SIGNAL ANALYZERS

Portable Dual-Channel Dynamic Signal Analyzer 31.25 mHz to 40 kHz

HP 3560A

- Frequency response, spectrum, transient analysis in the field
- 8 hr (typical) operation on rechargeable battery pack
- Lightweight (3.2 kg / 7 lbs) and portable
- FFT speed <50 ms for 1024 point complex FFT.
- Octave (full and one-third) and spectral map displays
- On-line zoom for greater resolution at high frequencies

HP 3560A

NEW

HP 3560A Portable Dynamic Signal Analyzer

The HP 3560A portable dynamic signal analyzer is an FFT-based instrument capable of measuring time domain and frequency signals from both steady state and quickly changing signal sources. With two input channels, the HP 3560A provides a variety of frequency response measurements with a frequency range from 31.25 mHz to 40 kHz. Battery power and light weight allow you to bring this broad range of measurements anywhere they are needed with fully portable operation.

The HP 3560A provides more than raw measurements. The ICP input mode directly powers accelerometers, so external signal conditioning hardware is not required. Octave measurements, spectral map displays and marker functions make the HP 3560A a powerful, portable measurement and analysis tool.

Ultra-portable dual-channel measurements

The internal, rechargeable battery pack permits the HP 3560A to make spectrum and frequency response measurements in the field. The HP 3560A is built to withstand the harsh environmental conditions normally encountered in portable applications. With a 3.2 kg (7 lb) total weight, the HP 3560A can be taken virtually anywhere.

Troubleshoot noise and vibration problems

Analysis features provide the power needed to isolate mechanical noise and vibration signal sources. Octave measurements allow standard acoustic techniques to be used in characterizing the desired signals. The octave measurements comply with ANSI S1.11 standard frequency bands and filter shapes.

Spectral map displays allow you to view your signal and how it changes as a function of time. Spectral map displays are essential for rotating machinery applications where vibration varies as a function of the machine's operating speed.

The spectral map display, combined with the external sampling capability of the HP 3560A, makes it easy to determine which vibration signals are related to the operating speed of the machine and which are fixed frequency signals due to other vibration modes such as structural resonances or oil whirl.

The dual-channel HP 3560A offers structural analysis in the field when used with HP 35207A and 35208A hammer kits. Variable block size, combined with variable frequency span and on-line zoom, provide the tools for data collection and viewing of FRFs when using impact test techniques. Coherence measurements and real/imaginary trace coordinates allow powerful structural analysis.

Documentation and analysis

The HP 3560A measurements can be printed on HP QuietJet or HP LaserJet printers, or HP-GL plotters via RS-232. Stored data can also be transferred to a computer via RS-232 and is compatible with Hewlett-Packard's SDF (Standard Data Format) which allows data transportability to other Hewlett-Packard dynamic signal analyzers such as the HP 3566A/3567A and HP 35665A, and third-party analysis packages for data analysis, comparisons and archiving.

Specification Summary

Frequency
- **Measurement range:** 31.25 mHz to 40 kHz with alias protection
- **Spans:** 50 Hz to 20 kHz in 1,2,5 sequence and 40 kHz.
- **Resolution:** frequency span / lines
- **Number of Lines:** selectable 101, 201, 401, 801, 1601 lines
- **Block size:** 256, 512, 1024, 2048, 4096 points
- **Windows:** Hann, Flat Top, Uniform

Amplitude (50 Hz to 20 kHz spans)
- **Accuracy:** ± (0.5 dB + 0.025% of full scale)
- **Dynamic range:** 70 dB spurious, (0-70% of span) 60 dB THD

Frequency response channel match (50 Hz to 20 kHz spans)
- **Amplitude:** ± 0.2 dB 0-80% of span
- **Phase:** ± 5 degree 0-80% of span

Input
- **Range:** 5 mV to 5 V full scale in 1,2,5 sequence
- **Coupling:** ac, dc, ICP current source, engineering units, integration, differentiation
- **Impedance:** 1 MΩ

Trigger
- **Source:** internal (Ch 1 or 2), external, free run
- **Level:** variable slope and level with 1% resolution
- **Pre-trigger delay:** 0 to 4096 points
- **Post-trigger delay:** 0 to 4096 points

External sample
- **Maximum frequency:** 102.4 kHz, TTL input

Averaging: time, RMS, exponential RMS, peak hold

Displays

Time record, power spectrum, power spectral density, frequency response, 1/3 octave, 1/1 octave, CH1-CH2 time, map (2 to 99 traces on display), cross correlation, coherence

Display coordinates

Linear magnitude, log magnitude, phase, real, imaginary. Linear x-axis, log x-axis, orders

Data storage

Non-volatile storage of 500 state/trace combinations with 200 line spectra

General
- **Power:** Internal battery power
- **Recharger:** 100/120 Vac +5%, −10%, 48-66 Hz 220/240 Vac +5%, −10%, 48-66 Hz.
- **Weight:** approximately 3.2 kg (7 lbs)
- **Size:** 300H x 210W x 95mmD (11.75" x 8.25" x 3.75")
- **Interface:** EIA-232D

Environmental	Operating	Non-operating
Temperature	0 to +40°C	−20 to +50°C
Relative Humidity	15% to 95%	
Altitude	4600 m (15,000 ft)	15,000 m (50,000 ft)

Accessories

Microphones
- HP 35220A Free field, standard sens., 5 Hz to 40 kHz, 35 - 160 dB
- HP 35221A Free field, high sens., 5 Hz to 20 kHz, 20 - 145 dB
- HP 35222A Pressure, standard sens., 5 Hz to 20 kHz, 35 - 160 dB
- HP 35223A Pressure, high sens., 5 Hz to 10 kHz, 20 - 145 dB
- HP 35224A Pre-amplifier, 2 Hz to 200 kHz, ± 0.5 dB
- HP 35228A Microphone power supply (battery)
- HP 35229A 94 dB/104 dB, 1 kHz calibrator

Accelerometers
- HP 35200A general vibration; 10 mV/g, 1 Hz to 9 kHz
- HP 35201A machinery vibration; 50 mV/g, 1 Hz to 3 kHz

Ordering Information

	Price
HP 3560A Portable dynamic signal analyzer	Contact Hewlett Packard
Opt 1BH General export license version	