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Data Sheet

August 3, 2026

KEYSIGHT

Keysight 33509B 20MHz Waveform Generator

Keysight 33509B 20 MHz Waveform Generator The Keysight 33509B is a single-channel 20 MHz Trueform waveform generator without arbitrary waveform capability in the 33500B Series. Jitter < 40 ps, THD < 0.04%, amplitude 1 mVpp–10 Vpp, 250 MSa/s, 16-bit resolution. Optional OCX and SEC. Single-channel function generation at 20 MHz; use 33511B when arb is required. Instrument Type: Waveform Generator (Trueform; no arb) The Keysight 33509B is a single-channel 20 MHz Trueform waveform generator without arbitrary waveform capability in the 33500B Series. Jitter < 40 ps, THD < 0.04%, amplitude 1 mVpp–10 Vpp, 250 MSa/s, 16-bit resolution. Optional OCX and SEC. Single-channel function generation at 20 MHz; use 33511B when arb is required. Instrument Type: Waveform Generator (Trueform; no arb) Bandwidth: 20 MHz; Channels: 1; Arbitrary: No



MODEL

Keysight 33509B

CALIBRATION

Available on request

CONDITION

Used

STATUS

In stock

RFQ / SKU

33509B

LISTING

<https://aumictechlabs.com/products/33509b-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Keysight 33509B is a single-channel, 20 MHz Trueform waveform generator engineered for precision signal generation in research, development, and manufacturing environments. Built on Keysight's proprietary Trueform technology, it combines Direct Digital Synthesis with point-by-point architecture to deliver superior signal fidelity - achieving 5× lower harmonic distortion and 10× less pulse jitter than conventional DDS generators. The result is higher accuracy, improved

measurement confidence, and more reliable test results across demanding applications. Technical Specifications Frequency Range: 1 μ Hz to 20 MHz (sine); 1 μ Hz to 20 MHz (square/pulse/arbitrary); 1 μ Hz to 200 kHz (triangle); 1 μ Hz to 20 kHz (ramp) Frequency Accuracy: ± 1 ppm of setting ± 15 pHz Time Base Accuracy: ± 0.1 ppm Sampling Rate: 160 MSa/s Resolution: 16-bit Amplitude Range: 1 mVpp to 10 Vpp (high impedance) Output Impedance: 50 Ω Display: 4.3-inch color TFT (WQVGA), 480 $\times$ 272 pixels Dimensions: 212.8 mm (W) $\times$ 88.3 mm (H) $\times$ 272.3 mm (L) Weight: 3.3 kg Key Features Standard waveforms: sine, square, ramp, pulse, triangle, Gaussian noise, PRBS, DC Built-in modulation modes: AM, FM, PM, FSK, BPSK, PWM, sum Optional arbitrary waveform capability with up to 16 MSa/channel memory Waveform creation and editing via 33503A BenchLink Waveform Builder Pro, Excel, or MATLAB Low-jitter architecture for precise timing-critical applications Intuitive color graphical interface for parameter setup and real-time signal viewing Typical Applications Component characterization and validation testing Protocol and signal integrity analysis Sensor simulation and transducer testing Educational and research instrumentation Analog and digital circuit design verification Compatibility & Integration USB (front-panel for file management) LAN (LXI-C compliance) GPIB for legacy system integration Part of the 33500B Series ecosystem

Features & description

From manufacturer datasheet

Features

- 20 MHz; 1 channel; no arb
- Trueform; jitter < 40 ps; THD < 0.04%
- 250 MSa/s; 16-bit; 1 mVpp–10 Vpp
- Options: OCX, SEC

33509B Characteristics / Specifications

PARAMETER	VALUE
Model	33509B
Manufacturer	Keysight Technologies
Instrument Type	Waveform Generator (Trueform; no arb)
Family	33500B Series
Alias	33509B
Bandwidth	20 MHz; Channels: 1; Arbitrary: No
Jitter	< 40 ps; THD: < 0.04%
Amplitude	1 mVpp to 10 Vpp
Sample Rate	250 MSa/s; Resolution: 16-bit Model Contrast 33509B: 20 MHz, 1 ch, no arb 33511B: 20 MHz, 1 ch, with arb 33510B: 20 MHz, 2 ch, no arb Operational Notes Prefer Keysight 33500B Series fact sheet 5991-0757.
Options	OCX, SEC

33509B Specifications

PARAMETER	VALUE
Keysight 33509B 20 MHz Waveform Generator	Overview
Applications	Single-channel function generation at 20 MHz; use 33511B when arb is required.
Key Features	- 20 MHz; 1 channel; no arb
Technical Specifications	Model: 33509B
Model Contrast	33509B: 20 MHz, 1 ch, no arb
Operational Notes	Prefer Keysight 33500B Series fact sheet 5991-0757.

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.

Specifications

Specifications

PARAMETER	VALUE
Model	33509B
Manufacturer	Keysight Technologies
Instrument Type	Waveform Generator (Trueform; no arb)
Family	33500B Series
Alias	33509B

Specifications

PARAMETER	VALUE
Bandwidth	20 MHz; Channels: 1; Arbitrary: No
Jitter	< 40 ps; THD: < 0.04%
Amplitude	1 mVpp to 10 Vpp
Sample Rate	250 MSa/s; Resolution: 16-bit

Model Contrast

33509B: 20 MHz, 1 ch, no arb

33511B: 20 MHz, 1 ch, with arb

33510B: 20 MHz, 2 ch, no arb

Operational Notes

Prefer Keysight 33500B Series fact sheet 5991-0757.

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.