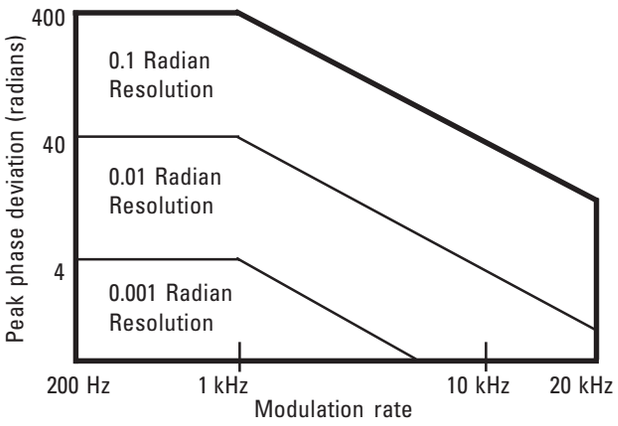
Deviation and Maximum Resolution:



Accuracy: [2] ±3% of reading ±1 digit.

Demodulated Output Distortion: <0.1% THD.

AM Rejection (for 50% AM at 1 kHz rates): [2]
<0.03 radians, peak deviation.

Supplemental Characteristics

Modulation Rates: Usable from 20 Hz to 100 kHz with degraded performance.

Detectors: + peak,–peak, average (rms sine wave calibrated).

Demodulated Output across an Open Circuit (600 Ω output impedance):[4]
1 V/rad when resolution is 0.001 radian.
0.1 V/rad when resolution is 0.01 radian.
0.01 V/rad when resolution is 0.1 radian.

Amplitude Modulation

Rates:
150 kHz to 10 MHz: 20 Hz to 10 kHz.
10 MHz to 1300 MHz: 20 Hz to 100 kHz.

Depth: to 99%.

Accuracy: [2, 5]

150 kHz to 10 MHz: ±2% of reading ±1 digit, 50 Hz to 10 kHz rates, >5% depth.
±3% of reading ±1 digit, 20 Hz to 10 kHz rates.

10 MHz to 1300 MHz: ±1% of reading ±1 digit, 50 Hz to 50 kHz rates, >5% depth.
±3% of reading ±1 digit, 20 Hz to 100 kHz rates.

Flatness (variation in indicated AM depth for constant depth on input signal):
10 MHz to 1300 MHz: ±0.3% of reading ±1 digit, 90 Hz to 10 kHz rates, 20 to 80% depth.

Demodulated Output Distortion: <0.3% THD for ≤50% depth, <0.6% THD for ≤95% depth.

FM Rejection (at 400 Hz and 1 kHz rates, 50 Hz to 3 kHz BW): [2]
250 kHz to 10 MHz: <0.2% AM for <5 kHz_{peak} deviation.
10 MHz to 1300 MHz: <0.2% AM for <50 kHz_{peak} deviation.

Residual AM (50 Hz to 3 kHz BW): <0.01%$_{rms}$.

Supplemental Characteristics

Maximum Depth Resolution:
0.01% for depths ≤39.99%.
0.1% for depths ≥40%.

Detectors: peak [+ peak], trough [–peak], average (rms sine wave calibrated).

Demodulated Output Across an Open Circuit (600 Ω output impedance):[4]
0.1 V/percent when resolution is 0.01%.
0.01 V/percent when resolution is 0.1%.

Frequency Counter

Range: 150 kHz to 1300 MHz.

Sensitivity:
150 kHz to 650 MHz: 12 mV_{rms} (–25 dBm).
650 MHz to 1300 MHz: 22 mV_{rms} (–20 dBm).

Accuracy: Reference accuracy ±3 counts of least significant digit.

Internal Reference:

Frequency: 10 MHz.

Aging Rate: <1x10^{-6}/month.
(Optional: <1x10^{-9}/day)[6].

Supplemental Characteristics

Modes: *Frequency, and frequency error (displays the difference between the frequency entered via the keyboard and the actual RF input frequency).*

Sensitivity in Manual Tuning Mode: Approximate frequency must be entered from keyboard. 0.22 mV_{rms} (–60 dBm).

Maximum Resolution:
10 Hz for frequencies <1 GHz.
100 Hz for frequencies ≥1 GHz.

Internal Reference Accuracy: Overall accuracy is a function of time base calibration ± aging rate ± temperature effects ± line voltage effects ± short term stability.

	Standard	*Option 002*
Aging Rate	*<1 x 10^{-6}/mo.*	*<1 x 10^{-9}/day*
Temperature Effects	*<2 x 10^{-7} /° C*	*<2 x 10^{-10} /° C*
Line Voltage Effects (+5%, –10% line voltage change)	*<1 x 10^{-6}*	*<6 x 10^{-10}*
Short term stability	—	*<1 x 10^{-9} for 1s average*

2 Peak residuals must be accounted for in peak readings.

4 For optimum flatness, cables should be terminated with their characteristic impedance.

5 For peak measurements only, AM accuracy may be affected by distortion generated by the modulation analyzer. In the worst case this can decrease accuracy by 0.1% of reading for each 0.1% of distortion

6 After 30-day warm-up

RF Level

(Peak voltage responding, rms sine wave power calibrated).

Range: 1 mW to 1 W.

Accuracy: ±2 dB, 150 kHz to 650 MHz.
±3 dB, 650 MHz to 1300 MHz.

SWR: <1.5 in a 50 Ω system.

Supplemental Characteristics

Typical Accuracy:
150 kHz to 650 MHz: ±1.0 dB.
650 MHz to 1300 MHz: ±1.5 dB.

