

# IM-1550-40-PM



## 1550 nm, 40 GHz Analog Modulator w/ PM Output

The Optilab IM-1550-40-PM Intensity Modulator is designed for analog modulation of up to 40 GHz for microwave links, antenna remoting, and RF over Fiber. It is a high linearity, low driving voltage lithium niobate mach zehnder interferometer (MZI) design. It is a hands-on bias-stabilized lithium modulator that proves to be extremely stable for long periods of time, and features excellent stability in a biased circuit, operating from 1525 nm to 1610 nm. It has an excellent operating temperature tolerance ranging from  $-30\text{ }^{\circ}\text{C}$  to  $+60\text{ }^{\circ}\text{C}$ , and its low insertion loss provides for its maximum transmission power. The IM-1550-40-PM uses a Polarization Maintaining (PM) input and output fiber, and features separate RF and bias ports. Contact Optilab for more information.

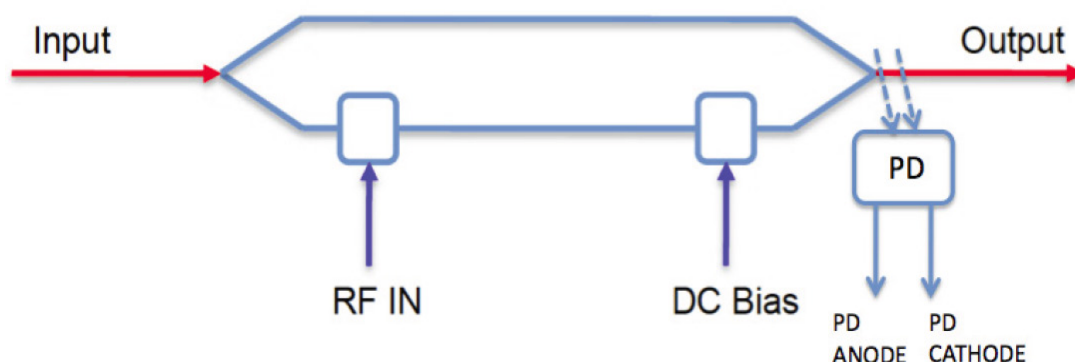
### Features

- $S_{21}$  3dB bandwidth  $\geq 30\text{ GHz}$
- Excellent stability in a biased circuit
- Low Drive Voltage of 4.5 volt
- 1525 nm to 1610 nm range wavelength
- Zero chirp design
- Built in photodiode
- Integrated polarizer
- Customizable options:
  - High Extinction Ratio ( $>30\text{ dB}$ )
  - Temperature Qualified ( $-55\text{ }^{\circ}\text{C}$  to  $+75\text{ }^{\circ}\text{C}$ )

### Applications

- 40 GHz RFoF over Fiber
- Antenna Remoting
- High Frequency Fiber Optic Links
- Delay Lines Telemetry Systems
- Instrumentation
- Microwave Link
- Active mode laser

### Functional Diagram



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## OPTIONS

**IM-1550-40-PM-XX-y**  
**XX** HE: High Extinction Ratio  
 TQ: Temperature Qualified  
**y** Connector Type:  
 a, FC/APC;  
 u, FC/UPC

## TECHNICAL INFO

For technical info and support:

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

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

## WEB ORDER

To order, please visit [OEQuest.com](http://OEQuest.com).



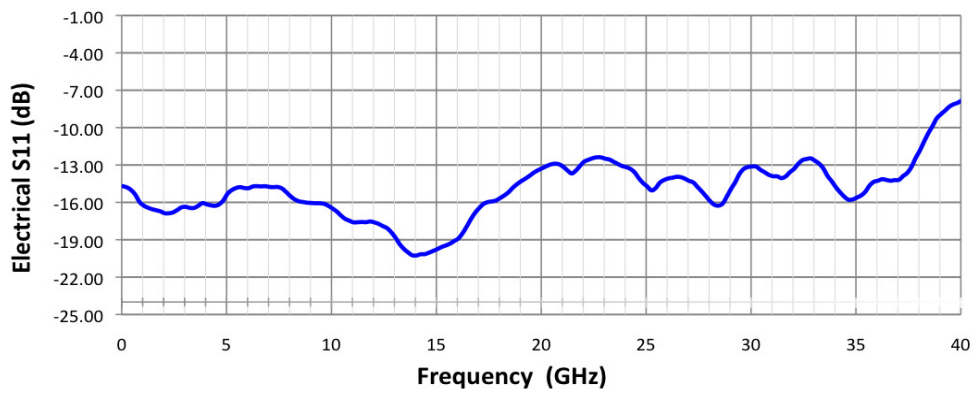
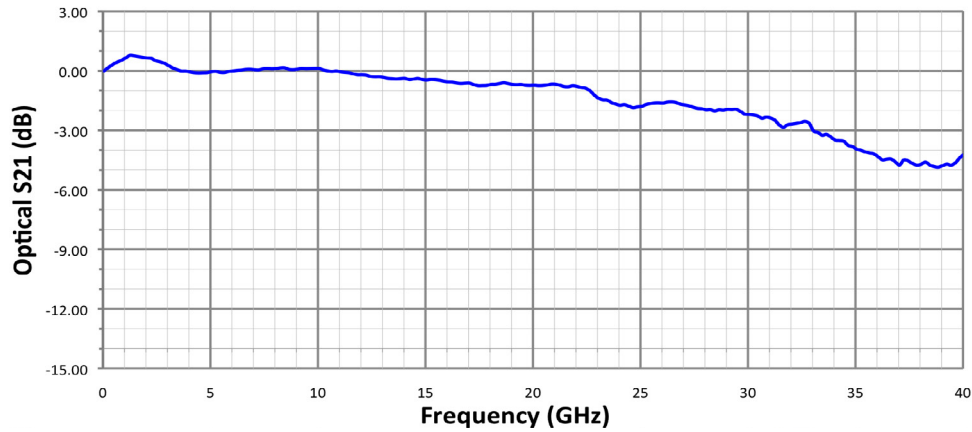
## Optilab Advantage

