

LMB-20-1310



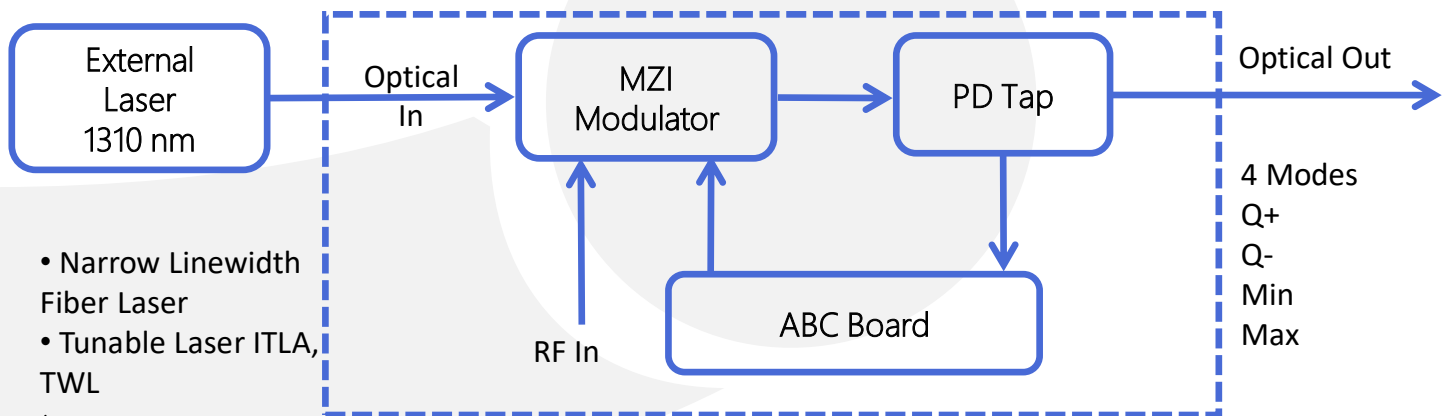
DEVICE 20 GHz 1310nm Lightwave Modulator with Bias Control

OVERVIEW The Optilab LMB-20-1310 is a high performance 1310 nm Lightwave Modulator Board designed for analog photonics applications from DC to 20 GHz. This unit includes a 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 tunable laser, narrow linewidth laser, making it a versatile solution for OEM-based system integration. The LMB-20-1310 requires a single ± 5 Volt DC power supply for operation. Contact Optilab for more information.

- FEATURES**
- 17 GHz S21 bandwidth modulator
 - 1520 nm to 1610 nm wavelength range
 - Automatic Bias Control w/ 4 mode operation
 - 1310 nm Wavelength Range, 1270 nm, 1290 nm, 1330 nm Available
 - Accepts external laser source via input

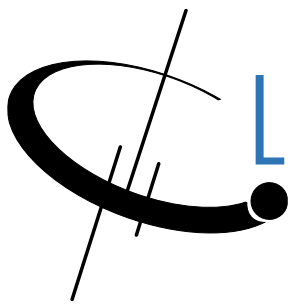
- USE IN**
- Sub-nanosecond pulse generation
 - Optical communications to 25 Gb/s
 - Active mode lock (PM version)
 - Analog photonics
 - 20 GHz RFoF transmission
 - RF/IF signal distribution
 - Satellite communication

FUNCTIONAL DIAGRAM



- Narrow Linewidth Fiber Laser
- Tunable Laser ITLA, TWL





LMB-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

IIP3 @ 7 GHz	32 dBm typ.; 25 dBm typ. (LD version)
1 dB Compression Point @ 10 GHz	16 dBm typ.; 8 dBm typ. (LD version)

