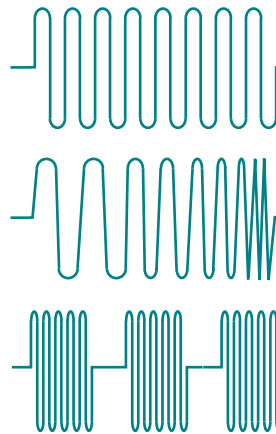


Agilent 8360B/8360L Series Synthesized Swept Signal/CW Generators

10 MHz to 110 GHz

Precision. Versatility.

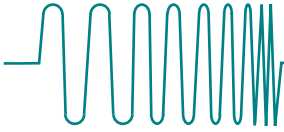
Flexibility.



Agilent Technologies

Innovating the HP Way

Agilent 8360 Synthesized Swept Signal and CW Generator Family



Application-focused swept CW generators

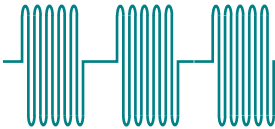
| | |
|---------------|------------------|
| 83623L | 0.01 to 20 GHz |
| 83630L | 0.01 to 26.5 GHz |
| 83640L | 0.01 to 40 GHz |
| 83650L | 0.01 to 50 GHz |

Key Features

- >+15 dBm output power (83623L only)
- List, ramp, and step sweep modes
- 5×10^{-10} /day aging rate
- 5 ms switching with narrow steps
- User flatness power correction
- -50 dBc harmonics <20 GHz typical
- SSB phase noise <-80 dBc at 10 GHz and 10 kHz offset
- Analog power sweep
- Excellent swept power accuracy

Applications

- Local oscillator (LO) for frequency conversion of signals for noise figure measurements, receiver test, and frequency time-interval analysis
- Mixer test LO
- 8510 compatibility
- Upconverter



General-purpose swept signal generators

| | |
|---------------|------------------|
| 83620B | 0.01 to 20 GHz |
| 83622B | 2 to 20 GHz |
| 83623B | 0.01 to 20 GHz |
| 83624B | 2 to 20 GHz |
| 83630B | 0.01 to 26.5 GHz |
| 83640B | 0.01 to 40 GHz |
| 83650B | 0.01 to 50 GHz |

Key Features

- All features above
- Minimum pulse width 15 ns
- 10 ns rise/fall time (requires Option 006)
- ± 0.5 dB pulse level accuracy
- Scan modulation
- Linear AM
- 8 MHz FM bandwidth
- Internal modulation generator with sine, square, triangular, ramp, and noise waveforms
- Directly drive 83550-series mm-wave source modules (83623B and 83624B only)

Applications

- General-purpose synthesized microwave source capability
- Communication receiver testing
- Radar target return simulation
- Up/down frequency conversion
- Antenna scan simulation
- Chirp radar signal simulation
- Vector and scalar network analyzer compatibility

Agilent 8360B series only

- Internal modulation generator
- Pulse
- AM and scan

Simultaneously pulse and amplitude modulate the output signal to simulate an antenna scan for radar and EW receiver testing.

- FM

- Search mode
Level narrow pulses
- External detector leveling
- Power meter leveling
- Millimeter module leveling

- RF peaking
Maximize output power for CW measurements.
- External detector calibration
- Sweep pan calibration
Fine tune the ramp sweep frequency at the end of each frequency band.

- Five markers
- Marker delta
- Marker sweep

- Self test
Quickly isolate over 95% of instrument failures to the assembly level with more than 280 internal self tests.

- Troubleshooting tools
- Adjustment and calibration routines

Minimize operator adjustments and external equipment. The 8360 performs internal voltage and power measurements to assist with any necessary adjustments.

- Step, list, ramp modes
- Manual sweep
- Trigger control

- Step size
- Offset
- Multiplication



- Custom menu
Setup your own softkey menu containing commonly-accessed keys.

