

Fiber Optic WDM Coupler/Splitter 980/1550 nm

(patent pending)



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Features

- Ultra Low Insertion Loss
- High Isolation
- Low PDL
- Highly Stable & Reliable
- Ultra Low Cost

Applications

- Telecommunications
- CATV
- EDFA Amplifiers
- Raman Amplifiers

The FC Series 980/1550 nm WDM is based on Agiltron's advanced fused biconical taper technology and compact packaging structure. It features low insertion loss, high isolation, flat passband, high reliability, and stability. The device is ideal for 980 pump and 1550 nm signal wavelength division multiplexing in fiber optic amplifier systems.

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	Min	Typical	Max	Unit
Operation Wavelength	970 ~ 990 / 1535 ~ 1565			nm
Insertion Loss ^[1]		< 0.2		dB
Temperature Dependent Loss		< 0.1		dB
Wavelength Dependent Loss		< 0.15		dB
Isolation		> 20		dB
Polarization Dependent Loss		< 0.1		dB
Return Loss		> 50		dB
Directivity		> 55		dB
Optical Power Handling		< 4		W
Operating Temperature	-10		70	°C
Storage Temperature	-40		85	°C
Fiber Type	HI1060 or HI980			
Package Dimension	(f)3.0 x (L)54			mm

Notes:

[1]. Excluding connectors

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 (Part Number)

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Prefix	Type	Wavelength	Grade	Package	Coupling Ratio	Port	Fiber Type	Connector ^[2]
FCWD-		980 / 1550 = 6 Special = 0	Premium = 1 Special = 0	54(L) = 1 Aerospace ^[1] = A Special = 0		1x2 = 1 2x2 = 2 Special = 0	HI980 = 6 HI1060 = 7 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 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.

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.

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