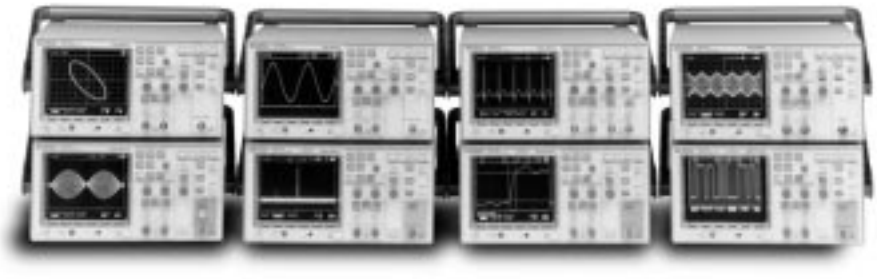
HEWLETT® PACKARD

HP 54600-Series Oscilloscopes

Analog feel and digital power for precise, accurate troubleshooting at an affordable price

- **60/100/150/500 MHz bandwidth**
- **Choice of: high sample rates, 4 channels, deep memory, or color display models**
- **Real-time vector display**
- **Automatic measurements**
- **Pre-trigger viewing, trace storage**
- **Optional remote control/hard copy**



Enhance your troubleshooting capability at an affordable price

The HP 54600 family of oscilloscopes provide the familiar, easy-to-use controls and interactive displays you've grown accustomed to on analog scopes. Yet, to solve your most difficult test problems, these scopes provide powerful digital features, such as pre-trigger viewing, waveform storage, and measurement automation. The eight models in this family give you the features and performance you need for confidence in your critical measurements, at a fraction of the price you'd expect to pay.

Displays you can trust

HP 54600-series oscilloscopes feature real-time vector displays that give you a clear and accurate picture of your waveforms. Like analog oscilloscope displays, these enhanced displays give you waveform slew rate information at a glance, with brighter traces representing more slowly changing waveforms and dimmer traces representing more rapidly changing waveforms. These trace intensity differences give you the visual information you need to quickly assess waveform slew rate, for faster, more effective trouble-shooting.

The multi-processor architecture of HP 54600-series oscilloscopes delivers a display update rate of over 500,000 points per second (up to 3 million points per second on the HP 54645A). This fast display update means the oscilloscope screen reflects changes in the waveform instantaneously, giving you the display responsiveness you need to make adjustments quickly and see complex waveforms accurately.

In vector mode, HP 54600-series oscilloscopes, provide a fast screen refresh rate of 60 times/second, regardless of the number of waveforms displayed, and minimal display blind time so you can capture and display infrequent events that other scopes might miss.

Powerful digital features

The digital architecture of HP 54600-series oscilloscopes gives you a multitude of features that help you get your job done easier and faster:

- Pre-trigger viewing capability lets you view events that you'd miss with an analog scope. This feature lets you see what happened before the trigger event, so you can troubleshoot more effectively.
- Autoscale frees you from resetting the scope every time you move the probe from test point to test point. You simply hit the autoscale button and it sets voltage, time and trigger parameters for you.

- With autostore, the waveform displays at full brightness while all previously acquired waveforms remain on the scope's screen at half brightness. This lets you see a history of waveform activity while simultaneously viewing the live waveform. You can use this tool to analyze worst-case jitter and noise, or to permanently capture infrequent waveform anomalies.
- Automatic measurements of voltage, frequency and time, plus user-defined cursor measurements, make waveform characterization fast and easy.
- With peak detect, you won't have to worry about missing narrow glitches.

Choose from models designed to meet your needs

The HP 54600 series includes eight models designed to meet your needs and your budget.

HP 54600B 100 MHz oscilloscope

With 100 MHz bandwidth, two input channels and sweep speeds from 2ns/div to 5 s/div, the HP 54600B is ideal for production, test, field service and education, or anywhere you need a solid, dependable scope.

