

300+ Watts Peak Pulsed CO₂ Power/100+ Watts Average Power

ti-series



Introducing Synrad's ti100p Pulsed Laser!

Synrad Inc. is pleased to announce a new addition to its highly acclaimed ti-Series line of CO₂ lasers with the introduction of the *ti100p*. Featuring 300+ Watts of peak pulse power (typical) and over 100 W of average power, the *ti100p* is ideally suited for a wide variety of pulsed applications where faster processing, deeper penetration, and minimal heat affect zone (HAZ) is crucial to your manufacturing success.

Like our other ti-Series lasers, the *ti100p* has a fully integrated RF supply that eliminates external RF cabling and bulky external RF supplies. And, with the same familiar LED indicators and I/O interface found on many of Synrad's acclaimed Firestar lasers, installation and operation is quick and easy.

All *ti100p* lasers feature a factory-installed beam expander with your choice of a 3X, 4X, or 5X expansion ratio. In harsh operating environments, this larger output beam reduces the potential for developing hot spots that can damage exposed optical surfaces.

For more information about the *ti100p* pulsed CO₂ laser, contact Synrad today.

Specifications:

Model	ti100p (10.6 μm)	ti100p (10.2 μm)	ti100p (9.3 μm)
Average Output Power ⁽¹⁾	> 100 W	> 100 W	> 100 W
Peak Pulse Power (typical)	> 300 W	> 300 W	> 300 W
Peak Pulse Energy (typical)	> 150 mJ	> 150 mJ	> 150 mJ
Mode Quality	M ² < 1.3	M ² < 1.3	M ² < 1.3
Ellipticity	< 1.2	< 1.2	< 1.2
Rise Time	< 75 μs	< 75 μs	< 75 μs
Beam Waist Diameter (at 1/e ²)			
with 3X expander ⁽²⁾	6.3 mm	6.3 mm	6.3 mm
with 4X expander ⁽²⁾	8.4 mm	8.4 mm	8.4 mm
with 5X expander ⁽²⁾	10.5 mm	10.5 mm	10.5 mm
Beam Divergence (full angle)			
with 3X expander ⁽²⁾	~ 2.3 mrad	~ 2.3 mrad	~ 2.3 mrad
with 4X expander ⁽²⁾	~ 1.8 mrad	~ 1.8 mrad	~ 1.8 mrad
with 5X expander ⁽²⁾	~ 1.4 mrad	~ 1.4 mrad	~ 1.4 mrad
Wavelength (typical)	10.55 - 10.68 μm	10.20 - 10.30 μm	9.23 - 9.31 μm
Power Stability (guaranteed from cold start)	± 7%	± 7%	± 7%
Duty Cycle Range	0% - 50%	0% - 50%	0% - 50%
Pulse Length, max	500 μs	500 μs	500 μs
Polarization	Linear (Vertical)	Linear (Vertical)	Linear (Vertical)
Cooling (18–22 °C) ⁽³⁾	Water	Water	Water
Heat Load (max)	1700 W	1700 W	1700 W
Flow Rate	2.0 GPM, < 60 PSI	2.0 GPM, < 60 PSI	2.0 GPM, < 60 PSI
Input Voltage / Current ⁽⁴⁾	48 ± 1.0 VDC / 35 A	48 ± 1.0 VDC / 35 A	48 ± 1.0 VDC / 35 A
Dimensions (in)	24.9 x 5.2 x 5.2	24.9 x 5.2 x 5.2	24.9 x 5.2 x 5.2
Dimensions (mm)	633 x 132 x 131	633 x 132 x 131	633 x 132 x 131
Weight	26.7 lbs / 12.1 kg	26.7 lbs / 12.1 kg	26.7 lbs / 12.1 kg

Preliminary, specifications subject to change without notice.

1 Power level guaranteed for 12 months regardless of operating hours, applied over recommended coolant flow rate & temp. range.

