

# 1x3 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

Parameter	Typical				Unit
Wavelength	433,589,633,780, 830,980,1064		1310,1480,1550,1950, 2000,2050,2100		nm
Bandwidth	± 15				nm
	<b>Grade P</b>	<b>Grade A</b>	<b>Grade P</b>	<b>Grade A</b>	
Excess Loss <sup>[1]</sup>	≤ 0.8	≤ 1.0	≤ 0.5	≤ 0.6	dB
Split Ratio Tolerance	± 7	± 8	± 5	± 5	%
Polarization E/R <sup>[2]</sup>	≥ 17	≥ 15	≥ 18	≥ 16	dB
	<b>Grade P</b>		<b>Grade A</b>		
	<b>Through</b>	<b>Coupling</b>	<b>Through</b>	<b>Coupling</b>	
Splitting Ratio					
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	
35:30:35	± 4.0	± 5.0	± 5.0	± 6.0	
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 <sup>[3]</sup>	250 μm bare fiber : (D)3.0 x (L)54				
	900 μm loose tube : (D)4.0 x (L)70				mm
	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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### Ordering Information

Prefix	Wavelength	Grade	Package	Coupling Ratio	Port	Fiber Type	Fiber Cover	Connector Type
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	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 Special = 0	1x3 = 3	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

**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.