

1x2, 2x2 PM Fiber Optic Coupler

0.3dB loss, 18 – 25 ER, 480nm-2000 nm



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Features

- Low Loss
- High Reliability
- High ER

Applications

- Instrumentation
- Sensor

The FC Series PM fiber optic coupler uses fused biconical taper technology in a compact package, offering good uniformity, low excess loss, and very low polarization sensitivity for splitting or combining light over a wide wavelength range. Cost depends on polarization extinction ratio grade. It handles up to 1 W at 1550 nm, with lower limits at shorter wavelengths; the HPFC Series supports higher power. Couplers have ~0.2 dB loss per split joint, but combining light causes higher losses — e.g., a 50/50 combiner loses 50% from each beam; for combining, see our Combiner products.

A fused fiber coupler transmits light from both polarization axes. To block one polarization axis, our micro-optic coupler provides this functionality.

Specifications

Parameter	Min	Typical	Max	Unit
Coupling Ratio		1/99 to 50/50		%
Wavelength ^[1]	480		2300	nm
Wavelength Bandwidth		± 15		nm
Return Loss ^[5]		> 55		dB
Fiber Tensile Load		< 10		N
Default Connector Key		Slow axis		
Operating Temperature	-40		85	°C
Storage Temperature	-40		85	°C

Parameter		Grade U	Grade S	Grade P	Grade A	Unit
Center-Wavelength Max Optical Power ^[2] Excess Loss ^[3]	480nm (0.1W)				≤0.7	dB
	530nm (0.2W)			≤0.7	≤0.7	dB
	540nm (0.2W)			≤0.7	≤0.7	dB
	560nm (0.2W)			≤0.5	≤0.5	dB
	635nm (0.3W)			≤0.4	≤0.5	dB
	670nm (0.5W)			≤0.4	≤0.5	dB
	780nm (0.6W)			≤0.4	≤0.5	dB
	850nm (1W)			≤0.4	≤0.5	dB
	980nm (1.5W)		≤0.3	≤0.3	≤0.3	dB
	1060nm (1.5W)		≤0.3	≤0.3	≤0.3	dB
	1310nm (1.5W)		≤0.3	≤0.3	≤0.4	dB
	1480nm (1.5W)		≤0.3	≤0.3	≤0.4	dB
	1550nm (1.5W)	≤0.7	≤0.3	≤0.3	≤0.4	dB
	1600nm (1.5W)		≤0.3	≤0.3	≤0.4	dB
	2000nm (6W)			≤0.3	≤0.4	dB
Polarization Extinction Ratio ^[4]		≥25	≥20	≥18	≥16	dB
Coupling Ratio Tolerance						
Split Ratio: 50/50		±1.5	±2	±4	±6	%
Split Ratio: 40/60		±1.5	±2	±3	±5	%
Split Ratio: 30/70		±1.5	±1.5	±1.5	±2	%
Split Ratio: 20/80		±1.0	±1.0	±1.0	±1.0	%
Split Ratio: 10/90		±0.5	±0.5	±0.5	±0.5	%
Split Ratio: 5/95		±0.3	±0.3	±0.3	±0.3	%
Split Ratio: 1/99		±0.25	±0.25	±0.25	±0.25	%

Notes:

- [1]. Customer wavelength is available on request
- [2]. Without connector, connector reduces the optical power handling
- [3]. Without connector. Each connector adds 0.3dB and 0.5dB for short wavelength
- [4]. Without connector. Each connector adds 2dB
- [5]. Without connector. Each connector adds 5dB

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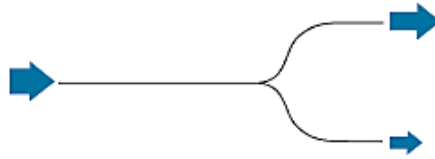
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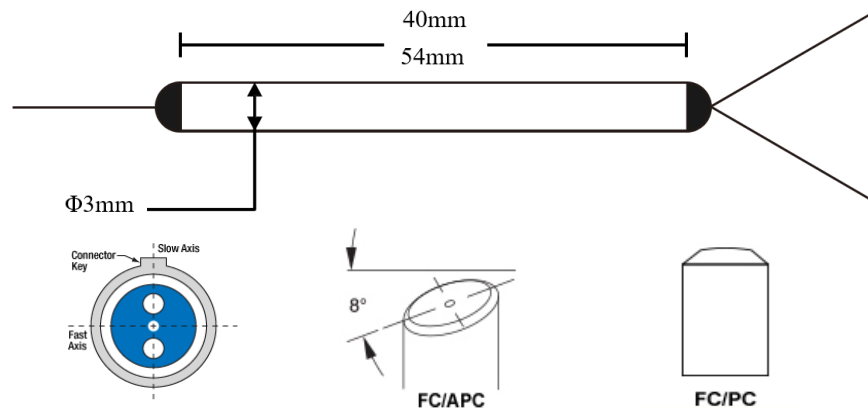


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Function Diagram



Mechanical Dimensions (mm)



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

Ordering Information (Part Number)

Prefix	Wavelength	Grade	Package	Ratio	Port	Fiber Cover	Fiber Type	Connector Type ^{[1][3]}
FC-	480nm = A 450nm = K 430nm = L 410nm = M 530nm = B 540nm = C 560nm = D 630nm = E 670nm = F 1480nm = G 1060nm = 1 1310nm = 3 1550nm = 5 780nm = 7 850nm = 8 980nm = 9 1600nm = 2 2000nm = 4 2039nm = H 1950nm = J Special = 0	A = 5 P = 1 S = 2 U = 3 Aerospace ^[2] = A Special = 0	40(L) = 1 54(L) = 2 90(L) = 3 70 = 5 35 = 6 34 = 7 56 = 8 Special = 0	01/99 = 1 02/98 = 2 05/95 = 3 10/90 = 4 15/85 = 5 20/80 = 6 30/70 = 7 40/60 = 8 50/50 = 9 0.5/99.5 = A Special = 0	1x2 = 1 2x2 = 2	250um = 1 900um tube = 3 Special = 0	PM400 = 4 PM460 = 5 PM630 = 6 PM780 = 7 PM850 = 8 PM980 = 9 PM1550 = B PM1950 = A Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 LC/UPC = U Special = 0

[1]. Regular fiber connector has PER ~22dB. Connector with PER >27 dB is available using special process

[2]. Aerospace-grade package featuring an aluminum metal casing filled with a specially formulated RTV compound that is both vibration-resistant and thermally conductive, specifically designed to endure repeated thermal shock cycles from -45°C to 90°C.

Note: 1m fiber length is default. Other fiber length is available, please add the extension -xxm, such as - 2.0m after 9-digital. The customized fiber length may cause the long lead time and higher price.

[3]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber 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 may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

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