

TeraXion

PowerSpectrum™

DMR Dispersion Management Reflector



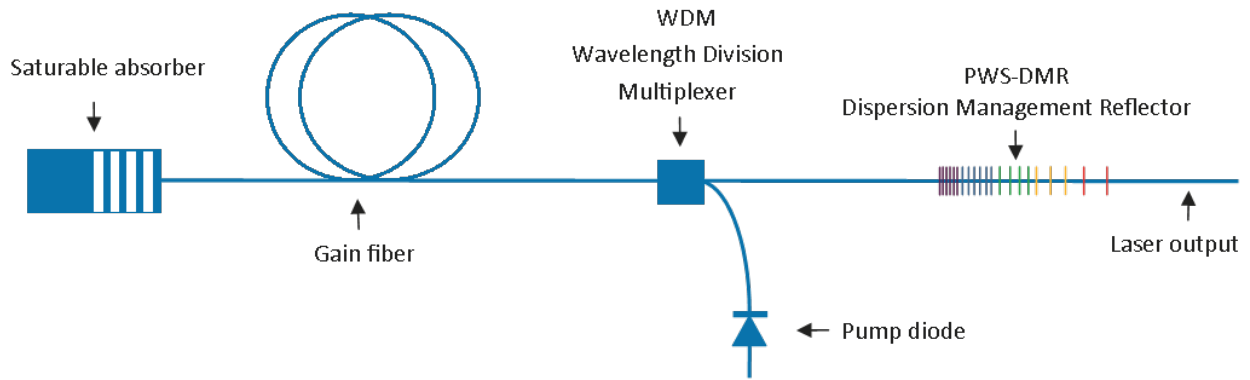
TeraXion's all-fiber PowerSpectrum™ DMR chirped fiber Bragg gratings (CFBG) provide precise compensation for either anomalous or normal dispersion for mode-locked ultrafast lasers. The DMR has especially high dispersion accuracy and is compatible with most mode-locked laser configurations including picosecond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

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.

Mode-locked ultrafast laser with chromatic dispersion management



Standard Configuration Specifications (for femtosecond lasers)

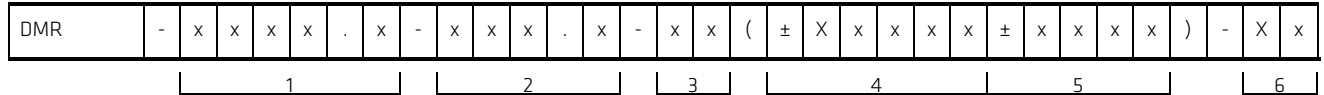
Parameters	Configuration 1	Configuration 2	Units
Reflection bandwidth at -3dB FWHM ⁽¹⁾	20 ± 1	10 ± 1	nm
Peak reflectivity	>12.0	>25.0	%
D ₂ ⁽²⁾	+0.20	+0.42	ps/nm
D ₃ ⁽²⁾	0	0	ps/nm ²
Center wavelength at room temperature ⁽²⁾ (slow axis)	1030 ± 3		nm
Spectral shape	Gaussian		
Wavelength referenced to	Air		
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	For picosecond laser	For femtosecond laser	Units
Wavelength range (full coverage)	Between 780 and 2200		nm
Bandwidth	0.015 to 2	>2 to 50	nm
Dispersion rate	>10 to 1000	0.015 to 10	ps/nm
Chromatic dispersion management	Up to third order		
Reflectivity	Up to 95	Up to 50 (typ. 20)	%
Fiber type	Single-mode, polarization maintaining or large mode area		
Package	Recoated or loose tube		

Use the chart below when ordering your customized item



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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