

BERTs, Digitizers, and DAQs

CATALOG



Table of Contents

3

Introduction

4

High-Performance BERTs

7

Modular Digitizers

8

Modular DAQs

9

Software and Accessories

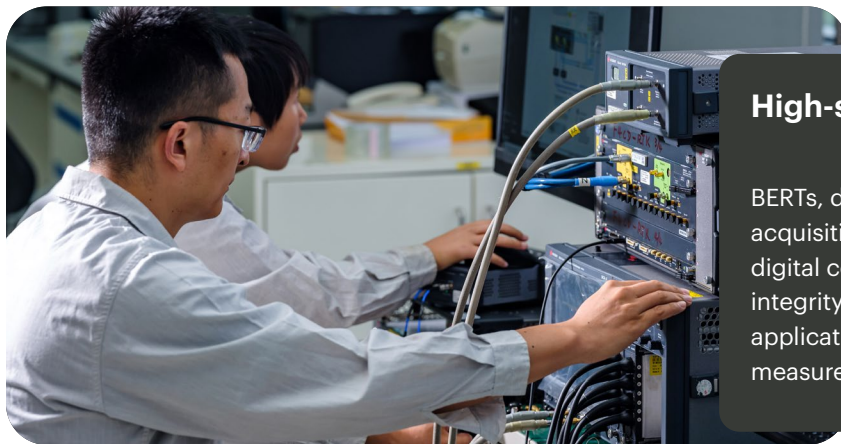
10

Keysight Support Services

Introduction

Keysight BERTs, Digitizers, and DAQs — from early R&D and standards conformance testing to manufacturing

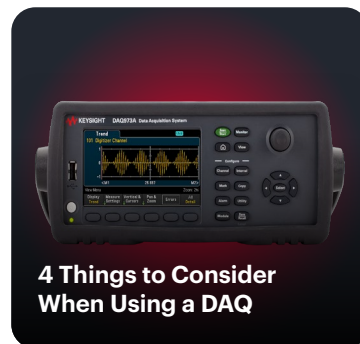
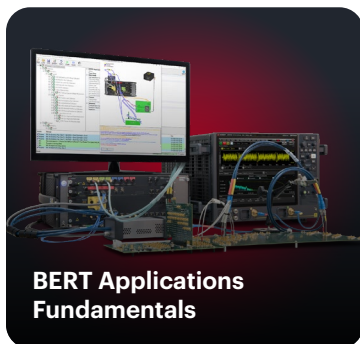
Explore the wide range of Keysight bit error ratio testers (BERTs), digitizers, and data acquisition (DAQ) systems, designed to meet the demands of both research and production environments. With various models offering high-speed data acquisition, precise signal measurement, and compliance test to industry standards, understanding which capabilities best fit your specific application ensures you select the right instrument and unlock its full potential. That's why we offer a comprehensive library of [BERT](#), [digitizer](#), and [DAQ](#) resources.



High-speed digital signal acquisition and error rate analysis

BERTs, digitizers, and DAQs enable precise stressed pattern generation and the acquisition and measurement of high-speed electrical signals for validating digital communication links, characterizing components, and resolving signal integrity issues. Keysight resources support both foundational and sophisticated applications to help you optimize your test setup and automate complex measurement workflows.

Here are a few examples of the resources you will find to help you select the BERT, digitizer, or DAQ that is right for you:



High-Performance BERTs

High-speed receiver characterization for error-free data transmission

Keysight BERTs are now offered in one capability class, the XE8-class, and include the M8000 Series BERTs. These BERTs are designed for high-speed digital interface testing, enabling you to accurately characterize, validate, and stress test digital receivers. BERTs are modular instruments consisting of a pattern generator, an error detector or analyzer, and a clock data recovery module. Used across a wide range of applications — including data center interconnects, optical transceivers, high-speed memory interfaces, and next-generation serial buses — Keysight BERTs support critical standards including PCIe®, DDR, USB, and Ethernet (100G / 400G / 800G / 1.6T). Choose from one of our most popular BERT configurations based on supported data rates and line coding or configure one specific to your application needs.