- GPIB control
- Programming language
Reduce software development time by using standardized programming languages such as SCPI and CIL. Analyzer language ensures compatibility with Agilent scalar and vector network analyzers and allows leveraging of 8340/8341 software.
- Instrument status
- Security features
- User-defined preset
- Reference oscillator



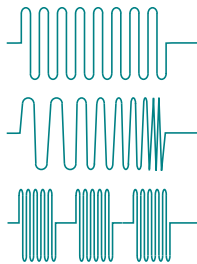
- ALC control
- Step-attenuator control
- User flatness correction
Transfer the excellent power accuracy and flatness of the 8360 to a remote test port in the measurement system by compensating for power variations and losses created by system components.
- Power sweep

Precision, versatility, and flexibility, plus Agilent quality

Precision and versatility

The Agilent Technologies 8360 family consists of the general-purpose B-model series and the application-focused L-model series. They combine the excellent frequency resolution, level control, signal purity, and modulation capabilities you expect of a high-performance synthesized signal generator with the speed and convenience of a sweep oscillator. They are ideal for the demanding requirements of signal simulation, local oscillator, and stimulus/response component or subsystem test applications.

The 8360 family offer a choice of models to meet a variety of application requirements. Ultra-broadband frequency coverage from 10 MHz to 50 GHz is available in coax using a 2.4 mm precision connector. High-power models with up to +20 dBm are also available, and can be used to directly drive the 83550 series mm-wave source modules for superior performance to 110 GHz in waveguide. The 8360 can also be customized with 1 Hz frequency resolution, fast pulse, a synthesized internal modulation generator, and a blank front panel for automated test applications.



Flexible and upgradable for growth

The 8360 is designed to facilitate future growth. The hardkey and softkey front-panel design offers easily accessible functions that are simple to use. Softkey flexibility and modular architecture provide upgrade capability, while retaining system compatibility. The family delivers the cost-effective and state-of-the-art performance you need today, while protecting your investment in the future.

Low cost of ownership

Serviceability

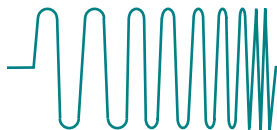
The 8360 models only need to be calibrated once every two years. Should a problem arise, over 280 internal self-tests quickly isolate more than 95% of instrument failures to the assembly level. Intermittent problems may be efficiently located by continually monitoring the tests and logging the results to the internal display or an external printer.

To minimize the need for external equipment, adjustments have been automated with DACs and calibration constants where possible. Internal service power meter and voltmeter functions are available for performing most of the few remaining manual adjustments, as well as enabling more specific and thorough troubleshooting. The RF deck can also be raised as a whole unit for service, or reversed for rear RF output without output power degradation.

A two-year warranty on all microcircuits, a cost-effective module exchange program, and an inexpensive option for two years of extended repair service underscore Agilent's confidence in the 8360 and minimize your cost of ownership.

Reliability

Reducing overall component count, designing with conservatively derated components, and extensive thermal profiling and airflow analysis all contribute directly to the reliability of the 8360. The 8360 design process includes repeated stress testing to raise stress levels far beyond normal operation so that components and circuitry are optimized for long-term dependability and stability. The result provides solid performance with the lowest down time in the business.



System compatibility

The 8360 is fully compatible with Agilent Technologies scalar and vector network analyzers, noise figure systems, and millimeter-wave source modules. Standard Commands for Programmable Instruments (SCPI) ensures programming compatibility across the 8360 family and other Agilent sources.

| SCPI | |
|--------------------------------|--------|
| FM | |
| :COUPling | AC/DC |
| [:SENSitivity] | <num> |
| :STATe | ON/OFF |
| FM:COUP AC;SENS 1MHZ/V;STAT On | |

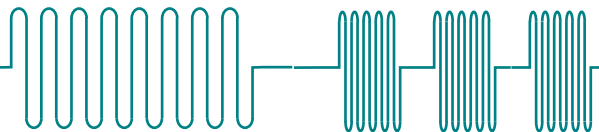
SCPI is an industry standard providing a single set of commands that control a wide variety of measurement instruments. CIIL language is also available as an option for MATE system compatibility.

