

# 1x2 / 2x2 Single Mode Standard Fiber Optic Coupler/Splitter

(1310-2000nm)



DATASHEET

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## Features

- Wavelength Independent
- Low Insertion Loss
- Low PDL
- Highly Stable & Reliable
- Ultra Low Cost

## Applications

- Optical communications
- FTTX
- Local Access Network (LAN)
- Fiberoptic Instrumentation

The FC Series 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	Premium	Grade A	Unit	
Splitting Ratio	0.5/99.0 to 50/50			
Bandwidth	1310-2000 ± 40		nm	
Excess Loss <sup>[1]</sup>	0.07	0.1	dB	
Insertion Loss <sup>[1]</sup>	50/50	3.4/3.4	3.6/3.6	dB
	40/60	4.4/2.5	4.8/2.8	dB
	30/70	5.6/1.8	6.1/2.0	dB
	20/80	7.5/1.2	8.0/1.3	dB
	10/90	10.8/0.6	12.0/0.8	dB
	5/95	14.6/0.4	18.4/0.5	dB
	4/96	16.0/0.3	19.0/0.4	dB
	3/97	17.5/0.3	19.5/0.4	dB
	2/98	19.0/0.2	20.0/0.3	dB
	1/99	21.5/0.2	22.0/0.3	dB
0.5/99.5	23.0/0.2	24.0/0.3	dB	
Polarization Dependent Loss	0.1	0.15	dB	
Uniformity	0.6	1.0	dB	
Optical Power Handling	5		W	
Operating Temperature	-40~85		°C	
Storage Temperature	-50~85		°C	

### Notes:

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

\* 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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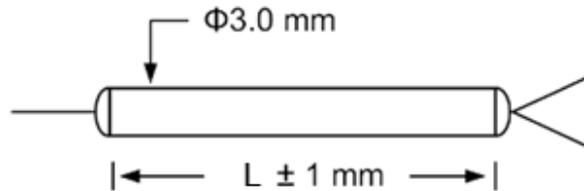
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### Mechanical Dimensions (mm)



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

### Ordering Information

Prefix	Port	Wavelength	Grade	Package <sup>[1]</sup>	Splitting Ratio	Fiber Type	Fiber Cover	Fiber Length	Connector
FCSB-	1x2 = 1	1625nm = 8	P Grade = P	54(L) = 1	01/99 = 1	SM28 = 1	250µm fiber = 1	0.5m = 1	None = 0
	2x2 = 2	1590nm = 2	A Grade = A	70(L) = 2	02/98 = 2	SM1950 = 2	900µm tube = 2	0.75m = 2	FC/PC = 1
		1570nm = 3	Aerospace <sup>[2]</sup> = A	90(L) = 3	05/95 = 3		3mm cable = 4	1.0m = 3	FC/SPC = 2
		1550nm = 4		40(L) = 4	10/90 = 4		Special = 0	Special = 0	FC/APC = 3
		1480nm = 5		30(L) = 5	20/80 = 5				FC/UPC = 4
		1475nm = 6		Special = 0	30/70 = 6				SC/SPC = 5
		1310nm = 7			40/60 = 7				SC/APC = 6
		2000nm = P			50/50 = 8				SC/UPC = 7
		Special = 0			0.5/99.5 = 9				ST = 8
					3/97 = A				MU = 9
					4/96 = B				LC/PC = B
					Special = 0				LC/APC = A
									LC/UPC = U

[1]. Standard couplers are supplied with bare-fiber pigtails. Adding protective tubing will typically increase the package size and cost.

[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.

### 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 handling by expanding the core side at the fiber ends.