[Learn more about our high-performance BERTs](#)

Fast data rates

Provides precise pattern generation, error detection, and enhanced timing analysis at 32 Gbaud and beyond, ensuring signal integrity of high-speed transmissions.

Modular, scalable design

Enables flexible system configuration to meet specific testing needs and adapt to evolving standards, higher data rates, broader test coverage, and multichannel testing.

Standards compliance

Automates complex receiver compliance tests for industry standards, ensuring devices meet required specifications for performance and interoperability.

Enhanced signal processing

Integrated enhanced technologies — de-emphasis, adjustable ISI, clock recovery, and equalization — reduce setup time, minimize calibration, and streamline testing workflows.

Supported data rates	32 Gbaud to 120 Gbaud
Line coding	NRZ, PAM3, PAM4, PAM6, PAM8
Number of channels	1 to 2
Module type	Pattern generator, error analyzer

[View popular configurations](#)



High-Performance BERTs (cont.)

Key considerations

As you choose from one of our most popular BERT configurations based on supported data rates and line coding, or configure one specific to your application needs, consider these factors:

Supported data rates

Specifies the range of data rates the BERT can transmit and receive test patterns.

Ensure the supported data rate matches or exceeds the data rate of the device or system under test to accurately evaluate its performance. Check for any performance limitations at higher speeds to maintain test accuracy for testing next-generation standards. Pattern generators and error analyzers can be specified for different data rates.

Line coding

Defines the encoding schemes that the BERT supports to evaluate signal quality and error rates.

Choose a BERT that supports the specific line coding formats used in your system and ensure that it can generate encoded patterns, measure bit error rate before or after encoding, and detect bit errors and coding violations.

Number of channels

The number of independent data streams that the BERT can simultaneously generate and analyze.

Choose a BERT that supports the specific number of channels required by your system to accurately evaluate multiple lanes or channels. Ensure it can independently generate test patterns, measure bit error rates per channel, and detect errors or coding violations across all channels to fully characterize system performance.

Module type

Defines the functional role of the BERT module in the test setup, either generating test patterns or analyzing received data for errors.

Select a BERT module type that matches your system requirements — pattern generators create encoded data streams with specific line coding formats and can add stress impairments for receiver testing, while error analyzers measure bit error rate, detect bit errors, and identify coding violations. Choose a BERT that supports both pattern generation and error analysis to fully characterize signal quality and system performance.

Consider your use cases

While specifications are important, considering the various ways your team will use an instrument will determine the configuration that is best for your application. Common use cases for BERTs include:

- [How to Analyze PAM4 Receiver Signals](#)
- [How to Test 400G / 800G Electrical Receiver Conformance](#)
- [How to Test PCIe® 6.0 Receiver Compliance](#)
- [How to Characterize and Test for DDR5 Receiver Compliance](#)

Explore more [BERT use cases](#) to help select the BERT that is right for your application.



Modular Digitizers

High-precision, scalable digitization for automated test systems

Keysight modular digitizers are high-performance signal acquisition instruments designed for fast, precise waveform capture in automated test and measurement systems. Built on PXIe and AXIe, they offer fast sampling rates and wide bandwidths in a compact form factor, making them ideal for complex test environments in aerospace and defense, communications, and semiconductor testing.



AXIe digitizers

Select from five available chassis and controller options, each with 1 to 5 slots, to find the AXIe digitizer that is right for your application.

Number of channels	4
Maximum sample rate	32 GSa/s

[See catalog](#)



PXIe digitizers

Select from four models ranging from 2 to 8 channels, plus a digital I/O module, to find the PXIe digitizer that is right for your application.

Number of channels	2 to 8
Maximum sample rate	250 kSa/s to 4.8 GSa/s

[See catalog](#)

Modular DAQs

Flexible, scalable, precise data acquisition

Keysight DAQs are designed to accurately capture and digitize electrical and physical signals such as voltage, current, temperature, and pressure from real-world environments. Used across industries like aerospace, automotive, energy, and electronics manufacturing, these systems support a wide range of applications, including sensor validation, environmental monitoring, and functional testing. Their modular design and channel scalability make them adaptable to everything from small benchtop setups to large-scale automated test systems. With high accuracy, reliability, and easy integration, Keysight DAQs ensure performance, quality, and efficiency in both R&D and production testing.

