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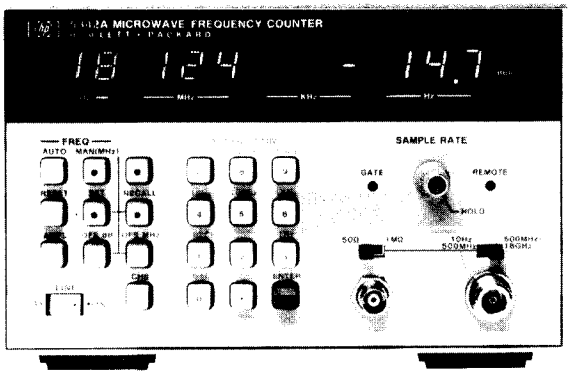
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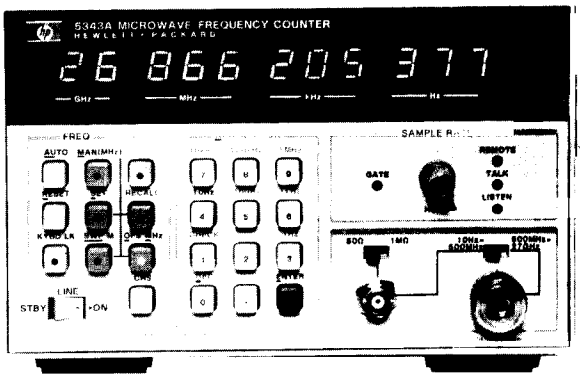
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Find the *Keysight / Agilent 5342A* at our website: ***Click HERE***

- 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.

Digital-To-Analog Converter (Option 004)

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 ± 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, (Typical) 500 MHz–10 GHz
< 3:1, (Typical) 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 MΩ: 10 Hz to 25 MHz: 50 mV rms.
Impedance: selectable 1 MΩ, <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 MΩ: 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 kΩ via rear panel BNC connector. Switch selects either internal or external time base.

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ELECTRONIC COUNTERS
Automatic Microwave Counters
HP 5342A & 5343A

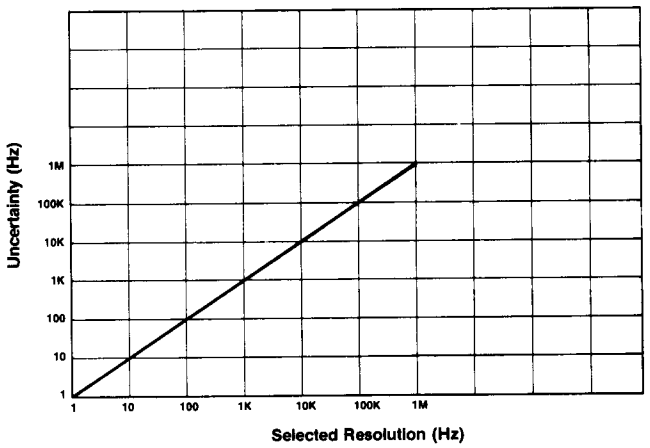
Optional Time Base (option 001)
Crystal frequency: 10 MHz.
Stability
Aging rate: $<5 \times 10^{-10}$/day after 24-hour warmup.
Temperature: $<7 \times 10^{-9}$ over the range 0°C to 50°C.
Short term: $<1 \times 10^{-10}$ for 1 second averaging time.
Line variation: $<1 \times 10^{-10}$ for 10% change from nominal.
Warm-up: $<5 \times 10^{-9}$ of final value 20 minutes after turn-on, at 25°C.

Amplitude Measurement (opt 002) (HP 5342A only)
Input 1
Frequency range: 500 MHz–18 GHz.
Dynamic range (frequency and level)
−22 dBm to +22 dBm 500 MHz to 12.4 GHz
−15 dBm to +22 dBm 12.4 GHz to 18 GHz
Maximum operating level: +22 dBm.
Damage level: +25 dBm, peak.
Resolution: 0.1 dBm.
Accuracy: ±1.5 dB (excluding mismatch uncertainty).
SWR: <2:1 Typical (amplitude measurement).
<5:1 Typical (frequency measurement).
Measurement time: 100 ms + frequency measurement time.
Display: simultaneously displays frequency to 1 MHz resolution and level. (Option 011 provides full frequency resolution on HP-IB).
Input 2 (50 Ω impedance only)
Frequency range: 10 MHz–520 MHz.
Dynamic range (frequency and level): −17 dBm to +20 dBm.
Damage level: +24 dBm.
Accuracy: ±1.5 dB (excluding mismatch uncertainty).
SWR: <1.8:1 Typical
Measurement time: 100 ms + frequency measurement time.
Display: simultaneously displays frequency and input level.

