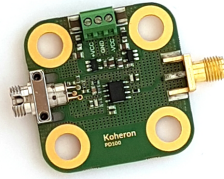


# PD100 - Low noise photodetector

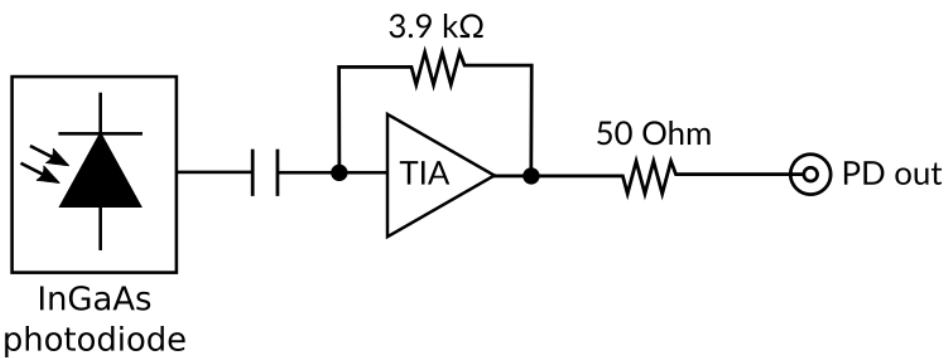


Koheron PD100 photodetectors are amplified InGaAs photodetectors with a bandwidth in excess of 100 MHz. Designed for shot noise limited operation with hundreds of  $\mu\text{W}$  of incident power, PD100 photodetectors make perfect candidates for coherent sensing.

## Specifications

	<b>PD100-AC</b>	<b>PD100-DC</b>
Wavelength range	900 - 1700 nm	900 - 1700 nm
Small signal bandwidth	1.6 kHz - 105 MHz at 3 dB	0 - 110 MHz at 3 dB
Coupling	AC	DC
Transimpedance gain	3.9 kV / A	3.9 kV / A
Power supply (positive)	6 - 15 V <sub>DC</sub>	6 - 15 V <sub>DC</sub>
Power supply (negative)	-15 to -6 V <sub>DC</sub>	-15 to -6 V <sub>DC</sub>
Optical input power	0 - 2.5 mW	0 - 0.6 mW
Noise Equivalent Power	9 pW / Hz <sup>1/2</sup> (at 10 MHz)	7 pW / Hz <sup>1/2</sup> (at 10 MHz)
Offset voltage	+/- 2 mV	+/- 2 mV
Output impedance	50 $\Omega$	50 $\Omega$
Dimensions	38 mm x 57 mm x 12 mm	38 mm x 57 mm x 12 mm
Photodiode connector	FC	FC
Photodiode active diameter	300 $\mu\text{m}$	300 $\mu\text{m}$
Outputs	SMA	SMA
Mechanical details	Compatible with M6 metric breadboards (25 mm spacing)	Compatible with M6 metric breadboards (25 mm spacing)

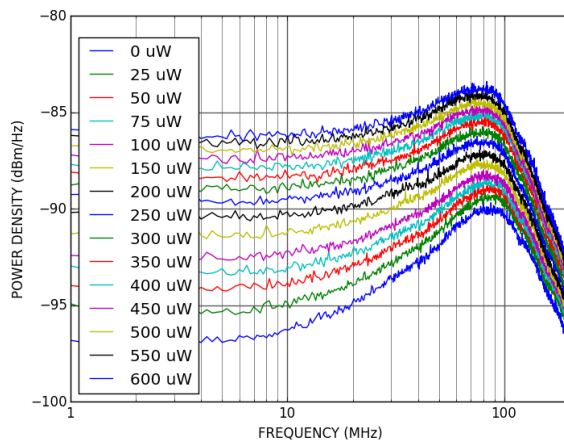
## Functional diagram



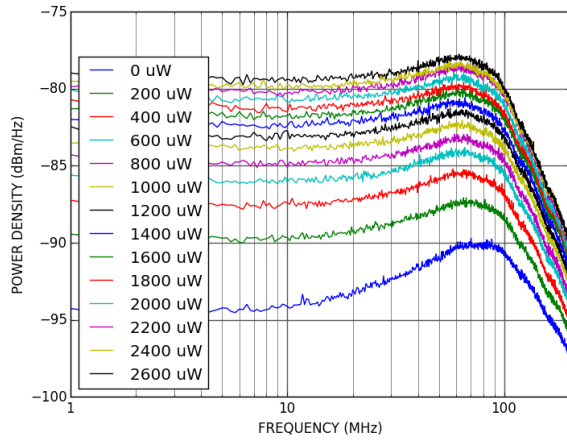
## Characterization

### Output power spectral density

The power spectral density of the PD100 output is given for different incident optical powers. The spectrum analyzer is a Tektronix RSA306 in series with a Mini-Circuits ZFL-500LN+ 28 dB low-noise amplifier. Optical source is a [Koheron LD100 laser](#) at 1550 nm .

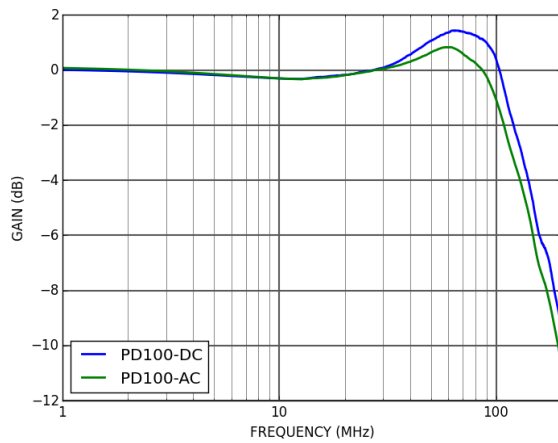


DC-coupled PD100 output power density



AC-coupled PD100 output power density

## Frequency response



## Noise equivalent power

