

# PD-50-M



## 50 GHz Linear InGaAs PIN Photodetector, Module

The Optilab PD-50-M is a 50 GHz bandwidth PIN receiver module designed for RF over Fiber, antenna remoting, and broadband RF transmission applications using single mode optical fiber. The PD-50-M can accept input power of up to 4 mW, utilizing a high input power, low distortion PIN photodiode that provides optical to RF conversion out to the frequency range beyond 50 GHz. This compact, cost-effective receiver module can provide users with status monitoring through the use of an on-board processor that communicates to a host computer over an RS-232 I/O interface via a standard USB 2.0 port. When the PD-50-M RF over fiber receiver module is linked with the LT series of RF over fiber transmitter modules, the combination provides an excellent solution for ultra-wideband RF to fiber conversion applications, go to [optilab.com](http://optilab.com) for more details.

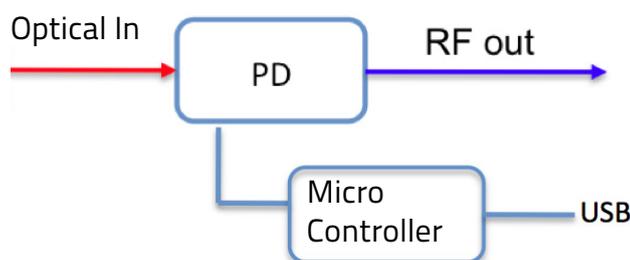
### Features

- Wide bandwidth DC to 50 GHz
- Highly Linear to 4 mW input power
- Operating Temperature from -10°C to +50°C
- Power and Remote Monitoring via [USB port](#)
- Flat frequency response, ±1 dB
- Spectral Range 1200 nm -1650 nm

### Applications

- Analog RF over Fiber
- Optically Amplified Systems
- RZ and NRZ up to 50 Gb/s
- LIDAR Measurements
- Coherent Lightwave Systems
- Front-End O/E Converter for Test Instruments
- Satcom microwave antenna signal distribution

### Functional Diagram



# 50 GHz Linear InGaAs PIN Photodetector, Module

## OPTIONS

PD-50-M

## TECHNICAL INFO

For technical info and support:

[sales@optilab.com](mailto:sales@optilab.com)

[www.optilab.com](http://www.optilab.com)

Optilab, LLC  
Phoenix, AZ, USA

## WEB ORDER

To order, please click below.



