KEYSIGHT TECHNOLOGIES (AGILENT HP)

54601A

The HP Keysight 54601A is a 100 MHz, 4-channel digital storage oscilloscope belonging to the reputable HP 54600 series. Designed for benchtop troubleshooting and precision testing, it combines the analog-like look and feel of a classic CRT with the advanced measurement capabilities of a digital storage oscilloscope, featuring a maximum real-time sample rate of 20 MSa/s and a record length of 4,000 points per channel.

SPECIFICATIONS

General

Interfaces	Optional HP-IB (GPIB), RS-232, or Parallel (Centronics) interfaces via plug-on interface modules
Display	7-inch monochrome raster-scan CRT with 8×10 division graticule

Physical

Power Supply	100 to 240 VAC (±10%), 45 to 440 Hz, 110 VA maximum
Operating Temperature	0 to +55 °C °C
Dimensions (W×H×D)	322.6 mm × 172.7 mm × 416.6 mm mm
Weight	6.2 kg kg

Vertical System

Number of Channels	4 (2 full-range channels, 2 limited-range channels)
Analog Bandwidth	100 MHz
Calculated Rise Time	3.5 ns
Vertical Resolution	8 bits
Vertical Sensitivity Range (Channels 1 & 2)	2 mV/div to 5 V/div (in 1-2-5 sequence)
Vertical Sensitivity (Channels 3 & 4)	0.1 V/div and 0.5 V/div
Vertical Gain Accuracy	±1.5%
Maximum Input Voltage	400 V (DC + peak AC)
Input Impedance	1 MΩ shunted by approximately 13 pF
Input Coupling	AC, DC, GND (Channels 1 & 2 only; Channels 3 & 4 are DC coupled)
Channel Isolation	40 dB at 100 MHz (with channels at equal sensitivity)
Input Capacitance	13 pF
Offset Range (Channels 1 & 2)	±2 V (< 200 mV/div), ±40 V (≥ 200 mV/div)
Offset Range (Channels 3 & 4)	±8 V

Horizontal System

Timebase Range	2 ns/div to 5 s/div
Timebase Accuracy	±0.019%
Maximum Real-Time Sample Rate	20 MSa/s
Memory Depth	4,000 points (single-channel) or 2,000 points (dual-channel)
Roll Mode Range	200 ms/div to 5 s/div
XY Mode Bandwidth	1.8 MHz
XY Mode Phase Difference	±3 degrees at 100 kHz

Trigger System

Trigger Modes	Auto, Auto Level, Normal, Single
Trigger Sources	Channel 1, Channel 2, Channel 3, Channel 4, Line
Trigger Sensitivity (DC to 25 MHz)	0.35 div or 3.5 mV
Trigger Sensitivity (25 MHz to 100 MHz)	1 div or 10 mV
Holdoff Range	200 ns to 13 s
Video/TV Triggering	NTSC, PAL, SECAM (field 1, field 2, or line)

Environmental and Safety

Storage Temperature Range	-40 to +70 °C
Operating Humidity Range	95% RH at 40 °C

Measurement Features

Automatic Measurements	Period, frequency, rise time, fall time, +width, -width, duty cycle, Vp-p, Vavg, Vrms, Vmax, Vmin, Vtop, Vbase
Cursor Measurements	Voltage (dV), Time (dT), 1/dT (frequency)
Waveform Math	Ch 1 + Ch 2, Ch 1 - Ch 2

Storage

Setup Storage	16 non-volatile front-panel setups
Waveform Storage	4 non-volatile trace memories

Outputs

Probe Compensator Output	Approximately 5 V at 1.2 kHz

Environmental

Maximum Operating Altitude	4,500 m (15,000 ft)
Maximum Non-Operating Altitude	15,000 m (50,000 ft)

Power

Power Consumption	220 VA maximum

Triggering

Trigger Level Range (Channels 1 & 2)	±12 divisions from center of screen
Trigger Level Range (Channels 3 & 4)	±8 V

Performance

Screen Update Rate	Up to 1.5 million points/second

Environmental & Standards

Environmental Standards Compliance	MIL-T-28800D, Type III, Class 5
Electromagnetic Compatibility	CISPR 11 Class A, FTZ 1046 Class B
Shock Limits	50 g, 11 ms, half-sine, 3 axes
Vibration Limits	0.38 mm, 5 to 55 Hz, 3 axes, 15 minutes

TECHNOLOGY

Digital Storage Oscilloscope (DSO)

APPLICATIONS

Electronic Design, Troubleshooting, Education, Maintenance, and General Test & Measurement