Pulstar p250 – Pulsed CO_2 Industrial Laser

SYNRAD
www.synrad.com

800 W peak pulse power

250 W average power

Exceptional beam quality

Low cost of ownership

Synrad performance & reliability

Bridge the gap between low and high power pulse capabilities with the Pulstar p250 pulsed CO_2 laser.

Featuring an industry-first typical peak pulse power of 800 watts and 250 watts of average power, the **Pulstar p250** provides users with an endless array of laser processing options. Available in 10.2 and 10.6 wavelengths, the **p250** offers those eager to enter high-power laser applications the opportunity to do so and still have the exceptional beam quality, performance and reliability for which Synrad is famous.

Based on the proven technology and success of Synrad's i401, the **p250**'s peak pulse power takes materials processing a step further by allowing users to cut faster and drill deeper through a variety of materials, including aluminium, with minimal heat affect zone and superior cut edge quality. The **p250**'s longer tube design provides excellent power stability, making it ideal for applications that demand the highest levels of consistency and precision. The efficient integrated RF system is designed for lower power consumption and field serviceability resulting in lower operating costs and best of all, no bulky RF power supply or cables to worry about.

If you're one of the many eager to introduce refined high-power pulse laser processing into your production lines, then the **p250** is the undisputed competitive choice in today's laser market.

Pulstar p250 Core Features:

- Peak pulse power of 800 W (typical)
- Average output power > 250 W
- Peak pulse energy (typical) of 600 mJ
- Max pulse width of 1000 µs (1.0 ms)
- Fast rise time of less than 60 µs
- Exceptional power stability (±5%)
- Pulsed operation up to 100 kHz
- Duty cycle range of 0% to 45%
- Excellent mode quality (M^2 < 1.2)
- Integrated RF drive - no bulky RF power supply or cables!
- Modular electronics packaging based on proven i401 architecture
- Built-in gas/clean dry air purge port
- TCP/IP web-based diagnostics
- Efficient RF design for low power consumption
- Ideally suited for clean high-speed, low HAZ processing

Specifications:

Model	p250 - 10.2 and 10.6 wavelengths
Peak Pulse Power (typical) (1)	800 W
Average Output Power(minimum) (2)	250 W
Wavelength (typical) (3)	10.25µm±0.1µm | 10.6µm ± 0.1µm
Peak Pulse Energy (maximum) (4)	600mJ
Pulse Length (maximum)	1000µs
Rise Time / Fall Time (5)	< 60µs / < 110µs
Power Stability from Cold Start (typical) (6)	± 5%
Power Stability after 3 Minutes (typical) (6)	± 5%
Duty Cycle Range	<45%
Operating Frequency Single shot to	100 kHz
Beam Waist Diameter (at $1/e^2$) (6)	8.0mm ± 1.1mm
Beam Diameter at Faceplate (at $1/e^2$) (6)	9.0mm ± 1.0mm
Beam Divergence Full Angle, (at $1/e^2$) (6)	1.9 mrad ± 0.4 mrad
Mode Quality (6)	$M^2 \leq 1.2$
Ellipticity (6)	<1.2
Polarization	Horizontal
Cooling (7)	Water (18-22° C)
Heat Load (maximum)	4300 W
Flowrate	3.0 GPM, < 60 PSI
Input Voltage / Current (maximum)	48VDC / 90A
Peak / RMS Currents Amps	250A (for 1.0 ms)
Dimensions (inches) Dimensions (mm)	1252 x 315 x 198 49.3 x 12.4 x 7.8
Weight	107 lbs / 48.5 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 operating hours, within recommended coolant flow rate & temperature range.

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

4 Tested at 100Hz, 10% Duty Cycle

5 Rise Time tested at 100Hz, 10% Duty Cycle / Fall Time tested at 1kHz, 10% Duty Cycle

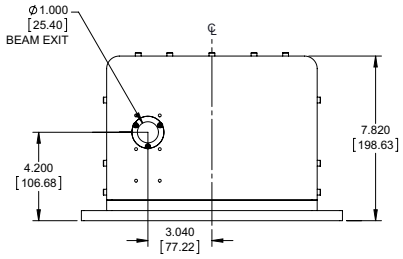
6 Measured at 5 kHz, 45% Duty Cycle

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.

