



HP 3566A

Powerful Time and Frequency Measurements Using a PC Analyzer

The 12.8 kHz HP 3566A and 102.4 kHz HP 3567A are PC-based spectrum/network analyzers that link high-performance measurement hardware (see page 165) to an HP Vectra PC (or other IBM-AT compatible) to provide flexible turnkey solutions in mechanical test, signal characterization, control systems and production test.

The HP 3566A and 3567A have the same measurement feature set, but differ in maximum frequency span and hardware configuration (see table below). Both analyzers can expand to include 16 channels that acquire data simultaneously. Each analyzer includes a source for stimulating circuits or systems. An optional programmable DAC module adds arbitrary waveform and chirp capability. For fast measurement processing, a powerful hardware signal processor module converts time data to frequency data using the latest FFT (Fast Fourier Transform) technology. The measurement hardware is linked to an HP Vectra PC (or IBM PC-AT compatible) running MS-DOS[®], Microsoft[®] Windows, and HP's measurement software. Optional software packages give additional measurement capabilities.

	HP 3566A	HP 3567A
Channel count	8 or 16	2 to 16
Cross channel accuracy	± 0.1 dB	± 1 dB
Phase	$\pm 0.5^\circ$	$\pm 5^\circ$
Dynamic range	72 dB	80 dB
Maximum frequency span		
spectrum measurements	12.8 kHz	102.4 kHz
network measurements	12.8 kHz	51.2 kHz ¹
Realtime bandwidth ²		
display off	12.8 kHz	26.5 kHz
display on	3.2 kHz	3.2 kHz
Transient capture rates		
max samples/sec per channel	32,768	262,144
max samples/sec to RAM	1.5 million	1.5 million
max time samples in RAM ³	7.5 million	7.5 million
Waterfall display update ⁴	5 per sec	5 per sec
Signal conditioning	ICP - 2mA	Charge amp, ICP - 4mA

¹ 102.4 kHz using an external source

² One channel for 3567, 2 channels for 3566

³ With opt 116

⁴ Rate applies to eight traces, updated simultaneously

HP 3566A and 3567A Measurement Capability

- Transient capture to RAM
- Time record
- RPM spectral map
- 1/3 and 1/1 octave
- Auto-correlation
- Cross-correlation
- Frequency response gain phase
- Power spectrum
- Cross spectrum
- Nyquist
- Histogram, PDF, CDF
- Order tracking
- Order ratio map
- Orbit diagram
- Coherence
- Swept-sine
- Record/playback

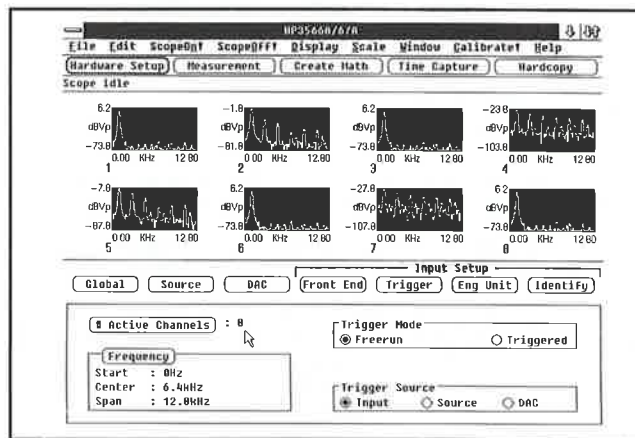
Expandable Analyzers for Mechanical Testing

The HP 3566A and 3567A offer features for all types of mechanical testing, including rotating machinery analysis, vibration test, structural analysis, and acoustic noise testing. With an expandable channel count, these analyzers are a solution for applications requiring from 2 to 16 channels. Display up to eight traces of time or frequency data to quickly view accelerometer conditions or input channel ranges. Spectral maps and order ratio maps provide a picture of machinery behavior during run-up or coast down operation. From these maps, you can easily identify the important orders of vibration.

Analyzer applications also include sound pressure testing, spatial characterization of radiated noise and noise source identification. Both the HP 3566A and 3567A provide 1/3 and 1/1 octave displays. Built-in source signals, such as impulse, random, and burst random, are available for stimulating systems.

