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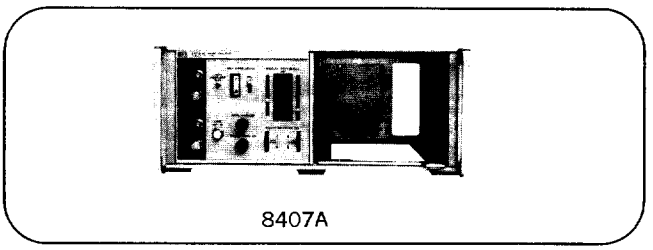
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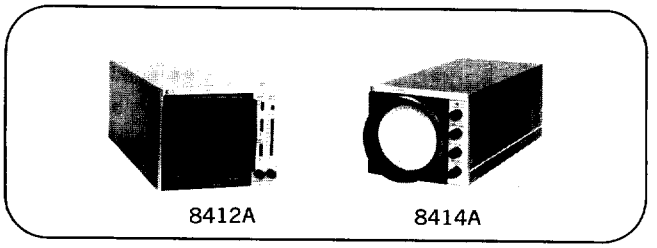
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Find the *Keysight / Agilent 8407A* at our website: ***Click HERE***



8407A



8412A 8414A

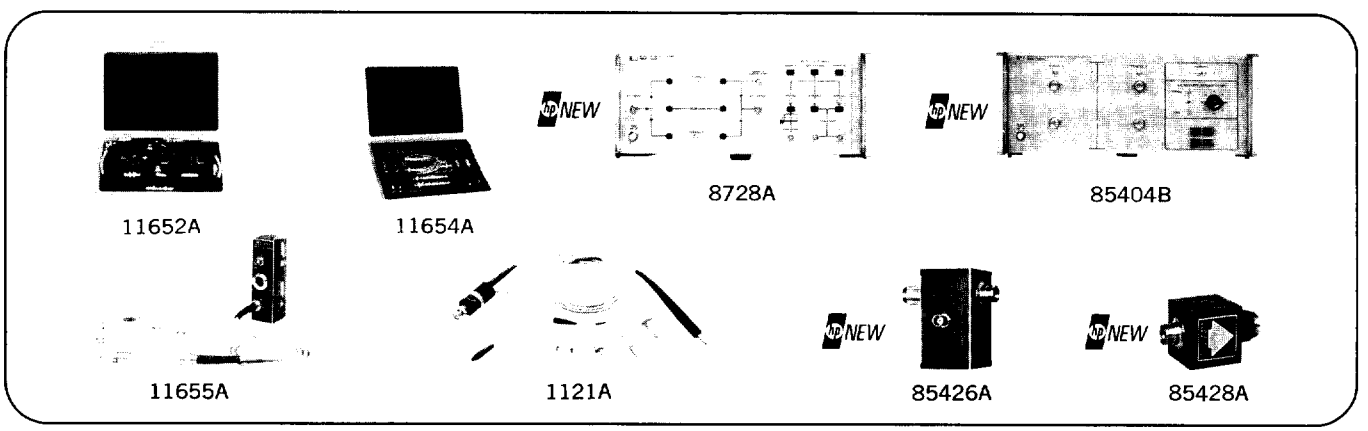
Network Analyzer

The *8407A Network Analyzer* is a ratio meter using both a TEST and a REFERENCE channel input. The 8407A forms the magnitude ratio and phase difference between these two input signals after their conversion to a constant intermediate frequency. The resultant signals are routed to a display for detection and display. Dynamic range is 80 dB with the 8412A Phase-Magnitude Display, measurement range is from +90 dB to −100 dB. Input power to the device under test can be from −10 dBm to −85 dBm. Display REFERENCE attenuators provide 89 dB of accurate test channel offset permitting high resolution measurements by using IF substitution techniques. Residual magnitude and phase responses versus frequency are typically less than ±0.1 dB and ±2° from 1 to 110 MHz.

Displays

The *8412A Phase-Magnitude Display* is an accurate oscilloscope readout displaying amplitude and phase versus frequency either separately or simultaneously. It has 80 dB and ±180° display range. Measurements with 0.05 dB and 0.2° resolution are possible.

The *8414A Polar Display* has a measurement range of 30 dB and 360°. For reflection measurements, the 8414A displays reflection coefficient as a function of frequency. Smith Chart overlays permit readings of normalized complex impedance values. A rectangular overlay permits readings of R ± jX for impedance measurements over the range 0.1Ω to >10 kΩ.



