



# LMC-20-1310



## DEVICE

## 20 GHz, 1310 nm Lightwave Modulator with Bias Control

## OVERVIEW

The Optilab LMC-20-1310 is a 1310 nm low noise lightwave modulator board designed for analog photonics applications from DC to 20 GHz. This unit includes an 18 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 turnkey design system integration. Contact Optilab for more information.

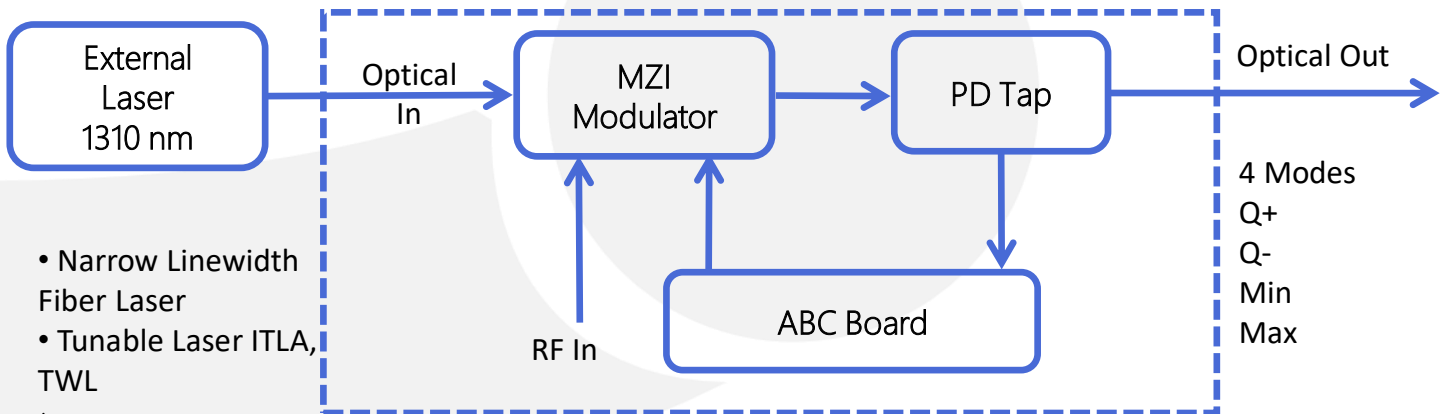
## FEATURES

- 1310 nm Wavelength Range, 1270 nm, 1290 nm, 1330 nm Available
- 18 GHz S21 Bandwidth Modulator
- Automatic Bias Control w/4 Mode Operation
- Zero Dispersion Operation
- Low Drive Voltage
- PM Output Available
- High Extinction Ratio (> 30 dB)
- Temp. Qualified (-55°C to +75°C)

## USE IN

- Sub-nanosecond Pulse Generation
- Optical Communications to 25 Gb/s
- 20 GHz RFoF Transmission
- Analog Photonics
- RF/IF Signal Distribution
- Satellite Communication

## FUNCTION DIAGRAM



- Narrow Linewidth Fiber Laser
- Tunable Laser ITLA, TWL





# LMC-20-1310

## SPECIFICATIONS

Operating Wavelength	1270 nm to 1330 nm
Laser Source	User's External Input
Optical Input Level	+20 dBm max.
RF Return Loss	> 15 dB @ 10 GHz; > 10 dB @ 20 GHz
Impedance	50 Ω
Operating Frequency Range	DC to 20 GHz
Input RF Voltage	27 dBm max.
Optical Output Level	7 dBm, 9 dBm, 10 dBm Available
S21 Bandwidth	3 dB, 18 GHz typ.
Modulator Bias Mode	4 Automatic Bias Control Modes, Selectable by Software
Extinction Ratio	25 dB typ.; > 30 dB (HE Versions)
Modulator Voltage $V_{PI}$	4 V typ. @ 100 KHz; 6 V typ. @ 10 GHz

## GENERAL

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, 1 A max.

## MECHANICAL

Optical Connector	FC/APC
Fiber Type	PANDA Input, SMF-28 Output; PANDA Input/Output (PM Version)
Alignment	Slow Axis
RF Input Connector	K Connector
Power Connector	4 Pin Molex
Remote Control	USB 2.0 Software Included
Alarm	LED Bias Mode Status
Dimensions	280 mm x 150 mm x 45 mm

