

# EXALOS Balanced Receiver | EBR

## Applications

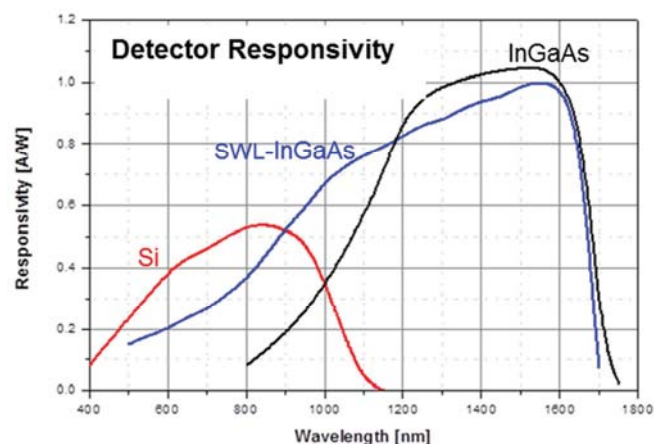
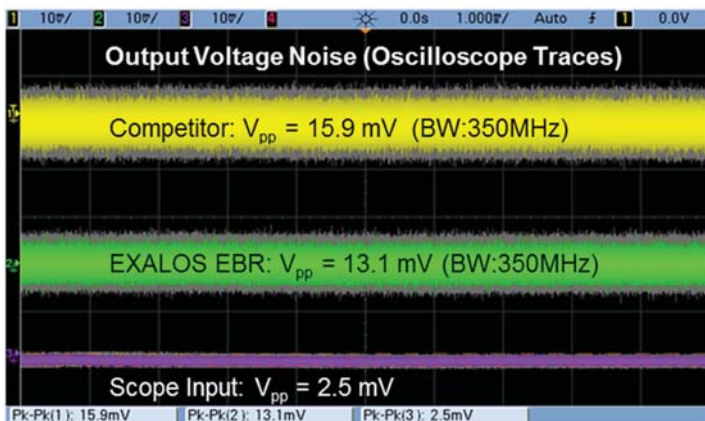
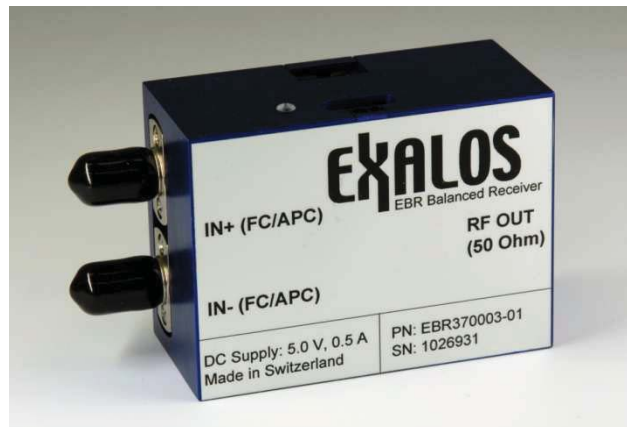
- Optical Coherence Tomography
- Optical Delay Measurements
- Spectroscopy
- Heterodyne Detection

## Product Features

- Adjustable Bandwidth (80-350 MHz) And Fixed Bandwidth (100, 200 MHz) Models
- Ultra-Low Noise Performance
- Electrically-Switchable Gain (high/low gain selection via TTL signals)
- Well-matched Photodiodes to achieve high common-mode rejection
- Two Monitor Outputs (DC-400 kHz)
- Compact OEM form factor
- Single +5V power supply

## Description

The EXALOS optical balanced receiver (EBR) is engineered particularly to support challenging applications such as Optical Coherence Tomography where high signal-to-noise performance is critical. It achieves the lowest noise performance of balanced receivers in this bandwidth range. It features a compact design and a single supply voltage for OEM applications and allows for electrically switching the gain or for continuously adjusting the bandwidth. Contact EXALOS for customized versions tailored to your requirements.



