

KEYSIGHT TECHNOLOGIES (AGILENT HP)

5334B

The Keysight Agilent HP 5334B is a highly reliable 100 MHz universal frequency counter and timer. It features 2 ns single-shot time interval resolution and 200 ps average resolution. With two matched 100 MHz channels and an optional 1.3 GHz Channel C, the 5334B offers comprehensive pulse parameter measurements, automatic triggering, and standard HP-IB connectivity.

SPECIFICATIONS

General

Interfaces	HP-IB (IEEE-488)
Display	9-digit yellow LED

Physical

Power Supply	100 / 120 / 220 / 240 VAC (+10%, -13%), 48 to 66 Hz, 40 VA maximum
Operating Temperature	0 to 50 °C °C
Dimensions (W×H×D)	425 mm × 88 mm × 356 mm mm
Weight	5.3 kg kg

Input Channels A & B

Frequency Range (DC Coupled)	DC to 100 MHz
Frequency Range (AC Coupled)	10 Hz to 100 MHz
Input Impedance	1 MΩ (with parallel capacitance < 40 pF) or 50 Ω (selectable)
Input Coupling Options	AC or DC (selectable)
Attenuator Settings	×1 or ×10 (selectable)
Low Pass Filter	100 kHz nominal (switchable)
Trigger Level Range	−5.10 V to +5.10 V (in ×1 mode) or −51.0 V to +51.0 V (in ×10 mode)
Trigger Level Resolution	20 mV (in ×1 mode) or 200 mV (in ×10 mode)
Trigger Slope Selection	Positive or negative (independent for A and B)
Sensitivity (Sine Wave)	15 mV rms (DC to 20 MHz), 35 mV rms (20 MHz to 100 MHz)
Sensitivity (Pulse)	50 mV peak-to-peak
Minimum Pulse Width	5 ns
Damage Level (1 MΩ)	40 V rms (DC to 20 kHz), decreasing to 15 V rms at 100 kHz, and 5 V rms at 10 MHz and above
Damage Level (50 Ω)	5 V rms

Optional Channel C Characteristics

Frequency Range (Channel C)	90 MHz to 1.3 GHz (Option 030)
Sensitivity (Channel C)	15 mV rms (90 MHz to 1 GHz), 75 mV rms (1 GHz to 1.3 GHz) (Option 030)
Input Impedance (Channel C)	50 Ω nominal (Option 030)
Input Coupling (Channel C)	AC (Option 030)
Damage Level (Channel C)	5 V rms (+27 dBm) (Option 030)
Connector Type (Channel C)	BNC female (Option 030)

Measurement Functions & Performance

Frequency Measurement Range	0.001 Hz to 100 MHz
Period Measurement Range	10 ns to 10^7 s
Time Interval Range	10 ns to 10^7 s
Time Interval Delay Range	1 ms to 99.9 s
Pulse Width Range	5 ns to 10^7 s
Rise/Fall Time Range	20 ns to 10 ms
Duty Cycle Range	1% to 99%
Phase Measurement Range	-180° to $+360^\circ$
Frequency Ratio (A/B) Range	10^{-9} to 10^9
Totalize Range	0 to 10^{12}

Timebase & Reference Oscillator

Standard Reference Frequency	10 MHz
Aging Rate per Month	Less than 3×10^{-7} (standard crystal)
Temperature Stability	Less than 5×10^{-6} (0 to 50 $^\circ\text{C}$, standard crystal)
Line Voltage Stability	Less than 1×10^{-7} for $\pm 10\%$ line voltage change
External Reference Input Frequency	1, 2, 5, or 10 MHz
External Reference Input Level	1 V rms to 5 V rms into 1 k Ω
Internal Reference Output Frequency	10 MHz
Internal Reference Output Level	> 1.0 V p-p into 50 Ω

Resolution & Accuracy

Single-Shot Time Interval Resolution	2 ns
Time Interval Average Resolution	200 ps (for $N \geq 100$)
Least Significant Digit (LSD)	9 digits per second of gate time

