

KEYSIGHT TECHNOLOGIES (AGILENT HP)

54825A

The Keysight (Agilent) Infiniium 54825A is a high-performance digital oscilloscope offering 4 channels, 500 MHz bandwidth, and a real-time sampling rate of 2 GSa/s simultaneously across all channels. Combining a simple, analog-like front panel with a versatile Windows-based graphical user interface, the 54825A is designed for efficient debugging, general-purpose circuit design, and troubleshooting. It provides extensive triggering capabilities, high acquisition rates, and integrated analysis tools suitable for professional engineering applications.

SPECIFICATIONS

General

Interfaces	GPIB, RS-232, Centronics Parallel, PS/2 keyboard & mouse, VGA output, LAN
Display	8.4-inch active-matrix TFT color LCD, 640 × 480 resolution
Probe Compatibility	Agilent AutoProbe interface, supports passive and active probes

Physical

Power Supply	100–240 VAC, 47–440 Hz, 390 W maximum
Operating Temperature	5 to +40 °C °C
Dimensions (W×H×D)	437 mm × 216 mm × 440 mm mm
Weight	11.8 kg kg

Vertical System

Analog Bandwidth (-3 dB)	500 MHz
Number of Channels	4
Calculated Rise Time (10% to 90%)	< 700 ps
Input Impedance	1 M Ω $\pm$ 1% (13 pF) or 50 Ω $\pm$ 1%
Input Coupling	AC, DC, GND
Vertical Sensitivity Range (1 M Ω)	2 mV/div to 10 V/div
Vertical Sensitivity Range (50 Ω)	2 mV/div to 1 V/div
Vertical Resolution (ADC)	8 bits (up to 12 bits with averaging)
DC Gain Accuracy	$\pm$ 1.25% of full scale
Maximum Input Voltage (1 M Ω)	$\pm$ 150 V (dc + peak ac) CAT II
Maximum Input Voltage (50 Ω)	5 Vrms
Hardware Bandwidth Limits	20 MHz
Channel-to-Channel Isolation	40 dB from DC to 500 MHz
Offset Range (2 mV to 100 mV/div)	$\pm$ 2 V
Offset Range (102 mV to 1 V/div)	$\pm$ 20 V
Offset Range (1.02 V to 10 V/div)	$\pm$ 200 V
Input Capacitance (1 M Ω)	13 pF (nominal)
Probe Attenuation Factors	0.0001:1 to 10000:1 (continuous)

Horizontal System

Maximum Real-Time Sampling Rate	2 GSa/s on all 4 channels simultaneously
Maximum Record Length	32 kpts per channel (64 kpts interleaved)
Time Base Range	500 ps/div to 20 s/div
Time Base Resolution	10 ps
Time Base Accuracy	$\pm$ 0.0015% (15 ppm)
Channel-to-Channel Deskew Range	$\pm$ 25 ns
Pre-trigger Delay Range	Up to 100% of record length
Post-trigger Delay Range	Up to 10,000 s

Trigger System

Trigger Sources	Channel 1, Channel 2, Channel 3, Channel 4, Line, Auxiliary
Trigger Modes	Auto, Triggered, Single
Trigger Coupling	DC, AC, LF Reject, HF Reject, Noise Reject
Trigger Holdoff Range	100 ns to 320 s
Edge Triggering	Rising edge, falling edge, alternating
Glitch Triggering	Min/max pulse width 1 ns to 160 s
Setup and Hold Triggering	Setup time 0 ns to 10 s, hold time 0 ns to 10 s
Internal Trigger Level Range	± 8 divisions from center screen
Auxiliary Trigger Level Range	± 5 V

Acquisition System

Acquisition Modes	Real-Time, Equivalent-Time, Peak Detect, Averaging
Peak Detect Mode Min Pulse Width	1 ns
Averaging Factor Range	2 to 4096
Repetitive Sampling Rate	250 GSa/s max
Option 001 Memory Expansion	64 kpts per channel (128 kpts max on 2 channels)

Waveform Measurements and Analysis

Automatic Measurements	Rise time, fall time, period, frequency, positive pulse width, negative pulse width, duty cycle, Vamplit, Vbase, Vtop, Vpp, Vmax, Vmin, Vrms, Vmean, overshoot, undershoot
Waveform Math Functions	Add, subtract, multiply, divide, integrate, differentiate, FFT
FFT Window Types	Hanning, Hamming, Rectangular, Blackman-Harris

Processor and Storage

Operating System	Microsoft Windows
Internal Storage	Internal hard disk drive (HDD), 1.44 MB floppy disk drive

Environmental Specifications

Operating Humidity	Up to 95% relative humidity (non-condensing) at +40 °C
Non-Operating Temperature	-40 °C to +70 °C
Operating Altitude	Up to 4,600 m (15,000 ft)
Non-Operating Altitude	Up to 15,300 m (50,000 ft)

Triggering

Internal Trigger Sensitivity (DC to 100 MHz)	0.3 div
Internal Trigger Sensitivity (100 MHz to 500 MHz)	1.0 div
Auxiliary Trigger Sensitivity (DC to 100 MHz)	100 mV
Auxiliary Trigger Sensitivity (100 MHz to 500 MHz)	250 mV
Video Triggering	NTSC, PAL, SECAM

Auxiliary Inputs & Outputs

Probe Compensator Output	≈ 5 V into > 1 MΩ, ≈ 2.5 V into 50 Ω, ~ 1 kHz
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Environmental

Operating Shock	15 g, 11 ms half-sine
Non-operating Shock	50 g, 11 ms half-sine

Safety & Compliance

Safety Standards	CSA C22.2 No. 1010.1, EN 61010-1, IEC 61010-1
Electromagnetic Compatibility	IEC 61326-1, EN 61326-1, CISPR 11, EN 55011 Group 1 Class A

Storage

Floppy Drive	3.5-inch 1.44 MB
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Connectivity

Keyboard Port	PS/2
Mouse Port	PS/2
External Video Port	15-pin D-sub VGA

Maintenance

Calibration Cycle	1 year
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TECHNOLOGY

Digital Storage Oscilloscope (DSO)

APPLICATIONS

Electronic circuit design, debugging, high-speed signal analysis, and educational labs

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