- Innovation
- Performance
- Quality
- Customization
- Warranty

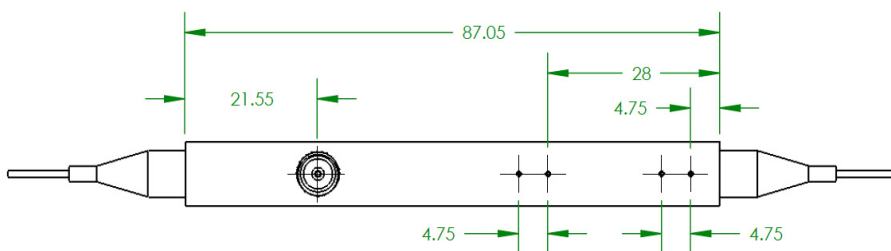
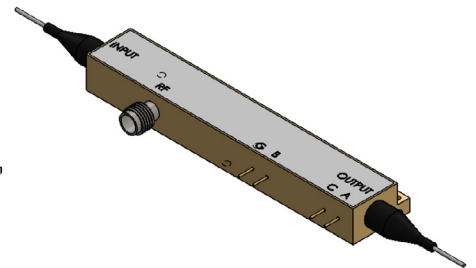
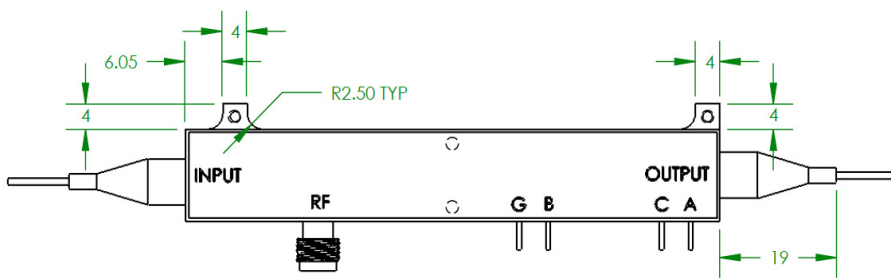
General Specifications	
Input optical power	100 mW max.available
Operating wavelength	1525 to 1610 nm
Chirp Value	<± 0.2 (zero chirp design)
Insertion Loss	≤ 5.0 dB
Extinction Ratio	≥ 25 dB ≥ 30 dB ( <b>HE Version</b> )
Optical return loss	≤ -45 dB
S <sub>21</sub> Bandwidth (RF Port)	> 30 GHz
S <sub>11</sub> Return Loss (RF Port)	≤ -10 dB @ 20 GHz
V <sub>π</sub> (RF Port)	6.4 V typ.@ 10 GHz; 8.3 V typ. @ 30 GHz
RF Input power	27 dBm max.
Impedance (RF Port)	50 Ω typ.
S21 Bandwidth (Bias Port)	500 MHz typ.
V <sub>π</sub> (Bias Port)	≤ 5 V @ 1 KHz
Impedance (Bias Port)	>1 MΩ
PD Responsivity	10 mA/W typ.
Analog Link Performance	
IIP3 @7 GHz	29 dBm typ.
1 dB Compression Point @10 GHz	15.5 dBm typ.
Mechanical Specifications	
Operating Temperature (standard)	-30 °C to +60 °C
Operating Temperature ( <b>TQ version</b> )	-55 °C to +75 °C
Storing Temperature	-60 °C to +90 °C
Operating Humidity	0% to 90% Relative Humidity
Input Fiber Type	PANDA - PM 1550
Output Fiber Type	PANDA - PM 1550
Input Connector	PM FC/APC or PM FC/UPC
Output Connector	PM FC/APC or PM FC/UPC
Material	LiNbO3
Crystal Orientation	X-cut, y-propagating
Waveguide Process	Ti-indiffused
Bias Port Connector	2 PINS
TAP PD Connector	2 PINS
RF Port connectors	V Connector
Cabling	900 μm tubing
Dimensions (including boots)	5.00"x 0.60" x 0.40"

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## Typical S21 and S11 Bandwidth



## Mechanical Drawing



Pin #	Description
G	GND
B	DC BIAS
A	PD ANODE
C	PD CATHODE

\* Dimension unit: mm