MODULATOR BIAS CONTROLLER - PRECISION DITHERLESS

PRELIMINARY

Features

- Compact
- Ditherless, no. pilot tone
- High dynamic range, high accuracy
- Usable with Mach-Zehnder (MZ) modulator
- Usable for Fabry-Perot fiber control loop-back
- Fast response
- Tunable
- Alarming LED for overtuning
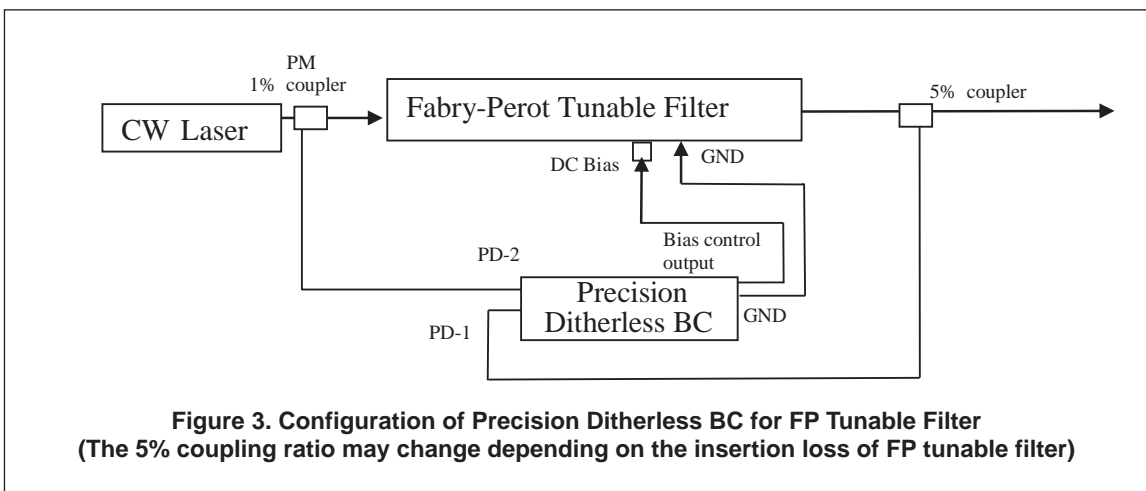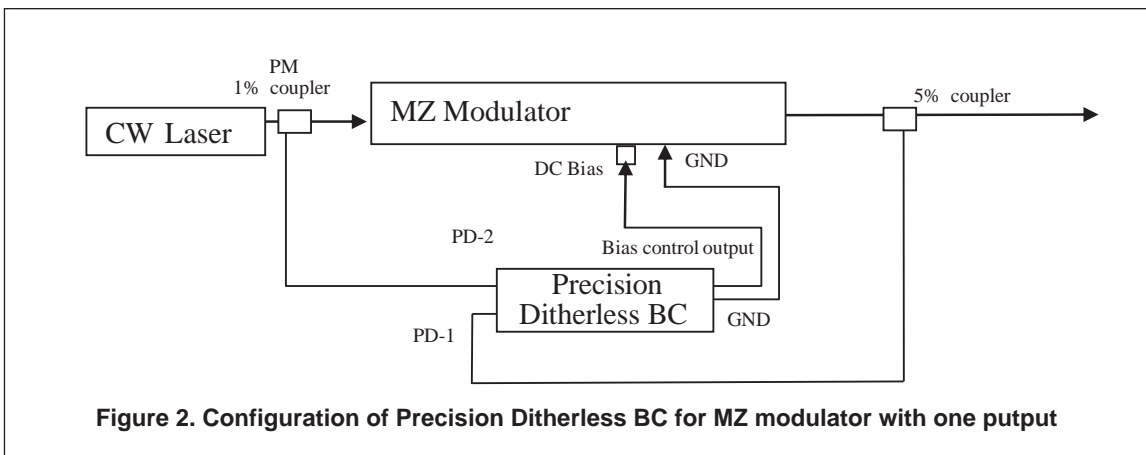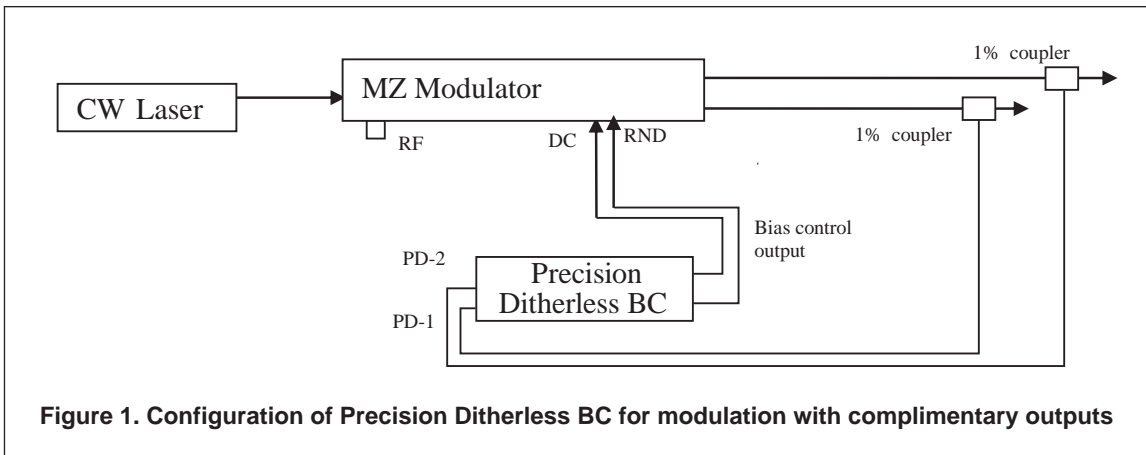- Automatically lock to quad precisely then enter into ditherless mode

