

**Features**

- » Maintains Bias > ±1° of Quad+
- » Includes Auto-reset
- » Small and Simple to Integrate Into System
- » Factory adjustable dither frequency
- » Customization Available

**Applications**

- » Optical Modulator Communications Systems
- » RF and Microwave Photonic Transmitters
- » Spectroscopy Systems
- » Optical Test Systems
- » Optical Modulator Component Evaluation
- » Optical Delay Lines

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**Description**

The PSI-2011-11 mini optical modulator bias controller (MBC) offers comprehensive control of external optical modulators from a single, small form factor circuit board. The PSI-2011-11 provides automatic tracking of Quad+ bias point as shown in Figure 1. If required, the PSI-2011-11 MBC can be customized by PSI for Quad-, Max or Min operation.

Using a standard dither tone set at 1 KHz, the PSI-2011-11 tracks the operating point to within +/- 1° at 1% dither of  $V_{\pi}$  when operating at quadrature. The dither tone amplitude is factory set to 1% of customer specified nominal  $V_{\pi}$ . A high degree of bias point accuracy is maintained over a wide operating temperature range of -20°C to +70°C. Using a common photodetector, the bias point accuracy is easily maintained over a >10dB range of optical power. The PSI-2011-11 can be plugged into a motherboard or connections can be made through discrete wiring to the appropriate input/output connector pins.

Along with this standard configuration, PSI can modify the PSI-2011-11 to meet system requirements. **Please contact PSI with your application needs.**

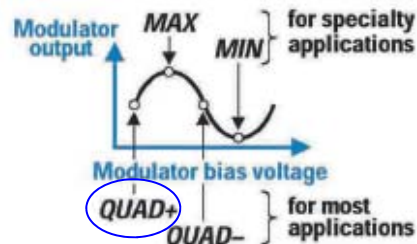
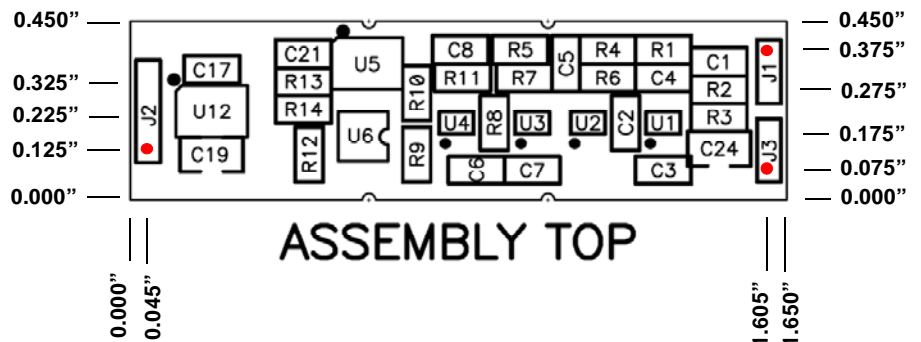


Figure 1– Modulator Transfer

**Ordering Information**

PSI Part Number	Description
PSI-2011-11	Modulator Bias Controller <ul style="list-style-type: none"> <li>• Please specify nominal modulator DC <math>V_{\pi}</math> at time of order to ensure proper set-up</li> </ul>

**Mechanical Information**



### Performance Characteristics

Parameter	Condition	Min	Typ	Max	Units
Modulating Signal	Small Signal				
Modulators Supported	LiNbO <sub>3</sub>				
Modulator/Bias-t Capacitance				0.2	μF
Output DC Bias Port Impedance			100		Ω
Output DC Bias Voltage	Less Than Supply Voltage		1.0		V
Dither Frequency			1.0		KHz
Dither Amplitude	Factory Set per customer modulator	20		200	ppmV
Bias Point Error @ Quad+	150 to 15 μA photocurrent	≥1° @ 1% of V <sub>π</sub>			
DC Supply Voltages		± 8	± 12	± 13	V
DC Operating Current				10	mA

### Environmental Characteristics

Parameter	Condition	Min	Typ	Max	Units
Operating Temperature	Within Specifications	0		50	°C
Operating Temperature	Degraded Accuracy (<± 3°)	-20		70	°C
Storage Temperature		-40		85	°C

### Pin-out Descriptions

Designator	Pin	Description
J1	1	Photodiode Cathode
	2	Photodiode Anode (Ground)
J2	1	+12 V <sub>DC</sub>
	2	Ground
	3	-12 V <sub>DC</sub>
J3	1	Modulator Bias Output Signal
	2	Ground