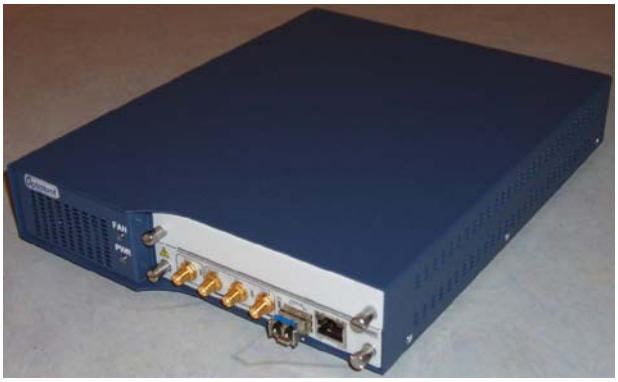
OptoBERT™ OPB3200

3.2Gbps Optical & Electrical Bit-Error-Rate Tester (BERT)



Overview

The OPTELLENT OptoBERT™ OPB3200 is a cost-effective easy-to-use bit-error-ratio (BER) measurement system for testing components and systems in R&D and manufacturing environments as well as field installations. It incorporates a pattern generator, clock recovery circuits, and a bit-error-ratio analyzer in one compact module that provides both electrical and optical interfaces at data rates up to 3.2Gb/s. The OptoBERT integrated system eliminates the need for additional interface modules to test devices.

The OPB3200 is offered with either preset discrete datarates or with a continuously variable datarate (1kHz step size).

An intuitive graphical user interface (GUI) enables easy point-and-click operation. The GUI displays error counts, BER, and features a unique error-events display for measuring events such as signal interruption due to optical switching.

BER test data from the OptoBERT are output directly into a spreadsheet file without any programming or scripting.

Applications

- Production testing of optical transceivers, diplexers/triplexers, and subsystems
- Production testing of Opto-electronic components and devices TOSA, ROSA, lasers, etc…)
- Production testing of Gb/s ICs, electronic modules, subsystems, and systems
- Product development and qualification testing
- Installation testing and troubleshooting in optical transport networks

Key Features

- **Integrated Generator and Analyzer**
- **Electrical and optical interfaces**
- **Internal Clock & Data Recovery**
- **Variable Datarate (1 kHz Step size)**
- **Automated Measurement Report**
- **Unique Error Events Display**
- **Cost-efficient and Easy-to-use**

Test Applications

Telecom	
OC-3	155.52 Mb/s
OC-12	622.08 Mb/s
OC-48	2.48832 Gb/s
OC-48 with FEC	2.66606 Gb/s
Storage	
Fibre Channel	1.0625 Gb/s
Serial-ATA	1.5 Gb/s
2G Fibre Channel	2.125 Gb/s
Serial-ATA2	3 Gb/s
Networking & Computing	
Gigabit Ethernet	1.25 Gb/s
Serial-ATA	1.5 Gb/s
Serial-ATA2	3 Gb/s
RapidIO	1.25 – 3.125G
XAUI	3.125 Gb/s

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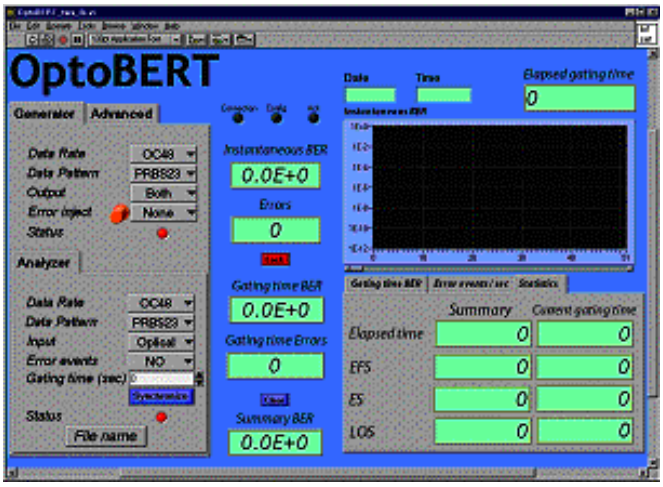
Software