Product Description

The Precision Ditherless Bias Controller is an OEM version standalone device for bias control in a feedback loop. The most important feature is its use of pilot tone mode to accurately bring the modulator to the Quad position, followed by the use of ditherless mode to continue locking the modulator at that point. The user can also disable the pilot tone and use the manual mode to lock the bias of the modulator or the device under control to another desired working point. The locking slope can be switched with a jumper on the board. When the modulator drifts out of the specified range, the unit will pull the bias back to the desired working point. There are two built-in photodiodes on the board. An external reference voltage can also be applied when specified at the time of order. There is a port for the user to tune the Bias Controller by applying an external voltage when it is set to the manual mode.

MBC-PDBC
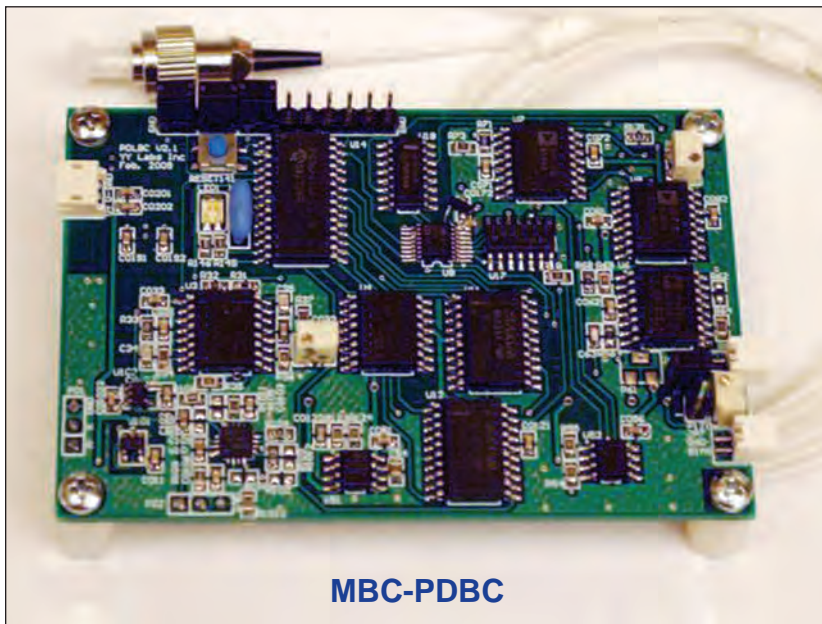
Specifications

Parameters	Min.	Typ.	Max.
Input Signal Current (mA)	0.1×10^{-3}		0.1
Input Optical Power (dBm)	-30		-10
Locking Accuracy (Degrees)		1.6	2
DC Bias Voltage (V)	-10		+10
Modulation Depth (%) (During calibration or resetting only, it is off during normal operation)		6	
Pilot Tone Frequency (Hz)		1K	
Positive Power Supply (V)	10	12	+15
Negative Power Supply (V)	-10	-12	-15
Positive Supply Current (mA)			120
Negative Supply Current (mA)			90
Operating Temperature (°C)	0–70		
Storage Temperature (°C)	-40–80		
Dimension L x W x H (inch)	3.3 x 2.2 x 0.5		

Figure 1. Configuration of Precision Ditherless BC for modulation with complimentary outputs

Figure 2. Configuration of Precision Ditherless BC for MZ modulator with one putput

Figure 3. Configuration of Precision Ditherless BC for FP Tunable Filter
(The 5% coupling ratio may change depending on the insertion loss of FP tunable filter)

Part Number

MBC-PDBC-X

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