

50 GHz Lightwave Transmitter Modulator for RFoF

OVERVIEW The Optilab LTC-50 is a high performance Lightwave Transmitter Modulator designed for analog photonics applications from DC to 50 GHz. This unit includes a 50 GHz optical intensity modulator and an Automatic Bias Control (ABC) board with four different operating modes. The integrated internal DFB laser makes it a versatile solution for RFoF system integration. Contact Optilab for more information.

FEATURES

- 31 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

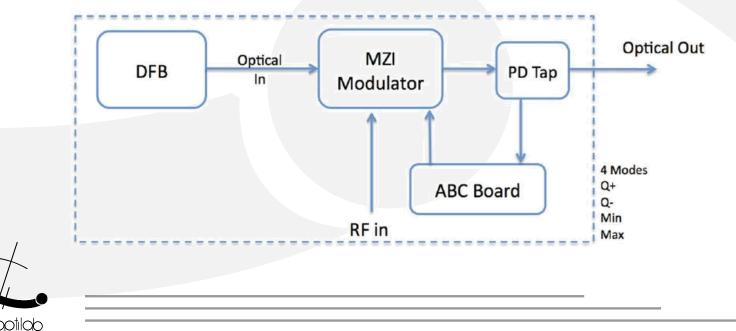
- Customizable Options:
 - Low Drive Voltage
 - PM output
 - High Extinction Ratio (> 30 dB)
 - Temp. Qualified (-55°C to +75°C)

USE IN

- Sub-nanosecond pulse generation
 - Optical communications to 50 Gb/s
 - 43 GHz RFoF transmission

