

# FUSED PM AXIS MATCHED LOW RATIO TAP

## Fused Fiber Coupler

### PRELIMINARY DATASHEET

The Gooch & Housego fused PM axis-matched LRT enables low power monitoring of a PM signal path.

G&H proprietary PM manufacturing technology provides tap ratios as low as 0.01% with low loss and high signal path polarization extinction ratio.

Fused PM Axis-Matched LRT's exhibit outstanding tap ratio stability even when system polarization extinction ratio levels are low or fluctuating.

The all fiber construction and excellent loss characteristics provide exceptional reliability at high powers.

Wide temperature range operation with TDL typically  $<0.002$  dB/°C for the tap path.

These high performance parts are available at a range of wavelengths with different fiber options.

Fused PM LRTs can therefore be readily specified in a wide variety of applications, enabling rapid design cycles and new project builds.

Standard parts are available at wavelengths from 900 - 1600 nm. For other wavelengths or coupling ratios please contact the G&H sales office.



### Key Features

- Low loss
- High signal path PER
- Ultra-low PADL
- Fast/slow operation
- Low TDL
- SM fiber tap path
- High power handling

### Applications

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

## Target Optical Specifications

Parameter	Specification <sup>1,2,7</sup>				
Coupling ratio	0.01%	0.1%	1%	5%	10%
Tap insertion loss	36 - 44 dB	27 - 33 dB	18.2 - 23 dB	11.9 - 14.9 dB	8.86 - 11.85 dB
Signal insertion loss	0.5 dB (Typ < 0.3 dB)	0.5 dB (Typ < 0.3 dB)	0.5 dB (Typ < 0.3 dB)	0.7 dB (Typ < 0.5 dB)	1.0 dB (Typ < 0.7 dB)
Polarization axis dependent loss (PADL)	≤ 0.10 dB				
Thermal stability	≤ 0.25 dB				
Signal PER	> 20 dB				
Return loss	> 50 dB				
Available wavelength range <sup>3</sup>	900 - 1600 nm				
Operating bandwidth	Center wavelength ±10 nm				
Operating temperature <sup>6</sup>	-5 - +75°C				
Storage temperature	-40 - +85°C				
Optical power handling <sup>4,5</sup>	4 W (standard package without heat-sinking)				
Fiber type <sup>8</sup>	Signal	PM and PLMA PANDA Fiber			
	Tap	Non PM Fiber			

<sup>1</sup> Devices characterized for slow-axis as standard.

<sup>2</sup> All specifications are for operation at room temperature.

<sup>3</sup> Center wavelength may be selected from within the available wavelength range supplied. For wavelengths outside this range contact G&H sales.

<sup>4</sup> For operation at powers 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>5</sup> The performance and reliability of optical connectors is not guaranteed for optical powers of greater than 1 W.

<sup>6</sup> For operation outside this temperature range contact G&H sales.

<sup>7</sup> Values in specification table do not include connector performance.

<sup>8</sup> For other fiber types contact G&H sales.

## Configuration



## Housing Options

Housing Code	Description	Dimensions (mm)	Pigtail
3	Regular	3.0 (Ø) x 60 (L max)	Primary-coated fiber
5	Semi-ruggedized slim	3.0 (Ø) x 75 (L max)	Ø0.9 mm loose-tube
7	High power	5 (W) x 5 (H) x 85 (L max)	Primary-coated fiber
C	Regular high power	3.0 (Ø) x 60 (L max)	Primary-coated fiber

## Order code

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

**Sample:** FPM-060N31A10 (Fused fiber LRT, 1060 nm, 0.01% tap, regular housing, 1x2, PM980+SMF980 fiber, 1 m pigtail lengths, no connectors).

Order code				①	②	③	④	⑤	⑥	⑦	⑧	⑨
F	P	M	-									
①	<b>Passband<sup>4,5</sup></b>			9XX	10XX	11XX	12XX	13XX	14XX	15XX	16XX	
	Code			9	0	1	2	3	S	C	L	
② ③	<b>Last two digits of center wavelength</b>			e.g. XX20		e.g. XX50		e.g. XX70		e.g. XX80		
	Code			20		50		70		80		
④	<b>Coupling ratio</b>			0.01%	0.1%	1%	5%	10%				
	Code			N	M	1	5	A				
⑤	<b>Housing<sup>3</sup></b>			Regular	Semi-ruggedized slim		High power	Regular high power				
	Code			3	5		7	C				
⑥	<b>Port configuration<sup>3</sup></b>			1x2				2x2				
	Code			1				2				
⑦	<b>Fiber types<sup>4</sup></b>			PM980 + SMF980			PM10/125 + SM10/125		PM14XX + SMF28			
	Code			A			B		C			
⑧	<b>Pigtail length<sup>1</sup></b>			0.5 m					1 m			
	Code			0					1			
⑨	<b>Connector<sup>2</sup></b>			None			FC/APC-PM		FC/PC-PM			
	Code			0			P		R			

1 Minimum pigtail length. Further pigtail lengths available on request. Where connectorized, pigtail length is to connector end face.

2 Connectors may be fitted to housing type 5. For connectorization of other housing types please contact the sales office.

3 7 & C not available as 1x2 port configuration.

4 9, 0, 1 and 2 available with fiber code A and B. 3, S, C and L available with fiber code C.

5 For wavelengths outside this range contact G&H sales.

## For further information

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