With over 30 plug-in modules — including low-frequency, RF, and microwave switching up to 26.5 GHz, digital I/O, and D/A converters — and a choice of three- or eight-slot chassis, you can configure the modular DAQ that best fits your application.

Built-in multiplexers

Sequentially routes multiple input channels into a single analog-to-digital converter (ADC), rapidly switching between them for efficient data acquisition in a single DAQ unit.

Fast scanning rate

Supports scan rates up to 1,000 channels per second with a built-in 6½-digit DMM and compatibility with up to 14 input signal types for precise, high-speed data acquisition.

Microwave switching

Offers microwave switch / attenuator types for DC to microwave frequency measurements in a single test setup — enhancing efficiency, repeatability, and versatility.

Enhanced digital I/O

Simulate or detect digital patterns using up to 64-bit I/O, programmable polarity, 5 V thresholds, handshaking protocols, and onboard pattern memory.



Chassis slots	3 or 8
Input voltage channels (2-wire)	60, 560
Connector type	USB, LAN, or GPIB

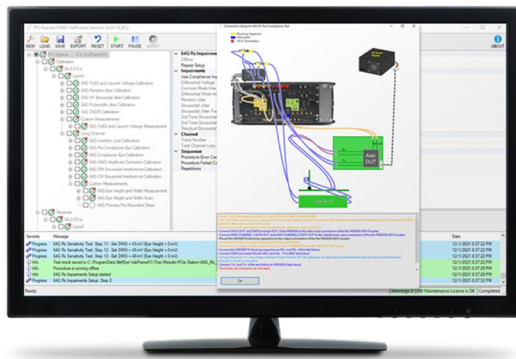
[Explore DAQ mainframes](#)

[Explore DAQ modules](#)

Software and Accessories

Find compatible software and accessories for your BERTs, digitizers, and DAQs

Explore the wide variety of BERT, digitizer, and DAQ software and accessories designed to streamline configuration, automate measurements, and ensure compliance with industry standards. Our BERT receiver conformance software suites help you validate and ensure compliance with standards like PCIe, USB, OIF-CEI 112G, DisplayPort, and MIPI M-PHY®. Accelerate your test setup and improve productivity with our instrument control and data logging software for Keysight DAQs. With more than 22 software packages available, you can capture, visualize, and analyze high-speed analog signals with precision and ease using Keysight digitizers. Pair your software with the cables, kits, and extender boards needed to make the right measurement for your application.



Power your BERT, digitizer, and DAQ with a wide range of specialty software for:

- configuration and automation
- signal generation and simulation
- data capture and analysis
- measurement control and reporting
- conformance packages

[Explore software](#)



Get more functionality out of your BERT, digitizer, and DAQ by pairing it with the right accessories, including:

- ISI channel boards
- interference sources
- rack-mount kit
- terminal and configuration blocks
- cables
- thermocouple kit
- thermistor kit
- extender boards

[Explore accessories](#)

Keysight Support Services

Explore the services that are right for you

Keysight Support Services can reduce your learning curve, enhance your uptime, guarantee the accuracy of your testing equipment, and provide the expertise you require, precisely when and where you need it.

Maximize your instrument uptime, quickly optimize your test measurements, and get the answers you need at our fastest available times. KeysightCare curated support plans bundle critical services with prioritized response and turnaround times. **High-performance instruments include one year of KeysightCare Assured.**

Explore support services



Calibration

Ensure your test system performs to specification and meets local and global standards.



Repair

Restore equipment to original functionality and specifications with trained technicians.



KeysightCare

Innovate at speed with curated support plans and prioritized response and turnaround times.



Education

Make measurements quickly with eLearning and in-house, instructor-led training.



Keysight Support

Get 24x7 access to service requests, case management help, and technical articles.



Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at www.keysight.com.

This information is subject to change without notice.
© Keysight Technologies, 2026, Published in USA, February 28, 2026, 7125-1045.EN