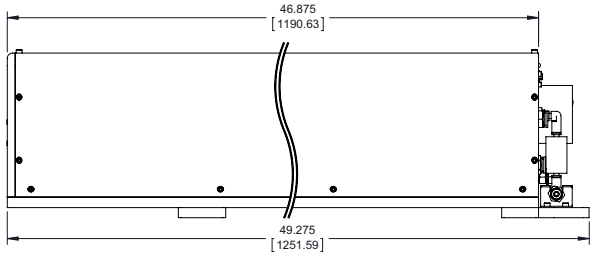
Synrad tel: 1.425.349.3500 | fax: 1.425.349.3667 | e-mail: synrad@synrad.com | www.synrad.com

Pulstar p250 – Pulsed CO_2 Industrial Laser

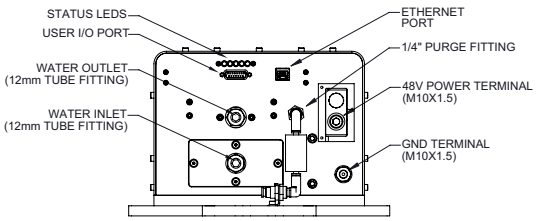
Outline and Mounting:



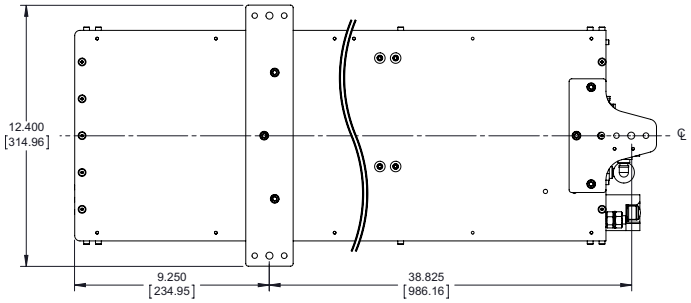
FRONT



SIDE



REAR



BOTTOM

Typical Applications:

X-Y Multi-Purpose Cutting Tables: The pulsed power of the **p250** allows the flexibility to cut plastics, wood, composites and other materials, even thin metals, a truly multi-purpose laser.

Cutting thin metal

Cutting acrylic

Converting: With the 800 W peak power the **p250** is optimal for high-speed processing in the flexible and rigid packaging markets; and the optimal power stability is ideal for consistent precision cutting of label materials.

Converting - perforating pouches

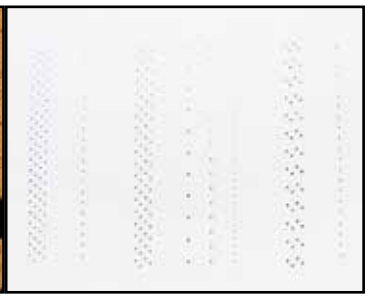
Converting - Label cutting

High Speed Textile/Leather Cutting Systems: Typically used with a Galvo scan head, these systems can process a variety of fabrics, foams and leathers used in the garment industry. By nature these materials can char easily when cut, but this can be greatly reduced by using a pulsed laser to more efficiently deliver the energy—providing cleaner, sharper cuts and better results.

Cutting leather

Cutting foam

Marking leather



Perforating polyester Spandex™

These are only some examples of potential uses for the **Pulstar p250.**
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 p250, scan here with your smartphone, or visit: http://www.synrad.com/pseries/p250

© Synrad, 2016
Datasheet - p250 (7-2016 v11) A4

Synrad, 4600 Campus Place | Mukilteo, WA 98275, USA
tel: 1.425.349.3500 | fax: 1.425.349.3667 | e-mail: synrad@synrad.com