

KEYSIGHT TECHNOLOGIES (AGILENT HP)

5340A

The Keysight / HP 5340A is a classic, high-performance microwave frequency counter capable of direct measurements from 10 Hz up to 18 GHz (and optionally 23 GHz) via a single input connector. Highly regarded for its exceptional sensitivity, automatic amplitude discrimination, and high AM/FM tolerance, it remains a standard utility counter in many RF and microwave testing environments.

SPECIFICATIONS

General

Display	8-digit LED display with overflow indicator and neon decimal points
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Physical

Power Supply	100 / 120 / 220 / 240 VAC (+5%, -10%), 48 to 66 Hz, 100 VA maximum
Operating Temperature	0 to 50 °C °C
Dimensions (W×H×D)	425 mm × 133 mm × 487 mm mm
Weight	10.9 kg

Frequency & Measurement

Frequency Range - Microwave Input	10 MHz to 18 GHz (up to 23 GHz with Option 005)
Frequency Range - Low Frequency Input	10 Hz to 250 MHz
Resolution	Selectable from 1 Hz to 1 MHz via front-panel switch
Least Significant Digit (LSD) Displayed	1 Hz (selectable)
FM Tolerance	Up to 40 MHz peak-to-peak deviation
Number of Channels	2 channels
Acquisition Time	Under 150 ms (typical)

Input Characteristics (Microwave Input)

Connector Type (Microwave Input)	Type N female
Input Impedance (Microwave Input)	50 Ω
Input Coupling (Microwave Input)	AC
Sensitivity (10 Hz to 500 MHz, Microwave)	-35 dBm (10 MHz to 12.4 GHz)
Sensitivity (500 MHz to 16 GHz, Microwave)	-35 dBm (10 MHz to 12.4 GHz)
Sensitivity (16 GHz to 18 GHz, Microwave)	-25 dBm (12.4 GHz to 18 GHz)
Maximum Input Level (Microwave Input)	+7 dBm
Damage Level (Microwave Input)	+30 dBm (1 Watt) peak RF power

Input Characteristics (Low Frequency Input)

Connector Type (Low Frequency Input)	BNC female
Input Impedance (Low Frequency Input)	1 M Ω shunted by < 30 pF
Input Coupling (Low Frequency Input)	AC
Sensitivity (Low Frequency Input)	50 mV rms (10 Hz to 250 MHz)

Internal Time Base (Reference Oscillator)

Nominal Reference Frequency	10 MHz
Aging Rate	< 3 x 10 ⁻⁷ per month
External Reference Input Frequency	10 MHz
External Reference Input Level	1.0 V rms minimum into 1 k Ω
Internal Reference Output Frequency	10 MHz
Internal Reference Output Level	> 1.0 V rms into 50 Ω

Display & User Interface

Self-Check Mode	Front-panel CHECK button redirects internal 10 MHz reference to verification loop
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Physical & Environmental

Storage Temperature Range	-40 °C to +75 °C
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Options & Accessories

Option 001	High-Stability Oven Timebase (< 5 x 10 ⁻¹⁰ per day aging)
Option 002	Rear Panel Digital BCD Output (Standard HP Pinout)
Option 005	Frequency extension from 18 GHz to 23 GHz
Option 011	HP-IB (IEEE-488) Remote Control Interface

Time Base

Line Voltage Stability (Standard Time Base)	< 1 x 10 ⁻⁸ for 10% line voltage change
Line Voltage Stability (Option 001)	< 1 x 10 ⁻⁹ for 10% line voltage change
Warm-Up Time (Option 001)	20 minutes to be within 5 x 10 ⁻⁹ of final value
Short Term Stability (Standard Time Base)	< 1 x 10 ⁻⁹ RMS for 1 s average
Short Term Stability (Option 001 Time Base)	< 1 x 10 ⁻¹⁰ RMS for 1 s average
Warm-Up Time (Standard Time Base)	Instantaneous (operates within standard specifications immediately)

Operation

Acquisition Mode	Automatic or Manual (selectable)
Manual Mode Center Frequency Range	10 MHz to 18 GHz (to 23 GHz with Option 005) in 100 MHz steps

Microwave Input

Input VSWR (Microwave Input, 10 MHz to 10 GHz)	< 2.0:1 typical
Input VSWR (Microwave Input, 10 GHz to 18 GHz)	< 3.0:1 typical

Power Requirements

Power Consumption	100 VA maximum (Option 011 adds approximately 5 VA)
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Measurement Control

Sample Rate	Continuously adjustable from < 100 ms to > 5 s, or HOLD
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Low Frequency Input

Low Frequency Input Shunt Capacitance	< 50 pF
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Interfaces

HP-IB Interface Function Codes	SH1, AH1, T5, TE0, L4, LE0, SR1, RL1, PP0, DC1, DT1, C0
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Options

Option 003 Input Limiter	Provides internal limiter to protect the microwave input sampler up to +43 dBm
Option 004 Parallel BCD Output	Provides rear panel parallel BCD digital output representing the display

Microwave Input (Input 1)

Damage Level with Option 003 (Microwave Input)	+43 dBm (20 W) continuous up to 10 GHz; +40 dBm (10 W) continuous from 10 GHz to 18 GHz
Sensitivity with Option 003 (10 MHz to 500 MHz)	-30 dBm
Sensitivity with Option 003 (500 MHz to 12.4 GHz)	-25 dBm
Sensitivity with Option 003 (12.4 GHz to 16 GHz)	-20 dBm
Sensitivity with Option 003 (16 GHz to 18 GHz)	-15 dBm

Performance

Maximum Tracking Speed (Auto Mode)	350 MHz/s
Maximum Tracking Speed (Manual Mode)	1.2 GHz/s
Gate Time Range	1 ms to 1 s (resolution-setting dependent)

TECHNOLOGY

Superheterodyne with automatic phase lock loop (PLL)

APPLICATIONS

Microwave and RF frequency measurement

