

NETWORK ANALYZERS

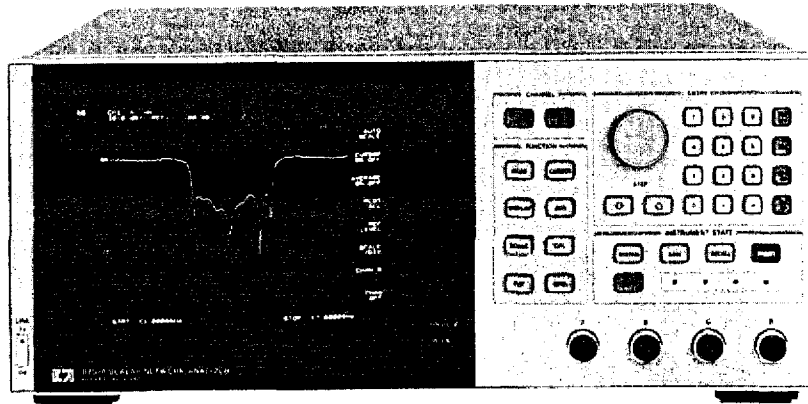
Scalar Network Analyzer, 10 MHz to 60 GHz

Model 8757A



- 76 dB dynamic range
- Accurate swept power measurements (dBm)
- 40 dB directivity bridges

- Four independent display channels
- Limit testing built in
- Save/recall setup and cal data
- Direct plotter output



HP 8757A Option 001

Description

Measure insertion loss or gain, return loss, SWR, and power quickly and accurately with the new HP 8757A scalar network analyzer. With high performance detectors and directional bridges and a companion HP source and digital plotter, the HP 8757A becomes the basis of a complete measurement system with superb performance.

Performance

The HP 8757A features 76 dB of dynamic range (-60 dBm to $+16$ dBm) when used with the HP 11664A/E detectors. With square wave modulation and detection (AC), the HP 11664 detectors enable reliable, drift-free measurements from 10 MHz to 40 GHz. With the new HP 85025 AC/DC detectors, make scalar measurements with or without modulation. In DC mode (no modulation), use the HP 85025A/B to make accurate swept-frequency measurements of power (dBm).

High directivity bridges (>40 dB) covering RF and microwave frequencies help produce excellent measurement results. Using the HP 85020A/B and 85027A/B/C directional bridges, make accurate measurements of reflection and transmission parameters simultaneously.

Calibrate your test system, and make normalized measurements with 0.01 dB vertical resolution. Select the optimum horizontal resolution for your application, by choosing 101, 201, 401, 801, or 1601 data points. Lower resolution allows faster sweep times. Calibrate with full 1601 point resolution over your frequency range. Then zoom in on a narrower frequency span and retain calibration. The HP 8757A interpolates the calibration data automatically.

Easy to Use

With a combination of simple front panel keys and powerful menu-driven soft keys, the HP 8757A allows you to set up the system and make accurate measurements fast. Menus appear on the display, and you control them with the front panel soft keys. The soft keys give you powerful capabilities without adding front panel complexity. Press "Cal" and let the menu guide you through calibration procedures. Press "Autoscale" to bring your measurement into view quickly. Activate the "Cursor" and dial it to any point on your data trace for an accurate high resolution reading of magnitude (and frequency with the HP 8350B/8340A/8341A). Measurements are fast and easy.

Productivity Without a Controller

The HP 8757A increases productivity in scalar measurements even without a controller. Decrease the time it takes you to set up and make measurements, while improving the quality of the results.

Enter your own limit lines for easy comparison of measurement results to upper and lower specification limits. Or use these lines as

your own reference calibration and remove the frequency responses of devices that are inserted after calibration.

Four independent display channels add new capabilities to the system. Each channel can display the data taken from any of the three (or optionally four) detector inputs. Each channel can display a single input (A, B, (C), R) or a ratio combination of two inputs (A/R, B/R, A/B, etc.). With four inputs, measure multi-port devices or characterize several devices simultaneously. Or compare the response of the test device to the stored response of your "reference" device.

When used with the HP 8350B sweep oscillator or the HP 8340A/8341A synthesized sweepers, the HP 8757A acts as a system controller by managing the source via the "8757 System Interface." Using this interface the HP 8757A can extract frequency information and annotate the display. When used alone, the HP 8757A can save and recall up to nine front panel states in non-volatile memory, complete with calibration or measurement data, limit lines, and plot labels. With the system interface and a companion HP source, the HP 8757A can save and recall not only its own front panel state, but the source's as well. Configure often repeated measurements only once. Then just recall that set-up and connect your device.

Combining the HP 8757A with an HP 8350B/8340A/8341A also enables the useful "alternate sweep" function, which allows you to sweep different frequency ranges or power levels and display them both in real time.

The HP 8757A can adapt to any sweep ramp input in the 0-10 V range, such as a 2-5 V ramp. Test voltage-controlled oscillators and attenuators, using your test voltage ramp to drive the HP 8757A display. Plot output power or attenuation versus tuning voltage.

Document Your Results

The HP 8757A also uses the "8757 System Interface" to drive an HP-IB digital plotter or "ThinkJet" printer. Plot what appears on the CRT or define your own plot and plot size. Get crisp, permanent, annotated plots without a controller.