HP 54645A MegaZoom oscilloscope

The HP 54645A oscilloscope brings the advantages of deep memory with none of the disadvantages usually associated with this class of oscilloscopes. The HP 54645A is a dual-channel 100 MHz oscilloscope with 200 MSa/s and a full 1 MB of memory behind each of its channels. Through the application of MegaZoom technology, this deep memory oscilloscope has a high speed/low dead time display and a highly responsive front panel. Unlike all other deep memory scopes which force the user to choose between fast response and deep memory, the MegaZoom technology gives you a scope that is always fast and deep. Pan and zoom operation is as simple as turning the time/division knob. No special menus or controls are required to take full advantage of the HP 54645A's deep memory.

A powerful glitch trigger extends the power of the MegaZoom technology in solving your toughest troubleshooting problems. Simply set-up the desired pulse width that represents a worse case situation and after the scope finds it, pan and zoom through the deep waveform record to find out exactly what was going on in your circuit that caused the problem.

HP 54602B 4-channel oscilloscope

When you need more bandwidth than the HP 54600B and HP 54645A provide, take a closer look at the HP 54602B scope. You get the same capabilities as with the HP 54600B but with the added advantage of a 150 MHz bandwidth, 4 (2+2) channels and 1mV/div sensitivity.

HP 54610B 500 MHz oscilloscope

Even though the HP 54610B is the least expensive 500 MHz oscilloscope on the market, it has analog performance that is similar to higher cost oscilloscopes. The HP 54610B is ideal for many production line test applications. This 2-channel, delayed sweep scope offers a viewable external trigger and horizontal accuracy of +0.001%. Sweep speeds range from 1ns/div to 5s/div.

HP 54615B 1 GSa/s oscilloscope

With the HP 54615B you can capture narrow glitches and subtle details of your signal. This 2-channel scope combines 500 MHz bandwidth, 1 GSa/s sample rate and 1 nanosecond peak detection on both channels. The HP 54615B peak detection allows the scope to maintain a 1 GSa/s sample rate at all sweep speeds. A horizontal accuracy of 0.005% means you can make critical timing measurements with confidence.

HP 54616B 2 GSa/s oscilloscope

The top-of-the line HP 54616B offers the same benefits as the 54615B but with twice the sample rate—2GSa/s sampling rate, 500 MHz bandwidth and 1 nanosecond peak detection. Whether you need to verify a one time, 1 ns edge or view the envelope of a modulated waveform, the HP 54616B has the power and flexibility to get the job done. And, the intuitive front panel and responsive display makes this the scope of choice for everyday troubleshooting.

HP 54616C color oscilloscope

The HP 54616C color display makes viewing more interesting and easier when you are viewing multiple waveforms.

3-year warranty

All HP 54600-series oscilloscopes include a full 3-year warranty with optional 5-year warranty coverage. Each scope includes two 1.5 meter 10X voltage probes, a user's guide, and a power cord.

Technical Specifications

HP 54600B, HP 54602B, HP 54610B, HP 54615B, HP 54645A and HP 54616B/C Oscilloscopes

