maximum Pulse Length	500 μs		
Power Supply			
DC Input Voltage	48 VDC		
Maximum Current	35.0 A		
Pulsed Current	300 A for < 500 μs		
Cooling			
Maximum Heat Load	1700 W		
Coolant Temperature	18-22° C (water)		
Minimum Flow Rate	2.0 GPM, <60 PSI		
Environmental			
Operating Ambient Temperature	15 - 40° C		
Maximum Humidity	95%, non-condensing		
Physical			
Dimensions (LxWxH) mm (inches)	633 x 142 x 150 (24.9 x 5.6 x 5.9)		
Weight kg (lbs.)	12.1 (26.7)		



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, 5% 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 output of 3X beam expander. The ti100P laser is shipped with a beam expander mounted and aligned to the faceplate. Available expansion ratios are 3X, 4X, and 5X.
 6 - Measured at 100 Hz, 5% duty cycle.

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Technical Illustrations dimension are in mm (inches)



Recommended Applications



Cutting Leather

High peak power delivers smooth, clean cuts with minimal charring or discoloration. Extremely effective for high fashion textile applications.



Cutting Overlay Film

Multiple wavelength options and excellent peak power to cut polymer films with crisp edges and minimal lip melt, essential for modern electronics manufacturing.



Ablation

Optimized wavelengths and excellent power stability allow precise removal of insulation and coatings without damaging the underlying materials.

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