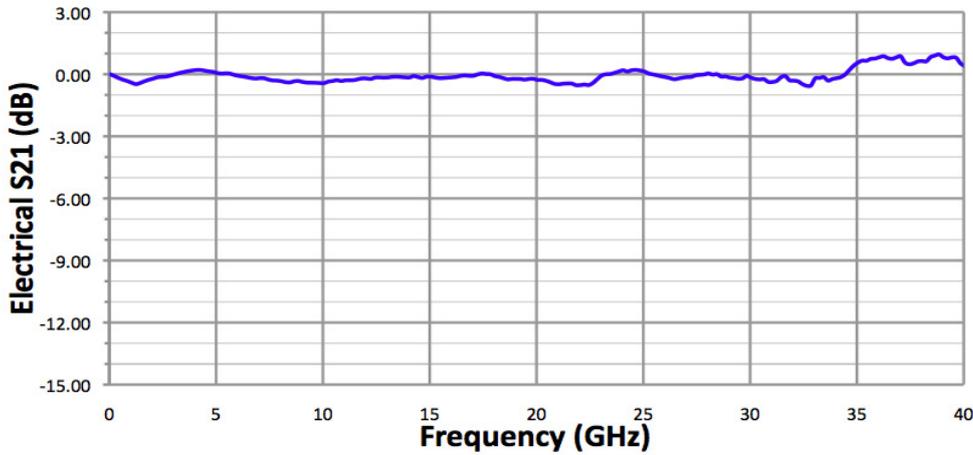
## Optilab Advantage

- Innovation
- Performance
- Quality
- Customization
- Warranty

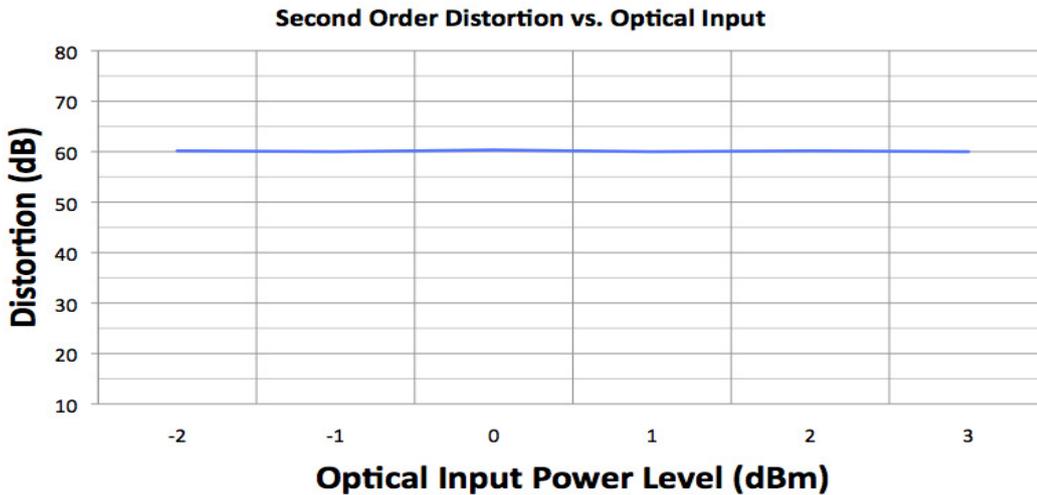
General Specifications	
Optimized Operating Wavelength	1200 nm to 1650 nm
Optical Input Level	4 mW max.
S21 3 dB Bandwidth	50 GHz typ.
S22 Characteristics	< -10 dB @ 30 GHz
Responsivity	0.50 A/W @ 1550 nm typ.
Dark Current @ 25° C, 5 V	10 nA typ., 100 nA max.
Optical Return Loss	-30.00 dB typ.
Optical PDL @ 1550 nm	0.2 dB max.
Optical Fiber	SMF-28
Bias Voltage	5 V typ.
Impedance	50 Ω
Coupling	DC-Coupled
Analog Applications	
Bandwidth	DC to 50 GHz
Ripple over any 1 GHz	±1.0 dB max.
Group Delay	±7.0 ps
2nd Harmonics Distortion	-70.0 dBc max.
3rd Harmonics Distortion	-75.0 dBc max.
Digital Applications	
Receiving Bandwidth	Up to 50 Gb/s
Data Format	RZ, NRZ
Link Performance with LTA-40	
SFDR	113 dB Hz <sup>2/3</sup>
Link Loss	-25 dB @ 6 dBm Optical Input
Mechanical Specifications	
Operating Temperature	-10 °C to +50 °C
Storage Temperature	-40 °C to +75 °C
Operating Humidity	85%
Power Supply Requirements	+5 V DC, 500 mA max.
Optical Connector	FC/APC, SC/APC Optional
RF Input Connector	V Connector Female, 50 Ω
Local Alarm	LED: Optional Input Power
Remote Alarms	RS-232 Interface (Standard) via <a href="#">USB</a>
Dimensions	82 mm x 60 mm x 26.5 mm
Accessories Included	110 V - 240 V AC <a href="#">USB</a> Adaptor & Cable
Housing	Precision Mach. Anodized Aluminum

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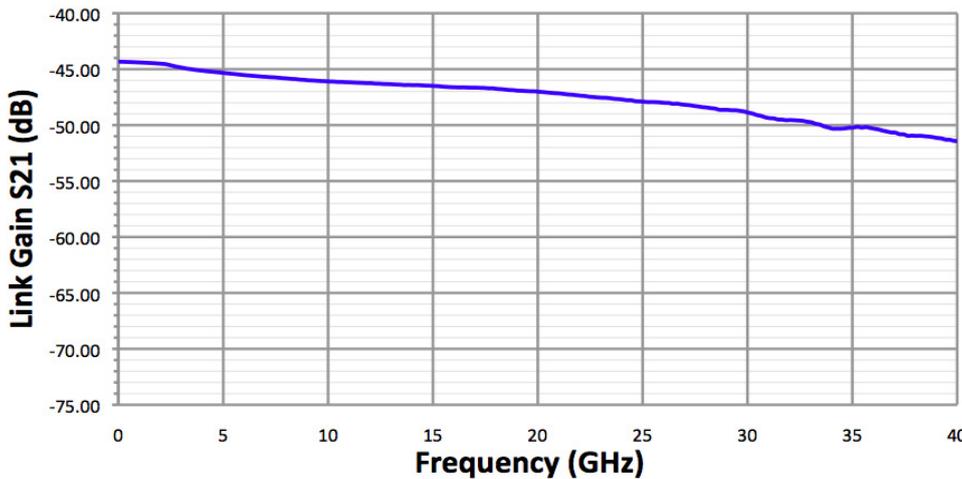
## S21 O/E Response<sup>1</sup>