Multichannel Characterization of Changing Signals

Use the HP 3566A or HP 3567A to accurately measure fast-changing signals. Applications like monitoring, underwater acoustic testing, or surveillance require multichannel analyzers to process data in real time. Real-time measurement features ensure that transient events are captured and processed quickly. Eight high-speed displays allow you to monitor changes in the time or frequency domain, with waterfalls and spectrograms showing how signals change with time.



New Order-tracking Algorithm (optional)

Quickly distinguish between order-related and nonorder-related rotating machinery signals. This optional software adds order ratio map and order track measurements to the HP 3566A and 3567A capabilities. With it you can measure an accurate order spectrum independent of changing RPM. Using new HP technology, order ratio maps and order tracks are computed digitally, eliminating the errors and added expense of ratio synthesizers, tracking filters, and RPM counters required by other FFT analyzers.

Full-Featured Swept-Sine (optional)

Swept-sine techniques provide transfer functions with 132 dB dynamic range by changing source levels and input ranges for each frequency point measured. R&D users can dramatically reduce measurement setup times by using auto-range, auto-level and auto-resolution. Auto-resolution decreases measurement execution times by optimizing the frequency spacing between measurement points. Gain and phase margins are calculated just by pushing a button, simplifying control system analysis.

Production test users can further increase measurement speed by specifying all measurement parameters by frequency band. Up to ten separate bands allow performance optimization.

Programmable DAC Provides Arbitrary Waveforms (optional)

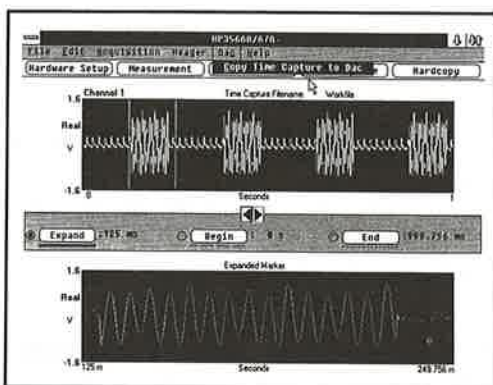
A programmable 16 bit DAC allows custom waveforms to be created and used as stimulus. A DAC editor and waveform calculator simplify their creation using built-in waveform types (sine, square, triangle, exponential, random and impulse). Mathematical operations like integration, differentiation and filtering can be performed on the waveforms before they are output. In production test, chirp waveforms can be used to measure transfer functions extremely fast.

SIGNAL ANALYZERS

Multichannel, Spectrum/Network Analyzers 64 μ Hz to 102.4 kHz (Cont'd)

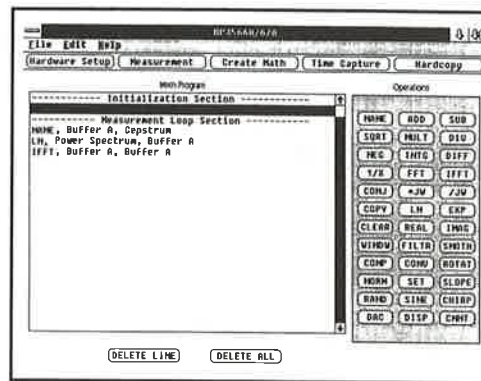
High-Speed, Multi-channel Transient Capture

A special transient capture mode allows you to capture transients to RAM at composite sample rates up to 1.5 million samples per second. All channels are simultaneously sampled. With option 116, 7.5 million samples can be collected (option 104 gives 1.5 million samples). Captured signals can be viewed, and portions can be selected for analysis using HP 3566A/3567A measurements (except order track, order ratio map, and swept sine). Captured transients can be played back through the DAC module to recreate real-world signals.