Millimeter Wave Measurements

Extended scalar measurements to millimeter-wave frequencies with the HP 8757A and the waveguide detector for your frequency range. For swept frequency measurements from 26.5 to 40 GHz, choose the HP 11664D waveguide detector. The new HP Q85026A and U85026A detectors offer fully calibrated scalar measurements in the frequency bands 33-50 GHz (Q) and 40-60 GHz (U). Add an HP millimeter-wave source and waveguide coupler for a complete scalar measurement system to 60 GHz. Above 60 GHz use your own waveguide detector with either the HP 85025C (AC/DC) or 11664C (AC only) detector adapters.

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8757/8756 System Accessories

Models 8757A, 85027A/B/C, 85020A/B



HP 8757A Specifications

Amplitude Characteristics

Independently controlled for each channel.

Reference offset: offset level adjustable in 0.01 dB increments from -70 to +20 dBm (power measurement) or -90 to +90 dB (ratio measurement).

Display characteristics

Resolution

Vertical: 0.003 dB (power measurement)
0.006 dB (ratio measurement)
0.01 dB for "Display Cursor"

Horizontal: 101, 201, 401, 801, or 1601 data points

Sweep time/number of traces: minimum sweep time and maximum number of display traces depend on horizontal resolution.

Number of Points	Minimum Sweep Time	Number of Traces
101	50 ms	4
201	100 ms	4
401	200 ms	4
801	200 ms	2
1601	200 ms	1

Modulation Requirements (for HP 11664 detectors and HP 85025/26 detectors in AC mode):

Square-wave amplitude modulation

Frequency 27,778±20 Hz

≥30 dB on/off ratio

45% to 55% symmetry

Averaging: 2,4,8,16,32,64,128, or 256 traces may be averaged.

Normalization: traces are stored and normalized with the highest resolution, independent of display scale/division or offset. Calibration data can be saved and recalled with instrument states, and is interpolated when the frequency span is decreased.

HP-IB Characteristics

Transfer formats: Data may be transferred either as ASCII strings (nominally six characters per reading) or as 16 bit integers (most significant byte first). Readings may be taken at a single point, or an entire trace may be transferred at once.

Transfer speed:

ASCII format, 401 point trace: 500 ms typical.

ASCII format, point: 10 ms typical.

Binary format, 401 point trace: 30 ms typical.

Binary format, point: 7 ms typical.

System Interface

Description: the HP 8757A system interface is a dedicated HP-IB port used exclusively by the HP 8757A to control and extract information from a swept source and a digital plotter or "Thinkjet" printer.

Swept sources: HP 8350B with RF plug-in, HP 8340A/8341A synthesized sweeper, or any source that provides a sweep ramp in the range of 0-10 volts.

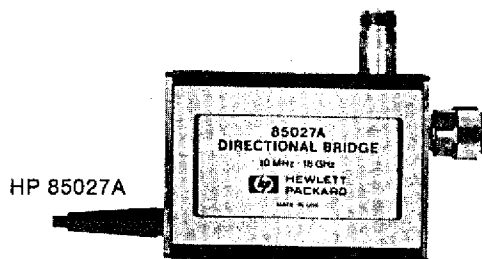
Plotters: HP 7470A, 7475A, 7550A, 7090A

General Specifications

Power requirements: 48 to 62 Hz, 115/230 V ±10%, typically 100 watts.

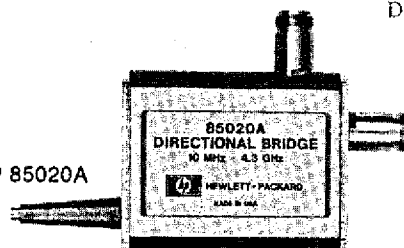
Dimensions: 178 H x 425 W x 482 mm D (7.0 x 16.75 x 19.0 in.).

Weight: net, 21 kg (46 lb); shipping, 33 kg (73 lb).



HP 85027A

• 40 dB Directivity



HP 85020A

Directional Bridges

The HP 85020A/B and HP 85027A/B/C are directional bridges designed especially for the HP 8757A, 8756A and 8755C scalar network analyzers. Each bridge features outstanding directivity and test port match in a compact, rugged package.

Within each bridge, one zero-bias Schottky diode detector measures the return loss of the test device. Ratio measurements can be made by adding a power splitter (HP 11667A/B) and detector (HP 11664 series or HP 85025 series).

HP 85027A/B/C Directional Bridges

The HP 85027 series directional bridges are designed to operate with the HP 8757, 8756 and 8755 scalar network analyzers for reflection measurements from 10 MHz to 26.5 GHz. A switch on the HP 85027 series bridges allows the user to configure them for operation with the HP 8757 or the HP 8756 and 8755 scalar network analyzers.

When used with the HP 8757A scalar network analyzer, the HP 85027 series bridges allow the user to choose the measurement mode that best suits the application. Use the bridge's AC mode (modulated RF) for measurements in the presence of undesired signals such as broadband noise or electromagnetic interference. Or choose the bridge's DC mode (unmodulated RF) to measure the return loss of modulation sensitive devices such as amplifiers with gain control circuits. Use the companion HP 85025 series detectors for AC and DC measurement versatility or the HP 11664 series detectors for AC only measurements.

High (40 dB) directivity and excellent test port match ensure accurate reflection measurements over a broad swept frequency range. The HP 85027B bridge operates from 10 MHz to 26.5 GHz and has an SMA compatible, precision APC-3.5 test port connector. The HP 85027A/C bridges operate from 10 MHz to 18 GHz. The HP 85027A has a rugged APC-7[®] test port connector and the HP 85027C has a precision Type-N connector.

