

High bandwidth fixed gain balanced optical detection module

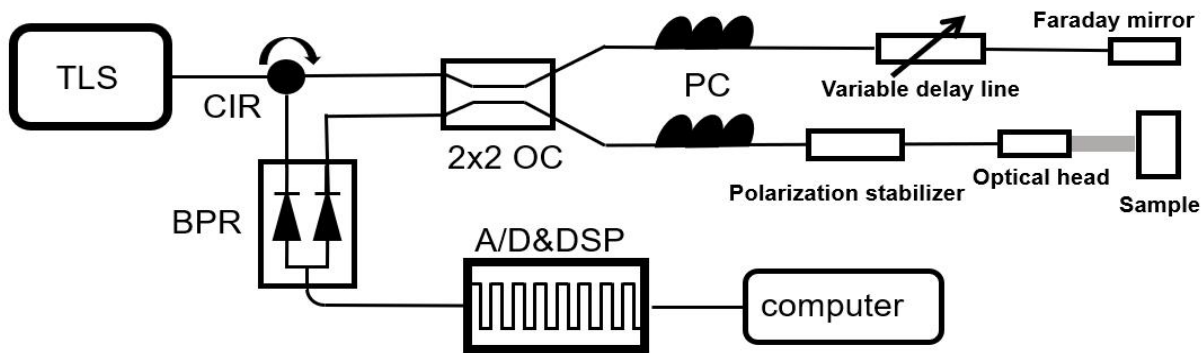
Balanced Photodetector (400MHz/1GHz/1.6GHz)

High-gain balanced detection module optimized for third-generation OCT (SS-OCT) systems, with high gain and low noise characteristics, high common-mode rejection ratio through wavelength optimization, high output voltage amplitude (~7V), and configured Monitor monitoring signal (up to 10Vpp) output. The detector is available at DC-400MHz, 500K-1GHz, 500K-1.6GHz and is optimized for 1064nm and 1310nm wavelengths.

Feature

- Typical wavelength: 850/1064/1310/1550nm
- 3dB bandwidth: 400MHz/1GHz/1.6GHz
- High common-mode rejection ratio: > 25dB
- High gain: $150 \times 10^3 \text{V/W}$

SS-OCT schematic diagram



BPR-400MHz

Model number	ROF-BPR-400M-A2-FC-AC	ROF-BPR-400M-A1-FC-AC
Spectral response range	1200-1700nm	900-1400
Typical wavelength	1310nm/1550nm	1064nm
responsivity	0.9A/W@1550nm	0.7A/W@1064nm
3dB bandwidth	10KHz-400MHz	10KHz-400MHz
Common-mode rejection ratio CMRR	>25dB(30dB typ.)	>25dB(30dB typ.)
Gain @ High resistance state	$14 \times 10^3 \text{V/W}$	$10 \times 10^3 \text{V/W}$
Noise voltage (RMS)	$< 5 \text{mV}_{\text{RMS}}$	$< 5 \text{mV}_{\text{RMS}}$
Saturated optical	400 μW	800 μW



power		
Maximum output amplitude @ High resistance	5Vpp	5Vpp
Damaged optical power	10mW	
Operating temperature range	-20~+70 °C	
Operating voltage	DC ±12V (with low noise power adapter)	
Working current	60mA	
Input connector	FC	
Output connector	SMA	
Output impedance	50 ohms	
Output coupling mode	AC coupling (DC optional)	
Overall dimensions (mm)	78.5 mm * 71 mm * 25.7 mm	

BPR-1GHz

Model number	ROF-BPR-1G-A2-FC	ROF-BPR-1G-A1-FC
Spectral response range	1200-1700nm	900-1400
Typical wavelength	1310nm/1550nm	1064nm
responsivity	0.9A/W@1550nm	0.7A/W@1064nm
3dB bandwidth	500K-1GHz	500K-1GHz
Common-mode rejection ratio CMRR	>25dB(30dB typ.)	>25dB(30dB typ.)
Gain @ High resistance state	$36 \times 10^3 \text{V/W}$	$28 \times 10^3 \text{V/W}$
Noise voltage (RMS)	$< 8 \text{mV}_{\text{RMS}}$	$< 8 \text{mV}_{\text{RMS}}$
Saturated optical power	380μW	500μW
Maximum output amplitude @50 Ω	3.5Vpp	3.5Vpp
Damaged optical power	10mW	
Operating temperature range	-20~+70 °C	
Operating voltage	DC ±12V (with low noise power adapter)	
Working current	200mA	
Input connector	FC	



