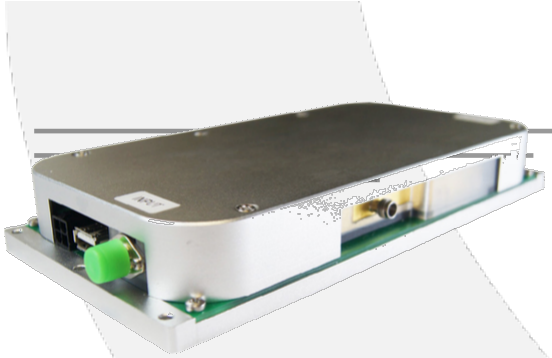
LMB-40-1310



DEVICE

40 GHz Lightwave Modulator with Bias Control

OVERVIEW

The Optilab LMB-40-1310 is a high performance Lightwave Modulator Board designed for analog photonics applications from DC to 40 GHz. This unit includes a 32 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 tunable laser, narrow linewidth laser, making it a versatile solution for OEM-based system integration. Contact Optilab for more information.

FEATURES

- 32 GHz S21 bandwidth modulator
- 1270nm to 1330 nm wavelength range
- Automatic Bias Control w/ 4 mode operation
- Accepts external laser source via input

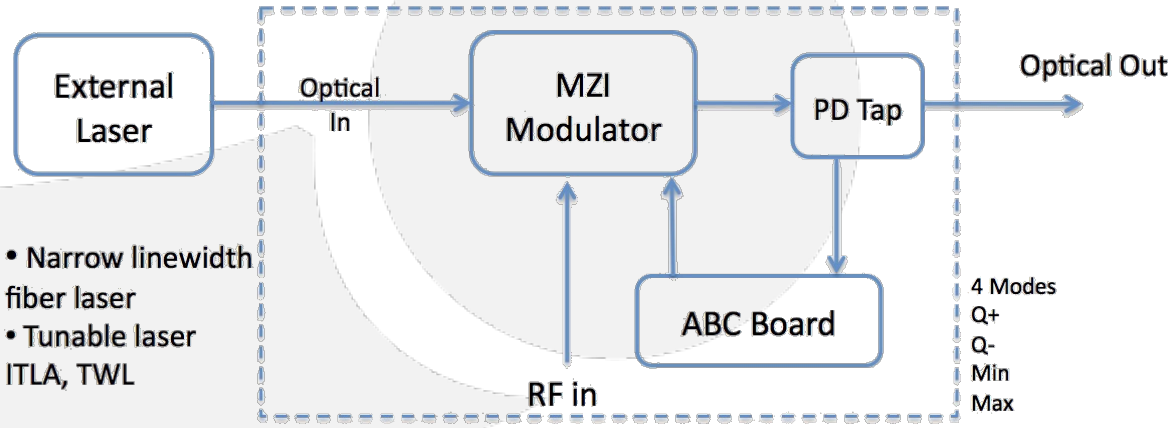
Customizable Options:

- Low Drive Voltage
- PM output
- High Extinction Ratio (> 30 dB)
- Temp. Qualified (-55ºC to +75ºC)

USE IN

- Picosecond pulse generation
- Optical communications to 43 Gb/s
- Active mode lock (PM version)
- Analog photonics
- 40 GHz RFoF transmission
- RF/IF signal distribution
- Satellite communication

FUNCTIONAL DIAGRAM



LMB-40-1310

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 @ 30 GHz
Impedance	50Ω
Operating Frequency Range	DC to 40 GHz
Input RF Voltage	27 dBm max.
Optical Output Level	7 dBm @ +14 dBm input typ.
S21 Bandwidth	3 dB, 32GHz 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}	6.4 V typ. @ 10 GHz, 8.3 V typ. @ 30 kHz, 2.5 V typ. @ 10 GHz, 4.3 V typ. @ 30 GHz (LD version)