Measuring SMA devices

Hewlett-Packard recommends using the HP 85027A bridge and an APC-7 to APC-3.5 adapter for measuring SMA devices from 10 MHz to 18 GHz. For SMA measurements to 26.5 GHz, HP recommends using APC-3.5 to APC-3.5 adapters (included with the HP 85027B bridge) to preserve the HP 85027B output connector.

HP 85027A/B/C Specifications

Frequency Range

HP 85027A: 0.01 to 18 GHz.

HP 85027B: 0.01 to 26.5 GHz.

HP 85027C: 0.01 to 18 GHz.

*APC-7 is a U.S. registered trademark of the Bunker Ramo corporation

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8757/8756 System Accessories (con't)



Models 85027A/B/C, 85020A/B, 85025A/B, Q/U85026A, 85025C, 11664A

Nominal impedance: 50 ohms.

Input Connector

- HP 85027A: Type-N Female.
- HP 85027B: APC-3.5 Female.
- HP 85027C: Type-N Female.

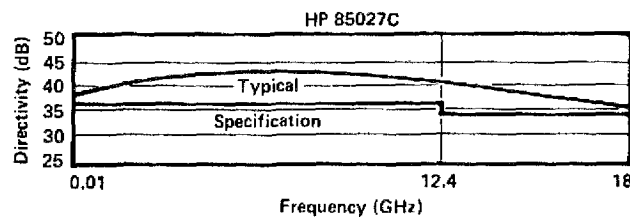
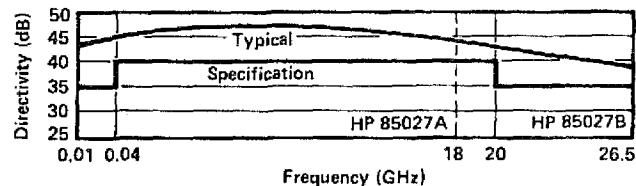
Output Connector

- HP 85027A: APC-7.
- HP 85027B: APC-3.5 Female.
- HP 85027C: Type-N Female.

Maximum power to input port: +23 dBm.

Directivity

- HP 85027A: 0.01 to 0.04 GHz: 36 dB.
0.04 to 18 GHz: 40 dB.
- HP 85027B: 0.01 to 0.04 GHz: 36 dB.
0.04 to 20 GHz: 40 dB.
20 to 26.5 GHz: 36 dB.
- HP 85027C: 0.01 to 12.4 GHz: 36 dB.
12.4 to 18 GHz: 34 dB.



Test Port Match (SWR)

- HP 85027A/C: 0.01 to 8.4 GHz: 1.15.
8.4 to 12.4 GHz: 1.25.
12.4 to 18 GHz: 1.43.
- HP 85027B: 0.01 to 8.4 GHz: 1.15.
8.4 to 20 GHz: 1.43.
20 to 26.5 GHz: 1.75.

Typical Input Port Match (SWR)

- HP 85027A/C: 0.01 to 8.4 GHz: <1.22.
8.4 to 18 GHz: <1.33.
- HP 85027B: 0.01 to 8.4 GHz: <1.22.
8.4 to 20 GHz: <1.33.
20 to 26.5 GHz: <1.93.

Typical Insertion Loss

- HP 85027A/B/C: 6.5 dB at 10 MHz.
8.0 dB at 18 GHz.
- HP 85027B: 10 dB at 26.5 GHz.

Typical minimum input power (for a 40 dB return loss measurement): +7 dBm at 18 GHz.

Dimensions: 26 H x 124 W x 118 mm D (1.0 x 4.9 x 3.9 in).

Weight: net, 0.6 kg (1.3 lb); shipping, 2.4 kg (5.2 lb).

HP 85020A/B Directional Bridges

The economical HP 85020A/B directional bridges also offer high (40 dB) directivity and excellent port match at RF (to 4.3 GHz) frequencies. For 50 ohm measurements choose the HP 85020A. The HP 85020B is designed for 75 ohm environments. Both RF bridges have Type-N connectors.

HP 85020A/B Specifications

Frequency Range

- HP 85020A: 0.01 to 4.3 GHz.
- HP 85020B: 0.01 to 2.4 GHz.

Nominal Impedance

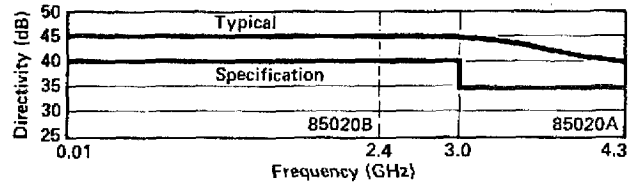
- HP 85020A: 50 ohms.
- HP 85020B: 75 ohms.

Connectors: Type-N Female.

Maximum power to input port: +23 dBm.

Directivity

- HP 85020A: 0.01 to 3 GHz: 40 dB.
3 to 4.3 GHz: 34 dB.
- HP 85020B: 0.01 to 2.4 GHz: 40 dB.



Test Port Match (SWR)

- HP 85020A: 0.01 to 3 GHz: 1.20.
3 to 4.3 GHz: 1.25.
- HP 85020B: 0.01 to 1.3 GHz: 1.25.
1.3 to 2.4 GHz: 1.39.

Typical Input Port Match (SWR)

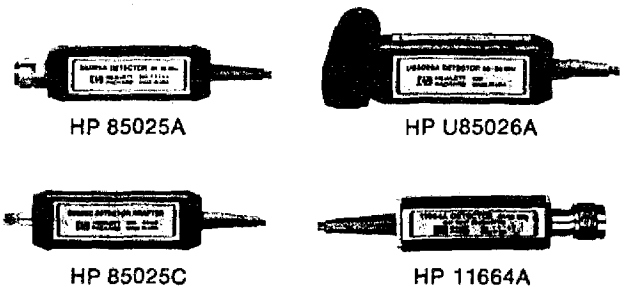
- HP 85020A: 0.01 to 4.3 GHz: 1.25.
- HP 85020B: 0.01 to 2.4 GHz: 1.25.

