

1x3, 1x4 PM Fiber Fused Coupler

DATASHEET

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Features

- Wavelength Independent
- Ultra Low Excess Loss
- Low Polarization
- Sensitivity
- Highly Stable & Reliable
- Ultra Low Cost

Applications

- Telecommunications
- CATV
- Local Access Network (LAN)
- Fiberoptic Instrumentation

The FC Series PM fiber optic coupler is based on Agiltron's fused biconical taper technology and compact packaging structure. It features good uniformity, low excess loss and very low polarization sensitivity. The device is ideal for splitting or combining light with exceptional performance over a wide wavelength range.

Couplers are highly efficient in splitting light with little loss, about 0.2dB per joint, but incur significant losses when combining lights; for example, a 50/50 coupler produces a 50% loss to each beam when combined. For beam-combining applications, search Combiner.

Specifications (1x3)

Parameter	Typical				Unit
Wavelength	433,589,633,780, 830,980,1064		1310,1480,1550,1950, 2000,2050,2100		nm
Bandwidth	± 20				nm
	Grade P	Grade A	Grade P	Grade A	
Excess Loss ^[1]	≤ 0.8	≤ 1.0	≤ 0.5	≤ 0.6	dB
Split Ratio Tolerance	± 7	± 8	± 2	± 5	%
Polarization E/R ^[2]	≥ 17	≥ 15	≥ 18	≥ 16	dB
Splitting Ratio	Grade P		Grade A		
	Through	Coupling	Through	Coupling	
5:90:5	± 2.5	± 1.5	± 3.0	± 1.8	dB
10:80:10	± 2.8	± 1.6	± 3.2	± 2.0	dB
15:70:15	± 3.0	± 1.8	± 3.5	± 2.4	dB
20:60:20	± 3.3	± 2.0	± 3.7	± 2.5	dB
25:50:25	± 3.5	± 2.4	± 4.0	± 3.0	dB
30:40:30	± 4.0	± 3.0	± 5.0	± 4.0	dB
33:33:33	± 6.0	± 6.0	± 8.0	± 8.0	dB
35:30:35	± 4.0	± 5.0	± 5.0	± 6.0	dB
40:20:40	± 3.0	± 6.0	± 6.0	± 7.0	dB
Optical Power Handling	< 3				W
Operating Temperature	-40~85				°C
Storage Temperature	-40~85				°C
Package Dimension ^[3]	1x3 250 μm Bare Fiber : (D)3.0 x (L)54				mm
	1x3 900 μm Loose Tube : (D)4.0 x (L)70				
	1x4 2/3 mm Cable: (L)90 x (W)16 x (H)9				

Notes:

[1]. Without connector. Each connector adds 0.3dB and 0.5dB for short wavelength

[2]. Without connector. Each connector adds 2dB

[3]. Other package options available on request

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link](#):

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Rev 07/17/25

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Specifications (1x4)

Parameter	Typical		Unit
Wavelength	780, 850, 980	1550; 980; 1030; 1040; 1064, 1310	nm
Bandwidth	± 20		nm
Splitting Ratio ^[1]	25:25:25:25		%
Split Ratio Tolerance	± 3		%
Excess Loss	≤ 1.0	≤ 0.8	dB
Polarization E/R	≥ 17	≥ 18	dB
Return Loss	≥50		
Axis Alignment	Both Axis Pass		
Fiber Type	PM1550 or PM980 or PM850 or PM1300 Panda fiber		
Optical Power Handling	≤ 2		W
Operating Temperature	-40~85		°C
Storage Temperature	-40~85		°C
Package Dimension ^[2]	250 μm Bare Fiber : (D)4.0 x (L)60		mm
	900 μm Loose Tube : (D)4.0 x (L)75		
	900 μm 2/3 mm Cable: (L)90 x (W)16 x (H)9		

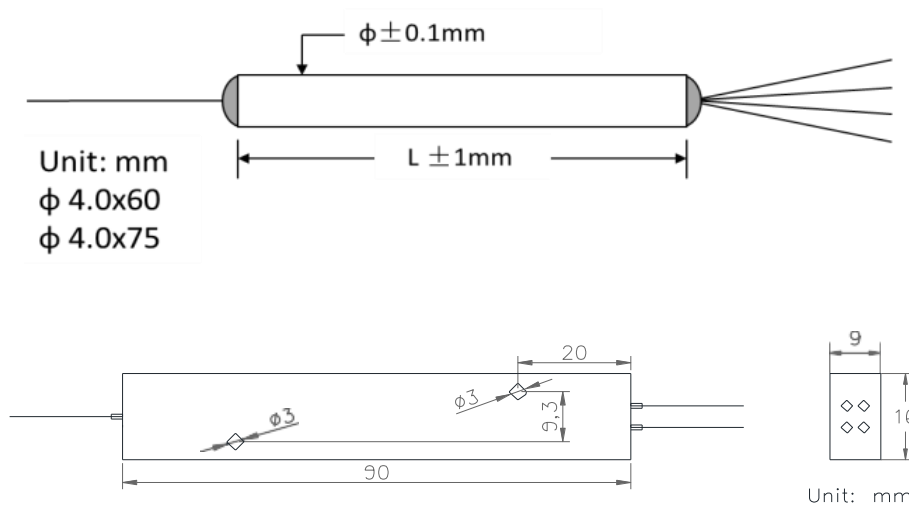
Notes:

[1]. Uneven split available on request.

With connectors, IL+0.3dB, RL-5dB, ER-2dB. Connector key aligned to slow axis

[2]. Other package options available on request

Package Dimensions (1x4)



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Ordering Information (Part Number)

Prefix	Wavelength	Grade	Package	Coupling Ratio	Port	Fiber Type	Fiber Cover	Connector Type ^[2]
FCP-	433nm = 04 589nm = 05 633nm = 06 780nm = 07 830nm = 08 980nm = 09 1064nm = 10 1310nm = 13 1480nm = 14 1550nm = 15 1950nm = 19 2000nm = 20 2050nm = 25 2100nm = 21 Special = 00	P = 1 A = 0 Aerospace ^[1] = A	3x54 (for bare fiber) = 1 4x75 (for 900um loose tube) = 2 90x16x9 (for 2/3mm cable) = 3 Special = 0	05:90:05 = 1 10:80:10 = 2 15:70:15 = 3 20:60:20 = 4 25:50:25 = 5 30:40:30 = 6 33:33:33 = 7 35:30:35 = 8 40:20:40 = 9 25:25:25:25 = A Special = 0	1x3 = 3 1x4 = 4	Panda = 1 Special = 0	250μm = 1 2mm = 2 3mm = 3 900μm = 4 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

[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.

[2]. 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.

Note:

1m fiber length is default. Other fiber length is available, please add the extension -xxm, such as - 2.0m after 9-digital, for which the lead time may be longer accordingly.

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.