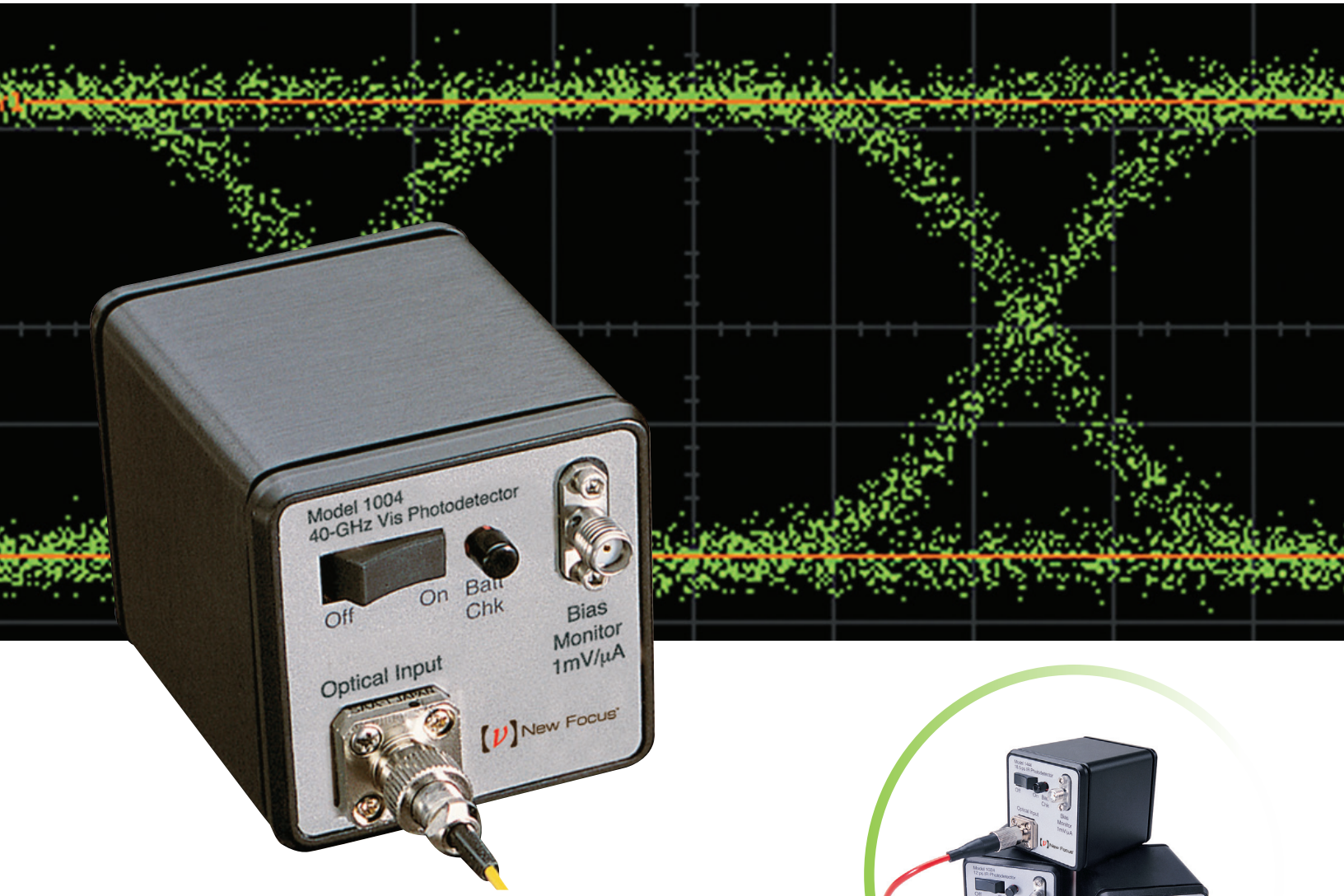
New Focus™ High Speed Photoreceivers



Newport®

About New Focus Products

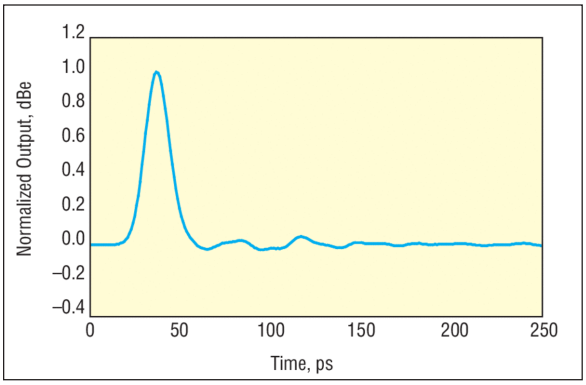
Newport's New Focus products are among our most innovative, high-performance, high-quality, and easy-to-use photonics tools and equipment. They include exceptional support and service for demanding applications around the world, including semiconductor equipment, biomedical, industrial, test & measurement and advanced research.

