Pulstar p100 – Pulsed CO_2 Industrial Laser

SYNRAD
www.synrad.com

400 W peak pulse power

100 W average power

Excellent beam quality

Highest peak power in class

Synrad performance & reliability

Putting the power of pulse in your production line

The introduction of the Pulstar **p100** into Synrad's globally acclaimed portfolio of industrial CO_2 lasers signified the arrival of specialized CO_2 laser processing. Featuring 100 W of average power and an impressive 400 W of peak pulse power (typical), the **p100** is ideally suited for a wide variety of applications, including high speed drilling and perforating, where quicker results, deeper cutting/marking, and minimal charring and burning on delicate materials is crucial.

With fully integrated RF components, the **p100** completely eliminates the need for external RF cabling and bulky external RF supplies. And, with the same familiar LED indicators, interface, and I/O signal configuration found on many of Synrad's acclaimed Firestar lasers, installation/operation is a quick and easy.

Lighter than competing lasers on the market with a smaller footprint and compact body size, the **p100**'s versatile design and internal beam conditioning make it an excellent choice for manufacturers and OEMs seeking big power in a smaller, easy to handle package.

Pulstar p100 Features & Benefits:

Feature	Benefit
Peak pulse power of 400 W	Decreasing HAZ on leather and plastics
Average output power of >100 W	Faster processing speed for cutting
Peak pulse energy of 190mJ	Faster processing speed for piercing, drilling, perforating
Max pulse width of 600µs	Deep drilling, scribing ceramics
Fast rise time of <40µs	High quality pulse-to-pulse performance in converting applications e.g. for producing circular holes
Power stability of ±7% (from cold start)	Consistency in materials processing
Duty cycle range from 0% to 37.5%	Expanding materials processing window by offering a range of peak and average powers with one laser

Specifications:

Model	10.2µm	10.6µm
Peak Pulse Power (typical) (1)	375 W	400 W
Average Output Power (minimum) (2)	90 W	100 W
Wavelength (typical) (3)	10.25µm ± 0.1µm	10.6µm ± 0.1µm
Peak Pulse Energy (maximum) (4)	180mJ	190mJ
Pulse Length (maximum)	600µs	600µs
Rise Time / Fall Time (5)	< 40µs / < 100µs	< 40µs / < 100µs
Power Stability from Cold Start (typical) (6)	± 7%	± 7%
Power Stability after Three Minutes (typical) (6)	± 5%	± 5%
Duty Cycle Range	< 37.5%	< 37.5%
Operating Frequency Single Shot to	100 kHz	100 kHz
Beam Waist Diameter (at $1/e^2$) (6)	7.5mm ± 1.1mm	7.5mm ± 1.1mm
Beam Diameter at Faceplate (at $1/e^2$) (6)	7.5mm ± 1.0mm	8.0mm ± 1.0mm
Beam Divergence, Full Angle, (at $1/e^2$) (6)	1.8 mrad ± 0.4 mrad	2.0 mrad ± 0.4 mrad
Mode Quality (6)	$M^2 \leq 1.2$	$M^2 \leq 1.2$
Ellipticity (6)	< 1.2	< 1.2
Polarization	Linear (Vertical)	Linear (Vertical)
Pointing Stability	± 10%	± 10%
Cooling (7)	Water (18-22° C)	Water (18-22° C)
Heat Load (maximum)	2000 W	2000 W
Flowrate	1.5-2.0 GPM < 60 PSI	1.5-2.0 GPM < 60 PSI
Input Voltage / Current (maximum)	48VDC / 40A	48VDC / 40A
Peak / RMS Currents - Amps	75A (for < 700µs) / 65A	75A (for < 700µs) / 65A
Dimensions (inches) Dimensions (mm)	23.2 x 5.2 x 6.1 590 x 132 x 155	23.2 x 5.2 x 6.1 590 x 132 x 155
Weight	30.0 lbs / 13.6 kg	30.0 lbs / 13.6 kg

Specifications subject to change without notice.

1 Measured at 1 kHz, 10% duty cycle.

2 Power level guaranteed for 24 months from date of shipment, regardless of hours, provided laser is operated within the recommended coolant flowrate and operating temperature range.

