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PSI-0204 Series
PSI-204-99 Evaluation Kit
For use with PSI-0204-11 chip-scale MBC

Product Description

The PSI—0204-99 optical modulator bias controller (MBC) evaluation kit provides a complete laboratory solution for evaluation of the PSI-0204-11 chip-scale MBC. The chip-scale controller provides control of external optical modulators from a single, small form factor circuit board. When operated with lithium niobate ($LiNbO_3$), modulators, the PSI-0204-11 provides automatic or manual bias control. Users may select automatic tracking of Quad +, Quad -, Minimum or Maximum bias points as shown in Figure 1. Operation at an externally set manual bias point may also be selected.

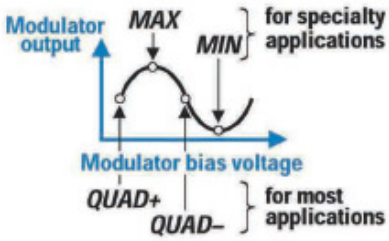


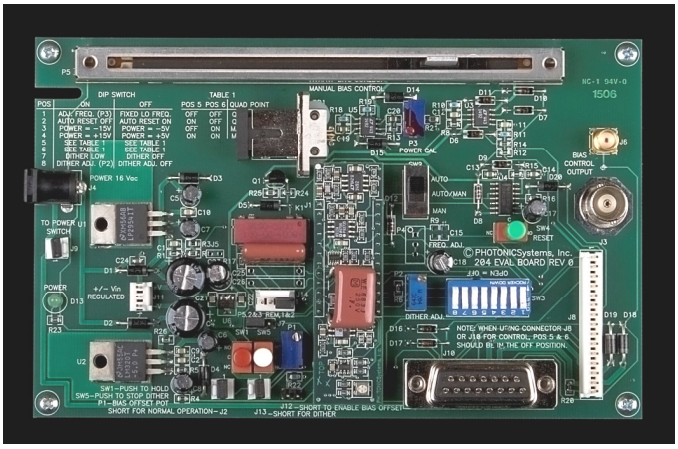
Figure 1– Modulator Transfer Function

The chip-scale device evaluation board provides a simple means to make all necessary electrical and optical connections to an MBC under evaluation. A 24 pin socket on top of the board hosts the device under test. All electrical and optical connections are made to the device including power, user-defined settings and bias voltage output. An on-board photodetector completes the optical feedback loop from a user's modulator and laser system. Controls are provided to set manual bias point, automatic bias point, bias offset, dither amplitude and dither frequency. Push buttons allow for temporary hold of a bias point, dither disable and forced reset. A bias monitor port is provided as are connections through either a D-type or Molex connector. The kit is shipped complete with a sample MBC, AC power supply, and connectors.

About the PSI-0204-11 Chip-scale MBC

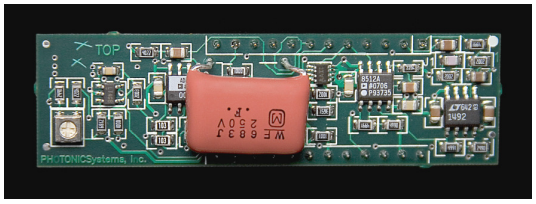
Designed for easy integration into the user's optical system, these controllers maintain constant bias point operation by compensating for drift in a modulator's transfer function. An external modulation fiber optical transmitter is shown in Figure 2 to illustrate how the controller is typically used. Through use of an optical coupler and photodetector, a portion of the transmitted light is detected and fed to the MBC. The dither tone is applied to the bias voltage output and sampled as a control mechanism. User settings determine bias point selection, dither frequency and amplitude.

Beyond standard specifications, PSI can modify the PSI-0204-11 to meet the exact requirements of your application. Smaller package sizes are offered for operation at a single bias point; other designs may also result in micro-miniature packages.



Features and Benefits

- ✓ Complete evaluation kit for PSI-0204-11 Modulator Bias Controller
- ✓ Includes all control components to test MBC with your application
- ✓ Dither based control compatible with most optical modulators
- ✓ Includes sample MBC, AC power supply and DC electrical connectors.



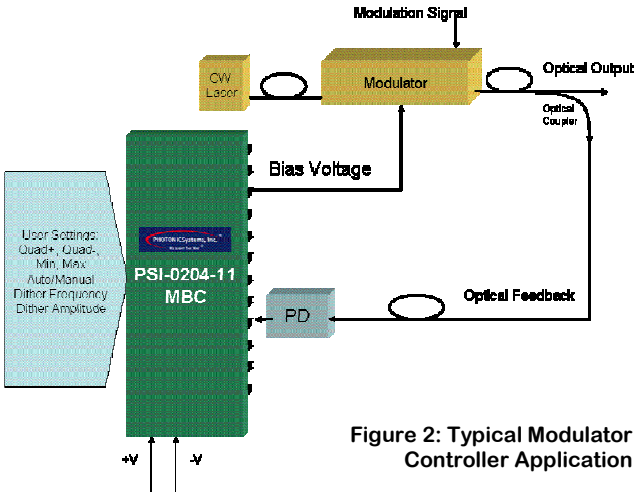


Figure 2: Typical Modulator Controller Application

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PSI-0204-99 Modulator Bias Controller Evaluation Kit

Using the Evaluation Board-

Most functions of the PSI-0204-99 Modulator Bias Controller evaluation board are set up through an 8 position DIP switch bank (SW3) located at the lower right of the board. These switches enable the dither generator at a fixed frequency and amplitude, enable automatic reset, set the automatic bias control point and determine set +/-15 volt supply operation. Prior to applying power to the evaluation board, ensure that the switches are set according to your application and the tables below.

