

CA9803 4 x 28 Gb/s Bit Error-Rate Tester

Technical Specifications V1.03

Nov., 2013



 UC INSTRUMENTS (USA) CORP.

www.ucinstruments.com

CA9803 4 x 28 Gb/s Bit Error-Rate Tester

The UC INSTRUEMNTS CA9803 is a high performance, easy to use, all-in-one, costeffective, 4 x 28 Gb/s Bit Error-Rate Tester(BERT) for current 100 G TOSA/ROSA components R&D and manufacturing environments as well as field installations. The CA9803 incorporates an internal reference clock, a pattern generator, clock recovery circuits, and a BER analyzer, in one compact module that provides both electrical and optical interfaces at data rates up to 28 Gb/s. The CA9803 is offered with an RS-232 or USB interface.

The PPRBS outputs optical NRZ waveform with bit rate within 25 ~ 28 Gbps, with settable data pattern of 2^7-1 , 2^9-1 , $2^{11}-1$, $2^{15}-1$, $2^{23}-1$, $2^{31}-1$, and a fixed 64-bit user-defined pattern. The BERT system is controlled by external computer via a USB port, with full software support, drivers and programming guide for automation.

Features

- Bit rates from 25 ~ 28 Gb/s
- PRBS 2^7-1 , 2^9-1 , $2^{11}-1$, $2^{15}-1$, $2^{23}-1$, $2^{31}-1$; user defined pattern , and 64bit definable
- Pre-emphasis output signal functionality
- 4 CH PPG and 4 CH Error Detector were integrated in one compact mainframe
- Computer control via USB
- Cost effective solution for production

Applications

- Testing of optical transceiver modules (SFP+, XFP, X2, Xenpak, XPAK), transponders, linecards, and subsystems
- Testing of opto-electronic components and devices (TOSA, ROSA, lasers, etc...)
- Testing of Gb/s ICs, PCBs, electronic modules, subsystems, and systems
- Serial bus and high-speed backplane design
- Installation testing and troubleshooting in optical transport networks

Specification

System & General Specifications

PARAMETER	MIN	MAX	UNIT
Chassis Electrical Voltage	100	240	VAC
Current Drain at Normal Voltage		2.5	A
Operating Temperature Range	5	45	°C
Storage Temperature Range	-40	70	°C
Dimensions (L x W x H)	300 x 240 x 64 12 x 9.5 x 2.5		mm ³ inch ³
PC Interface	USB		

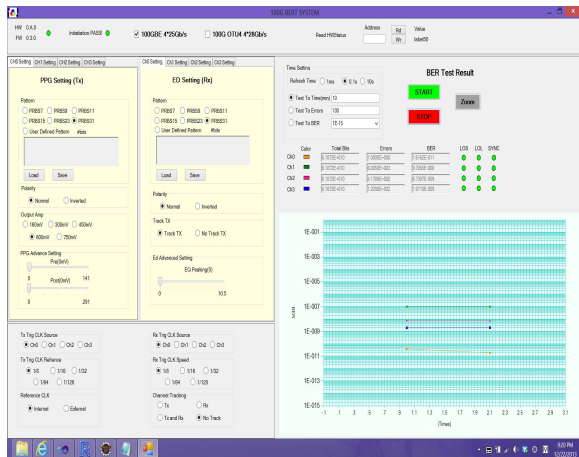
Pattern Generator

Parameter	Min	Typ	Max	Units
Data Output (Electrical)				
Output Type	Differential			
Output Format	NRZ			
Termination	DC-Coupled			
Data Patterns	PRBS : 2 ⁷ -1, 2 ⁹ -1, 2 ¹¹ -1, 2 ¹⁵ -1, 2 ²³ -1, 2 ³¹ -1; user defined pattern			
Data Rates	<ul style="list-style-type: none"> • 100GBE 4x25.78Gb/s • OTU4 4x27.95Gb/s 			
Frequency Accuracy			± 50	ppm
Output Amplitude (Differential)	160		750	mV _{p-p}
Data Rise Time, (20 – 80%)		14		ps
Data Fall Time, (20 – 80%)		14		ps
Data Output RMS Jitter		1		ps
Connector	50ohm Nominal, K Female			
Trigger Output				
Output Amplitude	300			mV _{p-p}
Output Type	Differential , AC-coupled			
Connector	50ohm SMA Female			

