

Fiber Optic WDM Coupler/Combiner 1480/1550 nm

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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



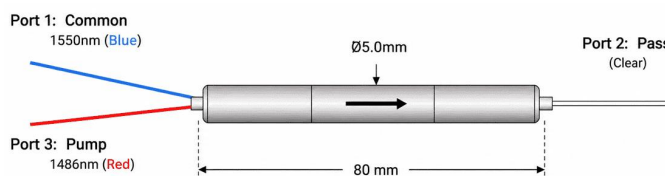
The FC Series 980/1550 nm WDM is based on Agiltron's advanced fused biconical taper (FBT) technology and compact packaging design. It provides ultra-low insertion loss, high channel isolation, a flat passband, and excellent long-term stability and reliability. The device is specifically designed for efficiently combining or separating 980 nm pump light and 1550 nm signal light in fiber-optic amplifier systems, including EDFAs.

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	SM28			
Package Dimension	(f)5.0 x (L)80			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)

	8	4	1	1	1	1	1	☐
Prefix	Type	Wavelength	Grade	Package	Coupling Ratio	Port	Fiber Type	Connector ^[2]
FCWD-		1485 / 1550 = 4 Special = 0	Premium = 1 Special = 0	80(L) = 1 Aerospace ^[1] = A Special = 0	100% = 1	1x2 = 1 Special = 0	SM28 = 1 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.

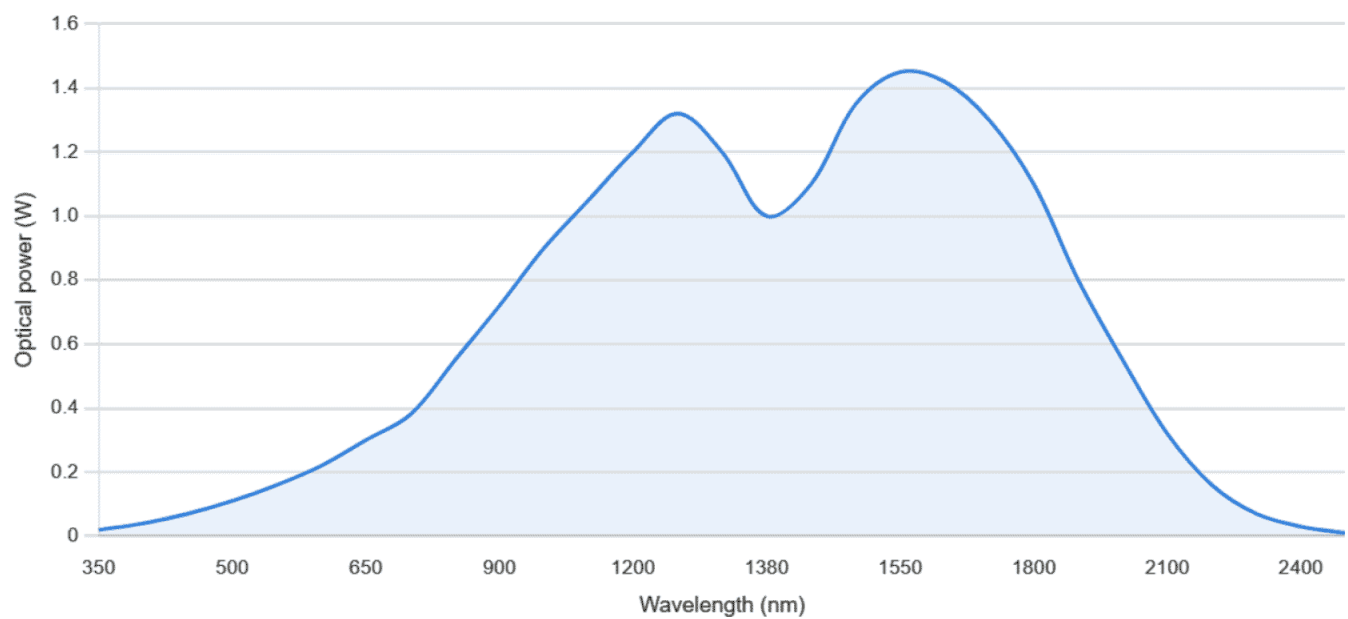
Maximum Optical Input Power

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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Regular Single Mode / Polarization Maintaining Fiber Optical Power Handling 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.