11652A 11654A 8728A 85404B

11655A 1121A 85426A 85428A

Transducers

The *11652A Reflection/Transmission Kit* contains a power splitter and two phase-matched low leakage cables permitting accurate swept measurements of gain, loss and phase shift. It also contains a directional bridge (8721A) with >40 dB directivity, a calibration short and a precision termination for measurements of return loss and reflection coefficient (complex impedance) in 50 or 75-ohm systems.

The *11655A Impedance Probe* makes possible swept accurate complex impedance measurements over the wide impedance range 0.1Ω to >10 kΩ. The 11655A's design allows effective elimination of all reactive parasitics of the probe so that open circuit impedance appears simply as a 10 kΩ resistor. This feature and a built-in 100Ω, 0° calibrator make it possible to measure true values of unknown impedance.

The *11654A Passive Probe Kit* includes two each of probe cables and current probe tips and a wide variety of accessories for grounding and getting at those "difficult to measure" circuits. Voltage or current transfer functions can be measured with a pair of voltage or current probes. By using one voltage probe and one current probe, complex impedance or admittance can accurately be measured at frequencies below 11 MHz.

The *1121A AC Probe* is an active probe biased through the PROBE PWR jacks on the front panel of the 8407A. The probe has a 100 kΩ, 3 pF input impedance. Voltage transfer functions can thus be measured in low level signal circuits with minimum circuit disturbance or in circuits whose characteristic impedance is radically different from 50 ohms.

The *8728A Network Comparator* adds the capability for making swept visual comparison measurements with the 8407A. The transmission characteristics of a test network and of a known standard are traced separately on a highly sensitive large-screen oscilloscope for visual comparison. Level differences of 0.01 dB, 0.2° are easily discernable. The 8728A provides the switching required to accomplish the substitution comparison between the two networks.

The *85404B S-Parameter Test Set* provides all the switching necessary for measuring with push-button ease the four s-parameters of passive and active linear networks with 50 or 75-ohm characteristic impedance (HP 85428A Min Loss Pads for 75-ohm systems). Transistors can easily be measured by using, in conjunction with the test set, the HP 8717B Transistor Bias Supply and the HP 11600B or 11602B Transistor Fixture which plugs into the HP 85426A Bias Insertion Network (2 each required).

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NETWORK ANALYZERS *continued*

Mainframe, display plug-ins, transducers

Specifications

8407A

Frequency range: 0.1 to 110 MHz.
Measurement range: gain +90 dB, loss −100 dB.
Impedance: 50Ω, Option 008: 75Ω. **VSWR** <1.08.
Amplitude accuracy:
Frequency response (may be calibrated out): ±0.2 dB, 0.1 to 110 MHz; ±0.05 dB over any 10 MHz portion.
Display reference: <0.05 dB/1 dB step, total error <0.1 dB; <0.1 dB/10 dB step, total error <0.25 dB.
Phase accuracy:
Frequency response (may be calibrated out): ±5°, 0.1 to 110 MHz; ±2° over any 10 MHz portion.
Display reference: <0.5°/10 dB step, total error <3°.
Power: 65 watts, 50-60 Hz, 115/230V +10%.
Weight: net, 32 lb (14,6 kg); shipping 39 lb (17,8 kg).
Dimensions: 7¼″ high, 18⅜″ deep, 16¾″ wide.
Price: 8407A, $2950; Option 008, 75Ω, add $110.

11658A

General: 50 to 75-ohm matching resistor for 8407A.
Insertion loss: 3.5 dB. **Return loss:** >40 dB.
Weight: net, 1 oz. **Price:** $30.

8412A

General: plug-in CRT display for 8407A.
Amplitude accuracy: display, 0.08 dB/dB from midscreen.
Phase accuracy:
Display: 0.065°/degree from midscreen.
Phase offset: 0.3°/20 degree step, not to exceed total error of 3° for 360° of change, positive or negative direction.
Vs. displayed amplitude: <1°/10 dB, total error for 80 dB <6°.
Power: 23 watts, supplied by 8407A.
Weight: net, 17 lb (7,8 kg); shipping 22 lb (10 kg).
Price: 8412A, $1,575.