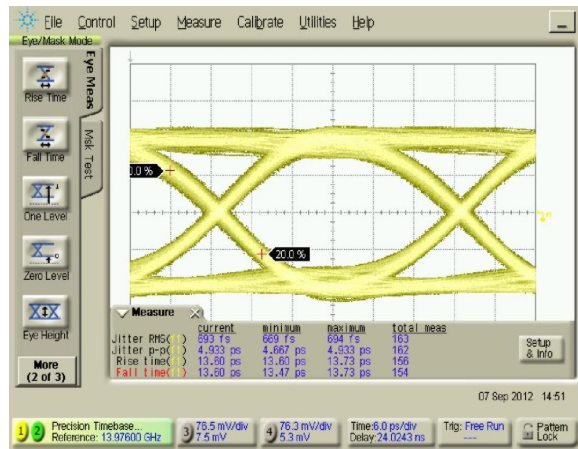
Error Analyzer

Parameter	Min	Typ.	Max	Units
Data Input (Electrical)				
Input Type	Differential			
Termination	DC-Coupled			
Data Patterns	PRBS : 2 ⁷ -1, 2 ⁹ -1, 2 ¹¹ -1, 2 ¹⁵ -1, 2 ²³ -1, 2 ³¹ -1; user defined pattern			
Data Rates	<ul style="list-style-type: none"> •100GBE 4x25.78Gb/s •OTU4 4x27.95Gb/s 			
Data Input Amp (Differential)	100		1000	mV p-p
Clocking Mode	Built-in clock recovery			
Pattern Synchronization	Automatic			
Connector	50ohm K Female			
Trigger Output				
Output Amplitude	300			mV _{p-p}
Output Type	Differential , AC-coupled			
Connector	50ohm SMA Female			

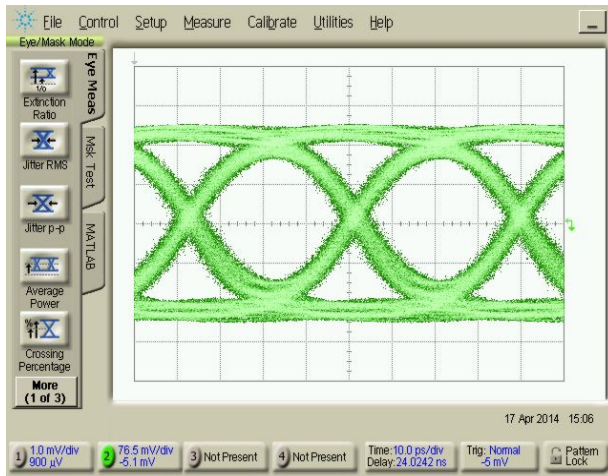
Software Interface



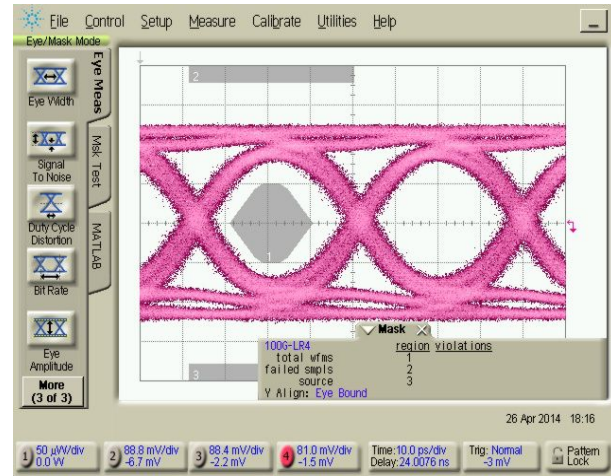
Typical Performance



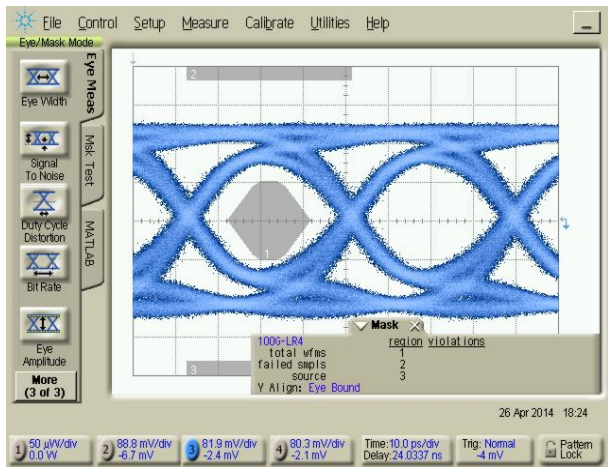
Typical 4 Channel 25 Gb/s Pattern Generator Eye-diagram



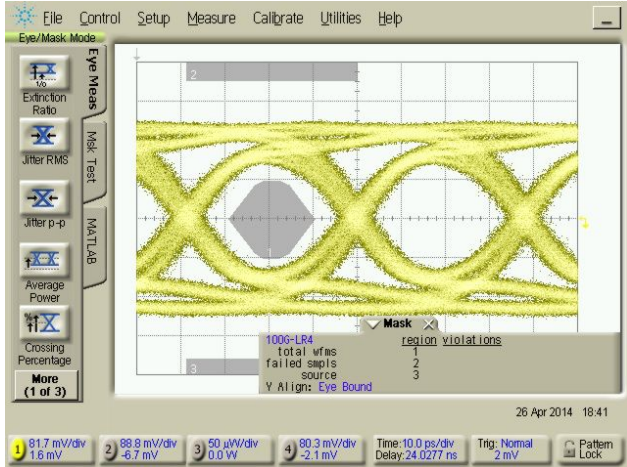
CH 0



CH 1



CH 2



CH 3

Contact Information

UC INSTRUMENTS (USA) CORP.

3652 Edison Way

Fremont, CA 94538

USA

Tel: 1-510-366-7353 Fax: 1-510-795-1795

www.ucinstruments.com

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