

DIAMOND

Fiber Optic Components

FIC

COUPLERS

GENERAL

Full Range Wavelength Independent Couplers (FIC) are passive optical devices which allow the distribution and combination of optical signals of the full telecommunication wavelength range. In addition to the EIC with the use of the FIC the useable wavelength range is increased to the so called fourth optical window.

The couplers are manufactured on the basis of an advanced Fused Biconical Taper (FBT) technology to provide optimum performance and longtime stability.

FEATURES

- ▶ Low insertion loss and extremely low excess loss
- ▶ Free choice of coupling ratio, e.g. as tap coupler with a coupling ratio of 1% or as symmetrical coupler with coupling ratio of 50%
- ▶ High return loss, i.e. no reflections interfering with the transmitter in analogue systems
- ▶ High thermal, mechanical and environmental stability to meet the requirements of Telcordia GR-1209 and GR-1221
- ▶ Option of manufacture to customer specifications

APPLICATIONS

- ▶ Public and private fibre-optic networks
- ▶ Measurement systems and test equipment
- ▶ Optical transmission and monitoring systems

DESIGNS

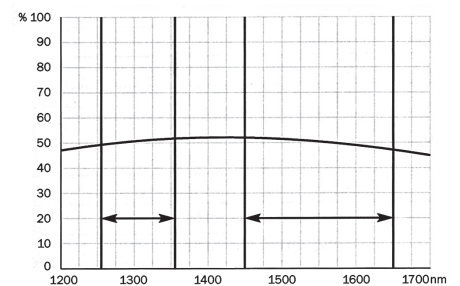
- ▶ Supplied in various housing sizes with bare fibre pigtails, loose buffered tube pigtails or reinforced cable pigtails
- ▶ Couplers with more than two outlets are available as truly fused components with up to four fibres or as coupler modules
- ▶ All connector standard types are available

AVAILABLE COUPLER TYPES

FIBER TYPE	PIGTAIL TYPE	CONFIGURATIONS	HOUSING TYPE	DIMENSIONS (mm)
9/125	9/125/250	1x2, 2x2	BG01	Ø 2,9 x 50
		1x3, 1x4, 2x4	BG04	Ø 2,9 x 55
	9/125/250/900	1x2, 2x2, 1x3, 1x4, 2x4	BG02	Ø 3,8 x 76
		1x2, 2x2, 1x3, 1x4, 2x4	BG05	10 x 6 x 76
	9/125/250/900/2100...3000	1x2, 2x2	BG03	13 x 9,5 x 95
		1x2	BG06	12,8 x 9,2 x 80
		1x1	BG09	Ø 6,5 x 80

Other coupler types upon request

FULL RANGE WAVELENGTH
INDEPENDENT COUPLER
1310 ± 50 nm, 1550 ± 100 nm



Wavelength dependence of Coupling Ratio of a symmetrical FIC

OPTICAL SPECIFICATIONS

(WAVELENGTH 1310 ± 50 and 1550 ± 100)

OPTICAL PARAMETER FOR 1x2 AND 2x2 CONFIGURATIONS

OUTPUT PORT		O 1	O 2
Max. Insertion Loss (dB) with Coupling Ratio	50/50%	4,2	4,2
	60/40%	3,2	5,4
	67/33%	2,7	6,4
	70/30%	2,4	7,0
	80/20%	1,7	9,2
	90/10%	1,1	13,0
	95/05%	0,8	16,8
	99/01%	0,1	24,7
min. Directivity (dB)		55 for 1 x 2, 60 for 2 x 2	
min. Return Loss (dB)		55 for 1 x 2, 60 for 2 x 2	
Polarisation Dependent Loss * (dB)		typical 0,05	

* maximum 0,1dB for port O 1, maximum 0,2dB for port O 2 (measured at 1310nm and 1550nm)

OPTICAL PARAMETER FOR 1x3 CONFIGURATIONS

OUTPUT PORT		O 1	O 2	O 3
Max. Insertion Loss (dB) with power splitting	90/05/05%	1,0	17,6	17,6
	80/10/10%	1,7	13,2	13,2
	70/15/15%	2,4	11,1	11,1
	60/20/20%	3,1	9,3	9,3
	50/25/25%	4,1	8,0	8,0
	40/30/30%	5,2	6,9	6,9
	33/33/33%	6,4	6,4	6,4
	30/35/35%	6,9	5,9	5,9
	20/40/40%	9,3	5,2	5,2
	10/45/45%	15,2	4,6	4,6
min. Directivity (dB)		55		
min. Return Loss (dB)		55		
Polarisation Dependent Loss * (dB)		typical 0,05		

* maximum 0,1dB for port O 1, maximum 0,2dB for port O 2 and for port O 3 (measured at 1310nm and 1550nm)

OPTICAL PARAMETER FOR 1x4 CONFIGURATIONS

OUTPUT PORT	O 1	O 2	O 3	O 4
Max. Insertion Loss (dB) with equal power splitting	7,8	7,8	7,8	7,8
min. Directivity (dB)	55			
min. Return Loss (dB)	55			
Polarisation Dependent Loss * (dB)	typisch 0,25			

* maximum 0,5dB (measured by 1310nm and 1550nm)