

KEYSIGHT TECHNOLOGIES (AGILENT HP)

54602B

The Keysight Agilent HP 54602B is a 150 MHz, 4-channel (2+2) digital storage oscilloscope from the classic 54600 series. Designed to combine the immediate response of an analog scope with the precision and storage capabilities of a digital instrument, it is a highly reliable tool for bench troubleshooting and educational laboratories.

SPECIFICATIONS

General

Interfaces	None standard; GPIB (HP-IB), RS-232, or parallel available via optional HP 54650-series plug-in modules
Display	7-inch monochrome raster CRT

Physical

Power Supply	100 to 240 VAC ($\pm 10\%$), 45 to 440 Hz, 120 VA maximum
Operating Temperature	0 to +55 °C °C
Dimensions (W×H×D)	322 mm × 172 mm × 317 mm mm
Weight	6.2 kg

Vertical System - Analog Channels

Analog Bandwidth (Channels 1 & 2)	150 MHz
Analog Bandwidth (Channels 3 & 4)	250 MHz
Calculated Rise Time (Channels 1 & 2)	< 2.33 ns
Calculated Rise Time (Channels 3 & 4)	< 1.4 ns
Number of Input Channels	4 (2 + 2 configuration)
Input Coupling (Channels 1 & 2)	AC, DC, GND
Input Coupling (Channels 3 & 4)	DC
Input Impedance (Channels 1 & 2)	1 M Ω ~13 pF
Input Impedance (Channels 3 & 4)	1 M Ω ~13 pF
Input Sensitivity Range (Channels 1 & 2)	2 mV/div to 5 V/div (expandable to 1 mV/div with vernier)
Input Sensitivity (Channels 3 & 4)	0.1 V/div and 1 V/div
Vertical Resolution	8 bits
Maximum Input Voltage	400 V (DC + peak AC)
DC Gain Accuracy	$\pm 1.5\%$

Horizontal System

Timebase Range	2 ns/div to 5 s/div
Timebase Accuracy	$\pm 0.015\%$
Horizontal Resolution	100 ps

Acquisition System

Maximum Real-Time Sample Rate	20 MSa/s
Maximum Repetitive Sample Rate	1.6 GSa/s
Maximum Record Length	4,000 points per channel
Acquisition Modes	Normal, Peak Detect, Averaging
Peak Detect Glitch Capture	Captures glitches as narrow as 50 ns

Trigger System

Trigger Sources	Channels 1, 2, 3, 4, Line
Trigger Modes	Auto, Auto Level, Normal, Single
Trigger Coupling	DC, AC, LF Reject, HF Reject, Noise Reject
Trigger Sensitivity (DC to 25 MHz)	0.35 div or 3.5 mV
Trigger Sensitivity (25 MHz to 150 MHz)	1.0 div or 10 mV
Standard Trigger Types	Edge, TV (NTSC, PAL, SECAM)

Waveform Measurements and Analysis

Automatic Voltage Measurements	Vp-p, Vmax, Vmin, Vtop, Vbase, Vavg, Vrms
Automatic Time Measurements	Period, Frequency, Rise time, Fall time, +Width, -Width, Duty cycle
Waveform Math Operators	Channel 1 + Channel 2, Channel 1 - Channel 2

Display and User Interface

Display Size	7-inch diagonal
Graticule Format	8 × 10 divisions

Connectivity and Interfaces

Rear Expansion Slot	Accepts HP 54650-series interface and measurement enhancement modules
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Power Specifications

Power Voltage Range	100 to 240 VAC
Power Frequency Range	45 to 440 Hz
Power Consumption	220 VA maximum

Environmental and Compliance

Operating Temperature Range	0 to +55 °C
Non-Operating Temperature Range	-40 to +70 °C
Operating Humidity	95% RH at 40 °C
Operating Altitude	Up to 4,500 meters

Physical Characteristics

Form Factor	Benchtop
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Storage

Non-Volatile Setup Storage	16 setups
Non-Volatile Waveform Storage	4 waveforms

Triggering

Trigger Holdoff Range	200 ns to 13 s
Trigger HF Reject Filter	50 kHz low-pass
Trigger LF Reject Filter	50 kHz high-pass

Outputs

Probe Adjust Output Frequency	~1.2 kHz
Probe Adjust Output Voltage	~5 V

Measurements

Cursor Measurements	V1, V2, ΔV , T1, T2, ΔT , $1/\Delta T$
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Options & Accessories

Compatible Expansion Modules	HP 54650A (HP-IB), HP 54652A (RS-232), HP 54657A (Measurement/Storage), HP 54655A (Test Assistant)
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Auxiliary Inputs

Z-Axis Input Impedance	10 k Ω
Z-Axis Input Level	TTL compatible (active low blanks display)

X-Y Mode

X-Y Mode Bandwidth	X-axis: DC to 1.8 MHz, Y-axis: DC to 150 MHz
X-Y Phase Difference	$\pm 3^\circ$ at 100 kHz

Vertical System

Vertical Offset Range (Channels 1 & 2)	± 2 V (2 mV/div to 200 mV/div), ± 40 V (500 mV/div to 5 V/div)
Channel-to-Channel Isolation	≥ 40 dB at 100 MHz

Maintenance

Recommended Calibration Interval	1 year
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TECHNOLOGY

Digital Storage Oscilloscope (DSO)

APPLICATIONS

Electronic testing, laboratory measurement, and academic education

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