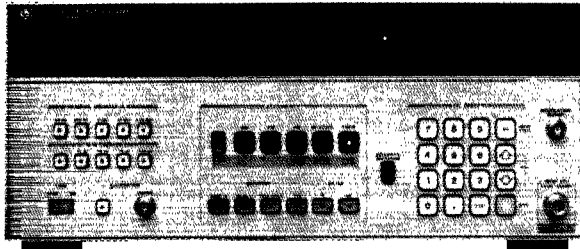


# SIGNAL ANALYZERS

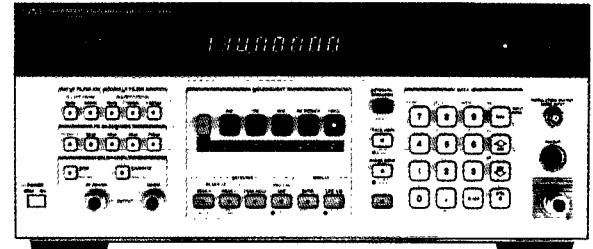
**Modulation Analyzer, 150 kHz to 1300 MHz, AM/FM Test Source**  
**HP 8901A, 8901B, 11715A**

- Measures AM and FM to 1% accuracy
- Measures RF frequency
- Measures RF power

- Low internal noise
- Completely automatic



HP 8901A



HP 8901B



## HP 8901A and HP 8901B Modulation Analyzers

The HP 8901A and HP 8901B modulation analyzers combine the capabilities of several RF instruments to give complete, accurate characterization of modulated signals in the 150 kHz to 1300 MHz frequency range. Both instruments very accurately measure modulation and recover the modulation signal. They determine RF frequency and measure RF power. The major additional capabilities of the HP 8901B are its improved power-meter accuracy, its ability to use external power sensors, its ability to make adjacent-channel power measurements or carrier-noise measurements (with Options 030 through 037), and its ability to count audio frequencies and measure distortion on 400 Hz and 1 kHz signals. Both instruments are fully automatic and make all major measurements at the press of a key or under HP-IB control.

### Transmitter Testing

The HP 8901A/B have the features required to perform standard transmitter measurements. They measure transmitter power, count frequency, and measure the signal modulation very accurately. The HP 8901B also characterizes the demodulated audio signal's frequency, level, and distortion. With Option 030 the HP 8901B can quickly and accurately make adjacent-channel power measurements to CEPT standards.

### RF Signal Characterization

The HP 8901A/B are excellent lab & production tools for accurately characterizing RF signals.

Use the HP 8901A/B to make accurate AM/ΦM and FM/AM conversion measurements of phase- and amplitude-sensitive devices such as bandpass filters and multiple-channel receivers. Excellent isolation between AM and FM make it simple to separate the AM and ΦM of AM stereo, the incidental AM of FM transmitters, and the AM, FM, and ΦM components of complex signals.

### Automatic Test Systems

The HP 8901A/B are important components of automatic RF test systems. All functions are fully automatic and easily programmed. With these measurements combined into one instrument, interfacing requirements, hardware costs, and software-development time are reduced.

## HP 8901A and HP 8901B Specifications

### RF Input

**Frequency Range:** 150 kHz to 1300 MHz

**Operating Level:** 12 mV rms to 7 V rms

**Input Impedance:** 50 Ω nominal

**Tuning:** Manual frequency entry, automatic, or track

**Acquisition Time** (automatic operation): ~1.5 s

**Maximum Safe Input Level** (typical): 35 V rms (25 W for source SWR <4), ac; 40 V, dc

### Frequency Modulation

**Rates:** 20 Hz to 200 kHz

**Deviations:** To 400 kHz

### Accuracy:

±2% of reading ±1 digit, 20 Hz to 10 kHz rates, 250 kHz to 10 MHz;

±1% of reading ±1 digit, 50 Hz to 100 kHz rates, 10 to 1300 MHz

**Demodulated Output Distortion:** <0.1% THD

**AM Rejection** (for 50% AM at 400 Hz and 1 kHz rates): <20 Hz peak deviation measured in a 50 Hz to 3 kHz BW

**Residual FM** (50 Hz to 3 kHz BW): <8 Hz rms @ 1300 MHz, decreasing linearly with frequency to <1 Hz rms for 100 MHz and below

**Maximum Deviation Resolution:** 1 Hz

**Stereo Separation** (50 Hz to 15 kHz): >47 dB typical

### Phase Modulation

**Carrier Frequency:** 10 to 1300 MHz

**Rates:** 200 Hz to 20 kHz; typically usable from 20 Hz to 100 kHz with degraded performance

**Deviation:** To 400 radians

**Maximum Deviation Resolution:** 0.001 radian

**Accuracy:** ±3% of reading ±1 digit

**Demodulated Output Distortion:** <0.1% THD

**AM Rejection** (for 50% AM at 1 kHz rate): <0.03 radian peak deviation (50 Hz to 3 kHz BW)

### Amplitude Modulation

**Rates:** 20 Hz to 100 kHz

**Depth:** To 99%

**Accuracy**

±2% of reading ±1 digit, 50 Hz to 10 kHz rates, 150 kHz to 10 MHz

±1% of reading ±1 digit, 50 Hz to 50 kHz rates, 10 to 1300 MHz

**Flatness** (variation in indicated AM depth for constant depth on input signal): ±0.3% of reading ±1 digit

**Demodulated Output Distortion:** <0.3% THD

**FM Rejection** (at 400 Hz and 1 kHz rates, 50 Hz to 3 kHz BW): <0.2% AM

**Residual AM** (50 Hz to 3 kHz BW): <0.01% rms

**Maximum Depth Resolution:** 0.01%

### Frequency Counter

**Range:** 150 kHz to 1300 MHz

**Accuracy:** ±3 counts of least significant digit ± reference accuracy

**Internal Reference**

**Frequency:** 10 MHz

**Aging rate:** <1 × 10<sup>-6</sup>/month (optional: 1 × 10<sup>-6</sup>/day)

**Maximum Resolution**

**HP 8901A:** 10 Hz for frequencies <1 GHz; 100 Hz for frequencies ≥1 GHz

**HP 8901B:** 1 Hz

### HP 8901A RF Level (Peak Voltage Responding, RMS Sine Wave Power Calibrated)

**Range:** 1 mW to 1 W

**Instrumentation Accuracy:** ±1.5 dB

**SWR:** ≤1.3, 150 kHz to 650 MHz; ≤1.5, 650 to 1300 MHz

**Maximum Resolution:** 0.001 mW for levels <0.01 W