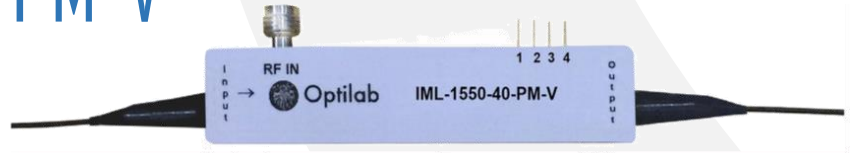


# IML-1550-40-PM-V



## DEVICE

## 1550 nm, 40 GHz Analog Modulator, PM Output, V Connectors

## OVERVIEW

The Optilab IML-1550-40-PM-V 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 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 +60 °C, and its low insertion loss provides for its maximum transmission power. The IML-1550-40-PM-V uses a Polarization Maintaining (PM) input and output fiber, and features separate RF and bias ports. Contact Optilab for more information.

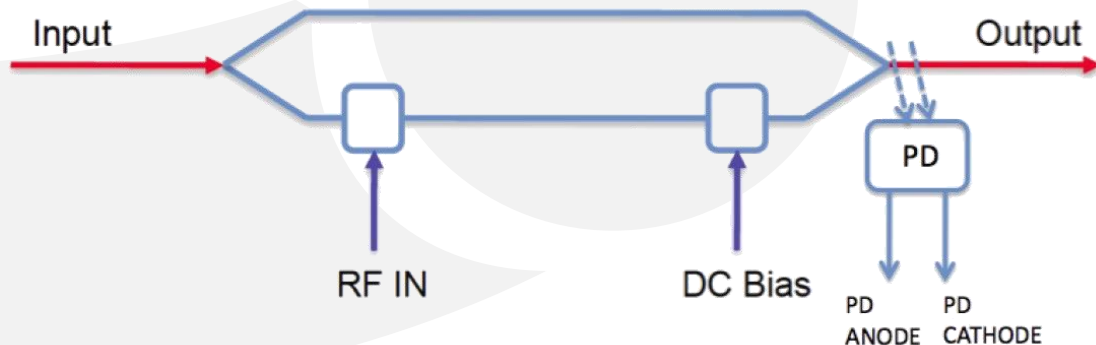
## FEATURES

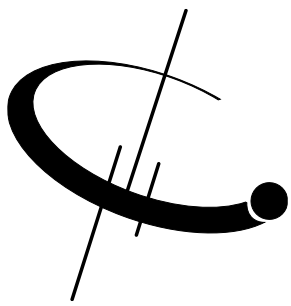
- 3 dB bandwidth of 30 GHz
- Excellent stability in a biased circuit
- Low Drive Voltage of 2.0 V
- 1525nm to 1610nm range wavelength
- Zero chirp design
- Built in photodiode
- Customizable options:
  - High Extinction Ratio (<30 dB)
  - Temperature Qualified (-55°C to +75 °C)

## USE IN

- 40 GHz RF over Fiber (RfOF)
- Antenna remoting
- High frequency fiber optic links
- Delay Lines Telemetry Systems
- Instrumentation
- 43 Gb/s digital link
- Active mode-locked laser

## FUNCTIONAL DIAGRAM





# IML-1550-40-PM-V

## SPECIFICATIONS

|                           |   |
|---------------------------|---|
| Input Optical Power       | 100 mW max. available   |
| Operating Wavelength      | 1525 to 1610 nm   |
| Chirp Value               | $< \pm 0.2$ (zero chirp design)                                     |
| Insertion Loss            | 4 dB typ., 4.5 dB max.  |
| Extinction Ratio          | $\geq 23$ dB min., $\geq 30$ dB (HE Version)                        |
| Optical Return Loss       | $\leq -45$ dB   |
| S21 Bandwidth (RF Port)   | 30 GHz typ. @ -3 dB   |
| S11 Return Loss (RF Port) | $\leq -8$ dB @ 30 GHz   |
| V $\pi$ (RF Port)         | 3.0 V typ. @ low frequency, 3.0 V typ. @10 GHz, 4.5 V typ. @ 30 GHz |
| RF Input Power            | 27 dBm max.   |
| Impedance (RF Port)       | 50 $\Omega$ typ.  |
| V $\pi$ (Bias Port)       | $\leq 2$ V @ 1 KHz  |
| PD Responsivity           | 40-100 mA/W typ.  |

## GENERAL

## ANALOG LINK PERFORMANCE

|                                 |             |
|---------------------------------|-------------|
| IIP3 @ 7 GHz                    | 23 dBm typ. |
| 1 dB Compression Point @ 10 GHz | 9 dBm typ.  |

