Gooch & Housego
ENABLING PHOTONIC TECHNOLOGIES

HIGH RELIABILITY FUSED COUPLER 980 nm BAND

Fused Fiber Coupler

DATASHEET

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.

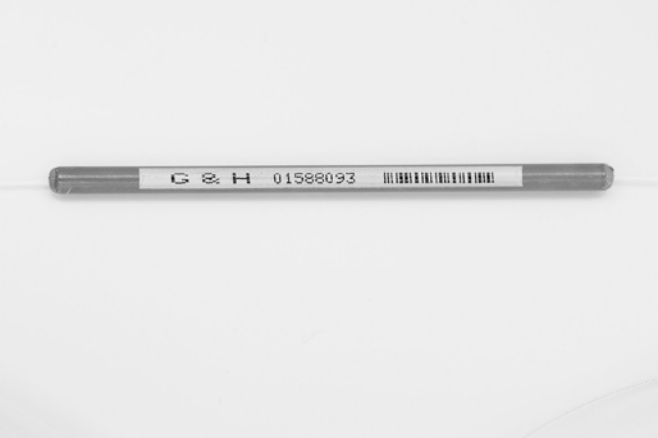
G&H's HI REL capability is built upon the foundation of a long established history of manufacturing very reliable terrestrial components. Full facilities are available to carry out customer-specific HI REL qualification programs, which can consist of accelerated ageing and Weibull analysis.

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.

Component types available include fused fiber couplers, tap couplers and wavelength division multiplexers. 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.

Please contact us to discuss your specific requirements.



Key Features

- Established HI REL supplier
- High performance
- Full qualification facilities available
- Advanced in-process testing
- Ultra-low loss fused components
- Choice of housings
- Design standard 0.1FITs (failure in 1 billion field hours)

Applications

- Undersea equipment
- Terminal equipment
- Space
- Defense and avionic

Compliance

- Customer specific

PRODUCT CODE HI RELIABILITY FUSED COUPLER 980 BAND

Optical Specifications

Coupling Ratio	Grade	Signal Path			Tap Path		
		Insertion Loss[1,2] (dB)		TDL[3] (dB)	Insertion Loss[1,2] (dB)		TDL[3] (dB)
Example[4]		Min	Max	Max	Min	Max	Max
5%	H		0.50	0.08	11.0	15.2	0.15
10%	H		0.75	0.08	8.5	11.8	0.13
50%	H	2.5	3.6	0.10	2.5	3.6	0.10

1 Insertion loss over operating wavelength range and component life - not including PDL, TDL (25 years, typical service/storage conditions 40°C/60% RH).

2 In 2x2 couplers insertion loss is not specified for launch through second input port P4 (colored blue).

3 Change in insertion loss from -5 – +75°C. Guaranteed by design.

4 Any coupling ratio available – contact G&H for specification of coupling ratios not listed.

Parameter		Specification
Operating wavelength range	960 nm	955 – 965 nm
	980 nm	975 – 985 nm
	1060 nm	1055 – 1065 nm
Return loss/directivity[1]		55 dB
Pigtail tensile load[2]		5 N
Optical power handling		4 W
Environmental qualification		Component design to 0.1FIT Failures in 10^9 hours

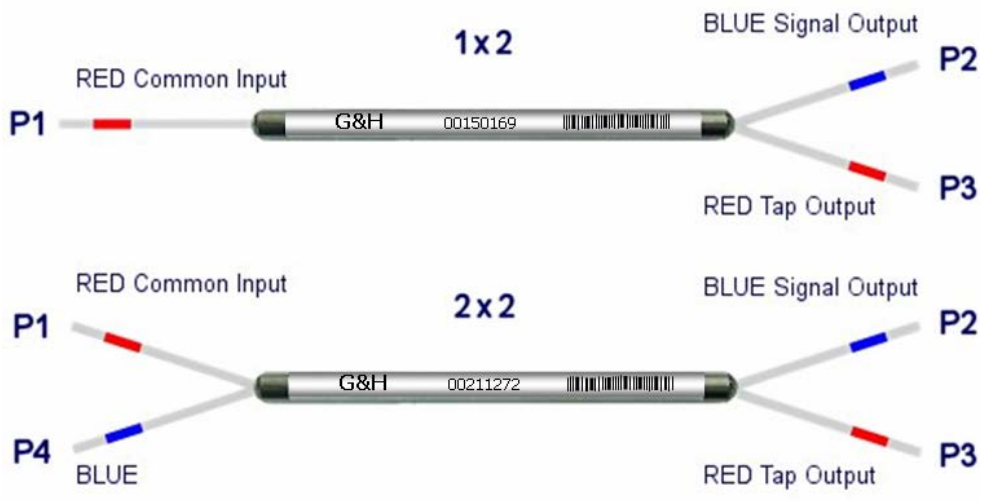
1 Return loss is the ratio of power launched to power reflected for port P1. Directivity for the 2x2 component is the ratio of power launched to P1 to the power reflected to P4. Guaranteed by design.