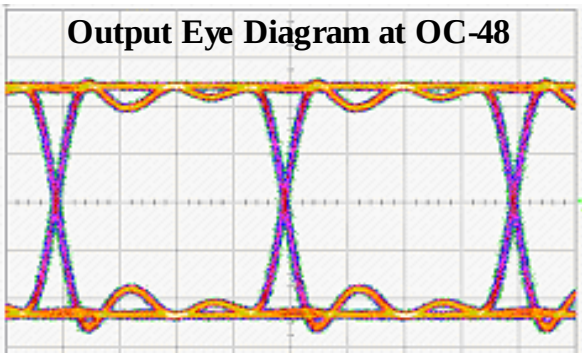


User Interface

The OptoBERT™ OPB3200 software runs on Windows 98/2000/NT and XP over RS-232 serial interface via an RJ-45 Connector provided on the front panel.

A Serial-to-USB converter can be used if a serial port is not available.

Software drivers are available for incorporating the OptoBERT into test automation suites using programs like C++, LabVIEW, VisualBASIC, and HP VEE.



Pattern Generator

Parameter	Min	Typ	Max	Units
Output Type	Single-ended or Differential (Optional)			
Data Patterns	• **Standard:** PRBS 2^7-1, 2^{23}-1, 101010 • **Optional:** CID, K28.5, CJPAT, CRPAT, FDDI, Custom			
Data Rates	• **Preset** (Standard): OC-3, 12, 48; OC48+ FEC; GbE; FC; 2xFC; XAUI • **Custom Preset:** (Optional) • **Continuously Variable Data Rate** (1kHz Step size) (Optional)			
Data Rate Range	155.52		3125	Mb/s
Frequency Accuracy			± 50	ppm
Output Amplitude, Single Ended (1), (2)	700	850	1200	mV
Data Rise Time (3)		70	90	ps
Data Fall Time (3)		70	90	ps
Data Output RMS Jitter (3)		4	5.5	ps
Clock Output Amplitude		300		mV
Error Injection	10^{-7}, 10^{-8}, 10^{-9}, single error			
Optical Output	Standard SFP Transceiver Housing			
Connector, Electrical	50 Ω SMA, front panel			
Connector, Optical	LC (SFP)			
Trigger Output				
Output Amplitude	400			mV
Output Type	Single-ended, AC-coupled			
Connector	50 Ω SMA, front panel			

(1) Larger output signal amplitudes up to 1800mV are available as an option
(2) Continuously variable output signal amplitude is available as an option
(3) Measurements based on PRBS2^{23}-1 data at OC-48

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Optical Output & Input:

SFP housing is provided as a standard feature. This enables the use of any user-selectable Multi-source Agreement (MSA) compliant SFP transceiver module:

- Single mode (SMF) and multimode fiber (62.5/125um and 50/125um MMF)
- At any wavelength option (850nm, 1310nm, 1490nm, 1550nm, etc…)
- DWDM, CWDM, non-WDM
- P-i-n and APD detectors

Error Analyzer

Parameter	Min	Typ.	Max	Units
Input Type	Single-ended AC coupled			
Data Patterns	• **Standard:** PRBS 2^7-1, 2^{23}-1, 101010 (standard) • **Optional:** CID, K28.5, FDDI			
Data Rates	• **Preset** (Standard): OC-3, 12, 48; OC48+ FEC; GbE; FC; 2xFC; XAUI • **Custom Preset**: (Optional) • **Continuously Variable Data Rate** (1kHz Step size) (Optional)			
Data Rate Range	155.52		3125	Mb/s
Electrical Sensitivity (1)			50	mV
Electrical Data Input	50		1000	mV
Clocking Mode	Built-in clock recovery			
Pattern Synchronization	Automatic			
Connector, Electrical	50 Ω SMA, front panel			
Connector, Optical	SFP LC (SFP)			

(1): Measurements based on PRBS 2^{23}-1 data at 2488.32 Mb/s (OC-48).

