

NETWORK ANALYZERS

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

HP 8751A

293

- 5 Hz to 500 MHz
- 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 Mbyte 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
- Up to 4 traces simultaneous measurement/display
- 8 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 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 Mbyte 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

Versatile display format and built-in accuracy enhancement (2-port full cal, 1-port full cal, and interpolative calibration) are provided for high-precision measurement in lab environments. The 8751A's unique conjugate matching capability gives you the optimum power transfer to make designing easier.

Production Throughput

Unprecedented total throughput is a key feature of the HP 8751A. 0.4 ms/point measurement time is now applicable not only to linear sweep, but also to list sweep (programmable with 1FBW and OSC output power) and to log sweep. The 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 are available to enhance total production test throughput.

Data Storable in LIF/DOS formatted floppy disk

A 1.44 Mbyte 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

Baseband, IF and RF Network Analyzer, 5 Hz to 500 MHz (cont'd)

HP 8751A

Receiver

Frequency range: 5 Hz to 500 MHz

Input range: 0 dBm @ ATT = 20 dB

-20 dBm @ ATT = 0 dB

IF Bandwidth: 2 Hz, 20 Hz, 200 Hz, 2 kHz, 4 kHz

Noise level: -130 dBm @ IFBW=20 Hz, ATT=0 dB,
frequency \geq 100 kHz

Maximum input level: 0 dBm

Impedance: 50 Ω

Crosstalk: < -100 dB

Dynamic accuracy: ± 0.05 dB, $\pm 0.3^\circ$ (Input level -10 to -60 dB,
20 Hz IFBW)

Delay characteristics:

Aperture frequency: 0.5 to 20%

Display range: 10 ps to 500 s

Accuracy: (Phase accuracy)/(360 \times aperture)

Size: 425 mm W \times 235 mm H \times 553 mm D (16.75 in \times 9.25 in \times
21.77 in)

Weight: 28 kg (61.6 lb)

HP 8751A Accessories

HP 87511A 50 Ω S-parameter Test Set

HP 87511B 75 Ω S-parameter Test Set

The HP 87511A/B S-parameter test sets provide the capability to measure reflection and transmission characteristics (including S-parameters) of 2 port devices in either direction with a single connection. The frequency range of the HP 87511A/B test sets is 100 kHz to 500 MHz. The test sets are controlled from the HP 8751A.

HP 87511A/B Specifications

| | HP 87511A | HP 87511B |
|--|--|--|
| Impedance | 50 Ω | 75 Ω |
| Frequency range | 100 kHz - 500 MHz | 100 kHz - 500 MHz |
| Directivity | ≥ 35 dB from 300 kHz to 500 MHz | 33 dB from 300 kHz to 500 MHz |
| Typical tracking S ₂₁ , S ₁₂ S ₁₁ , S ₂₂ | ± 1 dB, $\pm 5^\circ$ ± 1 dB, $\pm 5^\circ$ | ± 1 dB, $\pm 5^\circ$ ± 1 dB, $\pm 5^\circ$ |
| Nominal insertion loss RF input to Port 1,2 RF input to R,A,B Port 1,2 to A,B | 13 dB 19 dB 6 dB | 19 dB 31 dB 6 dB |
| Max operating level | +20 dBm | +20 dBm |
| Damage level | +23 dBm | +23 dBm |
| Size | 90H \times 426W \times 553mmD | 90H \times 426W \times 553mmD |
| Weight | 5.7 kg | 5.7 kg |

HP 87512A 50 Ω Transmission/Reflection Test Kit

HP 87512B 75 Ω Transmission/Reflection Test Kit

The HP 87512A/B transmission/reflection test kits provide the capability to measure transmission and reflection characteristics. The frequency range of the HP 87512A/B test kits is 5 Hz to 500 MHz.



HP 87512A/B Specifications

| | HP 87512A | HP 87512B |
|-------------------------|-----------------------|-----------------|
| Impedance | 50 Ω | 75 Ω |
| Insertion loss | 10 \pm 1 dB typical | |
| Equivalent directivity | > 40 dB typical | |
| Equivalent source match | > 30 dB typical | > 25 dB typical |

HP 41802A 1 M Ω Input Adaptor

The HP 41802A 1 M Ω input adaptor provides the capability to perform high-impedance measurement using HP network and spectrum analyzers. The frequency range of the HP 41802A input adaptor is 5 Hz to 100 MHz. Passive probe is required for measurement (probing).



HP 41802A Specifications

Frequency range: 5 Hz to 100 MHz

Adaptor gain: 0 dB \pm 0.5 dB @ 1 MHz

Input R, C (typical): 1 M Ω , 12 pF

1dB Gain compression: 0.32 Vrms (+ 3dBm, 50 Ω terminated)

Damage level: 2 Vrms, \pm 50 Vdc

Size: 28 mm H \times 42 mm W \times 100 mm D (1.1 in \times 1.65 in \times 3.94 in)

Weight: 400 g (0.88 lb)

Other Accessories

HP 85031B Precision 7 mm calibration kit

HP 85032B 50 Ω type-N calibration kit

HP 85033C Precision 3.5 mm calibration kit

HP 85036B 75 Ω type-N calibration kit

HP 11850C 50 Ω power splitter

HP 11850D 75 Ω power splitter

HP 11853A 50 Ω type-N accessory kit

HP 11854A 50 Ω BNC accessory kit

HP 11855A 75 Ω type-N accessory kit

HP 11856A 75 Ω BNC accessory kit

Ordering Information

| | |
|---|-----------|
| HP 8751A Network analyzer | \$22,500 |
| Opt 001 High-stability frequency reference | + \$850 |
| Opt 002 HP Instrument BASIC and 1 Mbyte RAM | + \$1,000 |
| Opt 907 Front handle kit | + \$75 |
| Opt 908 Rack Mount kit | + \$40 |
| Opt 909 Rack flange and handle kit | + \$105 |
| Opt 910 Extra operating manual | + \$160 |
| Opt 915 Add service manual | + \$140 |
| HP 87511A 50 Ω S-parameter test set | \$5,000 |
| Opt 001 N-type port | \$0 |
| HP 87511B 75 Ω S-parameter test set | \$5,000 |
| Options (common for the HP 87511A/B) | |
| Opt 907 Front handle kit | + \$50 |
| Opt 908 Rack Mount kit | + \$31 |
| Opt 909 Rack flange and handle kit | + \$72.50 |
| Opt 910 Extra operating manual | + \$50 |
| HP 87512A 50 Ω transmission/reflection test kit | \$2,000 |
| HP 87512B 75 Ω transmission/reflection test kit | \$2,500 |
| HP 41802A 1 M Ω input adaptor | \$900 |
| HP 41800A Active probe | \$1,740 |