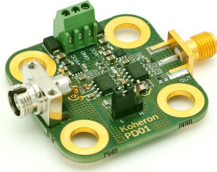


# High sensitivity photodetector



Koheron PD01 is an InGaAs transimpedance amplified photodetector with a Noise Equivalent Power (NEP) below  $1 \text{ pW} / \sqrt{\text{Hz}}$  between 100 Hz and 100 kHz. It accepts up to  $50 \text{ }\mu\text{W}$  of optical power and has a 3 dB bandwidth of 400 kHz. The AC-coupled output and the adjustable gain enable easy interfacing with analog-to-digital converters.

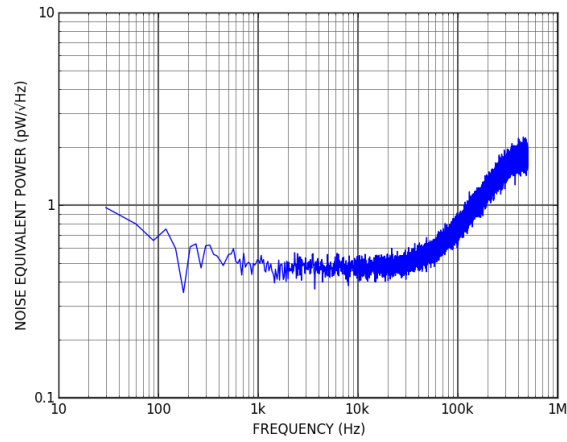
## Specifications

**PD01-AC-400**

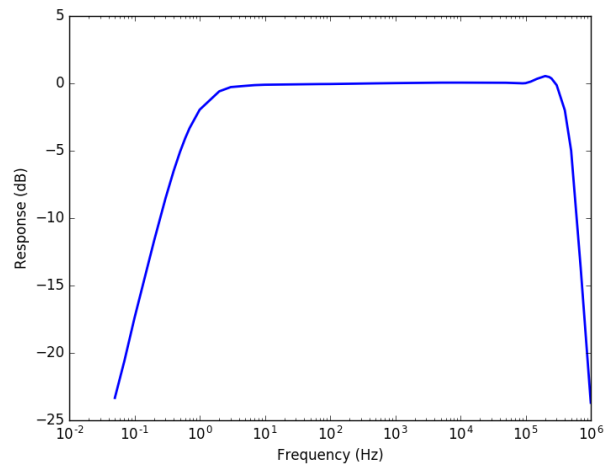
Photodetection	
Photodiode	InGaAs PIN photodiode
Photodiode active diameter	300 $\mu\text{m}$
Wavelength range	900 - 1700 nm
Peak wavelength	1550 nm
Optical input power	0 - 50 $\mu\text{W}$
Photodiode peak responsivity	0.90 A / W
Small signal bandwidth	1 Hz - 400 kHz at 3 dB
Coupling	AC
Impulse response	1 $\mu\text{s}$ (FWHM)
Noise Equivalent Power	500 fW / $\sqrt{\text{Hz}}$ (at 10 kHz)
Transimpedance gain	240 kV / A (Hi-Z), 120 kV / A (50 $\Omega$ )
High gain setting	2400 kV / A (Hi-Z), 1200 kV / A (50 $\Omega$ )
Output impedance	50 $\Omega$
Output noise	300 $\mu\text{V}_{\text{RMS}}$ (1 Hz - 400 kHz)
Output current max	20 mA
Output dark offset	250 $\mu\text{V}$
Output voltage	28 $\text{V}_{\text{pp}}$ (Hi-Z), 2 $\text{V}_{\text{pp}}$ (50 $\Omega$ )
Output slew rate	20 V / $\mu\text{s}$ (Hi-Z), 10 V / $\mu\text{s}$ (50 $\Omega$ )
Other	
Positive supply voltage	+15 V
Negative supply voltage	-15 V
Outside Dimensions	38 mm x 54 mm x 14 mm
Weight	15 g
Output	SMA
Photodiode connector	FC
Mechanical details	Compatible with M6 metric breadboards (25 mm spacing)
Operating temperature	0 $^{\circ}\text{C}$ - 50 $^{\circ}\text{C}$

## Characterization

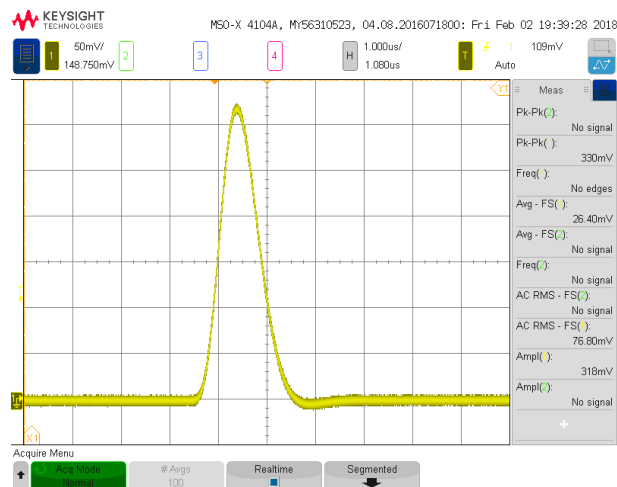
## Noise performance



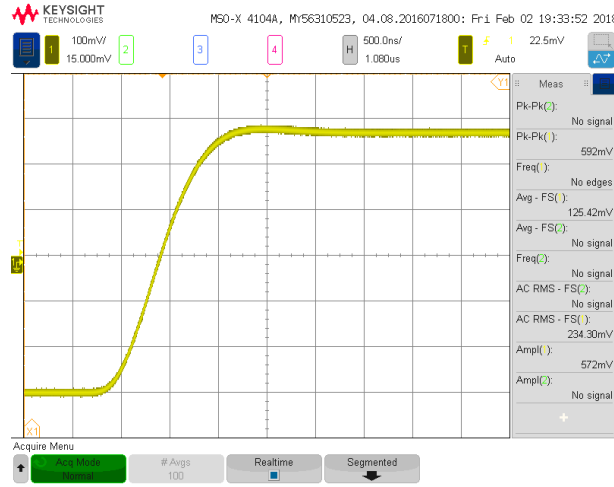
## Frequency response



## Impulse response



### Step response



## Ordering codes

- PD01-AC-400: AC
- PD01-DC-400: DC