8414A

General: plug-in normalized polar coordinate display for 8407A: magnitude calibration is in 0.2 of full scale gradations, full scale determined by DISPLAY REFERENCE setting on 8407A. Phase calibration is in 10° increments over a 360° range.
Accuracy: all errors in amplitude and phase due to the display are contained within a circle of 3 mm about the measurement point.
Power: 35 watts, supplied by 8407A.
Weight: net, 13 lb (5,9 kg); shipping 17½ lb (7,8 kg).
Price: 8414A, $1,300.

11652A

General: reflection-transmission kit contains power splitter, 8721A directional bridge, a precision 50Ω termination, calibrating short, BNC adapters and matched, low-leakage cables.
Directional bridge: 8721A: 6 dB coupling in main and auxiliary arm. Frequency response is ±0.5 dB, 0.1 to 110 MHz. Directivity is >40 dB, 1 to 110 MHz. Return loss at LOAD port is >30 dB. Price: 8721A, $150; Option 008, 75Ω, add $10.
Power splitter: 6 dB loss through each arm.
50Ω termination: return loss is >43 dB.
Weight: net, 1.5 lb (0,7 kg); shipping 2.5 lb (1,2 kg).
Price: 11652A, $325; Option 008, 75Ω, add $50.

11654A

General: passive probe kit contains a pair each of six resistive divider probes (1:1, 5:1, 10:1, 20:1, 50:1, 100:1) current probes, and variety of adapters.
Weight: net, 2 lb (0,9 kg); shipping 3 lb (1,4 kg).
Price: 11654A, $400.

11655A

General: impedance probe, mounts directly onto 8407A. Contains a component mounting adapter, a probe to BNC adapter, a probe to type N adapter and various ground assemblies.
Frequency range: 0.5 to 110 MHz.
Measurement range: amplitude, 0.1Ω to >10 kΩ; phase, 0° ±90°.
Internal calibrator: amplitude 100Ω ±0.5%; phase 0° ±2°.
CW accuracy: amplitude ±5%; phase ±5° for /Z/ >3.16Ω.
Swept frequency accuracy: typically ±5% in amplitude, ±5° in phase from 3-110 MHz; accuracy is decreasing below 3 MHz.
Weight: net, 5.63 lb.
Price: 11655A, $750.

1121A

General: 1:1 active probe furnished with 10:1 and 100:1 divider and BNC adapter.
Frequency response: 1 kHz to 100 MHz, ±0.5 dB, ±2°.
Input impedance: 100 kΩ, shunt capacitance 3 pF at 100 MHz; with 10:1 or 100:1 divider, 1 MΩ, shunt capacitance 1 pF at 100 MHz.
Output impedance: 50Ω nominal.
Power: supplied by 8407A through PROBE PWR jacks.
Weight: net, 1.5 lb (0,7 kg); shipping 2.5 lb (1,2 kg).
Dimensions: 3″ high, 8″ deep, 10½″ wide.
Price: $395.

8728A

Frequency range: DC to 250 MHz.
Repeatability: 0.003 dB at 3 sigma. **VSWR:** <1.05.
Channel isloation: >90 dB.
Dimensions: 16¾″ wide, 7¼″ high, 21¼″ deep.
Power: 20 watts, 50-60 Hz, 115/230 V ±10%.
Weight: net, 30 lb.
Price: 8728A, $2950; Option 006, 75Ω WECO connectors, add $850; Option 008, 75Ω BNC connectors, add $800.

85404B

Frequency range: 0.1 to 110 MHz.
Repeatability: <0.001 dB. **VSWR:** <1.2.
Connectors: 50Ω APC-7; min loss pads (85428A) for 75Ω.
Power: 85 watts, 50-60 Hz, 115/230 V ±10%.
Dimensions: 7″ high, 19⅜″ deep, 16¾″ wide.
Weight: 38 lbs. **Price:** $5000.

85426A

General: bias insertion network for 85404B.
Frequency range: 0.1 to 500 MHz.
Insertion loss: <0.2 dB. **Return loss:** >30 dB.
Max bias current: 750 mA, **max bias voltage:** 30 V.
Connectors: BNC for biasing; APC-7 for RF.
Price: $300.

85428A

General: min loss pad (75Ω) for 85404B.
Insertion loss: 5.7 dB. **VSWR:** <1.05.
Price: 85428A (50Ω SMA, 75Ω BNC), $200; Option 001 (50Ω APC-7, 75Ω GR900), add $150.

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