2 Stripped fiber proof tested on rig to confirm strength.

Housing Option

Housing Code	Description	Dimensions (mm)	Pigtail
3	Regular	3.0 (∅) x 50 (L)	Primary-coated fiber

Configuration



Order code

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

Sample: FFC-5531HB210 (980 Band, 5% tap, regular housing, 1x2, HI REL grade, OFS BFO5635-02, 1 m pigtail, no connector).

Order code	①	②	③	④	⑤	⑥	⑦	⑧	⑨
F F C -			3		H	B	2		0

①	**Pump wavelength**	960 nm	980 nm	1060 nm
	Code	F	5	8

②	**Coupling ratio**[2]	5%	10%	50%
	Code	5	A	K

③	**Housing**	Regular
	Code	3

④	**Port configuration**	1x2	2x2
	Code	1	2

⑤	**Grade**	HI REL
	Code	H

⑦	**Fiber type**	OFS-BFO5635-02
	Code	2

⑧	**Pigtail length**[1]	0.5 m	1 m	2 m	3 m	4 m
	Code	0	1	2	3	4

⑨	**Connectors**	No connectors
	Code	0

1 Minimum pigtail length. Further pigtail lengths available on request.

2 Any coupling ratio available – contact G&H for specification and ordering codes of coupling ratios not listed.

Other products which may be of interest

- Fiber-Q®
- High power multimode combiners
- Combiners with all types of signal feedthrough fiber
- Ultra-low ratio tap couplers
- WDMs for combining signals with red pointer lasers
- OCT wideband couplers

Gooch & Housego
ENABLING PHOTONIC TECHNOLOGIES

HIGH RELIABILITY FUSED COUPLER C OR L BAND

Fused Fiber Coupler

DATASHEET

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

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Component types available include fused fiber couplers, tap couplers and wavelength division multiplexers. The ultra-low loss of G&H fused fiber components helps to promote low noise figure and improved system margin in undersea transmission systems.

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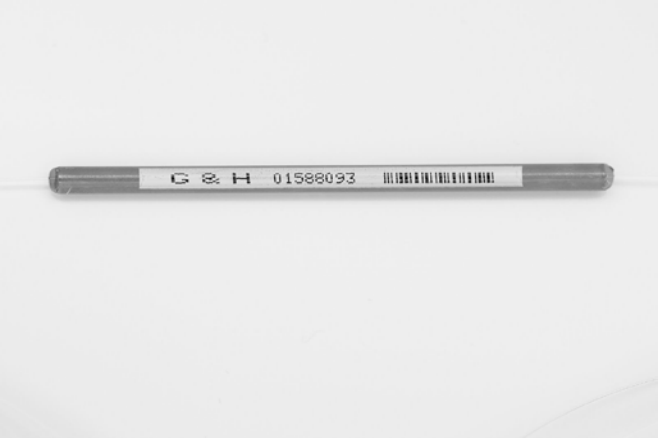