3 Typical wavelength band for 10.6µm nominal, but laser can operate in 10.2µm to 10.7µm range

4 Tested at 625Hz, 37.5% Duty Cycle

5 Tested at 1kHz, 10% Duty Cycle

6 Measured at 5 kHz, 37.5% Duty Cycle

7 At coolant temperatures above 22°C, allow power drop of 0.5% /°C to 1% /°C up to a coolant temperature of 28°C.

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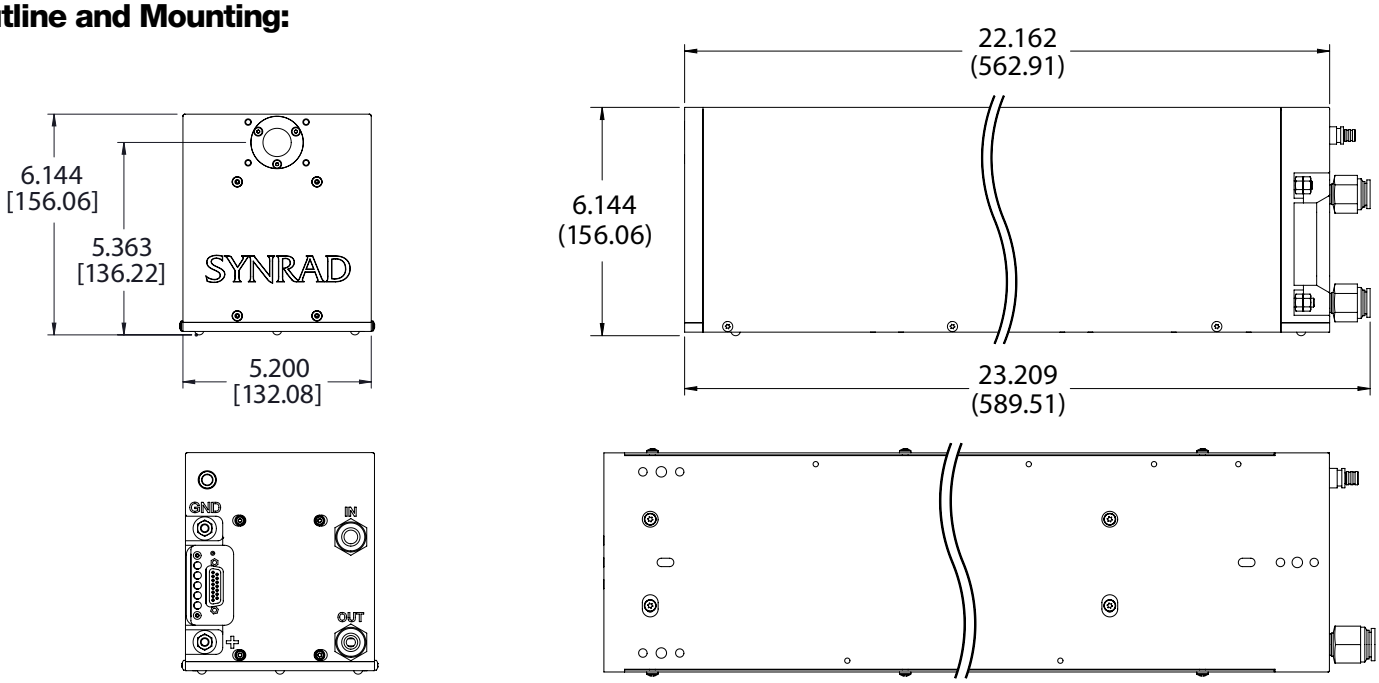
Outline and Mounting:



Typical Applications:

X-Y Multi-Purpose Cutting Tables: The **p100** 10.6µm is well-suited for small multi-purpose cutting environments. A small size profile allows for easy placement on a gantry and high peak power enables it to efficiently process leathers, plastics, paper and ceramics.

Cutting leather | Drilling plastics | Cutting ceramics | Cutting paper

Converting and Complex Film Processing: The **p100** 10.2µm is ideally suited for cutting, drilling, and selective perforating of food packaging films. These processes can be performed at high speed due to its high peak power. **Pulstar p100**'s multiple wavelength options make it a versatile tool for label-cutting applications.

Marking pharmaceuticals | Converting - perforating pouches | Cutting plastic labels | Microperforating food packaging

These are only some examples of potential uses for the **Pulstar p100.**
Contact your Synrad Representative to determine the best laser for your applications.

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

CE

To learn more about the Pulstar p100, scan here

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