ANALOG

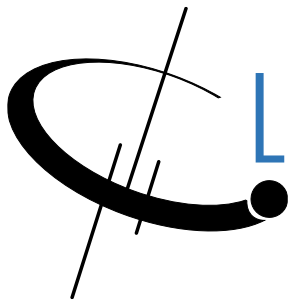
Operating Temperature (standard)	-30 °C to +60 °C
Operating Temperature (TQ version)	-55 °C to +75 °C
Storage Temperature	-60 °C to +90 °C
Power Supply Requirements	± 5 V DC, 1 A max.
Optical Connector	FC/APC
Fiber Type	PANDA input, SMF-28 output; PANDA input/output (PM version)
RF Input Connector	K connector; GPPD (LD version)
Power Connector	4 Pin Molex
Remote Control	USB 2.0 software included
Alarm	LED bias mode status
Dimensions	206 mm x 102.4 mm x 31.5 mm

MECHANICAL

BIAS CONTROL MODE

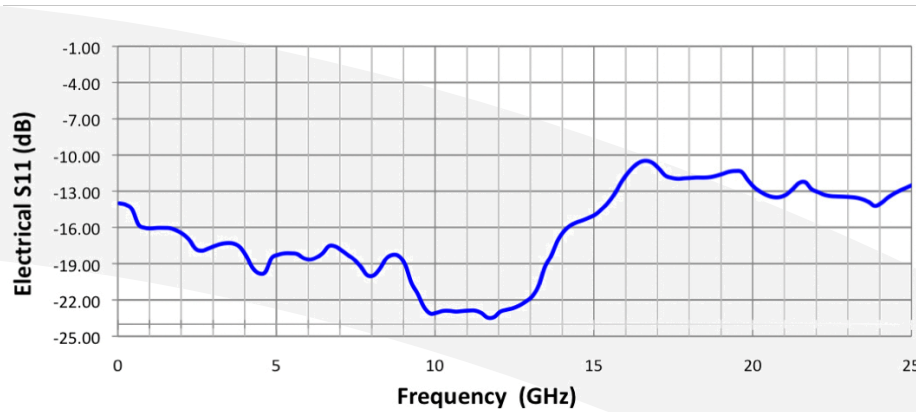
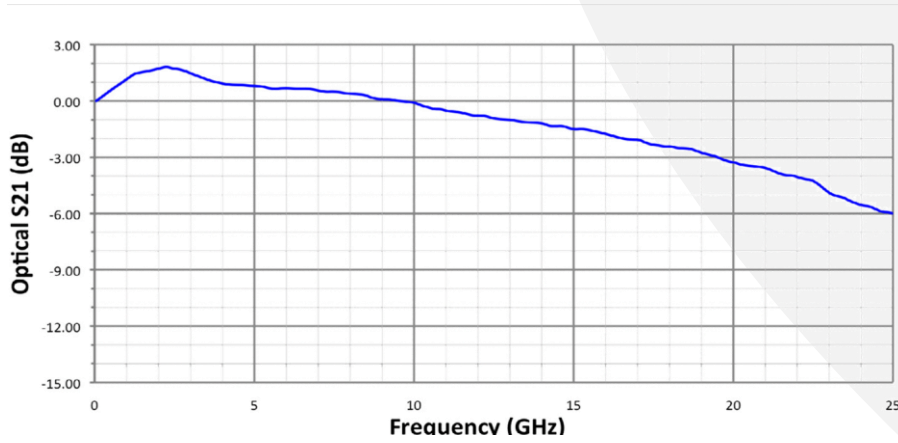
Mode	Operation Conditions
Q+	Set to quadrature point of positive slope for linear analog modulation
Q-	Set to quadrature point of negative slope for linear analog modulation
Min.	Set to min. point of operation for pulse generation or digital modulation
Max.	Set to max. point of operation for pulse generation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





