

Sampling Oscilloscopes

CATALOG



Table of Contents

3

Keysight Sampling Oscilloscopes

4

Introduction

5

Sampling Oscilloscopes

9

Software and Accessories

10

Keysight Support Services

Keysight Sampling Oscilloscopes

One family. Two classes. One modular form factor.



CLOCK RECOVERY

SX1-class

- Up to 64 Gbaud
- Electrical and optical NRZ / PAM4 support



FIXED CONFIGURATION

SX2-class

- Analyze data rates from 1 Gb/s to 120 Gbaud
- Integrated clock recovery up to 120 Gbaud available



MODULAR

- >100 GHz electrical and optical bandwidth
- Jitter as low as 50 fs
- Customize with plug-in modules for optical, electrical, and TDR / TDT / S-parameter analysis

Introduction

Keysight Sampling Oscilloscopes — from R&D to the production floor

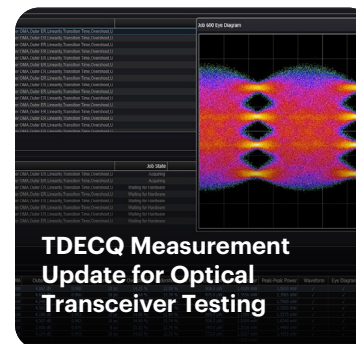
Keysight sampling oscilloscopes, also known as digital communication analyzers (DCA), are now offered in two capability classes across modular, fixed configuration, and clock recovery units. Sampling oscilloscopes provide a cost-effective way to measure repetitive, high-frequency optical and electrical signals with high precision. They are ideal for characterizing both sides of optical-electrical transceiver modules or other applications where real-time transient analysis is not required. Modular benchtop sampling oscilloscopes are ideal for validating next-generation communications devices in the lab. Fixed configuration includes the SX2-class, designed for testing transceiver from R&D through the production floor. Clock recovery units include the SX1-class, providing precise clock signals required for synchronizing device and instrument timing during Ethernet compliance testing. A comprehensive library of [sampling oscilloscope resources](#) is available to help you find the class best suited to your lab.



High-precision optical and electrical measurements

Sampling oscilloscopes provide high-sensitivity optical and electrical measurements for analyzing high-speed digital designs, including 400G / 800G / 1.6T Ethernet and Fibre Channel. Keysight resources help you optimize testing and perform critical measurements like transmitter dispersion eye closure quaternary (TDECQ) on complex modulated signals using sampling oscilloscopes.

Here are a few examples of the resources you will find to help you select the sampling oscilloscope that is right for you:



Sampling Oscilloscopes

Keysight sampling oscilloscopes enable you to validate communications infrastructure devices, from serial I/O semiconductors to optical transceivers, in modern data centers. They measure repetitive transmitter signals to analyze compliance with industry standards. Select the modular or fixed configuration sampling oscilloscope you need by form factor, bandwidth, or optical and electrical channel count. You can also select a clock recovery unit, which is necessary for compliance applications, based on your maximum input signal data rate. Explore our wide range of sampling oscilloscopes to choose the one that is right for your application.



Clock recovery
SX1-class



Fixed configuration
SX2-class



Modular

Baud rate	Up to 64 Gbaud	Up to 120 Gbaud	>200 Gbaud
Optical channels	Up to 1	Up to 4	Up to 8
Electrical channels	1	Up to 4	Up to 16
Signal type	Optical (Single-mode, multimode), Electrical	Optical (Single-mode, multimode), Electrical	Optical (Single-mode), Electrical
Brands included	DCA-M Electrical and Optical Clock Data Recovery Series	DCA-M Series	DCA-X Series

Explore

Explore

Explore

Modular Sampling Oscilloscopes

Flexible, high-precision periodic waveform analysis

Keysight DCA-X Series modular sampling oscilloscopes provide a flexible platform for making precise, high-bandwidth optical and electrical measurements for eye diagram analysis. Modular sampling oscilloscopes are compatible with automated test software to ensure device compliance with standards like the Institute of Electrical and Electronics Engineers (IEEE) 802.3 Ethernet and Optical Internetworking Forum Common Electrical I/O (OIF-CEI). Our modular units let you choose the sampling oscilloscope needed for today's validation and upgrade modules to address tomorrow's next innovation. Configure the mainframe with the modules you need — including a variety of plug-in modules spanning optical, electrical, and time-domain reflectometry (TDR) / time-domain transmission (TDT) measurements and analysis with multiple bandwidth, filtering, and channel options.

[Learn more about our modular sampling oscilloscopes](#)

Ultra-high bandwidth

Capture and analyze high-speed digital communication signals with optical and electrical bandwidths ranging from 33 GHz to 120 GHz.

Scalable architecture

A fully modular benchtop platform lets you customize your scope to meet your needs and easily upgrade as new standards and technologies emerge, future-proofing your investment.

Automated test software

Decades of Keysight expertise turns complex standards into test plans so you can ensure that your devices meet standards and interoperability requirements.

Time-domain measurements

Characterize cables, optical fibers, traces, and components to identify and locate faults, impedance mismatches, and irregularities affecting signal integrity.



