KEYSIGHT TECHNOLOGIES (AGILENT HP)

54831B

The Keysight Infiniium 54831B is a 4-channel, 600 MHz digital oscilloscope from the 54800 Series. Combining a classic, analog-like front panel with the flexibility of a Windows-based user interface, this scope delivers up to 4 GSa/s real-time sample rates and versatile memory configuration options up to 16 Mpts.

SPECIFICATIONS

General

Interfaces	LAN, GPIB, USB, RS-232, Parallel, PS/2, VGA out
Display	8.4-inch color TFT-LCD, 640 × 480 resolution

Physical

Power Supply	100-240 VAC (±10%), 47-440 Hz, Max 390 W
Operating Temperature	5 °C to +40 °C °C
Dimensions (W×H×D)	437 mm × 216 mm × 440 mm mm
Weight	13.4 kg

Vertical System - Analog Channels

Analog Bandwidth (-3 dB)	600 MHz
Number of Input Channels	4 analog channels
Calculated Rise Time (10% to 90%)	< 583 ps
Input Impedance	1 MΩ ± 1% (13 pF) or 50 Ω ± 1%
Input Coupling	DC, AC, Ground (1 MΩ only); DC (50 Ω)
Vertical Resolution	8 bits (up to 12 bits with averaging)
Input Sensitivity Range	2 mV/div to 10 V/div (1 MΩ), 2 mV/div to 1 V/div (50 Ω)
Maximum Input Voltage (1 MΩ)	150 V CAT II, 400 V (DC + peak AC)
Maximum Input Voltage (50 Ω)	5 Vrms
Hardware Bandwidth Limits	20 MHz

Horizontal System

Timebase Range	100 ps/div to 20 s/div
Timebase Accuracy	±15 ppm (0.0015%)
Maximum Equivalent Time Sample Rate	250 GS/s
Post-Trigger Delay Range	0 to 1,000 s

Acquisition System

Maximum Real-Time Sample Rate (2 Channels)	4 GSa/s
Maximum Real-Time Sample Rate (4 Channels)	2 GSa/s
Optional Memory Depth	Up to 128 Mpts (64 Mpts per channel)
Acquisition Modes	Sample, Peak Detect, Averaging, High Resolution

Trigger System

Trigger Sources	Channel 1, 2, 3, 4, Auxiliary, Line
Trigger Modes	Auto, Triggered, Single
Trigger Coupling	DC, AC, LF Reject, HF Reject, Noise Reject
Standard Trigger Types	Edge, Glitch, Pattern, State, Setup and Hold, Transition, Delay, Timeout, Runt, Video
Trigger Holdoff Range	100 ns to 10 s
Trigger Sensitivity	0.5 div (DC to 600 MHz)
Minimum Glitch Trigger Width	1.5 ns
Trigger Jitter (Typical)	8 ps RMS
Internal Trigger Level Range	±8 divisions from screen center
Video Triggering Formats	NTSC, PAL, SECAM, HDTV

Waveform Measurements and Analysis

Automatic Measurements	Voltage (peak-to-peak, max, min, average, Vtop, Vbase, amplitude, RMS, overshoot, preshoot); Time (period, frequency, positive width, negative width, duty cycle, rise time, fall time, delay, phase)
Waveform Math Operators	Add, Subtract, Multiply, Divide, Integrate, Differentiate, FFT
FFT Window Types	Hanning, Hamming, Flat Top, Rectangular, Blackman-Harris

Display and User Interface

Operating System	Windows-based user interface

Environmental and Compliance

Storage Temperature Range	-40 °C to +70 °C
Operating Humidity	Up to 95% relative humidity at +40 °C
Operating Altitude	Up to 4,600 m (15,000 ft)

Vertical System

DC Gain Accuracy	±1.25% of full scale
Channel-to-Channel Isolation	40 dB from DC to 600 MHz
Probe Interface	Agilent AutoProbe
Analog Bandwidth (50 Ω)	600 MHz
Analog Bandwidth (1 MΩ)	500 MHz
Vertical Offset Range (1 MΩ)	±1.2 V (1 to 50 mV/div), ±2.5 V (50.5 to 99.5 mV/div), ±10 V (100 to 500 mV/div), ±24 V (505 mV to 1 V/div), ±100 V (1.005 to 5 V/div)
Vertical Offset Range (50 Ω)	±1.2 V (1 to 50 mV/div), ±2.5 V (50.5 to 99.5 mV/div), ±10 V (100 to 500 mV/div), ±12 V (505 mV to 1 V/div)

Auxiliary Inputs & Outputs

External Trigger Input Impedance	N/A (the 54831B is a 4-channel model and does not have an external trigger input)
Calibration Output	1 kHz square wave, ~500 mV into 50 Ω, ~1 V into 1 MΩ
Auxiliary Output	Trigger output, source clock, or calibrator

Environmental & Safety

Vibration (Operating)	0.3 g (rms), 5 Hz to 500 Hz
Vibration (Non-operating)	2.4 g (rms), 5 Hz to 500 Hz
Shock (Operating)	15 g, 11 ms half-sine
Shock (Non-operating)	50 g, 11 ms half-sine

Rear Panel Connections

Video Output Port	15-pin D-sub SVGA
Keyboard Port	PS/2
Mouse Port	PS/2
Parallel Port	25-pin D-sub (Centronics)
Serial Port	9-pin D-sub RS-232

Accessories

Standard Probes	Four 1165A 10:1 passive probes (10 MΩ, 12 pF)

TECHNOLOGY

Digital Phosphor Oscilloscope (DPO) / Digital Storage Oscilloscope (DSO)

APPLICATIONS

High-speed digital design, validation, debugging, and general-purpose electronics testing