EUREKA

10 GHz Picosecond Fiber Laser - Auto Mode-locking

Applications

- Optical clock for 10, 20, 40, 80, 160 GHz OTDM system
- Spectral comb
- Transmission network characterization
- High speed O/E conversion
- Optical sampling
- Metrology

Features

- Automatic mode-locking
- Repetition rate continuously tunable from 5 to 11 GHz
- Wavelength tunable from 1530 to 1565 nm
- Pulse width tunable from 1.5 to 10 ps
- Average output power greater than 20 mW
- Transform-limited output
- Linearly polarized output
- Minimal pulse pedestal
- Low timing jitter
- Turn key operation
- Remote performance monitoring

The C-band 10 GHz picosecond fiber laser (PSL-10-AUTO) is an actively mode-locked fiber laser with automatic mode-locking function, which is achieved by a built-in computer with proprietary software design. It provides a stable and reliable optical clock with turnkey operation. A front panel switch allows the selection of either automatic mode-locking (by computer) or manual mode-locking. Other user-friendly front panel control knobs offer flexible adjustment of wavelength, pulse width and output power. The wavelength can be tuned throughout the C-band. The pulse width can be tuned from 1.5 to 10 ps, with transform-limited spectral width and a better than -20 dB pedestal. The timing jitter is as low as 50 fs and side mode suppression is better than -75 dB. An output power of greater than 20 mW obviates the need for an additional optical amplification stage. Options for 780 nm or 1 μm wavelength emission are also available.

Calmar is the first and only vendor that offers automatic mode-locking features. The automatic mode-locking feature is especially advantageous for users not familiar with the operational requirements of actively mode-locked fiber lasers. This feature enables industrial and OEM applications. Once the required parameters such as wavelength, pulse width and repetition rate are set by end users, the laser itself will execute mode locking automatically. The remote control software ensures ease of use via readily accessible graphical controls viewable on the computer monitor.

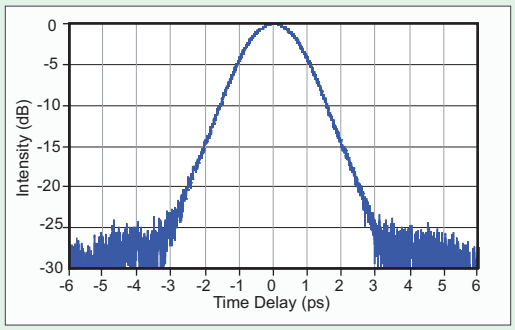
HIGH REPETITION RATE PICOSECOND FIBER LASER

Technical Specifications

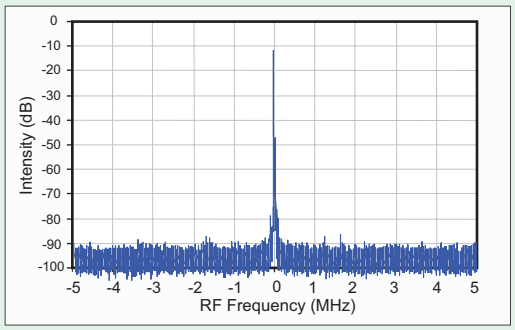
Model Number	PSL-10-AUTO
Pulse Width (ps)*	1.5 ~ 10 (tunable)
Output Wavelength (nm)**	1530 ~ 1565 (tunable)
Repetition Rate (GHz)	5 ~ 11 (tunable)
Timing Jitter (fs)	<50 (carrier offset 100 Hz ~ 1 MHz)
Amplitude Noise (%)	<1
Output Power at 10 GHz (mW)	>20
Operating Temp (°C)	15 ~ 30
Operating Voltage (VAC)	85 ~ 264
Dimensions (cm)	48(w) x 42(d) x 9(h)

* *A sech² pulse shape (convolution factor of 0.65) is used to determine the pulse width for the second harmonic autocorrelation trace.*
** *780 nm or 1 μm band is available.*

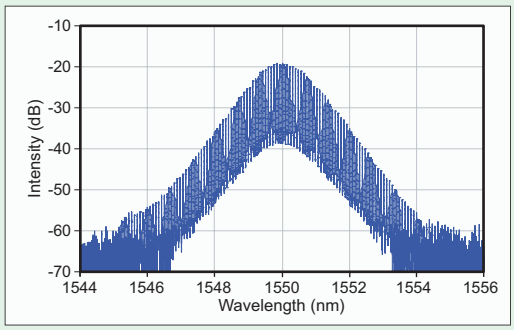
Due to our continuous improvement program, specifications are subject to change without notice.



Autocorrelation Trace Corresponding to a Pulse Width of 1.2 ps



Typical Side Mode Supression of 82 dB



Optical Spectrum of 2.1 nm

CALMAR LASER