Eye-BERT 40G 100400A

40Gbps Bit Error Rate Tester and QSFP Test Set

Spectronix

Optical	Quad	QSFP	40Gbps	Low Cost

Features:

User Replaceable QSFP
Single/Composite Display
QSFP Register Decode
Automatic QSFP Test
Pattern Inversion
4x 10Gbps
USB Interface
Optional Ethernet
Compact Package
Color Touch Screen

Applications:

QSFP Testing
Crosstalk Testing
Automated Test Sets
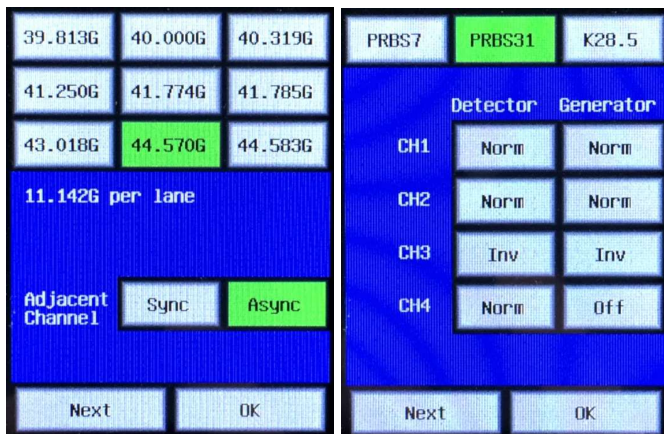Dedicated Link Verification

Overview

The Eye-BERT 40G is a low cost, easy to use, stand-alone bit error rate tester offering four independent 10Gbps test channels for a composite rate of 39.81 to 44.58Gbps in a single package. The Eye-BERT 40G accepts any MSA compatible QSFP transceiver and each of the four channels can be operated synchronously or the odd/even channels configured for asynchronous operation. A color touch screen is provided for stand-alone operation and USB and optional Ethernet interfaces can be utilized for custom automation applications or for using the built in automated QSFP test macro. The unit is supplied with anti-skid bumpers 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 and pattern from the touch screen interface. Each input and output can also optionally be disabled or inverted from the configuration screen.

The four channels can be configured to operate synchronously to each other or the odd/even channels configured to operate asynchronously. In asynchronous operation

the even channels are offset from the nominal bit rate by approximately 10ppm; this can be useful for testing crosstalk. Since internal receive CDRs are not utilized, the signal at the receiver must originate from its own transmitter (same clock domain).

Upon exiting the configuration screen, the Eye-BERT 40G begins monitoring and displaying the bit error rate and QSFP measurements. Status and BER measurements for each of the four channels are displayed separately in the lower portion of the screen while the composite BER measurements are displayed at the top. The top area can also be configured to display measurements from a single channel if desired by touching this area.
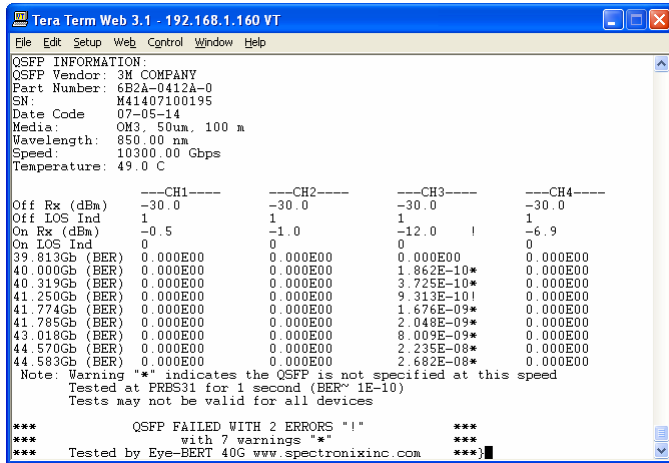
QSFP Diagnostics

The Eye-BERT 40G can accept any MSA compliant QSFP transceiver allowing a wide variety of interface options including: single/multi mode fiber, wavelength, DWDM, multiplexed, etc.

Using the computer interface, the transceiver can be queried for the model number, serial number, date code, capabilities, and registers data. The QSFP read and write commands can also be used to allow the user to view and re-write individual registers in the device. See the Software Programming Guide for more information on this function.

Automated QSFP Testing

QSFP testing is easily accomplished by inserting a QSFP with a loop-back cable and executing the "Test" command from any terminal type program via the USB or optional Ethernet ports. This will cause the Eye-BERT 40G to read the device registers and automatically test the performance against the values read. A detailed test report which can be printed or saved is generated in less than 20 seconds. See the Software Programming Guide for more information.

The Eye-BERT 40G can optionally communicate with any Windows computer via its built in USB or optional Ethernet ports. Using the desired interface and any terminal emulation program, the user can configure the device, monitor its measurements, or test a QSFP remotely. The straight forward, human readable communication protocol also makes it easy to develop custom control applications.

Ordering Information

Part Number	Description
100400A	**Eye-BERT 40G, 39.813 to 44.583Gbps**
100400A-E	**Eye-BERT 40G, 39.813 to 44.583Gbps with Ethernet**

Computer Interface

Specifications

Parameter	Units	Typical Specifications
Supported Data Rates[1]	**Gbps**	**39.813120, 40.000000, 40.319220, 41.250000, 41.774360, 41.785970, 43.018410, 44.570970, 44.583360**
Data Patterns		**2^7-1, 2^{31}-1, K28.5**
Optical Interface		**MSA compliant QSFP**
Frequency Accuracy	**ppm**	**+/- 20**
Transmit / Receive Rate Difference	**ppm**	**0 (The receive signal must originate from its transmitter)**
Computer Interface		**USB-2, Mini B, Windows driver supplied** **Optional Ethernet, RJ45, TCP/IP**
Power		**5VDC, 2A Max**
Unit Dimension	**inches**	**1.2 x 4.3 x 3.2 with rubber bumpers**

Notes:
1. Optical rates depend on transceiver capability. Specified rates are composite rates; each channel operates at $1/4^{th}$ the composite rate. Other rates available.