Typical insertion loss: 6.5 dB.

Typical minimum input power (for a 40 dB return loss measurement): +4 dBm.

Dimensions: 26 H x 110 W x 118 mm D (1.0 x 4.3 x 3.9 in).

Weight: net, 0.5 kg (1.2 lb); shipping, 2.3 kg (5 lb).



Detectors

Use the HP 85025 and 85026 series detectors to measure either modulated (AC) or unmodulated (DC) microwave signals. The HP 11664 series detectors operate in AC mode only.

HP 85025A Detector

Function: Designed specifically to use with the HP 8757A scalar network analyzer, the HP 85025A detects either a modulated (AC) or an unmodulated (DC) microwave signal. In AC mode, the HP 85025A detects the envelope of the 27.8 kHz modulated microwave signal. In DC mode, the HP 85025A measures the microwave power directly. The user can change modes via HP 8757A softkey selection.

Frequency Range: 10 MHz to 18 GHz.

Return Loss (25 ± 5 C):

- 10 MHz to 40 MHz: 10 dB.
- 40 MHz to 4 GHz: 20 dB.
- 4 GHz to 18 GHz: 17 dB.

Frequency Response: (25 ± 5 C):

- 10 MHz to 40 MHz: +0.25 dB, -0.75 dB.
- 40 MHz to 18 GHz: ±0.5 dB.

Impedance: 50 ohms nominal.

Maximum Input Power: +20 dBm (100 mW), 10 VDC.

Connector: Type-N Male (Option 001: APC-7).

Dimensions: Cable length is 1.22 m (48 in.).

Weight: Net 0.24 kg (0.5 lb). Shipping 1.0 kg (2.2 lb).

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8757/8756 System Accessories (con't)
Models 85025B, Q/U 85026A, 85025C, 11664A/C/D/E



HP 85025B Detector

Note: The specifications above for the HP 85025A apply for the HP 85025B except as noted below.

Frequency Range: 10 MHz to 26.5 GHz.

Return Loss ($25 \pm 5^\circ \text{C}$):

10 MHz to 40 MHz: 10 dB.

40 MHz to 4 GHz: 20 dB.

4 GHz to 18 GHz: 17 dB.

18 GHz to 26.5 GHz: 12 dB.

Frequency Response: ($25 \pm 5^\circ \text{C}$):

10 MHz to 40 MHz: $\pm 0.8 \text{ dB}$.

40 MHz to 18 GHz: $\pm 0.5 \text{ dB}$.

18 MHz to 26.5 GHz: $\pm 1.0 \text{ dB}$ typical.

Test Port Connector: APC-3.5 Male

HP Q/U 85026A Detectors

Function: The HP Q/U 85026A detectors are calibrated waveguide detectors designed specifically for operation with the HP 8757A. They detect either a modulated (AC) or unmodulated (DC) millimeter-wave signal. Operation with the HP 8756A requires an adapter (HP Part No. 5061-5369) and is limited to AC only operation.

Frequency range:

HP Q85026A, 33 to 50 GHz.

HP U85026A, 40 to 60 GHz.

Return loss: $\geq 12 \text{ dB}$.

Dynamic range:

AC mode, +10 to -45 dBm .

DC mode, +10 to -40 dBm .

Frequency response: $< \pm 2.0 \text{ dB}$.

EIA Waveguide Size:

HP Q85026A, WR-22.

HP U85026A, WR-19.

Cover Flange: UG-383.

Dimensions: Cable length is 1.22 m (48 in.).

Weight: Net 0.24 kg (0.5 lb.). Shipping 1.0 kg (2.2 lb.).

HP 85025C Detector Adapter

Function: The HP 85025C matches the HP 8757A to most standard low barrier (zero-biased) crystal, silicon, and gallium arsenide detectors for scalar measurements above 60 GHz. A softkey calibration sequence calibrates the HP 8757A to your detector for an accurate display of power level.

Compatible Scalar Analyzer: HP 8757A only, firmware Revision 2.0 or higher. For scalar measurements with the HP 8756A or 8755C use the HP 11664C detector adapter.

Maximum Measurable Input: $\pm 3 \text{ volts peak}$.

Maximum Allowable Input: $\pm 10 \text{ volts peak}$.

Connector: SMA male.

Dimensions: Cable length is 1.22m (48 in.).

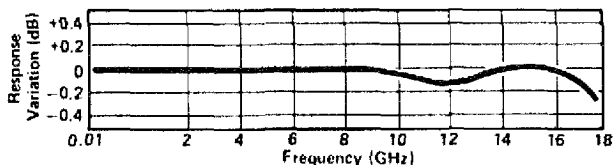
Weight: Net 0.24 kg (0.5 lb.). Shipping 1.0 kg (2.2 lb.).

HP 11664A Detector

Function: The HP 11664 series detectors detect the envelope of the 27.8 kHz modulated RF signal to be displayed on the scalar network analyzer.

Frequency Range: 10 MHz to 18 GHz.

Frequency Response:



Return Loss (-60 to $+10 \text{ dBm}$, 15 to 35°C):

10 MHz to 40 MHz: $\geq 10 \text{ dB}$

40 MHz to 4 GHz: $\geq 20 \text{ dB}$

4 GHz to 12 GHz: $\geq 18 \text{ dB}$

12 GHz to 18 GHz: $\geq 16 \text{ dB}$

Impedance: 50 ohms nominal.

