

# PD-40-M



DEVICE

## 40 GHz Linear InGaAs PIN Photodetector, Module

OVERVIEW

The Optilab PD-40-M is a 40 GHz bandwidth PIN receiver module designed for RF over Fiber, antenna remoting, and broadband RF transmission applications using single mode optical fiber. The PD-40-M can accept input power of up to 10 mW, utilizing a high input power, low distortion PIN photodiode that provides optical to RF conversion out to the frequency range beyond 40 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-40-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.

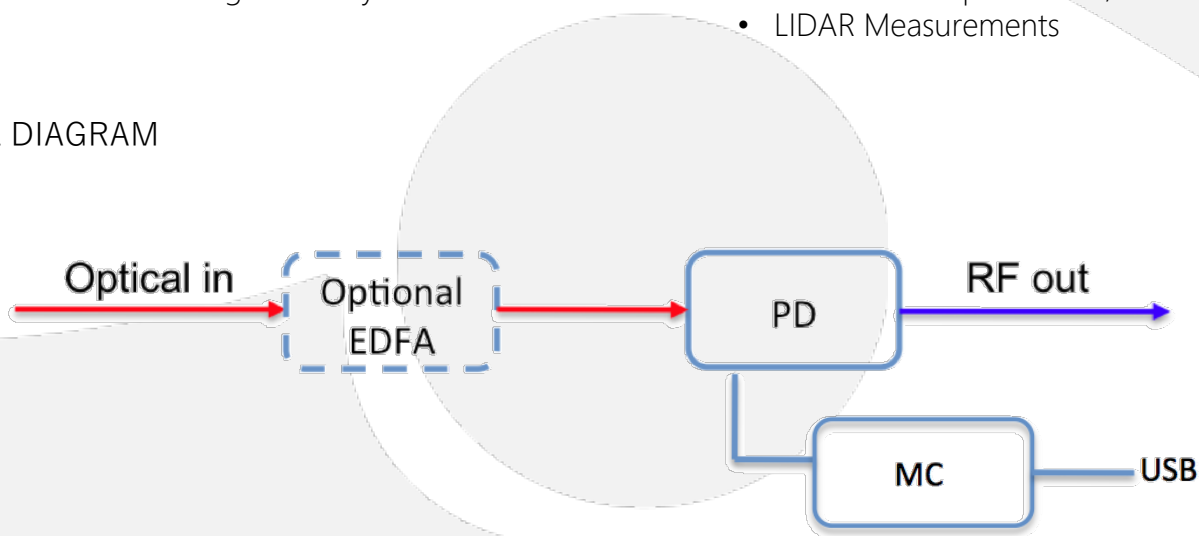
FEATURES

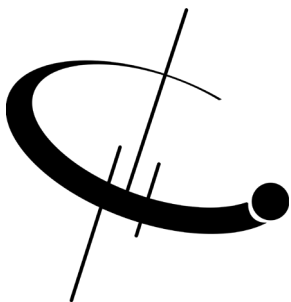
- Wide bandwidth 60 KHz to 40 GHz
- Highly Linear to 10 mW+ input power
- Operating Temp. from -10°C to +50°C
- Power and Remote Monitoring via USB port
- Flat frequency response, +/- 1 dB
- Useful Spectral Range 850nm – 1650nm
- 1 year warranty

USE IN

- Front-End O/E Converter for Test Instruments
- Satcom microwave antenna signal distribution
- Coherent Lightwave Systems
- Analog RF over Fiber
- Optically Amplified Systems
- RZ and NRZ up to 40 Gb/s
- LIDAR Measurements

FUNCTIONAL DIAGRAM





# PD-40-M

## SPECIFICATIONS

Optimized Operating Wavelength	1260 nm to 1610 nm
Useful Operating Wavelength	850 nm to 1650 nm
Optical Input Level	10 mW max.
S21 3 dB Bandwidth	31 GHz min., 33 GHz typ.
S22 Characteristics	< -10 dB @ 30 GHz
Responsivity	0.8 A/W @ 1550 nm typ., 0.35 A/W @ 850 nm typ.
Dark Current @ 25 °C, 5 V	10 nA typ., 100 nA max.
Optical Return Loss	-30 dB typ.
Optical PDL @ 1550 nm	0.05 dB min.
Optical Fiber	SMF-28
Bias Voltage	5 V typ.
Impedance	50 Ω
Coupling	AC-Coupled (DC Coupled optional)

## GENERAL

## ANALOG APPLICATIONS

Useful Bandwidth	60 kHz to 40 GHz (AC Coupled)
Ripple over any 1 GHz	± 1 dB max.
Group Delay	± 7 ps
2 <sup>nd</sup> Harmonics Distortion	-70 dBc max.
3 <sup>rd</sup> Harmonics Distortion	-75 dBc max.