Resolution:
0.1 mW for levels 0.1 to 1 W.
0.01 mW for levels 0.01 to 0.1 W.
0.001 mW for levels <0.01 W.

Audio Filters

High Pass (3 dB cutoff frequency): 50 Hz and 300 Hz.

Low Pass (3 dB cutoff frequency except >20 kHz filter): 3 kHz, 15 kHz, >20 kHz.

De-emphasis Filters: 25 µs, 50 µs, 75 µs, and 750 µs. De-emphasis filters are single pole low pass filters whose 3 dB frequencies are 6366 Hz for 25 µs, 3183 Hz for 50 µs, 2122 Hz for 75 µs, and 212 Hz for 750 µs.

Flatness:

50 Hz High Pass: <1% at rates ≥200 Hz.

300 Hz High Pass: <1% at rates ≥1 kHz.

3 kHz Low Pass: <1% at rates ≤1 kHz.

15 kHz Low Pass: <1% at rates ≤10 kHz.

>20 kHz Low Pass: <1% at rates ≤10 kHz.

Supplemental Characteristics

50 Hz and 300 Hz High Pass: Two pole.

3 kHz and 15 kHz Low Pass: Five pole.

>20 kHz Low Pass: Nine pole bessel (typically 3 dB at 100 kHz).

High and Low Pass 3 dB Frequency Accuracy: ±3%.

De-emphasis Filter Time Constant Accuracy: ±3%.

Overshoot on Square Wave Modulation (>20 kHz low pass filter [7]): <1%.

Rear Panel Inputs/Outputs

Supplemental Characteristics

FM Output: 10 kΩ impedance, –9 V to 6 V into an open circuit: ~6 V/MHz, dc coupled, 16 kHz bandwidth (one pole).

AM Output: 10 kΩ impedance, –4 V to 0 V into an open circuit, ~8 mV/%, dc coupled, 16 kHz bandwidth (one pole).

Recorder Output: DC voltage proportional to peak voltage of the modulation output, 1 kΩ impedance, 0 V to 4 V for each resolution range into an open circuit.

IF Output: 50 Ω impedance, 150 kHz to 2.5 MHz, –27 dBm to –3 dBm.

10 MHz Reference Output: 50 Ω impedance, TTL levels (0 V to >2.2 V into an open circuit), available only with Option 002 $1x10^{-9}$/day internal reference, outputs internal reference only.

10 MHz Reference Input: [8] >500 Ω impedance, 0.5 $V_{peak\text{-}to\text{-}peak}$ minimum input level.

LO Input (Option 003): 50 Ω impedance, ~1.27 MHz to 1301.5 MHz, 0 dBm.

Calibrators (Option 010)

AM Calibrator Depth and Accuracy: 33.33% depth nominal, internally calibrated to an accuracy of ±0.1 % .

FM Calibration Deviation and Accuracy: 34 kHz_{peak} deviation nominal, internally calibrated to an accuracy of ±0.1%.

Supplemental Characteristics

Carrier Frequency: 10.1 MHz.

Modulation Rate: 10 kHz.

Output Level: –25 dBm.

General

Temperature:

Operating 0° to 55 °C.

Storage: –55 °C to 75 °C.

Remote Operation: HP-IB; all functions except the line switch are remotely controllable.
HP-IB compatibility; as defined in IEEE 488-1978 is: SH1, AH1, T5, TE0, L3, LEO, SR1, RL1, PP0, DC1, DT1, C0.

EMI: Conducted and radiated interference is within the requirements of methods CE03 and RE02 of MIL STD 461A (for inputs <10 mW), VDE 0871 (Level B), and CISPR publication 11.

7 The >20 kHz low pass filter is intended for minimum overshoot with square wave modulation.

8 External reference accuracy affects accuracy of all measurements.

Conducted and Radiated Susceptibility: Meets requirements of methods CS01, CS02, and RS03 (1 volt/meter) of MIL STD 461A, 1968.

Power: 100, 120, 220, or 240 V (+5, –10%); 48 to 66 Hz; 200 VA max.

Weight: Net 20 kg. (44 lb.); shipping 25 kg. (55 lb.).

Dimensions: 190 mm H x 425 mm W x 468 mm D (7.5 in. x 16.8 in. x 18.4 in.).

Options

HP 8901A Modulation Analyzer

Option 001: Rear panel instead of front panel connections for input, modulation output, calibrators.

Option 002: 1×10^{-9}/day internal reference oscillator.

Option 003: Rear panel connections which allow use with an external local oscillator.

Option 004: Operation from 48 to 440 Hz power line.

Option 010: AM and FM calibrators.

Option 907: Front panel handle kit.

Option 908: Rack mounting flange kit.

Option 909: Front panel handle plus rack mounting flange kit.

Option 910: Extra manual.

Option 915: Service manual.

Related Literature:

Product Overview 5968-1287E

Price List 5968-1285EUS

Warranty Information

This Hewlett-Packard instrument product is warranted against defects in material and workmanship for a period of one year from date of shipment. During the warranty period, Hewlett-Packard Company will at its option, either repair or replace products which prove to be defective.

For warranty service or repair, this product must be returned to a service facility designated by HP. Buyer shall prepay shipping charges to HP and HP shall pay shipping charges, duties, and taxes for products returned to HP from another country.

HP warrants that its software and firmware designated by HP for use with an instrument will execute its programming instructions when properly installed on that instrument. HP does not warrant that the operation of the instrument, or software, or firmware will be uninterrupted or error free.

Limitation Of Warranty

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance by buyer, buyer-supplied software or interfacing, unauthorized modification or misuse, operation outside of the environmental specifications for the product, or improper site preparation or maintenance. No other warranty is expressed or implied. Hewlett-Packard specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

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