

NETWORK ANALYZERS

Baseband, IF and RF Network Analyzer, 5 Hz to 500 MHz

HP 8751A

- 5 Hz to 500 MHz
- ± 0.02 dB, $\pm 0.12^\circ$ dynamic accuracy
- 0.001 Hz, 0.001 dB, 0.001 degree, 10 ps resolution
- Full 2-port and interpolative calibration
- Conjugate matching analysis
- Built-in 1.44 MB disk drive for save/recall
- Crisp color display with RGB output
- 10 updates of 201 sweep points per second
- 0.4 ms/point fast list sweep (IFBW = 4 kHz)
- Up to 4 traces simultaneous measurement/display
- Eight active trace markers per channel
- HP Instrument BASIC for customization
- HP 41802A 1 M Ω input adapter



HP 8751A
with HP 87511A

HP 8751A Network Analyzer

The HP 8751A network analyzer is a high-throughput instrument with lab precision that covers 5 Hz to 500 MHz. The HP 8751A provides resolution of 0.001 Hz, 0.001 dB, 0.001 degree, and 10 ps for characterizing the linear behavior of either passive or active networks, devices, or components in the lab and the production test areas. The built-in 1.44 MB disk drive is for direct save/recall of instrument state, calibration data, and application programs for your customization. Dedicated 50/75 Ω S-parameter test sets, 50/75 Ω T/R test kits, and the 1 M Ω input adapters are all available.

Lab Precision

The outstanding dynamic accuracy of ± 0.02 dB and $\pm 0.12^\circ$ with built-in accuracy enhancement (2-port full cal, 1-port full cal, and interpolative calibration) realize high-precision measurement in lab environments.

Production Throughput

Unprecedented total throughput is a key feature of the HP 8751A. 0.4 ms/point measurement time (IFBW = 4 kHz) is now applicable not only to linear sweep, but also to list sweep (programmable with IFBW and OSC output power) and to log sweep. The HP 8751A can also simultaneously measure/display up to four parameters with simple softkey operations. GO/NO-GO limit testing with an I/O handler control capability and HP Instrument BASIC with many device-specific-analysis commands are available to enhance total production test throughput.

Data Storable in LIF/DOS formatted floppy disk

A 1.44 MB disk drive is standard with the HP 8751A for easy save/recall of the instrument states, measurement data, calibration data, and application programs. Both HP LIF and DOS formats are supported. Saving data in DOS format enables you to see and manipulate data on a PC.

HP Instrument BASIC

HP Instrument BASIC (IBASIC) is available as an option. IBASIC enables you to easily create application programs for a measurement on the HP 8751A without using an external computer. IBASIC increases the productivity of a measurement, and reduces additional investment.

HP 8751A Specifications

Source

Frequency Characteristics

Range: 5 Hz to 500 MHz

Resolution: 1 mHz

Accuracy: ± 20 ppm, ± 1.0 ppm (Opt 001)

Stability: $\pm 2.5 \times 10^{-8}$ hours (typical $23 \pm 5^\circ$ C with Opt 001)

Output characteristics

Power Range: -50 to +15 dBm

Resolution: 0.1 dB

Flatness: ± 2.0 dB @ 5 Hz \leq freq. \leq 500 MHz ($23 \pm 5^\circ$ C, +0 dBm relative to 50 MHz)

Level Accuracy: ± 0.5 dB (50 MHz, 0 dBm)

Level Linearity: ± 0.5 dB @ output level ≥ -35 dBm

± 1.5 dB @ output level < -35 dBm

(50 MHz, relative to 0 dBm)

Impedance: 50 Ω

NETWORK ANALYZERS

Complete Characterization of Linear Networks (cont'd)

