HP 5361B

- Frequency extensions to 26.5 GHz, 40 GHz
- Measure frequency (pulsed or CW), PRI, PRF, pulse width, off-time, and frequency profiles directly

HP 5361B

HP 5361B Pulse/CW Microwave Counter

The HP 5361B offers both high-precision pulse and CW performance. With built-in frequency modulation profiling, the HP 5361B characterizes radar, EW, and communications systems or components. This counter lowers your equipment costs by eliminating the need for a separate CW counter, pulse generator, and computer.

Key features include:

Pulse measurements: Frequency, PRF, PRI, pulse width, and off-time.
Frequency profiling: Characterize frequency transients, modulation (such as chirp), and linearity using the PROFILE function. No external gate is required.
Fast track: Measure a signal that is sweeping at up to 800 MHz/s.
Low FM rate: Measure signals that vary slowly in frequency.
Simplified operation: To offload the operator, built-in automatic functions include calibration, signal assessment (pulsed or CW), signal acquisition, gate width calculation and setting, gate positioning, PRF mode, tracking of sweeping signals, pulse averaging for desired resolution and measurement display.
Scope-View: Set up externally gated measurements by viewing the down-converted pulse with a dc offset.

The HP 5361B is a cost-effective choice for manufacturing and service. High-speed throughput saves operator time and lowers cost. Periodic maintenance is limited to time-base calibration.

For radars, VCOs, and DTOs, the HP 5631B makes frequency, timing, and profiling measurements at the touch of a button. The counter makes more complex measurements for the carrier frequency of agile signals, staggered PRIs, or the frequency transients in a pulsed or CW signal. With one instrument you can characterize radar pulses or test a Stable Local Oscillator (STALO). Functions for measuring step response, post-tuning drift, and settling time facilitate accurate and easy testing of VCOs and DTOs.

Summary Specifications

Input Characteristics

	Input 1 (50 Ω)	Input 2 (1M Ω)	Input 2 (50 Ω)
Frequency range	500 MHz to 20, 26.5, 40 GHz	10 Hz to 80 MHz	10 MHz to 525 MHz
Sensitivity		25 mV rms	25 mV rms
0.5 to 12.4 GHz	–28 dBm		
12.4 to 20 GHz	–23 dBm		
0.5 to 26.5 GHz (Option 026, 040)	–20 dBm		
26.5 to 40 GHz (Option 040)	0.37 x f (in GHz) –29.8 dBm		

Frequency (Input 1)

Automatic and Manual Acquisition: 500 MHz to 20 GHz; 500 MHz to 26.5 GHz (Option 026); 500 MHz to 40 GHz (Option 040)
Least Significant Digit: 1 MHz to 1 Hz for frequency, 0.001 Hz for PRF
Pulse Frequency Measurements
- **Pulse Width** (minimum): Manual mode, 60 ns; auto mode, 100 Ns
- **Pulse Rep. Freq.:** Minimum 1 Hz; maximum 2 MHz
- **Measurement Time, Resolution, Accuracy:** See data sheet

CW Frequency Measurements
- **FM Tolerance:** 55 MHz peak-to-peak
- **Tracking Speed** (fast acquisition): 800 MHz/s
- **Acquisition Time:** Manual mode, <40 ms; automatic mode, fast acq., <100 ms
- **Gate Times** (1 Hz resolution): 200 to 1000 ms
- **Measurement Time:** ≥ 8.5 ms (in Dump Mode)

Accuracy: See data sheet

Pulse Parameters (Input 1)

	Pulse width	PRI	Offtime	PRF
Min./Max.	60 ns/10 ms	500 ns/1 s	400 ns/1 s	1 Hz/2 MHz to 0.001 Hz
LSD	(PW < 1 ms) 1 ns; (PW≥ 1 ms) 100 ns			
Accuracy (100 Avg.)	± (20 ns + timebase uncertainty x measurement ± LSD			± (20 ns) x (PRF)² ± LSD ± timebase uncertainty

Profile (Input 1)

Frequency Range (min./max. for Y axis): 500 MHz/40 GHz
FM Chirp Tolerance (max. span for Y axis): 50 MHz peak-to-peak
Time Range (min./max. for span x axis): 100 ns/10 ms
Time Resolution: 1 ns
Internal Gate Width: Minimum: 11 to 23 ns; typical minimum: 14 ns
External Gate Width: Minimum: manual acquisition 20 ns; auto-acquisition 60 ns
Number of Data Points: Up to 100
Profile Frequency Measurements
- **Printers Supported:** HP 2225A, HP 2227B, HP 3630A Option 002
- **Profile Phase Measurements:** See Application Note 377-4 for details. Computer required.

Frequency (Input 2)

Range: 10 Hz to 525 MHz
Accuracy: 0.001 to 1 Hz
Resolution / LSD: 0.001 to 1 Hz

Options

Option 001 Oven Timebase: Aging rate < 5 x 10^{-10} / day
Option 006, Increased Damage Level: Pulsed, + 50 dBm (100 W) peak; CW, +39 dBm (8 W)
Option 010 High-Stability Oven Timebase: Aging rate < 7 x 10^{-10} /week (Standard timebase: Aging rate < 1 x 10^{-7} /month)
Option 026: Frequency extensions for input 1 to 26.5 GHz
Option 040: Frequency extensions for input 1 to 40 GHz

Ordering Information

	Price
HP 5361B Pulsed/CW Microwave Counter	$14,500
Opt 001 Oven Timebase	+$1,100
Opt 006 Microwave Limiter	+$1,020
Opt 010 High-Stability Timebase	+$2,000
Opt 026 26.5 GHz Frequency Extension	+$2,650
Opt 040 40 GHz Frequency Extension	+$7,140
Opt 908 Rackmount Kit for Use with Front Handles Removed	+$50
Opt 910 Additional Operating and Programming Manual	+$85
Opt 913 Rackmount Kit for Use With Supplied Front Handles	+$50
Opt 915 Service Manual	+$325
Opt W30 Extended Repair Service (see page 71)	+$380
Opt W32 Calibration Service (see page 71)	+$586