

# PM BOW TIE FIBER COUPLER

## Fused Fiber Coupler

### PRELIMINARY DATASHEET

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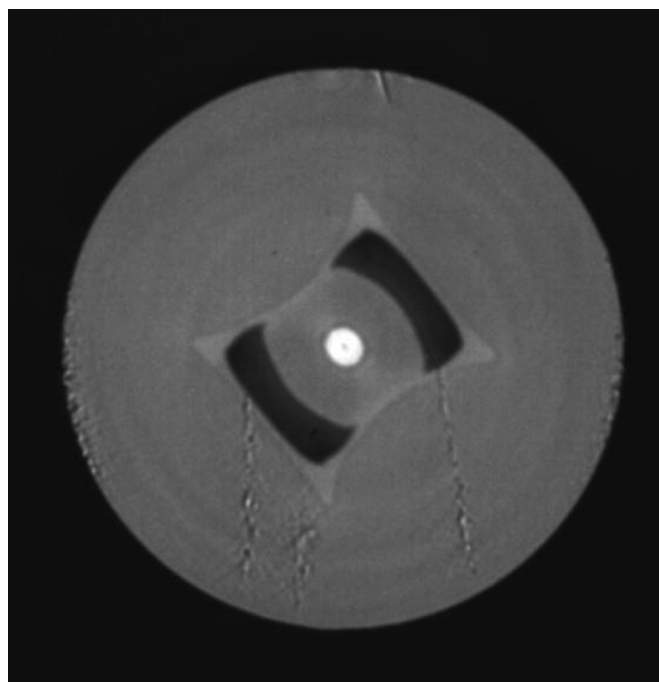
The G&H PM bow tie coupler enables the accurate monitoring and splitting of optical signals in polarization maintaining fiber.

Manufactured using PM bow tie fiber, the PM coupler is available in any coupling ratio from 1-50%.

Based on G&H's fused fiber technology, the PM bow tie coupler demonstrates very low loss, high power handling and there is no price penalty for adding a second input port. The center operating wavelength may be chosen from within the 1  $\mu\text{m}$  operating pass-band, other operating pass-bands are available dependent on fiber availability.

In common with all PM components, it is necessary to launch into either the slow or the fast axis to maintain polarization. For the G&H PM bow tie coupler, specifications are based on slow axis launch, although fast axis versions are also available if requested.

NOTE: Other component types including ultra-low ratio taps (ULRT) and wavelength division multiplexers (WDM) are available on request.



#### Key Features

- All PM bow tie fiber construction
- Low excess loss
- High power handling
- 1  $\mu\text{m}$  passband as standard
- Slow axis operation as standard
- Fast axis operation also available

#### Applications

- Power monitoring of PM sources
- Coherent communications
- Fiber gyroscopes
- High power fiber lasers
- Fiber amplifiers

## Target Optical Specifications <sup>1</sup>

Parameter	Specification		
Centre wavelength range	9xx nm	10xx nm	11xx nm
Available wavelengths <sup>2</sup>	900-999 nm	1000-1099 nm	1100-1199 nm
Coupling ratio	1/99%		
Coupling ratio tolerance	+/- 0.5%		
Extinction ratio <sup>3</sup>	20 dB	20 dB	20 dB
Coupling ratio	5/95%		
Coupling ratio tolerance	+/- 1.5%		
Extinction ratio <sup>3</sup>	20 dB	20 dB	20 dB
Coupling ratio	10/90%		
Coupling ratio tolerance	+/- 3.0%		
Extinction ratio <sup>3</sup>	20 dB	20 dB	20 dB
Coupling ratio	33/67%		
Coupling ratio tolerance	+/- 4.0%		
Extinction ratio <sup>3</sup>	17 dB	17 dB	17 dB
Coupling ratio	50/50%		
Coupling ratio tolerance	+/- 5.0%		
Extinction ratio <sup>4</sup>	17 dB	17 dB	17 dB
Excess loss	0.3 dB	0.3 dB	0.3 dB
Return loss/directivity	50 dB		
Optical power handling <sup>5,6</sup>	4 W		
Pigtail tensile load	5 N		
Operating temperature	-5 – +75°C <sup>1</sup>		
Storage temperature	-40 – +85°C		
Fiber type	Fibercore Bow Tie HB1000C – 6 and 10 µm core		

<sup>1</sup> All specifications are for operation at room temperature.

