SIGNAL ANALYZERS
Dual-channel, Control Systems Analyzer 64 μHz to 100 kHz
HP 3562A

- Network, spectrum, waveform, transient analysis
- Linear, logarithmic, swept sine modes
- 80 dB dynamic range with full alias protection
- High accuracy (±0.15 dB)

100 kHz measurement range. Single-channel accuracy is ±0.15 dB with 80 dB of dynamic range. Modulation analysis can be performed on either or both channels with harmonic and sideband markers as well as with the built-in demodulation capability; zoom measurement can be AM, FM, or PM demodulated with carrier frequencies up to 99.9 kHz.

Waveform and Transient Analysis
Perform complete analysis of waveforms and transients in the time and frequency domains. Store sampled and digitized waveforms in internal memory (single-channel time capture) or on disk in an external disk drive (single- or dual-channel time throughputs). Recall data for time domain analysis as single time records or as a compressed display of up to 10 time records (time capture mode). Data can also be recalled for baseband and zoom analysis in the frequency domain, with vector averaging if needed.

The array of triggering capabilities enhances both waveform recording modes. Pre- and post-trigger delays can be specified to capture the rising edge of a transient or to compensate for delays in the system under test.

Hardcopy and Mass Storage
When access to prototypes is limited, make your test time more efficient with the time throughput capability; through direct control of external disk drives, the HP 3562A stores time data directly to disk without a computer.

HP-IB is a standard feature to speed and simplify documentation of results with direct control of plotters and disk drives. Anything displayed on the analyzer screen can be plotted or saved on disk: measurement results, setup state tables, synthesis tables, vector and auto sequence or auto math program listing.

Automation for Improved Productivity
As a stand-alone solution, the analyzer can "learn" a series of keystrokes and then perform them on command (auto sequence programming). Up to five auto sequence programs can be stored internally, with additional programs stored on an external disk drive. For networked HP-IB systems, the HP 3562A provides complete HP-IB programmability. Custom display graphics menus can be created with direct programming of the display, and user-defined softkey menus can be created to simplify interactive testing.

Specifications (HP 3562A, 3563A)
Contact your local HP sales office for more information, including a data sheet with complete specifications.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Measurement range</th>
<th>64 μHz to 100 kHz. Both channels, single- or dual-channel operation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>span/800. Both channels, single- or dual-channel operation, linear resolution mode.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spans</th>
<th>Baseband</th>
<th>Zoom</th>
</tr>
</thead>
<tbody>
<tr>
<td># of spans</td>
<td>66</td>
<td>64</td>
</tr>
<tr>
<td>min span</td>
<td>10.24 MHz</td>
<td>20.48 MHz</td>
</tr>
<tr>
<td>max span</td>
<td>100 kHz</td>
<td>100 kHz</td>
</tr>
<tr>
<td>time record (sec)</td>
<td>800/span</td>
<td>800/span</td>
</tr>
</tbody>
</table>

Window functions: flat top, hana, 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 Accuracy: defined as full scale accuracy at any of the calculated frequency points. Overall accuracy for the linear or logarithmic resolution modes is the sum of the absolute accuracy, window flatness and noise level. Overall accuracy for swept sine mode is the sum of absolute accuracy and noise level.
**SIGNAL ANALYZERS**

**Dual-channel, Control Systems Analyzer 64kHz to 100 kHz**

**HP 3563A, 3562A**

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**Absolute accuracy:** single channel (channel 1 or 2)
- ±0.015 dB ±0.015% of input range (±27 dBV to -40 dBV)
- ±0.025 dB ±0.025% of input range (±41 dBV to -51 dBV)

**Window flatness:**
- Flat top +0, -0.01 dB
- Hann +0, -1.5 dB

**Noise floor:** with flat top window, 50Ω source impedance and input set to -51 dBV range
- 20 Hz to 1 kHz (1 kHz span) < -126 dBV (-134 dBV /ΩHz)
- 1 kHz to 100 kHz (100 kHz span) < -115 dBV (-144 dBV /ΩHz)

