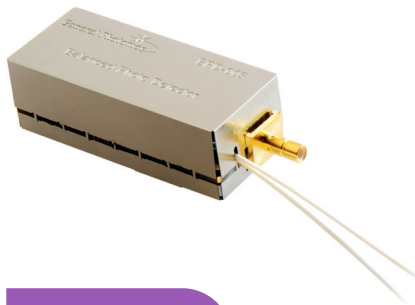


## OEM Balanced Detector (BPD-003)



OCT and sensor systems require high performance balanced photodetectors to boost system signal to noise ratio. The BPD-003 is specially designed for OEM applications in such fields, engineered for low cost and small size as well as high performance. The device consists of an optical head and a post-amplification board with an SMA or SMB RF output. The optical head has two input fibers aligned with a pair of balanced photodetectors, followed by an integrated ultra low noise transimpedance amplifier (TIA) placed immediately after the photodetectors to amplify received signals with low noise and enhanced CMRR. The post-amplification circuit further conditions and amplifies the signal to a range of  $\pm 3.5$  V maximum. With a bandwidth of up to 200 MHz and a high conversion gain, the BPD-003 is ideal for integration into OCT, fiber sensor and high performance optical measurement systems.

### Specifications:

Photodetector	
Operating Wavelengths	1060, 1310, or 1550 $\pm$ 50nm
Photodetector Type	InGaAs
PD Responsivity <sup>1</sup>	> 0.8mA / mW at 1550nm > 0.7mA / mW at 1310nm > 0.5mA / mW at 1060nm
PDL	< 0.2 dB
Return Loss	> 45 dB
Maximum Input Power	10 mW
Pigtail Length	> 0.75m
Fiber Type	SMF - 28 for 1310 or 1550nm Hi1060 for 1060nm
RF Output	
RF Output Bandwidth (3dB) <sup>2,3</sup>	DC to 200 MHz
Transimpedance Gain <sup>3</sup>	$100 \times 10^3$ V/A ( TIA + post amplifier)
Conversion Gain <sup>4</sup>	> $80 \times 10^3$ mV / mW at 1550nm > $70 \times 10^3$ mV / mW at 1310nm > $50 \times 10^3$ mV / mW at 1060nm
CW Balanced Saturation Power <sup>5</sup>	36 $\mu$ W at 1550nm 42 $\mu$ W at 1310nm 58 $\mu$ W at 1060nm
Common Mode Rejection Ratio	> 35 dB (DC to 40MHz) > 15 dB (40 to 200MHz)
NEP (DC - 100MHz)	< 6 pW / $\sqrt{\text{Hz}}$
RF Output Impedance	50 $\Omega$
RF Output Voltage (Linear Range)	$\pm 1.75$ V at 50 $\Omega$ load $\pm 3.5$ V at high impedance load
RF Output Connector	SMA or SMB
Power Supply Input Connector	6 - pin connector header with 0.1" pitch or 7 - pin SATA connector
Power Supply	$\pm 5$ V / 200 mA
General	
Operating Temperature	10 to 50 $^{\circ}$ C
Storage Temperature	-40 to 85 $^{\circ}$ C
Dimensions	1.95" (L) $\times$ 0.85" (W) $\times$ 0.65" (H)
Notes: Values are referenced without connectors.	
1. Includes the coupling loss of fiber to photodiode.	
2. Tolerance =20%.	
3. Other bandwidths may be available.	
4. Other gains are available.	
5. For other transimpedance gains and wavelengths, CW Saturation Power is specified by (3.5V/Transimpedance gain)* Responsivity	

# OEM Balanced Detector (BPD-003)

### Features:

- Ultra low noise
- Excellent CMRR
- High conversion gain
- Wide bandwidth
- Compact

### Applications:

- Optical Coherence Tomography
- Fiber sensing interrogator
- Instrumentation
- R&D

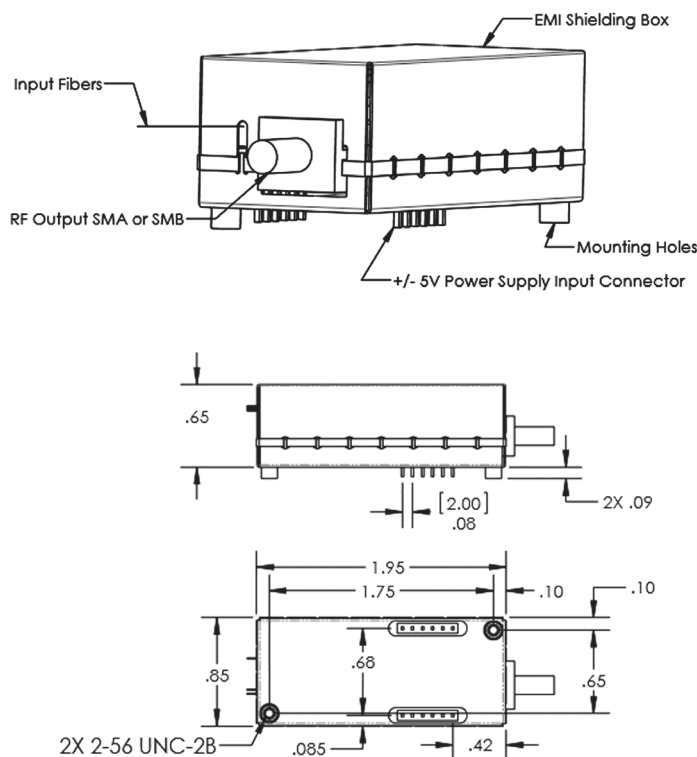
### Related Products:

- Balanced Detectors (BPD-002, PBPD-001)
- Polarization Diversity Detectors (PDD-001, PDD-003)

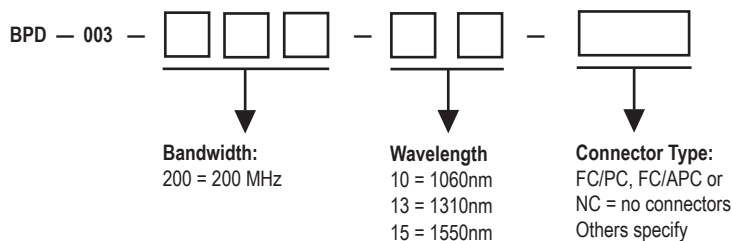
### Tech Info:

- Optical Coherence Tomography Technologies

### Dimensions (in inches):



### Ordering Information:



Distribution in the UK & Ireland



**Lambda Photometrics Limited**  
 Lambda House Batford Mill  
 Harpenden Herts AL5 5BZ  
 United Kingdom  
**E:** [info@lambdaphoto.co.uk](mailto:info@lambdaphoto.co.uk)  
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**T:** +44 (0)1582 764334  
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