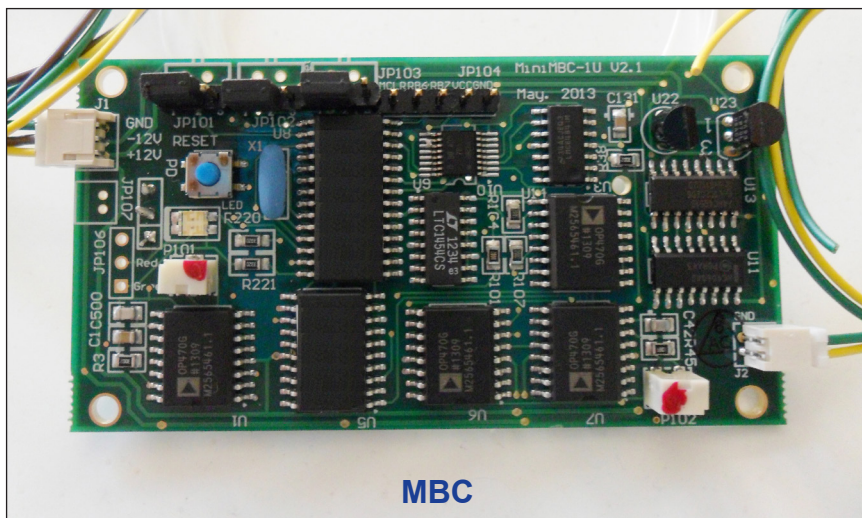




## MODULATOR BIAS CONTROLLER - MINI

### Features

- User selectable locking slope (QUAD+  $\leftrightarrow$  QUAD-, NULL  $\leftrightarrow$  PEAK)
- User selectable locking mode (Quad+/Quad-  $\leftrightarrow$  Null/Peak)
- Two operation modes: calibration mode and locking mode
- Calibration off mode for quick system setup in locking mode
- Low profile (3.1" x 1.6" x 0.65")
- Access for external photodetector
- Stand alone
- Computer interface is not required
- Provides modulator bias current up to 100 mA



### Product Description

The mini Modulator Bias Controller is a full-function miniature OEM version of the Modulator Bias Controller (MBC) family. It is designed to be used for a single modulator general applications. The Modulator Bias Controller can be used to lock the working point of the modulator at the positive slope quadrature (quad+), negative slope quadrature (quad-), null or peak points of its characteristic curve. The locking modes and slopes are selectable by changing the jumper positions on the PCB. A pigtailed photodetector is included. An external photodetector may also be used.

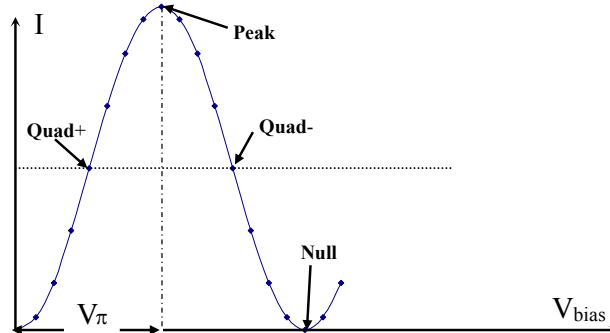


Figure 1. MZ modulator working function

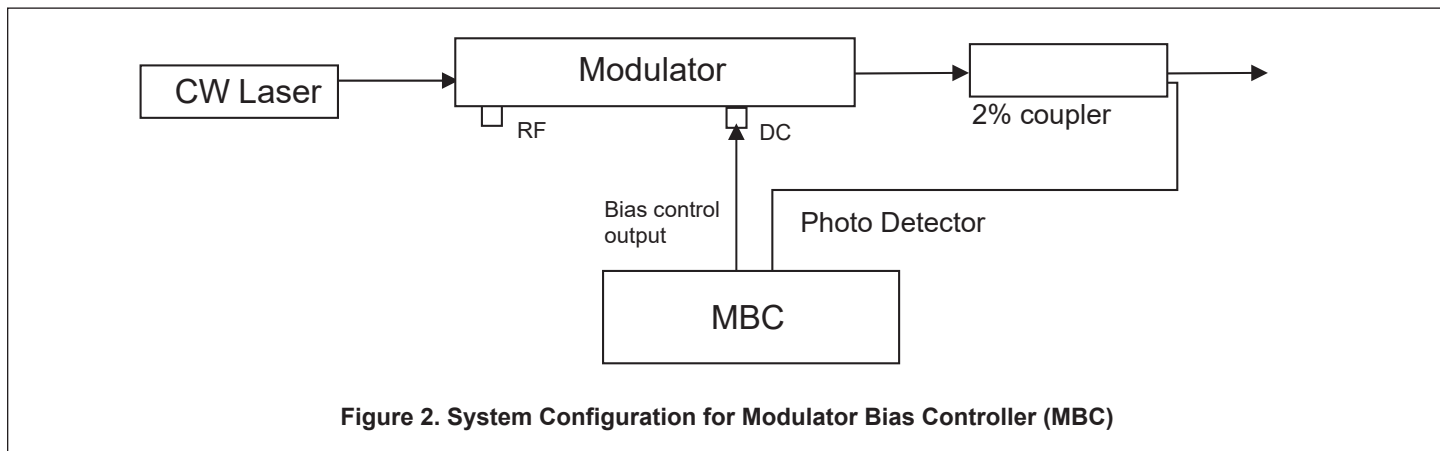


Figure 2. System Configuration for Modulator Bias Controller (MBC)