	HP 54600B	HP 54645A	HP 54602B	HP 54610B	HP 54615B/16B/16C
Bandwidth					
CH 1 & 2	dc–100 MHz	dc–100 MHz tt	dc–150 MHz*dc–500 MHz	dc–500 MHz	
ac coupled	10 Hz–100 MHz	1.5 Hz–100 MHz tt	10 Hz–150 MHz*	10 Hz–500 MHz	10 Hz–500 MHz
CH 3 & 4	NA	NA	dc–250 MHz	NA	NA
Single-shot bandwidth	dc–2 MHz	dc–20 MHz	dc–2 MHz	dc–2 MHz	HP 54615B 250 MHz HP 54616B 500 MHz
Number of channels	2	2	4 (2 + 2)	2	2
Sensitivity					
CH 1 & 2	2 mV/div to 5 V/div	1 mV/div to 5 V/div	1 mV/div to 5 V/div	2 mV/div to 5 V/div	2 mV/div to 5 V/div
CH 3 & 4	NA	NA	0.1 & 0.5 V/div	NA	NA
dc gain accuracy	±1.5%	±1.5%	±1.5%	±2%	±2%
Rise time (calculated)					
CH 1 & 2	<3.5 ns	<3.5 ns	<2.33 ns	<700 ps	<700 ps
CH 3 & 4	NA	NA	<1.4 ns	NA	NA
Input impedance	1 MΩ, approx. 13 pF	1 MΩ, approx. 13 pF	1 MΩ, approx. 13 pF	1 MΩ, approx. 9 pF or 50 Ω selectable	1 MΩ, approx. 9 pF or 50 Ω selectable
Input coupling					
CH 1 & 2	dc, ac or ground	dc, ac or ground	dc, ac or ground	dc, ac or ground	dc, ac or ground
CH 3 & 4	NA	NA	dc, ground	NA	NA
Maximum input (dc + peak ac)	400 V	400 V	400 V	250 V or 5 Vrms in 50 Ω mode	250 V or 5 Vrms in 50 Ω mode
Timebase range (main & delayed)	5 s/div to 2 ns/div	50 s/div to 2 ns/div	5 s/div to 2 ns/div	5 s/div to 1 ns/div	5 s/div to 1 ns/div
Trigger sources	CH 1, 2, line, or ext.	CH 1, 2, line	, or ext.CH 1, 2, 3, 4, or line	CH 1, 2, line, or ext.	CH 1, 2, line, or ext.
Horizontal accuracy	±0.01%	±0.01%	±0.01%	±0.01%	±0.005%
Horizontal resolution	100 ps	40 ps	100 ps	100 ps	20 ps
Trigger sensitivity					
dc to 25 MHz	0.35 div or 3.5 mV	0.35 div or 3.5 mV	0.35 div or 0.7 mV	0.5 div or 2.5 mV***	0.5 div or 3.5 mV***
dc to max. bandwidth	1 div or 10 mV	1 div or 10 mV	1 div or 2 mV**	1 div or 5 mV†	1 div or 7 mV†
Maximum sample rate					
single shot	20 MSa/s	200 MSa/s	20 MSa/s	20 MSa/s	HP 54615 1 GSa/s HP 54616 2 GSa/s
repetitive	10 GSa/s	>10 GSa/s	10 GSa/s	10 GSa/s	>10 GSa/s
Record length (maximum)	4,000 points	1M points	4,000 points	4,000 points	5,000 points
single shot	2,000 points	1M points	2,000 points	2,000 points	5,000 points
Max. display update rate	1,500,000 points/sec	3,000,000 points/sec	1,500,000 points/sec	1,500,000 points/sec	500,000 points/sec
Resolution	8 bits				
Power	Voltage: 100–240 Vac, 48–440 Hz, 300 VA maximum				
Net weight	Approx. 6.2 kg (14 lbs)				
Size (excl. handle)	172 mm H x 322 mm W x 317 mm D (6.8 x 12.7 x 12.5 in)				
Warranty	3 years				

* Maximum bandwidth on CH 1 & 2 is 100 MHz at 1, 2, and 5 mV/div.

** HP 54602B, for ranges 1, 2, and 5 mV/div, sensitivity between 25 MHz and 100 MHz on CH 1 & 2 is 2 div or 4 mV.

*** Trigger sensitivity from dc to 100 MHz.

† Trigger sensitivity from 100 MHz to max. bandwidth.

†† Maximum bandwidth on CH 1 & 2 is 75 MHz at 1, 2 and 5 mV/div.