## CSO, CTB Linearity Measurement<sup>2</sup>



## Link Gain with IM-1550-40-PM

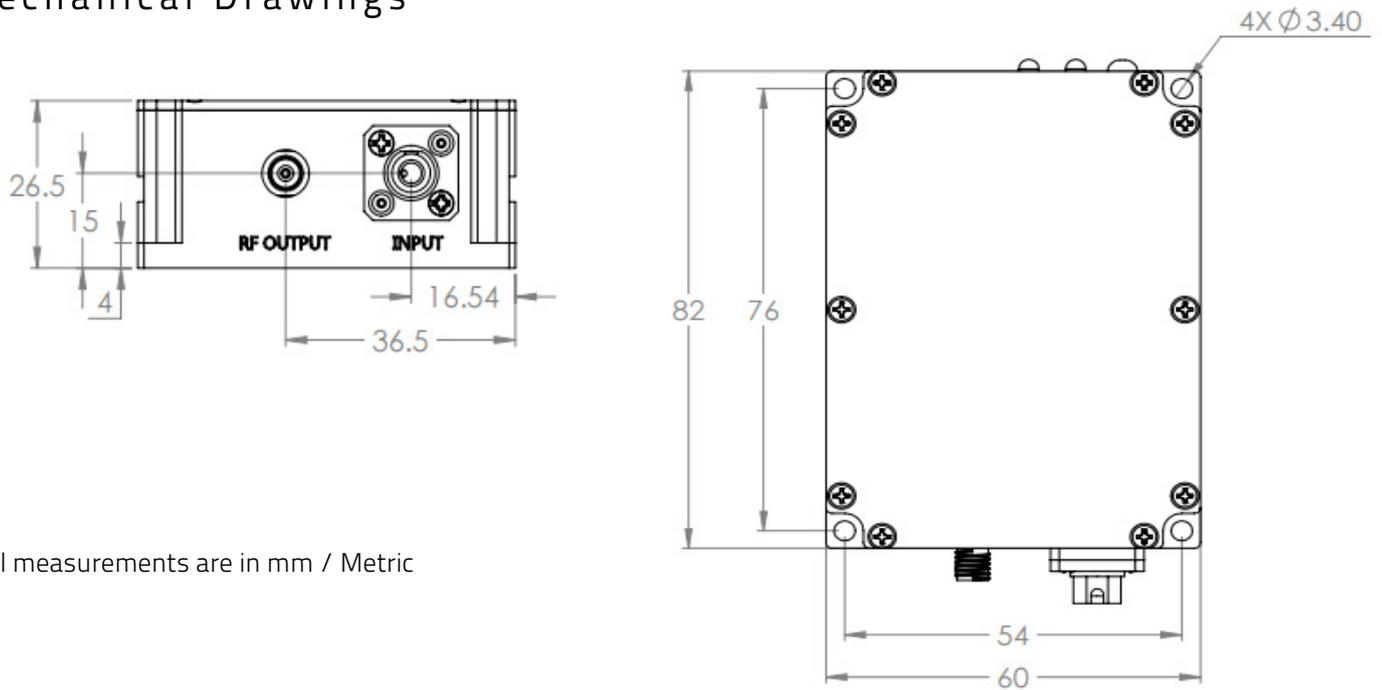


<sup>1</sup> Measured by Agilent 86030A Lightwave Component Analyzer

<sup>2</sup> 40 Channel Analog Channel Loading

# 50 GHz Photodiode, Module

## Mechanical Drawings



## PD-50-M Module Power and Remote Interface

The PD-50-M product series offers a turn-key modular solution with a USB 2.0 interface, which can be operated with the provided AC/DC adapter included with each PD-50-M unit or through a PC for optical power monitoring. Contact Optilab for more information.

