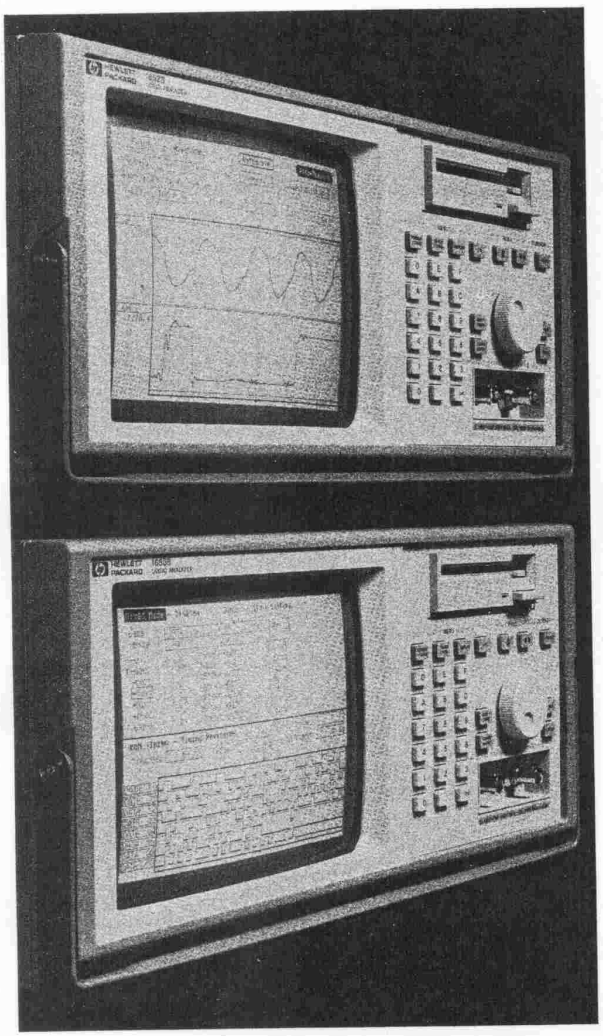
# LOGIC ANALYZERS

## Portable Logic Analyzers

### HP 1652B, 1653B

- 80 channels of state/timing
- 2 channels of 400 MS/s digitizing oscilloscope
- More measurement power at a lower cost than separate instruments
- See analog events with a general purpose 100 MHz BW digitizing scope
- Automatic pulse parameter measurements



HP 1652B and HP 1653B

DESIGNED FOR HP-IB SYSTEMS

NEW

### Logic Analyzers with a Digitizing Oscilloscope

The HP 1652B and HP 1653B logic analyzers have all of the features of the HP 1650B and HP 1651B plus two 400 MSa/s digitizing oscilloscope channels, automatic pulse parameter measurements, and time-correlated state, timing and oscilloscope displays. You can still completely analyze your 8-, 16-, or 32-bit microprocessor while getting better definition on system signals with the 2-channel oscilloscope.

You can characterize critical timing parameters with time interval measurements to better than 1 ns accuracy or examine glitches in your system with the built-in scope to determine if noise or loading is the problem. Or, you can use the scope to enhance your troubleshooting capabilities.

### Two Simultaneous 400 MSa/s Analog Channels

Each scope channel is a full-featured, 400 MSa/s, 100 MHz bandwidth oscillosope. Both channels simultaneously capture non-repeating events with a full 2,048 samples per channel. The built-in scope is based on the same technology used in the popular HP 54502A 100 MHz BW oscilloscope. The scope features include precision voltage and time interval measurements, powerful triggering, and auto-calibration.

### Time-Correlated State, Timing and Oscilloscope Measurements

System debugging becomes easier when you display time-correlated state, timing, and analog displays on the same screen. You can see how hardware and software interact, while getting an accurate view of how your system sees the signal.

### Cross-Trigger Measurement Modules

You can use the state analyzer's powerful triggering capabilities to determine when the oscilloscope should start looking for a signal. Once the scope is armed, you can use traditional edge triggering to focus on the area of interest.