Vertical System	(HP 54600B, 54645A, 54602B)
Bandwidth Limit	≈ 20 MHz
Inversion	CH 1 & CH 2
CMRR	≈ 20 dB at 50 MHz
Dynamic Range	± 8 div from center screen
Input R&C	1 MΩ , ≈ 13 pf
Maximum Input	400 V (dc + peak ac)
Math Functions	CH 1 + or – CH 2
Cursor Accuracy [1][2]	
Single Cursor	Vert. Acc. ± 1.2% of full scale, ± 0.5% of position value
Dual Cursor	Vert. Acc. ± 0.4% of full scale

Vertical System	(HP 54610B, 54615B, 54616B/C)
Bandwidth Limit	≈ 30 MHz
Inversion	CH 1 & CH 2
CMRR	≈ 20dB at 50 MHz
Dynamic Range	± 12 div from center screen
Input R&C	1 MΩ, ≈ 9 pf or 50Ω selectable
Maximum Input	250 V (dc + peak ac) or 5 Vrms in 50Ω mode
50Ω Protection	Protects 50Ω load from excessive voltage
Time Skew	Adjustable over a range of ±25ns to remove effects of cabling
Probe Sense	Automatic readout of 1X, 10X, 20X, 50X and 100X probes
Math Functions	CH 1 + or – CH 2
Cursor Accuracy [1][2]	
Single Cursor	Vert. Acc. ± 1.2% of full scale, ± 0.5% of position value
Dual Cursor	Vert. Acc. ± 0.4% of full scale

Horizontal System	
Cursor Accuracy (Δt & 1/Δt) [3]	± 0.01% ± 0.2% of full scale ± 200 ps
Delay Jitter	10 ppm 1 ppm (54615B, 54616B/C)
Pretrigger Delay (Negative time)	≥ 10 div
Posttrigger Delay (Trigger to start of sweep)	at least 2,560 div or 50 ms. Not to exceed 100 s.

Delayed Sweep	
Main Sweep	**Delayed Sweep**
5 s/div to 10 ms/div	up to 200X main
5 ms/div and faster	up to 2 ns/div
54610B, 15B/16B/16C	up to 1ns/div

Trigger System	
Coupling	ac, dc, LF reject, HF reject, & noise reject. LF & HF: -3db at ≈ 50 kHz
Modes	Auto, Autolevel, Normal, Single, & TV
HP 54645A Glitch triggering	Minimum width 8 ns, Operators: <, >, or range
TV Triggering	TV line and field. 0.5 div of composite sync for stable display (Ch1 & Ch2)
TV Functions	
Line Counting	Delay time calibrated in NTSC and PAL line numbers
All Field Trigger (both fields selected, 54602B and 54610B)	Oscilloscope triggers on the vertical sync pulse in both fields, allowing use with noninterlaced video.
Holdoff	Adjustable from 200 ns to ≈ 13 s
External Trigger (54600B, 54645A)	
Range Sensitivity	±18V dc to 25MHz: <50mV dc to 100 MHz: <100mV
Coupling	dc, HF reject and noise reject
Input R&C	1MΩ, ≈ 13pf
Maximum Input	400 V (dc + peak ac)

External Trigger (54610B, 54615B, 54616B/C)	
Range Sensitivity	±18V dc to 100MHz: <75mV dc to 500 MHz: <150mV
Coupling	dc and ground
Input R&C	1MΩ, ≈ 12pf or 50Ω selectable
Maximum Input	250 V (dc + peak ac) or 5 Vrms in 50Ω mode
Trigger View (HP 54610B only)	External trigger is viewable. Bandwidth is >350MHz

X-Y Operation	
Z-Blanking	TTL high blanks trace (not available on 54615B, 54616B/C)
Bandwidth	X & Y same as vertical system
Phase Difference	± 3 degrees at 100 kHz ± 3 degrees at 10 MHz (54615B, 54616B/C)

Display System	
Display	7-inch Raster CRT
Resolution	255 vertical by 500 horizontal points
Controls	Front-panel intensity control
Graticule	8 X 10 grid or frame
Autostore	Autostore saves previous sweeps in half bright display and the most recent sweep in full bright display.
Display (54616C)	5.8 inch Active Matrix Color LCD Display

[1] Temperature ± 10°C from calibration
[2] Use full scale at 80mV for 2mV/div and 5 mV/div ranges
[3] Use full scale of 50 ns for 2 ns/div