2 Typical, at beam expander output. Maximum beam exit aperture of expander is 14.6 mm.

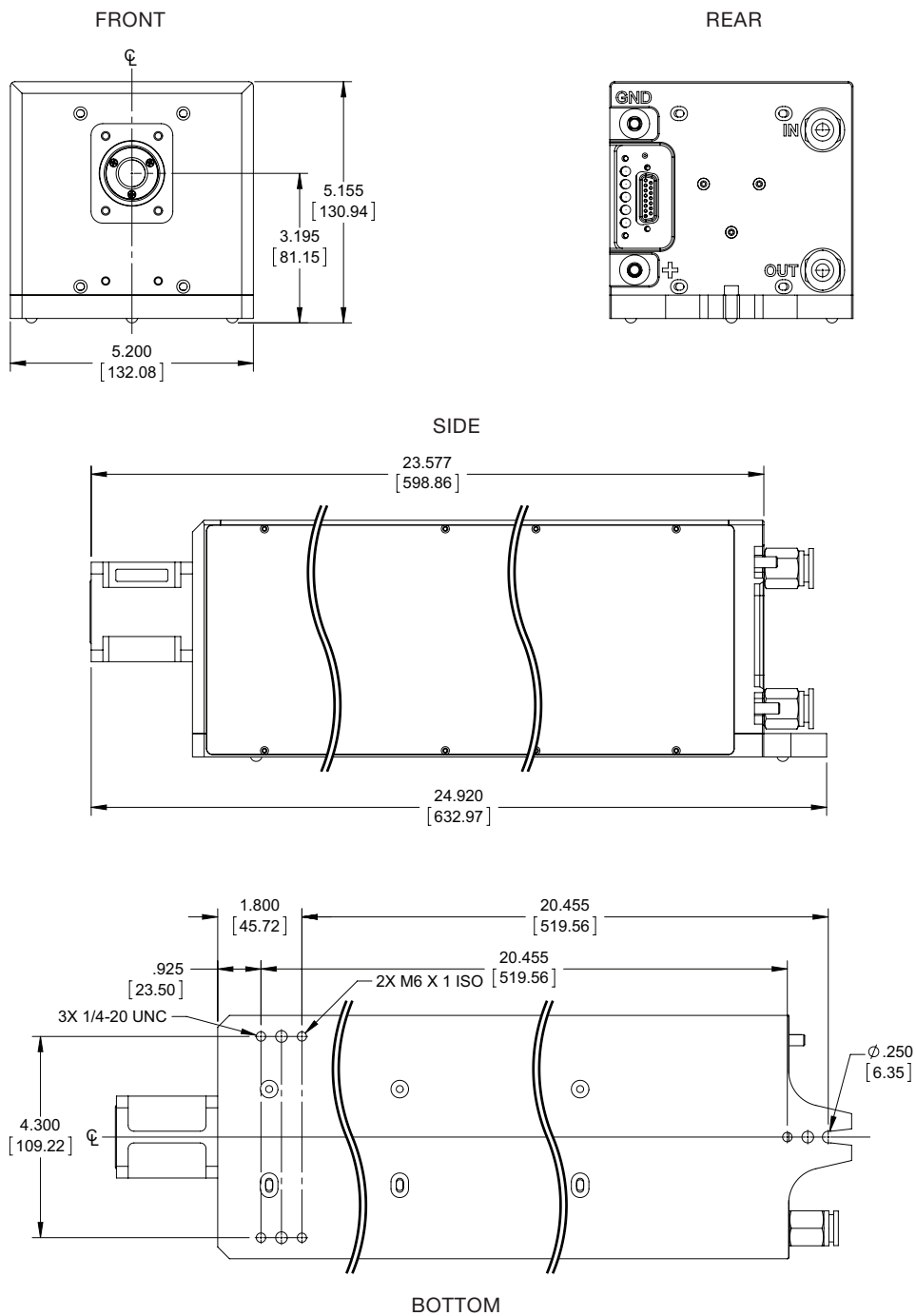
3 Some performance degradation may occur when operated with coolant temperatures above 22°C.


4 50 A peak for ≤ 500 μs.

Firestar ti100p Features:

- Average output power > 100 W
- Peak pulse power > 300 W (typical)
- Peak pulse energy > 150 mJ (typical)
- Max pulse width of 500 μs
- Rise time of less than 75 μs
- Pulse from single-shot to 100 kHz
- Duty cycle range of 0% to 50%
- Excellent mode quality
- Hybrid free-space/waveguide resonator
- Includes 3x, 4x, or 5x beam expander
- Easy-to-integrate, compact design

Firestar ti100p Outline and Mounting:



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



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