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25-GHz photodetectors



[Responsivity](#)
[Frequency Response](#)
[Model 141X Impulse](#)
[Response](#)
[Model 143X Impulse](#)
[Response](#)



[Model 14XX-15XX](#)
[Model 14XX](#)



[Model 14XX](#)



[Model 1411](#)

[Model 1414](#)

[Model 1417_PT1](#)

[Model 1417_PT2](#)

[Model 1431](#)

[Model 1434](#)

[Model 1437_PT1](#)

[Model 1437_PT2](#)



[Model 1411M](#)

[Model 1414M](#)

[Model 1417M_PT1](#)

[Model 1417M_PT2](#)

[Model 1431M](#)

[Model 1434M](#)

[Model 1437M_PT1](#)

[Model 1437M_PT2](#)



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See [Model 148X](#) for 850 nm optimized versions.

New Focus Model 14XX photodetectors were designed to offer the ideal combination of high-speed performance (up to 25 GHz) and optical-input flexibility. These high-speed photodetectors show flat response in both amplitude and phase up to 25 GHz and are optimized for frequency-domain applications. For time-domain applications, we recommend our 144X and 145X photodetectors.

An internal microwave housing suppresses noise, pick-up, and other artifacts. Moreover, to limit damage due to excessive voltage or mishandling, these photodiodes have damage-resistant bias circuits and are powered by an easily replaceable internal 9-V battery. All these detectors come equipped with a DC-bias monitor that has a transimpedance gain of 1 mV/ μ A and a 50-kHz bandwidth. By combining these detectors with our Model 1422 traveling-wave amplifier, you can detect microwatt optical signals with 20-GHz bandwidth and minimal distortion.

Choose from ST and FC single-mode or multimode fiber-optic connectors, or a free-space option. With optical-fiber input, the photodiode module can be connected directly to an electronic instrument, eliminating the need for an expensive high-frequency microwave cable. Multimode versions have fiber-optic input with 50- μ m core fiber and an internal GRIN lens focusing onto the detector. (Just specify "-50" after the model number for the multimode option.) In these versions, chromatic dispersion of the GRIN lens decreases the usable wavelength range.

25-GHz Near-IR Photodetectors 141X

The high-sensitivity 141X Series near-IR photodetectors use 25- μ m-diameter back-illuminated InGaAs Schottky photodiodes with peak responsivities of 0.6 A/W at 1300 nm. The active layer is twice as thick as in our ultrahigh-speed 101X module, producing a 50% greater responsivity between 950 nm and 1650

[Application Note 1: Insights
Into High-Speed Detectors
and High-Frequency
Techniques](#)

[Demand for High-Speed
Detectors Drives Research](#)

[Photodiode-Based Detector
Operates at 60 GHz](#)



[aspheric lenses](#)
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amplifiers](#)
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stages](#)
[pint-sized Triple-Divide
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[fixed pedestal system](#)



25-GHz Near-IR Photodetectors

Model#	1411	1414	1417
Wavelength Range	950-1650 nm	950-1650 nm	950-1650 nm
Wavelength Range (multimode versions)	950-1650 nm	950-1650 nm	950-1650 nm
3-dB Bandwidth	25 GHz	25 GHz	25 GHz
Rise Time	17 ps	17 ps	17 ps
Maximum Conversion Gain	15 V/W	15 V/W	15 V/W
Typical Maximum Responsivity	0.6 A/W	0.6 A/W	0.6 A/W
Output Impedance	50 W	50 W	50 W
Minimum NEP	30 pW/	30 pW/	30 pW/
cw Saturation Power	2 mW	2 mW	2 mW
Maximum Pulse Power	100 mW	100 mW	100 mW
Detector Material/Type	InGaAs/Schottky	InGaAs/Schottky	InGaAs/Schottky
Detector Diameter	25 µm	25 µm	25 µm
Power Requirements	internal 9-V battery	internal 9-V battery	internal 9-V battery
Optical Input	ST	FC	FS
Electrical Output	Wiltron K	Wiltron K	Wiltron K
Price (Domestic)	US\$4,300.00	US\$4,300.00	US\$3,800.00




nm. The conversion gain with a 50-W load is 15 V/W.

25-GHz Broadband Photodetectors 143X

The broadband 143X Series photodetectors use 25-µm-diameter photodiodes with greater than 0.1-A/W responsivity from 400 to 1650 nm. The front-illuminated semi-transparent InGaAs Schottky diodes are anti-reflection-coated for peak transmission near 530 nm. This design eliminates the short wavelength cutoff found in InGaAs PIN detectors. For multimode versions, the wavelength range is 550-1330 nm. NOTE: for 850 nm applications, see our new [Models 148X](#).

Price (International)	US\$4,730.00	US\$4,730.00	US\$4,180.00
50 Micron Multimode Version	add -50 to Model # and US\$250.00 (\$275.00 International)	add -50 to Model # and US\$250.00 (\$275.00 International)	add -50 to Model # and US\$250.00 (\$275.00 International)
Metric Version	add M to Model #	add M to Model #	add M to Model #

25-GHz Broadband Photodetectors

Model#	1431	1434	1437
Wavelength Range	400-1650 nm	400-1650 nm	400-1650 nm
Wavelength Range (multimode versions)	550-1330 nm	550-1330 nm	550-1330 nm
3-dB Bandwidth	25 GHz	25 GHz	25 GHz
Rise Time	17 ps	17 ps	17 ps
Maximum Conversion Gain	5 V/W	5 V/W	5 V/W
Typical Maximum Responsivity	0.2 A/W	0.2 A/W	0.2 A/W
Output Impedance	50 W	50 W	50 W
Minimum NEP	90 pW/ 	90 pW/ 	90 pW/ 
cw Saturation Power	10 mW	10 mW	10 mW
Maximum Pulse Power	200 mW	200 mW	200 mW
Detector Material/Type	InGaAs/Schottky	InGaAs/Schottky	InGaAs/Schottky
Detector Diameter	25 µm	25 µm	25 µm
Power Requirements	internal 9-V battery	internal 9-V battery	internal 9-V battery
Optical Input	ST	FC	FS
Electrical Output	Wiltron K	Wiltron K	Wiltron K
Price (Domestic)	US\$4,300.00	US\$4,300.00	US\$3,600.00
Price (International)	US\$4,730.00	US\$4,730.00	US\$3,960.00
50 Micron Multimode Version	add -50 to Model # and US\$250.00 (\$275.00 International)	add -50 to Model # and US\$250.00 (\$275.00 International)	add -50 to Model # and US\$250.00 (\$275.00 International)
Metric Version	add M to Model #	add M to Model #	add M to Model #

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