

ELECTRONIC COUNTERS

CW Microwave Frequency Counters

Models 5342A & 5343A

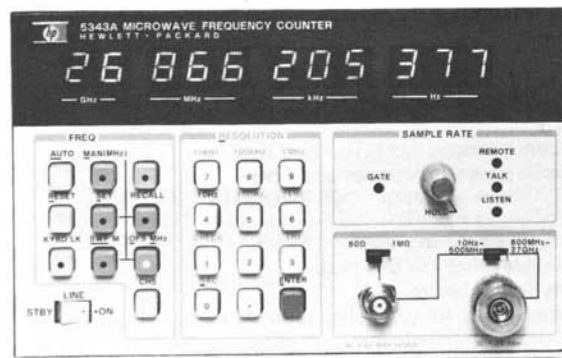
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- Automatic measurements to 18 GHz/26.5 GHz
- Portability
- Wide FM tolerance

- Amplitude measurement in dBm (HP 5342A Option 002)
- High input sensitivity
- Digital-to-analog converter (Option 004)



HP 5342A



HP 5343A



HP 5342A & 5343A Microwave Counters

Portability

The HP 5342A and HP 5343A Microwave Counters provide automatic frequency measurement to 18 or 26.5 GHz in highly portable packages. The operating range of the HP 5342A can be extended to 24 GHz with Option 005.

Amplitude Measurements (Option 002, HP 5342A only)

Option 002 adds the ability to measure and display the power level of the input in dBm. The 11-digit LED display presents amplitude measurement to 0.1 dBm resolution. Also, the same option extends the instrument's dynamic range to enable frequency measurements to +22 dBm.

FM Tolerance

Measuring a carrier frequency while it is being frequency modulated has broad appeal in the communication industry and elsewhere. Both the HP 5342A and HP 5343A can tolerate peak-to-peak FM deviation to 50 MHz.

Option 004 lets you convert any three consecutive displayed digits (frequency or amplitude) into an analog voltage output on the rear panel. This makes the monitoring of microwave-oscillator-frequency drift easy to make with only a stripchart recorder.

Scaling and Offset Functions

The versatility of the microprocessor-controlled keyboard allows you to perform math functions by means of a few key strokes. Frequency values to 1 Hz resolution can be added to or subtracted from the measured frequency for IF offset application. The HP 5343A also offers an $mx \pm b$ mode for both scaling and offset functions.

HP 5342A Specifications

Signal Input

Input 1

Frequency range: HP 5342A: 500 MHz to 18 GHz.

HP 5343A: 500 MHz to 26.5 GHz.

Sensitivity: HP 5342A: 500 MHz to 12.4 GHz: -25 dBm.
12.4 GHz to 18 GHz: -20 dBm.

HP 5343A: 500 MHz to 12.4 GHz: -33 dBm.
12.4 GHz to 18 GHz: -28 dBm.
18.0 GHz to 26.5 GHz: -23 dBm.

Maximum input: +7 dBm (See Option 002, 003 for higher levels).

Impedance: 50, nominal.

Connector: HP 5342A: Precision Type N female.

HP 5343A: APC 3.5 male with collar.

Damage level: +25 dBm, peak (See Option 006 for +39 dBm protection).

Coupling: dc to load, ac to instrument.

SWR: < 2:1, 500 MHz-10 GHz.

< 3:1, 10 GHz-18 GHz/26.5 GHz.

FM tolerance: switch selectable (rear panel)

Wide: 50 MHz p-p worst case.

Normal: 20 MHz p-p worst case.

Narrow: (HP 5343A only) 6 MHz p-p worst case.

For Modulation Rates from dc to 10 MHz.

AM tolerance: any modulation index provided the minimum signal level is not less than the sensitivity specification.

Automatic amplitude discrimination: automatically measures the largest of all signals present, providing that signal is 6 dB above any signal within 500 MHz; 20 dB above any signal, 500 MHz-18 /26.5 GHz.

Modes of Operation

Automatic: counter automatically acquires and displays highest level signal within sensitivity range.

Manual: center frequency entered to within ± 40 MHz of true value.

Acquisition Time

Automatic Mode

Narrow FM 200 ms worst case (HP 5343A only)

Normal FM 530 ms worst case

Wide FM 2.4 s worst case

Manual mode: 80 ms after frequency entered.

Input 2

Frequency range: 10 Hz to 520 MHz direct count.

Sensitivity: 50 Ω : 10 Hz to 520 MHz: 25 mV rms. 1 M Ω : 10 Hz to 25 MHz: 50 mV rms.

Impedance: selectable 1 M Ω , <50 pF or 50 Ω nominal.

Coupling: ac.

Connector: type BNC female.

Maximum input 50 Ω : 3.5 V rms (+24 dBm) or 5 V dc, fuse protected

1 M Ω : 200 V dc + 5 V rms.

Time Base

Crystal frequency: 10 MHz.

Stability

Aging rate: $< 1 \times 10^{-7}$ /month.

Temperature: $< \pm 1 \times 10^{-6}$ over the range 0°C to 50°C.

Short term: $< 1 \times 10^{-9}$ for 1 second averaging time.

Line variation: $< \pm 1 \times 10^{-7}$ for 10% change from nominal.

Output frequency: 10 MHz, ≥ 2.4 V square wave (TTL compatible) 1.5 p-p V into 50 Ω available from rear panel BNC.

External time base: requires 10 MHz, 3.0 V p-p sine wave or square wave into 1 k Ω via rear panel BNC connector. Switch selects either internal or external time base.