Eye-BERT Gen2
100381A

125Mbps to 11.4Gbps Bit Error Rate Tester

| Optical | Electrical | SFP+ | CDR | Low Cost |

Features:

User Replaceable SFP / SFP+

125Mbps to 4.25Gbps

9.9Gbps to 11.4Gbps

SMA Electrical I/O

Mixed E/O Testing

Internal CDR

Compact Package

USB and Ethernet

Color Touch Screen

SFP Register Diagnostics

Applications:

Transmitter / Receiver testing

SFP / SFP+ Testing

Automated Test Sets

Dedicated Link Verification

Overview

The Eye-BERT Gen2 is a low cost, easy to use, stand-alone bit error rate tester offering high performance testing from 125Mbps to 4.25Gbps and from 9.9Gbps to 11.4Gbps in a single package. The Eye-BERT combines the capabilities of the Eye-BERT Micro and the Eye-BERT Micro 10G while adding electrical SMA interfaces and a color touch screen. The Eye-BERT accepts any MSA compatible SFP or SFP+ transceiver for optical bit error rate testing. Using the differential SMA inputs and outputs, electrical or mixed mode optical / electrical testing can be performed.

USB and Ethernet interfaces are supplied for custom automation applications. The unit is supplied with anti-skid bumpers for bench use and is small enough to be integrated into larger systems for dedicated link verification.

Operation

Setup is easily accomplished via the two configuration screens. The user simply selects the desired bit rate, pattern, and input source from the touch screen interface. The optical and electrical outputs can optionally be disabled or inverted from the configuration screen.

Upon exiting the configuration screen, the Eye-BERT begins monitoring and displaying the bit error rate on the selected interface along with the optical and electrical interface status and measurements.

User Configurability

The Eye-BERT can accept any MSA compliant SFP or SFP+ transceiver allowing a wide variety of interface options including: single/multi mode fiber, wavelength, DWDM, 1G/10G, etc.

Reference Clock Output

A differential output reference clock is provided on the rear panel. This clock is synchronous with the transmitted data and is intended to be used for synchronization purposes only. Rise time and jitter characteristics of this output limit its usefulness as an oscilloscope trigger at high bit rates. For eye measurements it is recommended using an eye scanning device with a built in CDR such as the Eye-Scope (Spectronix PN 100380A).

SFP / SFP+ Diagnostics

Using the computer interface, the transceiver can be queried for the model number, serial number, date code, capabilities, and registers data. The SFP read / write commands can also be used to allow the user to re-write individual registers in the device.

Computer Interface

The Eye-BERT can optionally communicate with any Windows computer via its built in USB or Ethernet ports. Using the desired interface and any terminal emulation program, the user can configure the device and monitor its measurements remotely. The straight forward communication protocol also makes it easy to develop custom control applications.

Ordering Information

Part Number	Description
100381A	Eye-BERT Gen2, 125Mbps to 4.25Gbps and 9.9Gbps to 11.4Gbps

Specifications

Parameter	Units	Typical Specifications
Supported Data Rates[1]	Gbps	0.125, 0.15552, 0.200, 0.62208, 1.0625, 1.250, 2.125, 2.48832, 2.500, 2.66608, 4.250, 9.95328, 10.3125, 10.5188, 10.7092, 11.049, 11.0957, 11.270, 11.31760
Data Patterns		2^7-1, 2^{31}-1, K28.5, K28.7
Optical Interface		MSA compliant SFP or SFP+
Electrical Output	mVpp	900 (typical), differential LVDS SMA
Electrical Input	mVpp	50 to 1200, differential SMA
Reference Clock Output	mVpp	750 (typical), differential LVDS SMA
Reference Clock Jitter	pS	8pS rms, 35pS peak to peak (typical)
Frequency Accuracy	ppm	+/- 20
Computer Interface		USB-2, Mini B, Windows driver supplied Ethernet, RJ45, TCP/IP
Power		5VDC, 2A Max (1A typical)
Unit Dimension	inches	1.2 x 4.3 x 3.2 with rubber bumpers

Notes:
1. Optical rates depend on transceiver capability.