Acquisition System

Simultaneous Channels	
HP 54600B/54610B, 54615B, 54616B	Channels 1& 2
HP 54602B	Channels 1& 2 or 3 & 4
Record Length	4,000 points Vectors off and/or Vectors on
HP 54615B, 54616B/C	5,000 points
HP 54645A	1 million points
Max Update Rate	Vectors off: 1,500,000 points/sec Vectors on: 60 full screens/sec, independent of number of waveforms being displayed
HP 54615B, 54616B/C	500,000 points/sec
HP 54645A	3,000,000 points/sec
Usable Single-Shot Bandwidth	2 MHz, single channel 1 MHz, dual channel
HP 54615B	250 MHz
HP 54616B/C	500 MHz
HP 54645A	20 MHz
Peak Detect	50 ns glitch capture (100 ns dual channel) at sweep speeds of 50 µs/div and greater
HP 54615B, 54616B/C	1 ns glitch capture
HP 54645A	5 ns
Average	Number of averages selectable at 8, 64, 256

Advanced Functions

Automatic Measurements	Measurements are continuously updated
Voltage	Vavg, Vrms, Vpp, Vtop, Vbase, Vmin, & Vmax
Time	Frequency, Period, + Width, – Width, Duty Cycle, Rise Time, & Fall Time
Cursors	Manually or automatically placed
Setup Functions	
Autoscale	Sets the vertical and horizontal deflection and the trigger level
Save/Recall	10 front-panel setups
Trace Memory	Two volatile pixel memories

General

Power Line Requirements	
Line Voltage Range	100 Vac to 240 Vac
Line Voltage Selection	Automatic
Line Frequency	45 Hz to 440 Hz
Max Power	220 VA
Consumption	300 VA (54615B, 54616B/C)
Environmental Characteristics	The instrument meets the requirements of MIL-T-28800D for Type III, Class 3, Style D equipment as described below.
Ambient Temperature	
Operating	–10 °C to +55 °C
Nonoperating	–51 °C to + 71 °C
Humidity [1]	
Operating	95% RH at 40°C for 24 Hrs
Nonoperating	90% RH at 65°C for 24 Hrs
Altitude	
Operating	to 4,500 m (15,000 ft)
Nonoperating	to 15,000 m (50,000 ft)
EMI (Commercial)	Meets FTZ 1046 Class B
EMI (MIL-T-28800D)	Meets requirements in accordance with Paragraph 3.8.3, EMI Type III, and MIL-STD-461C as modified by Table XII.
CE01,CE03	Full limits
CS01, CS02, CS06	Full limits
RE01	15 dB relaxation to 20 kHz; exceptioned from 20 kHz to 50 kHz
RE02 (With Opt 002)	Full limits of class A1c and A1f
(Without Opt 002)	10 dB relaxation from 14 kHz to 100 kHz
RS02	Exceptioned
RS03 (With Opt 001)	Slight trace shift from 80 MHz to 200 MHz
Vibration	Operating: 15 minutes along each of the 3 major axes; 0.025 inch p-p displacement, 10 Hz to 55 Hz in one-minute cycles. Held for 10 minutes at 55 Hz (4 g at 55 Hz).
Shock	Operating: 30 g, 1/2 sine, 11 ms duration, 3 shocks per axis along major axis. Total of 18 shocks
Size (excluding handle)	Height: 172 mm (6.8 in) Width: 322 mm(12.7 in) Depth: 317 mm (12.5 in)
Weight	6.2 kg (14 lbs)
Safety	CSA Certification, IEC 348 UL 1244 listed
Warranty	3 years

[1] Tested to Hewlett-Packard Environmental Specification Section 758 for Class B-1 products

Expandable feature set to meet your changing needs

HP 54600-series oscilloscopes can be easily and inexpensively upgraded with add-on modules and software links to provide advanced analysis capability. Accessories and modules available include:

- Interface modules for remote control and hard-copy output to RS-232, HP-IB and parallel printers and plotters. With the addition of these modules, the scope's two trace memories become nonvolatile.
- Add FFT capability and unattended signal monitoring along with the rest of the basic interface module benefits. Catching intermittent failures is easy with unattended waveform monitoring. The nonvolatile memory can store up to 100 traces.
- HP BenchLink Scope software for transferring screen images and waveform data to Windows applications for further analysis or to create polished reports and presentations. HP BenchLink Scope also lets you store instrument setups.

