

# IM-1550-40-PM-LIL



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

The Optilab IM-1550-40-PM-LIL Intensity Modulator is designed for analog modulation of up to 40 GHz for microwave links, antennae 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 °C to +75 °C, and its low insertion loss provides for its maximum transmission power. The IM-1550-40-PM-LIL uses a Polarization Maintaining (PM) input and output fiber, and features separate RF and bias ports. Contact Optilab for more information.

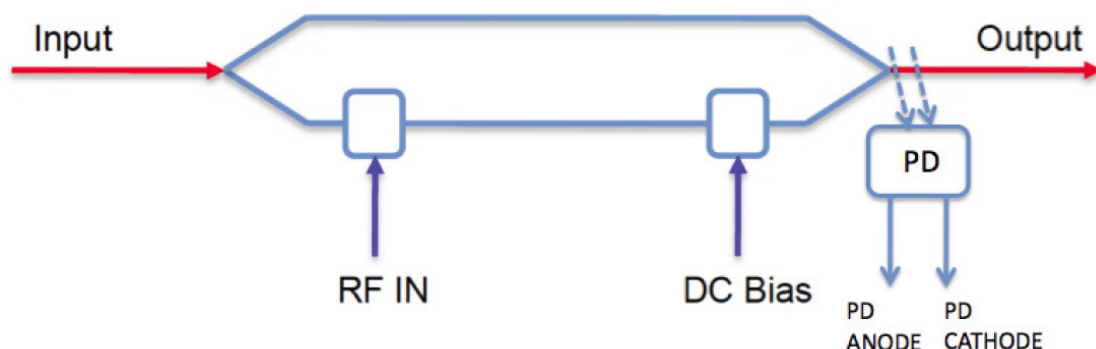
### Features

- $S_{21}$  3dB bandwidth  $\geq$  30 GHz
- Excellent stability in a biased circuit
- Low Drive Voltage of 4.5 volt
- 1525 nm to 1610 nm range wavelength
- Zero chirp design
- **Low insertion loss, < 3.5 dB**
- Built in photodiode
- Integrated polarizer

### Applications

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

### Functional Diagram



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## OPTIONS

**IM-1550-40-PM-LIL-XX-y**

XX TQ: Temperature  
Qualified -55 °C to +80 °C  
Connector Type:  
y 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).



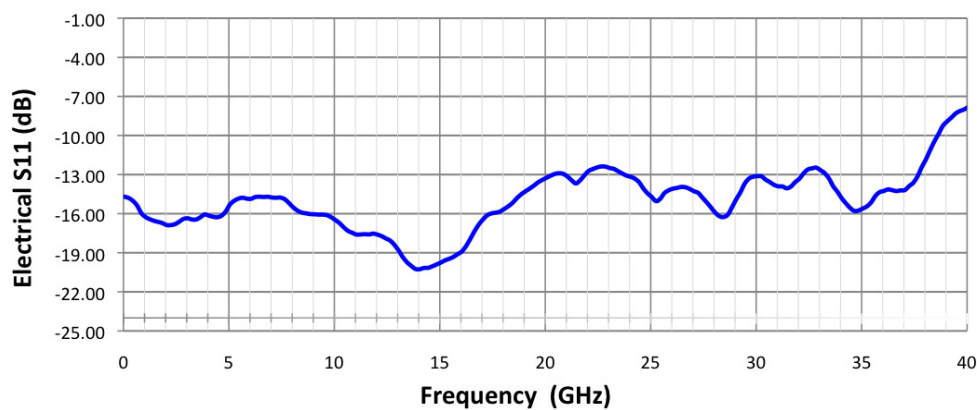
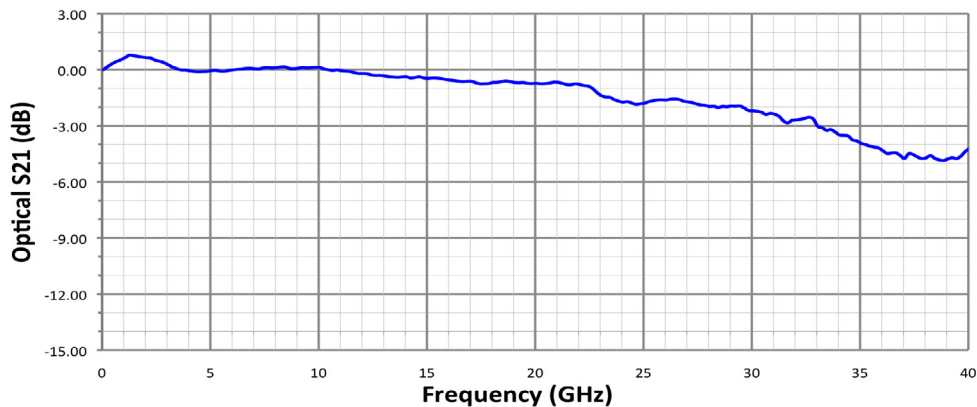
## Optilab Advantage

