

# ti100P Pulsed CO<sub>2</sub> Laser

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



Pulsed CO<sub>2</sub> 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 CO<sub>2</sub> 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

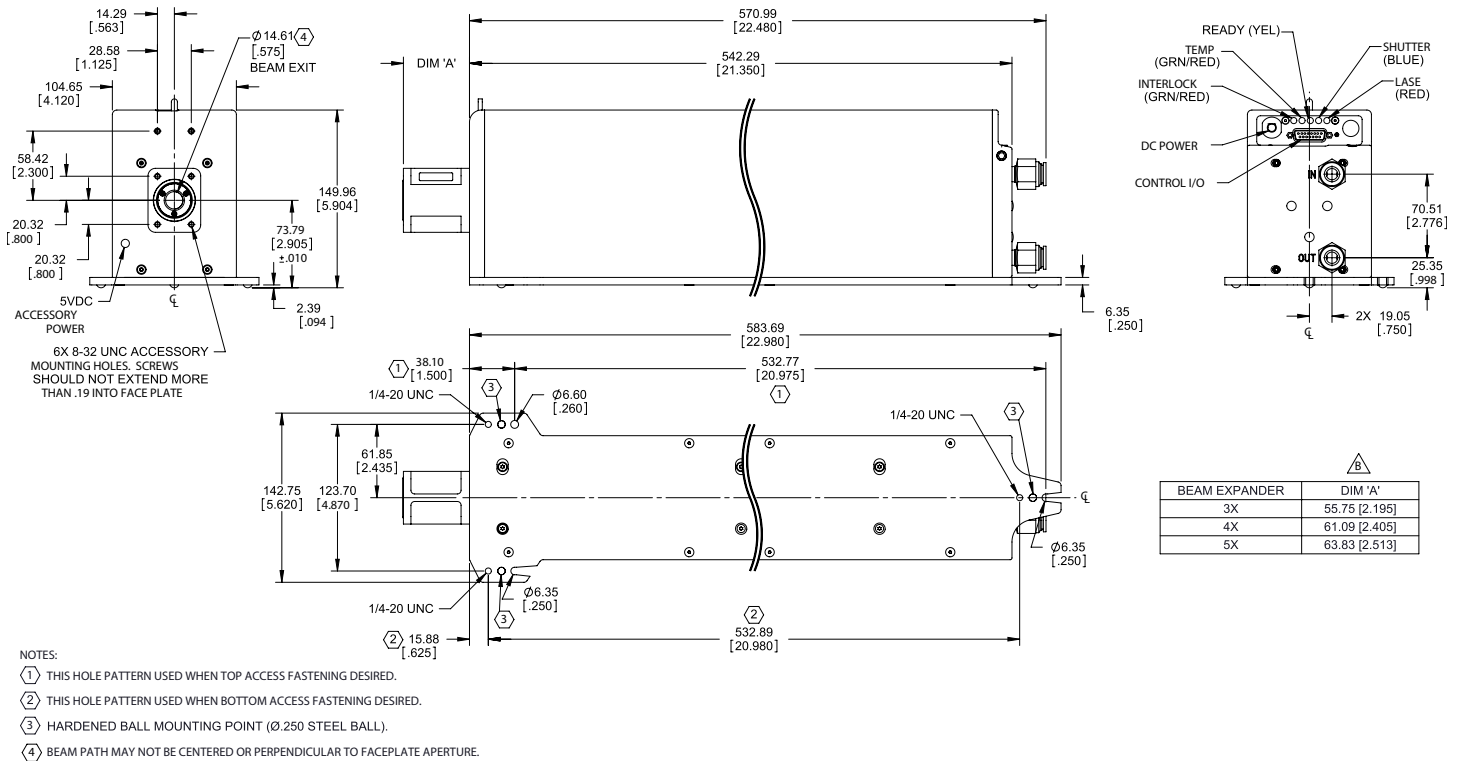
Output Specifications			
Wavelength	9.3 μm	10.2 μm	10.6 μm
Average Output Power <sup>1</sup>	>100 W		
Peak Pulse Power (typical) <sup>2</sup>	300 W		
Peak Pulse Energy (maximum) <sup>3</sup>	130 mJ		
Power Stability (cold start) <sup>4</sup>	±7%		
Power Stability (typical, after 3 min.)	±3%		
Beam Quality (M <sup>2</sup> )	<1.2		
Beam Diameter <sup>5</sup> (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 <sup>6</sup>	<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)		

 Invisible Laser Radiation  
Avoid eye or skin exposure to direct or scattered radiation  
Class 4 Laser Product.

- 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/e<sup>2</sup> 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.

## Contact Us

synrad.com

### Americas & Asia Pacific

Synrad  
4600 Campus Place  
Mukilteo, WA 98275

P (425) 349.3500  
F (425) 349.3667

synrad@synrad.com

### Europe, Middle East, Africa

Novanta Europe GmbH  
Division Synrad Europe  
Parkring 57-59  
D-85748, Garching, Germany

P +49 (0)89 31707 0  
F +49 (0)89 31707 222

sales-europe@synrad.com

### China

Synrad China Sales and Service Center  
Unit C, 5/F, Ting Wei Industrial Park  
Liufang Road, Baoan District, Shenzhen  
Guangdong, PRC 518133

P +86 (755) 8280 5395

sales-china@synrad.com

### Japan

Novanta Japan Co., Ltd.  
4666 Ikebe-cho Tsuzuki-ku  
Yokohama Kanagawa 224-0053 Japan

P +81 3 5753 2462  
F +81 3 5753 2467

sales-japan@synrad.com