## MECHANICAL

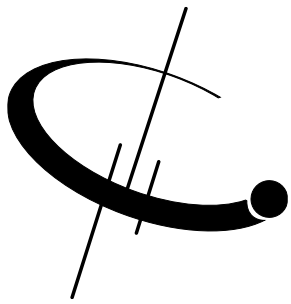
|                                    |                                    |
|------------------------------------|------------------------------------|
| Operating Temperature (Standard)   | -30°C to +60 °C                    |
| Operating Temperature (TQ Version) | -55°C to +75 °C                    |
| Storage Temperature                | -60 °C to +90 °C                   |
| Operating Humidity                 | 0% to 90% Relative Humidity        |
| Input/Output Fiber Type            | PANDA – PM 1550                    |
| Crystal Orientation                | X-cut, y-propagating               |
| Waveguide Process                  | Ti-indiffused                      |
| Input/Output Connector             | PM FC/APC, Customized is available |
| Bias Port Connector                | 2 PINS (Pin 1, 2)                  |
| TAP PD Connector                   | 2 PINS (Pin 3, 4)                  |
| RF Port Connector                  | V Connector                        |
| Cabling                            | 900 $\mu$ m                        |
| Dimensions                         | 71mm x 16mm x 7mm                  |

## OPTIONS

### IML-1550-40-PM-V-xx

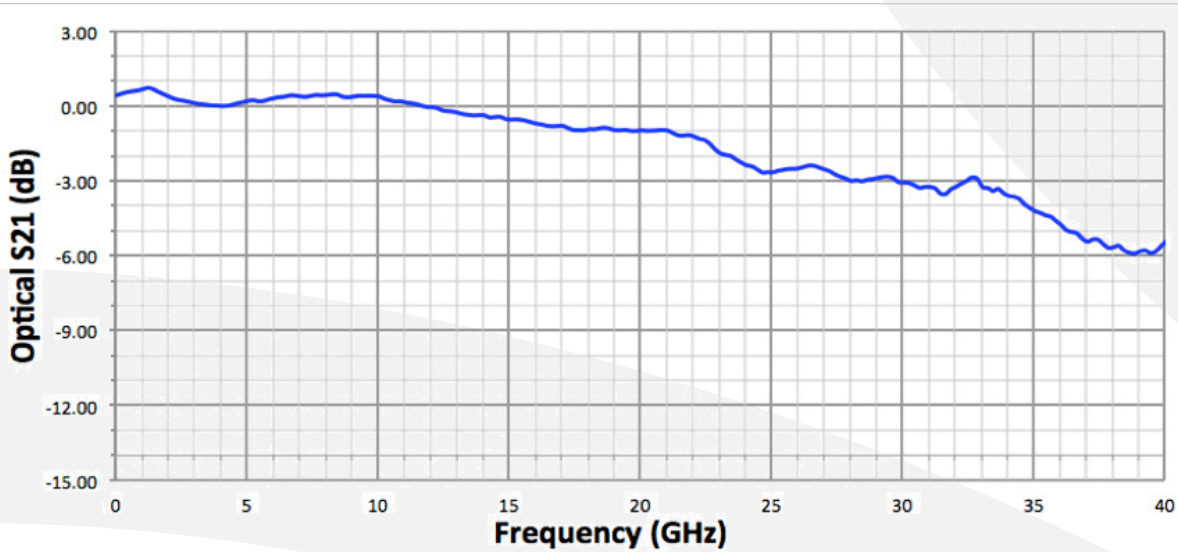
**HE:** High Extinction Ratio  
**xx** **TQ:** Temperature Qualified