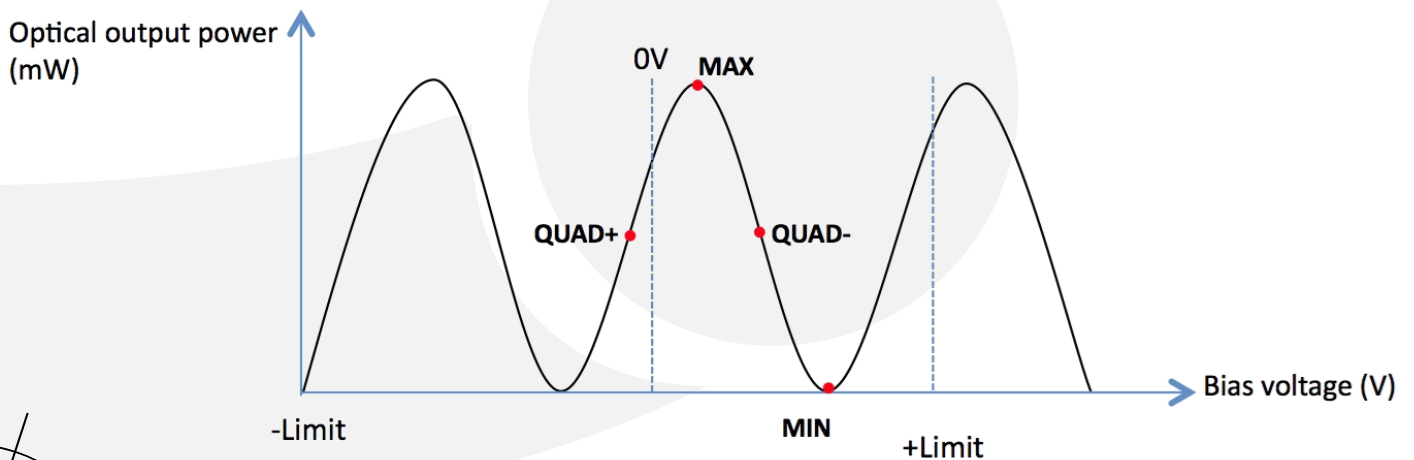
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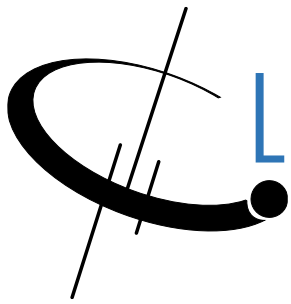
TYPICAL S21 AND S11 BANDWIDTH



BIAS SETTING MODES FOR LMB

Based on sophisticated phase measurement of this small dither signal, LMB-20-1310 can provide four selectable operating modes: quadrature (Quad +), inverted quadrature (Quad -), minimum (Min), or maximum (Max) points.

