

Passive Optical Fiber Depolarizer: Broadband

750nm to 2000nm, DOP<5%, IL<1dB, PM Fiber Based



The PFDP Passive Optical Fiber Depolarizer is an all-fiber device that converts polarized input into random polarization output, offering ultra fast, low cost, high power handling, and requiring no electrical power. Optimized for broadband lasers like SLEDs, it comprises multiple segments of polarization-maintaining (PM) fibers spliced at precise 45° and 90° angles. The cumulative effect of these splices results in efficient polarization scrambling, making it ideal for passive, cost-effective depolarization without complex electronics. It is particularly effective in reducing polarization-dependent loss (PDL) and polarization mode dispersion (PMD) in optical communication systems, eliminating artifacts in Optical Coherence Tomography (OCT), and ensuring stable measurements in fiber sensing systems.

The device accepts single-mode (SM) or PM fiber inputs, with a single-mode output. However, it is not suited for narrow-line lasers like Fiber Bragg Grating (FBG), Fabry Perot (FP), and Distributed Feedback (DFB) lasers.

Features

- Low Loss
- Low Cost
- Low Degree of Polarization
- High Reliability
- High Power Handling
- Wide Temperature Operation

Applications

- Laser System
- OCT
- Sensor Systems
- Instruments

Specifications

Parameter	Min	Typical	Max	Unit
Center Wavelength	750		2200	nm
Wavelength Range (\pm center)		50		nm
Insertion Loss ^[1]	0.4	0.7	1	dB
Return Loss	55	70		dB
Source Linewidth ^[2]	15			nm
Degree of Polarization ^[3]			5	%
Residual Extinction Ratio	0.2			dB
Operating Temperature	-40		70	°C
Storage Temperature	-40		85	°C
Optical Power Handling		5		W

Notes:

[1]. Without a connector, each connector adds 0.25dB

[2]. The DOP is dependent upon the source spectrum, the device is optimized ASE, SLD, ELED

[3]. The DOP increases as wavelength increasing. Across the specified band the DOP is within 5%

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link](#):

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Mechanical Dimensions (mm)

Ordering Information

Prefix	Type	Input Light	Wavelength	Package	Input Fiber	Fiber Protection	Connector
PFDP-	PM Fiber = P Special = 0	SLED = SL Special = 00	1550nm = 1 1310nm = 2 1060nm = 3 980nm = 9 850nm = 8 780nm = 7 Special = 0	Box = 1 Special = 0	PM1550 = 1 PM1310 = 3 PM1060 = 2 PM980 = 9 PM780 = 7 SM28 = 5 Hi1060 = 6 Hi980 = 8 780HP = A Special = 0	Bare = 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