PICOSECOND HIGH SPEED FIBER LASER

Calmar Optcom PSL Data Sheet

Rev.102202

OVERVIEW

UNIQUE FEATURES

- **Pulse Width Adjustor**
- **Computer Control**

APPLICATIONS

- 10, 40, 160, 320 Gb/s transmission
- Next generation component testing
- Optical communications R&D
- Material diagnosis
- Optical A/D and CDMA

KEY FEATURES

- Adjustable short pulse widths (1 – 10 ps)
- Wide range repetition rates (2.5 – 40 GHz)
- Widely tunable wavelengths (1530 – 1560 nm)
- Low timing jitter (< 100 fs)
- Computer control (auto-lock)

ADVANTAGES

- **High Performance** – adjustable pulse widths, transform-limited output, chirp-free, low timing jitter, wavelength tunability.
- **Flexibility** – highly adaptable instrument to match your requirements (internal RF clock, pulse compression, high power, tunable repetition rates).
- **Ease-of-use** – requires no special skills to operate and can be easily integrated into optical networking testing environments.
- **Error free** – stable RZ source laser produces reliable error free signals needed for life or long term testing requirements.
- **Space saver** – single unit fits into industry standard rack mountable space and provides the same functionality as multiple instrument configurations.

CALMAR OPTCOM

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PRODUCT SPECS

SPECIFICATIONS

Mainframe	PSL-10-1	PSL-10-2	PSL-10-3	PSL-10-6
Pulse width	<1.2ps at one point <1.5ps at all range	<2.5ps	<3ps	6ps +/- 1.5 ps
Wavelength	1545-1560 nm, tunable	1530-1560 nm, tunable	1530-1565 nm, tunable	1530-1560 nm, tunable
Repetition Rate	9 – 11GHz	9 – 11GHz	9 – 11GHz	9 – 11GHz
Output Power	>20 mw	>30 mw	>20 mw	>50 mw
Operating Temperature	15°C - 30°C	15°C - 30°C	15°C - 30°C	15°C - 30°C
Operating Voltage	85-264 VAC; 47 – 63 Hz	85-264 VAC; 47 – 63 Hz	85-264 VAC; 47 – 63 Hz	85-264 VAC; 47 – 63 Hz
Weight	20 lbs	20 lbs	20 lbs	20 lbs
Size	48 x 42 x 9 (cm)	48 x 42 x 9 (cm)	48 x 42 x 9 (cm)	48 x 42 x 9 (cm)

All information contained here is believed to be accurate and is subject to change without notice. No responsibility is assumed for its use. Some specific combinations of options may not be available. Please contact Calmar Optcom for more information.

FEATURES

Turnkey Operation
- Short warm-up time 15 mins
- Short setup time 2 mins
- Long term stability

Low Noise
- Low amplitude noise <1.5%
- Low timing jitter <100fs
- Sideband suppression >70 dB

High Performance
- High pulse quality
- High power
- PM fiber output

Configuration
- Rack mountable
- Synchronize to external RF clock

Option
- Pulse width adjustor [1 - 10ps]
- Wide repetition rate [2.5-40GHz]
- Internal RF clock
- <900fs Pulse width
- Multiplier to 320GHz [BRM]

Computer Control
- Auto initialization
- Auto maintenance
- Remote control

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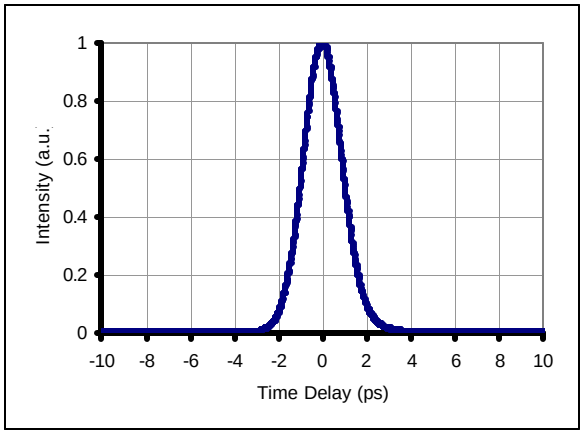
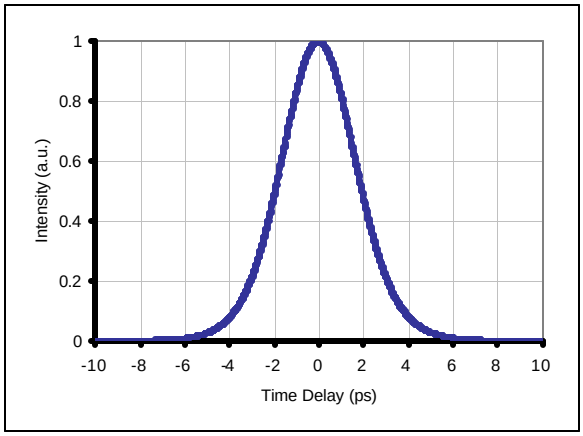
TYPICAL PULSE AND SPECTRAL WIDTHS