GENERAL

ANALOG

IIP3 @ 7 GHz	29 dBm typ.; 25 dBm typ. (LD version)
1 dB Compression Point @ 10 GHz	16 dBm typ.; 8 dBm typ. (LD version)

MECHANICAL

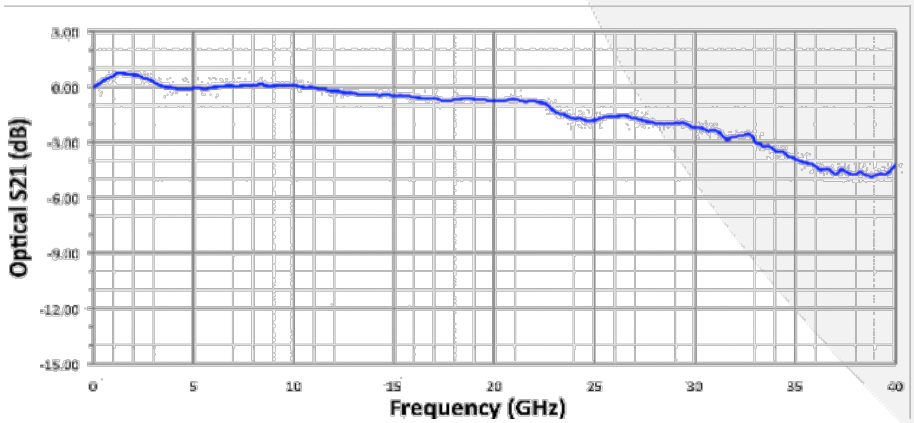
Operating Temperature (standard)	-30 °C to +60 °C
Operating Temperature (TQ version)	-55 °C to +75 °C
Storage Temperature	-60 °C to +90 °C
Power Supply Requirements	± 5 V DC, 1 A max.
Optical Connector	FC/APC
Fiber Type	PANDA input, SMF-28 output; PANDA input/output (PM version)
RF Input Connector	V connector; V connector or GPPO (LD version)
Power Connector	4 Pin Molex
Remote Control	USB 2.0 software included

