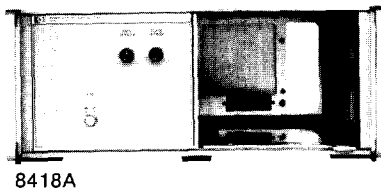
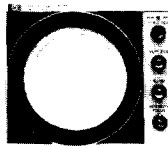
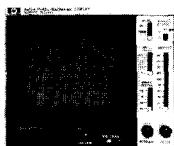
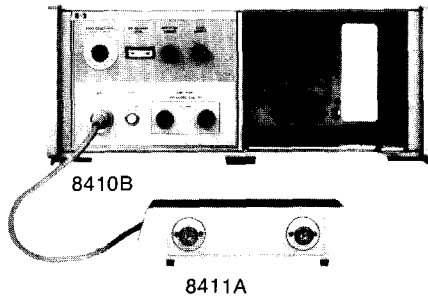


NETWORK ANALYZERS

Individual instruments

8410 family



Specifications

8410B/8411A Network Analyzer

Function: 8411A converts RF signals to IF signals for processing in 8410B mainframe. 8410B is the mainframe for display plug-in units. Mainframe includes tuning circuits (octave bands or multioctave bands when used with HP 8620/86290 sweep oscillator), IF amplifiers and precision IF attenuator.

8410B frequency range: 0.11 to 18 GHz.

8411A frequency range: 0.11 to 12.4 GHz.

Option 018: 0.11 to 18 GHz.

8411A input impedance: 50 ohms nominal. SWR <1.5, 0.11 to 8.0 GHz; <2.0, 8.0 to 12.4 GHz; typically increases to a 10:1 SWR, 12.4 to 18 GHz.

Channel isolation: >65 dB, 0.1 to 6 GHz; >60 dB, 6 to 12.4 GHz; >50 dB, 12.4 to 18 GHz.

Amplitude

Reference channel: any 20 dB range between -16 and -44 dBm.

Test channel: -10 to -78 dBm from 0.11 to 12.4 GHz; -10 to -68 dBm from 12.4 to 18 GHz.

Maximum RF input to either channel: 50 mW.

IF gain control: 69 dB range in 10 dB and 1 dB steps with a maximum cumulative error of ± 0.2 dB.

Phase

Phase range: 0 to 360°.

Control: vernier control >90°.

Connectors (8411A): APC-7.

Power: 115 or 230 V ac $\pm 10\%$, 50-60 Hz, 70 watts (includes 8411A).

Weight

8410B: net, 14.9 kg (33 lb). Shipping, 18.5 kg (41 lb).

8411A: net, 3.2 kg (7 lb). Shipping, 4.5 kg (10 lb).

Dimensions

8410B: 425 mm wide, 191 mm high, 467 mm deep ($16\frac{3}{4}$ " \times $7\frac{1}{2}$ " \times $18\frac{3}{8}$ ").

8411A: 228 mm wide, 67 mm high, 143 mm deep (9 " \times $2\frac{5}{8}$ " \times $5\frac{5}{8}$ "), exclusive of connectors and cable.

8412A Phase-magnitude display

Function: plug-in CRT display unit for 8410B. Displays relative amplitude in dB and/or relative phase in degrees between reference and test channel inputs versus frequency.

Amplitude

Range: 80 dB display range with selectable resolutions of 10, 2.5, 1 and 0.25 dB/division.

Accuracy: 0.08 dB/dB from midscreen.

Phase

Range: $\pm 180^\circ$ display range with selectable resolutions of 90, 45, 10, and 1° /division.

Accuracy: 0.065°/degree from midscreen.

Phase offset: $0.3^\circ/20^\circ$ step cumulative < 3° .

Power: 23 watts supplied by mainframe.

Weight: net, 7.8 kg (17 lb). Shipping, 10 kg (22 lb).

Dimensions: 186 mm wide, 152 mm high, 395 mm deep ($7\frac{3}{32}$ " \times 6 " \times $15\frac{5}{16}$ "), excluding front panel knobs.

8413A Phase-gain indicator

Function: plug-in meter display unit for 8410B. Displays relative amplitude in dB between reference and test channel inputs or relative phase in degrees. Pushbutton selection of meter function and range.

Amplitude

Range: ± 30 , ± 10 , and ± 3 dB full scale.

Accuracy: $\pm 3\%$ of end scale.

Log Output: 50 millivolts per dB up to 60 dB total.

Phase

Range: ± 180 , ± 60 , ± 18 , ± 6 degrees full scale.

Accuracy: $\pm 2\%$ of end scale.

Output: 10 millivolts per degree.

Phase offset: ± 180 degrees in 10-degree steps.

Accuracy: $\pm(0.2^\circ + 0.3^\circ/10^\circ)$ step, cumulative < 2° .

Power: additional 15 watts supplied by 8410B.

Weight: net, 4.9 kg (11 lb). Shipping, 6.7 kg (15 lb).

Dimensions: 186 mm wide, 152 mm high, 395 mm deep ($7\frac{3}{32}$ " \times 6 " \times $15\frac{5}{16}$ ").

8414A Polar display

Function: plug-in CRT display unit for 8410B. Displays amplitude and phase data in polar coordinates on 5-in. cathode ray tube.

Range: normalized polar coordinate display; magnitude calibration 20% of full scale per division. Scale factor is a function of IF setting on 8410B. Phase calibrated in 10-degree increments over 360-degree range.

Accuracy: error circle on CRT ± 3 mm.

Power: additional 35 watts supplied by 8410B.

Weight: net, 5.8 kg (13 lb). Shipping, 8.1 kg (18 lb).

Dimensions: 186 mm wide, 152 mm high, 395 mm deep ($7\frac{3}{32}$ " \times 6 " \times $15\frac{5}{16}$ "), excluding front panel knobs.

8418A Auxiliary power supply

Function: the 8418A power supply unit provides power for operation of the 8412A, 8413A or the 8414A display units. Used in conjunction with the 8410B Network Analyzer, it provides the capability of viewing amplitude and phase readout in both rectangular and polar coordinates simultaneously.

Weight: net, 11.2 kg (25 lb). Shipping, 19.7 kg (44 lb).

Dimensions: 483 mm wide, 177 mm high, 450 mm deep (19 " \times $6\frac{3}{32}$ " \times $17\frac{1}{8}$ ").

Model number and name

8410B mainframe

Option 908: Rack Flange Kit

8411A frequency converter

Option 018

8412A phase-magnitude display

8413A phase-gain display

8414A polar display

8418A auxiliary power supply

Price

\$3400

add \$10

\$2680

add \$415

\$2025

\$1600

\$1800

\$1500