Laser Pulse Width

Model: PSL-10-1
Pulse width = 1.3



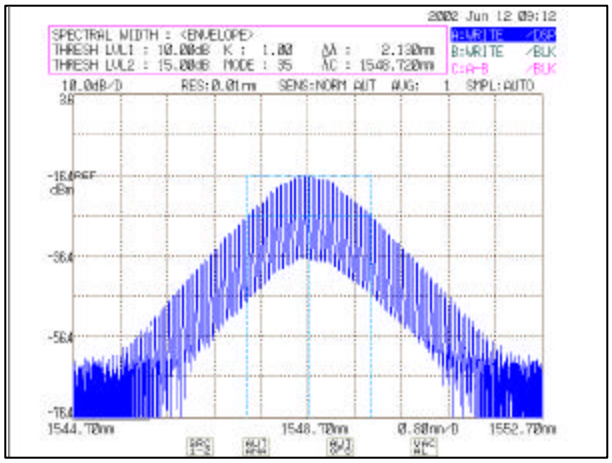
Model: PSL-10-2
Pulse width= 2.5 ps



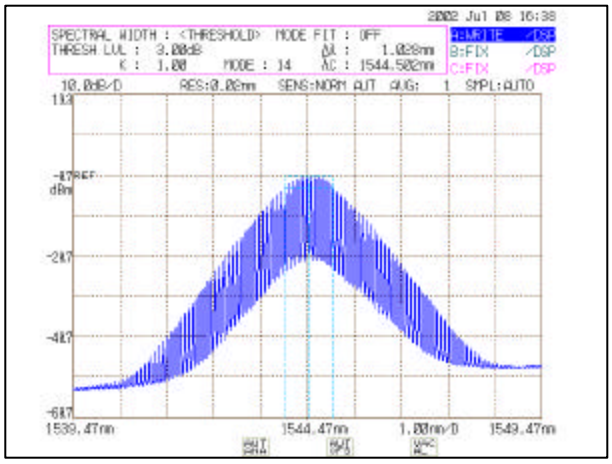
Autocorrelation trace in linear scale

Laser Spectral Width

Model: PSL-10-1
Spectral width = 2.1 nm



Model: PSL-10-2
Spectral width= 1.0 nm



Optical spectrum trace in log scale

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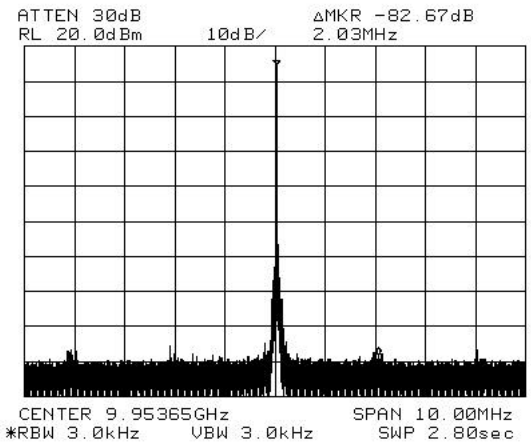
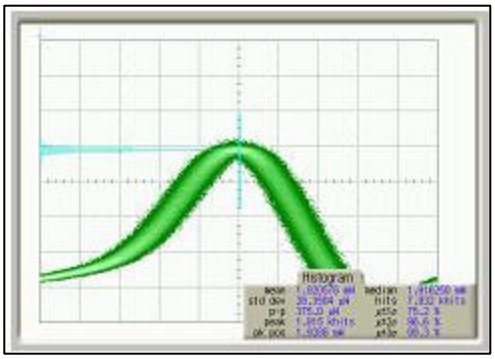
TYPICAL PERFORMANCE

