Faraday Reflector 350 - 1060nm

90 degree rotation and reflect back

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The FRMR Series Faraday Mirror Reflector rotates the state of polarization (SOP) by 90° upon reflection, eliminating polarization sensitivity in optical systems such as fiber interferometers, sensors, fiber lasers, Brillouin amplifiers, and fiber optic modules. It features low insertion loss, a compact design, and an epoxy-free optical path for enhanced reliability and thermal stability. Available in a standard single-port configuration, where light reflects back along the same fiber, or a two-port version, where light reflects through a second fiber port. The FRMR series ensures superior performance and flexibility for polarization-sensitive applications.

Features

- Low Insertion Loss
- High Isolation
- Low PDL
- High Reliability
- Low Cost

Applications

- Fiber Interferometer
- Fiber Laser
- Fiberoptic Sensor
- Brillouin Amplifier
- Fiberoptic Module

Specifications

Parameter	Min	Typical	Max	Unit
Central Wavelength (λc)	350		1100	nm
Typical Spectral Width (Δλ)		30		nm
Minimum Spectral Width (Δλ)		50		nm
Insertion Loss [1] (λc, 23°C, no connector)	0.6	0.8	1.5	dB
Faraday Rotation Angle (λc, 23°C)	89	90	91	deg
Polarization Dependent Loss (SM Fiber)		≤ 0.05		dB
Polarization Extinction Ratio (PM Fiber)		20	30	dB
Polarization Mode Dispersion		≤ 0.05		ps
Operating Temperature	-5		+70	°C
Storage Temperature	-40		+85	°C
Optical Power Handling		≤ 300		mW

Notes:

[1]. Special order for 50nm spectral width

[2]. λo = (λc-Δλ/2) ~ (λc+Δλ/2)

Rev 12/20/24

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Mechanical Dimension (mm)

*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Ordering Information

	☐	☐	☐	☐	☐☐	☐	☐	☐
Prefix	**Type**	**Fiber Port #**	**Wavelength**	**Power**	**Fiber Type**	**Fiber Cover**	**Fiber Length**	**Connector**
FRMR-	Standard = 1	One = 1 Two = 2	488 nm = 4 360 nm =3 430 nm = B 532 nm = 5 630 nm = 6 780 nm = 7 850 nm = 8 980 nm = 9 1060 nm = 1 Special = 0	Standard = 1 High Power = H	Select Below Special = 00	0.9mm Loose Tube = 3 Bare Fiber = 1 Special = 0	0.5m = 2 1.0m = 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

Fiber Type Selection Table:

04	**SM450**	37	**PM400**
05	**SM1950**	38	**PM480**
06	**SM600**	39	**PM630**
07	**780HP**	40	**PM850**
08	**SM800**	41	**PM980**
09	**SM980**	42	**PM780**
10	**Hi1060**	43	
11	**SM400**	44	**PM405**
12	**MM 50/125µm**	45	**PM460**

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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.

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