DISPERSION COMPENSATING MODULES

Specification Sheet

RightWave HSDK C

For NZDF

Product Description

OFS HSDK-C dispersion compensating modules are optimised for compensating the dispersion and a substantial part of the dispersion slope of a Nonzero Dispersion Fiber (NZDF) in the C-band 1530 - 1565 nm.

The modules are based entirely on mature and reliable optical fi ber technology and do not exhibit the problems with dispersion ripple associated with other dispersion compensating technologies.

OFS dispersion compensating modules consist of a box with a spooled length of dispersion compensating fiber spliced to connectorized pigtails.

OFS HSDK-C modules are available with any dispersion value required down to -2000 ps/nm at 1550 nm.

Typical Applications

- C-Band DWDM networks based on Nonzero Dispersion Fibers (G.655)

Features and Benefits

- 65% slope compensation of G.655 Fiber with low dispersion slope
- Low Polarization Mode Dispersion (PMD)
- Customer specified dispersion
- Available with specification of Raman-related optical parameters
- Single-mode fiber => No multiple path interference (MPI) due to higher order modes
- High reliability
- Robust and compact package
- Telcordia GR-2854 compliant
- Reliability according to Telcordia GR-1221-CORE

Nonlinear Properties

Measured at 1500 nm

- A_{eff} = 15 μm^2 (typical)
- n_2/A_{eff} = 1.8 • 10^{-9} W^{-1} (typical)

Dispersion Compensation

To order items on this spec sheet, please contact our facility in:

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Module Specifications

Optical Properties	HSDK-C:180✦	HSDK-C:360✦	HSDK-C:540✦
Dispersion at 1550 nm (ps/nm)	-180 ± 2%	-360 ± 2%	-540 ± 2%
Relative dispersion slope† at 1550 nm (nm^{-1})	0.0063 ± 20%	0.0063 ± 20%	0.0063 ± 20%
Relative dispersion slope at 1550 nm (typical)	0.0065	0.0065	0.0065
Insertion loss** @ 1550 nm (dB)	≤2.8	≤4.1	≤5.3
Insertion loss** @ 1550 nm (typical)	1.9	3.1	4.3
Insertion loss** @ 1530-1565 nm (dB)	≤2.9	≤4.2	≤5.5
Insertion loss** @ 1530-1565 nm (typical)	2.0	3.2	4.5
PMD÷ (ps)	≤0.35	≤0.50	≤0.60
PMD÷ (typical)	0.15	0.20	0.23
PDL (dB)	≤0.1	≤0.1	≤0.1

Physical Properties	
Standard dimensions: mm (in) (up to HSDK C 1100)	224 (8.82) x 238 (9.37) x 45 (1.77)
Connectors: As requested	

† Relative dispersion slope is dispersion slope divided by dispersion.
** Including fiber loss, splice loss, and one connector/connector interface loss.
÷ As measured using the interferometric method (per ITU G.650 (2000)).
✦ Specification examples. Modules are available with dispersion values down to -2000 ps/nm at 1550 nm.

All specifications are at room temperature

Definition of Relative Dispersion Slope (RDS)

To achieve dispersion compensation at a specific wavelength the following equation must be satisfied:

$$L_{TF} \cdot D_{TF} + L_{DCF} \cdot D_{DCF} = 0$$

Where L_{TF} is the length of the transmission fiber, D_{TF} is the dispersion of the transmission fiber, L_{DCF} is the length of the dispersion compensating fiber and D_{DCF} is the dispersion of the dispersion compensating fiber.

To achieve dispersion slope compensation, the following equation must be satisfied:

$$L_{TF} \cdot S_{TF} + L_{DCF} \cdot S_{DCF} = 0$$

S_{TF} is the dispersion slope of the transmission fiber and S_{DCF} is the dispersion slope of the dispersion compensating fiber. Combining the two equations and thereby having both dispersion - and dispersion slope compensation yields:

$$RDS_{DCF} = S_{DCF}/D_{DCF} = S_{TF}/D_{TF}$$

The RDS value of a low dispersion slope G.655 fiber is around 0.01 nm^{-1} at 1550 nm.