## DIGITAL APPLICATIONS

Sensitivity @ 10 Gb/s	-19 dBm
Receiving Bandwidth	Up to 40 Gb/s
Data Format	RZ, NRZ

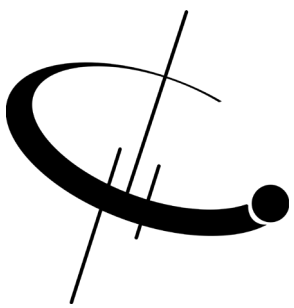
## LINK PERFORMANCE WITH LT-20

SFDR	113 dB Hz <sup>2/3</sup>
Link Loss	-25 dB @ 10 dBm optical input

## MECHANICAL

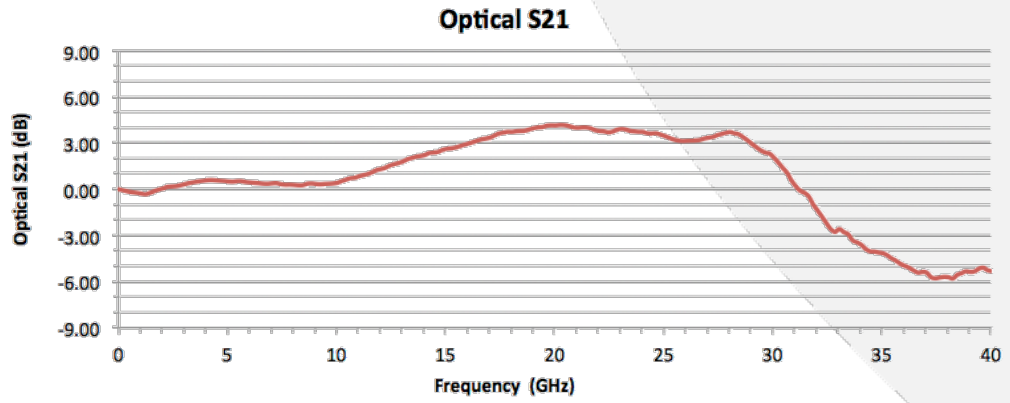
Operating Temperature	-10 °C to +50 °C
Storage Temperature	-40 °C to +75 °C
Operating Humidity	85%
Power Supply Requirements	+5 V DC, 500 mA max.
Optical Connector	FC/APC, SC/APC optional
RF Input Connector	K Connector Female, 50 Ω
Local Alarm	LED: Optional Input Power
Remote Alarms	RS-232 Interface (standard) via USB
Dimensions	82 mm x 60 mm x 26.5 mm
Accessories Included	110 V – 240 V AC USB Adaptor & Cable
Housing	Precision Mach. Anodized Aluminum



