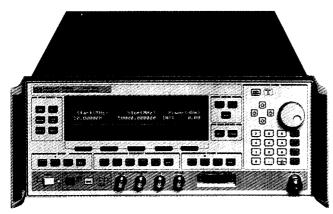


SIGNAL SOURCES

Synthesized Sweepers, 10 MHz to 50 GHz (or 110 GHz) HP 8360 Series

- 1 Hz frequency resolution (Option 008)
- · Low spurious and phase noise
- + 20 dBm to 110 dBm calibrated output (Option 001)



HP 8360 Series Synthesized Sweepers

The HP 8360 series synthesized sweepers are the standard of excellence for applications requiring the high performance and accuracy of a synthesized source and the speed and versatility of a sweep oscillator.

Synthesized broadband frequency coverage and precise 1 Hz frequency resolution (Option 008) are generated by indirect synthesis, enabling the HP 8360 to achieve low single-sideband phase noise performance.

The HP 8360 delivers excellent harmonic performance with harmonics at least 50 dB below the carrier from 2.2 to 20 GHz, and at least 35 dB below the carrier above 20 GHz.

Pulse, Scan, Amplitude, and Frequency Modulation High-performance pulse modulators with > 80 dB on/off ratio, and rise/fall times < 10 ns (Option 006), make the HP 8360 suitable for the most demanding pulse modulation applications.

In addition to its linear AM mode (100%/V), the HP 8360 offers a scan modulation mode (10 dB/V). Both modes have dc-coupled amplitude modulation capability with a 3 dB bandwidth of 100 kHz, and 99.7% (50 dB) of modulation depth. Pulse and amplitude modulation capabilities can be used independently and simultaneously.

The HP 8360 also offers de-coupled frequency modulation capabilities with rates up to 8 MHz.

Millimeter Signals

When the HP 8360 series is used to drive the HP 83550 series millimeter-wave modules, they provide millimeter test signals from 26.5 to 110 GHz. The source modules offer leveled high output power, full waveguide band coverage, and frequency accuracy and resolution proportional to the HP 8360 used.

The HP 83550 source modules can be driven directly by the HP 83623 and 83624 synthesized sweepers. Other HP 8360 models can drive the source modules through the HP 8349B amplifier.

Specification Summary

Frequency

Range (by model): HP 83620A 10 MHz to 20 GHz

HP 83622A 2 to 20 GHz

HP 83623A 10 MHz to 20 GHz (high power)

HP 83624A 2 to 20 GHz (high power) HP 83630A 10 MHz to 26.5 GHz HP 83640A 10 MHz to 40 GHz HP 83650A 10 MHz to 50 GHz

Resolution: 1 kHz standard, 1 Hz optional

Time base: Internal 10 MHz time base. Aging rate: less than

 5×10^{-10} /day, 1×10^{-3} /year after 30-day warm-up.

RF Output¹

Range: +20 to -110 dBm with Opt 001 Resolution: 0.02 dB

Maximum Leveled Power (by model): **HP 83620A** +13 dBm

HP 83630A - 10 dBm **HP 83640A HP 83622A** +13 dBm-6 dBm **HP 83623A** +17 dBm**HP 83650A** +2.5 dBm **HP 83624A** $\pm\,20~dBm$

RF Output Connector: 3.5 mm on 20 GHz models, 2.4 mm on 40 and 50~GHz models; nominal $50~\Omega$ output impedance 'Maximum leveled output power is reduced by 1.5 to 2.5 dB between .01 and 50 GHz

- · Pulse, amplitude, and frequency modulation
- Complete analog sweeper
- < 50 dBc harmonics 2.2 to 20 GHz

Spectral Purity

Harmonics and subharmonics:

-50 dBc at output frequencies < 20 GHz 40 dBc at output frequencies < 40 GHz

< -35 dBc at output frequencies > 40 GHz Non-harmonically related spurious:

< -60 dBc at output frequencies < 20 GHz < -52 dBc at output frequencies > 20 GHz

Single-sideband phase noise (dBc/1 Hz BW, CW mode): Offset from carrier

Frequency range (GHz)	100 Hz	1 kHz	10 kHz	100 kHz
0.01 to 7.0	- 70	78	-86	- 107
7.0 to 13.5	- 64	-72	- 80	- 101
13.5 to 20.0	- 60	- 68	- 76	-97
20.0 to 26.5	- 58	- 66	-74	9 5
26.5 to 38.0	- 54	-62	-70	-91
38.0 to 40.0	- 54	- 62	 7 0	-91
40.0 to 50.0	- 52	-60	-68	- 89

Modulation

Pulse modulation

On/off ratio: > 80 dB

Rise and fall times: <25 ns (<10 ns optional)

Minimum internally leveled RF pulse width: $<1 \,\mu s$ Minimum RF pulse width: $<50 \, ns$ (15 ns with Opt 006)

Scan and amplitude modulation Rates (3dB BW): dc to 100 kHz

Depth: 0 to 90% (20 dB) and 0 to 99.7% (50 dB) above 10 Hz

Sensitivity: 100%/V and 10 dB/V

Frequency modulation

Locked mode

Modulation rate (3 dB BW, 500 kHz deviation): 100 kHz to

8 MHz

Maximum deviations: 8 MHz

Unlocked mode

Modulation rate (3 dB BW, 500 kHz deviation): dc to 8 MHz

Maximum deviations: At rates $\leq 100 \text{ Hz}$: $\pm 75 \text{ MHz}$ At rates > 100 Hz: $\pm 8 \text{ MHz}$

Sensitivity: 1 MHz/V or 10 MHz/V, user-selectable

Internal Modulation Generator (Opt 002)

AM, FM

Waveforms: Sine, square, triangle, ramp, noise Rate range: Sine: 1 Hz to 1 MHz

Square, triangle, ramp: 1 Hz to 100 kHz

Rate resolution: 1 Hz

Depth, deviation

Range and accuracy: Same as base instrument

Resolution: 0.1%

Modes: Free-run, gated, triggered, delayed

Period range: 300 ns to 400 ms Resolution: 25 ns Width range: 25 ns to 400 ms Accuracy: 5 ns

Video delay

Internal sync pulse: 0 to 400 ms

Externally supplied sync pulse: 225 ns to 400 ms

Ordering Information	Price			
HP 83620A Synthesized Sweeper	\$38,350			
HP 83622A Synthesized Sweeper	\$34,250			
HP 83623A Synthesized Sweeper	\$46,100			
HP 83624A Synthesized Sweeper	\$42,600			
HP 83630A Synthesized Sweeper	\$46,000			
HP 83640A Synthesized Sweeper	\$53,000			
HP 83650A Synthesized Sweeper	\$59,150			
Opt 001 Add Step Attenuator	\$2,550/\$4,500			
Opt 002 Internal Modulation Generator	\$3,570			
Opt 003 Delete Front Panel Keyboard/Display	-\$1,500			
Opt 004 Rear Panel RF Output	\$204			
Opt 006 Fast Pulse Modulation	\$4,080			
Opt 008 1 Hz Frequency Resolution	\$3,060			
Opt 700 Mate System Compatibility	\$4,080			
Opt W30 Extended Repair Service (see page 663)				
Dedicated HP 8510 Synthesized Sweepers				
HP 83621A Synthesized Source	\$37,050			
HP 83631A Synthesized Source	\$48,200			
HP 83651A Synthesized Source	\$54,600			
Opt W30 Extended Repair Service (see page 663)				