Glitch triggering on all channels makes the timing analyzer another great tool for arming or triggering the scope. Simply set up the timing analyzer to trigger on a glitch, then trigger the oscilloscope to capture the activity around the glitch. By getting an analog display of the signal, you can determine if the glitch is really a problem.

### Portable Analyzers

The HP 1652B/1653B portable analyzers are ideal for service applications. Their small size and light weight (just 24 lbs) make them easy to carry to test sites. With the built-in scope, you have two complete instruments in one small package.

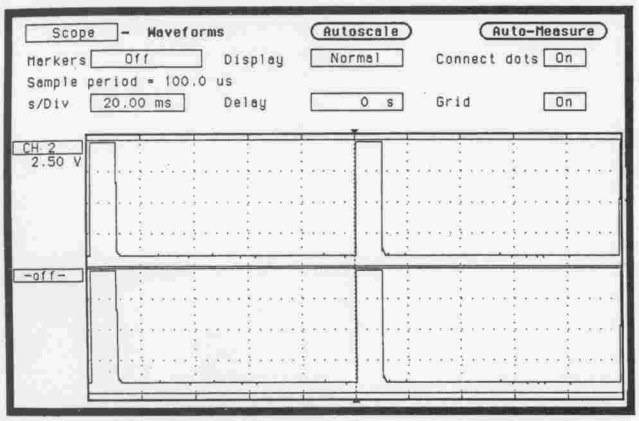
### See Pre-trigger Events

The 2K memory depth and powerful triggering allow you to look at the events that led up to a system failure. Each channel can be set to capture the data up to 40 screen diameters before the trigger event occurred.

### Automatic Pulse Parameter Measurements

Quickly analyze a signal's analog properties without having to count graticules. Choose automatic measurements or time markers to measure voltage and timing relationships. The HP 1652B/1653B automatically measures the following pulse parameters:

| | |
|---|---|
| + pulse width | – pulse width |
| frequency | period |
| risetime | falltime |
| peak-peak voltage | overshoot |
| preshoot | |




The HP 1652B/1653B offers full-featured digitizing oscilloscope performance.

### Automatic Marker Search

Using the automatic marker search, you can examine waveforms for specific patterns that could be the cause of a system crash. Or, use the automatic marker search statistics to reveal setup and hold time violations as you make repeated measurements on the system. After each run, the markers are placed on specified patterns, and statistics are compiled on the mean, minimum, and maximum marker placement times, so you can see how often a specific event occurs.

### Hardcopy Output

After using the built-in oscilloscope to find an elusive problem, use either an HP-IB or RS-232 printer to obtain a permanent record. The HP 1652B and 1653B support over 10 printers.

### All Other Features of the HP 1650B/1651B

All of the other features of the HP 1650B/1651B logic analyzers are included in the HP 1652B/1653B. These features include 80 channels of state and timing analysis, full-featured triggering, built-in disk drives, and support for most popular processors and bus interfaces. Plus, the data and configuration files of the HP 1652B/1653B are compatible with the HP 1650B/1651B and with the HP 16510B. You can transfer information from one analyzer to another.

| | HP 1652B | HP 1653B |
|---|---|---|
| Timing | 100 MHz all 80 channels | 100 MHz all 32 channels |
| State | 35 MHz all 80 channels | 25 MHz all 32 channels |
| Analog | 2 - 400 MSa /s 100 Mhz BW Simultaneous acquisition channels | 2 - 400 MSa/s 100 MHz BW Simultaneous acquisition channels |
| Memory | 1 Kbit/channel | 1 Kbit/channel |
| Microprocessor support | Most 8-, 16- and 32-bit microprocessors | Most 8-bit microprocessors, busses |

| Ordering Information | Price |
|---|---|
| **HP 1652B** Logic Analyzer with Oscilloscope | $7,400 |
| **HP 1653B** Logic Analyzer with Oscilloscope | $11,300 |