

TeraXion

PowerSpectrum™

HPSR High-Accuracy Pulse Stretcher for High-End Ultrafast Lasers



The PowerSpectrum™ HPSR fixed-dispersion pulse stretcher is a compact, robust and cost-effective solution for dispersion management in chirped-pulse amplification (CPA) ultrafast laser systems that use either a volume Bragg grating (VBG) or a diffraction grating compressor. The all-fiber construction creates a compact and environmentally stable package suitable for a variety of demanding applications. Many features, such as spectral profile, reflection bandwidth, and dispersion rate, can be tailored to user specifications.

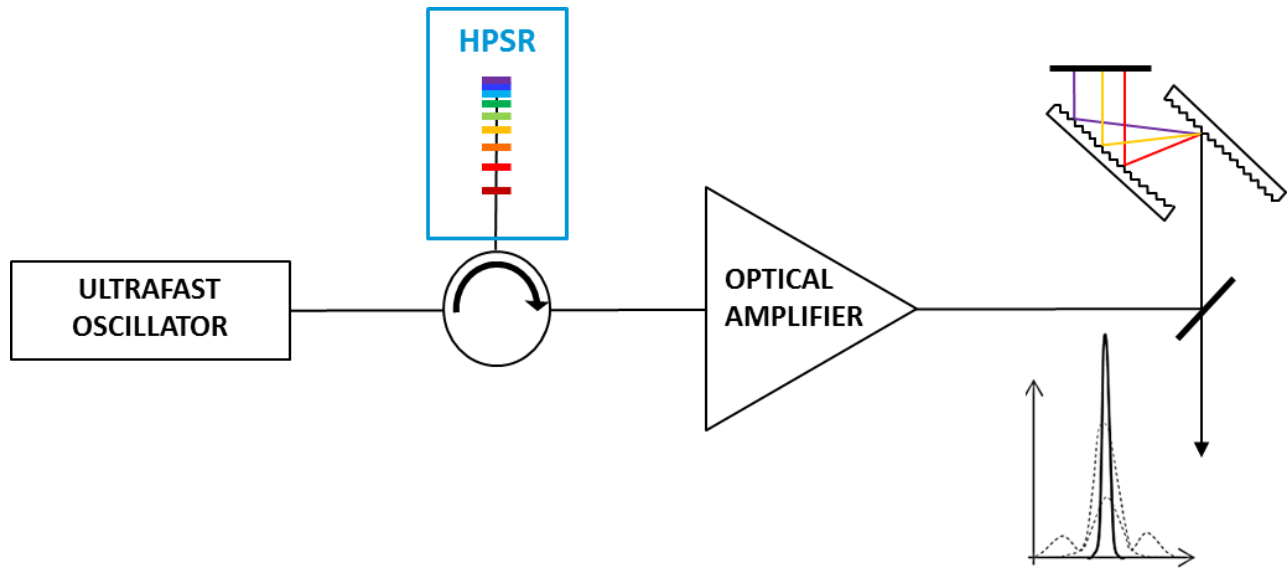
Early on, TeraXion recognized the emerging importance of ultrafast fiber lasers for industrial and medical applications. The HPSR is a customizable and cost-effective fixed-dispersion pulse stretcher that enables ultrafast laser systems to generate clean pulses as low as 150 femtoseconds.

The PWS-HPSR features a gain bandwidth enhancement option that enables spectral shaping of the input pulse before amplification. This counteracts gain narrowing and allows for shorter amplified pulse.

Top 5 Features

- **Robust:** The compact, all-fiber construction remains operational in changing environmental conditions.
- **Compact:** The all-fiber construction of the HPSR eliminates the weight and size of stretchers based on bulky, free-space optical components.
- **Effective:** The HPSR can be designed to compensate amplifier-induced nonlinear effects for optimal performance.
- **Low Cost:** The ingenious, all-fiber design of the HPSR reduces overall system cost, minimizes maintenance and alignment, and increases productivity.
- **Reliable:** The HPSR is based on the technology of our Telcordia-qualified telecom products, which are still operating after decades of use.

Chirped-Pulse Amplification with a PowerSpectrum™ High-Accuracy Pulse Stretcher



General Specifications

Parameters		Units
Center wavelength band	1	μm
Typical reflection bandwidth	5 to 50	nm
Reflectivity at 80% of FWHM ⁽¹⁾	35	%
Total stretching window	Up to 10	ns
Typical dispersion rate	2.5 to 150	ps ²
Phase error	<0.5	RAD
PER	≥20	dB
Compressor matching	Complete GD function ($\beta_2, \beta_3, \beta_4$)	
Fiber type	PM	
Packaging	Rigid loose tube, athermal or module	
Operating temperature	20 to 50	°C
RoHS compliant	Some configurations	

⁽¹⁾ Amplifier gain bandwidth enhancement available upon request

Ordering information

For orders, questions, specific requirements or to learn more about TeraXion's products, contact us at info@teraxion.com

TeraXion

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