Maximum Input Power: $+20 \text{ dBm}$ (100 mW).

Test Port Connector: Type N-Male.

Option 001: APC-7.

Dimensions: Cable length is 1.22 m (48 in).

Weight: Net 0.17 kg (0.4 lb). Shipping 0.9 kg (2 lbs).

HP 11664E Detector

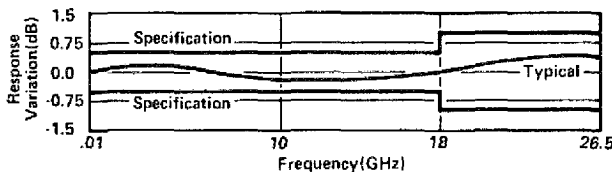
(Note: The specifications above for the HP 11664A apply for the HP 11664E except as noted below.)

Frequency Range: 10 MHz to 26.5 GHz.

Frequency Response: (-10 dBm , $25 \pm 5^\circ \text{C}$):

10 MHz to 18 GHz: $\pm 0.5 \text{ dB}$.

10 MHz to 26.5 GHz: $\pm 1.0 \text{ dB}$



Return Loss (-60 to $+10 \text{ dBm}$, $25 \pm 5^\circ \text{C}$):

10 MHz to 40 MHz: $\geq 10 \text{ dB}$.

40 MHz to 6 GHz: $\geq 20 \text{ dB}$.

6 GHz to 20 GHz: $\geq 16 \text{ dB}$.

20 GHz to 26.5 GHz: $\geq 12 \text{ dB}$ (-60 to -10 dBm).

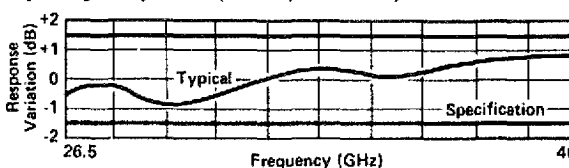
Test Port Connector: APC-3.5 Male

HP 11664D Detector

Function: The HP 11664D detects AC modulated signals in the frequency range of 26.5 to 40 GHz.

Frequency Range: 26.5 to 40 GHz.

Frequency Response: (0 dBm , $25 \pm 5^\circ \text{C}$):



Return Loss: $\geq 12 \text{ dB}$ (-50 to $+10 \text{ dBm}$, $25 \pm 5^\circ \text{C}$).

Maximum Input Power: $+16 \text{ dBm}$ (40 mW).

Test Port Connector: EIA size WR-28 rectangular waveguide (mates with UG-599/U cover flange).

Dimensions: Cable length is 1.22 m (48 in).

Weight: Net 0.24 kg (0.5 lb). Shipping 1.0 kg (2.2 lbs).

HP 11664C Detector Adapter

Function: The HP 11664C matches the HP 8757A/56A/55C to most standard crystal, silicon, and gallium arsenide detectors via two screwdriver adjustments. One adjustment sets the adapter's amplifier gain to the correct power level indication on the scalar network analyzer. The second adjustment matches the input impedance of the adapter to the load impedance of the detector. Together, the square law to linear transition region of the detector is optimized for the HP 8757A/56A/55C. Positive or negative bias ($\pm 50 \mu \text{A}$) can be selected by two internal switches.

Frequency Range: Depends on the external detector used.

Maximum Input: 5 V peak.

Connector: BNC Male.

Dimensions: Cable length is 1.22 m (48 in).

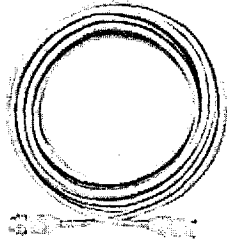
Weight: Net 0.17 kg (0.4 lb). Shipping 0.9 kg (2 lbs).

NETWORK ANALYZERS

8757/8756 System Accessories (con't)



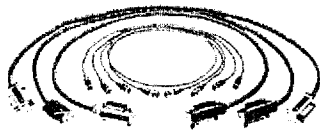
Models 11679A/B, 85023A/B/C/D, 85022A, 85015B, 85016B, 11668A, 11678A



HP 11679A



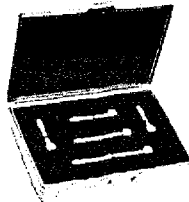
HP 85023C



HP 85022A



HP 11668A



HP 11678A

HP 11679A/B Extension Cables

Function: These cables extend the distance between the scalar network analyzer and the detector or bridge to a maximum of 200 feet without degradation of performance.

HP 11679A: 7.6 m (25 ft) extension cable: \$105
 HP 11679B: 61 m (200 ft) extension cable: \$355

HP 85023A/B/C/D Verification Kits

The HP 85023A/B/C/D system verification kits each contain a set of precision components used to perform a system verification procedure for the HP 8757S/56S scalar network analyzer system. This procedure, which is in the HP 8757A/56A Operating and Service Manuals, checks system installation and can be used as a daily functional test.

Choose a system verification kit to match your device under test. For APC-7 applications, select the HP 85023A. If you are measuring SMA or APC-3.5 devices, choose the HP 85023B. For 50 ohm, Type-N applications, select the HP 85023C. These kits (HP 85023A/B/C) all include an open, short, 10 dB fixed attenuator, 50 ohm termination, and a source to directional bridge adapter of the corresponding connector type. The HP 85023D verification kit, for 75 ohm Type-N measurements, consists of a short, a 75 ohm termination, a 50 ohm 10 dB fixed attenuator and two HP 11852A 50 to 75 ohm minimum loss pads (for 50/75 ohm impedance conversion).

