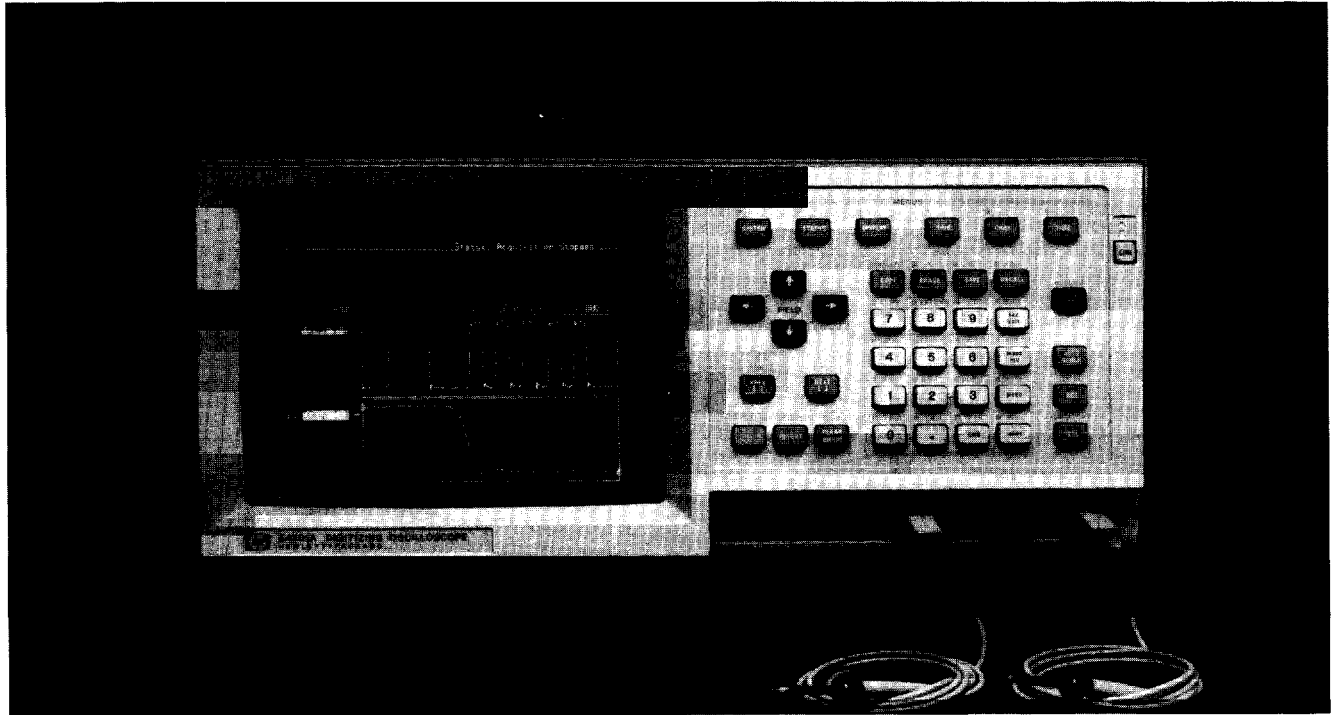


OSCILLOSCOPES & WAVEFORM ANALYZERS

200 Megasample/Second Digitizing Oscilloscopes

Models 54200A/D, 54201A/D

- Dual 200 megasample/second digitizers, allowing 50 MHz single-shot capture
- Pre-trigger viewing
- Automatic waveform measurements
- Up to 27 channels of state triggering
- Infinite variable persistence
- Instant hardcopy output
- 300 MHz repetitive bandwidth (HP 54201A/D only)



HP 54200A/D

- Dual 200 megasample/second digitizers
- 50 MHz bandwidth
- Pre-trigger display
- Auto-scaling of input signal
- Automatic measurements of waveform parameters
- Infinite persistence display, plus envelope and average display modes
- The HP 54200D model adds:
 - Up to 27 channels of state triggering
 - Missing bit triggering mode
 - Extra bit triggering mode

