

780 nm High Power Femtosecond Fiber Laser Module



Applications

- Biophotonics
- Terahertz generation
- Optical metrology
- Materials characterization
- Multiphoton imaging
- Seed source for Ti:sapphire Amplifiers

Features

- Average power > 150 mW
- Central Wavelength 780 nm
- Pulse width < 90 fs
- Near transform-limited output
- Robust all-fiber architecture
- Exceptional long term stability
- RF synchronization output

The 780 nm high power femtosecond fiber laser (FPL) is a passively mode-locked fiber laser that employs second harmonic generation to provide a stable short pulse output at 780 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 provides a free-space output with power levels of over 150 mW and a short optical pulse of less than 90 fs. The high quality spatial mode ensures excellent focusability for terahertz generation and multiphoton microscopy applications. The laser also offers an RF 80 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 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.

Technical Specifications¹

Model Number	FPL-M4RFF
OPTICAL	
Central Wavelength (nm)	780 ± 3
Pulse Width ² (fs)	< 90
Average Power (mW)	> 150
Repetition Rate ³ (MHz)	80
Spectral Width (FWHM, nm)	~ 7 - 9
Power Stability over 8 hours ⁴ (% , RMS)	< 1.0
Beam Quality, M ²	< 1.1
Polarization Extinction Ratio (dB)	> 20
Output/Termination	Free space, collimated beam
ELECTRICAL	
Electrical Synchronization (V)	> 0.5, SMA connector
Operating Voltage (VDC)	~ 5
Power Consumption (W)	< 20 W
Electrical Interface	USB Micro B
Computer Control	Yes
MECHANICAL	
Operating Temperature (°C)	20 - 35
Dimensions (cm)	18.4(W) x 15.7(D) x 6.5(H)
Weight (kg)	1.5
Mounting	Heat sink for steady state heat load of up to 20 W (up to 25 W at turn-on)
Warm-up Time (min)	< 5

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 sech² pulse shape (deconvolution factor of 0.65) is used to determine the pulse width from the second harmonic autocorrelation trace.

3. For other repetition rates, please contact sales@calmarlaser.com.

4. Requires an ambient temperature control of ± 1.0°C and appropriate mounting with heat sink