Frequency range: HP 85023A/C, dc to 18 GHz.
 HP 85023D, dc to 1.3 GHz.
 HP 85023B, dc to 26.5 GHz.

Connector type: HP 85023A, APC-7.
 HP 85023B, APC-3.5.
 HP 85023C, Type-N, 50 ohm.
 HP 85023D, Type-N, 75 ohm.

Characteristic impedance: HP 85023A/B/C, 50 ohm.
 HP 85023D, 75 ohm.

Weight: net, 0.5 kg (1.2 lb); shipping, 1.2 kg (2.9 lb).

HP 85022A System Cable Kit

The HP 85022A contains all the BNC and HP-IB cables to connect an HP 8350B sweep oscillator (or HP 8340A synthesized sweeper), an HP Series 200 computer, and a printer to the HP 8757A or 8756A. This kit contains 3 one-metre HP-IB cables (HP 10833A), 3 two-foot BNC cables (HP 11170B), and 1 four-foot BNC cable (HP 11170C).

BNC connectors: N-Male, N-Male.

BNC impedance: 50 ohm.

Weight: net, 0.5 kg (1.2 lb); shipping, 1.2 kg (2.9 lb).

HP 85015B System Software for HP 8757S/8756S

Save frequently performed measurement procedures and calibration data for future use. Measure insertion loss, gain, power and reflection coefficient. The HP 85015 allows you to customize your test sequence and then print or plot the output in your choice of formats. The HP 85015 includes four system discs and a data disc for either 5.25 inch or 3.5 inch disc drives. Choose the option that corresponds to your computer configuration.

Weight: net, 0.5 kg (1.2 lb); shipping, 1.2 kg (2.9 lb).

For further information see page 604.

HP 85016B Transmission Line Test Software for HP 8757S/8756S

Add accurate transmission line fault location to the HP 85015A/B system software. In addition to frequency response, plot return loss of cables and waveguides as a function of distance. The HP 85016B includes four system discs and one data disc for either 5.25 inch or 3.5 inch disc drives. Choose the option that corresponds to your computer configuration.

Weight: net, 0.5 kg (1.2 lb); shipping, 1.2 kg (2.9 lb).

For further information see page 604.

HP 11668A High Pass Filter

The HP 11668A high pass filter accessory is recommended when making measurements on active devices that have gain below 50 MHz. Use of the HP 11668A, placed after the HP 11665B, reduces the modulator drive feedthrough from 8 mV to 1 mV and prevents possible amplifier saturation. Use of the HP 11668A filter is not necessary for passive measurements since the feedthrough from the HP 11665B is -65 dBm and causes no degradation in system performance.

Frequency range: 50 MHz to 18 GHz.

	Insertion Loss	Return Loss
50-100 MHz	≤ 2.5 dB	≥ 12 dB
100 MHz-8 GHz	≤ 1.0 dB	≥ 16 dB
8-12 GHz	≤ 1.0 dB	≥ 14 dB
12-18 GHz	≤ 1.5 dB	≥ 14 dB

Maximum input: +27 dBm.

Connectors: N-female, N-male.

Weight: net, 0.13 kg (5 oz); shipping, 0.28 kg (10 oz).

HP 11678A Low Pass Filter Kit

Description: the HP 11678A low pass filter kit contains five filters. Low pass filters reduce harmonics generated by the RF source when making precision measurements.

Frequency Range (low pass filters, cutoff frequency fc)

HP 11668A: 2.8 GHz.
 HP 11689A: 4.4 GHz.
 HP 11684A: 6.8 GHz.
 HP 11685A: 9.5 GHz.
 HP 11686A: 13.0 GHz.

Insertion loss: <1.1 dB at 0.95 fc.

Rejection (at 1.25 fc): greater than 40 dB.

Impedance: 50 ohm normal.

Connectors: N-Female, N-Male.

Weight: net, 0.44 kg (1 lb); shipping, 1.2 kg (2.9 lb).

Service Products

HP 8757+02B/8756+02B Onsite Installation (where available)

Be sure your HP 8757S or 8756S automatic scalar network analyzer system is operating from the start by having an HP Customer Engineer configure your system at your site. After you have unpacked the equipment the HP Customer Engineer will assemble and verify the operation of your system.

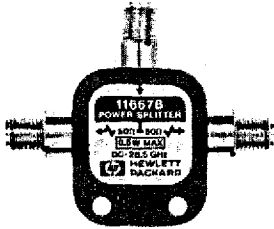
HP 8757S+23B/8756S+23B Onsite Service (where available)

Increase your total system uptime by ordering onsite service. An HP Customer Engineer will come to your site to perform all repairs for one year.

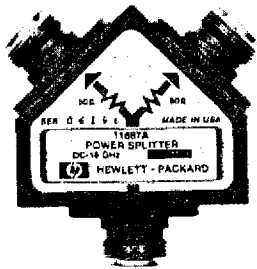
NETWORK ANALYZERS

8757/8756 System Accessories (cont.)

Models 11667A/B, 11636A/B, 11665B, 11679A/B, 11852A



HP 11667B



HP 11667A



HP 11665B

Connectors:

HP 11667A: N-female on all ports.

HP 11667B: APC-3.5 female on all ports.

Dimensions:

HP 11667A: 46 H x 52 W x 19 mm D (1.8 x 2.0 x 0.7 in).

