



Koheron PD200T is an InGaAs photodetector with a dual TTL-analog output. The analog output has a gain of 500 V/A and a 200 MHz bandwidth. The TTL output has 2.5 ns propagation delay, 1.3 ns rise time and 0.7 ns fall time. Trigger threshold can be adjusted with a precision trimmer.

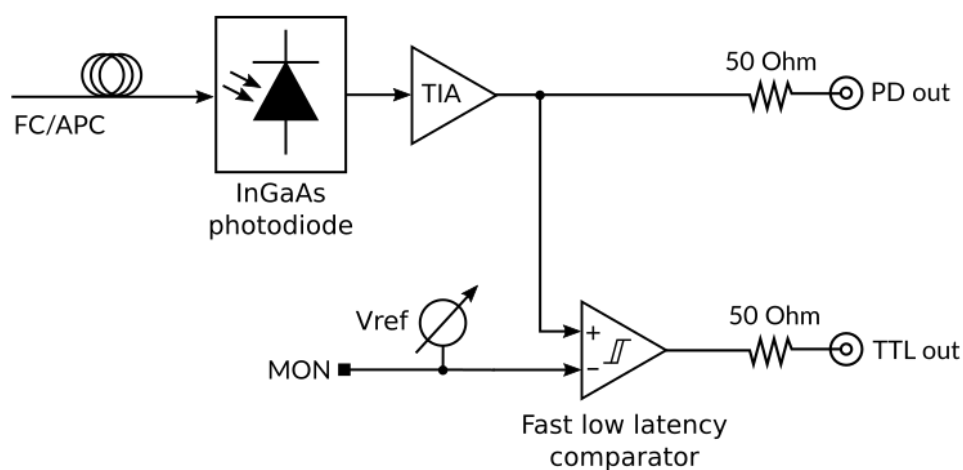
## Specifications

### PD200T

Detector	
Wavelength range	900 nm to 1700 nm
Optical input power	0 mW to 2 mW
Photodiode connector	FC
Photodiode peak responsivity	0.9 A/W
Noise Equivalent Power	30 pW/ $\sqrt{\text{Hz}}$ (at 100 kHz)
Analog output	
3 dB bandwidth	200 MHz
Impulse response	2 ns (FWHM)
Transimpedance gain high impedance	500 V/A
Transimpedance gain 50 $\Omega$	250 V/A
Analog output impedance	50 $\Omega$
Analog output dark offset	10 mV
Analog output current max	80 mA
Analog output voltage high impedance	3 V <sub>pp</sub>
Analog output voltage 50 $\Omega$	1.5 V <sub>pp</sub>
Analog output slew rate high impedance	600 V/ $\mu\text{s}$
Analog output slew rate 50 $\Omega$	400 V/ $\mu\text{s}$
TTL output	

TTL rise / fall time	1.5 ns
Logic low maximum output voltage high impedance	0.1 V
Logic low maximum output voltage 50 $\Omega$	0.05 V
Logic high minimum output voltage high impedance	2.6 V
Logic high minimum output voltage 50 $\Omega$	1.3 V
TTL output current max	20 mA
TTL output impedance	50 $\Omega$
Other	
Supply voltage	3.7 V to 12 V
Output connectors	SMA
Outside dimensions	53 mm x 48 mm x 14 mm
Weight	20 g
Mechanical details	Compatible with M6 metric breadboards (25 mm spacing)
Operating temperature	0 °C to 50 °C

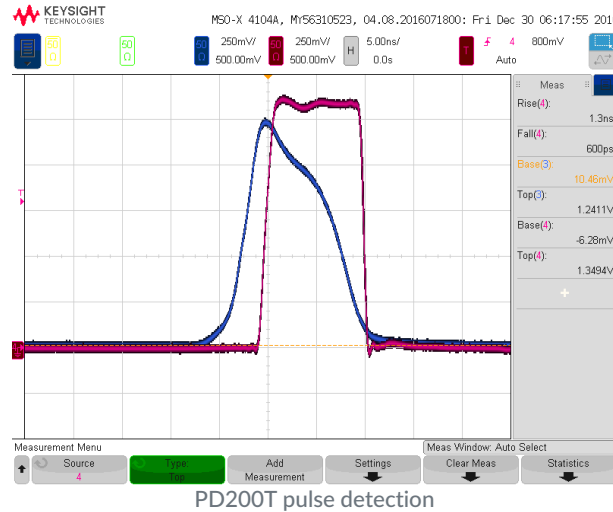
## Functional diagram



## Characterization

## Pulse detection

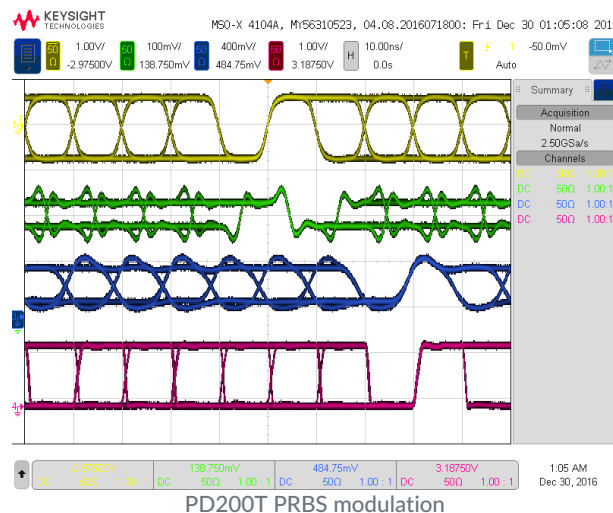
We operated the [Koheron LD100 laser](#) in pulsed-mode (width of 10 ns, pulse period of 100 ns, 10 V<sub>pp</sub> modulation). The laser average output power was 850 μW. Half of this power was used to feed the PD200T. Trigger threshold was adjusted to 1.0 V. The figure below shows the **analog output** (in blue) and the **TTL output** (in purple) observed on an oscilloscope:



Propagation delay between the analog and the TTL output is about 2.5 ns. TTL rise and fall times (10 to 90 %) are 1.3 ns and 0.7 ns, respectively.

## PRBS modulation

We modulated the [Koheron LD100 laser](#) with a 100 Mbps pseudo random binary sequence (PRBS) shown in yellow in the figure below. The green curve represents the modulation detected by the 100 MHz photodetection of the LD100. The analog and TTL output of the PD200T are shown in blue and red, respectively.



The 25 ns delay between the **laser modulation** (in orange) and the **PD200T analog output** (in blue) corresponds to the 5 m fiber between the laser and the PD200T.

## Ordering codes

PRODUCT NUMBER	ATTRIBUTE
PD200T	None