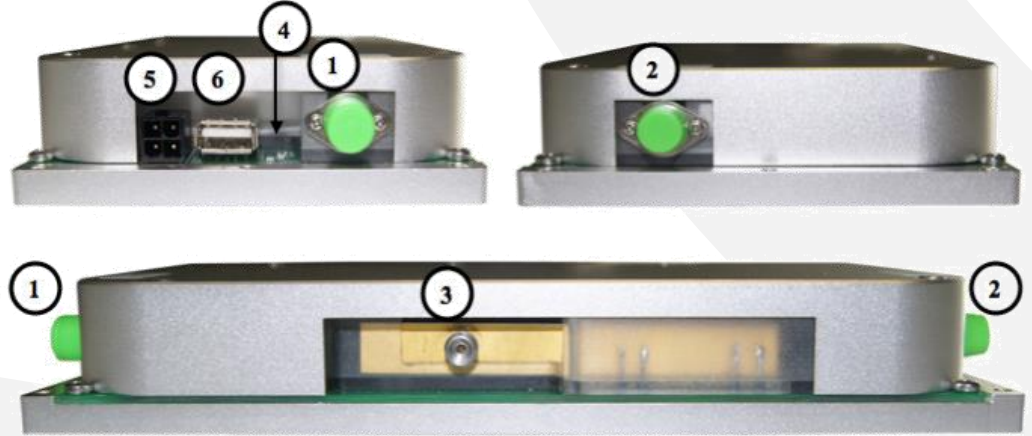




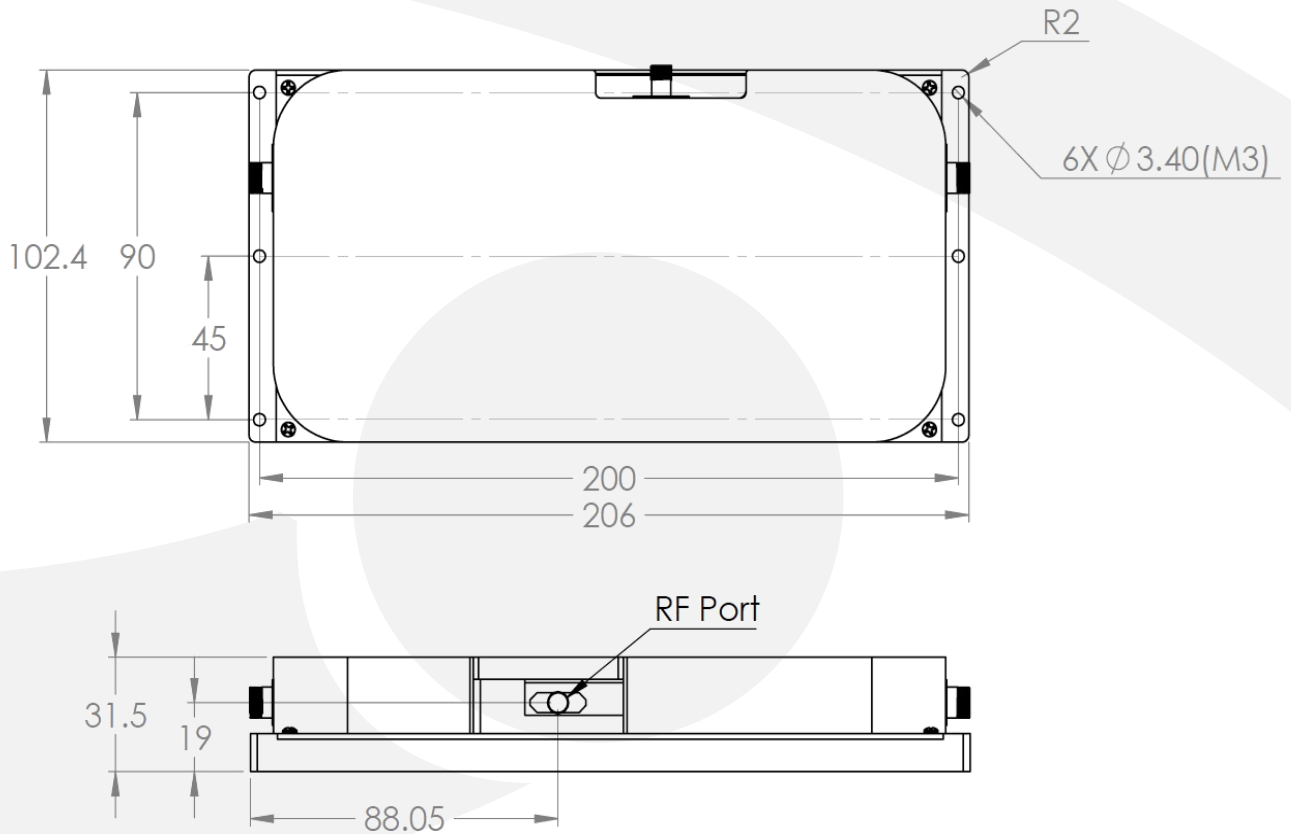
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DETAILED LAYOUT

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-20-1310

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-20-1310-XX-YY

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