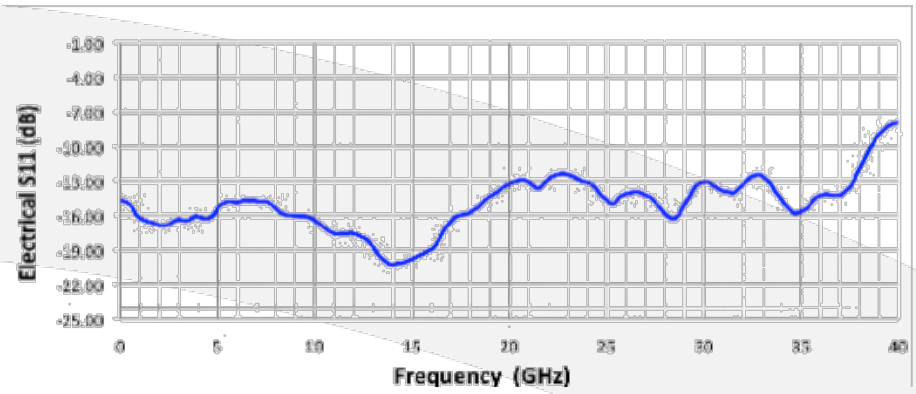
BIAS CONTROL MODE

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

LMB-40-1310

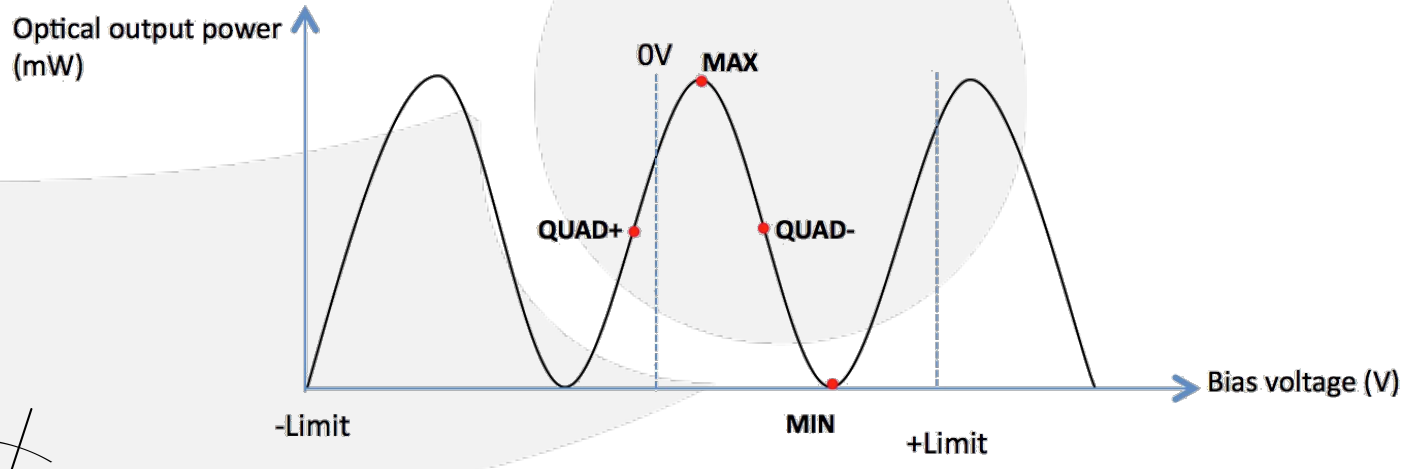
TYPICAL S21 AND S11 BANDWIDTH





BIAS SETTING MODES FOR LMB

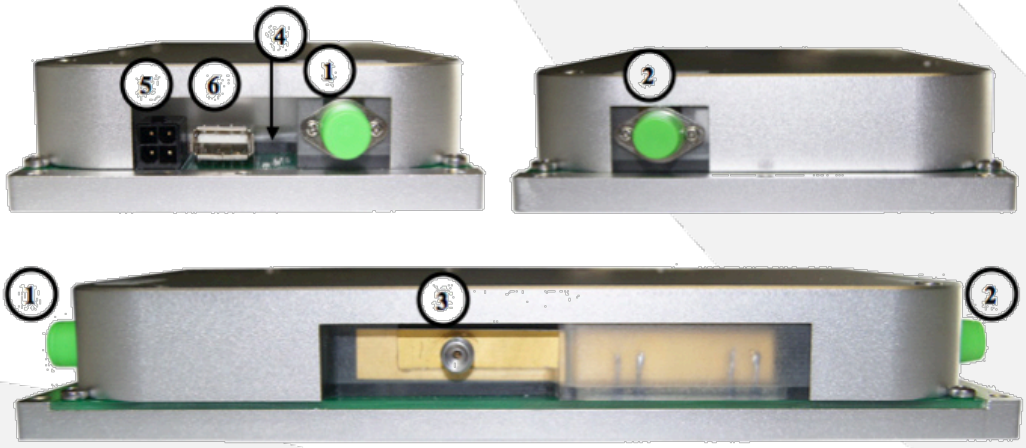
Based on sophisticated phase measurement of this small dither signal, LMB-40 can provides four selectable operating modes: quadrature (Quad +), inverted quadrature (Quad -), minimum (Min), or maximum (Max) points.



