

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8720B

The HP 8720B is a high-performance microwave vector network analyzer manufactured by Keysight Technologies (formerly Agilent / HP). Designed for comprehensive reflection and transmission measurements, it integrates a synthesized microwave source, a switching S-parameter test set, and a dual-channel receiver. Operating over a broad frequency range from 130 MHz to 20 GHz, it is a staple instrument for microwave component design and characterization. Its advanced digital signal processing capabilities and color CRT display enable highly accurate, real-time S-parameter measurements.

SPECIFICATIONS

General

Interfaces	HP-IB (IEEE-488)
Display	9-inch monochrome CRT

Physical

Power Supply	90 to 132 V / 198 to 264 V, 47 to 66 Hz
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	425 mm × 267 mm × 567 mm mm
Weight	34 kg

Frequency Characteristics

Frequency Range	130 MHz to 20 GHz
Frequency Resolution (Standard)	100 kHz
Frequency Resolution (Option 001)	1 Hz
Frequency Accuracy	±10 ppm

Source (Stimulus) Specifications

Output Power Range	-10 to -65 dBm
Source Type	Synthesized microwave source

Receiver & Dynamic Range Specifications

System Dynamic Range (130 to 500 MHz)	70 dB
System Dynamic Range (500 MHz to 2 GHz)	80 dB
System Dynamic Range (2 to 8 GHz)	85 dB
System Dynamic Range (8 to 20 GHz)	85 dB
Receiver Architecture	Dual channel receiver

Measurement Port Characteristics

Test Port Connector Type	3.5 mm (male)
Nominal Impedance	50 ohms
Test Set Configuration	Integrated switching S-parameter test set

Measurement & Display Capabilities

Measured Parameters	S-parameters (reflection and transmission)
Measurement Formats	Logarithmic, linear, and Smith chart
Display Channels	2 independent channels
Trace Manipulation	Trace math, data averaging, trace smoothing, and electrical delay
Instrument State Memory	Saves settings for at least 3 days without line power
External Storage Control	Compatible external disk drive control

Factory Options & Upgrades

Option 001	1 Hz frequency resolution
Option 003	Extended dynamic range
Option 010	Time-domain analysis
Option 802	Disk drive support
Option 830	Calibration kit and cables
Option 913	Rack mount kit with handles

Sweep Characteristics

Number of Points per Sweep	3, 11, 26, 51, 101, 201, 401, 801, 1601
Sweep Types	Linear frequency, logarithmic frequency, list frequency, power sweep
Sweep Modes	Continuous, Single, Number of Groups, Hold
Power Sweep Range	15 dB

Measurement Capabilities

Limit Lines	Up to 22 segments per channel for pass/fail testing
Group Delay Aperture Range	0.25% to 20% of the frequency span
IF Bandwidth Range	10 Hz to 3 kHz (in 1-3-10 steps)
Sweep-to-Sweep Averaging	Selectable factor from 1 to 999
Marker Functions	Up to 4 markers per channel, with marker tracking, delta markers, and search functions (min, max, target, bandwidth)

Display Options

Reference Level Range (Magnitude)	±500 dB
Reference Level Resolution (Magnitude)	0.001 dB
Scale Resolution (Magnitude)	0.001 to 100 dB/div
Phase Range	±180°
Scale Resolution (Phase)	0.01° to 360°/div
Reference Level Range (Phase)	±500°
Reference Level Resolution (Phase)	0.01°

Rear Panel Connectors

Test Port Bias Inputs	Rear-panel BNC connectors, max 500 mA, 40 V
External Reference Input	1, 2, 5, or 10 MHz (±10 ppm), -10 dBm to +20 dBm
Auxiliary Voltage Input	Rear-panel BNC, ±10 V range
External Trigger Input	Rear-panel BNC, TTL active low

Environmental Specifications

Operating Humidity	5% to 95% non-condensing
Operating Altitude	Up to 4,500 meters (15,000 feet)
Storage Temperature	-40 °C to +75 °C

Options

Option 011	Direct receiver access (bypasses internal S-parameter test set)
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Source Specifications

Source Harmonics	<-15 dBc at maximum output power
Non-Harmonic Spurious (135 MHz to 2 GHz)	<-35 dBc
Non-Harmonic Spurious (2 to 20 GHz)	<-30 dBc
Output Power Accuracy	±3.0 dB at -10 dBm output power
Output Power Linearity	±0.5 dB (from -10 to -20 dBm relative to -10 dBm), ±1.0 dB (from -20 to -65 dBm relative to -10 dBm)

Power Requirements

AC Power Requirements	90 to 132 V AC (48 to 66 Hz) or 198 to 264 V AC (48 to 66 Hz)
Power Consumption	280 VA max

Calibration

Calibration Types Supported	Response, response/isolation, 1-port, 2-port (full), one-path 2-port
Error Correction	12-term vector error correction

Inputs & Outputs

Reference Output	10 MHz, ≥ 0 dBm (typically +4 dBm), BNC female
External AM Input	BNC female, DC to 100 kHz, 10 k Ω nominal input impedance, 0 to 10 V for up to 20 dB of RF attenuation
External Monitor Output	Red, Green, Blue, and Sync BNC connectors for external color monitor
Test Port Bias Limits	40 VDC maximum, 500 mA maximum

Receiver Specifications

System Crosstalk	100 dB (135 MHz to 8 GHz), 85 dB (8 to 20 GHz)
Maximum Test Port Input Level	-10 dBm (for < 0.5 dB receiver compression), +20 dBm maximum safe input

Measurement Functions

Marker Count	4 active markers per display channel
Marker Resolution (Magnitude)	0.001 dB
Marker Resolution (Phase)	0.01°
Power Meter Calibration	Compatible with HP 437B and HP 438A power meters for source power leveling

Connectivity

GPIB Control Capability	HP-IB (IEEE 488.1) compatibility
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TECHNOLOGY

Vector Network Analysis

APPLICATIONS

Microwave component testing and S-parameter characterization

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.