

KEYSIGHT TECHNOLOGIES (AGILENT HP)

54820A

The Keysight (Agilent) Infiniium 54820A is a 2-channel, 500 MHz digital oscilloscope designed for general-purpose design and troubleshooting. Combining a traditional, simple analog-like front panel with the powerful user interface of a Windows-based system, it offers a 2 GSa/s sample rate on both channels simultaneously for fast and accurate waveform capture.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2), LAN (10Base-T), RS-232 (serial), Parallel (Centronics), PS/2 keyboard/mouse ports, VGA out
Display	8.4-inch color active-matrix TFT-LCD, 640 × 480 resolution

Physical

Power Supply	100–240 VAC (±10%), 47–440 Hz, 390 W maximum power consumption
Operating Temperature	0 °C to +50 °C °C
Dimensions (W×H×D)	437 mm × 216 mm × 440 mm mm
Weight	12.2 kg kg

Vertical System

Analog Bandwidth (-3 dB)	500 MHz
Calculated Rise Time (10% to 90%)	700 ps
Number of Input Channels	2
Input Impedance	1 MΩ ±1% (~13 pF) or 50 Ω ±1% (selectable)
Input Coupling	DC, AC, GND
Vertical Resolution (ADC)	8 bits (≥ 12 bits with averaging)
Input Sensitivity Range	1 mV/div to 5 V/div (1 MΩ), 1 mV/div to 1 V/div (50 Ω)
DC Gain Accuracy	±1.25% of full scale
Maximum Input Voltage	1 MΩ: ±150 V (DC + peak AC); 50 Ω: 5 Vrms
Offset Range	1 mV to 100 mV/div: ±2 V; 101 mV to 1 V/div: ±20 V; 1.01 V to 5 V/div: ±200 V (for 1 MΩ)
Channel-to-Channel Isolation	≥ 40 dB from DC to 500 MHz
Hardware Bandwidth Limits	20 MHz

Horizontal System

Maximum Real-Time Sampling Rate	2 GSa/s on both channels simultaneously
Maximum Record Length	32 kpts per channel (64 kpts interleaved)
Time Base Range	500 ps/div to 5 s/div
Time Base Accuracy	±0.0015% (15 ppm)
Channel Deskew Range	±25 ns

Trigger System

Trigger Sources	Channel 1, Channel 2, Auxiliary, Line
Trigger Modes	Auto, Triggered, Single
Trigger Coupling	DC, AC, LF Reject, HF Reject, Noise Reject
Trigger Holdoff Range	100 ns to 10 s
Edge Triggering	Rising, falling, alternating
Glitch/Pulse Width Triggering	Trigger on pulse width <, >, or within range (2 ns to 10 s)
State/Pattern Triggering	Trigger on logical combination of channels and external pattern
External Trigger Input Impedance	1 MΩ ±3% (~12 pF)

Acquisition System

Acquisition Modes	Real-time, Equivalent-time, Average, Peak Detect
Peak Detect Minimum Pulse Width	1.0 ns
Averaging Range	2 to 4096

Waveform Measurements and Analysis

Automatic Voltage Measurements	Amplitude, Average, Base, Maximum, Minimum, Peak-to-Peak, Top, Overshoot, Preshoot, RMS
Automatic Time Measurements	Period, Frequency, Width (+/-), Duty Cycle (+/-), Rise Time, Fall Time, Delay, Phase, Slew Rate
Measurement Statistics	Mean, Standard Deviation, Min, Max, Count
Basic Math Functions	Add, Subtract, Multiply
Advanced Math Functions	Integrate, Differentiate, FFT
FFT Window Types	Hanning, Hamming, Flat Top, Rectangular

Display and User Interface

Display Type	8.4-inch color active-matrix TFT-LCD
Display Resolution	640 × 480 pixels
Waveform Display Formats	YT, XY

Connectivity and Ports

GPIB Port	IEEE-488.2 interface
LAN Port	RJ-45, 10Base-T Ethernet
Serial Port	RS-232, 9-pin D-sub
Parallel Port	25-pin D-sub (Centronics)
External Video Output	VGA, 15-pin D-sub
Auxiliary Output	TTL level trigger output
Keyboard/Mouse Ports	Two PS/2 ports

Processor and Storage

Internal Operating System	Windows 98
Internal Storage	Internal Hard Disk Drive and 3.5-inch 1.44 MB Floppy Drive

Environmental

Storage Temperature Range	-40 °C to +70 °C
Operating Humidity	Up to 95% relative humidity at +40 °C (non-condensing)
Operating Altitude	Up to 4,600 m (15,000 ft)
Non-Operating Altitude	Up to 15,300 m (50,000 ft)
Acoustic Noise	40 dBA (typical)
Operating Vibration	0.3 g (rms), 5 Hz to 500 Hz, 10 min per axis
Non-operating Vibration	2.41 g (rms), 5 Hz to 500 Hz, 10 min per axis
Operating Shock	15 g, 11 ms, half-sine
Non-operating Shock	30 g, 11 ms, half-sine

Accessories

Included Probes	2 × 1161A 10:1 10 MΩ passive probes
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Acquisition

Maximum Equivalent-Time Sampling Rate	100 GSa/s
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Triggering

Internal Trigger Level Range	±8 divisions from center screen
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Vertical

Probe Attenuation Factors	0.0001:1 to 10000:1 (fully adjustable)
Input Impedance Selection	50 Ω / 1 MΩ (selectable)

Inputs & Outputs

Probe Interface	Agilent AutoProbe interface
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Storage

Floppy Drive	3.5-inch 1.44 MB MS-DOS compatible
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Display

External Monitor Resolution	Supports external SVGA monitor (800 × 600)
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Compliance

Safety Standards	CSA C22.2 No. 1010.1, EN 61010-1 / IEC 1010-1
EMC Standards	CISPR 11/EN 55011 Group 1 Class A, IEC 801-2/3/4

Trigger

Internal Trigger Sensitivity	0.5 div (DC to 100 MHz), 1.0 div (100 MHz to 500 MHz)
External Trigger Sensitivity	100 mV (DC to 100 MHz), 200 mV (100 MHz to 500 MHz)
Setup Time Range	-10 ns to 10 ns
Hold Time Range	-10 ns to 10 ns

Horizontal

Delta Time Accuracy	$\pm((0.005\% \times \text{reading}) + (0.15 \times \text{sample interval}) + 15 \text{ ps RMS})$
Pre-trigger Delay Range	At least 1 screen width or 100 μs (whichever is greater) up to 1000 s
Post-trigger Delay Range	0 s to 1000 s

Power

Maximum Power Dissipation	390 W
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TECHNOLOGY

Digital Phosphor / Digital Storage

APPLICATIONS

General-purpose electronic design, troubleshooting, and serial bus testing

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