1x2 / 2x2 Single Mode Fiber Optic Coupler/Splitter VIS/NIR

(350nm-1060nm)

DATASHEET

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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.

Features

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

Applications

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

Specifications

Parameter		Premium	Grade A	Premium	Grade A	Unit
Splitting Ratio		1/99 to 50/50				
Bandwidth		± 20 (780~1200)		± 10 (532~685)		nm
Excess Loss [1]		0.07	0.1	0.1	0.2	dB
Insertion Loss [1]	50/50	3.4/3.4	3.6/3.6	3.6/3.6	3.8/3.8	dB
	40/60	4.4/2.5	4.8/2.8	4.8/2.8	5.0/3.1	dB
	30/70	5.6/1.8	6.1/2.0	6.1/2.0	6.2/2.4	dB
	20/80	7.5/1.2	8.0/1.3	8.0/1.3	8.0/1.8	dB
	10/90	10.8/0.6	12.0/0.8	12.0/0.8	11.0/1.3	dB
	5/95	14.6/0.4	18.4/0.5	18.4/0.5	14.5/1.1	dB
	4/96	16.0/0.3	19.0/0.4	19.0/0.4	15.0/1.05	dB
	3/97	17.5/0.3	19.5/0.4	19.5/0.4	16.5/0.95	dB
	2/98	19.0/0.2	20.0/0.3	20.0/0.3	18.0/0.9	dB
	1/99	21.5/0.2	22.0/0.3	22.0/0.3	21.0/0.9	dB
	0.5/99.5	23.0/0.2	24.0/0.3	24.0/0.3	24.0/0.9	dB
Polarization Dependent Loss		0.1	0.15	0.15	0.2	dB
Uniformity		0.6	1.0	1.0	1.4	dB
Optical Power Handling		5				W
Operating Temperature		-40~85				°C
Storage Temperature		-50~85				°C
Package Dimension *		Bare fiber: (ø)3x(L)54				mm
		900um loose tube: (ø)3x(L)70				
		900um loose tube / 2mm / 3mm Cable: (L)90x(W)16x(H)9				

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]:

RoHS COMPLIANT

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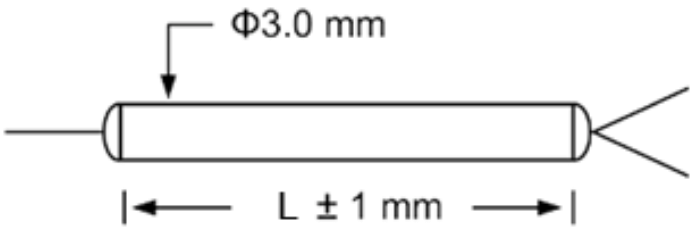
Mechanical Dimensions (mm)



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

Ordering Information (Part Number)

	☐	☐	☐	☐	☐	☐	☐	☐	☐
Prefix	**Port**	**Wavelength**	**Grade**	**Package [1]**	**Splitting Ratio**	**Fiber Type**	**Fiber Cover**	**Fiber Length**	**Connector[7]**
FCSN-	1x2 = 1 2x2 = 2	1625nm = 1 1590nm = 2 1570nm = 3 1550nm = 4 1480nm = 5 1475nm = 6 1310nm = 7 1064nm = 8 980nm = 9 850nm = A 830nm = K 780nm = L 685nm = F 650nm = E 633nm = B 532nm = C 2000nm = P 1030nm = R Special = 0	P Grade = P A Grade = A Space [2] = S	54(L) = 1 70(L) = 2 90(L) = 3 Special = 0	01/99 = 1 02/98 = 2 05/95 = 3 10/90 = 4 20/80 = 5 30/70 = 6 40/60 = 7 50/50 = 8 0.5/99.5 = 9 3/97 = A 4/96 = B Special = 0	SM28 = 1 PM980 = 3 HI1060 = 4 HI1060 Flex = 5 HI780C = 6 630-HP = 7 460-HP = 8 SM1950 = 9 Large MAF [3] = L Special = 0	250μm fiber [4] = 1 900μm tube [5] = 2 3mm cable [6] = 4 Special = 0	0.5m = 1 0.75m = 2 1.0m = 3 Special = 0	None = 0 FC/PC = 1 FC/SPC = 2 FC/APC = 3 FC/UPC = 4 SC/SPC = 5 SC/APC = 6 SC/UPC = 7 ST = 8 MU = 9 LC/PC = A LC/APC = B LC/UPC = C

[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.

