

KEYSIGHT TECHNOLOGIES (AGILENT HP)

54645A

The Keysight Agilent 54645A is a classic 2-channel, 100-MHz digital storage oscilloscope designed for mixed-signal troubleshooting. Featuring Agilent's proprietary MegaZoom technology, it offers a deep 1 MB memory per channel and a 200 MSa/s sample rate, allowing engineers to capture long time spans with a high sampling resolution and a highly responsive analog-like display update rate.

SPECIFICATIONS

General

Interfaces	Rear-panel expansion slot (supports optional HP-IB, RS-232, or Parallel interface modules)
Display	7-inch monochrome raster CRT

Physical

Power Supply	100 to 240 VAC ($\pm 10\%$), 45 to 440 Hz, 100 VA max
Operating Temperature	0 °C to +55 °C °C
Dimensions (W×H×D)	322 mm × 172 mm × 317 mm mm
Weight	6.2 kg kg

Vertical System - Analog Channels

Analog Bandwidth (-3 dB)	100 MHz
Number of Input Channels	2
Calculated Rise Time	3.5 ns
Input Impedance	1 M Ω ~13 pF
Input Coupling	AC, DC, GND
Input Sensitivity Range	1 mV/div to 5 V/div
Vertical Resolution	8 bits
Maximum Input Voltage	400 V (DC + peak AC)
DC Gain Accuracy (2 mV/div to 5 V/div)	$\pm 2\%$
DC Gain Accuracy (1 mV/div)	$\pm 3\%$
Offset Range (1 mV/div to 100 mV/div)	± 2 V
Offset Range (101 mV/div to 5 V/div)	± 40 V

Horizontal System

Timebase Range	2 ns/div to 50 s/div
Timebase Accuracy	±0.01%
Horizontal Modes	Main, Delayed, Roll, XY
Post-trigger Delay Range	1,000,000 divisions or 50 s
Delay Jitter	10 ppm
Pre-trigger Delay Range	1,000,000 divisions or 5 s

Acquisition System

Maximum Real-Time Sample Rate	200 MSa/s per channel
Maximum Record Length	1 MB per channel
Acquisition Technology	MegaZoom
Glitch Capture Capability	Glitches as narrow as 5 ns
Peak Detect Minimum Pulse Width	5 ns
Maximum Update Rate	Up to 3,000,000 points/s

Trigger System

Trigger Sources	Channel 1, Channel 2, External, Line
Trigger Modes	Auto, Auto Level, Normal, Single
Standard Trigger Types	Edge, Glitch
Glitch Trigger Width Range	8 ns to 8.38 s
External Trigger Input Impedance	1 MΩ ~13 pF
External Trigger Max Input Voltage	400 V (DC + peak AC)
Trigger Coupling	AC, DC, LF Reject, HF Reject, Noise Reject
Trigger Level Range (Internal)	±12 divisions from center of screen
Trigger Holdoff Range	200 ns to 13 s
Internal Trigger Sensitivity	DC to 25 MHz: 0.35 div or 3.5 mV; 25 MHz to 100 MHz: 1.0 div or 10 mV
External Trigger Sensitivity	DC to 25 MHz: 40 mV; 25 MHz to 100 MHz: 80 mV

Waveform Measurements and Analysis

Automatic Voltage Measurements	Vp-p, Vmax, Vmin, Vtop, Vbase, Vavg, Vrms
Automatic Time Measurements	Period, Frequency, Rise time, Fall time, +Width, -Width, Duty Cycle
Cursor Measurements	Voltage (V1, V2, dV) and Time (t1, t2, dt, 1/dt)
Waveform Math Operators	Channel 1 + Channel 2, Channel 1 - Channel 2

Storage Capabilities

Setup Storage	10 nonvolatile front-panel setups
Trace Memory Storage	4 nonvolatile trace memories

Display and User Interface

Display Graticule	8 x 10 divisions
Autoscale	Single-button automatic setup of active channels

Environmental and Compliance

Operating Altitude	Up to 4,600 m (15,000 ft)
Non-operating Altitude	Up to 15,240 m (50,000 ft)

Vertical System

Bandwidth Limit Filter	20 MHz
Channel Isolation	≥ 40 dB at 100 MHz
Common Mode Rejection	20 dB at 50 MHz
Dynamic Range	± 8 div from screen center

Environmental

Operating Humidity	95% RH at 40 °C
Vibration Limit	0.38 mm p-p, 5 to 55 Hz, 3 axes, 15 minutes per axis
Shock Limit	30 g, 1/2 sine, 11 ms duration, 3 shocks per axis

Power

Power Consumption	Maximum 220 VA
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Triggering

External Trigger Level Range	± 18 V
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I/O & Expandability

Supported Interface Modules	HP 54650A (GPIB), HP 54651A (RS-232), HP 54652B (RS-232/Parallel), HP 54657A (GPIB with Measurement/FFT), HP 54659B (RS-232/Parallel with Measurement/FFT)
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Compliance

Safety Standards	Certified to CSA C22.2 No. 1010.1, Complies with EN 61010-1 / IEC 1010-1
EMC Standards	Complies with CISPR 11 Class A, EN 50082-1

Maintenance

Recommended Calibration Cycle	1 year
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TECHNOLOGY

Digital Storage Oscilloscope (DSO)

APPLICATIONS

Electronic Design and Troubleshooting, Mixed-Signal Analysis, Education