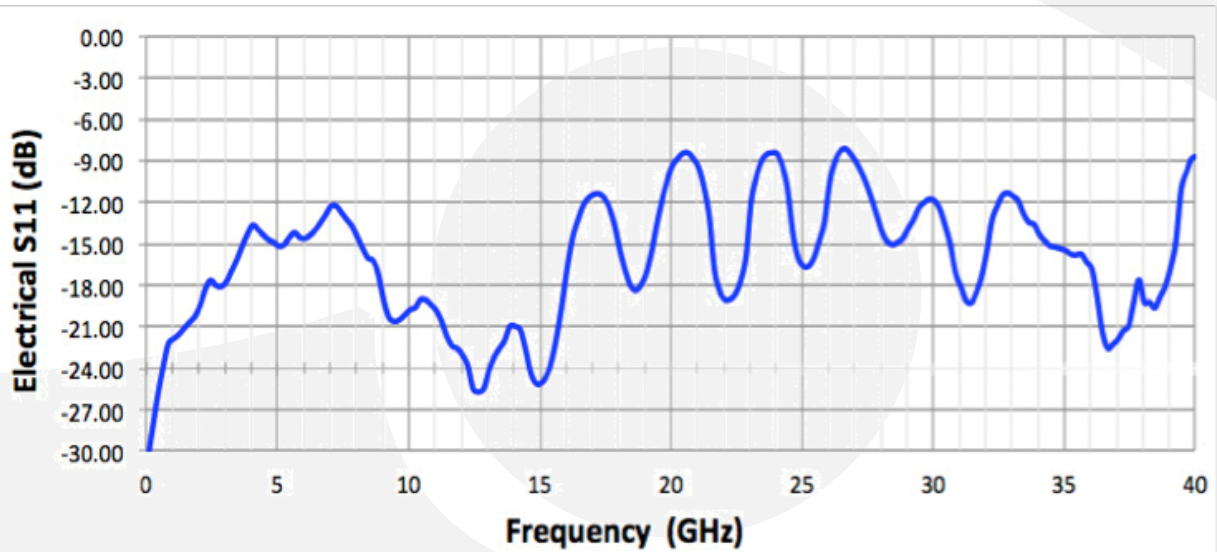


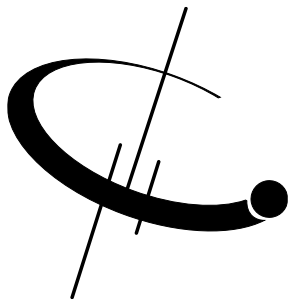
# IML-1550-40-PM-V

TYPICAL S21 BANDWIDTH



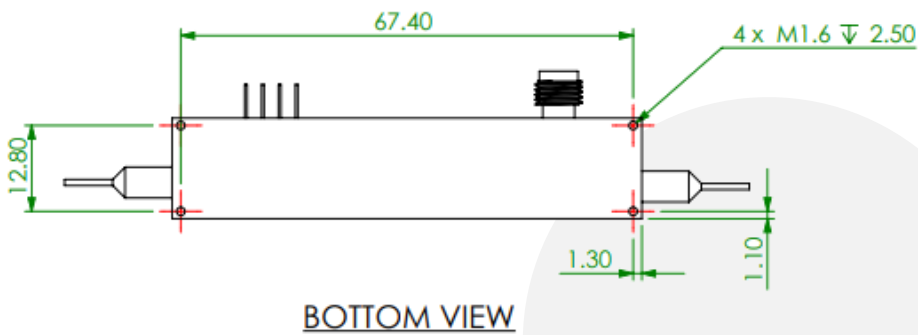
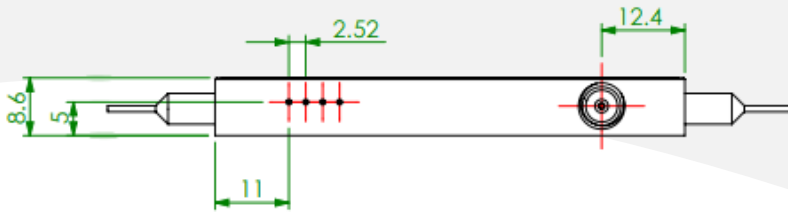
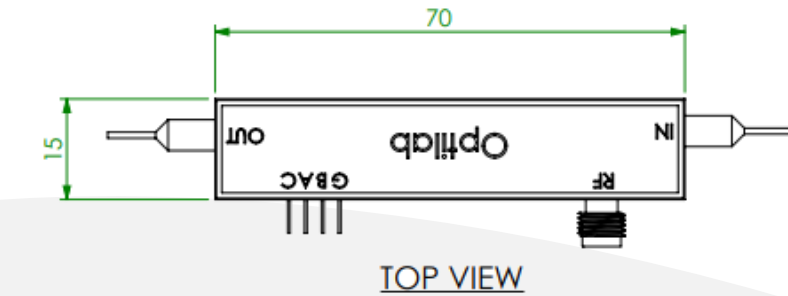
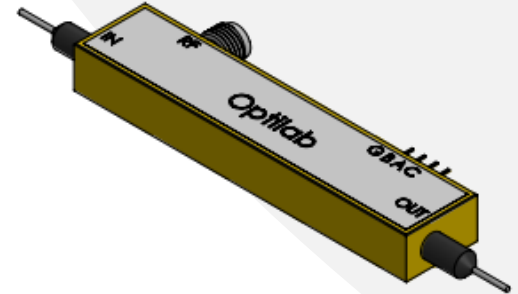
TYPICAL S11 BANDWIDTH





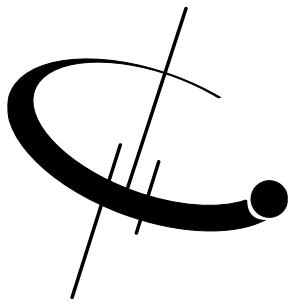
# IML-1550-40-PM-V

## MECHANICAL DRAWING



| PINOUT |             |
|--------|-------------|
| PIN    | DESCRIPTION |
| G      | GROUND      |
| B      | DC BIAS     |
| A      | PD ANODE    |
| C      | PD CATHODE  |





# IML-1550-40-PM-V

## Available Accessories

- **BCB-4**



The Optilab BCB-4 is a compact bias control board designed to maintain the linear operating point of optical intensity modulators.