HP 54201A/D

- 300 MHz repetitive bandwidth
- Dual 200 megasample/second digitizers
- 50 MHz single-shot bandwidth
- Pre-trigger display
- Auto-scaling of input signal
- Automatic measurements of waveform parameters
- Infinite persistence display, plus envelope and average display modes
- The HP 54201D model adds:
 - Up to 27 channels of state triggering
 - Missing bit triggering mode
 - Extra bit triggering mode

Simplify Waveform Capture and Analysis

Easy Instrument Setup

- Pressing the Auto-Scale button automatically provides a scaled display of a wide range of input signals.
- Save and recall your front panel setups for quick return to previous measurements.
- ECL and TTL preset keys automatically set up vertical range, offset, and trigger levels for viewing digital signals.
- Input and memory labels aid in signal and setup identification.
- "Configuration" menu gives instrument status in a single display to aid in instrument setup and measurement documentation.
- Built-in 50 ohm switchable inputs eliminate the need for external termination devices (HP 54201A/D only).

Digital Storage

- Bright, fade-free, non-blooming displays.
- Waveforms can be stored for comparison or analysis. Stored waveforms can be displayed concurrently with live waveforms and can be output directly to a printer or plotter.
- Time/voltage cursors enable measurements on or between live and stored waveforms.
- Average mode improves signal-to-noise ratio on repetitive signals.
- Envelope mode saves maximum and minimum values of repetitive events for worst-case analysis.
- Accumulate mode displays multi-valued waveforms.
- Connect-the-dots mode aids signal interpretation (HP 54201A/D).

Specifications

| Channels 1 and 2 (Vertical) | HP 54200A/D | | HP 54201A/D | | | |
|--|--|--------------|--|---------------------------------|--------------|-------------|
| Acquisition Method | Real-time sampling | | Real-time sampling | Repetitive sampling | | |
| Bandwidth (-3 dB) dc-coupled ac-coupled | dc - 50 MHz 10 Hz - 50 MHz | | dc - 50 MHz 10 Hz - 50 MHz | dc - 300 MHz 10 Hz - 300 MHz | | |
| Transition Time (10-90%, calculated from: bandwidth X trans. time = 0.35) | 7 ns | | 7 ns | 1.2 ns | | |
| Range (fs calibrated with 2-digit resolution) | 40 mV to 40 V | | 40 mV to 16 V | | | |
| Gain Accuracy | ±2% of full-scale* | | | | | |
| A/D Conversion (ADC) Accuracy | ±1.6% of full-scale | | | | | |
| Dc Offset Acc. Chan. Range 40 mV to 390 mV 400 mV to 40 V 40 mV to 790 mV 800 mV to 16 V | ±1% (offset) ±5mV ±1% (offset) ±50mV | | ±1% of offset ±5mV ±1% of offset ±100mV | | | |
| Voltage Meas. Accuracy (dc) Single cursor (X or 0) Dual cursor (X to 0 on same waveform) | Gain accuracy + ADC accuracy + offset accuracy Gain accuracy + 2 (ADC accuracy) | | | | | |
| Input Coupling | ac, dc | | | | | |
| Input Resist. (Nominal) | 1 MΩ | | 1 MΩ; 50Ω dc coupling | | | |
| Input Cap. (Nominal) | 14 pF | | 10 pF | | | |
| Maximum Safe Input Voltage | ±40V (dc+pk ac) | | 1 MΩ: ±40V (dc+peak ac) 50Ω: 5 Vrms or ±40V (dc + peak ac), whichever is less | | | |
| Input (dc+pk ac) Operating Range Channel range 40 mV to 390 mV 400 mV to 40 V 40 mV to 16 V | ±2 V ±20 V | | ±1 vertical range from center | | | |
| Dc Offset Range/resolution | Channel Range | Offset Range | Offset Res. | Channel Range | Offset Range | Offset Res. |
| | 40 mV/390 mV | ±2 V | ~1.2 mV | 40 mV/790 mV | ±1.5 V | 1 mV |
| | 400 mV/40 V | ±20 V | ~12 mV | 800 mV/16 V | ±30 V | 20 mV |