EBR Part #	$\lambda$ Range (nm)	Detector Type <sup>(1)</sup>	DC/AC <sup>(2)</sup> Coupled	Bandwidth <sup>(3)</sup> (MHz)	Gain (V/A) <sup>(4)</sup> @ 50 Ohm	Noise Floor (dBm/Hz)	Saturation Power -CW (dBm)	Gain Flatness (dB)
EBR370001-02	400-900	Si	DC	DC-80/350	$5 \times 10^3$	-140	TBD	5
EBR370002-02	400-900	Si	AC	0.03-80/350	$5 \times 10^3$	-140	TBD	5
EBR370003-02	900-1200	InGaAs <sub>SWL</sub>	DC	DC-80/350	$5 \times 10^3$	-140	-4	5
EBR370004-02	900-1200	InGaAs <sub>SWL</sub>	AC	0.03-80/350	$5 \times 10^3$	-140	-4	5
EBR370005-02	1200-1700	InGaAs	DC	DC-80/350	$5 \times 10^3$	-140	-4	5
EBR370006-02	1200-1700	InGaAs	AC	0.03-80/350	$5 \times 10^3$	-140	-4	5
EBR370009-02	900-1200	InGaAs <sub>SWL</sub>	DC	DC-100	$40 \times 10^3$	-122	-13	2
EBR370010-02	900-1200	InGaAs <sub>SWL</sub>	AC	0.03-100	$40 \times 10^3$	-122	-13	2
EBR370011-02	1200-1700	InGaAs	DC	DC-100	$40 \times 10^3$	-122	-13	2
EBR370012-02	1200-1700	InGaAs	AC	0.03-100	$40 \times 10^3$	-122	-13	2
EBR370015-02	900-1200	InGaAs <sub>SWL</sub>	DC	DC-200	$15 \times 10^3$	-131	-9	3
EBR370016-02	900-1200	InGaAs <sub>SWL</sub>	AC	0.03-200	$15 \times 10^3$	-131	-9	3
EBR370017-02	1200-1700	InGaAs	DC	DC-200	$15 \times 10^3$	-131	-9	3
EBR370018-02	1200-1700	InGaAs	AC	0.03-200	$15 \times 10^3$	-131	-9	3

Common Mode Rejection Ratio (Typical)	30dB
Max. Electrical Output Signal	$\pm 1.8$ V
Overall Output Voltage Noise (Typical) <sup>(5)</sup>	0.8 - 3 Vrms
Noise Equivalent Power (Typical) <sup>(6)</sup>	5 - 6 pW/ $\sqrt{\text{Hz}}$
Operating temperature	-20 to +65 °C
Supply voltage	5.0 (4.90 to 5.20) V
Dimension	64 x 46 x 30 mm
Optical Connector	FC/APC

Notes:

- (400-900 nm): Silicon photodiode responsivity of  $\sim 0.55$  A/W at 840 nm, lower at other wavelengths  
(900-1600 nm): Short- $\lambda$  enhanced InGaAs<sub>SWL</sub> photodiode responsivity of  $\sim 0.75$  A/W at 1060 nm, 0.85 A/W at 1310 nm, 1.0 A/W at 1550 nm. Short- $\lambda$  enhanced InGaAs PDs (good for 1060nm applications) have extremely low back reflection, thus preventing line artifacts in OCT imaging.  
(1100-1600 nm): Standard InGaAs photodiode responsivity of  $\sim 0.40$  A/W at 1060 nm, 1.0 A/W at 1310 nm, 1.1 A/W at 1550 nm
- f-3dB = 30 kHz, other cut-off frequencies available upon request
- For models 370001 to 370006: Electro-optical bandwidth is continuously adjustable from 80 MHz to 350 MHz; other ranges available on request
- For models 370001 to 370006: Electrically-switchable gain with TTL signals: HIGH =  $5 \times 10^3$  & LOW =  $5 \times 10^1$  @ 50  $\Omega$  termination
- For models 370001 to 370006: Output voltage noise at 350 MHz is 0.8 Vrms; smaller at lower bandwidth, e.g. 0.4 mVrms at 200 MHz  
For models 370009 to 370018: Output voltage noise  $\sim 3$  Vrms;
- For models 370001 to 370006: Noise Equivalent Power (NEP) is measured from DC to 100MHz.  
For models 370009 to 370018: NEP is measured from DC to 10MHz.