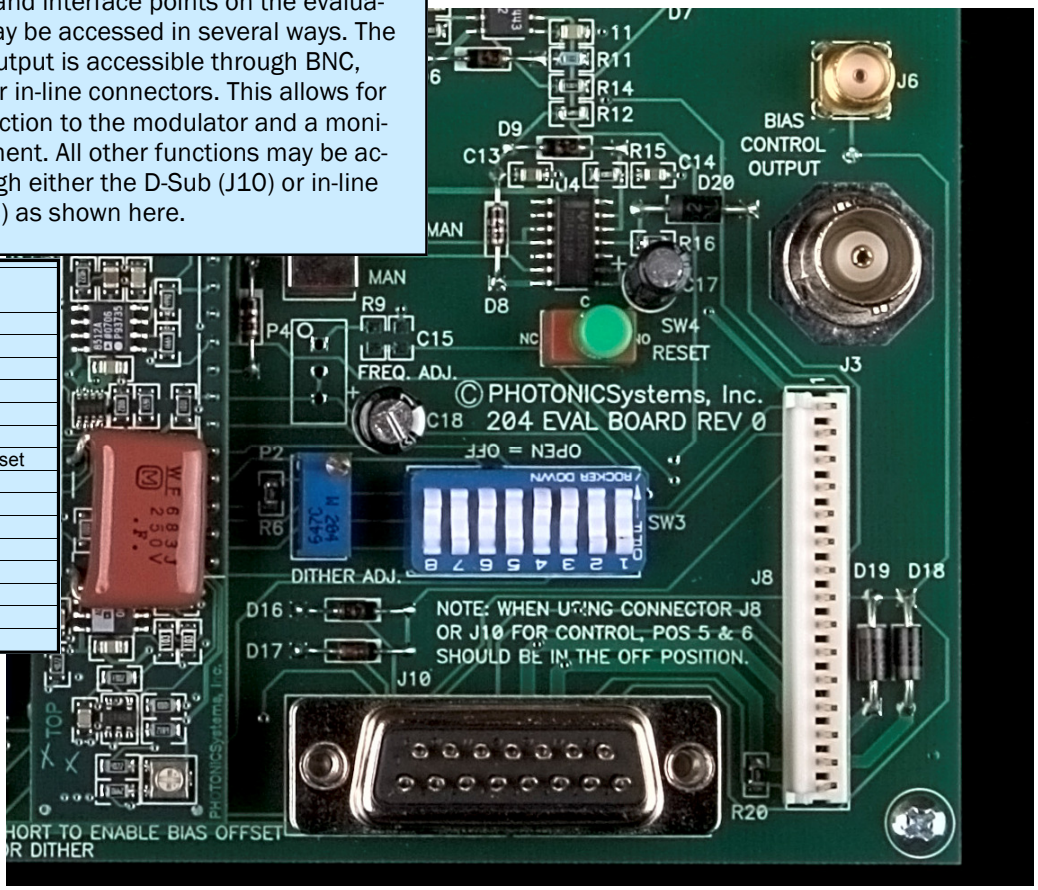
POS	ON	OFF (CLOSED)
1	Adjustable Dither Frequency	Fixed Frequency (1KHz)
2	Auto Reset Off	Auto Reset On
3	Power= -15V	Power= -5V
4	Power=+15V	Power=+5V
5	Bias Mode (See Table 2)	Bias Mode (See Table 2)
6	Bias Mode (See Table 2)	Bias Mode (See Table 2)
7	Dither Low	Dither Off
8	Dither Adj. (P2)	Dither Adj. Off

MBC Pin Bias Point	Pin 17	Pin 16
Q+	Open	Open
Q-	Ground	Open
Max	Open	Ground
Min	Ground	Ground

Auto bias control point settings.

All functions and interface points on the evaluation board may be accessed in several ways. The controller's output is accessible through BNC, SMA, D-sub or in-line connectors. This allows for simple connection to the modulator and a monitoring instrument. All other functions may be accessed through either the D-Sub (J10) or in-line connector (J8) as shown here.

J8 or J10 pin	*Description*
1	Q+/-
2	Min/Max
3	Min
4	+5 volts
5	Power Switch 1
6	Power Switch 2
7	Reset Input; Ground to force reset
8	Bias Output
9	Power Meter
10	Auto/manual Select
11	Ground
12	Bias Wiper (Manual Control)
13	V-
14	V+
15	Power LED



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