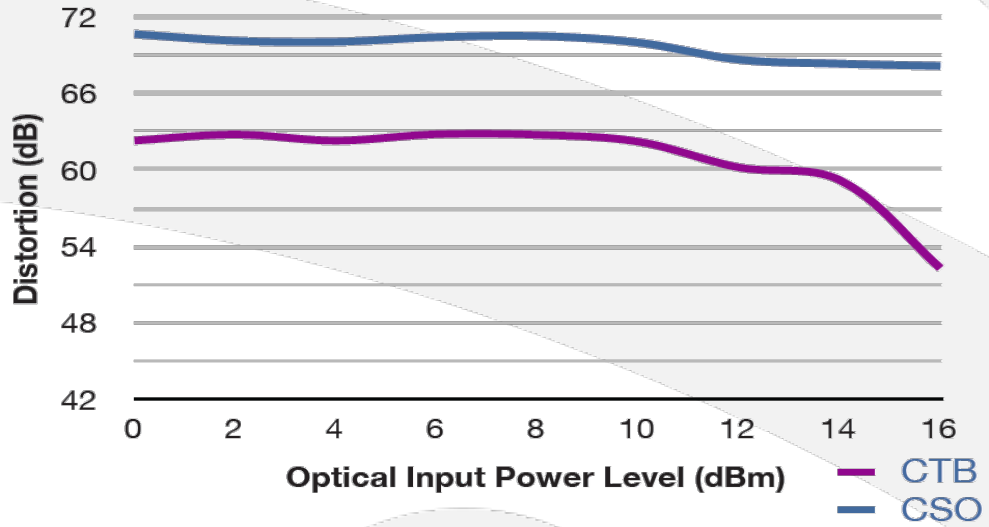


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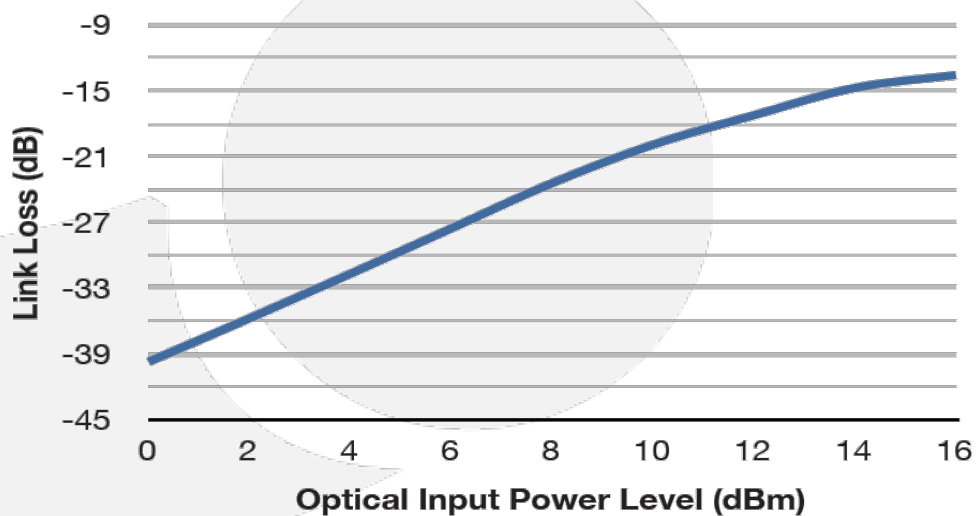
S21 O/E RESPONSE

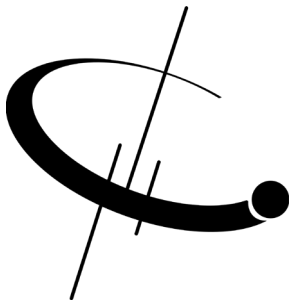


CSO, CTB LINEARITY MEASUREMENT



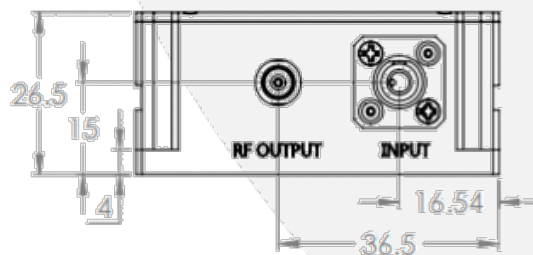
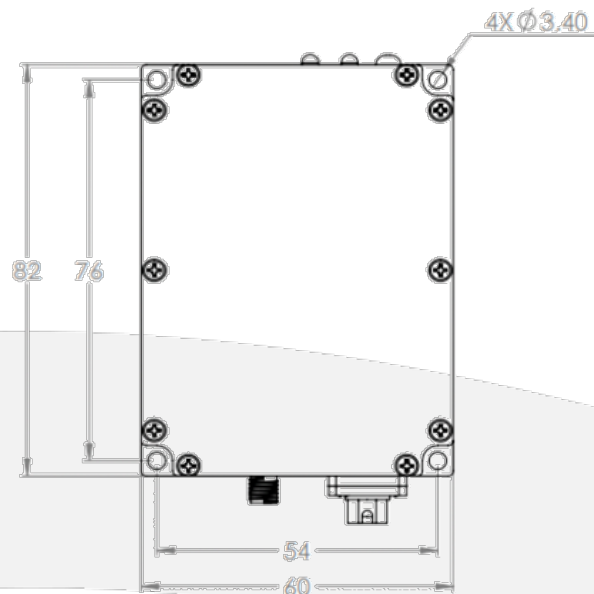
LINK LOSS





# PD-40-M

## MECHANICAL DRAWING



## PD-40-M MODULE HOUSING POWER AND INTERFACE

With the PD-40-M product series, Optilab offers a turn-key modular solution with a USB 2.0 interface, which can be operated with any standard PC platform device or with the provided AC/DC adapter included with each PD-40-M unit. Contact Optilab for more information.