Output connector	SMA
Output impedance	50 ohms
Output coupling mode	AC coupling
Overall dimensions (mm)	78.5 mm * 71 mm * 25.7 mm

BPR-1.6GHz

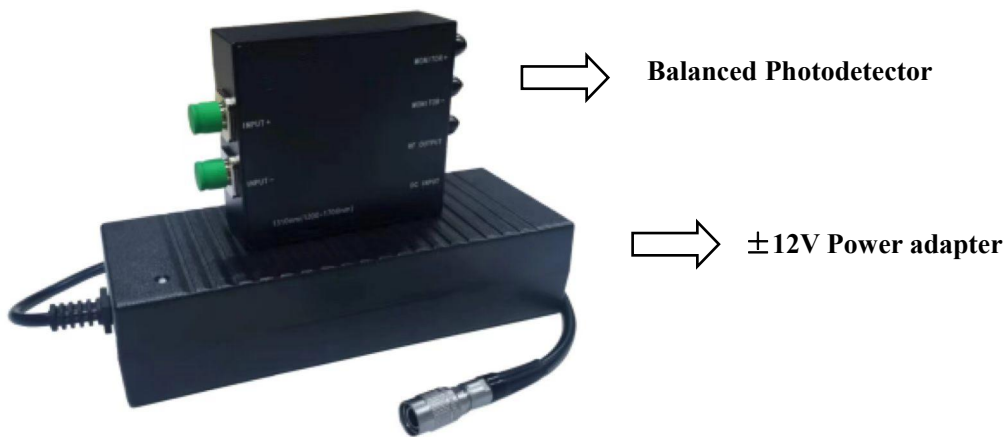
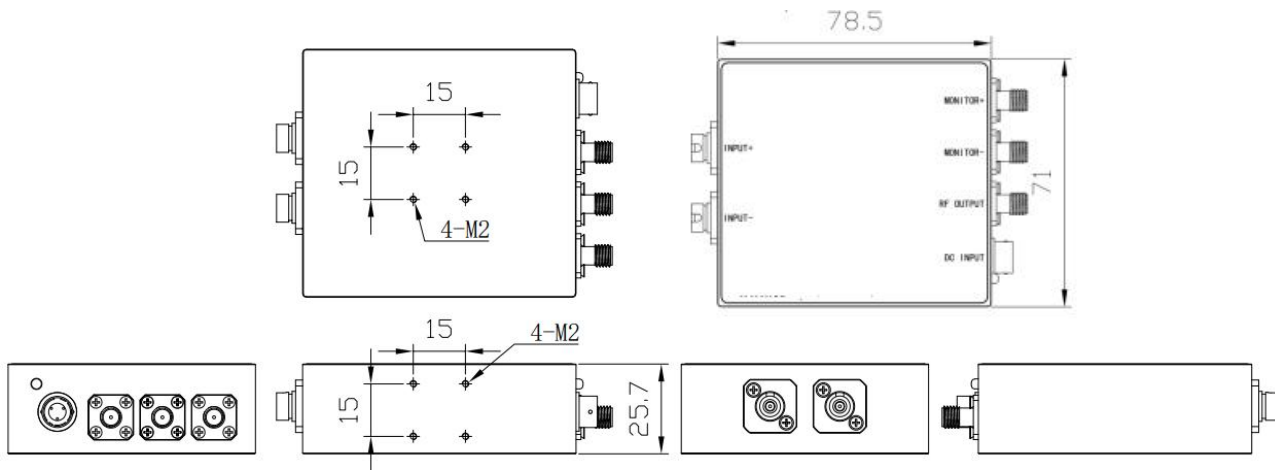
Model number	ROF-BPR-1.6G-A2-FC	ROF-BPR-1.6G-A1-FC
Spectral response range	1200-1700nm	900-1400
Typical wavelength	1310nm/1550nm	1064nm
responsivity	0.9A/W@1550nm	0.7A/W@1064nm
3dB bandwidth	500K-1.6GHz	500K-1.6GHz
Common-mode rejection ratio CMRR	>25dB(30dB typ.)	>25dB(30dB typ.)
Gain @ High resistance state	$16 \times 10^3 \text{V/W}$	$11 \times 10^3 \text{V/W}$
Noise voltage (RMS)	$< 10 \text{mV}_{\text{RMS}}$	$< 10 \text{mV}_{\text{RMS}}$
Saturated optical power	800 μ W	1mW
Maximum output amplitude @50 Ω	3Vpp	3Vpp
Damaged optical power	10mW	
Operating temperature range	-20~+70 $^{\circ}\text{C}$	
Operating voltage	DC $\pm 12\text{V}$ (with low noise power adapter)	
Working current	350mA	
Input connector	FC	
Output connector	SMA	
Output impedance	50 ohms	
Output coupling mode	AC coupling	
Overall dimensions (mm)	78.5 mm * 71 mm * 25.7 mm	