- Innovation
- Performance
- Quality
- Customization
- Warranty

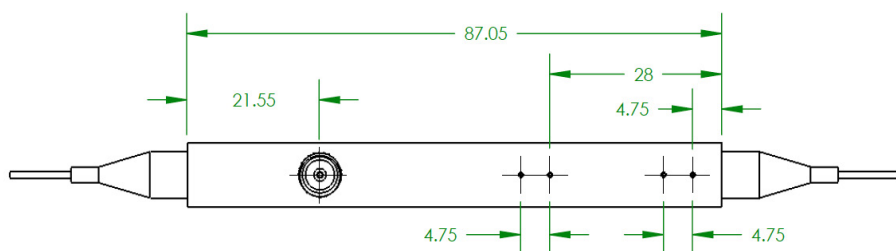
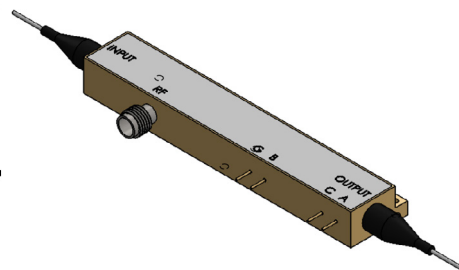
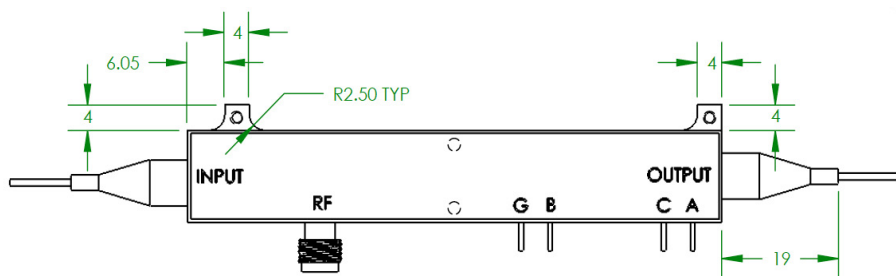
General Specifications	
Input optical power	100 mW max.available
Operating wavelength	1525 to 1610 nm
Chirp Value	<± 0.2 (zero chirp design)
<b>Insertion Loss</b>	<b>3.2 dB typ., 3.5 dB max.</b>
Extinction Ratio	≥ 25 dB
Optical return loss	≤ -45 dB
S <sub>21</sub> Bandwidth (RF Port)	> 30 GHz
S <sub>11</sub> Return Loss (RF Port)	≤ -10 dB @ 30 GHz
V <sub>π</sub> (RF Port)	≤ 4.5 V typ. @ 1 KHz
RF Input power	27 dBm max.
Impedance (RF Port)	50 Ω typ.
S <sub>21</sub> Bandwidth (Bias Port)	500 MHz typ.
V <sub>π</sub> (Bias Port)	≤ 5 V @ 1 KHz
Impedance (Bias Port)	>1 MΩ
PD Responsivity	0.001 A/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 range: -30 °C to +75 °C; Extended range: -55 °C to +80 °C (optional)
Storing Temperature	-60 °C to +85 °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



\* Dimension unit: mm

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