<sup>2</sup> The center wavelength may be selected from within the available wavelength ranges supplied.

<sup>3</sup> Defined for signal path P1-P2.

<sup>4</sup> Defined for both signal path P1-P2 and tap path P1-P3.

<sup>5</sup> For operation at powers of greater than 4 W the component housing and fiber must be adequately heat-sunk (for additional information contact G&H Sales). Components intended for high power operation are only available in the 2x2 configuration. Component performance and reliability under high power must be determined within the customer system.

<sup>6</sup> The performance and reliability of optical connectors is not guaranteed for optical powers of greater than 1 W.

<sup>7</sup> For connectorized component, operating temperature range is -5 – +75°C.

## Optical Performance Example



## Housing Options

Housing Code	Description	1x2, 2x2 Dimensions (mm)	Pigtail
3	Regular	3.0 (Ø) x 60 (L)	Primary-coated fiber
5	Semi-ruggedized slim	3.0 (Ø) x 76 (L)	Ø 0.9 mm loose-tube
7	High power housing	5 (W) x 5 (H) x 85 max (L)	Primary-coated fiber
C	Regular high power	3.0 (Ø) x 60 (L)	Primary-coated fiber

## Configuration



## Order code

Order codes are comprised of a standard device prefix (e.g. FPB) followed by code letters or numbers which correspond to available options.

**Sample:** FPB-8K3264A10 (Fused fiber PM coupler, center channel wavelength 1064 nm, 50/50 coupling ratio, regular housing, 2x2 nm, HB1000C 6 μm fiber, 1 m pigtail lengths, no connector).

Order code				①	②	③	④	⑤	⑥	⑦	⑧	⑨
F	P	B	-									
①	Passband			9XX		10XX		11XX				
	Code			5		8		J				
②	Coupling ratio <sup>4</sup>			1%	5%	10%	33%	50%				
	Code			1	5	A	F	K				
③	Housing <sup>5,6</sup>			Regular	Semi-ruggedized	High power	Regular high power					
	Code			3	5	7	C					
④	Port configuration <sup>5</sup>			1x2		2x2						
	Code			1		2						
⑤	Last two digits of center wavelength <sup>1</sup>			e.g. XX20		e.g. XX50		e.g. XX70		e.g. XX80		
⑥				Code			20		50		70	
⑦	Fiber type			HB1000C 6 μm		HB1000C 10 μm						
	Code			A		B						
⑧	Pigtail length <sup>2</sup>			0.5 m		1 m						
	Code			0		1						
⑨	Connector <sup>3,6</sup>			None		FC/APC-PM		FC/PC-PM				
	Code			0		P		R				

1 Channel center must be within the wavelength ranges shown in the optical specifications table.

2 Minimum pigtail length. Other pigtail lengths are available on request. Where connectorized, pigtail length is to connector end face.

3 Optical specifications in specification table do not include connector loss.

4 Other coupling ratios available on request.

5 7 and C not available in 1x2 Configuration

6 Connectors can only be fitted to housing type 5. For connectorization of other housings contact G&H sales.

PM Products are manufactured using 250 μm PM Bow Tie fiber.

<p><b>Ordering Information:</b></p>  <p>800 Village Walk #316 Guilford, CT 06437 Ph: 203-401-8093</p> <p>Email orders to: <a href="mailto:sales@xsoptix.com">sales@xsoptix.com</a> Fax orders to: 800-878-7282</p>
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