System & Gate Controls

Gate Time Range	Continuously adjustable from nominal 1 ms to 99.0 s
External Arming	Rear-panel start and/or stop arming controls
Math Functions	Offset and Scale

Connectivity & Remote Interface

GPIO (HP-IB) Capability Codes	SH1, AH1, T5, TE0, L4, LE0, SR1, RL1, PP0, DC1, DT1, C0, E1
Trigger Level Output Ports	Rear panel DC outputs for Channel A and Channel B monitoring

Environmental & Compliance

Storage Temperature Range	−40 to 75 °C
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Options & Accessories

Option 010	High Stability Oven Timebase (aging rate $< 5 \times 10^{-10}$ per day)
Option 020	DC Digital Voltmeter (DVM)
Option 030	1.3 GHz Channel C Input
Option 060	Rear Panel Inputs (moves A, B, and C to rear panel)

Input Characteristics

Input Capacitance (Channel A/B)	$< 35 \text{ pF}$
Input Configurations	Separate or Common A

Triggering

Auto Trigger Frequency Range	100 Hz to 100 MHz
Auto Trigger Minimum Amplitude	100 mV rms
Trigger Level Accuracy (x1 Attenuation)	$\pm 15 \text{ mV} \pm 3.5\%$ of trigger level setting
Trigger Level Accuracy (x10 Attenuation)	$\pm 150 \text{ mV} \pm 3.5\%$ of trigger level setting

External Arming

External Arming Input Impedance	1 k Ω nominal
External Arming Minimum Pulse Width	15 ns
External Arming Setup Time	20 ns

Rear Panel Outputs

Gate Output Port	Rear panel BNC, TTL levels
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Power Requirements

Power Consumption	70 VA maximum
Line Frequency	48 Hz to 66 Hz

Option 020 (Digital Voltmeter)

DVM Input Impedance (Option 020)	10 M Ω
DVM Voltage Ranges (Option 020)	$\pm 10 \text{ V}$, $\pm 100 \text{ V}$, $\pm 1000 \text{ V}$

Option 010 High-Stability Oven Timebase

Option 010 Oven Timebase Aging Rate Per Day	$< 5 \times 10^{-10}$ per day after 24 hours of continuous operation
Option 010 Oven Timebase Temperature Stability	$< 7 \times 10^{-9}$ (0 °C to 50 °C)
Option 010 Oven Timebase Warm-up Time	Within 5×10^{-9} of final value in 20 minutes

Option 020 Digital Voltmeter

Option 020 DVM Accuracy (10 V & 100 V Ranges)	$\pm(0.045\%$ of reading + 0.015% of range)
Option 020 DVM Accuracy (1000 V Range)	$\pm(0.06\%$ of reading + 0.015% of range)
Option 020 DVM Maximum Input Voltage	± 1000 V (DC + Peak AC) on any range
Option 020 DVM Resolution	4.5 digits
Option 020 DVM Input Connectors	Dual banana jacks (front panel)

HP-IB Interface

HP-IB Max Data Output Rate	Up to 140 readings per second (Fast Mode)
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Measurement Specifications

Phase Measurement Frequency Range	1 Hz to 1 MHz
Phase Measurement Resolution	0.1°
Duty Cycle Measurement Frequency Range	1 Hz to 100 MHz
Duty Cycle Measurement Range	1% to 99%
Rise/Fall Time Measurement Range	15 ns to 100 ms
Rise/Fall Time Minimum Pulse Amplitude	100 mV pk-pk

Environmental & Reliability

Operating Humidity Range	Up to 95% RH at 40 °C (non-condensing)
Operating Altitude	Up to 4,600 m (15,000 ft)
Storage Altitude	Up to 15,240 m (50,000 ft)

Physical Options

Option 908 Rack Mount Kit	Rack mount flange kit
Option 913 Rack Mount Kit with Handles	Rack mount flange kit with handles

TECHNOLOGY

Universal Counter/Timer

APPLICATIONS

Precision frequency, period, time interval, and rise/fall time measurements

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.