- Analog photonics
- RF/IF signal distribution
- Satellite communication

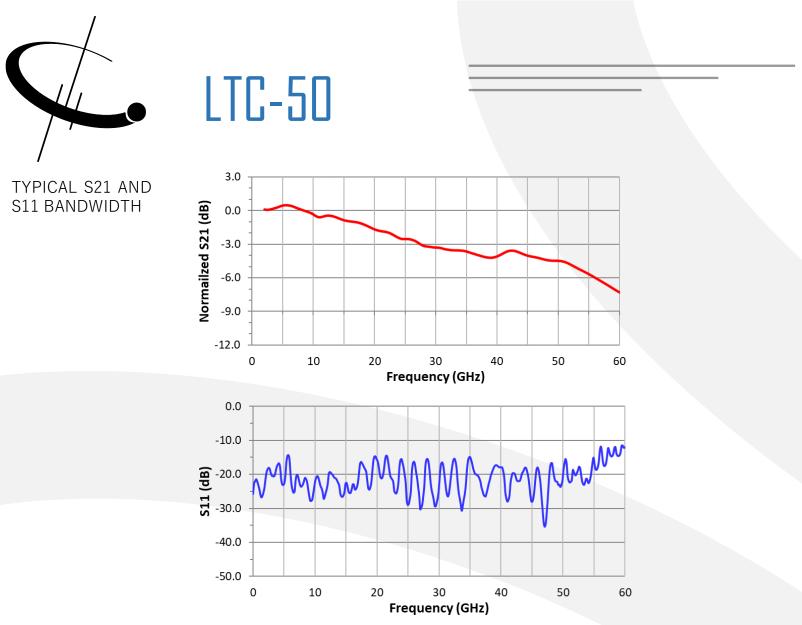
FUNCTIONAL DIAGRAM





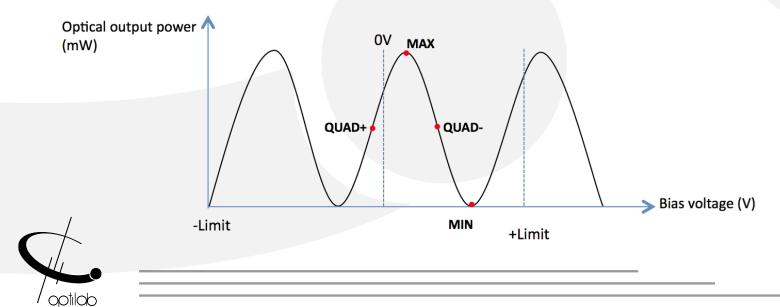
SPECIFICATIONS Operating Wavelength 1520 mm to 1610 mm Laser Source Internal DFB laser, 1550 ± 10 nm; other wavelengths and narrow linewidth <1 MHz are available Laser Power Level 20, 30, 40, 50 mW RF Return Loss \$ -10 dB @ 20 GHz Impedance 500 Operating Frequency Range DC to 50 GHz Input RF Voltage 27 dBm max. Optical Output Level 6.5 dBm typ. With 20 mW DFB S21 Bandwidth 31 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 VPI 3 V typ. @ 10 GHz typ. 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 AC Power Card Optical Connector FL/APC MECHANICAL Fiber Type SMF-28 output PANDA output (PM version) RF Input Connector V connector V connector				
Alser Source and narrow linewidth <1 MHz are available	SPECIFICATIONS	Operating Wavelength	1520 nm to 1610 nm	
and narrow linewidth <1 MHz are available	GENERAL		Internal DFB laser, 1550 ± 10 nm; other wavelengths	
MECHANICAL RF Return Loss \$ -10 dB @ 20 GHz Impedance 500 Operating Frequency Range DC to 50 GHz Input RF Voltage 27 dBm max. Optical Output Level 6.5 dBm typ. Wth 20 mW DFB S21 Bandwidth 31 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 VPI 3 V typ. @ 10 GHz typ 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 AC Power Cord Optical Connector FC/APC MECHANICAL Fiber Type SMF-28 output: PANDA output (PM version)		Laser Source	and narrow linewidth <1 MHz are available	
GENERAL Impedance 50Ω Operating Frequency Range DC to 50 GHz Input RF Voltage 27 dBm max. Optical Output Level 6.5 dBm typ. With 20 mW DFB S21 Bandwidth 31 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 VPI 3 V typ. @ 10 GHz typ Operating Temperature (standard) -30 °C to +60 °C Operating Temperature (rIQ version) -55 °C to +75 °C Storage Temperature -60 °C to +90 °C Power Supply Requirements AC Power Card Optical Connector FC/APC MECHANICAL Fiber Type SMF-28 output PANDA output (PM version)		Laser Power Level	20, 30, 40, 50 mW	
GENERAL Operating Frequency Range DC to 5D GHz Input RF Voltage 27 dBm max. Optical Output Level 6.5 dBm typ. With 20 mW DFB S21 Bandwidth 31 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 VPI 3 V typ. @ 10 GHz typ 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 AC Power Cord Optical Connector FL/APC MECHANICAL Fiber Type SMF-28 output: PANDA output (PM version)		RF Return Loss	≤ -10 dB @ 20 GHz	
Operating Temperature (standard) -30 °C to +60 °C Operating Temperature (TQ version) -55 °C to +75 °C Storage Temperature -60 °C Optical Connector -60 °C Operating Temperature -60 °C Operating Temperature -60 °C Operating Temperature -50 °C to +90 °C Operating Temperature -60 °C Optical Connector FC/APC Piber Type SMF-28 output: PANDA output (PM version)		Impedance	50Ω	
Input RF Voltage 27 dBm max. Optical Output Level 6.5 dBm typ. With 20 mW DFB S21 Bandwidth 31 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 VPI 3 V typ. @ 10 GHz typ 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 AC Power Card Optical Connector FC/APC MECHANICAL Fiber Type SMF-28 output; PANDA output (PM version)		Operating Frequency Range	DC to 50 GHz	
S21 Bandwidth 31 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 VPI 3 V typ. @ 10 GHz typ Operating Temperature (standard) -30 °C to +60 °C Operating Temperature (rQ version) -55 °C to +75 °C Storage Temperature -60 °C to +90 °C Power Supply Requirements AC Power Cord Optical Connector FC/APC Fiber Type SMF-28 output; PANDA output (PM version)		Input RF Voltage	27 dBm max.	
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Extinction Ratio 25 dB typ.: > 30 dB (HE version) Modulator Voltage VPI 3 V typ. ID GHz typ 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 AC Power Cord Optical Connector FC/APC MECHANICAL Fiber Type			31 GHz typ. 🛽 - 3 dB, 55 GHz typ. 🗏 - 6 dB	
Modulator Voltage VPI 3 V typ. III GHz typ Operating Temperature (standard) -30 °C to +60 °C Operating Temperature (TQ version) -55 °C to +75 °C Operating Temperature -60 °C to +90 °C Storage Temperature -60 °C to +90 °C Power Supply Requirements AC Power Cord Optical Connector FC/APC Fiber Type SMF-28 output; PANDA output (PM version)		Modulator Bias Mode	4 Automatic bias control modes, selectable by software	
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MECHANICAL Fiber Type				
Power Supply Requirements AC Power Cord Optical Connector FC/APC Fiber Type SMF-28 output; PANDA output (PM version)				
MECHANICAL Fiber Type SMF-28 output; PANDA output (PM version)				
MECHANICAL Fiber Type SMF-28 output: PANDA output (PM version)				
	MECHANICAE		V connector	
4 Pin Malex			4 Pin Molex	
Power Connector (AC Option Available)		Power Connector	(AC Option Available)	
Remote Control USB 2.0 software included		Remote Control	USB 2.0 software included	
Alarm LED bias mode status		Alarm	LED bias mode status	
Dimensions 241 mm x 152 mm x 41 mm		Dimensions	241 mm x 152 mm x 41 mm	
Mode Operation Conditions	BIAS CONTROL MODE	Mode Operation Condi	tions	
BLAS CONTROL Q+ Set to quadrature point of positive slope for linear analog modulation		Q+ Set to quadrature poin	t of positive slope for linear analog modulation	
DIAG CONTINCE				
Min. Set to min. point of operation for pulse generation or digital modulation		Min. Set to min. point of op		
Max. Set to max. point of operation for pulse generation or digital modulation		Max. Set to max. point of op	eration for pulse generation or digital modulation	





BIAS SETTING MODES FOR LTC

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







ORDERING OPTIONS

LTC-50-XX-YY

- PM: Polarization Maintaining XX HE: High Extinction Ratio
- YΥ DC: DC +/- 5V Power Supply (Option 1) AC: AC 100/240 VAC (Option 2)

Option 1 : DC +/- 5V



Option 2: 100/240 VAC



