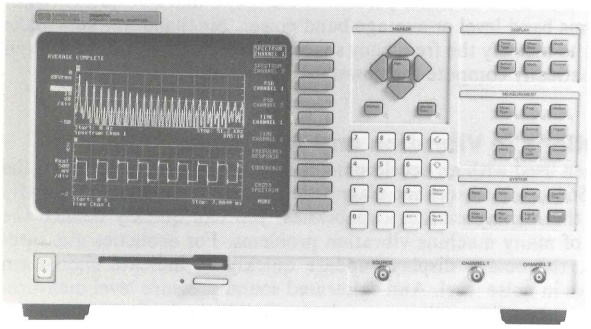
SIGNAL ANALYZERS

Dual-channel, Dynamic Signal Analyzer 244 μHz to 102 kHz

HP 35660A

- Network and spectrum analysis
- 102.4 kHz single-channel measurements
- 51.2 kHz dual-channel measurements
- 401-line resolution
- 70 dB dynamic range
- ± 0.5 dB amplitude accuracy
- ± 0.4 dB and ± 1.0 degree channel match



HP 35660A

DESIGNED FOR HP-IB SYSTEMS

HP 35660A Dual-channel Dynamic Signal Analyzer

The HP 35660A dynamic signal analyzer is an FFT-based instrument that provides spectrum and network measurements in electronics, mechanical test, acoustics, and other low-frequency application areas. The analyzer also offers built-in test and automation features, traditionally available only with a computer. These features include an internal programming language (HP Instrument BASIC), a built-in disk drive, limit testing, and data tables. With automation built-in, the HP 35660A can save you both time and money.

Electrical Measurements

The HP 35660A is typically 10 to 100 times faster than swept-spectrum analyzers for equivalent measurements, and it provides higher resolution (244 μHz throughout the 102.4 kHz frequency range). This speed and resolution contribute to the quality of HP 35660A tests for distortion, spur level, frequency drift, intermodulation, and other signal parameters. With two input channels and a built-in source, the HP 35660A can quickly measure the response of low-frequency filters and networks.

The HP 35660A is also a good choice for low-frequency transmission measurements in telecommunications and other areas. To ensure highly accurate magnitude and phase measurements, the HP 35660A offers ±0.4 dB gain and ± 1.0 degree input channel phase match. For custom analysis of these measurements, the HP 35660A provides a wide range of waveform math features.

Mechanical Measurements

The HP 35660A is well-suited to applications that require vibration monitoring at full load. With the built-in limit tables, users can implement vibration and health monitoring programs on engines, machine tools, and other equipment, without an external computer and without programming. The analyzer's internal disk drive makes it easy to record, store, and recall limits for production or maintenance testing.

The HP 35660A uses force and exponential windows to perform frequency response testing of mechanical devices and structures. Using HP Instrument BASIC, the analyzer can simplify data collection for your modal surveys. For complete modal analysis, you can choose from several third-party modal packages.

Another application area for the HP 35660A is acoustics and noise measurements. This includes testing for room and device responses, noise identification and level, and underwater acoustic tests such as sono-buoy and sonar transducer testing. Acoustic intensity measurements are available with third-party software.

Data tables for fast, consistent results

Data tables are a key feature of the HP 35660A. A data table eliminates the need to move markers along a trace to read multiple values. Enter up to 400 X-axis locations in a data table; the HP 35660A fills in the table with a Y-axis value for each X entry. You can display, print, or store a completed table. For repeated measurements, you can create a unique table for each test and quickly recall each table from disk.

In addition to data tables and limit testing, the analyzer includes extensive markers to highlight harmonics and sidebands and to search for minimum, maximum, and target values.

HP Instrument BASIC (HP 35680A)

To simplify automation and test analysis, the HP 35660A can utilize HP Instrument BASIC, which is a subset of HP Series 200/300 BASIC running inside the analyzer. HP Instrument BASIC adds decision-making, branching, I/O, including control of other instruments, and custom user-interfaces. HP Instrument BASIC is fully syntax-compatible with HP BASIC, so current HP workstation owners can easily merge the HP 35660A and HP Instrument BASIC into their test systems.

HP 35660A Specification Summary

Frequency

Measurement range: 488 μHz to 102.4 kHz (1-channel mode)
244 μHz to 51.2 kHz (2-channel mode)

Spans: 195.3 mHz to 102.4 kHz (1-channel mode)
97.6 mHz to 51.2 kHz (2-channel mode)

Resolution: span/400 (minimum 488 μHz 1-channel mode; 244 μHz 2-channel mode)

Windows: Hann, Flat Top, Uniform, Force, Exponential

Typical real-time bandwidth: (random noise source off)

	Single Channel	Dual Channel
Averaging off	800 Hz	400 Hz
Fast Averaging	3.28 kHz	1.6 kHz

Amplitude

Range: 3.99 mVpk to 31.7 Vpk, Manual or Auto

Accuracy: ± 0.5 dB + 0.03% of input range

Dynamic range: 70 dB

Noise: < −130 dBV/SQRT(Hz) 160 Hz to 1.28 kHz
< −140 dBV/SQRT(Hz) 1.28 kHz to 102.4 kHz

Single chan phase: ± 4.0 degrees relative to ext trig

Frequency Response Channel Match

Amplitude: ± 0.4 dB

Phase: ± 1 degree (488 μHz to 10.24 kHz); ± 1.8 degree (10.24 kHz to 102.4 kHz)

Input impedance: 1 MΩ ± 10% shunted by <100 pF

Coupling: ac, dc

Source

Types: Fixed sine, random, chirp

Display results: Frequency response, power spectrum, linear spectrum, coherence, cross spectrum, power spectral density, time

Trace types: log magnitude, linear magnitude, phase, real, imaginary, group delay

Trace formats: Single, upper/lower, front/back, setup, grid on/off, display blanking

HP-IB

Implementation of IEEE 488.1 and 488.2

SH1, AH1, T6, TE0, L4, LE0, SR1, RL1, PP0, DC1, DT1, C1, C2, C3, C12, E2

Compatible peripherals

Disk drives: HP SS/90 protocol disk drives (these include the 9122C,D,S; 9133D, H,L; and HP 9153A,C

Plotters: Hewlett-Packard Graphics Language (HP-GL) digital plotters

Printers: HP-IB printers, alpha and raster dumps

Ordering Information

HP 35660A dynamic signal analyzer
Opt 001 Add 2 Mbyte RAM
Opt 002 Delete disk drive
Opt 908 Rackmount Kit
Opt 910 Extra Operating Manual Set and HP-IB Programming Reference
Opt 915 Service Manual and Kit
Opt W30 Extended repair service - see page 723
HP 35680A HP Instrument BASIC
HP 35681A Analysis Pack