New Focus Photoreceivers

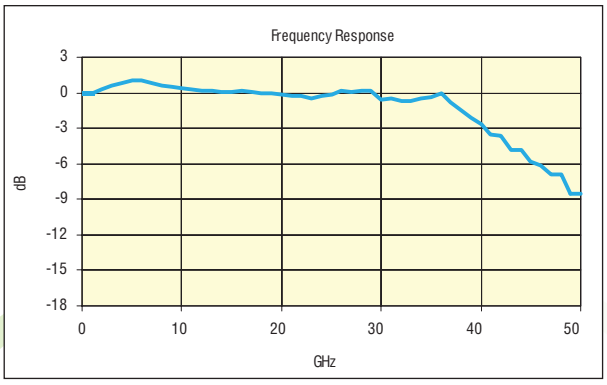
We know that high speed photodetection, as the interface from your photonics experiment to your electronic instruments, is critical to extracting and preserving your experimental results. Our high-speed photoreceivers find a wide variety of uses in the test and measurement of fast optical signals. We strive to make photodetection simple (plug & play) while delivering the lowest noise and cleanest response possible. We've been doing this for 25+ years, and here are some of the key reasons why scientists and engineers trust our photoreceivers:

Innovative and Exceptional Performance

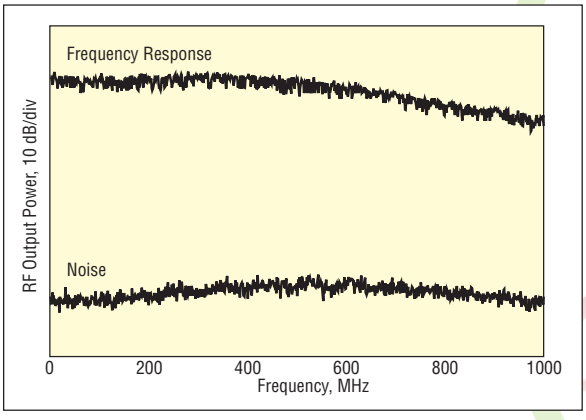
We continually invent new detection solutions for your applications. And we optimize all of our photodetectors and photoreceivers for low noise, clean response, and high speed so that you get the results you need.



Model 1444 Impulse Response



Model 1474-A Frequency Response



Model 1607 Typical Frequency Response and Noise Spectrum

Broadest Selection

With a wide variety of standard, custom, and OEM versions, we have the broadest selection of plug-&-play photoreceivers and photodetectors available anywhere. Spanning the UV to IR with beam-positioning, balanced, ultralow-light-level, large-area, high-speed and general-purpose versions in free-space and fiber-coupled configurations, Newport is the place to find the right photoreceiver and photodetector for your needs.

Plug & Play

Just flip a switch and see your results—even with our ultrahigh-speed devices. With built-in amplifiers, driver electronics, adjustable gain and filter settings, and LabVIEW™ compatibility, we simplify the chores associated with the electronic portion of your photonics experiment. So as an optical engineer, you won't also have to become a good microwave engineer to achieve the results you want.

Selecting a High Speed Photoreceiver

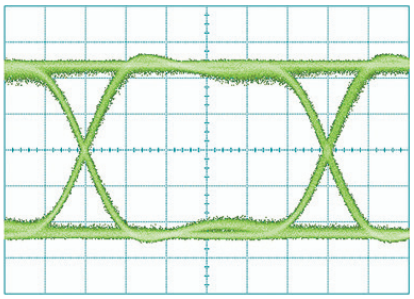
Browse all photoreceivers to review our standard models, or select a specific product series to learn more about our products and capabilities. Our selection includes low-noise photodetection up to 45 GHz, high gain, low noise photoreceivers, both free space and fiber coupled, and AC or DC coupled. Do not see what you need? Ask an application engineer to learn more about our capabilities.
www.newport.com/c/photoreceivers

