

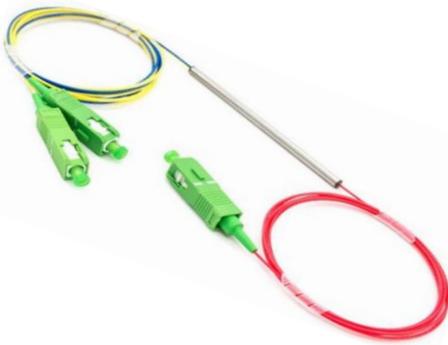
Double-Clad Fiber Coupler 1250nm to 1550nm

(efficient collecting back reflection lights)



DATASHEET

BUY NOW



Features

- Single Mode Core Guide
- Multimode Reflection Guide
- Low Loss Transmission
- High Efficient Collection
- Versatile

Applications

- LiDAR
- OCT
- Fluorescence Imaging
- Confocal Microscopy
- Endoscopy

Agiltron's double-clad 2x2 fiber coupler is made by fusing a large core fiber (200 μm) to the outer cladding layer of a double-clad fiber (single mode core surrounded by an inner cladding and an outer thick cladding). Light in the double-clad fiber's (DCF) single-mode core propagates through the coupler with little loss. While the reflected lights are collected mainly by the thick outer cladding of the DCF and transferred to the 200 μm large core output fiber with $\geq 60\%$ coupling efficiency. It forms a miniature fiber optical sensor head for various applications.

Specifications

Parameter	Min	Typical	Max	Unit
Operation Wavelength	1250	1300	1550	nm
Single Mode Core Insertion Loss ^[1]		0.3	0.6	dB
Multimode Cladding Transfer ^[2]		60	70	%
Optical Power Handling		300	1000	mW
Core Diameter (NA=0.12)		9		μm
Inner Cladding Diameter (NA=0.2)		105		μm
Collection Fiber Diameter (NA=0.22)		200		μm
Operating Temperature	-40		70	$^{\circ}\text{C}$
Storage Temperature	-40		85	$^{\circ}\text{C}$

Notes:

[1]. Exclude connectors and fiber loss, the loss may degrade over time due to shortwave radiation

[2]. Port 2 to 3. Exclude connectors and the water absorption region around 1383 nm

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Ordering Information

Prefix	Center Wavelength	Collect Fiber	Double Cladding	Pigtail Style	Fiber Length	Connector Input	Connector Output	Connector Signal
DCFC-	1030 = 1 1310 = 3 780 = 7 530 = 5 Special = 0	200 μm NA=0.22 Special = 0	Core=9 μm, NA=0.12 Cladding=105 μm, NA=0.2 Special = 00	900um Jacket = 2 Special = 0	0.25m = 1 0.5m = 2 1.0m = 3 Special = 0	None = 1 FC/PC = 2 FC/APC = 3	None = 1 FC/PC = 2 FC/APC = 3 SMA = 4	None = 1 FC/PC = 2 FC/APC = 3 SMA = 4

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.