Sidemode Suppression = 82 dB



RF spectrum analyzer

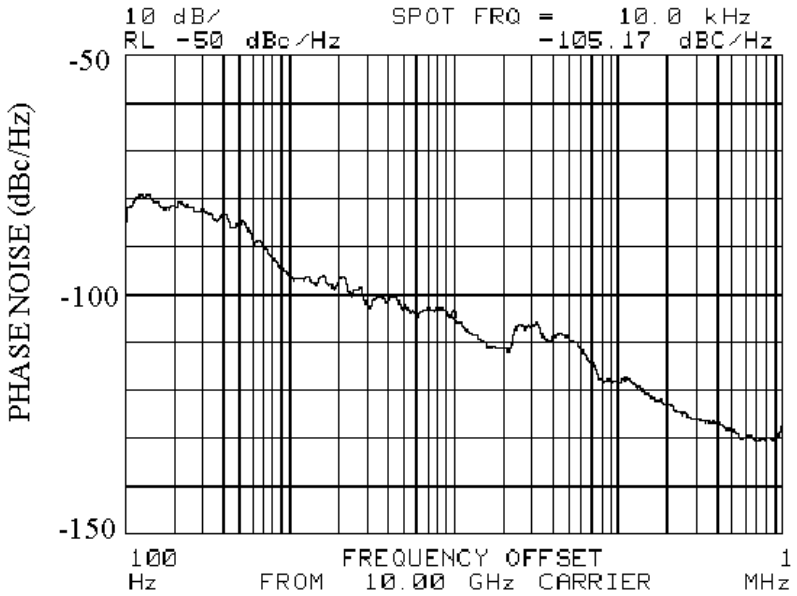
Amplitude Noise= 1.4 %



Optical sampling scope trace

Phase noise = 0.16 degree

Timing jitter = 45 fs



Spectrum analyzer

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COMPUTER CONTROL FEATURES

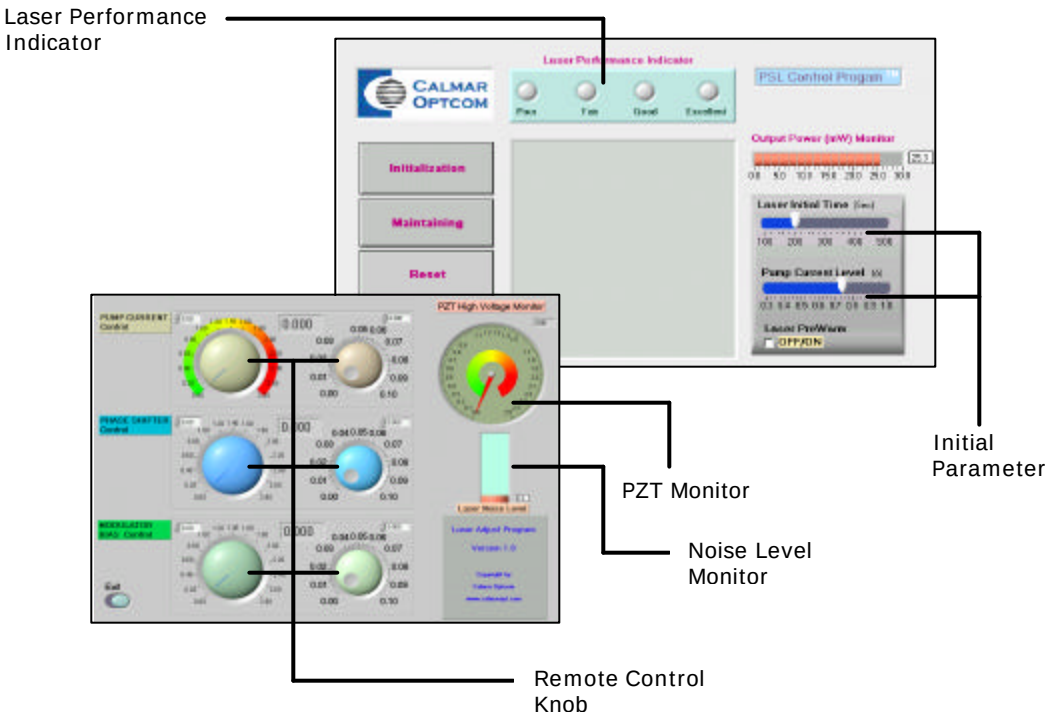
- **Automatic Laser Lock**
- **Automatic Laser Maintenance**
- **Remote Performance Monitoring**
- **User Friendly Web Interface**

The advanced computer control feature of the PSL series utilizes the measured laser output to analyze the laser status, and to lock the laser for optimum performance. The control software maximizes ease-of-use via readily accessible graphical controls viewable on the computer monitor.

The automatic laser lock feature is especially advantageous for users who are not familiar with the operational requirements of actively mode-locked fiber lasers. As soon as the PSL is turned on, the computer analyzes the laser status and locks it for best performance, a procedure accomplished in just a few minutes.

