



2-50 W CW Fiber Laser Modules

The Nufern Series of CW Ytterbium Fiber Laser Modules are designed as highly reliable robust sources that can be readily integrated into OEM applications for industrial and manufacturing environments. The modular system includes a fully tested CW fiber laser cavity and a number of available options for integrating long life pump diodes. The flexible design allows the integrator to choose from any number of diode sources or Nufern can provide a system where the diodes are pre-packaged and spliced direct from the factory.

The monolithic laser design is made possible using an all fiber based architecture which inherently never requires optical or mechanical re-alignment or adjustment. Near perfect diffraction limited beam quality is maintained for the life of the product. The infrared 1 micron nominal output beam can be focused to a circular spot size of a few microns. The sealed module can be easily incorporated directly into marking, micromachining and material processing systems.

Typical Applications

- Marking and Engraving
- Micromachining
- Micro-adjustment
- Precision Material Processing
- Graphic Art Imaging
- Plastic and Thin Metal Welding

Features and Benefits

- 2 to 15 and 20 to 50 W CW optical output power available
- Diffraction limited beam quality ($M^2 < 1.1$)
- Simple to install and integrate
- Compact, maintenance free OEM package

Optical Specifications¹

Rated Output Power ²	2 - 15 W	20 - 50 W
Central Emission Wavelength ³	1085 nm +/- 5 nm	1085 nm +/- 5 nm
Mode of Operation	CW/Modulation	CW/Modulation
Polarization	Random	Random
Output Beam Delivery	Fiber Output	Fiber Output
Emission Bandwidth (FWHM)	< 1nm	< 1nm
Output Power Stability ⁴	< 2%	< 2%
Output Power Noise (1 kHz - 20 MHz)	< 2% RMS	< 2% RMS
M^2	< 1.1	< 1.3
Circularity	> 90%	> 90%
Optical-Optical Efficiency ⁵ (-POO only)	> 60%	> 60%

Yb-2/15-XXX-POY

Yb-20/50-XXX-POY-00Z

Mechanical Specifications

Module Dimensions (LxWxH) ⁶	147 mm x 117 mm x 11 mm	294 mm x 217 mm x 64.5 mm (for 915 nm pumping) 294 mm x 217 mm x 35.8 mm (for 975 nm pumping)
Weight	< 500 g	< 2.5 kg
Cooling Requirements	Air-cooled	Air-cooled
Pump Input/ Laser Output Fiber Length	> 0.5 m	> 0.5 m

Environmental Specifications

Operating Case Temperature Range (non-condensing)	10 - 40°C	10 - 40°C
Operating Humidity Range	5 - 85% RH	5 - 85% RH
Storage Temperature Range	0 - 70°C	0 - 70°C
Storage Humidity Range	5 - 95% RH	5 - 95% RH



RoHS

7 Airport Park Road, East Granby, CT 06026 • 860.408.5000 • Toll-free 866.466.0214 • Fax 860.844.0210 E-mail info @ nufern.com • www.nufern.com

Standard specifications and design parameters are listed above. Specifications are subject to change without notice.

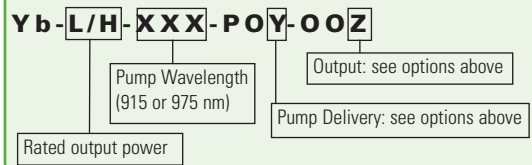


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Options	Yb-2/15-XXX-POY	Yb-20/50-XXX-POY-00Z
Pump Wavelength (-XXX)	915 or 975 nm	915 or 975 nm
Pump Delivery (-POY) ^{7,8}	<p>(-P00) No Combiner</p> <p>(-P01) 3 X 1 pump combiner (105/125 fiber, NA ~0.22)</p> <p>(-P02) 7 X 1 pump combiner (105/125 fiber, NA ~0.22)</p>	<p>(-P00) No Combiner</p> <p>(-P01) SMA 905 connectorized cable (400/480 fiber, NA ~ 0.22)</p> <p>(-P04) 19 X 1 pump combiner (105/125 fiber, NA ~ 0.22, > 0.5 m length)</p> <p>(-P05) LD-80 connectorized cable (400/480 fiber, NA ~ 0.22)</p>
Output (-00Z)	Passive fiber only	<p>(-000) Passive fiber only</p> <p>(-002) 3 m long armored cable with SMA 905 connectorized end cap assembly</p> <p>(-003) End Cap on passive fiber; no connectorized assembly</p>

¹Optical specifications met by design.
²Laser output power will depend on diode pump input power.
³Other selected wavelengths may be available on a custom basis.
⁴Over 5 hours of operation at +/- 2 C.
⁵Specified at the start of life. End of life efficiency is specified to be no less than 65% of that at the start of life.
⁶Custom OEM packaging available upon request.
⁷Pre-spliced single emitter pump diodes are available on a custom basis.
⁸Maximum input power of 8W per combiner leg.

Naming Conventions:



Safety and Operating Considerations

The laser light emitted from this laser system is invisible and will be harmful to the human eye. Proper laser safety eyewear must be worn during operation.

21 CFR 1040.10 Compliance

These products are Class 4 lasers as designated by the Center for Device and Radiological Health (CDRH). They are specifically designed to be an OEM laser device for incorporation or integration into other equipment. As such, they DO NOT MEET the full requirements for a stand-alone laser system as defined by 21 CFR 1040.10 under the Radiation Control for Health and Safety Act of 1968. It is the responsibility of the equipment manufacturer to meet all of the regulatory requirements for the full system.

