Balanced Receiver InGaAs

(1000 to 16500nm, SM Fiber)

DATASHEET

BUY NOW

The BREV series of fiberoptic receivers cancel out the common optical noise, offering a practical way to detect an incoming optical signal with a low noise floor. This receiver incorporates two InGaAs photodiodes with matched responsivity to ensure a high common mode rejection ratio and an RF amplifier that generates an output voltage proportional to the input optical signal. It has two optical inputs and an RF output. In addition to the RF output, the balanced photoreceiver has three low-frequency monitor outputs, I_1, I_2 and I_2 - I_1, which can be used to align light onto the photodiodes and to perform low-frequency diagnostics. The monitor outputs have SMB connectors, and an SMB-to-BNC cable is provided with the photoreceiver. A wall pluggable DC power supply is included that delivers to the balanced photoreceiver through a micro connector on the side. The unit is packaged with a metal shield to eliminate noise pickup. Combined with a wide operating temperature range, and excellent EMI characteristics, the BREV is designed to work in the harshest environments.

Features

- 900-1650nm
- 900 MHz bandwidth
- Noise cancelation
- Enhanced EMI
- Cost-effective

Applications

- LiDAR
- OCT
- Heterodyne Detection
- Ultra Low Signal Detection

Specifications

Parameter	Min	Typical	Max	Unit
Wavelength	900	1550	1650	nm
Detector Responsivity (peak @ 1550nm)		0.9		A/W
Maximum Input Optical Power [1]	0.3		10	mW
Noise		10		nW
Bandwidth (-3dB)	0.5		800	MHz
Polarization Dependent Loss		0.2	0.5	dB
Rise/Fall Time [2]		1		ns
Common Mode Rejection	30			dB
Output Voltage Noise		4		mVrms
Maximum RF Power		11		dBm
Out Impedance		50		Ω
RF Power		2.5	3.5	W
RF Output Interface		SMA		
Power Supply Current (12VDC)	5	4200	40	mA
Operating Temperature	-35		65	°C
Storage Temperature	-45		85	°C

Notes:

[1]. The level is at the maximum when the average power is the same for both detectors

[2]. (10%-90%).

Warning: **The device is extremely ESD-sensitive. Its dark current increases by unprotected handling. It is recommended to be handled under a certified ion fan once the package is removed.**

Rev 01/16/24

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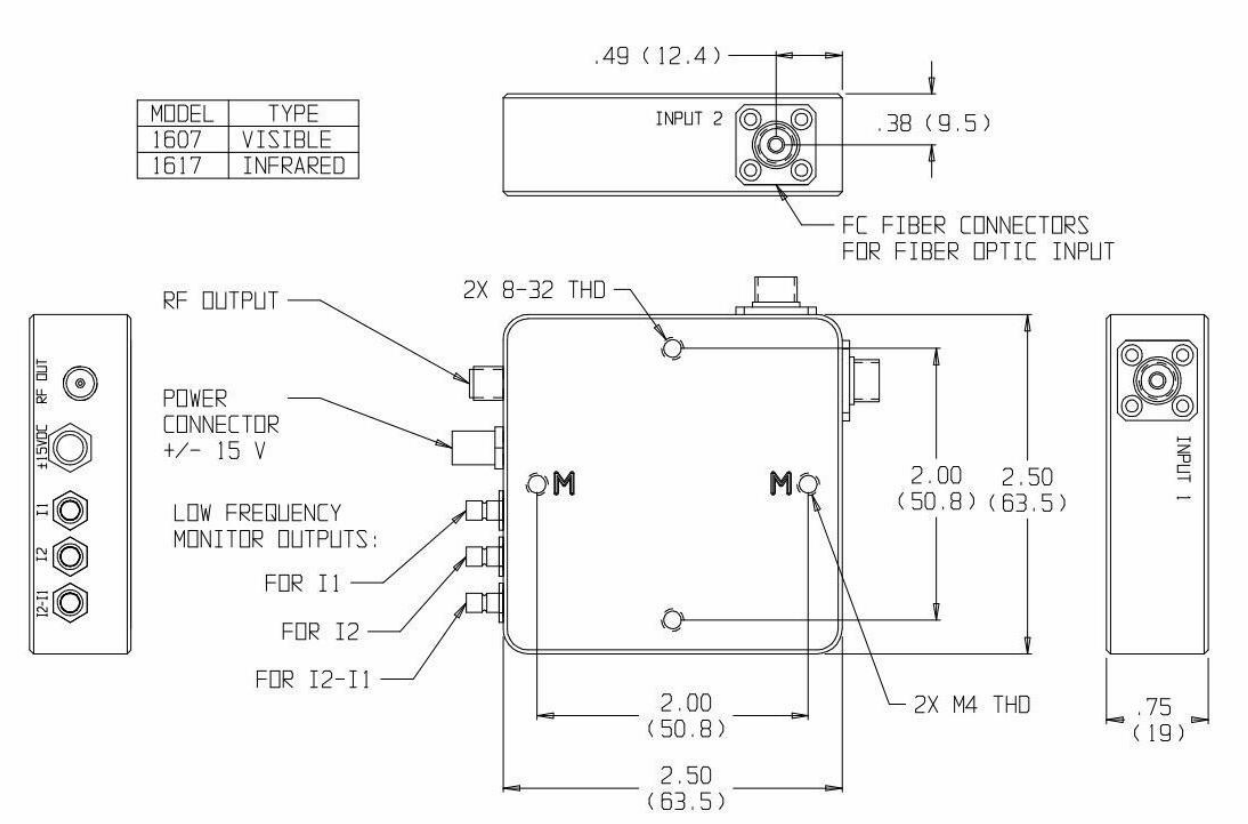
Mechanical Dimensions (mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

