

# IM-1550-20



DEVICE

## 1550 nm, 20 GHz Intensity Modulator

OVERVIEW

The Optilab IM-1550-20 Intensity Modulator is designed for TDM and WDM 20 Gb/s transmission, and can also be incorporated for analog modulation of up to 20 GHz for satellite links, antennae remoting, and RF over Fiber. 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 1530 nm to 1610 nm. It has an excellent operating temperature tolerance ranging from -30 oC to +75 oC, and its low insertion loss provides for its maximum transmission power. The IM-1550-20 uses a Polarization Maintaining (PM) input fiber and a Single Mode (SM) output fiber. It features separate RF and bias ports. Contact Optilab for more information.

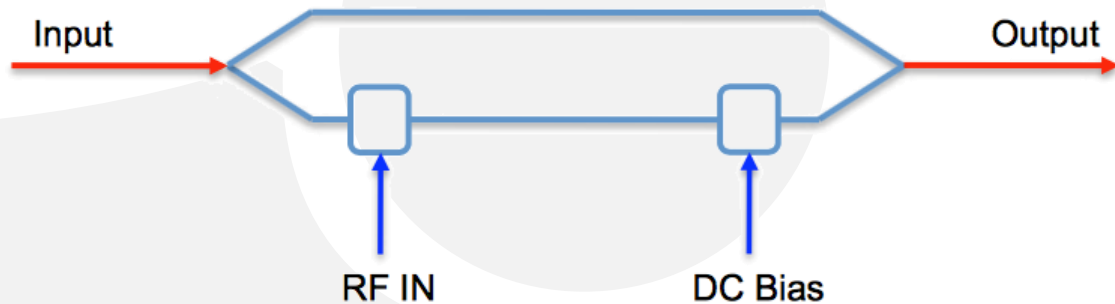
FEATURES

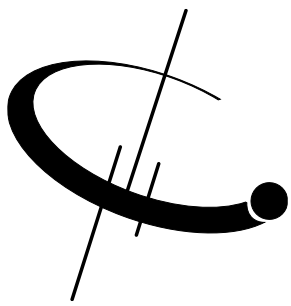
- Excellent stability in biased circuit
- 1530 nm to 1610 nm operating wavelength
- Wide operating temp. range (-30°C to +60°C)
- Low insertion loss
- Useful bandwidth up to 20 GHz

USE IN

- TDM and WDM up to 25 Gb/s
- Analog transmission up to 20 GHz
- Satellite Link
- Antenna Remote
- RF over fiber

FUNCTIONAL DIAGRAM





# IM-1550-20

## SPECIFICATIONS

|                               |                             |
|-------------------------------|-----------------------------|
| Input Optical Power           | 100 mW max. available       |
| Operating Wavelength          | 1530 nm to 1610 nm          |
| Chirp Value                   | < ± 0.2 (zero chirp design) |
| Insertion Loss                | < 5 dB max.                 |
| Extinction Ratio              | > 25 dB min.                |
| Optical Return Loss           | < -45 dB                    |
| PRBS Electrical Drive Voltage | 6.0 V <sub>pp</sub> typ.    |
| S21 Bandwidth                 | Up to 20 GHz                |
| S11 Return Loss               | < 10 dB @ 10 GHz            |
| V <sub>π</sub> (RF Port)      | 5.7 V typ. @ DC             |
| RF Input Power                | 27 dBm max.                 |
| Impedance (RF Port)           | 50 Ω typ.                   |
| S21 Bandwidth (Bias Port)     | 500 MHz min.                |
| V <sub>π</sub> (DC Port)      | 6.5 V typ., < 8V @ DC       |
| Impedance (Bias Port)         | > 1 MΩ                      |

## GENERAL

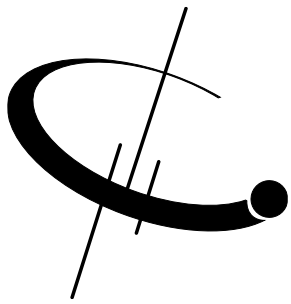
## ANALOG LINK PERFORMANCE

|                                 |             |
|---------------------------------|-------------|
| IIP3 @ 7 GHz                    | 32 dBm typ. |
| 1 dB Compression Point @ 10 GHz | 16 dBm typ. |