Create Custom Measurements Easily

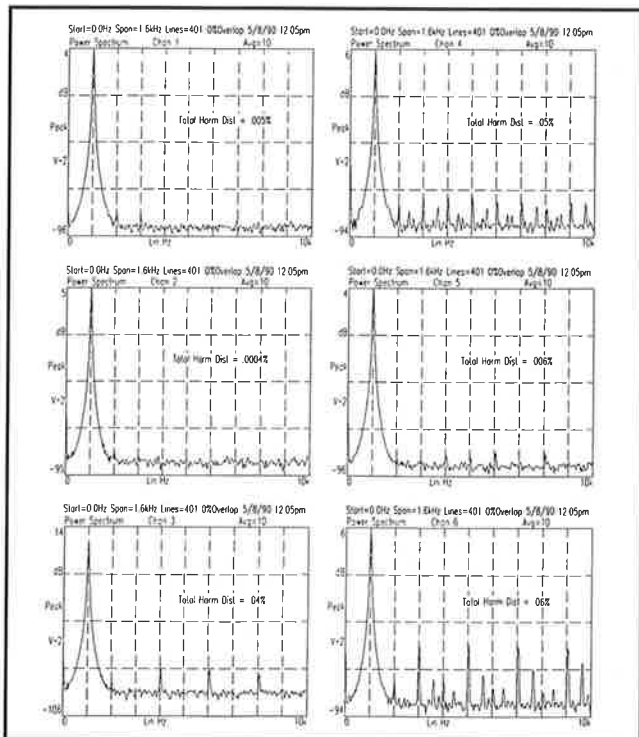
A full-function waveform calculator lets you create your own custom measurements and integrate them into the standard user interface. Mathematical functions can be performed on any measurement result, and the result of the operations can be displayed using the full display functionality. Results of math operations can also be output through the programmable DAC.



Documentation of Results

A special Hardcopy Mode lets you document measurement results with up to six displays per page. Each display can have numerous individual annotations and pages can be labeled. Important measurement parameters and a time stamp can be automatically added to each display. Built-in pushbutton computations, like total harmonic distortion and band power, can be printed on each display. To compare many measured results easily, overlay displays can print many results on a single graticule.

Prints and plots can be made to any Microsoft® Windows supported graphics printer or HP-GL plotter (Centronics or RS-232 interface only). In addition, you can write reports using word processors and include HP 3566A and 3567A displays either by using MS Windows "cut and paste" or by importing HP-GL plot files.



Ordering Information

HP 3566A spectrum/network analyzer includes 1 HP 35650A mainframe, 1 HP 35655A eight-channel 12.8 kHz input module, 1 HP 35653A source module, 1 HP 35651B signal processor module with 1 Mbyte RAM, 1 HP-IB cable, 90-day onsite hardware warranty, HP time/frequency domain measurement software with 15 months BasicLine and 3 months ResponseLine software support.

Price
\$22,000

Opt 010 add 1 HP 36655A eight-channel 12.8 kHz input module (2 eight-channel modules is maximum configuration) **+\$9,500**

Opt 104 convert HP 35651B RAM to 4 Mbyte **+\$2,000**

Opt 116 convert HP 35651B RAM to 16 Mbyte **+\$7,000**

Opt 056 add HP 35656A programmable DAC module (required for chirp stimulus, arbitrary waveform and record/playback) **+\$4,500**

Opt A16 HP Vectra QS16 with software installed **+\$5,950**

HP 3567A spectrum/network analyzer includes 1 HP 35650A mainframe, 1 HP 35652B single channel 102.4 kHz input module, 1 HP 35653A source module, 1 HP 35651B signal processor module with 1 Mbyte RAM, 1 HP-IB cable, 90-day onsite hardware warranty, HP time/frequency domain measurement software with 15 months BasicLine and 3 months ResponseLine software support.

Opt 005 add 1 mainframe (3 mainframes is maximum configuration) **+\$4,500**

Opt 010 add 1 102.4 kHz input module (16 input modules is maximum configuration) **+\$2,900**

Opt 104 convert HP 35651B RAM to 4 Mbyte **+\$2,000**

Opt 116 convert HP 35651B RAM to 16 Mbyte **+\$7,000**

Opt 056 add HP 35656A programmable DAC module (required for chirp stimulus, arbitrary waveform and record/playback) **+\$4,500**

Opt A16 HP Vectra QS16 PC with software installed **+\$5,950**

HP 35636A order tracking (optional software) for HP 3566A and HP 3567A (requires opt 104 or 116) **\$2,500**

HP 35637A swept-sine (optional software) for HP 3566A and HP 3567A (requires opt 104 or 116) **\$500**

HP 35634A Software ONLY for HP 3566A and HP 3567A (if you already have hardware) **\$4,000**

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