

PowerSpectrum™

HPSR High-Accuracy Pulse Stretcher for Femtosecond 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.

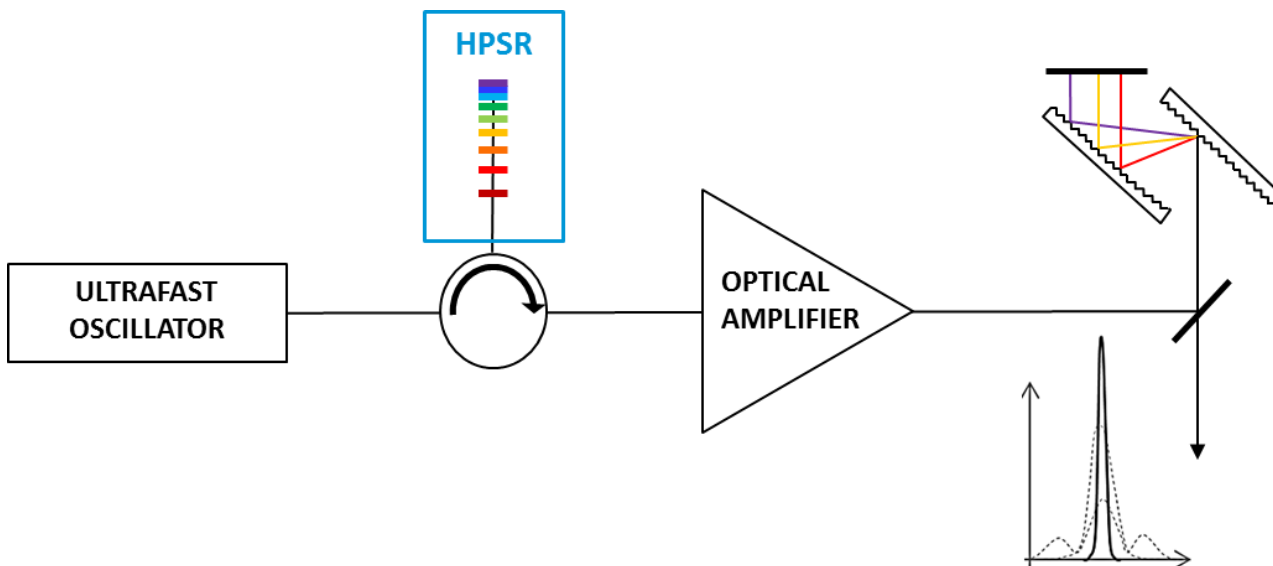
Early on, TeraXion recognized the emerging importance of ultrafast fiber lasers for industrial and medical applications. The HPSR is a customizable and cost-effective fixed-dispersion pulse stretcher that enables ultrafast laser systems to generate clean pulses as low as 150 femtoseconds.

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

- **Precise:** Its high group delay accuracy ensures the proper matching of the compressor and the amplifier chain.
- **Robust:** The compact, all-fiber construction remains operational in changing environmental conditions.
- **Effective:** The HPSR can be designed to pre-compensate the 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 or 70	%
Total stretching window	Up to 1.2	ns
Typical dispersion rate	2.5 to 150	ps ²
Phase error	<0.5	RAD
PER	≥20	dB
Compressor matching	Complete GD function	
Fiber type	PM	
Packaging	Rigid loose tube, athermal or recoated	
Operating temperature	20 to 50	°C
RoHS compliant	Some configurations	

(1) Depends on fiber type

Ordering information

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



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