**Frequency response channel match:**
- Analog/analog: input signals at full scale on any pair of ranges, accuracy is ±0.1 dB, ±0.5 degree.
- Digital/digital: for simultaneous sampling on channels 1 and 2, accuracy is ±0.1 dB, ±0.5 degree. If sampling is not simultaneous, the HP 3563A can partially correct for skew in the system under test. With skew correction activated, nominal accuracy is ±0.1 dB, ±1.0 degree from 320 mHz to 10 kHz and ±0.1 dB, ±4.0 degrees from 10 kHz to 100 kHz.
- Mixed analog/digital: With full-scale inputs on both channels, no skew between the analog and digital inputs, ±1 sampling ratio, and 8 averages, nominal accuracy is ±0.2 dB, ±2.0 degrees from 320 mHz to 20 kHz and ±0.4 dB, ±6.0 degrees from 20 kHz to 100 kHz.

**Dynamic range:** All distortion (intermodulation and harmonic), spurious, and alias products are ≥ 80 dB below full scale input range (16 averages)

**Analog input (HP 3563A and 3562A)**
- **Input impedance:** 1MΩ ±5% shunted by < 100 pF
- **Input coupling:** inputs can be ac or dc coupled — ac rolloff in <3 dB at 1 Hz
- **Crosstalk:** -140 dB (50Ω source, 50Ω input termination, input connectors shielded)
- **Common mode rejection:**
  - 0 Hz to 66 Hz: 80 dB
  - 66 Hz 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. (User selects truncation of unused upper bits or rounding of the three lowest bits for data more than 13 bits wide.) The data qualifier input accepts 8 qualifier lines, a trigger, and 1 clock signal.

**Trigger**
- **Trigger modes:** free run, input channel 1, input channel 2, source and external trigger. Free run applies to all measurement modes. Input channel 1, input channel 2, source and external trigger apply to the linear resolution, time capture, and time throughput measurement modes.
- **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 HP 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:** 50Ω (nominal)

**Output level:** between +10 and -10 Vpeak (ac + dc) into a ≥ 10 kΩ, < 1000 pF load. Maximum current is 20 mA.
- ac level: ±5 Vpeak (≥ 10kΩ, < 1000 pF load)
- dc offset: ±10 Vpeak in 100 mV steps. Residual offset at 0V offset ≤ 10 mV
- **Distortion:** including subharmonics
  - 26.5 µHz to 10 kHz -55 dB
  - 10 kHz to 100 kHz -40 dB
- **Pulse:** nominally 1 sample wide and bandlimited

**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 LS TTL
- **Maximum output rate:** 256 kHz

**General**
- Specifications apply when AUTO CAL is enabled or within 5°C and 2 hours of last internal calibration
- **Ambient temperature:** 0 to 55°C
- **Relative humidity:** ≤ 85% at 40°C
- **Altitude:** ≤ 4570 m (15,000 ft)
- **Storage:**
  - Temperature: -40 to +75°C
  - Altitude: ≤ 15240 m (50,000 ft)
- **Power:** 90-132 V ac, 48 to 66 Hz
  - 198-264 V ac, 48 to 66 Hz
  - 450 VA maximum
- **Weight:** net, 27kg (58lb); shipping, 36kg (79lb)
- **Size:** 222H x 426W x 578mmD (8.75" x 16.75" x 22.75")

**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 5959-0388 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 01650-63201 termination adapter
- HP 3563A/HP 3562A: transit case for one HP 3563A: HP p/n 9211-2663

**Ordering Information**
- HP 3563A Control Systems Analyzer
  - Opt 907 Front Handle kit
  - Opt 908 Rack Mount kit
  - Opt 909 Rack Mount and Front Handle kit
  - Opt 910 Extra Operating manuals
  - Opt 914 Delete Service manuals
- Opt W30 Extended Repair Service. See page 725.

- HP 3562A Dynamic Signal Analyzer
  - Opt 907 Front Handle kit
  - Opt 908 Rack Mount kit
  - Opt 909 Rack Mount add Front Handle kit
  - Opt 910 Extra Operating manuals
  - Opt W30 Extended Repair Service. See page 725.