polarization beam combiners

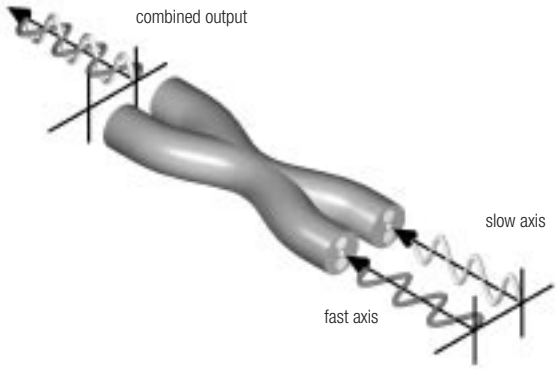
Continuous improvement in the gain spectra of optical amplification is critical to support the ever-increasing channel counts and bit rates of DWDM telecommunications systems. The PBC is a highly reliable, low insertion loss, all-fiber component designed for use in EDFAs and Raman amplifiers.

Raman amplifiers have emerged to complement EDFA designs for long-haul signal transport. Raman amplifier designs require several high-powered pump lasers to be combined, necessitating a combiner that can handle the total power.

High pump power levels are handled by the all-fiber design and available wavelengths incorporate 980nm, 1480nm, and Raman pump lasers. The center wavelength of AFL's PBC can be customized to meet your design needs.

features

- High-power handling resulting from all-fiber design
- Low insertion loss
- High extinction ratio
- Compact design
- Customized center wavelength



application

- Laser pump combining for EDFAs
- Laser pump combining for Raman amplifiers
- Interferometers
- R&D and lab experiments

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specifications

980nm PBC

PARAMETER		UNIT			
Center Wavelength [1]		nm		980	
Operating Wavelength Range		nm	±5		±10
Insertion Loss (Fast axis)[3]	Typ.	dB	0.45		0.5
	Max.	dB	0.7		0.8
Insertion Loss (Slow axis)[3]	Typ.	dB	0.18		0.18
	Max.	dB	0.3		0.3
Port Configuration				2 x 2	
Return Loss	Min.	dB		43	
Directivity	Min.	dB		43	
Crosstalk	Min.	dB		15	
Temperature Dependent Loss	Typ.	dB	0.1		0.2
Fiber Type				Fujikura PANDA® for 980 nm	
Fiber Length (standard)		m		1.0	
Package Dimensions (diameter x L)		mm		3.2 x 65	
Operating Temperature		C		0 to 70°	
Storage Temperature		C		-40 to +85°	

1480nm PBC

PARAMETER		UNIT			
Center Wavelength [1]		nm		1480	
Operating Wavelength Range		nm	+5	+10	+20
Insertion Loss (Fast axis)$_3$	Typ.	dB	0.43	0.47	0.58
	Max.	dB	0.6	0.8	1.1
Insertion Loss (Slow axis)[3]	Typ.	dB	0.2	0.2	0.3
	Max.	dB	0.4	0.4	0.4
Port Configuration				2 x 2	
Return Loss	Min.	dB		55	
Directivity	Min.	dB		55	
Polarization Crosstalk[3]	Typ.	dB		20	
	Min.	dB		17	
Temperature Dependent Loss	Typ.	dB	0.1	0.15	0.3
Fiber Type			Fujikura PANDA® SM.15P-8/125-UV/UV-250		
Fiber Length (standard)		m		1.0	
Package Dimensions (diameter x L)		mm		3.2 x 65	
Operating Temperature		C		0 to 70°	
Storage Temperature		C		-40 to +85°	

1. Center wavelength of PBC can be customized for different applications 2. Telcordia GR-1221-CORE and GR-1209-CORE qualified 3. Determined at room temperature

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RAMAN PBC

PARAMETER		UNIT	
Center Wavelength		nm	1455 to 1498
Operating Wavelength Range		nm	±2
Insertion Loss (Fast axis)[1]	Typ.	dB	0.3
	Max.	dB	0.5
Insertion Loss (Slow axis)[1]	Typ.	dB	0.2
	Max.	dB	0.4
Port Configuration			2 x 2
Return Loss	Min.	dB	55
Directivity	Min.	dB	55
Polarization Crosstalk[1]	Typ.	dB	17
Temperature Dependent Loss	Typ.	dB	0.1
Fiber Type			Fujikura PANDA® SM.15P-8/125-UV/UV-250
Fiber Length (standard)		m	1.0
Package Dimensions (diameter x L)		mm	3.2 x 65
Operating Temperature		°C	-5 to 60
Storage Temperature		°C	-40 to 85

1 Determine at room temperature

ordering information

P B C [ ] [ ] - [ ] [ ] - 2 1 - [ ] - [ ]

Type of PBC
9 = 980nm PBC
RA = Raman PBC
14 = 1480nm PBC

Output Fiber Type
1* = SM Fiber
2* = Fujikura PANDA® Fiber
(field not applicable to 980nm)

Center Wavelength for 980nm**
975nm to 985nm
Example:
80 = 980nm
82 = 982nm

Center Wavelength for Raman**
1455nm to 1500nm
Example:
55 = 1455nm
87 = 1487nm

Center Wavelength for 1480nm**
Example:
60 = 1460nm
75 = 1475nm
80 = 1480nm

Input PM Fiber Alignment
1* = P1 Slow axis; P4 Fast axis
2+ = P1 Slow axis; P4 Slow axis
3+ = P1 Fast axis; P4 Fast axis

* Standard

+May increase insertion loss and polarization crosstalk.