

# 1x2, 2x2 PM Fiber Optic Coupler

0.3dB loss, 18 – 25 ER, 480nm-2000 nm



## DATASHEET

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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 <sup>[1]</sup>	480		2300	nm
Wavelength Bandwidth		± 15		nm
Return Loss <sup>[5]</sup>		> 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	480nm (0.1W)			≤0.7	dB	
	530nm (0.2W)			≤0.7	dB	
	540nm (0.2W)			≤0.7	dB	
	560nm (0.2W)			≤0.5	dB	
	635nm (0.3W)			≤0.4	dB	
	670nm (0.5W)			≤0.4	dB	
	780nm (0.6W)			≤0.4	dB	
	Max Optical Power <sup>[2]</sup>	850nm (1W)		≤0.4	≤0.5	dB
		Excess Loss <sup>[3]</sup>	980nm (1.5W)		≤0.3	≤0.3
	1060nm (1.5W)			≤0.3	≤0.3	dB
1310nm (1.5W)			≤0.3	≤0.3	dB	
1480nm (1.5W)			≤0.3	≤0.3	dB	
1550nm (1.5W)	≤0.7		≤0.3	≤0.3	dB	
1600nm (1.5W)			≤0.3	≤0.3	dB	
2000nm (6W)				≤0.3	≤0.4	dB
Polarization Extinction Ratio <sup>[4]</sup>	≥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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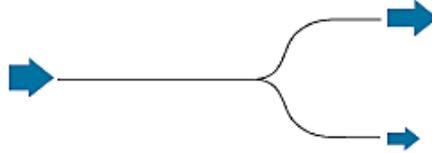
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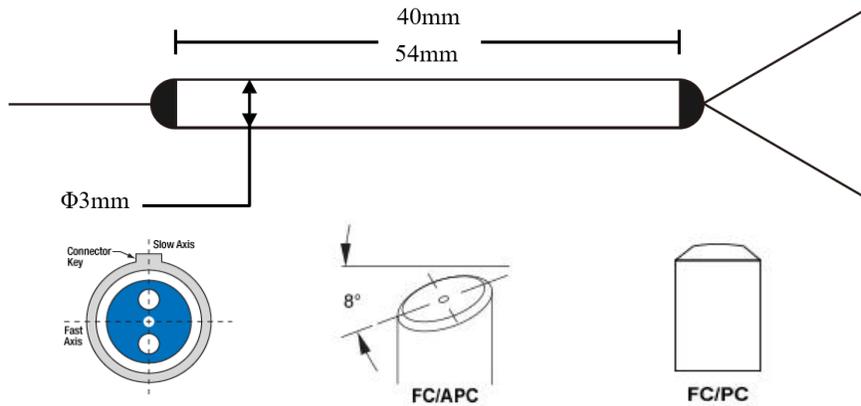


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### Function Diagram



### 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 <sup>[1][3]</sup>
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 <sup>[2]</sup> = 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 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 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.