MENDOCINO

1030 nm High Power Femtosecond Fiber Laser Module

Applications

- Biophotonics
- Photodetector characterization
- Optical metrology
- Materials characterization
- Multiphoton imaging
- Seed source for higher energy laser systems

Features

- Average power > 100 mW
- Central Wavelength 1030 nm
- Pulse widths compressible to < 100 fs
- Robust all-fiber architecture
- Fiber pigtail delivery, customizable temporal chirp
- Exceptional long term stability
- RF synchronization output

The 1030 high power femtosecond fiber laser (FPL) is a passively mode-locked fiber laser that provides a stable short pulse output at 1030 nm. The laser utilizes the proprietary Mendocino saturable absorber technology, which has been developed and perfected over a twenty-year period, to deliver reproducible mode-locking at turn-on with excellent stability and reliability. It features a convenient polarization-maintaining (PM) fiber output with power levels greater than 100 mW and a chirped optical pulse that is compressible to sub 100 fs. The temporal chirp can be customized with precise group velocity and higher order dispersion values to accommodate the input requirements of specific amplifier platforms or optical systems. The laser provides an RF 50 MHz synchronization output as a trigger signal.

The module (FPL-M) series features a robust architecture that is insensitive to shock and vibration. It can be used as a stand-alone laser system with a user-supplied 5 VDC power supply and is the perfect seed source for integration into demanding OEM amplifier applications. An advanced engineering design and consistent manufacturing process ensure the highest quality standards for volume production.

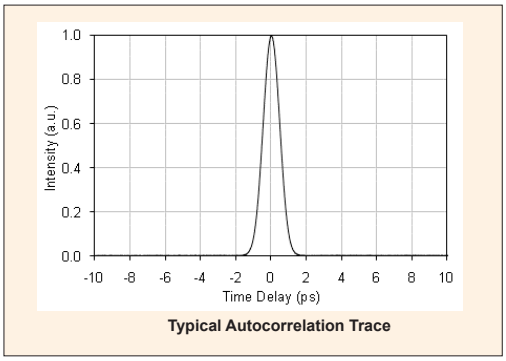
If the performance parameters do not quite fit your application requirements, please contact us at sales@calmarlaser.com to discuss a customized solution.

1030 nm High Power Femtosecond Fiber Laser

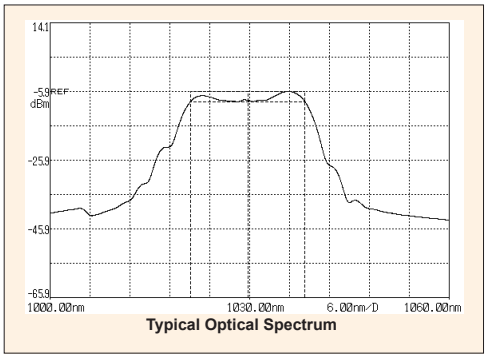
Technical Specifications[1]

Model Number	FPL-M4UFF
OPTICAL	
Central Wavelength (nm)	1030 ± 2
Pulse Width[2,3] (ps)	~ 1 - 3 (compressible to < 0.1)
Average Power (mW)	> 100
Repitition Rate[4] (MHz)	50
Spectral Width (FWHM, nm)	> 15
Power Stability over 8 hours[5] (%, RMS)	< 1.0
Beam Quality, M^2	< 1.1
Polarization Extinction Ratio (dB)	> 15
Output/Termination[6,7]	PM 980 fiber pigtail with FC/APC connector
ELECTRICAL	
Electrical Synchronization (V)	> 0.1, SMA connector
Operating Voltage (VDC)	~ 5
Power Consumption (W)	< 20 W
Electrical Interface	25 pin D-sub connector
Computer Control	Yes
MECHANICAL	
Operating Temperature (°C)	20 - 35
Dimensions (cm)	20.3(W) x 12.7(D) x 4.3(H)
Weight (kg)	1.5
Mounting	Heat sink for steady state heat load of up to 15 W (up to 20 W at turn-on)
Warm-up Time (min)	< 10

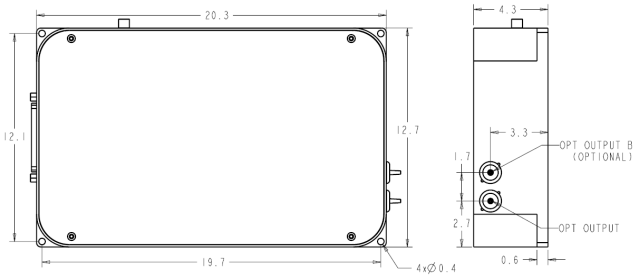
1. Due to our continuous improvement philosophy, all product specifications are subject to change without prior notice. Please contact sales@calmarlaser.com for customized specifications.
2. A $sech^2$ pulse shape (deconvolution factor of 0.65) is used to determine the pulse width from the second harmonic autocorrelation trace.
3. For customizable temporal chirp, with specific GVD and higher order dispersion, please contact sales@calmarlaser.com.
4. For other repetition rates, please contact sales@calmarlaser.com.
5. Requires an ambient temperature control of ± 1.0ºC and appropriate mounting with heat sink
6. For free space option, please contact sales@calmarlaser.com
7. For optional second (monitor) output, please contact sales@calmarlaser.com



Typical Autocorrelation Trace



Typical Optical Spectrum



CALMAR LASER

RoHS COMPLIANT

LASER RADIATION