*Specifications apply within ±10° C of auto-calibration temperature.
 **Dual-cursor specs apply for measurements made on the same or simultaneously-acquired waveforms.
 ***Provides 10:1, 1MΩ input at HP 10017A or HP 10018A probe tip.
 Notes: specifications apply after a 30-minute warmup period. Single-shot reconstruction uncertainty equals ±1 ns (applies for time ranges of 50 ns through 2 μs).

| Ordering Information | Price |
|---|----------|
| HP 54200A 50 MHz digitizing oscilloscope | \$5950 |
| Opt W30 Service Extension | \$120 |
| HP 54200D 50 MHz, logic triggering digitizing oscilloscope | \$10,100 |
| Opt W30 Service Extension | \$200 |
| HP 54201A 300 MHz digitizing oscilloscope | \$7950 |
| Opt W30 Service Extension | \$300 |
| HP 54201D 300 MHz, logic triggering digitizing oscilloscope | \$9950 |
| Opt W30 Service Extension | \$380 |

| Time Base (Horizontal) | HP 54200A/D | | HP 54201A/D | | | |
|--|--|-------------------------|----------------------------|--|---|----------------------------|
| Acquisition Method | Real-time sampling | | Real-time sampling | Repetitive sampling | | |
| Range (10 div.), 1-2-5 sequence | 50 ns - 10 s full-scale | | | | 10 ns - 20 μs full-scale | |
| Time Base Accuracy single/dual cursors | ±2 ns or ±0.2% of time range, whichever is greater.** | | | | ±200 ps or ±2% of time range, whichever is greater.** | |
| Delay (Time Offset) Pre/Post-trigger range | Time Range | Pre-trigger Range | Post-trigger Range | Time Range | Pre-trigger Range | Post-trigger Range |
| | 50 ns to 5μs | up to 5μs | up to 1 ms | Real-time Sampling Mode | | |
| | 10μs to 10s | up to 1 screen diameter | up to 260 screen diameters | 50 ns to 5μs | up to 10μs | at least 200 screen dia. |
| | | | | Repetitive Sampling Mode | | |
| | | | | 10ns to 20μs | up to at 2 screen diameters | least 200 screen diameters |
| Pre/Post-trigger resolution | Adjustable in steps of 0.1 (coarse) and 0.004 (fine) screen diameters, or the LSB digit, whichever is greater. | | | Adjustable in steps of 0.1 (coarse) and 0.001 (fine) screen diameters, or the LSB digit, whichever is greater. | | |

| Trigger (Analog) | HP 54200A/D | | HP 54201A/D | |
|--|--|--|---|--|
| Acquisition Method | Real-time sampling | | Real-time sampling | Repetitive sampling |
| Sources | Chan. 1, chan. 2, external trig. input | | Chan. 1, chan. 2 | External trigger input |
| Sensitivity | 1/8 of full-scale (dc - 50 MHz) | | 1/8 of full-scale (dc-250MHz) | 500:60 mV - 250 MHz .2MΩ:1V (dc/100 MHz)*** |
| Trig. Range Chan. range 40 mV - 390 mV 400 mV - 40 V 40 mV - 16 V | ±2 V ±20 V | | ±1.5 X fs | ±2 V |
| Resolution Chan. range 40 mV - 390 mV 400 mV - 40 V 40 mV - 16 V | ~2.4 mV ~24 mV | | .02 X fs | 20 mV |
| Level Acc. Chan. range 40 mV - 390 mV 400 mV - 40 V 40 mV - 790 mV 800 mV - 16 V | ±2% ±5 mV ±2% ±50 mV | | ±3% ±5 mV ±3% ±100 mV | ±3% ±30 mV |
| External Trig. Input | HP 54200A/D | | HP 54201A/D | |
| Acquisition Method | Real-time sampling | | Real-time sampling | Repetitive sampling |
| Input Resist. (Nominal) | 1 MΩ | | 50 Ω | .2M Ω*** |
| Input Coupling | ac, dc | | dc | dc |
| Maximum Safe Input Voltage | ±40V (dc+peak ac) | | 5 Vrms or ±40V (dc+pk ac), whichever is less. | ±40V (dc + peak ac) |
| Input Oper. Range | Same as chan. 1 and chan. 2 inputs. | | ±5 V (dc + peak ac) | |