2000 nm, 10 W Polarization-Independent Fiber Isolator

IO-K-2000

Specifications

- **Wavelength:** 2000 ± 10 nm
- **Power:*** 10 W CW, <2 kW Peak
- **Isolation:** ≥25 dB
- **Insertion Loss:** 1.4 - 1.6 dB
- **PDL:** ≤0.2 dB
- **Return Loss:** >50 dB
- **Fiber:** SM2000

*Power rating is specified only for the isolator. Proper laser termination is critical.

The IO-K-2000 is the polarization-independent version of the IO-L-2000 presented on page 1128. This fiber isolator utilizes Thorlabs' SM2000 single mode fiber for both the input and output and is designed for use at 2000 nm, a wavelength experiencing rapid advancements in fiber laser applications.

If your application could benefit from a custom isolator, please let us know. In the past, we have incorporated special fibers and free space outputs for use with lasers outputting >20 W.

ITEM #	$	£	€	RMB	CONNECTORS	DESCRIPTION
IO-K-2000	$ 4,200.00	£ 3,024.00	€ 3.654,00	¥ 33,474.00	None	10 W, SM Fiber Isolator, 2000 nm

In-Line Faraday Rotator Mirrors


MFI-1310

Features

- Low Insertion Loss (0.8 dB Max)
- High-Power Handling, up to 3 W
- Epoxy-Free Optical Path
- SMF-28e+ Fiber or Equivalent

Thermal and mechanical perturbations introduced to a standard, single mode fiber cause variations in the state of polarization (SOP) of the guided light. These changes can adversely affect the performance of many different types of systems. Retaining the SOP using polarization-maintaining (PM) fiber can reduce or eliminate these adverse effects, but PM fiber is costly and often difficult to incorporate effectively.

The Faraday Rotator Mirror (FRM) is a low-cost, passive device that compensates for such SOP variations. This simple, easily installed component works to neutralize the effects caused by changes in the SOP, allowing engineers greater control over the design of systems such as fiber sensors, Erbium-doped fiber amplifiers, and tunable fiber lasers.

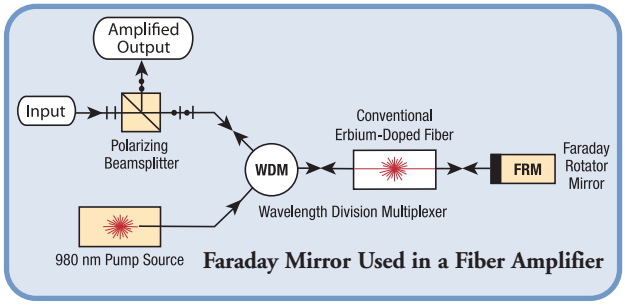
Principle

The Faraday Effect describes the non-reciprocal rotation of a signal's polarization as it passes through an optical medium within a magnetic field. Situated at the end of an optical fiber, the FRM is designed to rotate a signal's SOP by 45° for each pass through the optical medium. Since the Faraday Effect is non-reciprocal, the resultant SOP is rotated by 90° with respect to the original signal.

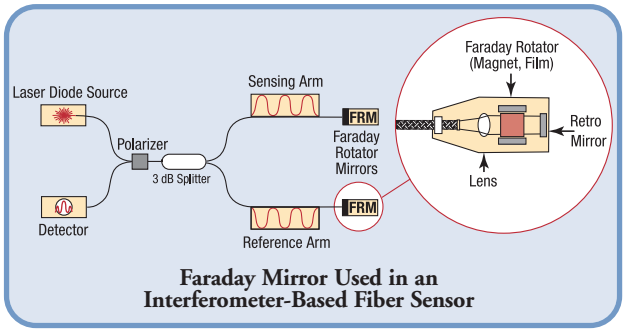
A Faraday rotator is situated in front of the mirror, which provides the non-reciprocal 45° rotation of the state of polarization each time the light passes through it. These rotations, applied in combination with a reversal of the polarization state's handedness upon reflection at the mirror interface, yield a state that is perpendicular to the original signal.

In this way, any SOP fluctuations that occur anywhere along the fiber are exactly compensated for, and their unwanted effects are neutralized.

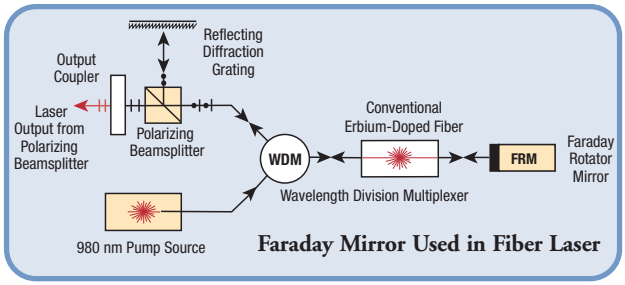
Custom models are available upon special request.



Faraday Mirror Used in a Fiber Amplifier



Faraday Mirror Used in an Interferometer-Based Fiber Sensor



Faraday Mirror Used in Fiber Laser

ITEM #	CENTER WAVELENGTH	BANDWIDTH	INSERTION LOSS	RETURN LOSS	FARADAY ROTATION
MFI-1310	1310 nm	12 nm	0.5 dB Typ/0.8 dB Max	>55 dB	45° ± 1°
MFI-1550	1550 nm	17 nm	0.5 dB Typ/0.8 dB Max	>55 dB	45° ± 1°

ITEM #	$	£	€	RMB	DESCRIPTION
MFI-1310	$ 499.80	£ 359.86	€ 434,83	¥ 3,983.41	In-Line Faraday Rotator Mirror for 1310 nm
MFI-1550	$ 499.80	£ 359.86	€ 434,83	¥ 3,983.41	In-Line Faraday Rotator Mirror for 1550 nm