Passive Optical Fiber Depolarizer

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

Return to the Webpage

The PFDP Passive Optical Fiber Depolarizer is an all-fiber device that converts polarized input into random polarization output, featuring ultra-fast response, low cost, high power handling, and no electrical power requirements. It employs multiple fiber couplers arranged in series to achieve polarization scrambling, where each coupler introduces changes in polarization due to slight birefringence variations and random phase shifts. The cumulative effect results in complex, non-deterministic polarization changes, effectively scrambling the input light. This versatile method allows optimization of coupling ratio, birefringence, and fiber alignment to depolarize specific types of lasers, making it effective for reducing polarization-dependent loss (PDL) and polarization mode dispersion (PMD) in optical communication systems, preventing artifacts in Optical Coherence Tomography (OCT), and ensuring consistent measurements in fiber sensing systems. The device accepts single-mode (SM) or polarization-maintaining (PM) fiber inputs with a single-mode output.

However, it is not suitable for narrow-line lasers like Fiber Bragg Grating (FBG) and Distributed Feedback (DFB) lasers, and its design is best suited for large quantity orders, requiring customization to optimize performance for specific laser sources.

Features

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

Applications

- Laser System
- OCT
- Sensor Systems
- Instruments

RoHS COMPLIANT

Specifications

Parameter	Min	Typical	Max	Unit
Center Wavelength	750		2200	nm
Wavelength Range (± center)		50		nm
Insertion Loss [1]	0.4	0.7	1	dB
Return Loss	55	70		dB
Source Linewidth [2]	2			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]:

Legal notices: All product information is believed to be accurate and is subject to change without notice. Information contained herein shall legally bind Agiltron only if it is specifically incorporated into the terms and conditions of a sales agreement. Some specific combinations of options may not be available. The user assumes all risks and liability whatsoever in connection with the use of a product or its application.

Rev 03/30/26

P +1 781-935-1200 E sales@agiltron.com W www.agiltron.com

Information contained herein is deemed to be reliable and accurate as of the issue date. We reserve the right to change the design or specifications at any time without notice.
Agiltron is a registered trademark of Optowares Corporation in the U.S. and other countries.

Passive Optical Fiber Depolarizer

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

Mechanical Dimensions (mm)

Ordering Information (Part Number)

	C	☐☐	☐	1	☐	☐	☐	☐
Prefix	**Type**	**Input Light [1]**	**Wavelength**		**Package**	**Input Fiber**	**Fiber Protection**	**Connector [2]**
PFDP-	Coupler Based = C Special = 0	SLED = SL FP laser = FP 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

[1]. For FP laser, we need customer to provide laser peak width

[2]. The connector cannot be installed directly onto bare fiber, as it is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer can remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SM28 fiber and decreases further with smaller core fibers.

Red color for special order

P +1 781-935-1200 E sales@agiltron.com W www.agiltron.com

Information contained herein is deemed to be reliable and accurate as of the issue date. We reserve the right to change the design or specifications at any time without notice.
Agiltron is a registered trademark of Optowares Corporation in the U.S. and other countries.