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

Specifications

<table>
<thead>
<tr>
<th>Output Specifications</th>
<th>9.3 μm</th>
<th>10.2 μm</th>
<th>10.6 μm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>9.3 μm</td>
<td>10.2 μm</td>
<td>10.6 μm</td>
</tr>
<tr>
<td>Average Output Power¹</td>
<td>&gt;100 W</td>
<td></td>
<td></td>
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<tr>
<td>Peak Pulse Power (typical)²</td>
<td>300 W</td>
<td></td>
<td></td>
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<tr>
<td>Peak Pulse Energy (maximum)³</td>
<td>130 mJ</td>
<td></td>
<td></td>
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<tr>
<td>Power Stability (cold start)⁴</td>
<td>±7%</td>
<td></td>
<td></td>
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<tr>
<td>Power Stability (typical, after 3 min.)⁵</td>
<td>±3%</td>
<td></td>
<td></td>
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<tr>
<td>Beam Quality (M²)⁶</td>
<td>&lt;1.2</td>
<td></td>
<td></td>
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<tr>
<td>Beam Diameter² with 3X expander</td>
<td>6.5 mm ± 2.0 mm</td>
<td></td>
<td></td>
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<tr>
<td>Divergence (full angle with 3X expander)⁶</td>
<td>2.2 mrad x 0.5 mrad</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ellipticity</td>
<td>&lt;1.2</td>
<td></td>
<td></td>
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<tr>
<td>Polarization</td>
<td>Linear (Vertical)</td>
<td></td>
<td></td>
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<tr>
<td>Rise/Fall Time²</td>
<td>&lt;60 μs&lt;100 μs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Frequency</td>
<td>0 - 100 kHz</td>
<td></td>
<td></td>
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<tr>
<td>Duty Cycle Range</td>
<td>≤50%</td>
<td></td>
<td></td>
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<tr>
<td>Maximum Pulse Length</td>
<td>500 μs</td>
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</tbody>
</table>

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)

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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.

SYNDRAD
A Novanta Company
**ti100P Pulsed CO2 Laser**

**Technical Illustrations** dimension are in mm (inches)

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

**Recommended Applications**

**Cutting Leather**

**Cutting Overlay Film**

**Ablation**

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**NOTES:**

1. THIS HOLE PATTERN USED WHEN TOP ACCESS FASTENING DESIRED.
2. THIS HOLE PATTERN USED WHEN BOTTOM ACCESS FASTENING DESIRED.
3. HARDENED BALL MOUNTING POINT (2X 205 STAINLESS BALL). BALL PATH MAY NOT BE CENTERED OR PERPENDICULAR TO FACEPLATE APERTURE.

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