## MECHANICAL

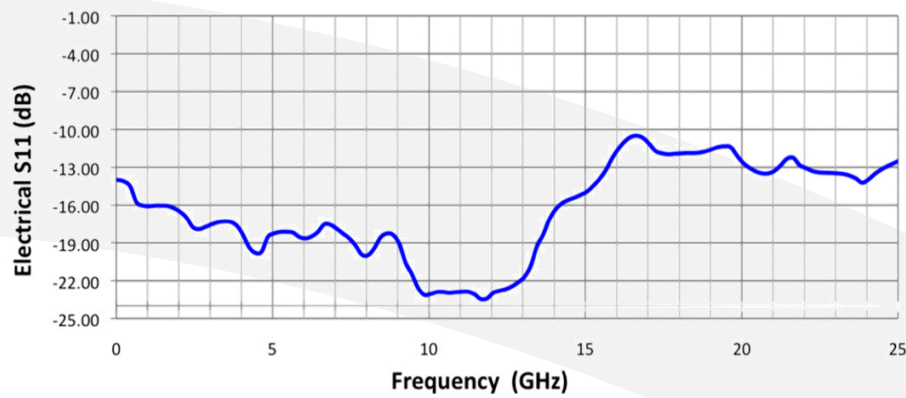
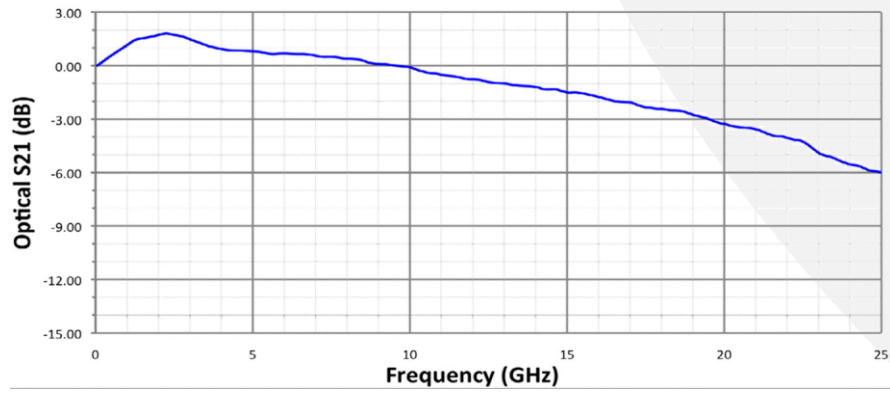
|                       |                             |
|-----------------------|-----------------------------|
| Operating Temperature | -30 °C to +75 °C            |
| Storage Temperature   | -60 °C to +85 °C            |
| Operating Humidity    | 0% to 90% Relative Humidity |
| Input Fiber Type      | PANDA - PM                  |
| Output Fiber Type     | SMF-28                      |
| Input Connector       | PM FC/APC, PM FC/UPC        |
| Output Connector      | FC/APC, FC/UPC              |
| Material              | LiNbO3                      |
| Crystal Orientation   | X-cut, y-propagating        |
| Waveguide Process     | Ti-indiffused               |
| Bias Port Connector   | SMA                         |
| RF Port Connectors    | K type (compatible w/ SMA)  |
| Cabling               | 900 um tubing               |
| Dimensions            | 3.783" x 0.981" x 0.640"    |



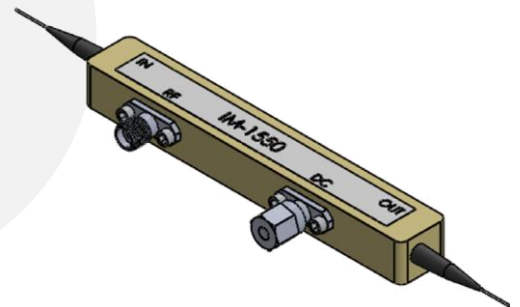
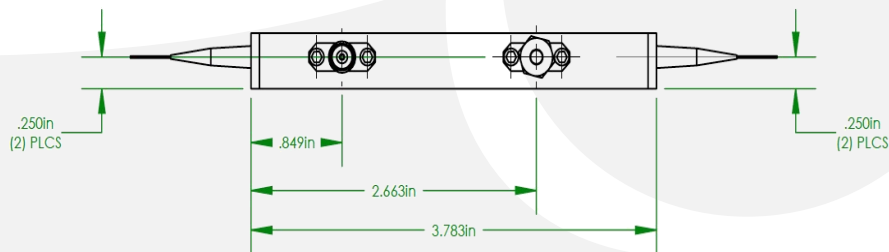
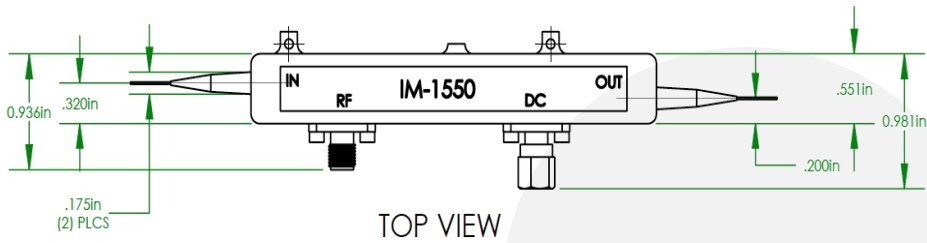


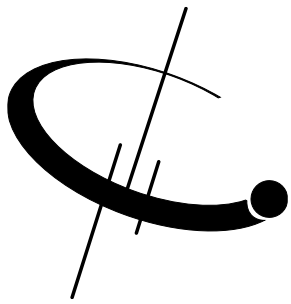
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## TYPICAL S21 AND S11 BANDWIDTH



## MECHANICAL DRAWING

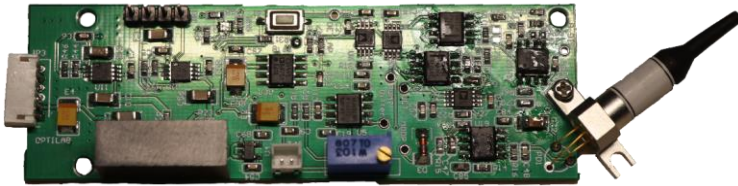




# IM-1550-20

## 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.