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Compliance

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Optical Specifications

Coupling Ratio	Grade	Signal Path					Tap Path				
		Insertion Loss[1,2] (dB)		WDL[3] (dB)	PDL[4] (dB)	TDL[5] (dB)	Insertion Loss[1,2] (dB)		WDL[3] (dB)	PDL[4] (dB)	TDL[5] (dB)
Example[6]		Min	Max	Max	Max	Max	Min	Max	Max	Max	Max
2%	H		0.30	0.05	0.05	0.02	15.8	18.5	0.40	0.20	0.15
5%	H		0.40	0.05	0.05	0.08	11.9	14.4	0.20	0.20	0.15
10%	H		0.70	0.06	0.06	0.08	9.2	11.2	0.18	0.15	0.13
50%	H	2.7	3.40	0.2	0.2	0.16	2.7	3.4	0.2	0.2	0.16

1 Insertion loss over operating wavelength range and component life – not including PDL, TDL (25 years, typical service/storage conditions 40°C/60% RH).

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

3 Change in insertion loss over the operating wavelength range

4 Change in insertion loss over all input polarisation states at band centre wavelength

5 Change in insertion loss from -5 – +75°C. Guaranteed by design.

6 Any coupling ratio available – contact Gooch & Housego for specification of coupling ratios not listed.

Parameter		Specification
Operating wavelength range	C band	1528-1563 nm
	L band	1570-1605 nm
	1310 band	1295-1325 nm
	1480 band	1465-1495 nm
Return loss/directivity[1]		55 dB
Pigtail tensile load[2]		5 N
Optical power handling		4 W
Environmental qualification		Component design to 0.1FIT Failures in 10^9 hours

1 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.

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Housing Option

Housing Code	Description	Dimensions (mm)	Pigtail
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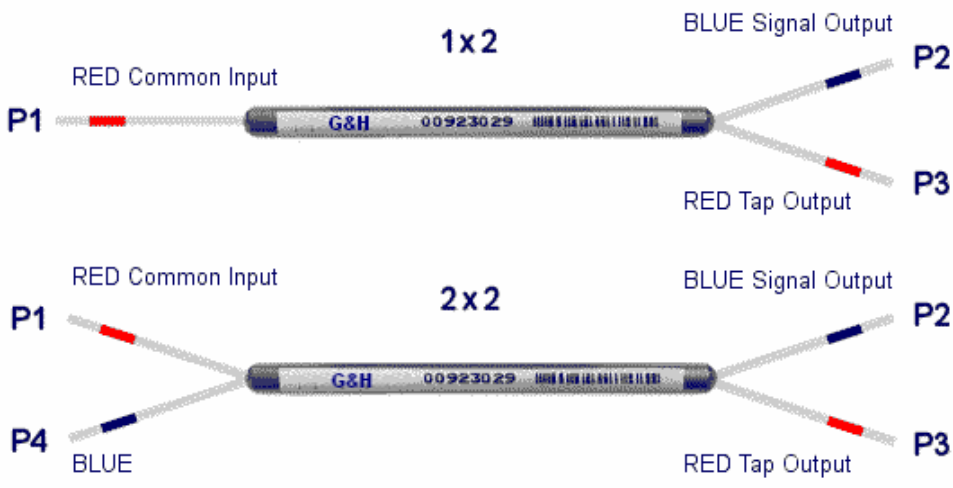
Configuration



Order code

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

Sample: FFC-C231HB110 (C Band, 2% tap, regular housing, 1x2, HI REL grade, SMF-28e+ photonic fiber, 1 m pigtail, no connector).

Order code				①	②	③	④	⑤	⑥	⑦	⑧	⑨
F	F	C	-					H	B	1		0

①	**Pump wavelength**	C band	L band	1310 nm band	1480 nm band
	Code	C	L	4	3

②	**Coupling ratio**[2]	2%	5%	10%	50%
	Code	2	5	A	K

③	**Housing**	Regular
	Code	3

④	**Port configuration**	1x2	2x2
	Code	1	2

⑤	**Grade**	HI REL
	Code	H

⑦	**Fiber type**	Corning SMF-28e+ Photonic
	Code	1

⑧	**Pigtail length**[1]	0.5 m	1 m	2 m	3 m	4 m
	Code	0	1	2	3	4

⑨	**Connectors**	No connectors
	Code	0

1 Minimum pigtail length. Further pigtail lengths available on request.

2 Any coupling ratio available – contact Gooch & Housego for specification and ordering codes of coupling ratios not listed.

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For further information

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