Overview

Network Analyzer Product Line Summary

HP model	Frequency range	Source	Measurement capabilities
HP 35665A Dual-Channel Dynamic Signal Analyzer (page 597)	122 μ Hz to 51.2 kHz	Swept and fixed sine chirp, random, burst random, and arbitrary waveform	Transfer functions, magnitude/phase, 20-pole/20-zero curve fitter, frequency-response synthesis, time-domain functions, and spectrum analysis. HP-IB programmable.
HP 3563A/3562A Dual-Channel Control Systems Analyzer (page 601)	64 μ Hz to 100 kHz	Analog and digital swept and fixed sine, chirp, burst chirp, random noise, burst random noise, step, pulse, ramp, and arbitrary	Transfer functions, magnitude/phase, 40-pole/40-zero curve fitter (S- and Z-domains), frequency-response synthesis (S- and Z-domains), time-domain functions, and spectrum analysis with analog or digital input signals. HP-IB programmable. Note: 3562A provides analog interface only.
HP 3589A Spectrum/Network Analyzer (page 299)	10 Hz to 150 MHz	Integrated synthesized source	Transfer functions, magnitude/phase, group delay, S-parameters, impedance, SWR, spectrum analysis, including gating. HP Instrument BASIC optional. HP-IB programmable.
HP 87510A Gain/Phase Analyzer (page 314)	100 kHz to 300 MHz	Integrated synthesized source	Transfer functions, magnitude/phase, insertion loss/gain, group delay, attenuation. Impedance-magnitude/phase. Electrical delay. HP IBASIC capability. Built-in 3 $\frac{1}{2}$ -in flexible disk (LIF/DOS format). HP-IB capability.
HP 8751A Network Analyzer (page 312)	5 Hz to 500 MHz	Integrated synthesized source	Transfer functions, magnitude/phase, insertion loss/gain, attenuation, gain compression, S-parameters, electrical length, group delay, deviation from linear phase. Impedance-magnitude/phase: return loss, R + jX. Full accuracy enhancement. HP Instrument BASIC capability. Built-in 3 $\frac{1}{2}$ -in flexible disk (LIF/DOS format). HP-IB capability.
HP 4195A Network/Spectrum/ Impedance Analyzer (page 339)	10 Hz to 500 MHz	Integrated synthesized source	Transfer functions, magnitude/phase, insertion loss/gain, attenuation, group delay, S-parameters, return loss, SWR, complex impedance, accuracy enhancement. HP-IB programmable.
HP 8711A RF Economy Network Analyzer (page 316)	300 kHz to 1.3 GHz	Integrated synthesized source, T/R test set and receiver	Transmission/reflection measurements 50 Ω and 75 Ω measurements HP Instrument BASIC (IBASIC) Narrowband/broadband receivers Internal calibration, averaging, limit testing, internal disk and storage registers
HP 4396A Network/Spectrum/ Impedance Analyzer (page 335)	100 kHz to 1.8 GHz (network) 2 Hz to 1.8 GHz (spectrum)	Integrated synthesized source	Transfer functions, magnitude/phase, insertion loss/gain, attenuation, S-parameters, group delay, return loss, R + jX. Impedance-magnitude/phase. Electrical delay. Spectrum analysis. Complex impedance and HP Instrument BASIC optional. Built-in 3 $\frac{1}{2}$ -in flexible disk (LIF/DOS format). HP-IB programmable.
HP 8752C Network Analyzer (page 318)	300 kHz to 1.3/3.0/6.0 GHz	Integrated synthesized source, transmission/ reflection test set and receiver	Transfer functions - magnitude/phase, insertion loss/gain, attenuation, gain compression, S-parameters, electrical length, group delay, deviation from linear phase. Impedance-magnitude/phase, return loss, r + jx, accuracy enhancement, time-domain capability. HP-IB programmable.
HP 8753D Network Analyzer (page 320)	30 kHz to 3 GHz/6 GHz	Integrated synthesized source, S-parameter test set, and receiver	Transfer functions - magnitude/phase, insertion loss/gain, attenuation, gain compression, S-parameters, electrical length, group delay, deviation from linear phase. Impedance - magnitude/phase - Return Loss, r + jx. Full accuracy enhancement. Time-domain capability. Harmonic measurement capability. Sequencing HP-IB programmable.
HP 8719C/8720C/8722C Network Analyzers (page 325)	50 MHz to 13.5 GHz (8719C) 50 MHz to 20 GHz (8720C) 50 MHz to 40 GHz (8722C)	Integrated synthesized source (1 Hz resolution optional)	Transfer functions - magnitude/phase, insertion loss/gain, attenuation, S-parameters, electrical length, group delay, deviation from linear phase. Impedance - magnitude/phase - Return Loss, r + jx. Full accuracy enhancement. Time-domain capability. HP-IB programmable.
HP 8510 Series Network Analyzers (page 327)	45 MHz to 110 GHz	HP 8350 Series Sweep Oscillators HP 8360 Series Synthesized Sweepers	Transfer functions - magnitude/phase, insertion loss/gain, attenuation, S-parameters, electrical length, group delay, deviation from linear phase, impedance, return loss, R + jx. Active device characterization. Full accuracy enhancement. Time-domain capability. HP-IB programmable.
HP 8757D/E Scalar Network Analyzers (page 305)	10 MHz to 110 GHz	HP 8350B Sweeper HP 83751A/83752A Synthesized Sweepers HP 8360 Series Synthesized Sweepers	Scalar transmission/reflection measurements 50 Ω coax measurements 10 MHz to 50 GHz 75 Ω coax measurement 10 MHz to 2.4 GHz Waveguide measurements 26.5 to 110 GHz Open/short averaging, normalization, averaging, limit testing Storage registers, HP-IB programmable.

Vector Voltmeter

HP Model	Frequency Range	Source	Measurement Capabilities
HP 8508A Vector Voltmeter (page 315)	0.1 MHz to 1 GHz 0.3 MHz to 2 GHz	None	Voltage, impedance Transfer functions, phase and amplitude HP-IB programmable