HP 11667B: 40 H x 47 W x 10 mm D (1.6 x 1.9 x 0.4 in).

Weight:

HP 11667A: net, 0.14 kg (0.31 lb); shipping, 0.22 kg (0.5 lb).

HP 11667B: net, 0.06 kg (0.13 lb); shipping, 0.14 kg (0.3 lb).

HP 11636A/B Power Dividers

The HP 11636A/B power dividers/combiners are recommended when making wideband comparison measurements without ratioing, and in fault location measurements with the HP 8757S/85016. Detailed specifications are on page 561.

Other Signal Separation Devices

Many other signal separation devices are available from HP for use with the HP 8757A, 8756A and 8755C. Coaxial couplers from 0.1 to 18 GHz are available with the HP 770 series, the 790 series, and the HP 11692. Higher directivity HP 752 series waveguide couplers can also be used with the HP 8757A, 8756A or 8755C with the addition of appropriate HP 281 series waveguide-to-coax adapters.

HP 11667A/B Power Splitter

The HP 11667A/B power splitters are recommended when making wideband ratio measurements using the HP 8757A, 8756A or 8755C scalar network analyzer. These two-resistor type splitters provide excellent output SWR at the auxiliary arm when used for source leveling or ratio measurement applications. The tracking between output arms over a frequency range from dc to 18 GHz allows wideband measurements to be made with a minimum of uncertainty.

Frequency Range:

HP 11667A: DC to 18 GHz.

HP 11667B: DC to 26.5 GHz.

Impedance: 50 ohms nominal.

Insertion Loss: 6 dB nominal.

	DC to 4 GHz	DC to 8 GHz	DC to 18 GHz	DC to 26.5 GHz
Input SWR:				
HP 11667A:	≤1.15	≤1.25	≤1.45	
HP 11667B:	≤1.22	≤1.22	≤1.22	≤1.29
Equivalent Output SWR: (leveling or ratio measurements)				
HP 11667A:	≤1.10	≤1.20	≤1.33	
HP 11667B:	≤1.22	≤1.22	≤1.22	≤1.22
Output Tracking: (between output arms)				
HP 11667A:	≤0.15 dB	≤0.20 dB	≤0.25 dB	
HP 11667B:	≤0.20 dB	≤0.20 dB	≤0.20 dB	≤0.25 dB
Typical Phase Tracking: (between output arms)				
HP 11667A:	0.5 deg	1.5 deg	3.0 deg	
HP 11667B:	1.5 deg	1.5 deg	1.5 deg	2.5 deg
Maximum Input Power:	+27 dBm.			

11665B Modulator

Function: absorptive on-off modulator designed for and powered by the HP 8757A, 8756A or 8755C scalar network analyzers.

Frequency Range	Return Loss On and Off	Insertion Loss On Off
15-40 MHz	≥10 dB	≤7.0 dB ≥35 dB
40 MHz-4 GHz	≥15 dB	≤3.2 dB ≥35 dB
4-8 GHz	≥12 dB	≤3.8 dB ≥40 dB
8-12.4 GHz	≥8 dB	≤4.3 dB ≥45 dB
12.4-18 GHz	≥8 dB	≤5.0 dB ≥45 dB

Modulator drive feedthrough: ≤8 mV (peak) at 27.8 kHz at either port when powered by the HP 8757A, 8756A or 8755C. Reduced to ≤1mV (peak) using the HP 11668A. (See HP 11668A High Pass Filter).

Drive current: nominally +50 mA in On condition, -50 mA Off condition.

Weight: net, 0.17 kg (6 oz); shipping, 0.9 kg (2 lb).

HP 11852A 50 ohm/75 ohm Minimum Loss Pad

The HP 11852A is a low SWR minimum loss pad required between 75 ohm devices and 50 ohm sources and detectors. For more information, see page 623.

NETWORK ANALYZERS

Ordering Information



Models 8757/8756

Ordering Information

The HP 8757S Automatic Scalar Network Analyzer is ordered with multiple line items to give you maximum flexibility in specifying a system that meets your needs. This ordering guide lists the HP 8757S line items required for software compatibility. It is not necessary to order any line item you already own. Consult your local HP Sales Office if you would like assistance.

HP 8757S Scalar Network Analyzer System

This system model number ensures coordination of shipments and compatibility of instruments and software.

Analyzer

HP 8757A Scalar Network Analyzer	\$11,000
Opt. 001 Fourth detector input	\$1,500

Sweep Oscillators (choose either HP 8350B with an RF Plug-in 8340A or 8341A)

HP 8350B Sweep Oscillator Mainframe	\$4,565
HP 83522A 0.01-2.4 GHz RF Plug-in	\$8,170
HP 83592A 0.01-20 GHz RF Plug-in	\$20,500
HP 83595A 0.01-26.5 GHz RF Plug-in	\$29,085
Other RF Plug-in (see HP 8350B catalog entry for model and options)	

HP 8341A 0.01-20 GHz Synthesized Sweeper	\$44,000
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Directional Bridges (choose at least one)

HP 85027A 0.01-18 GHz, APC-7, 50 ohm	\$2,500
HP 85027B 0.01-26.5 GHz, APC-3.5 female, 50 ohm	\$2,800
HP 85027C 0.01-18 GHz, Type-N female, 50 ohm	\$2,500
HP 85020A 0.01-4.3 GHz, Type-N female, 50 ohm	\$950
HP 85020B 0.01-2.4 GHz, Type-N female, 75 ohm	\$1,050

Detectors (choose at least one)