Maximum optical bandwidth	Up to 120 GHz
Maximum electrical bandwidth	Up to 100 GHz
Optical channels per module	Up to 2
Electrical channels per module	Up to 4
Intrinsic jitter	As low as 50 fs rms
Mainframe module slots	4

[View catalog](#)

Fixed Configuration Sampling Oscilloscopes

Compact signal analysis for manufacturing validation

Keysight SX2-class fixed configuration sampling oscilloscopes include the DCA-M Series. Fixed configuration sampling oscilloscopes offer cost-optimized optical and electrical measurements in a compact form factor, ideally suited for manufacturing tests. They provide the same precision measurements as our modular sampling oscilloscopes with bandwidth up to 60 GHz optical and 50 GHz electrical. Fixed configuration sampling oscilloscopes form a complete manufacturing test solution when paired with automation software to optimize test throughput and ensure device interoperability and reliability. Keysight fixed configuration sampling oscilloscopes help you efficiently scale optical transceiver testing with a streamlined test setup for maximum efficiency. Choose one of our popular configurations or configure one specific to your application.

[Learn more about our fixed configuration sampling oscilloscopes](#)

Small form factor

Integrate multiple optical and electrical inputs, clock recovery, and precision time-base features in a compact unit to ensure signal integrity and save space.

Manufacturing test optimized

With support for fully automated operations, fixed configuration sampling oscilloscopes enable high-performance and high-throughput manufacturing test operations.

Precision and sensitivity

Extremely low noise and jitter provide the measurement margin needed to maximize manufacturing yield and ensure optimal device reliability.

Low power consumption

These oscilloscopes require less power than benchtop models — a critical feature for continuous manufacturing test environments.

Class	Included Brands	Range of Performance Specifications						Clock Recovery
		Maximum Optical Bandwidth	Maximum Electrical Bandwidth	Optical Channels	Electrical Channels	Intrinsic Jitter	Fiber Mode	
SX2	DCA-M Series	Up to 60 GHz	Up to 50 GHz	Up to 4	Up to 4	As low as 105 fs rms	Single-mode only, multimode only, single-mode and multimode	Integrated 120 Gbaud CDR available

[View popular configurations](#)

Clock Recovery

Reliable synchronization for high-speed digital analysis

Keysight SX1-class clock recovery units include the DCA-M Electrical and Optical Clock Data Recovery (CDR) Series. Clock recovery units improve the accuracy of high-speed optical and electrical measurements by extracting timing from data signals. You need a precise clock signal to reduce jitter and improve the quality of high-speed signal integrity analysis of your devices. IEEE 802.3 Ethernet and OIF-CEI standards require external clock recovery during compliance testing to ensure accurate measurements. Select these clock recovery units when you plan to perform compliance tests on these classes of digital communications devices. Choose one of our popular configurations or configure one specific to your application.

[> Learn more about our clock recovery products](#)

NRZ and PAM4 support

Minimize timing errors and improve visibility into high-speed signals with data rates up to 64 GBd for non-return-to-zero (NRZ) and pulse amplitude modulation 4-level (PAM4).

Extended test coverage

Optical / electrical solutions integrate electrical clock recovery with an amplified O/E, enabling support for both optical and electrical applications.

Jitter spectrum analysis

Optional jitter spectrum analysis (JSA) provides insight into the magnitude and distribution of low-frequency jitter for troubleshooting root cause for excessive jitter.

Standards compliance

Precise clock recovery measurements ensure compliance with standards such as IEEE 802.3 Ethernet, Fibre Channel, and OIF-CEI.

Class	Included Brands	Range of Performance Specifications			
		Baud Rate	Input Types	Fiber Mode	Modulation Format
SX1	DCA-M Electrical and Optical Clock Data Recovery Series	Up to 64 GBd	Optical and electrical, electrical only	Single-mode and multimode, single-mode only	NRZ, PAM4

[View popular configurations](#)

Software and Accessories

Find compatible software and accessories for your sampling oscilloscope

Explore the wide variety of waveform analysis, compliance, and manufacturing optimization software for our sampling oscilloscopes. Keysight sampling oscilloscopes offer exceptional support for optical / electrical measurements, transmitter and receiver conformance test automation for industry standards, and high-volume optical transceiver manufacturing test systems. Pair your software with the probes, cables, and calibration kits needed to make the right measurements for your application.



Power your sampling oscilloscope with a wide range of software:

- NRZ and PAM-N waveform analysis
- optical test optimization
- comprehensive jitter measurements
- Conformance applications supporting industry standards such as IEEE, OIF-CEI, and more
- OIF-CEI electrical Tx and Rx compliance

[Explore software](#)



Get more functionality out of your sampling oscilloscope by pairing it with the right accessories:

- attenuators and DC blocks
- calibration kits, loads, shorts, and terminations
- adapters and connector savers
- phase-matching cable kits and equalizers
- power dividers / splitters and pickoffs
- rack-mount kits, storage, and protection

[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, March 9, 2026, 7125-1014.EN