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Electrical/Computer Connection

Ordering Information

	C	☐	☐	☐	☐☐	☐	☐	☐
Prefix	**Type**	**Wavelength**	**Configure**	**Bandwidth**	**Fiber Connector**	**Fiber Cover**	**Fiber Length**	**DC Power Supply**
BREV-	Special = 0	900-1650nm = 2	Analog = 1 Digital = 2	800MHz = 8 500MHz = 5 300MHz = 3 Special = 0	FC/APC = 11	0.9mm tube = 3 Special = 0	None = 1 1m = 2 Special = 0	Yes = 1 None = 2

[1]. Polarization extinction ratio only for PM fiber

Marked in red on special order that is only available in digital type

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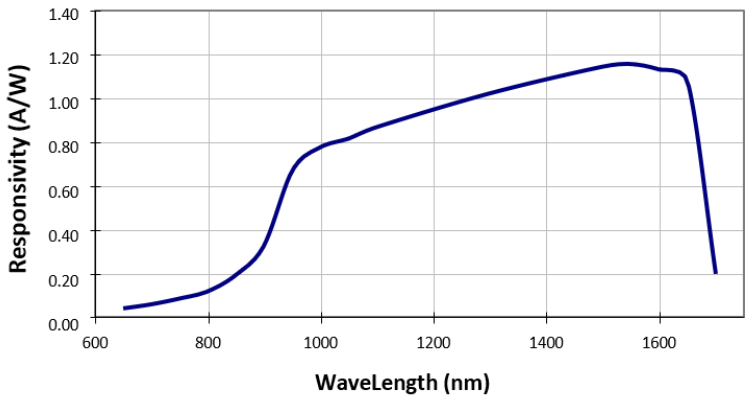
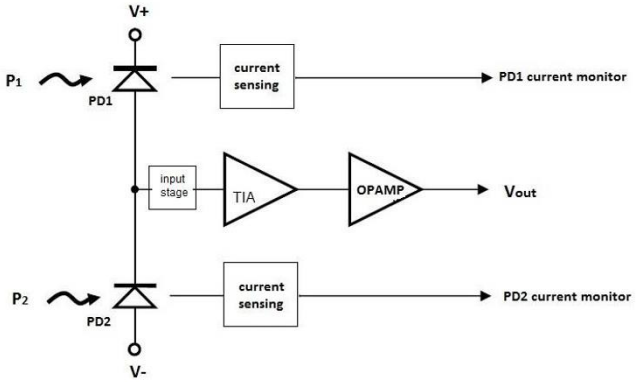
Typical InGaAs Pin Responsivity vs Wavelength



Electrical Block Diagram



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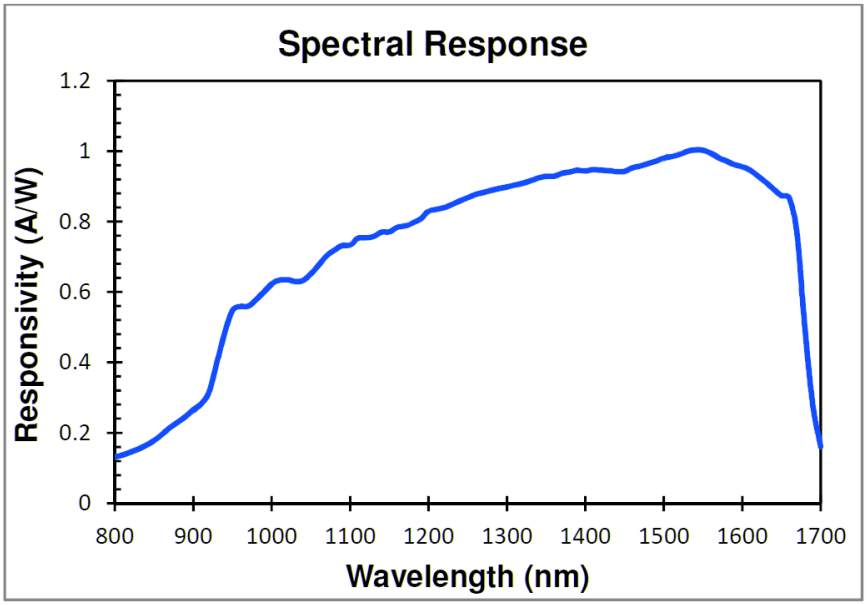
Spectral Response



Application Notes

Fiber Core Alignment
Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness
Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power
Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.

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