



# ULTRA-LOW RATIO TAP COUPLER

## Fused Fiber Coupler

### DATASHEET

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The ultra-low ratio tap coupler splits a very small amount of light from a signal path to a tap port.

Suitable for very high optical power, its main application is in the monitoring of optical sources such as fiber lasers.

Low tap ratios such as 0.1%, 0.01% or 0.001% enable the monitoring photodetector to operate without damage or saturation.

Gooch & Housego proprietary manufacturing technology provides ultra-low loss in the signal path, thereby maximising optical power handling. Consistently high return loss (>55 dB) reduces the amount of optical power reflected back along the input fiber.

This helps the fiber laser operate in a stable manner.

Standard parts are available for wavelengths from 700 - 1599 nm. For other wavelengths, coupling ratios or customized fiber types please contact the sales office.



### Key Features

- Tap ratio up to 50 dB
- High return loss
- Ultra-low signal insertion loss
- High power handling
- Available at wide variety of laser wavelengths
- Custom product

### Applications

- Fiber lasers
- RAMAN amplifiers
- High power EDFA

## Specifications

Parameter	Specification		
Coupling ratio	0.1%	0.01%	0.001%
Tap insertion loss	30 ±3 dB	40 ±4 dB	50 ±5 dB
Signal insertion loss <sup>1,2</sup>	0.1 dB		
Return loss	≥55 dB		
Operating wavelength <sup>3</sup>	Any selected wavelength from 700 to 1599 nm		
Optical power handling <sup>5,6</sup>	4 W		
Housing type codes	3, 4, 5, 7 & C		
Operating temperature	-40 - +75°C		
Storage temperature	-40 - +85°C		
Pigtail tensile load	5 N		
Fiber type <sup>4</sup>	Single mode		

<sup>1</sup> Maximum insertion loss at operating wavelength. Not including TDL or PDL.

<sup>2</sup> In 2x2 couplers insertion loss is not specified for launch through second input port P4 (coloured blue).

<sup>3</sup> Other wavelengths available as custom components. Please contact the G&H sales team.

<sup>4</sup> For customized fiber types please contact the G&H sales team.

<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.

## Housing Options

Housing Code	Description	Dimensions (mm)	Pigtail
3	Regular	3.0 (Ø) x 50 (L)	Primary-coated fiber
4	Semi-ruggedized slim	3.0 (Ø) x 60 (L)	Ø0.9 mm loose-tube
5	Semi-ruggedized	5.0 (Ø) x 75 (L)	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 50 (L)	Primary-coated fiber

## Configuration



## Order code

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

**Sample:** FFS-550N72A10 (1550 nm center channel wavelength, 0.01% tap coupling ratio, high power housing, 2x2 port configuration, A grade, 1 m pigtail length, no connectors).

Order code				①	②	③	④	⑤	⑥	⑦	⑧	⑨
F	F	S	-									
①	<b>Passband</b>			7XX	8XX	9XX	10XX	11XX	12XX	13XX	14XX	15XX
	Code			7	8	9	0	1	2	3	4	5
②	<b>Last two digits of center wavelength</b>			e.g. XX20		e.g. XX50		e.g. XX70		e.g. XX80		
				Code			20		50		70	
④	<b>Coupling ratio</b>			0.1%(30dB)		0.01%(40dB)		0.001%(50dB)				
	Code			M		N		P				
⑤	<b>Housing</b> <sup>2,3</sup>			Regular	Semi-ruggedized slim	Semi-ruggedized	High power	Regular high power				
	Code			3	4	5	7	C				
⑥	<b>Port configuration</b> <sup>3</sup>			1x2				2x2				
	Code			1				2				
⑦	<b>Grade</b>			Grade A								
	Code			A								
⑧	<b>Pigtail length</b> <sup>1</sup>			0.5 m				1 m				
	Code			0				1				
⑨	<b>Connector</b> <sup>2</sup>			None	FC/PC	FC/APC	SC/APC	FC/UPC	SC/UPC	LC		
	Code			0	1	3	5	9	A	B		

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 types 4 and 5. For connectorization of other housing types contact G&H sales. Note that insertion loss stated does not include connector losses.

5 7 & C not available as 1x2 configuration.

### Ordering Information:



800 Village Walk #316  
Guilford, CT 06437  
Ph: 203-401-8093

Email orders to: [sales@xsoptix.com](mailto:sales@xsoptix.com)  
Fax orders to: 800-878-7282

## For further information

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