## BIAS CONTROL MODE

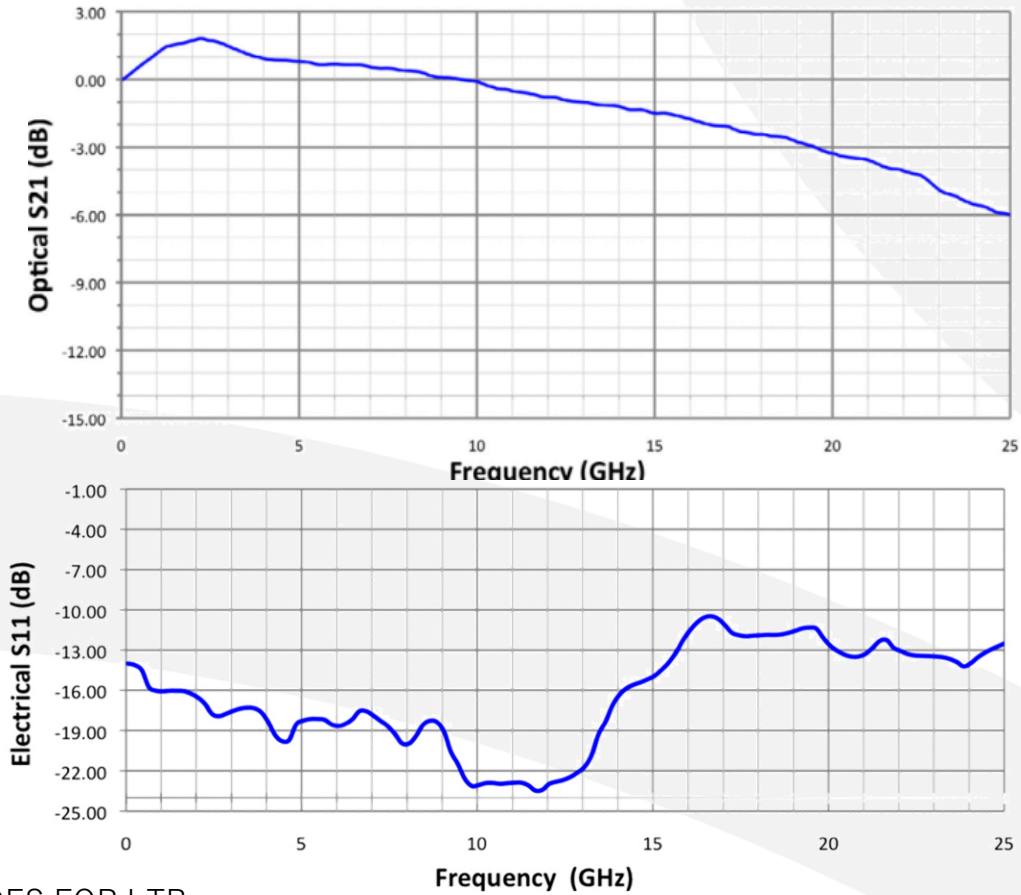
Mode	Operation Conditions
Q+	Set to quadrature point of positive slope for linear analog modulation
Q-	Set to quadrature point of negative slope for linear analog modulation
Min.	Set to min. point of operation for pulse generation or digital modulation
Max.	Set to max. point of operation for pulse generation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





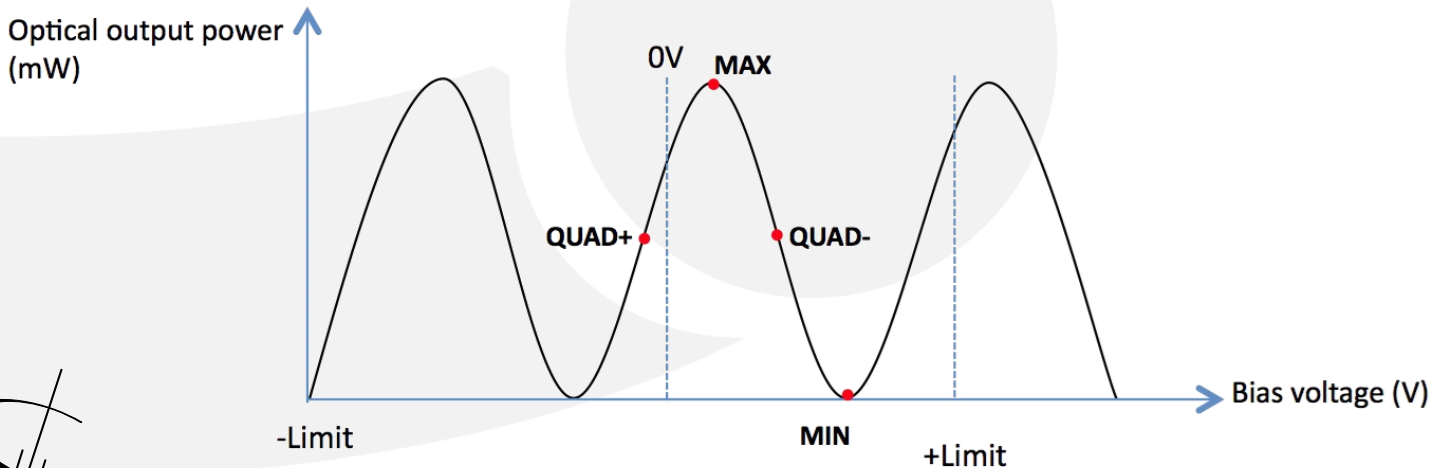
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TYPICAL S21 AND S11 BANDWIDTH



## BIAS SETTING MODES FOR LTB

Based on a sophisticated phase measurement of this small dither signal, LMC-20 provides four selectable operating modes: quadrature (Quad +), inverted quadrature (Quad -), minimum (Min), and maximum (Max) points.





# LMC-20-1310

## ORDERING OPTIONS

LMC-20-XXXX-YY-ZZ

XXXX Wavelength: 1270 nm, 1290 nm, 1310 nm, 1330 nm

YY PM: Polarization Maintaining  
HE: High Extinction Ratio

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

Option 1 : DC +/- 5V



Option 2 : 100/240 VAC