Applications

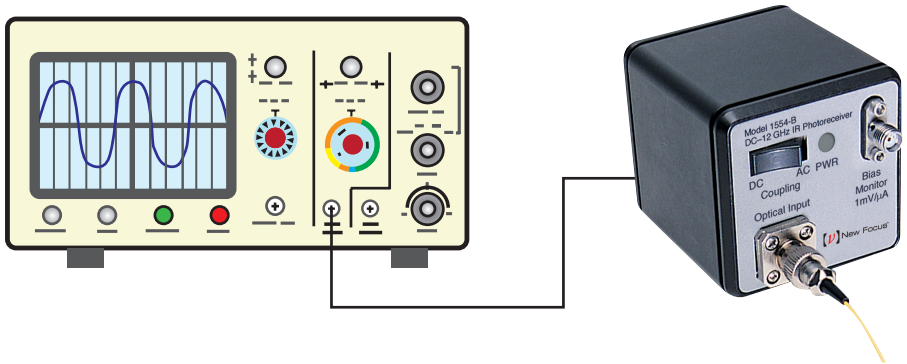
High Speed Photodetectors and Photoreceivers

- Our high speed products serve as the front-end optical-to-electrical (O/E) converters for:
  - Oscilloscopes
  - Network Analyzers
  - Spectrum Analyzers

- Key Telecom/Datacom Characterization and Test & Measurement Applications:
  - Frequency response of devices (lasers, modulators or transmitters)
  - Highly accurate eye diagrams and bit-error-rate tests (BERT)
  - Relative Intensity Noise (RIN) Measurements
  - Dispersion/pulse characterization
  - Modulation depth measurement



Example Eye Diagram



Our high speed photoreceivers serve as the front-end optical-to-electrical (o/e) converters for many electrical instruments.

Photoreceiver Selection Guide

Model #	Product Name	Wavelength Range (nm)	3-dB Bandwidth	Peak Conversion Gain (V/W)	Amplified?
General Purpose Detection					
2001	200-kHz Adjustable Photoreceivers	300-1050	200 kHz	$9.4x10^6$	Yes
2011	200-kHz Adjustable Photoreceivers	900-1700	200 kHz	$18.8x10^6$	Yes
2033	Large-Area Photoreceivers	800-1750	200 kHz	$1x10^6$	Yes
2034	2-µm Photoreceivers	800-2200	700 kHz	$2.2x10^6$	Yes
2032	Large-Area Photoreceivers	190-1100	900 kHz	$1x10^6$	Yes
2031	Large-Area Photoreceivers	400-1070	1 MHz	$1.2x10^6$	Yes
2051	10-MHz Adjustable Photoreceivers	300-1050	10 MHz	$9.2x10^6$	Yes
2053	10-MHz Adjustable Photoreceivers	900-1700	10 MHz	$18.4x10^6$	Yes
1801	125-MHz Photoreceivers	320-1000	125 MHz	$4x10^4$	Yes
1811	125-MHz Photoreceivers	900-1700	125 MHz	$4x10^4$	Yes
1621	Nanosecond Photodetectors	350-1000	400 MHz	28	No
1623	Nanosecond Photodetectors	800-1700	400 MHz	50	No
1601	1-GHz Photoreceivers	320-1000	1 GHz	350	Yes
1611	1-GHz Photoreceivers	900-1700	1 GHz	700	Yes

Series 20X1 - 200-KHz Adjustable Photoreceivers

Series 203X - Large-Area Photoreceivers

Series 205X - 10-MHz Adjustable Photoreceivers

Series 18X1 - 125-MHz Photoreceivers

Series 162X - Nanosecond Photodetectors

Series 16X1 - 1-GHz Photoreceivers

Model #	Product Name	Wavelength Range (nm)	3-dB Bandwidth	Peak Conversion Gain (V/W)	Fiber Coupling Type	Amplified?
High-Speed Detection						
1592	4.5-GHz Photoreceivers	950-1630	4.5 GHz	1300	MM	Yes
1591	4.5-GHz Photoreceivers	450-870	4.5 GHz	600	MM	Yes
1580-A	12-GHz Photoreceivers	780-870	12 GHz	-550	MM	Yes
1544-A	12-GHz Photoreceivers	500-1630	12 GHz	-800	SM or MM	Yes
1580-B	12-GHz DC-Coupled Photoreceivers	780-870	12 GHz	-550	MM	Yes
1544-B	12-GHz DC-Coupled Photoreceivers	500-1630	12 GHz	-900	SM or MM	Yes
1480-S	15-GHz Photodetectors	400-870	15 GHz	10	MM	No
1444	18.5-ps Time-Domain Photodetectors	500-1630	20 GHz	15	SM or MM	No
1484-A	22-GHz Photoreceivers	630-865	22 GHz	-70	SM or MM	Yes
1481-S	25-GHz Photodetectors	400-870	25 GHz	10	SM or MM	No
1414	25-GHz Photodetectors	500-1630	25 GHz	15	SM or MM	No
1024	12-ps Time-Domain Photodetectors	500-1630	26 GHz	10	SM	No
1474-A	38-GHz Photoreceivers	630-1620	38 GHz	-65	SM	Yes
1004	40-GHz Photodetectors	400-870	40 GHz	6.6	SM	No
1014	45-GHz Photodetectors	500-1630	45 GHz	10	SM	No

* Please ask about DC-Coupled options for most models.

