KEYSIGHT TECHNOLOGIES (AGILENT HP)

54810A

The Keysight (Agilent/HP) Infiniium 54810A is a member of the 54800 Series of digital storage oscilloscopes. Providing 2 channels with a 500 MHz analog bandwidth and a real-time sample rate of 1 GSa/s simultaneously across both channels, it combines high-fidelity acquisition with a familiar Windows-based graphic user interface to streamline debugging and troubleshooting in high-speed digital and general-purpose electronics design.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2), LAN (10Base-T RJ-45), RS-232, Parallel (Centronics), VGA out, PS/2 Keyboard, PS/2 Mouse
Display	8.4-inch active-matrix color TFT LCD, 640 × 480 resolution

Physical

Power Supply	100–240 VAC (±10%), 47–440 Hz, 390 VA maximum
Operating Temperature	5 °C to +40 °C °C
Dimensions (W×H×D)	437 mm × 216 mm × 440 mm mm
Weight	11.8 kg kg

Vertical System

Analog Channels	2
Analog Bandwidth	500 MHz
Hardware Rise Time	< 700 ps
Vertical Resolution	8 bits (≥ 12 bits with averaging)
Input Impedance	1 MΩ ±1% (~13 pF)
Input Coupling	AC, DC
Maximum Input Voltage (1 MΩ)	150 Vrms (DC + peak AC < 10 kHz)
Vertical Sensitivity Range	2 mV/div to 10 V/div
DC Vertical Gain Accuracy	±1.25% of full scale
Offset Range	±2 V (2 mV to 100 mV/div), ±20 V (102 mV to 1 V/div), ±200 V (1.02 V to 10 V/div)
Channel-to-Channel Isolation	≥ 40 dB (DC to 500 MHz)
Bandwidth Limit	20 MHz (selectable)
Maximum Offset Range (2 mV to 100 mV/div)	±2 V
Maximum Offset Range (102 mV to 1 V/div)	±20 V
Maximum Offset Range (1.02 V to 10 V/div)	±200 V

Horizontal System & Sampling Rate

Maximum Real-Time Sample Rate	1 GSa/s (on both channels simultaneously)
Equivalent-Time Sample Rate	25 GSa/s max
Maximum Memory Depth	32 kpts per channel
Timebase Range	500 ps/div to 20 s/div
Timebase Accuracy	±15 ppm (0.0015%)
Channel-to-Channel Deskew Range	±100 ns

Trigger System

Trigger Sources	Channel 1, Channel 2, Auxiliary, Line
Trigger Modes	Auto, Triggered, Single
Trigger Coupling	DC, AC, Low Frequency Reject, High Frequency Reject, Noise Reject
Trigger Sensitivity (Internal)	0.3 div or 5 mV (DC to 500 MHz)
Trigger Sensitivity (Auxiliary)	100 mV (DC to 500 MHz)
Trigger Level Range (Internal)	±8 divisions from center screen
Trigger Level Range (Auxiliary)	±2.0 V or ±10.0 V (range dependent)
Trigger Holdoff Range	Individual control from 80 ns to 320 ms
Edge Triggering	Rising, falling, or alternating edges on any source
Glitch Triggering	Triggers on positive or negative glitches < 2.5 ns to 10 s
Pattern Triggering	Triggers on logical AND, NAND, OR, or NOR pattern of channel inputs
State Triggering	Triggers on a pattern of logic levels of channels 1, 2, and auxiliary trigger entered on a transition of channel 4 (or clock channel)

Acquisition Modes

Real-Time Sampling Mode	Captures single-shot waveforms up to 1 GSa/s
Peak Detect Mode	Detects glitches down to 10 ns wide at all sample rates
Averaging Mode	Selectable from 2 to 4096 averages
High-Resolution Mode	Boxcar filtering reduces noise and increases vertical resolution up to 12 bits

Measurements, Math & Analysis

Automatic Voltage Measurements	Peak-to-Peak, Maximum, Minimum, Amplitude, Top, Base, Overshoot, Preshoot, Average, RMS, Cycle Mean, Cycle RMS
Automatic Time & Frequency Measurements	Period, Frequency, Positive Width, Negative Width, Duty Cycle, Rise Time, Fall Time, Tmin, Tmax, Delay, Phase
Waveform Math Operators	Add, Subtract, Multiply, Integrate, Differentiate, FFT
FFT Window Functions	Hanning, Flattop, Rectangular

Display & User Interface

Operating System	Windows-based (Windows 95 / 98 / XP depending on revision)
Built-in Storage Drive Type	3.5-inch 1.44 MB floppy drive and internal hard disk drive

Connectivity & External Interfaces

External Trigger Input	BNC connector on front panel
Auxiliary Output	BNC connector on rear panel

Power & Environmental

Storage Temperature	-40 °C to +70 °C
Operating Humidity	Up to 95% relative humidity (non-condensing) at +40 °C
Operating Altitude	Up to 4,600 meters (15,000 feet)
AC Input Voltage	100 to 240 VAC (±10%)
AC Input Frequency	47 to 440 Hz
Maximum Power Consumption	390 W
Non-Operating Temperature Range	-40 °C to +70 °C
Non-Operating Altitude Range	Up to 15,300 m (50,000 ft)
Operating Vibration	0.21 g rms (5 to 500 Hz)
Non-Operating Vibration	2.09 g rms (5 to 500 Hz)
Shock Resistance	30 g (half-sine, 11 ms duration)

Physical Specifications

Height	216 mm (8.5 inches)
Width	437 mm (17.2 inches)
Depth	440 mm (17.3 inches)
Form Factor	Benchtop (rackmountable with optional kit)

Horizontal System

Pre-trigger Delay Range	0 to 100% of capture memory
Post-trigger Delay Range	0 to 1,000,000 divisions

Triggering

Auxiliary Trigger Input Impedance	1 MΩ ± 3% || 13 pF ± 2 pF
Auxiliary Trigger Maximum Input Voltage	±100 V (DC + peak AC < 10 kHz)

Ports & Connectivity

GPIB Port	IEEE-488, fully programmable
Parallel Port	25-pin Centronics
Serial Port	9-pin RS-232
Keyboard Port	PS/2
Mouse Port	PS/2
External Video Port	15-pin VGA
Network Interface	RJ-45 (10Base-T Ethernet)

Computer System

Floppy Disk Drive	3.5-inch 1.44 MB

Accessories

Standard Probes Included	Two 1160A 10:1 passive probes

Inputs & Outputs

Probe Interface	HP AutoProbe interface

Compliance

Safety Standards	CSA C22.2 No. 1010.1, EN 61010-1, UL 3111-1
EMC Standards	CISPR 11/EN 55011 (Group 1, Class A), IEC 1000-3-2, IEC 1000-3-3, IEC 1000-4-2, IEC 1000-4-3, IEC 1000-4-4

Environmental

Acoustic Noise	< 45 dBA

Options

Memory Upgrade Option	Option 001 (extends memory to 64 Kpts per channel)

Acquisition

Waveform Interpolation	Sin(x)/x, Linear
Minimum Glitch Width Detected	1.0 ns

Trigger

Trigger Jitter	10 ps RMS

TECHNOLOGY

Digital Storage Oscilloscope

APPLICATIONS

General purpose electronic design, troubleshooting, and serial bus verification