LMC-12

10 GHz Lightwave Modulator with Bias Control

OVERVIEW

The Optilab LMC-12 is a high-performance Lightwave Modulator Board designed for analog photonics applications from 10MHz to 10 GHz. This unit includes a 10 GHz optical intensity modulator and an Automatic Bias Control (ABC) board with four different operating modes. The external laser source can be any polarization maintaining device, such as a tunable laser or narrow linewidth laser, making it a versatile solution for OEM-based system integration. Contact Optilab for more information.

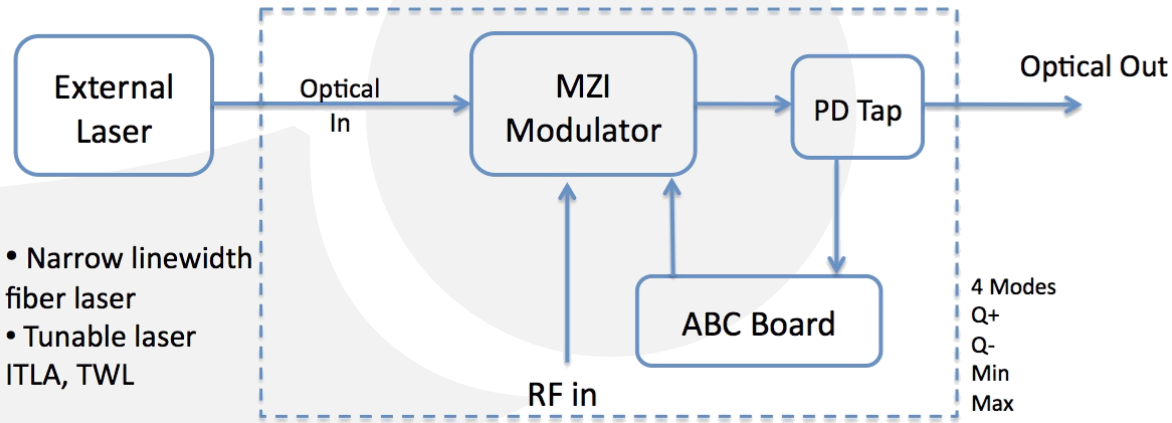
FEATURES

- 10 GHz modulator
- 1520 nm to 1610 nm wavelength range
- Automatic Bias Control w/ 4 mode operation
- Customizable Options:
  - Low Drive Voltage
  - PM output
  - High Extinction Ratio (> 30 dB)
  - Temp. Qualified (-55°C to +75°C)

USE IN

- Sub-nanosecond pulse generation
- Optical communications to 12 Gb/s
- 10 GHz RFoF transmission
- Analog photonics
- RF/IF signal distribution
- Satellite communication

FUNCTIONAL DIAGRAM



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SPECIFICATIONS

GENERAL

Operating Wavelength	1520 nm to 1610 nm
Laser Source	User's external input
Optical Input Level	50mWmax.
RF Return Loss	> 10 dB up to 8 GHz
Impedance	50Ω
Operating Frequency Range	10MHz to 12 GHz
Input RF Voltage	25 dBm max.
Optical Output Level	>= 6.5 dBm
S21 Bandwidth,3 dBm	8 GHz typ.
Modulator Bias Mode	4 Automatic bias control modes, selectable by software
Extinction Ratio	,>= 20 dB; 25 dB typ.; > 30 dB (HE version)
Modulator Voltage V_{PI}	7 V typ. @ 10 GHz

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
Power Supply Requirements	± 5 V DC, 2A max or 100~240 VAC.
Optical Connector	FC/APC
Fiber Type	PANDA input, SMF-28 output; PANDA input/output (PM version)
RF Input Connector	SMA female
Remote Control	USB 2.0
Alarm	LED bias mode status
Dimensions	241 mm x 152 mm x 41 mm

BIAS CONTROL MODE

Mode	Operation Conditions
Q+	Set to quadrature point of positive slope for linear analog modulation
Q-	Set to quadrature point of negative slope for linear analog modulation
Min.	Set to min. point of operation for pulse generation or digital modulation
Max.	Set to max. point of operation for pulse generation or digital modulation

