

## Mach-40™ 027/066: 40 Gb/s Phase Modulator

7.1.2.SP.0027 Rev F Preliminary Model

### Description

The 40 Gb/s Phase Modulator is a high performance, low drive voltage External Optical Modulator designed for customers developing next generation 40G transmission systems. The increased bandwidth allows for chirp control in high-speed data communications; supporting data rates up to 43 Gb/s. The modulator is also ideal for applications in coherent communications, sensing, all-optical frequency-shifting, and data encryption.

The Phase Modulator is based on Titanium-indiffused z-cut Lithium Niobate. For ease of system integration it is offered with internal termination and optional polarization-maintaining output fiber. This device is available with, or without, an internal optical polarizer positioned at the device output.



### Features

#### Applications

- ✓ Chirp Control for High-Speed Communications
  - SONET OC-768 Interfaces
  - SDH STM-256 Interfaces
  - WDM transmission at +40 Gb/s
- ✓ Coherent communications
- ✓ Optical Sensing
- ✓ All-optical frequency shifting

- Superior Frequency Performance
- Low Drive Voltage
- Internal Termination and Optional Polarizer
- Hermetic Packaging - High Reliability
- C & L Band Operation

### Ordering Information

Mach-40 027/066-40-X-X-X					
Part #	Bandwidth	Output Fiber Type	Input Connector	Output Connector	
027 = <i>with optical polarizer</i>	40 = 40 GHz	S = SMF*	S = SC/PC*	S = SC/PC*	
066 = <i>without optical polarizer</i>		P = PMF	B = Bare Fiber	B = Bare Fiber	
			F = FC/uPC	F = FC/uPC	
			L = LC/PC	L = LC/PC	
			A = FC/aPC	A = FC/aPC	
			M = Mu	M = Mu	
* Default options unless otherwise specified					

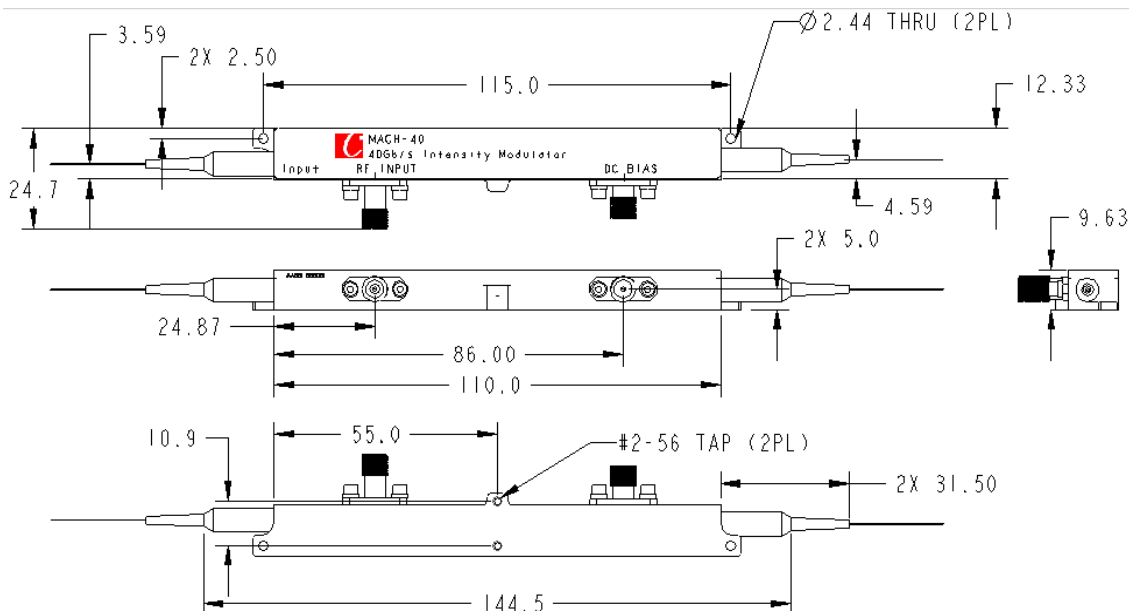
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### Specifications

Parameter		Min	Typ	Max	
Operating Case Temperature	$T_{CASE}$	0		70	C
Operating Wavelength	$\lambda$	1525		1605	nm
Optical Insertion Loss (Connectorized)	I.L.		4.0	5.0	dB
Insertion Loss Variation (EOL)	$\Delta$ I.L.	-0.5		0.5	dB
Optical Return Loss		40			dB
Bit Rate Frequency	$f_{BR}$		40		Gb/s
E/O Bandwidth (-3 dB with Linear Fit ref. 130 MHz)	$f_{c-3dB}$	30	35		GHz
S11 (dc to 30 GHz)			-12	-10	dB
S11 (30 GHz to 40 GHz)			-10	-8	dB
Drive Voltage of RF Port (PRBS)	$V_{PRBS}$		5.5		V
$V_{\pi}$ RF Port (@ 1GHz)	$V_{RF}$			4.0	V
RF Connector	V - Connector				

SPECIFICATIONS SUBJECTED TO CHANGE WITHOUT NOTICE

### Packaging



Dimensions in mm unless otherwise specified; Tolerances are  $\pm 0.05$  (decimals)  $\pm 1$  (angles)

The 40G Phase Modulator is packaged in the same housing as the 40G Intensity Modulator (shown above). However, for Phase Modulator operation the DC Bias port remains unused.