HP11664A 0.01-18 GHz, Type-N male	\$430
Opt. 001 APC-7 connector	add \$25
HP 11664E 0.01-26.5 GHz, APC-3.5 male	\$680
HP 11664D 26.5-40 GHz, WR-28 waveguide	\$1,100
HP 11664C Detector Adapter	\$255
HP 85025A 0.01-18 GHz, Type-N male	\$850
Opt. 001 APC-7 connector	add \$50
HP 85025B 0.01-26.5 GHz, APC-3.5 male	\$950
HP Q85026A 33-50 GHz, WR-22 waveguide	\$1,700
HP U85026A 40-60 GHz, WR-19 waveguide	\$1,700
HP 85025C Detector Adapter	\$500

System Verification Kits (choose at least one)

HP 85023A APC-7, 50 ohm	\$520
HP 85023B APC-3.5, 50 ohm	\$655
HP 85023C Type-N, 50 ohm	\$415
HP 85023D Type-N, 75 ohm	\$685

Filter Kits

HP 11668 High Pass Filter Kit	\$555
HP 11678 Low Pass Filter Kit	\$1,380

System Cable Kit

HP 85022A System Cable Kit	\$355
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Computer (choose one)

HP 9816S Series 200, Model 16S Computer (select option)	\$5,150
Opt. 630 for use with HP 9121D/22D Disc Drive	N/C
HP 9826S Series 200, Model 26S Computer	\$11,555
HP 9836S Series 200, Model 36S Computer	\$14,420
HP 98256A 256K byte Memory Board	\$830
HP 98257A 1M byte Memory Board	\$3,300

Disc Drives (one required for HP 9816S)

HP 9121D 3.5 inch Dual Flexible Disc Drive	\$1,190
HP 9122D 3.5 inch Dual Flexible Disc Drive	\$1,390

Software (choose one option)

HP 85015B System Software for HP 8757S	\$2,000
Opt. 630 for HP 9816S Computer with HP 9121D/22D Disc Drive	N/C
Opt. 655 for either HP 9826S or 9836S Computer	N/C
HP 85016B Transmission Line Test Software for HP 8757S	\$4,500
Opt. 630: For HP 9816S Computer with HP 9121D/22D Disc Drive	N/C
Opt 655: For either HP 9826S or 9836S Computer	N/C

Recommended Accessories

Printer (choose at least one)

HP 2673A Intelligent Graphics Printer	\$2,240
HP 2932A Opt 046 Impact Graphics Printer	\$2,545

Plotter (choose at least one)

HP 7470A Opt. 002 Two-pen Graphics Plotter (8.5" x 11")	\$1,095
HP 7550 Eight-pen Vector Plotter (11" x 17")	\$3,900

Optional Accessories (for ratio and/or modulation measurements)

HP 11636A Power Divider DC to 18 GHz	\$400
HP 11636B Power Divider DC to 26.5 GHz	\$950
HP 11665B Modulator	\$605
HP 11667A Power Splitter DC to 18 GHz	\$930
Opt. 001 N-male on input port; N-female on output ports:	N/C
Opt. 002 N-female on input port; APC-7 on output ports:	add \$75

HP 11667B Power Splitter DC to 26.5 GHz	\$950
HP 11852A 50 to 75 ohm Minimum Loss Pad	\$205

Service and Support Products

HP 8757S+02B Onsite Installation (where available)	\$630
HP 8757S+23B Onsite Service (where available)	

Compatible HP 8350B Plug-Ins

(HP 86200 series plug-ins require the HP 11869A adapter for use with the HP 8350)

HP Model Number	Frequency Range (GHz)	Power Out (mW)	Price
83595A	0.01-26.5	2.5	\$29,085
83592A	0.01-20.0	10	20,500
83592B	0.01-20.0	20	26,580
83592C	0.01-20.0	4	26,580
83525A	0.01-8.4	20	13,540
83525B	0.01-8.4	10	15,540
83522A	0.01-2.4	20	8,170
83594A	2.0-26.5	2.5	22,820
83590A	2.0-20.0	10	17,700
83550A	8.0-20.0	60	15,000
83540A	2.0-8.4	40	9,780
83540B	2.0-8.4	20	10,280
83545A	5.9-12.4	50	9,780
83570A	18.0-26.5	10	11,985
83572A**	26.5-40.0	2	14,540
83572B**	26.5-40.0	5	17,500
83554A***	26.5-40.0	5	8,000
83555A***	33.0-50.0	3.2	8,000
83556A***	40.0-60.0	2	8,000
86222A	0.01-2.4	20	5,520
86222B	0.01-2.4	20	6,970
86220A*	0.01-1.3	10	3,810
86235A	1.7-4.3	40	5,075
86290B	2.0-18.6	10	15,300
86290C	2.0-18.6	20	19,810
86240A	2.0-8.4	40	6,575
86240B	2.0-8.4	20	7,720
86240C	3.6-8.6	40	7,525
86241A*	3.2-6.5	3.2	4,575
86245A	5.9-12.4	50	7,975
86242D	5.9-9.0	10	5,175
86250D	8.0-12.4	10	5,275
86251A	7.5-18.6	10	10,780
86260B*	10.0-18.6	10	6,125
86260A*	12.4-18.0	10	5,675
86260C*	17.0-22.0	10	9,280
8620C sweep oscillator mainframe			3,865
8350B sweep oscillator mainframe			4,565
11689A adapter for HP 86200 plug-in			280

* Requires HP 11665B modulator.

** Requires Option 006 for internal 27.8 kHz modulator.

*** Source module, requires a 11-20 GHz swept source.