

# TeraXion

## PowerSpectrum™

# TPSR-V Tunable Pulse Stretcher for Ultrafast Lasers with VBG Compressor



**The PowerSpectrum™ TPSR-V tunable pulse stretcher is a compact, robust and cost-effective solution to control pulse durations in chirped-pulse amplification (CPA) systems that use a volume Bragg grating (VBG) compressor.** The variable tuning feature allows the user to control the duration of the pulse and offsets amplifier-induced nonlinear effects. Tunability also reduces the laser system development cycle times and compensates for manufacturing variations.

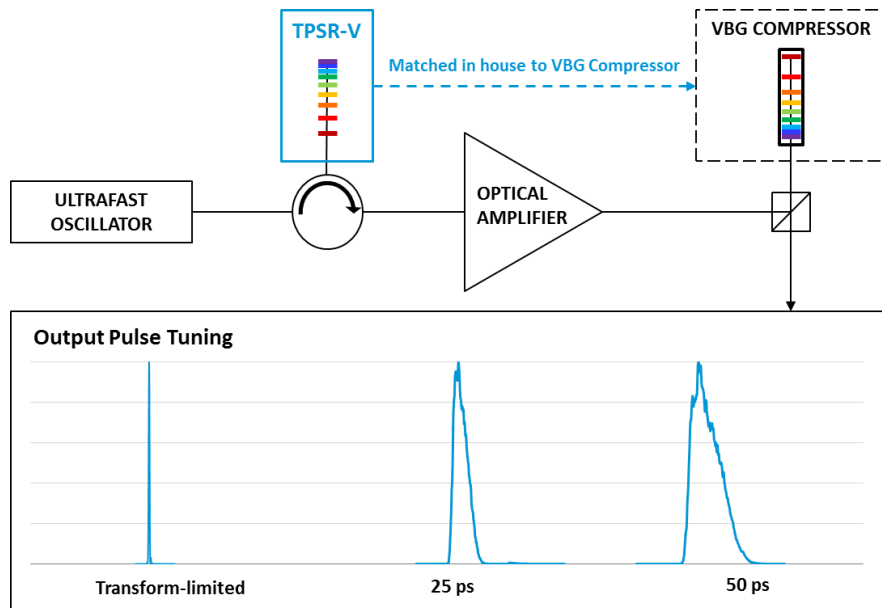
The all-fiber construction creates a compact and environmentally stable package suitable for a variety of demanding applications. The result is a customizable pulse stretcher that enables ultrafast laser systems that are powerful, low-maintenance, and cost-effective.

Early on, TeraXion recognized the emerging importance of ultrafast fiber lasers for industrial and medical applications. The TPSR-V is paired in-house to a specific customer-provided volume Bragg grating (VBG) for optimal pulse compressibility.

## Top 5 Features

- **Effective:** The TPSR-V can compensate amplifier-induced nonlinear effects for optimal performance at all energy regimes.
- **Versatile:** Pulse-duration tuning enables a single laser to operate in both the picosecond and femtosecond regimes.
- **Low Cost:** The ingenious, all-fiber design of the TPSR-V reduces overall system cost, minimizes maintenance and alignment, and increases productivity.
- **Reliable:** The TPSR-V is based on the technology of our Telcordia-qualified telecom products which are still operating after decades of use.
- **Integrated:** Software integration between the TPSR-V and the laser system enables dynamic and precise pulse control that maintains optimum peak power.

### Chirped-Pulse Amplification with a VBG Compressor



### General Specifications

Parameters		Units
Center wavelength band <sup>(1)</sup>	1	μm
Minimum input pulse duration	≥150	fs
FBG spectral shape <sup>(2)</sup>	Customizable	
Total stretching window <sup>(3)</sup>	≤500	ps
VBG compression matching	GD function and phase error matching	
Pulse tuning	From transform-limited up to 50	ps
Dispersion tuning	D <sub>2</sub> , D <sub>3</sub> and D <sub>4</sub>	
Fiber type	PM	
Module dimensions	14 x 22 x 130	mm
Control	USB/I <sup>2</sup> C	
RoHS compliant	Yes	

(1) Other wavelengths available upon request

(2) Amplifier gain bandwidth enhancement available upon request

(3) Other stretching windows available upon request

### Ordering information

For orders, questions, specific requirements or to learn more about TeraXion's products, contact us at [info@teraxion.com](mailto:info@teraxion.com)

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