[3]. Large Mode Area Fiber.

[4]. 250um 3*40mm Input(Input1) black, Input2 clear (no this port if chose 1x2 instead of 2x2), Out1 red (large ratio), Out2 blue (small ratio), coloring start 10cm from steel tube and coloring length 10cm.

[5]. 900um 3*54mm Input(Input1) black jacket, Input2 white (no this port if chose 1x2 coupler instead of 2x2), Out1 red (large ratio), Out2 blue (small ratio).

[6]. 3mm 90*16*9 ABS Box, all yellow jacket with label mark.

[7]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber 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 may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

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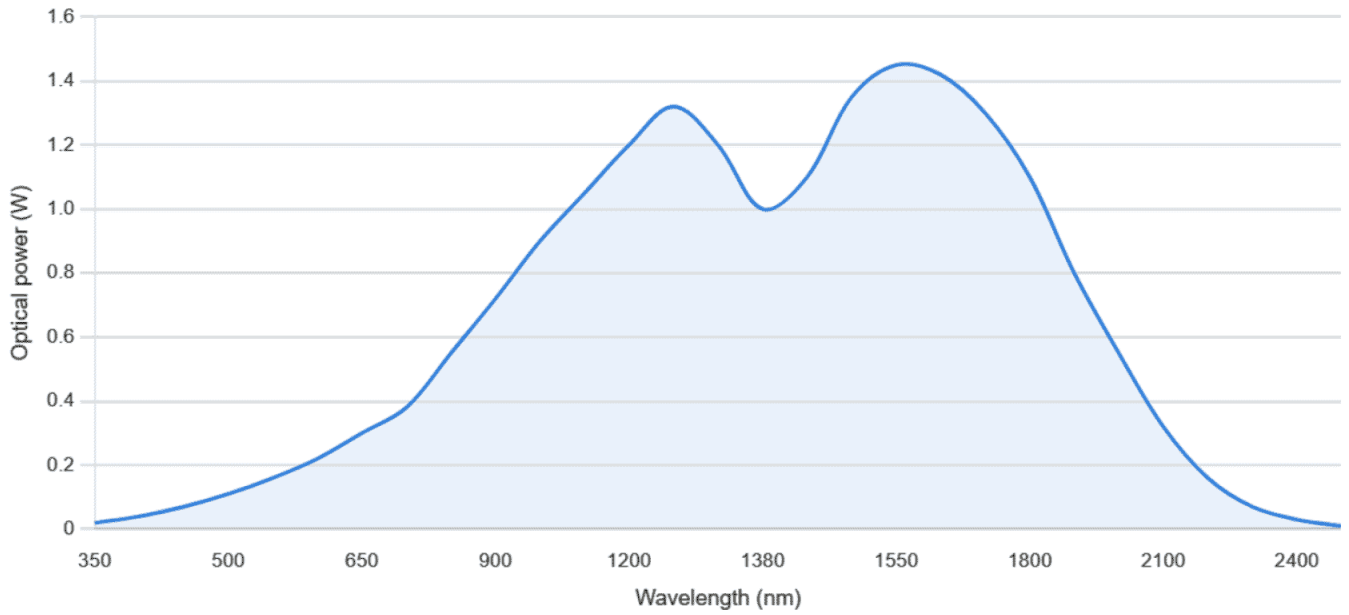
Regular Single Mode / Polarization Maintaining Fiber Optical Power Handing vs Wavelength



Single mode fiber optical power is limited by nonlinear effects in addition to absorption that increase loss and generate heat. The curve shows the approximate safe CW power envelope for standard single-mode fiber. Actual limits depend on fiber design, core size, length, and laser characteristics. Specialty fibers can significantly increase the power limit.

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