

KEYSIGHT TECHNOLOGIES (AGILENT HP)

54750A

The Keysight (formerly Agilent / HP) 54750A is a modular, high-bandwidth digitizing oscilloscope mainframe that provides high-performance equivalent-time sampling. Designed for characterization of high-speed, low-level electrical and optical signals, it features a 2-slot architecture supporting up to four acquisition channels, TDR/TDT capabilities, and exceptional timebase stability for precise jitter analysis.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2), RS-232-C (9-pin), Centronics parallel printer port
Display	9-inch color CRT
Recommended Calibration Interval	1 year

Physical

Power Supply	90 to 132 V AC / 198 to 264 V AC, 48 to 66 Hz, 650 VA maximum
Operating Temperature	15 to 35 °C (operating) °C
Dimensions (W×H×D)	425.5 mm × 194 mm × 523 mm mm
Weight	18.2 kg

System Architecture and Performance

Number of Module Slots	2 plug-in slots
Compatible Plugin Module Series	HP 54750 series (including 54751A, 54752A/B, 54753A, 54754A)
Maximum Supported Channels	Up to 4 channels (using dual-channel plug-in modules)
Maximum Equivalent Time Bandwidth	50 GHz (dependent on plug-in module)
Vertical Resolution	12 bits
Maximum Record Length	512, 1024, 2048, or 4096 points per channel
Timebase Range	2 ps/div to 1 s/div
Timebase Resolution	10 fs (0.01 ps)
Internal Timebase Accuracy	±(1 ps + 0.005% of delay setting)
Timebase Delay Range	0 to 10 s
System Sampling Rate	Up to 40 kHz

Trigger and Synchronization Specifications

Trigger Sources	External trigger, Internal trigger (via module)
Trigger Frequency Range	DC to 2.5 GHz
Trigger Sensitivity	40 mV p-p (DC to 100 MHz), 40 mV p-p (100 MHz to 2.5 GHz)
Trigger Jitter	< 2.5 ps RMS + $5E-5 \times$ delay setting
Trigger Input Impedance	50 Ω
Maximum Trigger Input Voltage	± 2.0 V (DC + peak AC)
Trigger Level Range	± 1.0 V
Trigger Input Connector	Precision 3.5 mm (female)

Measurement and Analysis Capabilities

Eye Diagram Analysis Parameters	Eye height, eye width, jitter, duty cycle, rise/fall times
Jitter Measurement Parameters	RMS Jitter, Peak-to-Peak Jitter
Amplitude Measurement Parameters	High, low, amplitude, max, min, peak-to-peak, RMS, mean, overshoot, undershoot
Timing Measurement Parameters	Period, frequency, rise time, fall time, positive width, negative width, duty cycle, delay, phase
Mask Testing Standards Compliance	Yes, supports custom and standard telecom/datacom masks
Time Domain Reflectometry (TDR) Support	Single-ended and differential TDR/TDT supported with 54753A/54754A modules
Histogram Features	Vertical (voltage) and horizontal (time) histograms with measurement statistics
Waveform Math Functions	Add, subtract, multiply, divide, integrate, differentiate, FFT

Connectivity and I/O Interfaces

External Display Outputs	VGA out (15-pin D-sub)
Auxiliary I/O Ports	DC calibrator signal output

Software and System Control

Operating System	Proprietary real-time OS
Remote Control Command Languages	HP-IB command set (SCPI compatible)
Internal Storage Capacity	3.5-inch 1.44 MB floppy disk drive
Setup and Waveform Storage	Up to 10 front panel setups and 4 waveforms in non-volatile memory

Physical Characteristics

Chassis Form Factor	Benchtop (rackmountable with optional kit)
Cooling System Layout	Forced air cooling with side intake and rear exhaust

Environmental and Compliance

Storage Temperature Range	-40 °C to 70 °C
Maximum Operating Altitude	4,600 m (15,000 ft)
Maximum Storage Altitude	15,300 m (50,000 ft)

DC Calibrator

DC Calibrator Output Voltage Range	-1.0000 V to +1.0000 V
DC Calibrator Output Accuracy	±(0.1% of setting + 100 µV)
DC Calibrator Output Resolution	50 µV
DC Calibrator Output Impedance	50 Ω (nominal)

Timebase

Channel Deskew Range	±100 ns
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Power Requirements

Maximum Power Consumption	1200 VA
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Power Outputs

Probe Power Connectors	2 front-panel connectors
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Environmental

Operating Humidity	Up to 95% RH (non-condensing) at +40 °C
Operating Vibration	0.3 g (5 to 500 Hz) random
Non-Operating Vibration	2.23 g (5 to 500 Hz) random
Operating Shock	15 g, 11 ms half-sine pulse
Non-Operating Shock	30 g, 11 ms half-sine pulse

Storage

Floppy Disk Drive	3.5-inch MS-DOS compatible, 1.44 MB or 720 KB
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Connectivity & Printing

Supported Printer Protocols	HP PCL via GPIB or Parallel Interface
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TECHNOLOGY

Equivalent-Time Sampling Oscilloscope

APPLICATIONS

High-Speed Digital Communications and TDR/TDT Analysis

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.