System & General Specifications

PARAMETER	MIN	MAX	UNIT
Chassis Electrical Voltage	100	240	VAC
Current Drain at Normal Voltage		1.4	A
Operating Temperature Range	5	45	^oC
Storage Temperature Range	-40	70	^oC
Dimensions (L x W x H)	273x216x45 10.75x8.5x1.75		mm^3 $inch^3$
Optical Interface	Standard SFP housing Minimum number of insertion/deinsertion cycles: 200		
Safety	UL, IEC-61010-1		
EMC	EN55011, EN61000-3-2, EN61000-3-3, BS EN61326		
RS 232 PC Interface	RJ-45 connector		
RF Connectors	SMA		
Standard Warranty	2 years		

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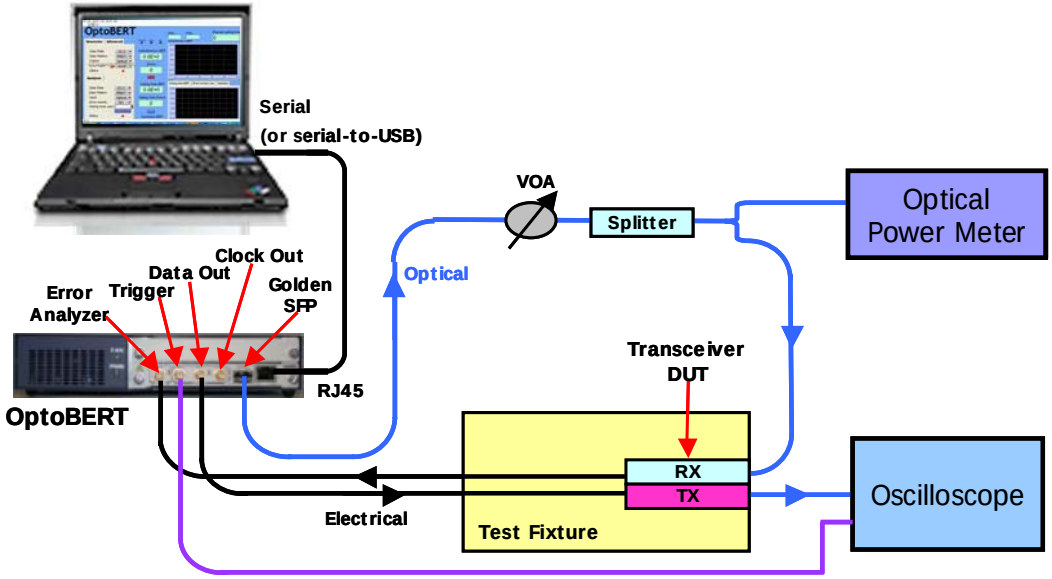
Manufacturing Test of Transceiver Modules

Example: Rx: Sensitivity measurement Tx: Output mask test with oscilloscope



Ordering Information

OPB3200-X-X-X-X

X: other Custom Options

0: No Optical Transceiver;
1: Optical Transceiver (SFP) 850nm
2: Optical Transceiver (SFP) 1310nm
3: Optical Transceiver (SFP) 1550nm
4: Optical Transceiver (SFP) 1490nm
5: Optical Transceiver (SFP) DWDM with High-sensitivity APD Receiver

S: Single-ended Electrical Output
D: Differential Output

P: Preset Standard Data Rates
C: Custom Data Rates
V: Continuously Variable Data Rate (1kHz Step Size)

Accessories Included
- User Software
- User Manual
- Power cord
- PC Interface cable

Example: OPB3200-P-S-0: 3.2Gb/s OptoBERT, Preset data rates, Single-ended electrical output, No optical transceiver

Related Products and Accessories

Model Number	Description
OPB4250	4.25Gb/s OptoBERT
OPB1250	1.25Gb/s OptoBERT
OPG4250	4.25 Gb/s Data Pattern Generator
OPG3200	3.2 Gb/s Data Pattern Generator
OPG1250	1.25 Gb/s Data Pattern Generator
OPS Series	Multichannel Optical Switch for Single Mode and Multimode Fiber
OPR3200	3.2Gb/s Retimed Optical Receiver
OPZ1015	Serial-to-USB Converter
OPZ3004	Additional 1 year Warranty

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