Customized DCF Dispersion Compensation Module

10-100km, custom length and package

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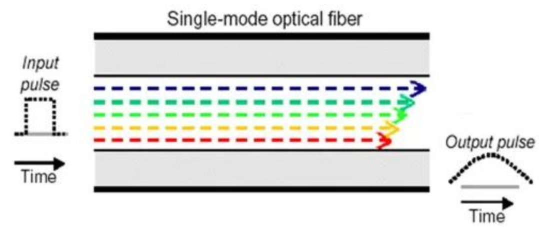
BUY NOW

Chromatic dispersion accumulates in optical fibers, broadening the transmission signals, as shown in the picture below. A cost-effective way to compensate for this effect is to connect a spool of dispersion compensation fiber (DCF) having chromatic dispersion in the opposite direction (negative). We produce a variety of standard spool lengths of DCF fiber to compensate 10km, 20km, 30km, and 40km of G.652 fiber in C-band (1528nm - 1568nm). Precision chromatic dispersion measurement services are available. Custom DCF fiber length can be made using an in-house precision spool winding setup.

The DCF compensation modules are packaged in formats of 1U rack plug-in or spool. The 1U chassis can be purchased.



The DCF compensation modules are passive devices, supporting SDH/SONET, DWDM, CATV System, etc. We produce precision fiber optic coils supporting satellite communications (SATCOM), military, telecommunications, sensing, laser output mode scrambling, and radar calibration applications. Fiber types range from standard single mode and multimode to a full range of specialty fibers, with standard or high-temperature coatings.

Features

- 100% Slope Compensation of G.652
- Low Latency
- Low Loss
- Up to 140km
- Custom Length and Package

Applications

- Optical Communication
- Cable Systems
- Sensor
- Instruments

General Specifications

Parameter	Min	Typical	Max	Unit
Wavelength	1528		1568	nm
Compensation Length	10		180	km
Insertion Loss[1]			0.55	dB/km
Dispersion Slope		-0.5		
Polarization Dependent Loss			0.1	dB
Dispersion		-130		ps/nm-km
Operating Temperature	-40		70	°C
Storage Temperature	-60		85	°C

[1] For 1550nm

Detail Specifications (@1550nm)

Parameter	10km	20km	30km	40km	50km	60km	70km	80km	90km	100km
Dispersion (ps/nm)	-170±5	-340±10	-500±15	-670±20	-835±25	-1000±30	-1170±35	1330±40	-1500±45	-1670±50
Dispersion Slope(%)	0.0036±10									
Insertion Loss(dB)	<2.2	<2.8	<3.5	<4.1	<4.8	<5.5	<6.2	<6.9	<7.6	<8.3
Wavelength Dependent Loss(dB)	<0.5	<0.5	<0.5	<0.5	<0.6	<0.6	<0.6	<0.6	<0.7	<0.7
Polarization Dependent Loss(dB)	<0.1									
Polarization Mode Dispersion(ps)	<0.3	<0.3	<0.4	<0.5	<0.6	<0.6	<0.7	<0.7	<0.8	<0.9
Return Loss(dB)	-45					-27				

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Mechanical Dimensions (mm)

Ordering Information

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Prefix	**Type**	**Wavelength**		**Package**	**Compensation***	**Fiber Cover**	**Connector**
DCFM-		C Band = 1 Special = 0		Module = 1 Spool = 2 Special = 0	1km = 01 2km = 02 3km = 03 10km = A1 15km = F1 20km = A2 30km = A3 40km = A4 45km = F4 50km = A5 60km = A6 65km = F6 70km = A7 80km = A8 90km = A9 100km = 10 110km = 11 120km = 12 Special = 0	Bare fiber = 1 0.9mm tube = 3 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 LC/APC = A LC/UPC = U Special = 0

Red color for special order
* For SM28 fiber

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Application Notes

Fiber Core Alignment
Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness
Fibers with smaller core diameters (<5 µm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power
Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.