



LTA-50



DEVICE

50 GHz Lightwave Transmitter Module for RFoF

OVERVIEW

The Optilab LTA-50 is a high performance Lightwave Transmitter Module designed for analog photonics applications from DC to 50 GHz. This unit includes a high performance 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 RFoF system integration. Contact Optilab for more information.

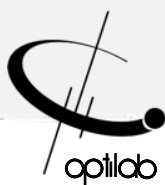
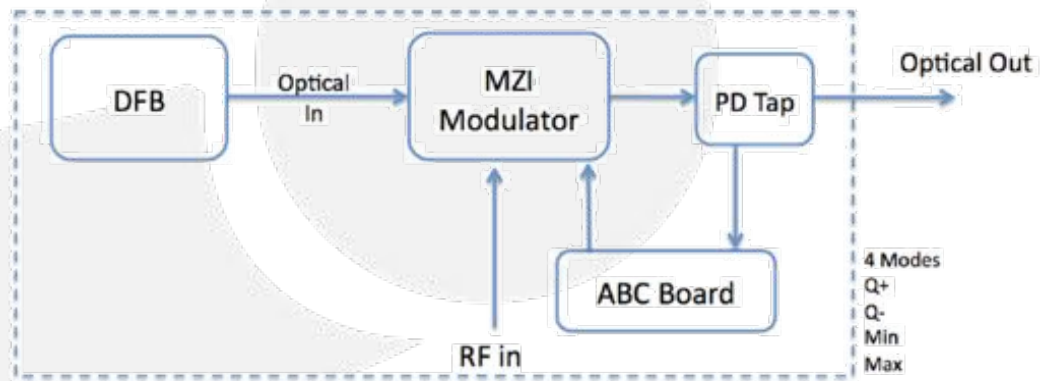
FEATURES

- >50 GHz S21 bandwidth modulator
- 1520 nm to 1610 nm wavelength range
- Automatic Bias Control w/ 4 mode operation
- Internal DFB laser up to 50 mW
- Customizable options:
 - Low Drive Voltage
 - PM Output
 - High Extinction Ratio
 - Temperature Qualified

APPLICATIONS

- Analog photonics
- 50 GHz RFoF transmission
- RF/IF signal distribution
- Satellite communication
- Optical communications to 60 Gb/s
- Picosecond pulse generation

FUNCTIONAL DIAGRAM





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SPECIFICATIONS

Operating Wavelength	1520 nm to 1610 nm
Laser Source	Internal DFB laser, 1550nm±10nm; other wavelength and narrow linewidth <1 MHz are available
Laser Power Level	20 mW, 30 mW, 40 mW, 50 mW
RF Return Loss	> 15 dB @ 10 GHz; >10 dB @ 30 GHz
Operating Frequency Range	DC to 40 GHz
Input RF Voltage	27 dBm max.
Optical Output Level	6.5 dBm typ. With 20 mW DFB
S21 Bandwidth	32 GHz typ. @ -3 dB, 55 GHz typ. @ -6 dB
Modulator Bias Mode	4 Automatic bias control modes, selectable by software
Extinction Ratio	25 dB typ.; >30 dB (HE Version)
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)

MECHANICAL

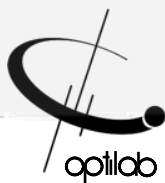
Operating Temperature (standard)	-30 °C to +60 °C
Operating Temperature (TQ version)	-55 °C to +75 °C
Storage Temperature	-60 °C to +90 °C
Power Supply Requirements	±5V, 1A typ.
Optical Connectors	FC/APC
Fiber Type	PANDA input, SMF-28 output; PANDA input/output (PM version)
RF Input Connector	K connector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

ANALOG LINK PERFORMANCE

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)

BIAS CONTROL MODE

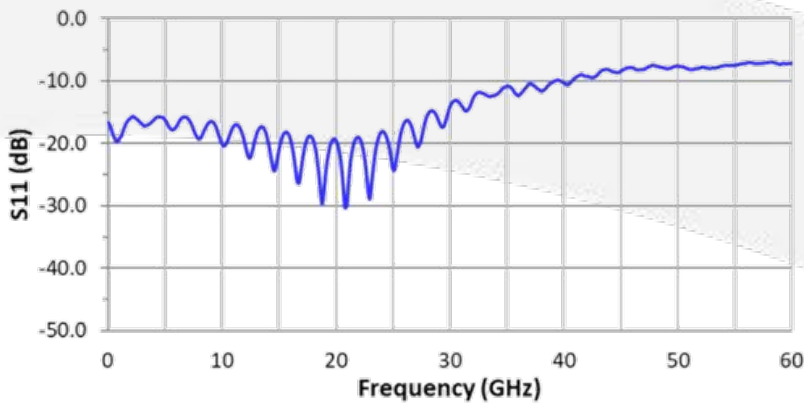
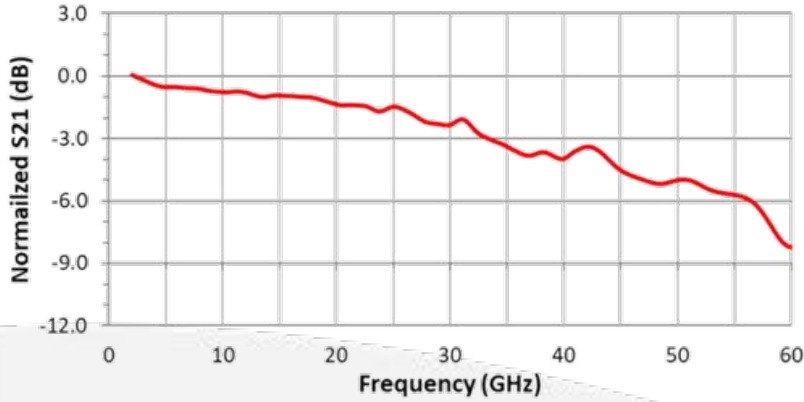
Q+	Set to quadrature point of positive slope for linear analog modulation
Q-	Set to quadrature point of positive slope for linear analog modulation
Min	Set to quadrature point of positive slope for linear analog modulation
Max	Set to quadrature point of positive slope for linear analog modulation





