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DQPSK/QPSK - MODULATOR BIAS CONTROLLER BOX

PRELIMINARY

MBC-QPSK - MODULATOR BIAS CONTROLLER BOX

Features

- Six modulators can be controlled with one controller (1st, 2nd modulator of each QPSK modulator at Null/ peak mode, the 3rd at Quad)
- User selectable locking slope (NULL ⇔ PEAK) through USB interface
- One photodiode is integrated in the controller.
- Three operation modes: DQPSK, QAM or Arbitrary-waveform
- All settings are remotely controllable via USB computer interface
- User can select automation mode or manual mode; user may stop the pilot tone for any or all modulators and manually tune the bias through USB computer interface
- Read back the input power to the PDs and the bias voltages through GUI
- Compact Design

Product Description

QPSK-DP/SP -Modulator Bias Controller Box is a bench top device specially designed to control the bias positions for DP/SP QPSK-modulator used for 80Gbit QPSK or QAM applications. DQPSK (Differential quadrature phase-shift key) modulator can improve optical transmission properties such as total reach, dispersion tolerance, or spectral efficiency. Since the DP/SP QPSK modulator is a combination of 2/1 phase modulators and 4/2 Mach-Zehnder modulators, there are six or three bias points requiring control.

OZ's QPSK DP/SP modulator bias controller-Box is a full-function desktop version of the Modulator Bias Controller (MBC) family. It simultaneously sets the first and second modulators of each QPSK modulator at Null points and the third modulator of each QPSK modulator at quad point. The slope of working point of the first and second modulator is selectable from the computer via GUI.

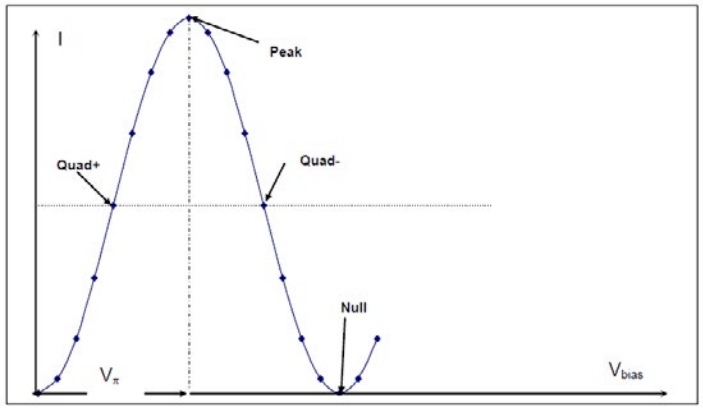

Figure 1. MZ modulator working function.

Specifications

Parameters	Min.	Typ.	Max.
Optical Performance			
Detector Input Power[1]	-25 dBm		-10 dBm
Optical Wavelength		1300/1550 nm	
Electrical Performance			
Bias Voltage (Differential)	-25V		25V
Bias Voltage (Single End)	-12.5V		12.5V
Null Mode Extinction Ratio[2]		25 dB	40 dB
Locking Slope	Positive or Negative		
Locking Mode	Null (Peak) positions for child modulators Quad+ or (Quad-) position for parent modulator		
Pilot Tone			
Modulation Depth (QUAD)[3]		0.1%	
Modulation Depth (NULL)			0.1%
Pilot Tone Frequency		4000 Hz	
Power Supplies			
Power Voltage	90V(AC)	110V(AC)	240V(AC)
Power Current		0.65A(AC)	
General			
Operating Temperature	0 °C		70 °C
Storage Temperature	-40 °C		+85 °C
Dimension	15.5 cm X 20.3 cm X 6.9 cm (6.1 in X 8 in X 2.7 in)		
Weight	0.95 kg (2.1 lb)		

1 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). In the case, if the modulator output power is 0 dBm at Peak, 1% coupler was used, the detection power should be –20 dBm.

2 The distinction ratio will be close but not exceed the distinction ratio of the modulator.

3 Optical Modulation Index = amplitude of modulation/V_{π}.

Part Number

MBC-QPSK-P-XY-BOX

P = Polarization
DP = Dual Polarization
SP = Single Polarization

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