Monitor indicator



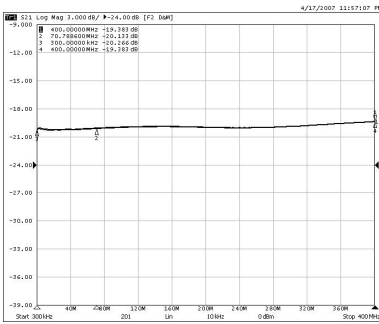
Monitor	ROF-BPR-XX-A2	ROF-BPR-XX-A1
Operating bandwidth	DC-5MHz	
Conversion gain	$10 \times 10^3 \text{V/W}$	$7 \times 10^3 \text{V/W}$
Noise voltage (RMS)	5mVpp	
Output impedance	200 ohms	
Output amplitude	10Vpp	

Size (mm)

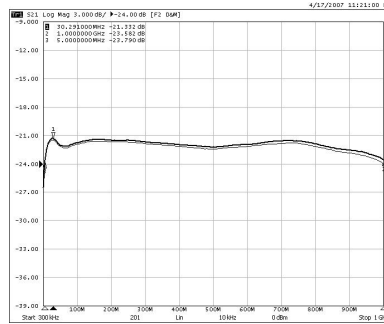




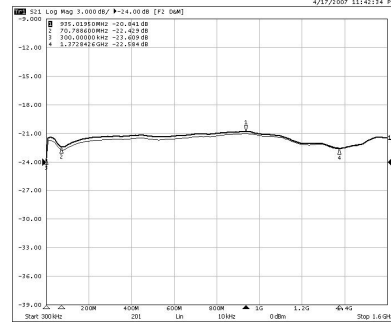
Frequency response curve (S21)



ROF-BPR-400M



ROF-BPR-1G



ROF-BPR-1.6G

Ordering information

ROF	XXX	XX	X	XX	XX	X
	BPR-- Fixed gain balanced detector GBPR-- Gain adjustable balance detector	-3dB bandwidth: 10M---10MHz 80M---80MHz 200M---200MHz 350M---350MHz 400M---400MHz 1G---1GHz 1.6G---1.6GHz	Operating wavelength: A---850~1650nm (1550nm test) B---320~1000nm (850nm test) A1---900~1400nm (1064nm test) A2---1200~1700nm (1310nm or 1550nm test)	Input type: FC---Fiber coupling FS---Free space	Coupling type: DC---DC Coupling AC---AC Coupling	Gain type: Null-- Normal gain H--High gain requirement

Note:

1, 10 M, 80MHz, 200MHz, 350MHz and 400 MHz bandwidth detectors support operating bands A and B; Coupling Type Both AC and DC coupling are optional.

2, 1GHz, 1.6GHz, support working bands A1 and A2; Coupling type Only AC coupling is supported.

3, the gain is adjustable (150MHz) to support the working band A and B; Coupling Type Both AC and DC coupling are optional.

4, example, ROF-BPR-350M-A-FC-AC: 350MHz fixed gain balanced probe module, operating wavelength 1550nm(850-1650nm), AC coupled output.