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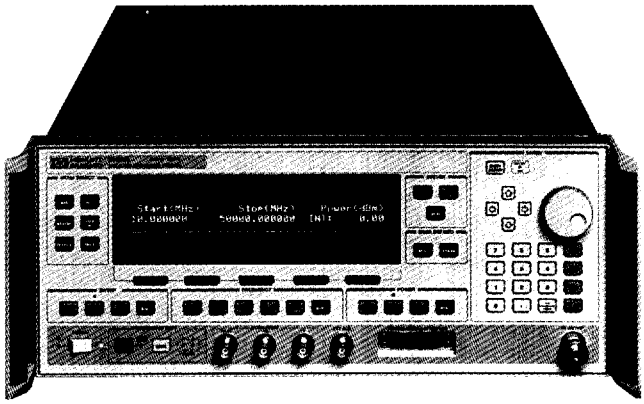
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SIGNAL SOURCES

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 dc-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^{-7}/year after 30-day warm-up.

RF Output[1]

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 83622A	+ 13 dBm	**HP 83640A**	− 6 dBm
HP 83623A	+ 17 dBm	**HP 83650A**	+ 2.5 dBm
HP 83624A	+ 20 dBm		

RF Output Connector: 3.5 mm on 20 GHz models, 2.4 mm on 40 and 50 GHz models; nominal 50 Ω output impedance

[1]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	− 95
26.5 to 38.0	− 54	− 62	− 70	− 91
38.0 to 40.0	− 54	− 62	− 70	− 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 μs
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 ≤ 100 Hz: ± 75 MHz
At rates > 100 Hz: ± 8 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%

Pulse
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)	

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