Value

The 8360 cost-effectively delivers the state-of-the-art performance you need right now, and protects your investment as both your requirements and the 8360 series grow. All of this adds up to superior value.

Platform for the future

The 8360 platform is designed for growth. Consider the comprehensive yet uncluttered front panel. Convenient hard keys keep all major functions immediately accessible, while an easily readable six-line alphanumeric display provides softkey flexibility.



Agilent 8360B series of swept signal generators . . .

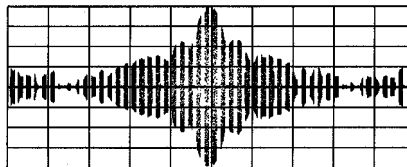
Satellite communication

From subsystem test through manufacturing to post-launch test, the 8360B swept signal generators offer a wide range of capabilities. They provide wide-band FM and high-modulation index FM capability for simulating telemetry tones. By using an external modulation source, these same features allow you to do frequency shift keying to simulate satellite communication traffic.

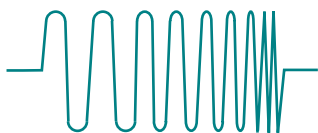
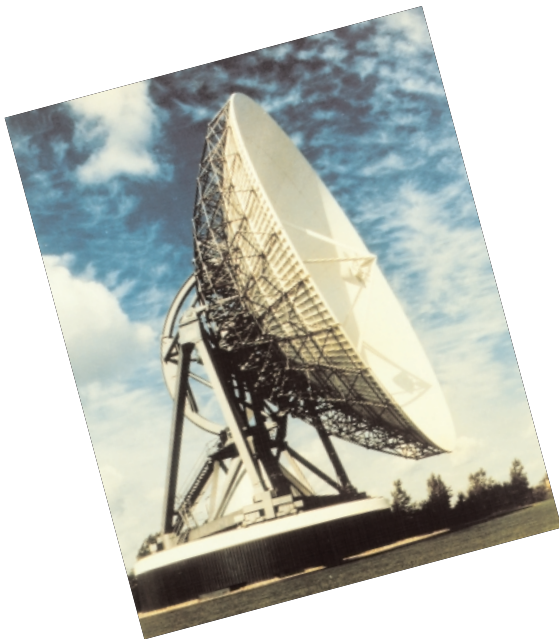
The 8360B also provides precision power control, user flatness correction, and low single-sideband phase noise for measuring linearity, fidelity, compression and out-of-channel tests.

Radar receiver test

Agilent signal generators provide excellent modulation performance to simulate a wide range of real-world threats, which is important in radar applications. Complex signals can be produced by modulating any combination of AM, FM, or pulse simultaneously. For example, the source provides scan modulation to simulate the signals received by a scanning antenna. These signal generators have superior scan modulation with their 50 dB log AM depth and excellent pulse performance.



Antenna scan simulation



The synthesized source provides a variable time-delay internal-pulse feature. This feature can be externally triggered for simulation and calibration of the range resolution of a pulse radar. The 8360B family also provides low-rate, high-modulation index FM to simulate a frequency-stable chirp signal. This chirp signal is used to improve a radar's range resolution. Agilent signal generators also provide low spurious signals and low phase noise for reducing false alarms in radar receivers.

Electronic warfare receivers

To be effective, an electronic warfare receiver must detect multiple targets clustered together, and identify two separate targets that are closely spaced in time. The 8360B meets the challenge of testing EW receivers by providing fast switching, low harmonics, and low phase noise. Complex threat signals can be simulated by the simultaneous amplitude, frequency, and pulse modulation capabilities of the 8360B.

For measuring sensitivity of EW receivers these signal generators provide calibrated output to -110 dBm (Option 001). Agilent signal generators also provide low video feedthrough to accurately characterize an EW receiver's sensitivity.

