

firestar-*f*

- 100, 200, and 400W models
- Near-Perfect beam quality
- Integrated RF supply
- Ruggedized, 3-point mounting system



firestar *f* -series - fully integrated CO₂ lasers for demanding industrial applications

Continuing our 20 year tradition as the world's leading provider of sealed CO₂ lasers, Synrad has developed the *firestar f-series* to meet the challenges of a global manufacturing marketplace by providing a new standard of performance, price, and reliability.

With fully integrated RF supplies and clean, simple interfaces to water-cooling and control signals, the *firestar f-series* speeds the time for integration while providing the maximum flexibility for system designers, OEM manufacturers, and full turnkey system providers.

Operating from a single low-cost 96 VDC power supply and measuring a mere 25.1 inches in length, the *firestar f100* is the industry's smallest fully RF integrated 100 Watt laser. By giving the system architect the best combination of size, simple interfaces and industry proven Synrad technology, system integration and time to customer delivery are minimized.

To create the 200 Watt *f200*, Synrad's industry proven *Duo-Lase*® technology was used to combine two *f100* lasers into a single package. The randomly polarized beam of the *f200* makes it ideal for applications where kerf control is critical. Measuring only 28.8 inches long, the *f200* provides all the performance of a much larger laser

with the convenience of a single, compact laser source.

For users needing 200 Watts of power in a linearly polarized beam, Synrad has created the single tube *firestar f201*. Featuring a near perfect output beam in the near and far field as a result of internal beam conditioning, and including built in gas purge capabilities incorporated into a robust package, the *f201* has the power and performance for the toughest of industrial jobs.

When the application requires maximum power, Synrad customers can choose the 400 Watt *firestar f400*. With a Beam Quality Number (M^2) that approaches theoretical limits, the *f400* delivers more focused continuous processing power than any sealed CO₂ laser on the market today. Compared to other laser solutions that specify 500 Watts of average power, but with poorer beam quality, the *firestar f400* delivers an additional 23% of focused energy density. This difference makes traditional Watt based comparisons obsolete.

As Synrad's newest generation of industrial laser solutions, the *firestar f-series* sets the standard for the industrial laser market. With the best combination of size, price, performance and reliability, the *firestar f-series* can do the job for you.



• **Specifications**

Model	f100	f200	f201	f400
Output Power	100W	200W	200W	400W
Mode Quality	TEM ₀₀ ,95% Purity M ² <1.2	TEM ₀₀ ,95% Purity M ² <1.2	TEM ₀₀ ,98% Purity M ² <1.2	TEM ₀₀ ,98% Purity M ² <1.2
Ellipticity	<1.2	<1.2	<1.2	<1.2
Rise Time	<150µsec	<150µsec	<150µsec	<150µsec
Beam Diameter	3.5mm	3.5mm	4.5mm	4.5mm
Beam Divergence (full angle)	4.0mR	4.0mR	4.0mR	4.0mR
Wavelength	10.2-10.7µm	10.2-10.7µm	10.2-10.7µm	10.2-10.7µm
Power Stability, from cold start (guaranteed) after 2 minutes (typical)	±10% ±6%	±10% ±6%	±7% ±5%	±7% ±5%
Polarization	Linear (Horizontal)	Random	Linear (Horizontal)	Random
Cooling	Water	Water	Water	Water
Heat Load (max)	2000W	4000W	4000W	8000W
Min. Flow Rate, Water (18-22°C)	2.0 GPM, <60 PSI	4.0 GPM, <60 PSI	2.0 GPM, <60 PSI	4.0 GPM, <60 PSI
Input Voltage / Current	96 VDC / 18A	96 VDC / 36A	96 VDC / 36A	96 VDC / 72A
Dimensions (in) (mm)	25.1 x 6.3 x 5.6 638 x 160 x 142	28.8 x 12.4 x 7.2 732 x 315 x 183	48.4 x 8.6 x 6.5 1229 x 218 x 165	53.5 x 15.2 x 7.3 1359 x 386 x 185
Weight	38 lbs / 17.2 kg	80 lbs / 36.3 kg	96 lbs / 43.5 kg	170 lbs / 77.1 kg

Class 4 Laser Product.
Beam specifications measured at 1/e².
Specifications subject to change without notice.



firestar series
f100



firestar series
f200



firestar series
f201



firestar series
f400