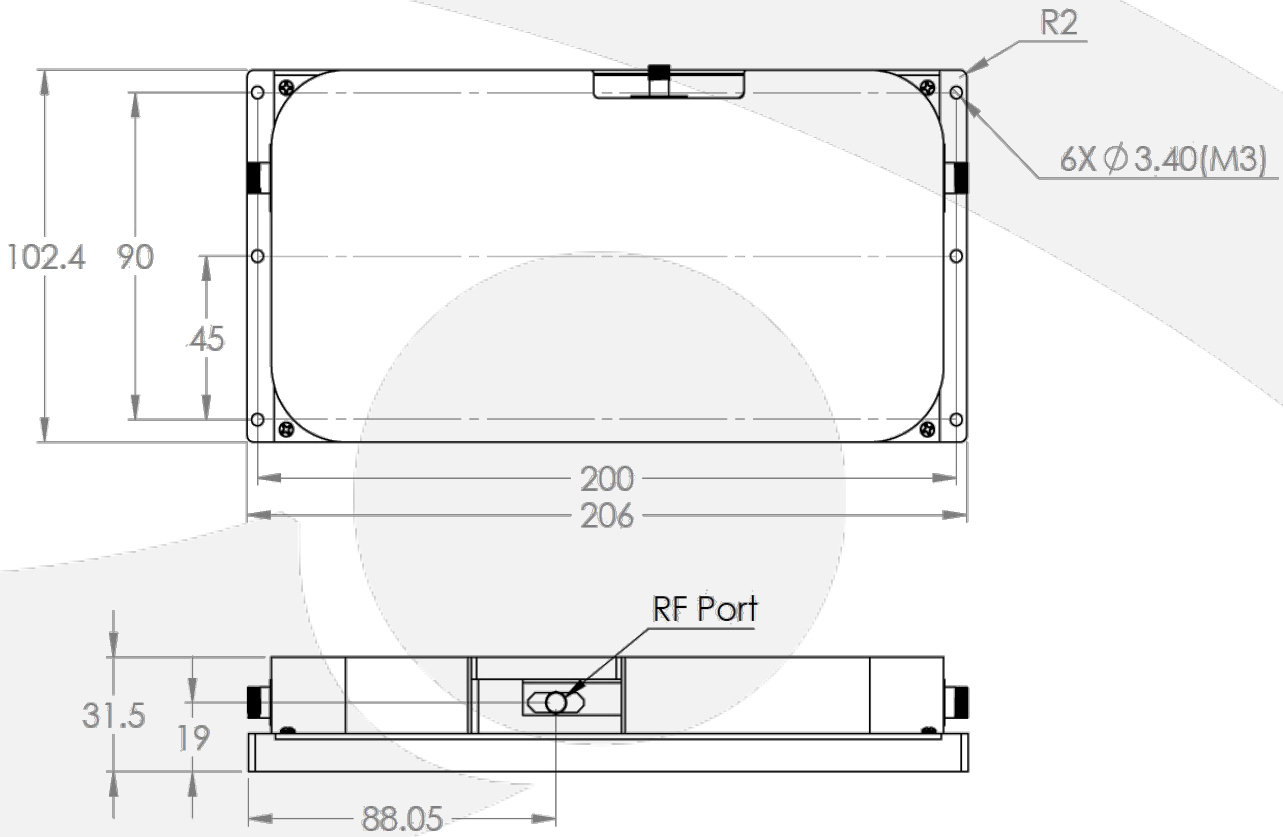
LMB-40-1310

DETAILED LAYOUT

No.	Feature
1	Optical Input Port
2	Optical Output Port
3	RF Input Port
4	LED Indicators
5	DC Connection Port
6	USB Control and Monitor Port



MECHANICAL DRAWING



LMB-40-1310

PRECISION POWER SUPPLY FOR LMB (OPTIONAL)

FRONT

BACK

General Specifications	
Parameters	Specifications
Input AC Voltage (VAC)	85-240
Input AC Current (A)	≤0.5
Input AC Frequency (HZ)	50-60
Transfer Efficiency	≤85%
DC Output Current (A)	4 A max.
DC Output Voltage (V)	±5 V
DC Voltage Ripple	≤2%
DC Connectors	Molex 4 Pin
Communication Connectors	DB-9 and USB 2.0
Dimensions (mm)	153x115x33

ORDERING OPTIONS

LMB-40-XX-YY

XX
- LD: Low Drive Voltage
- PM: Polarization Maintaining
- HE: High Extinction Ratio

YY
- TQ: Temperature Qualified