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TYPICAL S21 AND S11 CHARACTERISTICS



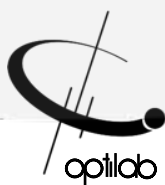
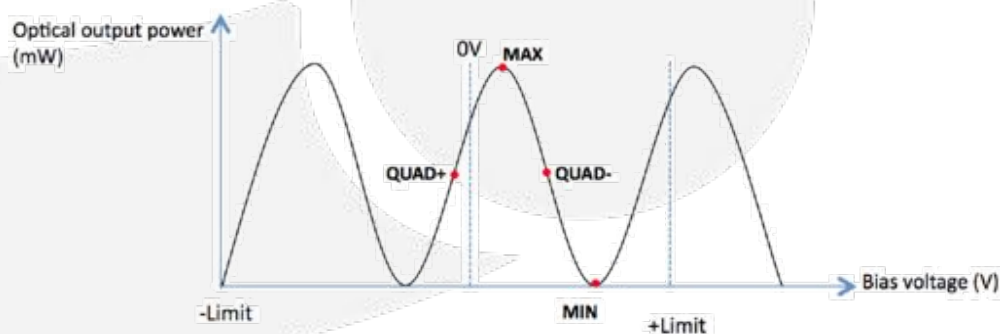
OPTIONS

LTA-50-XX-YY

- XX LD: Low Drive Voltage
PM: Polarization Maintaining
HE: High Extinction Ratio
- YY TQ: Temperature Qualified

BIAS SETTING MODES FOR LTA

Based on sophisticated phase measurement of this small dither signal, LTA-50 can provide four selectable operating modes: quadrature (Quad +), inverted quadrature (Quad-), minimum (Min), or maximum (Max) points.





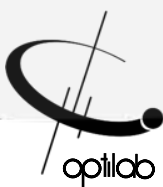
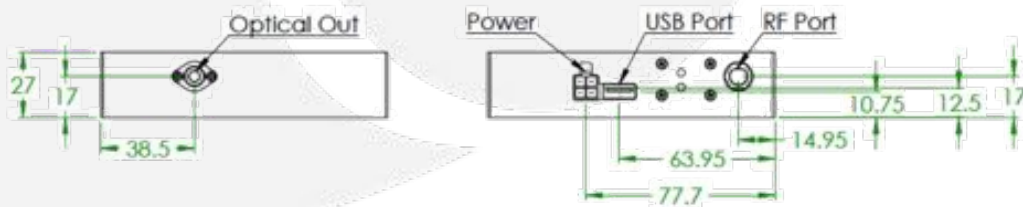
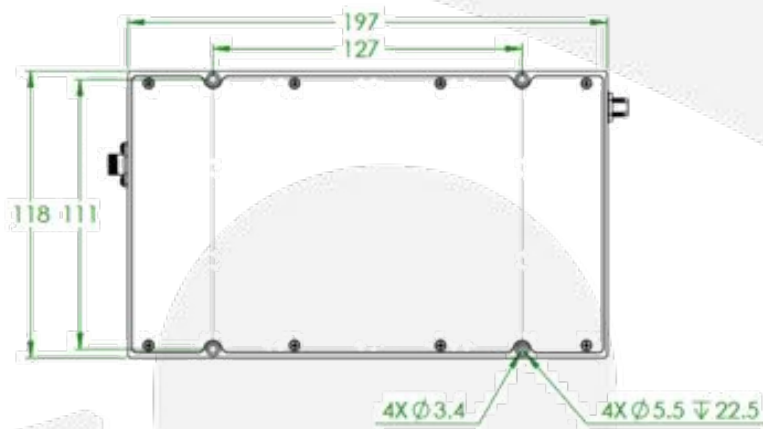
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DETAILED LAYOUT



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

MECHANICAL DRAWING





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PRECISION POWER SUPPLY FOR LTA (OPTIONAL)



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)	±5V
DC Voltage Ripple	≤2%
DC Connectors	Molex 4 Pin
Communication Connectors	DB-9 and USB 2.0
Dimensions (mm)	153 x 115 x 33

TYPICAL S21 AND S11 CHARACTERISTICS (L;D Version)

