

# SIGNAL ANALYZERS

Single-channel, Dynamic Signal Analyzer 0.000125 Hz to 100 kHz  
HP 3561A

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- Spectrum analysis,  $1/3$  and  $1/1$  octave analysis
- Time capture (40 k sample)
- High speed (7.5 kHz real time rate)

- High accuracy,  $\pm 15$  dB
- 80 dB dynamic range, to 640  $\mu$ Hz resolution bandwidth
- Non-volatile memory option stores 127 measurements



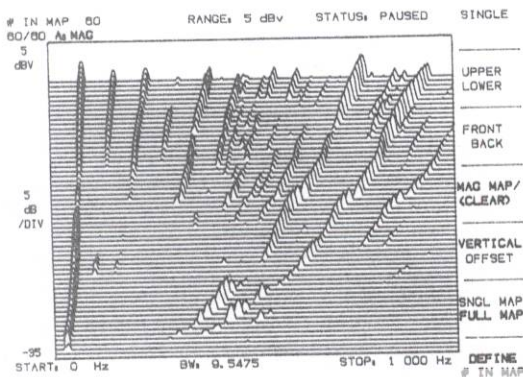
DESIGNED FOR  
**HP-IB**  
SYSTEMS  
HP 3561A

## Providing High-Performance Signal Analysis

If your test and measurement applications require the performance of a lab instrument with transportable convenience, the HP 3561A is ready to go to work for you. It provides 80 dB dynamic range with  $\pm 15$  dB amplitude accuracy, giving you the precision needed to isolate small components in a signal.

The HP 3561A's set of measurement functions lets you approach problems from several different angles. Spectra can be displayed in a variety of formats and units, including a three-dimensional spectral map. This map displays up to 60 successive spectra and is extremely useful for analyzing transients and monitoring dynamic signals in both electronic and mechanical systems.

In addition to spectrum measurements, the HP 3561A displays time waveforms, and you can observe a signal in both the time and frequency domains simultaneously. A 40 ksample time buffer captures transients for later measurements and analysis. And this instrument is an excellent choice for acoustics measurements, with its  $1/3$  and  $1/1$  octave measurements, together with the built-in analog A-weighted filter.



Spectral maps greatly reduce the time required to analyze changes in up to 60 successive measurements.

## Solutions in Spectrum Analysis

The HP 3561A gives you the tools for fast, efficient spectrum analysis. In addition to standard marker features, such as marker-to-peak and peak tracking, it provides harmonic analysis with automatic computation of THD in either percent or dB. Band markers quickly compute rms band level or average band power. Sideband markers make it easy to identify the frequency spacing of modulation sidebands and automatically compute the power.

## Solutions in Vibration and Acoustics

When used with an accelerometer or other motion transducer, the HP 3561A is an excellent diagnostic tool for vibration analysis. By using the display marker capabilities, you can quickly deduce the cause of many machine vibration problems. For acoustics measurements, the octave displays update quickly to indicate short-term changes in noise level. And calibrated sound pressure level measurements are possible with the simple engineering units feature.

## Specifications

### Frequency

**Range:** 0.000125 Hz to 100 kHz.

**Accuracy:**  $\pm 0.003\%$  of display center frequency.

**Resolution:** 0.25% of frequency span.

**Window:** flat top, Hann, uniform, and exponential

**Real-time bandwidth:** (typical) single display, 3 kHz. Fast average display, 7.5 kHz.

### Amplitude

**Measurement range:** +27 to -120 dBV noise floor (22.4 Vrms to 1  $\mu$ V noise floor).

**Dynamic range:** 80 dB

**Accuracy at the passband center**

$\pm 0.15$  dB  $\pm 0.015\%$  of input range +27 to -40 dBV input ranges

$\pm 0.25$  dB  $\pm 0.025\%$  of input range -41 to -51 dBV input ranges

### Input

**Impedance:**  $1 \times 10^6 \Omega \pm 5\%$  shunted by 95 pF maximum

**Isolation:** input low may be connected to chassis ground or floated up to 30 volts rms (42 volts peak) above ground

**Coupling:** signal may be ac or dc coupled. Low frequency 3-dB point < 1 Hz in ac mode.

**ICP current:** nominal 4 mA current source provided

### Output

**Source:** pseudo-random, random, or impulse

### Display

**General:** magnitude, phase, time and math traces can be selected.

Units available are:

**Horizontal:** Hz, seconds, RPM, orders; linear, or log spacing

**Vertical:** dBV, dBm (selectable Z), volts, volts squared, and user-defined units

**Math:** Arithmetic operations can be performed on new or recalled frequency spectra. Add, subtract, multiply, divide, integrate, differentiate and user-defined constants are provided.  $1/BW$  is provided for Power Spectral Density (PSD) computations.

### Internal Memory

|                 | Non-volatile                                   | Volatile        |
|-----------------|--|-----------------|
| <b>Standard</b> | 2 traces, 6 states                             | 40 time records |
| <b>Optional</b> | traces + states +<br>(1+2x time records) = 127 | 40 time records |

### General

Weight: net, 15kg (33lb); shipping, 21.6kg (47.5lb)

Size: 197H x 335W x 595mmD (7.8" x 13.2" x 23.4")

### Ordering Information

HP 3561A Dynamic Signal Analyzer

Opt. 001 Extended Non-volatile Memory

Opt. 002 Extended Non-volatile Memory see pg 723.

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