Specifications

Parameters	Min.	Typ.	Max.
Optical Performance			
Detector Input Power <sup>1</sup> (dBm)	-30		-10
Optical Wavelength <sup>2</sup> (nm)	1000–1650		
Electrical Performance			
Bias Voltage (V)	-10		10
Bias Current (mA)			100
Null Mode Extinction Ratio <sup>3</sup> (dB)		25	40
Locking Slope	Positive or Negative		
Locking Mode	Quad+ (Quad-) or Null (Peak)		
Pilot Tone			
Modulation Depth (QUAD) <sup>4</sup> (%)		1	2
Modulation Depth (Null) (%)			0.1
Pilot Tone Frequency (QUAD) (Hz)		1000	
Pilot Tone Frequency (NULL) (Hz)		2000	

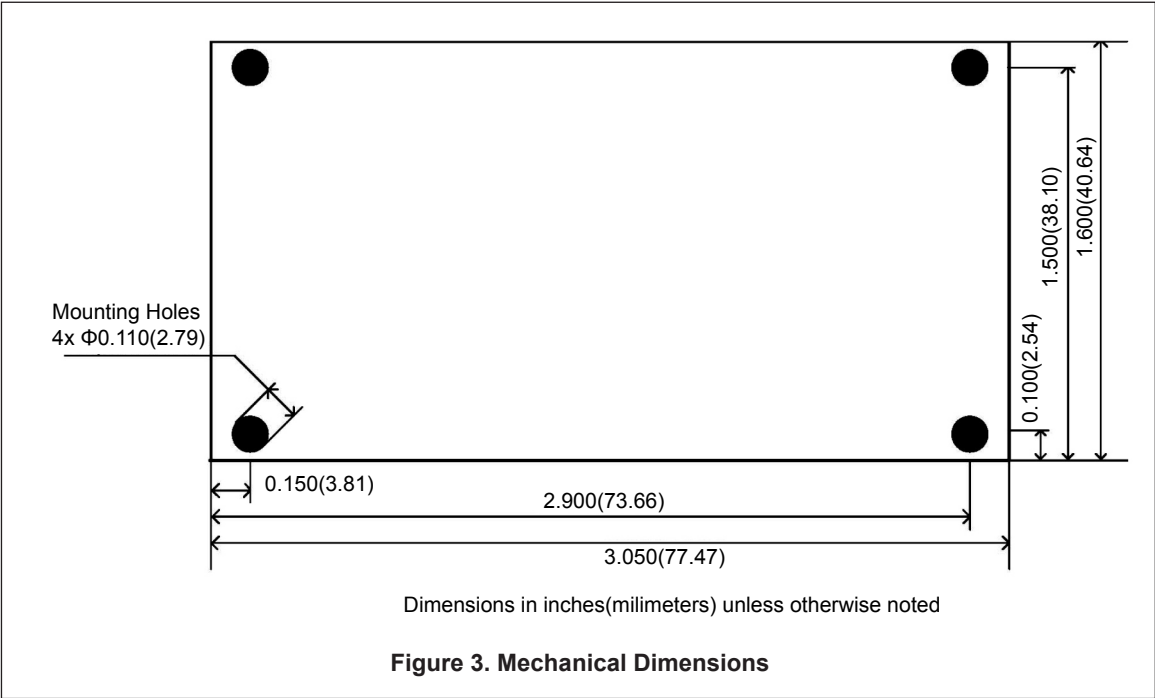
Parameters	Min.	Typ.	Max.
Power Supplies			
Positive Power Voltage (V)	11.5	12	12.5
Negative Power Voltage (V)	-12.5	-12	-11.5
Positive Power Current (mA)		60	
Negative Power Current (mA)		40	
General			
Operating Temperature (°C)	0–70		
Storage Temperature (°C)	-40–85		
Dimension (inch)	3.1 x 1.6 x 0.65		
Weight (lb)	0.2		

<sup>1</sup> For a given input, detection power refers to the coupled optical power to the photodiode of MBC when the modulator output is at its minimum attenuation (The detection power does not describe the detected power at locking status).

<sup>2</sup> The wavelength can be expanded with PDs for different wavelengths.

<sup>3</sup> In this case, the modulator output power was greater than 0 dBm. 1% coupler was used. The extinction ratio will be close to but not exceed the extinction ratio of the modulator.

<sup>4</sup> Optical Modulation Index = amplitude of modulation/V<sub>π</sub>.



Part Number

**MBC-MINI-PP-X**

**PP** = Pigtailed Photodiode code:  
PD = Pigtailed photodiode included  
00 = Pigtailed photodiode not included  
Leave connector code blank

**X** = Connector code:  
3U = FC/UPC  
3A = FC/APC  
SCU = SC/UPC  
SCA = SC/APC  
LCU = LC/UPC  
LCA = LC/APC