

# HI REL PM COUPLER

Fused Fiber PM Coupler for use in Undersea and Space applications.

## DATASHEET

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High Reliability (HI REL) Components are deployed in environments such as undersea and space, where the costs of component replacement are prohibitive.

Gooch & Housego is established as a supplier of these components to major undersea equipment manufacturers.

G&H's HI REL capability is built upon the foundation of a long established manufacturing history of very reliable terrestrial components. Full facilities are available to perform customer-specific HI REL qualification programs, which can consist of accelerated ageing and Weibull analysis.

Manufacturing is carried out on specially-developed workstations. Advanced fiber management, in-process screening and customer-specific validation tests are implemented, to further enhance component reliability.

The range of PM component types available include fused fiber 3dB Splitters, Tap Couplers, Wavelength Division Multiplexers and Polarization Beam Combiners. The ultra-low loss of G&H fused fiber components helps to promote low noise figure and improved system margin in undersea transmission systems.

Components are supplied in regular (bare fiber) or custom housings, depending on the installation environment.



### Key Features

- Established HI REL supplier
- High performance
- Full qualification facilities available
- Advanced in-process testing
- Low loss fused components
- Design standard 0.1FITs (failure in one billion field hours)
- Slow axis operation (Fast axis operation also available on request, contact G&H Sales)

### Applications

- Undersea equipment
- Terminal equipment
- Space
- Defense and Avionic
- Erbium doped fiber amplifiers (EDFAs)
- Raman amplifiers
- Coherent optical communications

### Compliance

- Customer Specific

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

Parameter	Specification				
Grade	H				
Center Wavelength Range	9xx nm	10xx nm	1310 nm	14xx nm	15xx nm
Available Wavelengths <sup>2</sup>	915-999 nm	1000-1099 nm	1310 nm	1425-1499 nm	1500-1599 nm
Coupling Ratio	99/1% ± 0.5%				
Extinction Ratio <sup>3</sup>	20 dB				
Coupling Ratio	95/5% ± 1.5%				
Extinction Ratio <sup>3</sup>	20 dB				
Coupling Ratio	90/10% ± 3.0%				
Extinction Ratio <sup>3</sup>	20 dB				
Coupling Ratio	50/50% ± 5.0%				
Extinction Ratio <sup>4</sup>	17 dB				
Excess Loss	0.4 dB				
Return Loss/Directivity <sup>5</sup>	50 dB				
Pigtail Tensile Load <sup>6</sup>	5 N				
Operating Temperature	0 – +75°C				
Storage Temperature	-40 – +85°C				
Fiber Type <sup>7</sup>	250 µm Buffer PANDA PM Fiber				
Optical power handling	4 W				
Reliability <sup>8</sup>	≤0.1 FIT				

<sup>1</sup> All specifications are for operation at center wavelength, room temperature, SOL (start of life) and no guard banding.

<sup>2</sup> Center wavelength 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> Return loss is the ratio of power launched to power reflected for port P1. Directivity for the 2x2 component is the ratio of power launched to P1 to the power reflected to P4. Guaranteed by design.

<sup>6</sup> Fiber and taper proof tested during build to confirm strength.

<sup>7</sup> Other fiber options available, contact G&H Sales

<sup>8</sup> FIT rate ≤0.1 is calculated for a 25 service life (typical service/storage conditions 40°C/60%RH). This assumes an allowable change over life of 0.5 dB for taps ≤10% and 0.2 dB for taps ≥50% through to EOL (end of life).

## Housing Options<sup>1</sup>

Housing Code	Description	Dimensions (mm)	Pigtail
3	Regular	3.0 (Ø) x 60max (L)	Primary-coated fiber

<sup>1</sup> For alternative housing options please contact G&H sales

## Configuration



## Order code

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

**Sample:** Example: FFP-CK3250H10 (C band, PM Coupler, 50/50 coupling ratio, regular housing, 2x2, channel center 1550 nm, grade H, 1m pigtail, no connector).

Order code				①	②	③	④	⑤	⑥	⑦	⑧	⑨
F	F	P	-									
①	<b>Passband</b>			9XX	10XX	1310	14XX	15XX				
	Code			5	8	4	S	C				
②	<b>Coupling Ratio<sup>1</sup></b>			1	5	10%	50%					
	Code			1	5	A	K					
③	<b>Housing</b>	Regular ø3x60mm (max)										
	Code	3										
④	<b>Port configuration</b>	1x2					2x2					
	Code	1					2					
⑤	<b>Last two digits of center wavelength<sup>2</sup></b>	e.g. XX00 nm		e.g. XX30 nm		e.g. XX50 nm		e.g. XX64 nm				
⑥		Code		00		30		50		64		
⑦	<b>Grade</b>	HI-REL										
	Code	H										
⑧	<b>Pigtail length</b>	0.5 m	1 m	2 m	3 m	4 m						
	Code	0	1	2	3	4						
⑨	<b>Connector</b>	None										
	Code	0										

<sup>1</sup> Other coupling ratios available on request.

<sup>2</sup> Center wavelength selected from within the available wavelength ranges shown in the Optical Specifications table.



## For further information

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