



PR-20-M



DEVICE

20 GHz Linear Photoreceiver Module

OVERVIEW

The Optilab PR-20-M is a 20 GHz bandwidth amplified PIN photodiode receiver module designed for RF over fiber, antenna remoting, and broadband RF signals transmission applications using single mode optical fiber. The PR-20-M utilizes a wide bandwidth PIN photodiode plus a linear Trans-Impedance Amplifier (TIA) that provides optical to RF conversion to the frequency range beyond 20 GHz. The PR-20-M is a highly linear O/E converter that can be used for every type of analog and digital signal, with remote status monitoring through a USB interface. When the PR-20-M RF over fiber receiver module is linked with the LTA-20-M lightwave transmitter module, the combination provides an excellent solution for ultra-wideband RF to fiber conversion applications. Contact Optilab for more information.

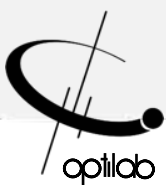
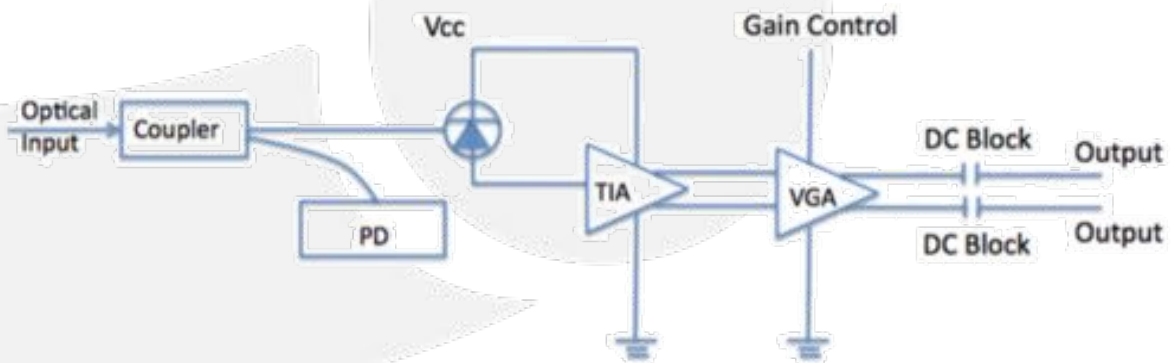
FEATURES

- 3 dB S21 bandwidth, 0.01 GHz to 20 GHz
- Highly linear for analog transmission
- High TIA conversion gain of 1550 V/W
- RS-232 interface via USB 2.0
- Integrated DC block for AC coupling
- Auto Gain Control (AGC) or Manual Gain Control (MGC) modes
- Maximum optical input protection

USE IN

- RF transmission over fiber to 25 GHz
- Satcom microwave antenna signal distribution
- Broadband delay-line and signal processing
- Phased and interferometric array antenna
- RF/IF signal distribution

FUNCTION DIAGRAM





PR-20-M

SPECIFICATIONS

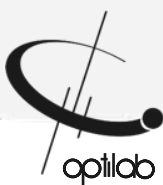
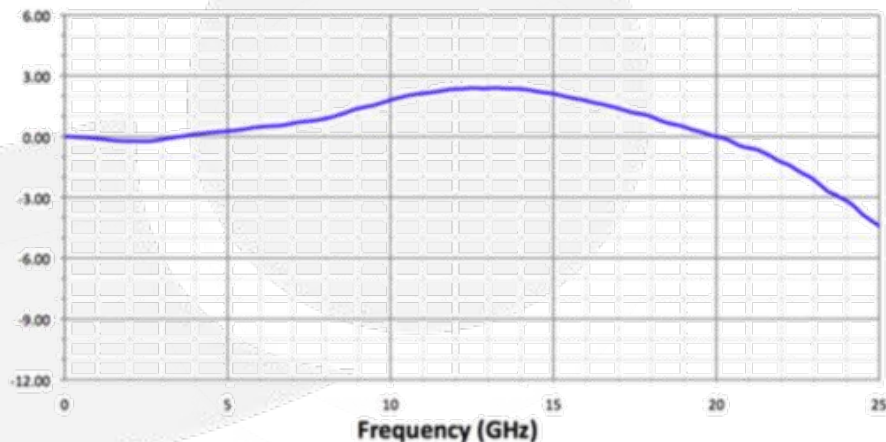
Photodiode Wavelength Range	1250 nm to 1650 nm
Operational Bandwidth	0.005 GHz to 23 GHz
Optical Input Level	+3 dBm max.
Responsivity	0.65 A/W @ 1550 nm typ.
Trans-Impedance Gain	4500 typ.
S21 3 dB Bandwidth	23 GHz typ., 21 GHz min.
S22 Characteristics	<-10 dB to 10 GHz typ.
Optical Return Loss	-30.0 dB typ.
2 nd Harmonic Distortion	-60.0 dBc max.
3 rd Harmonic Distortion	-70.0 dBc max
Optical PDL @ 1550 nm	0.05 dB typ., 0.1 dB max.
Output Coupling	AC Coupled
RF Impedance	50 Ω
Ripple Over Bandwidth	± 1.0 dB

GENERAL

Operating Temperature	-40°C to +70 °C
Storage Temperature	-55 °C to +85 °C
Power Supply Requirements	+12 V DC, 500 mA max.
Optical Connector	FC/APC
RF Input Connector	K Connector Female, 50 Ω
DC Connector	USB
Local Alarm	LED: Optional Input Power
Remote Alarms	RS-232 Interface (optional)
Dimensions	130mm x 70mm x 35mm
Included Accessories	110 V - 240 V AC Adaptor & Cable
Housing	Precision Mach, Anodized Aluminum

MECHANICAL

TYPICAL S21 BANDWIDTH

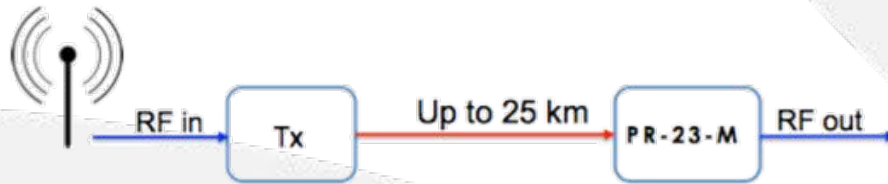




PR-20-M

20 GHz RF over Fiber Link Configuration

The PR Series can be ordered as RF over Fiber 20 GHz Link. This link, the LL-20 series form a high-performance set that include the 15 GHz transmitter and 20 GHz Amplified Receiver. Below is a diagram of how the RF over Fiber link functions. Go to optilab.com/LL12 for more information.



20 GHz Link with Optional EDFA Configuration

The LL-20 can come equipped with an optional EDFA that is used to overcome transmission loss in long distances.



Link Configuration using Multiple Wavelengths

The LL series of products can have multiple wavelengths integrated using WDM multiplexers. Up to 8 wave-lengths can be installed into a single rackmountable chassis. Below is an illustration of a typical 4 wavelength RF over Fiber link using WDM multiplexers.

