1x2, 2x2 PM Fiber Optic Coupler

(0.3dB loss, 18 – 25 ER, 480nm-2000 nm)

DATASHEET

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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.

Features

- Low Loss
- High Reliability
- High ER

Applications

- Instrumentation
- Sensor

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
	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
Center-Wavelength	780nm (0.6W)			≤0.4	≤0.5	dB
Max Optical Power [2]	850nm (1W)			≤0.4	≤0.5	dB
Excess Loss [3]	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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P +1 781-935-1200 E sales@photonwares.com W www.agiltron.com

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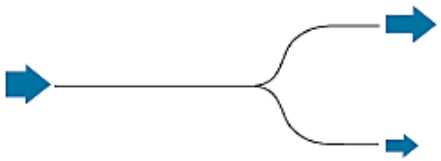
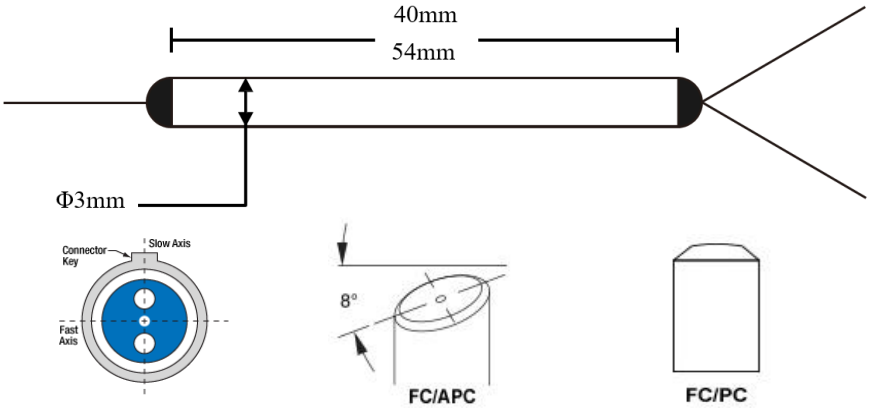
Function Diagram



Mechanical Dimension



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

Ordering Information

	P	☐	☐	☐	☐	☐	☐	☐	☐
Prefix		**Wavelength**	**Grade**	**Package**	**Ratio**	**Port**	**Fiber Cover**	**Fiber Type**	**Connector Type**
FC-		480 = A 530 = B 540 = C 560 = D 630 = E 670 = F 1480 = G 1060 = 1 1310 = 3 1550 = 5 780 = 7 850 = 8 980 = 9 1600 = 2 2000 = 4 2039 = H 1950= G Special = 0	A = 5 P = 1 S = 2 U = 3 Aerospace [1] = 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]. 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.

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