DK PHOTONICS Optical Passive Components

1310nm Polarization Beam Combiner/Splitter

Key Features

- Low Insertion Loss
- High Extinction Ratio
- Compact In-Line Package
- High Stability and Reliability

The Polarization Beam Combiner/Splitter can be used either as a polarization beam combiner to combine light beams from two PM input fibers into a single output fiber, or as a polarization beam splitter to split light from an input fiber into two output fibers of orthogonal polarization states.

DK Photonics offers a large selection of PBS/C. These devices can handle powers rang from 300mW to 10W or other on request, and have center operating wavelengths ranging from 480 nm to 2050nm.

If you do not see a standard Polarization Beam Combiner/Splitter that meets your needs, we welcome the opportunity to review your desired specification and quote a custom Polarization Beam Combiner/Splitter. Requests for custom fiber pigtails, different wavelengths and handling power of operation or other specific needs will be readily addressed.

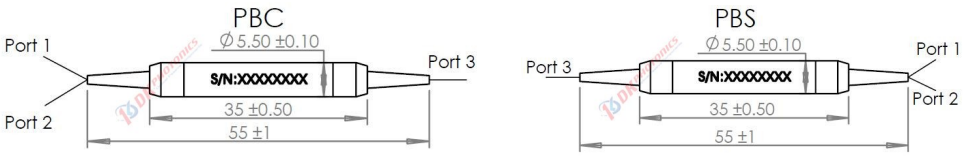
Applications

- Polarization MUX/Demux
- High power fiber laser
- Optic sensor system
- Coherent Telecommunication Systems
- Polarization Mode Dispersion Compensator

Details Regarding Routing path:

Polarization Beam Combiner: Routing path is from port 1, 2 to 3, Here are three options of polarized state from Port 1, 2 to Port 3	
Option 1:PM to SM fiber	Port 1: 50%, Linear polarized light in, through slow axis, Port 2: 50%, Linear polarized light in, through slow axis. Port 3, 100%, Circularly polarized light Out.
Option 2: PM to PM fiber, port 1 is slow axis 0° aligned to port 3	Port 1, 2, only work through slow axis, blocked the fast, The slow axis of port 1 is aligned to the slow axis of port 3, The slow axis of port 2 is aligned to the fast axis of port 3,
Option 3:PM to PM, port 1 is slow axis 45° aligned to port 3	Port 1, 2, only work through slow axis, blocked the fast, Port 1 or 2, 100%, Linear polarized light in, through slow axis, Port 3, 25% linear polarized light out, through slow axis, 25% by the fast.
Polarization Beam Splitter: Routing path is from port 3 to 1,2, Here are three options of polarized state from Port 3 to Port 1 & 2	
Option 1: SM to PM fiber	Port 3, Circularly polarized light in, Port 1: 50%, Linear polarized light out, through slow axis, Port 2: 50%, Linear polarized light out, through slow axis.
Option 2: PM to PM, port 3 is slow axis 0° aligned to port 1	1.Port 3, Linearly polarized light in, through slow axis, Port 1: 100%, Linear polarized light out, through slow axis, Port 2: 0%. 2. Port 3, Linearly polarized light in, through fast axis, Port 1: 0%, Port 2: 100%, Linear polarized light out, through slow axis.
Option 3: PM to PM, port 3 is slow axis 45° aligned to port 1	1. Port 3, Linearly polarized light in, through slow axis, Port 1: 50%, Linear polarized light out, through slow axis, Port 2: 50%, Linear polarized light out, through slow axis. 2. Port 3, Linearly polarized light in, through fast axis, Port 1: 50%, Linear polarized light out, through slow axis, Port 2: 50%, Linear polarized light out, through slow axis.

Package Dimension:



*Due to ongoing design improvements, the package size is subject to change. Please contact DK Photonics for confirmation if you have special requirements.

For more Info

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1310nm Polarization Beam Combiner/Splitter

Performance Specifications

Parameter		Unit	Value	
Grade		-	P	A
Operating wavelength		nm	1310	
Operating bandwidth		nm	±40	
Typical insertion loss		dB	0.40	0.50
Max. insertion loss		dB	0.60	0.70
Min. Extinction Ratio		dB	22	20
Return loss		dB	>50	
Directivity		dB	>50	
Max. Power Handling		W	0.5, 1, 2, 3, 5, 10, 20	
Tensile Load		N	< 5	
Fiber Type	Port 1&Port2	-	PM1300-XP	
	Port 3	-	SMF-28e or PM1300-XP Fiber	
Operating temperature		℃	-5 ~ +70	
Storing temperature		℃	-40 ~ +85	
Package dimension		mm	Ø5.5 x 35 or customer specified	

1. above specifications are for device without connector. All parameters are tested at room temperature.
2. For devices with connectors, IL will be 0.3dB higher, RL will be 5dB lower and ER will be 2dB lower. The default connector key is aligned to slow axis. Power transmits through the connector less than 2W.
3. For >5W high power applications, we will use heat sink package, contact DK Photonics for details.
4. Since the light is bidirectionally reversible, PBC can also be used as PBS.

Order information

P/N: PBC/PBS-①-②-③-④-⑤-⑥-⑦

When you inquire, please provide the correct P/N number according to our ordering information, and attach the appropriate description would be better. If need any connector, we do not recommend choosing a 250μm bare fiber pigtail.

①	②	③	④	⑤	⑥	⑦
Grade	Operating Wavelength	Power Handling(Total)	Fiber type (Port3)	Pigtails Diameter	Fiber Length	Connector
P:P A:A	13:1310nm XX: Others	L:<0.5W 1:1W 2:2W 5:5W	1:SM fiber 2:PM fiber, slow axis 45° to port 1 3:PM fiber, slow axis aligned to port 1	25:250μm 90:900μm XX: Others	08:0.8m 10:1.0m XX:Others	00:None FP: FC/PC FA: FC/APC LA: LC/APC XX: Others

Part Number Example: PBS-P-13-L-1-90-10-FA

Description: 1310nm Polarization Beam Splitter, 0.5W power, P grade, PM fiber at port 3, and slow axis aligned to port 1, with 0.9mm OD loose tube, 1.0m fiber length, and FC/APC connectors at all ports.

Ordering Information for Custom Parts

If you need to customize other specifications, please provide detailed description for your requirement.