

TeraXion

PowerSpectrum™

DMR Dispersion Management Reflector



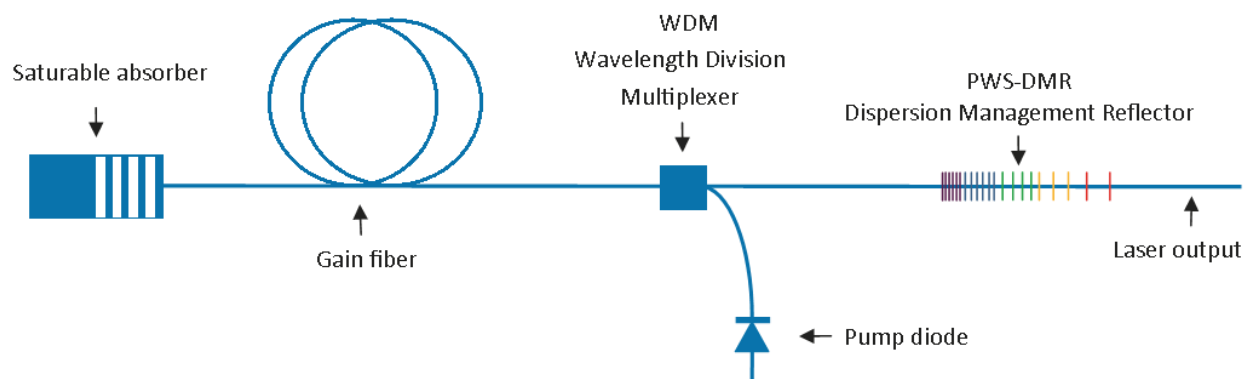
TeraXion's all-fiber PowerSpectrum™ DMR chirped fiber Bragg gratings (CFBG) provide precise compensation for either anomalous or normal dispersion for mode-locked ultrafast lasers. The DMR has especially high dispersion accuracy and is compatible with most mode-locked laser configurations for a range of customizable wavelengths and cavity lengths.

Mode-locked ultrafast fiber lasers have replaced most of their solid-state counterparts because of superior ruggedness, easier miniaturization, and simpler integration. TeraXion is a pioneer in designing and manufacturing chirped FBGs for ultrafast fiber lasers. After a decade of refinement, the PowerSpectrum™ DMR is unmatched in the industry for meeting the demanding requirements of femtosecond pulse generation.

Top 5 Features

- **Accurate:** Precision dispersion management enables ultra-short pulse durations by ensuring that the full spectrum of wavelengths maintains a proper phase relation.
- **Robust:** The monolithic design of the all-fiber PowerSpectrum™ DMR intrinsically eliminates misalignment caused by temperature changes or mechanical shock, enabling pulse durations as short as 50 fs.
- **Reliable:** TeraXion's chirped FBG products have been the critical components for a variety of fiber laser systems for over a decade.
- **Standardized:** We stock a range of reflectors designed for PM 980 fiber and optimized for the 1030 nm wavelength band.
- **Adaptable:** PowerSpectrum™ DMR reflectors are available as custom-made components, selectable wavelength, bandwidth, fiber-type, and dispersion parameters.

Chirped-Pulse Amplification with a VBG Compressor



Standard Configuration Specifications

Parameters	Configuration 1	Configuration 2	Units
Reflection bandwidth at -3dB FWHM ⁽¹⁾	20 ± 1	10 ± 1	nm
Peak reflectivity	>12.0	>25.0	%
D ₂ ⁽²⁾	+0.20	+0.42	ps/nm
D ₃ ⁽²⁾	0	0	ps/nm ²
Center wavelength at room temperature ⁽²⁾ (slow axis)	1030 ± 3		nm
Spectral shape	Gaussian		
Wavelength referenced to	Air		
Connector type	None		
Fiber type	PM 980		
Packaging	UV-cured acrylate		
Pigtail length (on each side)	≥1		m
RoHS compliant	Yes		

(1) Short wavelengths are reflected first
 (2) The group delay function is: $GD = D_1 + D_2(\lambda - \lambda_0) + D_3(\lambda - \lambda_0)^2$
 (3) Room temperature = 20 °C to 23 °C

Customizable Specifications

Parameters		Units
Wavelength range (full coverage)	Between 800 and 2400	nm
Bandwidth	0.015 to 100	nm
Dispersion rate	0.01 to 2000	ps/nm
High-order dispersion management	β_2 and β_3	
Reflectivity	Up to 99.0	%
Fiber type	Single-mode, polarization maintaining or large mode area	
Package	UV-cured acrylate or loose tube	

Use the chart below when ordering your customized item

DMR	-	x	x	x	x	.	x	-	x	x	x	.	x	-	x	x	(±	X	x	x	x	x	±	x	x	x	x)	-	X	x
		1						2						3			4					5					6					

Nomenclature options

1 = Wavelength (nm)

2 = Bandwidth at -3 dB (nm)

3 = Reflectivity (%)

4 = $\pm D_2$ or $\pm \beta_2$
 Dxxxx (ps/nm)
 β xxxx (ps²)

5 = $\pm D_3$ or $\pm \beta_3$
 xxxx (ps/nm²)
 xxxx (ps³)

6 = Fiber type
 P1 = polarization maintaining
 P2 = PM with cladding suppression mode
 S1 = Single mode non-PM
 S2 = CMS non-PM

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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