1×2 (2×2) 80μm Fused Polarization Maintaining Fiber Splitter

(patent pending)

DATASHEET

BUY NOW

Features

- Compact Size
- Low Excess Loss
- High Power Handling
- High Reliability
- Low Cost

Applications

- Optical Amplifier
- Power Monitoring
- Coherent Communication
- Fiber Gyroscope

The reduced cladding (80μm) optical fiber splitter is a passive device that splits or combines light at 1550 nm in forms of 1×2 or 2×1 for most frequent used optical routing designs. There are many various applications requiring this type of coupler such as optical amplifier, power monitoring, coherent communication and fiber gyroscope.

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		1550 ± 20			nm
Port Configuration		1×2 or 2×2			
		Premium	Grade A		
Excess Loss [1] (Typical)		≤ 0.4	≤ 0.7		dB
Excess Loss [1] (Maximum)		≤ 0.6	≤ 0.9		dB
Polarization Extinction Ratio [2] (Minimum)		≥ 18	≥ 16		dB
Return Loss* [3] (Minimum)		≥ 50			dB
Directivity* (Minimum)		≥ 55			dB
Operating Power (Maximum)		≤ 2			W
Operating Temperature	-40			85	°C
Storage Temperature	-50			85	°C
Package Type (for 165 μm Bare Fiber)		Ø3.0 x L30			mm

Notes:

[1]. Without connector. Each connector adds 0.3dB and 0.5dB for short wavelength

[2]. Without connector. Each connector adds 2dB

[3]. Without connector. Each connector adds 5dB

***** Test at central wavelength only

All specification are based on slow-axis alignment and without connector

Splitting Ratio & Its Tolerance

Splitting Ratio	Maximum Splitting Ratio Tolerance (%)	
	Premium	Grade A
99/1	± 0.5	± 0.7
95/5	± 1.5	± 1.7
90/10	± 2.2	± 2.8
80/20	± 2.5	± 3.3
70/30	± 3.0	± 4.5
60/40	± 4.0	± 6.0
50/50	± 5.0	± 8.0

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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P +1 781-935-1200 E sales@photonwares.com W www.agiltron.com

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Ordering Information

	☐☐	☐	☐	☐	1	☐	☐	☐	☐
Prefix	**Configuration**	**Wavelength**	**Grade**	**Package**	**Fiber Type**	**Fiber Length**	**Coupling Ratio**	**Connector ***	**Key**
FCPR-	1×2 = 12 2×2 = 22	1310 = 3 1550 = 1 1480 = 4 Special = 0	Premium = 1 A Grade = 2 Special = 0	Ø3.0x30 = 1 Special = 0	80/165 Bare Fiber = 1 Special = 0	0.25m = 1 0.5m = 2 1.0m = 3 1.5m = 4 2.0m = 5 Special = 0	01/99 = 1 05/95 = 2 10/90 = 3 20/80 = 4 30/70 = 5 40/60 = 6 50/50 = 7 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 LC/UPC = U Special = 0	Regular = 1 Narrow = 2

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.

P +1 781-935-1200 E sales@photonwares.com W www.agiltron.com