Series 159X - 4.5GHz Photoreceivers

Series 1544 - 12-GHz Photoreceivers

Model 1444 - 18.5-ps Time-Domain Photodetectors

Model 1024 - 12-ps Time-Domain Photodetectors

Model 1474-A - 38-GHz Photoreceivers

Series 1414 & 1481 - 25-GHz Photodetectors

Series 10X4 - 40 & 45-GHz Photodetectors

Model #	Product Name	Wavelength Range (nm)	3-dB Bandwidth	Peak Conversion Gain (V/W)	Amplified?
Balanced Detection					
2007	125-kHz Nirvana Auto-Balanced Photoreceivers	400-1070	125 kHz	$5.2x10^5$	Yes
2017	125-kHz Nirvana Auto-Balanced Photoreceivers	800-1700	125 kHz	$1x10^6$	Yes
2307	Large-Area Balanced Photoreceivers	400-1070	1 MHz	$2x10^6$	Yes
2317	Large-Area Balanced Photoreceivers	800-1700	150 kHz	$2x10^6$	Yes
2107	10-MHz Adjustable Gain & BandwidthBalanced Photoreceivers	300-1070	10 MHz	$9.2x10^6$	Yes
2117	10-MHz Adjustable Gain & BandwidthBalanced Photoreceivers	800-1700	10 MHz	$18.4x10^6$	Yes
1807	80-MHz Balanced Photoreceivers	320-1000	80 MHz	$2x10^4$	Yes
1817	80-MHz Balanced Photoreceivers	900-1700	80 MHz	$4x10^4$	Yes
1607	650-MHz Balanced Photoreceivers	320-1000	650 MHz	350	Yes
1617	800-MHz Balanced Photoreceivers	900-1700	800 MHz	700	Yes
1837	400-MHz Nirvana Auto-Balanced Photoreceivers	900-1650	400 MHz	$>4x10^4$	Yes

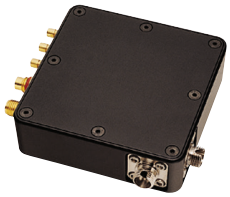
Balanced Photoreceivers consist of two well-matched optical inputs so that difference-mode signals are amplified and common-mode signals are canceled, and help extract a small signal from a noisy background. They are useful in applications such as absorption spectroscopy and heterodyne detection.

Series 20X7 - 125-kHz Nirvana Auto-Balanced Photoreceivers

Series 23X7 - Large Area Balanced Photoreceivers

Series 21X7 - 10-MHz Adjustable Gain & Bandwidth Balanced Photoreceivers

Series 18X7 - 80-MHz Balanced Photoreceivers



Series 16X7 - 650 & 800-MHz Balanced Photoreceivers

Model 1837 - 400-MHz Nirvana Auto-Balanced Photoreceivers

Ultralow-Light-Level Detection					
1647	Avalanche Photodiode (APD) Photoreceivers	800-1650	1.1 GHz	$2.8x10^4$	Yes
2151	Femtowatt Photoreceivers	320-1050	750 Hz	$1x10^{11}$	Yes
2153	Femtowatt Photoreceivers	800-1700	750 Hz	$2x10^{11}$	Yes

Model 1647 - Avalanche Photodiode Photoreceiver

Series 215X - Femtowatt Photoreceivers

Model #	Product Name	Wavelength Range (nm)	3-dB Bandwidth	Peak Conversion Gain (V/W)	Amplified?
Beam-Position Detection					
2901	Quadrant-Cell Photoreceivers	190-1050	100 kHz	$1x10^6$	Yes
2903	Quadrant-Cell Photoreceivers	900-1700	100 kHz	$2x10^6$	Yes

Model 2921 - VIS Quad Cell

Model 2903 - IR Quad Cell

High-Dynamic-Range Power Sensors					
2101	High-Dynamic-Range Power Sensors	320-1060	25 kHz	N/A	N/A
2103	High-Dynamic-Range Power Sensors	950-1630	25 kHz	N/A	N/A

Model 2101 - VIS High-Dynamic-Range Power Sensor

Model 2103 - IR High-Dynamic-Range Power Sensor

Accessories

Model 0901 - Photoreceiver Power Supply

Series 092X - Power Cables

Series 142X - 20-GHz Traveling-Wave Amplifiers

Series 122X - RF Conectors & Cable Accessories

* Model 0901 Power Supply is recommended for all amplified Photoreceivers.

For More Information, visit us at:

Newport®

www.newport.com

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