



MCFFO - Multicore Fiber Fanout

Multicore fiber (MCF) is increasingly of interest for space division multiplexing, enabling, for example, higher bandwidth and more efficient communications, 3D shape sensing for in-vivo navigation and high density coupling for photonic integrated circuits and interconnects. Due to the tight channel spacing in multicore fiber, addressing each core individually is challenging. Chiral's Multicore Fiber Fanout (MCFFO) enables addressing individual cores of these fibers with high precision and low loss.

Fanouts are typically shipped in spliced pairs to both ends of a MCF length but are also available as single fanouts. While all fanouts are fully tested prior to shipping, the "pair" configuration enables full insertion loss and crosstalk testing for each pair by the customer. MCF and pigtail lengths can be tailored to your needs. The fanout pigtails, the 7 fibers shown on the left side in the exemplary image below, are standard singlemode fibers. Connectorization and jacketing options are also available, depending on application needs.



To date, Chiral Photonics has supplied fanouts for MCFs with 2 to 22 channels in a variety of configurations. The most popular multicore fibers are 7-channel fibers in a hex lattice and 4-channel fibers in a square lattice.

Typical specifications for fanouts are:

- Average insertion loss per channel: 0.6 dB
- Average crosstalk per channel: < -40 dB
- Metal package dimensions: ~ 135 mm length x 3.4 mm OD, with protective boots

Shown below is a typical specification for a pair of MCF fanouts, as is supplied with every fanout:

Channel number	1	2	3	4	5	6	7
1	-1.0	-48.1	-45.0	-49.0	X	X	X
2		-1.3	X	-53.7	-46.9	X	X
3			-1.2	-46.2	X	-48.7	X
4				-1.3	-53.9	-49.4	-51.8
5					-0.7	X	-45.5
6						-1.1	-46.4
7							-0.8

	Insertion Loss (dB)
	Crosstalk (dB)
X	Channels more than one pitch spacing apart

Multicore Fiber Options

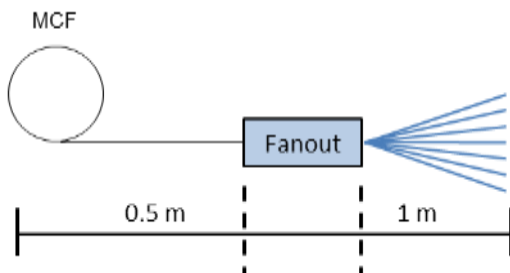
Multicore (MCF) specifications	MCF-007_3	MCF-004_1
Number of Cores:	7	4
Operating Wavelength (nm):	1520-1650	1520-1651
Numerical Aperture (nominal):	0.21	0.14-0.17
Mode Field Diameter (μm , @ 1550 nm):	5.7-6.5	7.4-8.5
Cladding Diameter (μm , nominal):	125	125
Multicore Fiber Lattice:	Hexagonal	Square
Core-to-Core Spacing (μm):	35	50
Coating Diameter (μm , nominal):	245	245
Coating:	Acrylate	Acrylate

Multicore Fiber Options

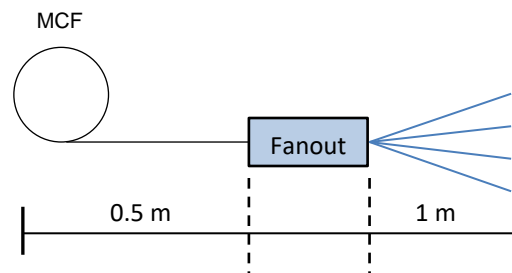
(other connectorization and jacketing options available upon request)

Single fanouts

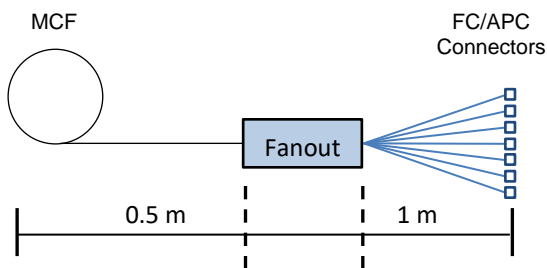
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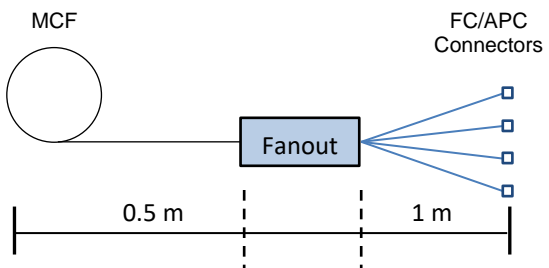
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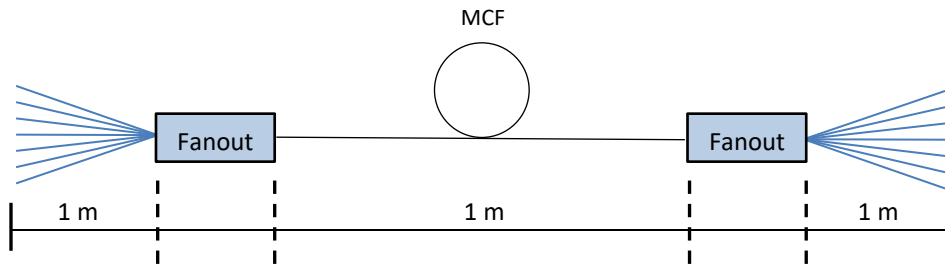
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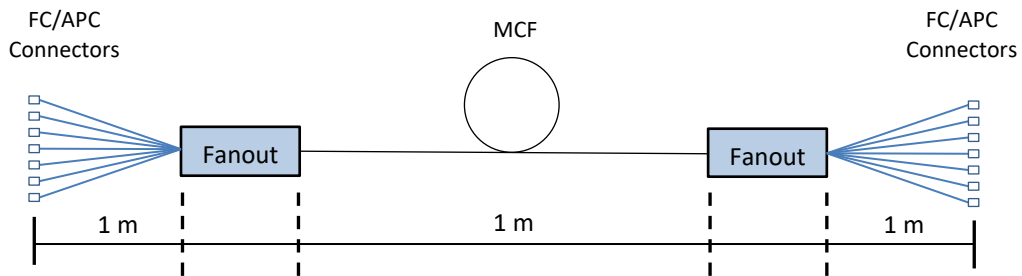


Fanout pairs

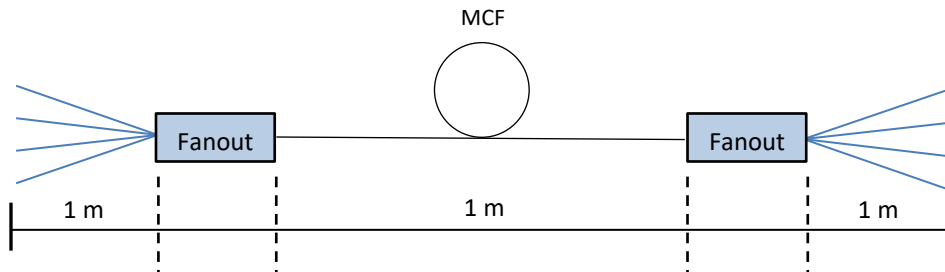
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