

# 2+1X1 MULTIMODE POWER COMBINER WITH PM SIGNAL FEEDTHROUGH

## Fused Tapered Fiber Bundle

Gooch & Housego proprietary manufacturing techniques allow the precise fusion of multimode pump fibers to a PM signal feedthrough fiber and a PM dual clad output fiber.

This provides high coupling efficiency over a wide pump wavelength range.

Available in a standard (2+1)x1 configuration, the combiner can be fabricated from a range of industry standard fibers for ease of splicing to commercially available laser diodes, signal and gain fibers

Custom variants using non-standard fibers are available on request.

Please contact the sales team for further information.



### Key Features

- 1.5  $\mu\text{m}$  & 1.0  $\mu\text{m}$  PM signal fibers available
- All fiber construction
- High power design
- High coupling efficiency
- PM Axis maintained
- Custom configurations available

### Applications

- Cladding pumped fiber lasers
- Cladding pumped fiber amplifiers
- Telecoms
- Medical
- Industrial
- Defense

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

Parameter	Specification
Pump Input fiber NA	0.15 or 0.22
Pump input wavelength	780 - 1000 nm
Signal input Wavelength	1530 - 1565 nm (1550 nm) or 1030 - 1090nm (1064 nm)
Pump (MM) transmission efficiency <sup>2</sup>	≥ 90% (typ. 95%)
Signal transmission efficiency <sup>3</sup>	≥ 93% (typ. 97%)
Signal PER (polarization extinction ratio)	≥20 dB
Return loss	≥40 dB
Operating temperature	0 - +65°C
Storage temperature	-40 - +85°C

<sup>1</sup> All specifications are for operation at room temperature.

<sup>2</sup> MM transmission efficiencies based on typical system mode fill conditions and 0.5 m pigtails. Reported at 975 nm as standard.

<sup>3</sup> Signal (feedthrough) transmission efficiency reported at center wavelength.

## Order code

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

**Sample:** TFB-P50212B31 (2+1x1 TFB, PM 1550nm signal feedthrough, 2 pump 105/125  $\mu$ m 0.22 NA fiber inputs, 1550 nm core DCF output, regular housing, 1 m pigtails).

Order code				①	②	③	④	⑤	⑥	⑦	⑧	⑨
T	F	B	-	P			2	1				
② ③	Signal wave length <sup>1</sup>			1064 nm				1550 nm				
	Code			64				50				
④	Configuration (No. of pump inputs)			2 pump inputs								
	Code			2								
⑤	Pump input fiber			105/125 $\mu$ m								
	Code			1								
⑥	Pump input fiber NA			0.15				0.22				
	Code			1				2				
⑦	DCF output fiber <sup>2</sup>			1060 nm core. 130 $\mu$ m/0.45 NA				1550 nm core. 130 $\mu$ m/0.45 NA				
	Code			A				B				
⑧	Housing <sup>3,4</sup>			Regular $\varnothing$ 3 x 65 mm max				Level 1 high power 5 mm <sup>2</sup> x 65 mm max				
	Code			3				7				
⑨	Pigtail length <sup>5</sup>			0.5 m				1 m				
	Code			0				1				

1 Signal wavelengths of 1064 nm or 1550 nm assume the use of Nufern PM-980-HP and PM-1550-HP (or equivalent) signal input fiber s respectively.

2 Typical mode field diameters are based on  $\sim$ 7.5  $\mu$ m for 1064 nm and  $\sim$ 10.5  $\mu$ m for 1550 nm. Fibers are passive.

3 Maximum housing lengths shown.

4 The 3 mm cylindrical package is recommended for pump powers up to 10 W per port. The high power housing is suitable for pump powers up to 50 W per port. Adequate heat-sinking is required for high power operation. For more information please contact the G&H sales team.

5 Minimum pigtail lengths.

### Ordering Information:



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Email orders to: [sales@xsoptix.com](mailto:sales@xsoptix.com)  
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## For further information

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