HP 54650A HP-IB Interface Module

Provides full remote control and hard copy to HP-IB printers and plotters. Programming is in accordance with IEEE 488.2. With the addition of this module, the scope's two pixel memories become non-volatile. An operating and programming manual and a programming examples disk are supplied.

Specifications	The interface capabilities of the HP 54600 series oscilloscope with this module installed are as defined by IEEE 488.1 as SH1, AH1, T5, L4, SR1, RL1, PP1, DC1, DT1, C0 and E2.
Printer/Plotter Supported	HP ThinkJet, HP QuietJet, HP PaintJet, and HP LaserJet; HP-GL compatible plotters.

HP 54652B RS-232/Parallel Interface Module

Provides full remote control via RS-232 and printing via parallel in one module. The RS-232 can also be configured for printing when not being used for remote control.

Specifications	
Connector Type	9 pin (m) DTE Port, works with HP 34398A RS-232 cable.
Protocols	Xon/Xoff, hardwire
Data Bits	8
Parity	None
Baud Rates	1200, 2400, 9600, or 19200
Printer/Plotter Support	HP ThinkJet, HP QuietJet, HP PaintJet, and HP LaserJet; HP-GL compatible plotters.

Specifications	
Connector Type	25 pin (F) connector, works with HP C2950A parallel printer cable.
Supported Printers:	Epson FX-80 or HP PCL compatible printers.

HP 54657A and 54659B Measurement/ Storage Modules

With the the addition of either the HP 54657A module with HP-IB interface or the HP 54659B module with RS-232 and parallel interface, the HP 54600 series oscilloscope will provide all of the following features.

19 Automatic Measurements consisting of:	
Voltage	Vamp, Vavg, Vrms, Vpp, Vpre, Vovr, Vtop, Vbase, Vmin, and Vmax
Time	Delay, Duty Cycle, Frequency, Period, Phase Angle, Rise Time, Fall Time, + width, and - width
Thresholds	User selectable among 10%/90%, 20%/80%, or absolute voltage levels.
Cursor Readout Modes	Voltage or percentage Time or phase angle

Waveform Math Functions	
Function 1	Addition, subtraction, and multiplication
Function 2	Differentiation, integration, and FFT

FFT	
Windows	Exponential, flat top, Hanning and rectangular
Samples	1024 points

Trace Memory	up to 100 nonvolatile memories
Memories 1 – 3	High speed storage without compression.
Memories 4 – 100	Storage with compression. Storage time is approximately 7 seconds. Number of traces that can be stored is a function of complexity, with the minimum being 4 highly complex traces and the maximum being 96.
Memory Labeling	An onscreen text editor is provided for creating labels up to 20 characters. Each label contains the date and time it was saved.
Real Time Clock	24-hour format with battery back-up. Can be set from front panel.

Unattended Waveform Monitoring	
Testing Method	Comparison to waveform mask.
Number of Masks	2
Mask Generation and Operation	Automask, controlled from the front panel, generates mask from displayed waveform with selectable tolerance. Mask editor function allows pixel-by-pixel editing and line drawing. Smoothing function performs a running average of 3 pixels.
Action on Failure	• Save failed trace to memory with date and time of the failure • Print failed trace with date and time of the failure • Count the failure and maintain pass/fail statistics while continuing the test
Hard Copy and Programmability Interface	HP 54657A HP-IB (For HP-IB specifications see HP 54650A) HP 54658A RS-232 (For RS-232 specifications see HP 54652B)