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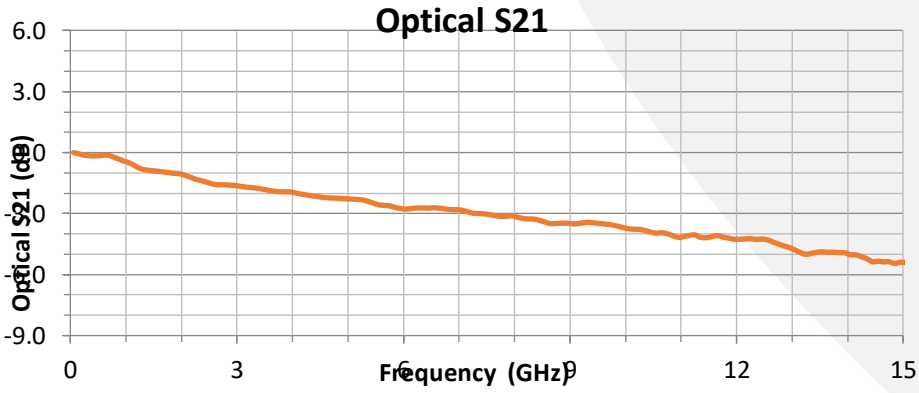
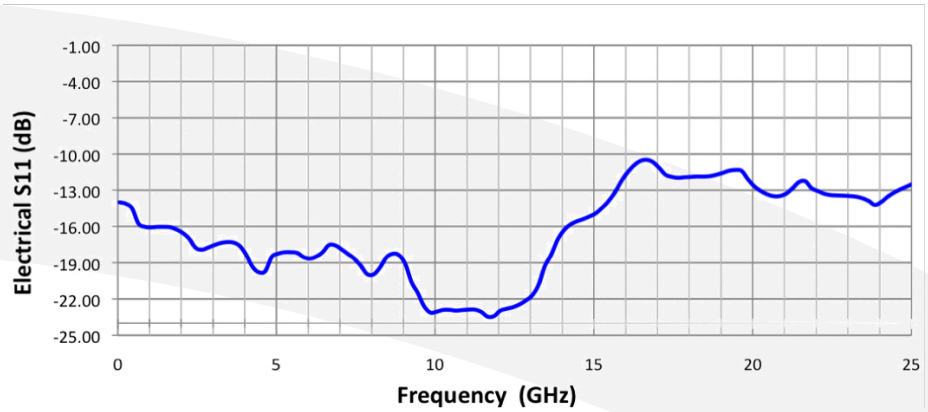
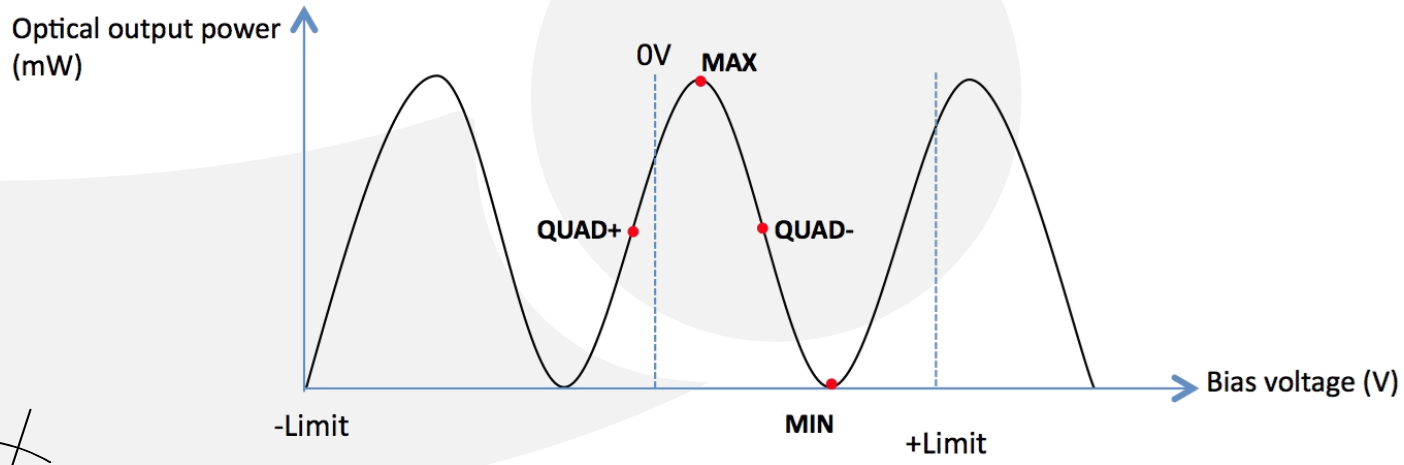
TYPICAL S21 AND S11 BANDWIDTH





BIAS SETTING MODES FOR LMC

Based on a sophisticated phase measurement of this small dither signal, LMC-12 provides four selectable operating modes: quadrature (Quad +), inverted quadrature (Quad -), minimum (Min), and maximum (Max) points.



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ORDERING OPTIONS

LMC-12-XX-YY

XX PM: Polarization Maintaining
HE: High Extinction Ratio

YY DC: DC +/- 5V Power Supply (Option 1)
AC: AC 100/240 VAC (Option 2)

Option 1 : DC +/- 5V

Option 2 : 100/240 VAC