The computer automatically maintains the laser status, which is of special interest for life or long term testing of 10-160 Gb/s transmission systems. Graphical laser performance indicators allow the user to monitor laser performance without the need for a sampling scope or similar instrument.

Remote control screen shot



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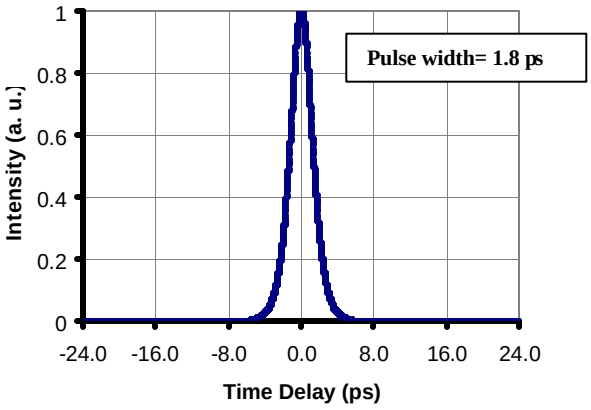
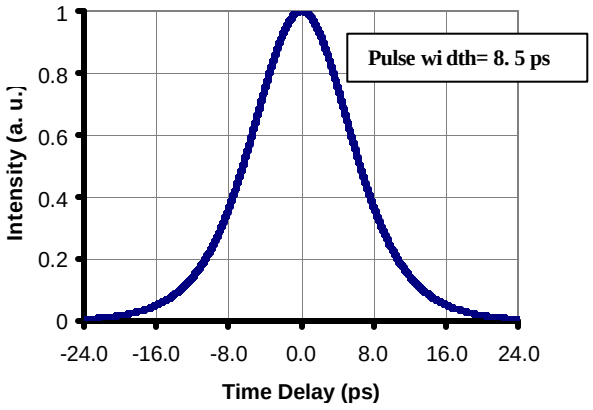
PULSE WIDTH ADJUSTOR FEATURES

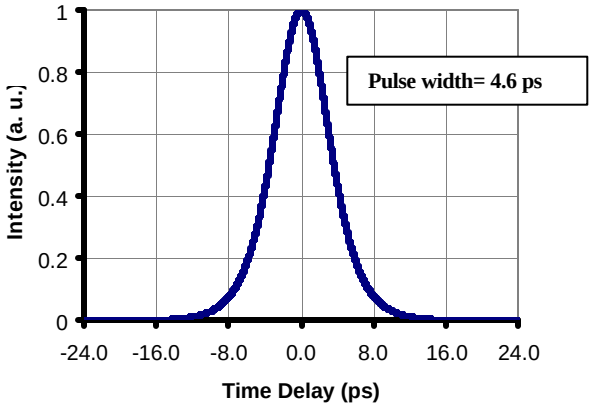
Calmar Optcom is pleased to introduce the new pulse width adjustor option. This unique feature allows the user to change the signal pulse width within seconds simply by turning a switch located in the front panel and visually verifying the chosen pulse width on the adjacent indicator

The working mechanism is fully integrated within the laser, so there is no need to replace any parts in the instrument, and therefore, there is no risk of damage to the unit. This results in more stable, repeatable and reliable performance.

- **Tunable pulse widths**
- **Continuously adjustable**
- **Change within seconds**
- **Offers versatility over multiple lasers with fixed pulse width**







Autocorrelation trace in linear scale

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PSL-40

The world's leading supplier of high speed optical sources introduces its latest development, the Picosecond 40 GHz Fiber Laser (PSL-40). Compared to a 10 GHz laser plus multiplier to produce 40 GHz pulses, the PSL-40 offers the following unique advantages:

- **No pulse to pulse interference**
- **Enhanced stable performance**

Note: There are only a few options available at the present time (see below). Stay tuned.

SPECIFICATIONS

Mainframe	PSL-40-1	PSL-40-2
Pulse width	<1.0ps	<2.0ps
Wavelength	1540-1560 nm, tunable	1530-1560 nm, tunable
Repetition Rate	39-41 GHz	39-41 GHz
Output Power	>15 mw	>20 mw
Operating Temperature	15°C - 30°C	15°C - 30°C
Operating Voltage	85-264 VAC; 47 – 63 Hz	85-264 VAC; 47 – 63 Hz
Weight	20 lbs	20 lbs
Size	48 x 42 x 9 (cm)	48 x 42 x 9 (cm)

OPTIONS

- **Repetition Rate 37-45 GHz**
- **Computer Control**

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