10442A fine pitch probe **10070A rugged probe**

Specifications for HP 54600-Series Scope Probes

Probe Model Number	Bandwidth	Division Ratio	Approx. length	Input R	Approx. Input C	Rise-time	Max input dc + peak ac	Scope Compatibility
10070A	20 MHz	1:1	1.5m	1 MΩ	70 pF	< 17.5 ns	400 V	HP 54600-series
10071A	150 MHz	10:1	1.5m	10 MΩ	15 pF	< 2.33 ns	450 V	HP 54600/02/03/45B
10073A	500 MHz	10:1	1.5m	1 MΩ	12 pF	< 0.7 ns	450 V	HP 54610/15/16B
10074A	150 MHz	10:1	1.5m	10 MΩ	12 pF	< 2.33 ns	450 V	HP 54645A
10442A	1 GHz	10:1	2.0m	500 Ω	1.2 pF	< 0.35 ns	10 V	scopes with 50 Ω inputs
10444A	500 MHz	10:1	1.6m	1 MΩ	6-15 pF	< 0.7 ns	450 V	HP 54610/15/16B
1137A	1 MHz	1000:1	1.5m	500 MΩ	3 pF	< 35 ns	5 KV	scopes with 1m Ω inputs

Probe Accessories

HP 10072A **SMT Probe tips for HP 1007X probes**
This accessory adapts this series of rugged probes to HP logic analyzer style grabbers that can be used in SMT probing applications. Supplied with 8 grabbers.

Additional Accessories

HP 10098A **Front Panel Cover and Pouch Kit**
This kit will add the Option 101 front panel cover and pouch to any 54600-series oscilloscope

Ordering Information

HP 54600-Series Oscilloscopes

HP 54600B Two-channel, 100 MHz Oscilloscope

HP 54602B Four-channel, 150 MHz Oscilloscope

Each of the above oscilloscopes comes with two 1.5 meter 10X probes (HP 10071A), a user's and service guide, and power cord.

HP 54610B Two-channel, 500 MHz, 20 MSa/s Oscilloscope

HP 54615B Two-channel, 500 MHz, 1 GSa/s Oscilloscope

HP 54616B Two-channel, 500 MHz, 2 GSa/s Oscilloscope

HP 54616C Color two-channel, 500 MHz, 2 GSa/s Oscilloscope

HP 54645A Two-channel, 100 MHz, 200 MSa/s Oscilloscope

Each of the above oscilloscopes comes with two 1.5 meter 10X probes (HP 10073A), a user's and service guide, and power cord.

Options

HP 10098A Accessory pouch and front panel cover

HP 34810B HP BenchLink Scope software for Windows

P/N 5062-7345 Rack Mount Kit

See data sheet for each model for more options.

Manual options (please specify)

ABA US English

HP 54650-series enhancement modules

HP 54650A HP-IB interface module

HP 54652A Parallel interface module

HP 54652B RS-232 and parallel interface module

HP 54657A HP-IB measurement/storage module

HP 54659B RS-232 and parallel measurement/storage module

Each module includes user's and programmer's guides; HP 54656A includes HP 98561-61604 RS-232 adapter cable and one 2-meter RJ-45 cable.

Modules with product numbers ending in "A" are compatible with HP 54600A-series and HP 54600B-series scopes. Modules ending in "B" are compatible with the HP54600-B-series only. The HP 54620A logic analyzer can use any of these modules, but it uses the modules for I/O only.

Additional oscilloscope accessories, probes and terminations

HP 10070A 1:1 probe

HP 10071A 10:1 probe

HP 10072A SMT probing adapters

HP 10073A 10:1 500 MHz probe with readout

HP 10074A 10:1 150 MHz probe with readout

HP 10444A 10:1 500 MHz mini-probe with readout

HP 10098A Front panel cover and pouch kit

HP 34810-Series BenchLink Software

HP 34810B BenchLink Scope Software

Includes software on 3.5" disk, user's guide. (all languages)
HP-IB or RS-232 module needed for connection to scope.

Within Budget.
Without Compromise.

Printed in the U.S.A. 8/96

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