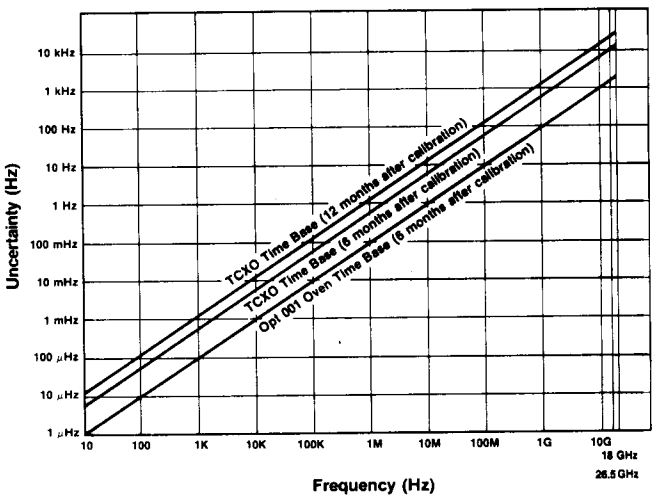
Extended Dynamic Range (opt 003) (HP 5342A only)
Frequency range: 500 MHz to 18 GHz.
Sensitivity: 500 MHz to 12.4 GHz: −22 dBm.
12.4 GHz to 18 GHz: −15 dBm.
Maximum operating level: +22 dBm.
Dynamic range: 500 MHz to 12.4 GHz: 44 dB.
12.4 GHz to 18 GHz: 37 dB.
Damage level: +25 dBm, peak.
SWR: <5:1.

Microwave Limiter (option 006)
Input 1
Frequency range: HP 5342A: 500 MHz – 18 GHz.
HP 5343A: 500 MHz – 26.5 GHz.
Sensitivity: HP 5342A: 500 MHz – 12.4 GHz: – 21 dBm.
12.4 GHz – 18 GHz: – 15 dBm.
HP 5343A: 500 MHz – 12.4 GHz: –30 dBm.
12.4 GHz – 18 GHz: – 24 dBm.
18 GHz – 26.5 GHz: – 18 dBm.
Maximum operating level: + 7 dBm.
Damage level: 500 MHz – 6 GHz: +39 dBm (8W).
6 GHz – 18 GHz: +36 dBm (4W).
(HP 5343A only) 18 GHz – 26.5 GHz: +34.8 dBm (3W).
SWR: 2.5:1, 500 MHz – 10 GHz.
3.5:1, 10 GHz – 18 GHz/26.5 GHz.
Note: Option 006 is incompatible with Option 002, Option 003, and Option 005 for HP 5342A. Please consult factory special to combine Options 005 and 006.

General
Accuracy: ±1 LSD ± time-base error.
Resolution: front panel push buttons select 1 Hz to 1 MHz.
Display: 11 digit LED display, sectionalized to read GHz, MHz, kHz, and Hz.
Self-check: selected from front panel pushbuttons displays 75 MHz for resolution chosen.
Frequency offset: selected from front panel pushbuttons. Displayed frequency is offset by entered value to 1 Hz resolution.
Frequency multiply: (HP 5343A only) (mx ±b) measured data is multiplied by any integer up to 99. Offset can then be added or subtracted. Front-panel selectable.
Totalize (HP 5343A only): input 2 can totalize at rates up to 520 MHz. Readout on the fly is controlled by front panel or HP-IB.
Sample rate: variable from less than 20 ms between measurements to HOLD which holds display indefinitely.
IF out: rear panel BNC connector provides 25 MHz to 125 MHz output of down-converted microwave signal.
Power requirements: 100/120/220/240 V rms, +5%, −10%, 48–66 Hz; 100 VA max.
Weight: net 9.1 kg (20 lb). Shipping 12.7 kg (28 lb).
Size: 133 H x 213 W x 498 mm D (5.25″ x 8.38″ x 19.6″).



Graph 1. Uncertainty due to selected resolution.



Graph 2. Uncertainty due to time base error can be reduced by calibrating the time base more frequently, or by using a time base with a lower aging rate.

Ordering Information	Price
HP 5342A Frequency Counter	$11,000
HP 5343A Frequency Counter	$12,600
Options and Accessories (both models)	
Opt 001 High Stability Time Base	+ $900
Opt 002 Amplitude Measurement (HP 5342A Only)	+ $2,500
Opt 003 Extended Dynamic Range (HP 5342A Only)	+ $795
Opt 004 Digital-To-Analog Converter	+ $400
Opt 005 Frequency Extension to 24 GHz (HP 5342A Only)	+ $500
Opt 006 Limiter Input Protection (+39 dBm)	+ $850
Opt 011 Digital Input/Output (HP-IB) (Cable Not Incl)	+ $550
Opt 908 Rack Mounting Adapter Kit	+ $100
Opt 1A3 Bellcore CLEI Barcode Sticker	+ $30

For a comparable product, see the HP 5347 counter/power meter on page 118.
HP K70-59992A: Rack Mounting Adapter Kit With Slot for access to front connectors from rear.
HP 10842A: Extender Board Kit $800

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