. . . the ultimate in signal simulation



Microwave communication

The 8360B synthesized signal generator simulates a wide variety of signals used in communication applications such as microwave radio/links, wireless CATV, wireless LAN, PTT, service providers, and military communications.

The 8360B provides wideband FM, linear and log AM, pulse modulation and scan modulation for simulating communications traffic, telemetry tones, scanning antenna and others. The swept signal generator provides FSK with the use of an external generator for simulating communications data.

The signal generator also provides low single sideband phase noise, nonharmonically related spurs, and a calibrated low-level output for more accurate out-of-channel tests, dynamic range measurements, and low-level sensitivity measurements.

ATE systems

The 8360 provides all-around performance you can count on as the cornerstone of an ATE system. It delivers the performance and versatility necessary to test each of the devices or systems that the test system supports. In addition, it operates reliably for long periods of time, over temperature extremes, and performs flawlessly over the GPIB programming bus.



Agilent 8360L series of swept CW generators – a superior value

Component test

For component or subsystem testing, speed and accuracy are critical. The 8360 offers synthesized precision, as well as many convenient sweep modes including high-throughput analog ramp, step and power sweeps. The 8360 is also completely compatible with all of the current 8510 and 8757 microwave network analyzer systems, including broadband-coaxial, millimeter, pulsed RF, and antenna-test configurations.

Sweep flexibility

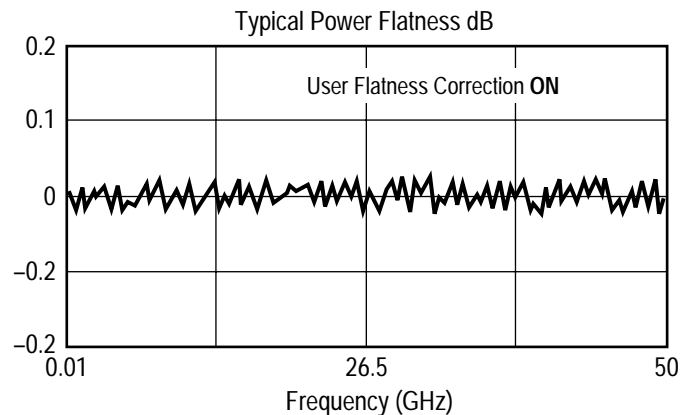
Choose from phase-lock-corrected analog sweeps, fully synthesized stepped sweeps, or list sweeps that allow arbitrary frequency sequencing. Frequency switching times can be as fast as five milliseconds in step or list sweep modes. At each step in list mode, power level and dwell time are independently controllable. Step sweeps offer the ultimate in simultaneous speed and accuracy, providing six times faster sweeps on 8510C systems when compared to previous generation sources. Ramp sweeps increase productivity in 8757 scalar systems and provide ten times better accuracy in 8510 systems.

User flatness correction

The 8360 delivers excellent output level accuracy and flatness. But the frequency response and mismatch errors of switches, cables, and other components between the source and the test port can degrade source performance. User flatness correction in the 8360 allows transfer of power-meter accuracy to any remote point of interest, with typical residual flatness of only hundredths of a dB. This correction applies in either CW or any sweep mode, in real time. The 8360 can control an 437B power meter to accomplish this calibration automatically, or correction arrays can be loaded via GPIB or manually.

Two-tone measurements

Accurate fixed-frequency and swept-frequency offset measurements can be achieved by setting up two 8360 synthesized sweepers in a two-tone (master/ slave) measurement configuration. An 8360-based two-tone measurement system can be operated in either ramp- or step-sweep measurement modes. Ramp sweep measurements offer rapid device characterization, while step-sweep measurements provide synthesized frequency accuracy at each frequency point. By using one timebase for both sources, instabilities from temperature or line voltage variations are reduced. Designers and manufacturers of frequency-translation devices and amplifiers can use the greater accuracy and stability achieved during testing to increase productivity.



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5964-6793E



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