

FFT DYNAMIC SIGNAL ANALYZERS

Dual-Channel Dynamic Signal Analyzer with Digital Inputs and Source

HP 3563A, 3562A

Specifications (HP 3562A, 3563A)

Contact your local HP sales office for more information, including a data sheet with complete specifications.

Frequency

Measurement range: 64 μ Hz to 100 kHz, both channels, single- or dual-channel operation

Resolution: Span/800, both channels, single- or dual-channel operation, linear resolution mode

Spans	Baseband	Zoom
Number of spans	66	64
Min. span	10.24 mHz	20.48 mHz
Max. span	100 kHz	100 kHz
Time record (sec)	800/span	800/span

Window functions: Flat top, Hann, uniform, force, exponential, user-defined

Typical real-time bandwidths:

Single-channel, fast averaging 10 kHz
Throughput to CS/80 disk
Single channel 12.5 kHz
Dual channel 6.25 kHz

Amplitude

Absolute accuracy: Single channel (channel 1 or 2)
 ± 0.15 dB $\pm 0.015\%$ of input range (+21 to -40 dBV)
 ± 0.25 dB $\pm 0.025\%$ of input range (-41 to -51 dBV)

Window flatness:

Flat top ± 0 , 0.01 dB
Hann ± 0 , -1.5 dB

Noise floor: With flat top window, 50 Ω source impedance and input set to ± 51 dBV range
20 Hz to 1 kHz (1 kHz span) ≤ -126 dBV (-134 dBV $\sqrt{1\text{Hz}}$)
1 to 100 kHz (100 kHz span) ≤ -115 dBV (-144 dBV $\sqrt{1\text{Hz}}$)

Frequency response channel math

Analog/analog: For input signals at full scale on any pair of ranges, accuracy is ± 0.1 dB, ± 0.5 degree (HP 3562A and 3563A).

Digital/digital: For simultaneous sampling on channels 1 and 2, accuracy is ± 0.1 dB, ± 0.5 degree (HP 3563A only).

Mixed analog/digital: With full-scale inputs on both channels, computational delay between channels corrected for; 1:1 sampling ratio, 16 averages, and 256 kHz sample clock; nominal accuracy is ± 0.2 dB, ± 1.0 degrees from 64 μ Hz to 20 kHz and ± 0.2 dB, ± 4.0 degrees from 20 to 100 kHz (HP 3563A only)

Dynamic range: ≈ 80 dB below full-scale input range.

Analog Input (HP 3563A and 3562A)

Input impedance: 1 M Ω $\pm 5\%$ shunted by < 100 pF

Input Coupling: Inputs can be ac or dc coupled; ac rolloff is < 3 dB at 1 Hz.

Crosstalk: -140 dB (50- Ω source, 50- Ω input termination, input connectors shielded)

Common Mode Rejection:

0 to 66 Hz 80 dB
66 to 500 Hz 65 dB

External Sampling Input: TTL-compatible input for signals < 256 kHz (nominal maximum sampling rate)

Digital Input (HP 3563A)

Measurement data signals can be up to 16 bits wide and must be parallel data in two's complement or offset-binary format. The data qualifier input accepts eight qualifier lines, a trigger, and one clock signal.

Trigger

Trigger Modes: Free run, input channel 1, or 2, source and external trigger.

Trigger Delay: Pre- and post-trigger delay resolution is 1 sample (1/2048 of a time record).

Pre-Trigger: A measurement can be based on data that starts from 1 to 4096 samples (1/2048 to 2 time records) before trigger conditions are met.

Post-Trigger: A measurement is initiated from 1 to 65,536 samples (1/2048 to 32 time records) after the trigger conditions are met.

Analog Source (HP 3563A and 3562A)

Random noise, burst random, sine chirp, burst chirp, fixed sine, and swept sine are available from the front-panel source of the HP 3562A and 3563A. The HP 3563A also provides step, pulse, ramp, and arbitrary signals from the same front-panel source output. Users can select dc offset.

Output Impedance: 50 Ω (nominal)

Output Level: Between +10 and -10 V peak (ac + dc) into a > 10 k Ω , < 1000 -pF load. Maximum current is 20 mA.

AC Level: +5 V peak (≥ 10 k Ω , < 1000 pF load)

DC Offset: ± 10 V peak in 100-mV steps. Residual offset at 0V offset ≤ 10 mV

Distortion: Including subharmonics

25.6 μ Hz to 10 kHz -55 dB

10 to 100 kHz -40 dB

Pulse: Nominally 1 sample wide and bandlimited (HP 3563A)

Digital Source (HP 3563A)

All analog signal types can be output from the digital source connector. Data format is 16-bit parallel in either two's complement or offset binary. Output level is TTL compatible.

Maximum load: 8 LSTTL

Maximum output rate: 256 kHz

General

Specifications apply when AUTO CAL is enabled or within 5 $^{\circ}$ C and 2 hours of last internal calibration.

Power: 86 to 127 Vac, 48 to 66 Hz

196 to 253 Vac, 48 to 66 Hz
450 VA maximum

Weight: Net, 27 kg (58 lb); shipping, 36 kg (79 lb)

Size: 426 mm W \times 222 mm H \times 578 mm D (16.75 in \times 8.75 in \times 22.75 in)

Accessories Included

HP 3563A: HP 01650-61607 16-bit Probe Cable; 3 each
HP 03563-61605 16-bit Probe Pod; 3 each
HP 03563-61604 8-bit Probe Cable; 3 each
HP 10347A Pattern Generator Probe Lead Set; 3 each
HP 5959-0288 Grabber (package of 20); 80 each
(4 packages)

Pouch for Cables and Probes

HP 3563A/HP 3562A: Getting Started Guide, Operating Manual, Programming Reference

Accessories Available

HP 3563A: HP 10346A 8-Channel TTL Tristate Buffer Pod
HP 10348A 8-Channel CMOS Tristate Buffer Pod
HP 01650-63203 Termination Adapter

HP 3563A/HP 3562A: Transit Case for One HP 3563A;
HP p/n 9211-2663

Key Literature

HP 3563A Technical Data Sheet, p/n 5952-7248.

HP 3562A Technical Data Sheet, p/n 5952-2146.

DSA Family Brochure, p/n 5091-5887E.

Standard Data Format Utilities, p/n 5091-2945E.

DSA Accessory Catalog, p/n 5091-9708E.

Ordering Information

	Price
HP 3563A Control Systems Analyzer	\$27,450
Opt 907 Front Handle Kit	+ \$79
Opt 908 Rack Mount Kit	+ \$42
Opt 909 Rack Mount and Front Handle kit	+ \$104
Opt 910 Extra Getting Started, Operating, Programming Manuals	+ \$183
Opt 915 Add Service Manual and Kit	+ \$102
Opt 921 PC File Utilities	+ \$153
Opt 922 Delete Cables, Pods, and Pouch	- \$1,480
Opt W30 Extended Repair Service (see page 663)	+ \$625
HP 3562A Dynamic Signal Analyzer	\$22,050
Opt 907 Front Handle Kit	+ \$79
Opt 908 Rack Mount Kit	+ \$42
Opt 909 Rack Mount and Front Handle Kit	+ \$104
Opt 910 Extra Operating Manuals	+ \$230
Opt 914 Delete Service Manuals	- \$100
Opt W30 Extended Repair Service (see page 663)	+ \$495