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Data Sheet

August 15, 2026

AGILENT / KEYSIGHT

Agilent/Keysight M8040A

Keysight M8040A High Performance BERT 64 Gbaud The Keysight M8040A is a highly integrated AXIe BERT for physical layer characterization and compliance testing with NRZ, PAM3, and PAM4 signaling. Pattern generation uses remote heads for short DUT connections, with calibrated jitter, de-emphasis, and real-time error analysis through companion M8045A and M8046A modules. Receiver characterization for 200G/400G/800G Ethernet, OIF CEI-56G and CEI-112G, PCIe up to 64 GT/s, USB 3.2/USB4/Thunderbolt, Fibre Channel, InfiniBand HDR/NDR, and proprietary chip-to-chip or backplane links up to 64 Gbaud. The Keysight M8040A is a highly integrated AXIe BERT for physical layer characterization and compliance testing with NRZ, PAM3, and PAM4 signaling. Pattern generation uses remote heads for short DUT connections, with calibrated jitter, de-emphasis, and real-time error analysis through companion M8045A and M8046A modules. Receiver characterization for 200G/400G/800G Ethernet, OIF CEI-56G and CEI-112G, PCIe up to 64 GT/s, USB 3.2/USB4/Thunderbolt, Fibre Channel, InfiniBand HDR/NDR, and proprietary chip-to-chip or backplane links up to 64 Gbaud.

**MODEL****Agilent / Keysight
M8040A****CALIBRATION****Available on
request****CONDITION****Used****STATUS****In stock****RFQ / SKU****M8040A****LISTING**<https://aumictechlabs.com/products/m8040a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Keysight M8040A is a Bit Error Rate Tester (BERT) for physical layer characterization and compliance testing of high-speed digital interfaces up to 64 GBaud. It supports NRZ, PAM3, and

PAM4 signaling formats, enabling validation of emerging standards including 400 GbE, OIF CEI-112G, PCIe 6.0, and USB4. The instrument delivers true real-time PAM4 error detection for low BER measurement and receiver margin optimization. Technical Specifications Signal Generation Data rates: 2 to 64 GBaud (NRZ, PAM3, PAM4) Amplitude: 0.9 Vpp @ 58 GBd De-emphasis: 5-tap de-emphasis with multiple presets for loss compensation Jitter injection: Random Jitter (RJ), Periodic Jitter (PJ1, PJ2), Sinusoidal Jitter (SJ), Baudrate Jitter (BUJ), Clock/2 Jitter, Spread Spectrum Clocking (SSC, rSSC), Spectrally Distributed RJ (sRJ), LF-PJ, multi-tone PJ Pattern generation: Algorithmic PRBS, QPRBS (OIF-CEI variants), memory-based patterns, pattern sequencer with loops, user-defined patterns, deterministic sequences FEC encoding and error insertion supporting IEEE 802.3cd with Sync to A400 PCIe pre-coder support Interference injection: Random Interference (RI), Sinusoidal Interference (SI) Signal Analysis PAM4 error detection in real-time up to 58 GBaud Clock data recovery (CDR) with adjustable loop bandwidth to 16 MHz max Feed-Forward Equalization (FFE) for eye diagram re-opening True error analysis for low BER and SER measurements Error distribution analysis for burst error debugging Link training support: PCIe (8/16/32/64 GT/s), USB 3.2, USB4, Thunderbolt 3/4, SATA, SAS, CCIX Key Features Integrated remote head design with 1.85 mm cables minimizes signal degradation Supports both internal and external clock recovery control (N1076A/B, N1077A, N1078A) Part of the Keysight M8000 series for scalable, integrated test solutions Typical Applications High-speed serial interface validation (PCIe 6.0, USB4, 400 GbE) Receiver performance characterization Device margin optimization Standards compliance testing Compatibility & Integration Scalable within the M8000 series architecture; supports external clock recovery units for flexible system integration.

M8040A Characteristics / Specifications

PARAMETER	VALUE
Model	M8040A
Instrument Type	high performance BERT system 64 Gbaud class
Supported Line Coding	NRZ PAM3 PAM4
Pattern Generator Symbol Rate G	2.025 to 58.0 Gbaud valid to 58 Gbaud over program to 64.8 Gbaud
Effective Data Rate Class NRZ	up to 64 Gbit/s
Effective Data Rate Class PAM	up to 128 Gbit/s at 64 Gbaud
Channels Per Generator Module	1 or 2 with second channel option
Amplitude Single Ended M8057B Under 58 Gbaud	80 mV to 0.9 Vpp
Amplitude Differential Class Under 58 Gbaud	160 mV to 1.8 Vpp class
Amplitude Accuracy Typical	plus or minus 10 percent plus or minus 10 mV AC
Intrinsic Total Jitter Typical	8 ps at 32.0 Gb/s NRZ PRBS15 BER 1e-12 class
Intrinsic Random Jitter NRZ Typical	5 mUI rms between 2.025 and under 22 Gbaud
Remote Head Cable Length Class	0.85 m module to head
Remote Head Connector Class	1.85 mm class
De Emphasis Taps Class	5 tap FFE
Analyzer Channels Per Module	1
Analyzer Symbol Rate NRZ A64 Class	2.45 to 64.8 Gbaud
Analyzer Symbol Rate PAM Class A	2.45 to 58 Gbaud with PAM options
Clock Recovery Support	integrated plus N1076A/B N1077A N1078A control
Form Factor Class	AXIe modular M8000 series
Control Software	M8000 system software GUI and remote control
Data Rate	Class NRZ: up to 64 Gbit/s

M8040A Specifications

PARAMETER	VALUE
Keysight M8040A High Performance BERT 64 Gbaud	Overview
Key Features	NRZ PAM3 and PAM4 selectable from the user interface
Remote head concept with short 1.85 mm cables to the DUT	True real time PAM4 and NRZ error detection on the analyzer
Technical Specifications	Model: M8040A

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Performance BERT 64 Gbaud

Overview

The Keysight M8040A is a highly integrated AXIe BERT for physical layer characterization and compliance testing with NRZ, PAM3, and PAM4 signaling. Pattern generation uses remote heads for short DUT connections, with calibrated jitter, de-emphasis, and real-time error analysis through companion M8045A and M8046A modules.

Applications

Receiver characterization for 200G/400G/800G Ethernet, OIF CEI-56G and CEI-112G, PCIe up to 64 GT/s, USB 3.2/USB4/Thunderbolt, Fibre Channel, InfiniBand HDR/NDR, and proprietary chip-to-chip or backplane links up to 64 Gbaud.

Key Features

NRZ PAM3 and PAM4 selectable from the user interface

Built in 5 tap transmitter FFE with presets for loss compensation

Integrated calibrated jitter including RJ LF/HF PJ BUJ clk/2 sRJ rSSC and SSC

Remote head concept with short 1.85 mm cables to the DUT

True real time PAM4 and NRZ error detection on the analyzer

Interactive link training for PCIe and USB families

Technical Specifications

Technical Specifications

PARAMETER	VALUE
Model	M8040A
Instrument Type	high performance BERT system 64 Gbaud class
Supported Line Coding	NRZ PAM3 PAM4
Pattern Generator Symbol Rate G32	2.025 to 32.4 Gbaud
Pattern Generator Symbol Rate G64	2.025 to 58.0 Gbaud valid to 58 Gbaud over program to 64.8 Gbaud
Effective Data Rate Class NRZ	up to 64 Gbit/s
Effective Data Rate Class PAM4	up to 128 Gbit/s at 64 Gbaud
Channels Per Generator Module	1 or 2 with second channel option
Amplitude Single Ended M8057B Under 58 Gbaud	80 mV to 0.9 Vpp
Amplitude Differential Class Under 58 Gbaud	160 mV to 1.8 Vpp class
Amplitude Accuracy Typical	plus or minus 10 percent plus or minus 10 mV AC
Intrinsic Total Jitter Typical	8 ps at 32.0 Gb/s NRZ PRBS15 BER 1e-12 class
Intrinsic Random Jitter NRZ Typical	5 mUI rms between 2.025 and under 22 Gbaud
Remote Head Cable Length Class	0.85 m module to head
Remote Head Connector Class	1.85 mm class
De Emphasis Taps Class	5 tap FFE

PARAMETER	VALUE
Analyzer Channels Per Module	1
Analyzer Symbol Rate NRZ A64 Class	2.45 to 64.8 Gbaud
Analyzer Symbol Rate PAM Class A64	2.45 to 58 Gbaud with PAM options
Clock Recovery Support	integrated plus N1076A/B N1077A N1078A control
Form Factor Class	AXIe modular M8000 series
Control Software	M8000 system software GUI and remote control

Notes

Numeric rows from Keysight M8040A High-Performance BERT 64 Gbaud data sheet (M8045A/M8046A/M8057 remote head sections). Exact configured rates depend on installed options.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.