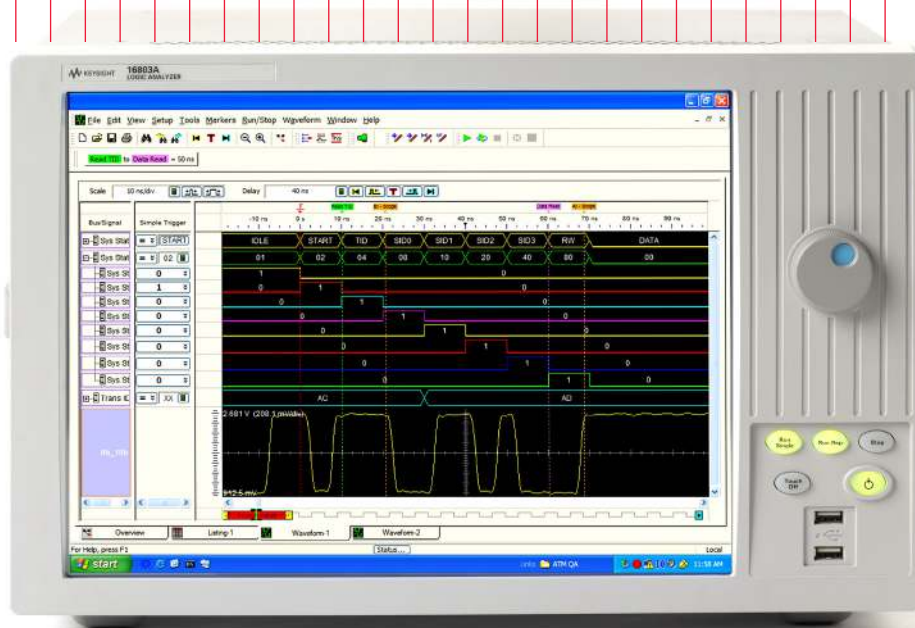# Keysight Technologies
16800 Series Portable Logic Analyzers

The 16800 Series portable logic analyzers offer advanced measurements for your digital applications — at a price that will fit your budget.
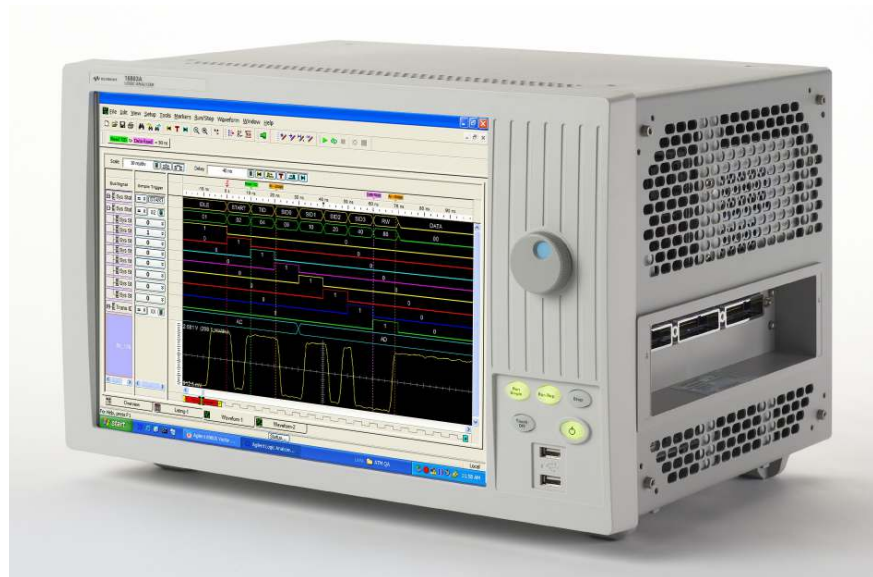

KEYSIGHT
TECHNOLOGIES

Measurements that meet your specific needs – at a price that fits your budget

Keysight Technologies, Inc. 16800 Series portable logic analyzers offer the performance, applications, and usability your digital development team needs to quickly debug, validate, and optimize your digital system.

Logic analysis for tracking real-time system operation

Accurately measure precise timing relationships over longer periods of time with 64 K deep, 4 GHz (250 ps) timing zoom. Find anomalies separated in time with memory depths upgradeable to 32 M. You get it all at a price that fits your budget.
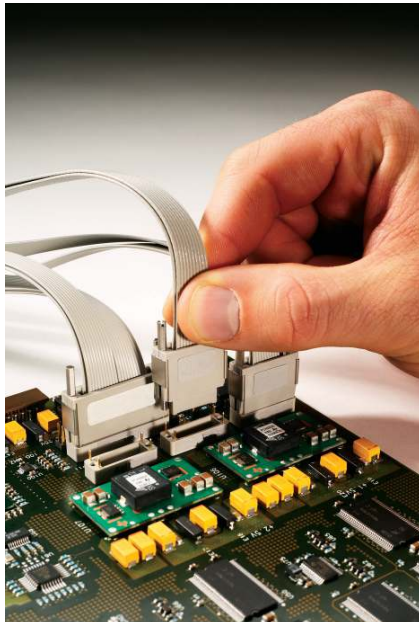
Keysight Model Number	16801A, 16821A[1]	16802A, 16822A[1]	16803A, 16823A[1]	16804A	16806A
Logic analyzer channels	34	68	102	136	204
Pattern generator channels[1]	48	48	48	N/A	N/A
High-speed timing zoom	4 GHz (250 ps) with 64 K depth	4 GHz (250 ps) with 64 K depth			
Maximum timing sample rate (Half/full ch)	1.0 GHz (1.0 ns) / 500 MHz (2.0 ns)	1.0 GHz (1.0 ns) / 500 MHz (2.0 ns)			
Maximum state clock rate	250 MHz with option 250	450 MHz with option 500 250 MHz with option 250			
Maximum state data rate	250 Mb/s with option 250	500 Mb/s with option 500 250 Mb/s with option 250			
Maximum memory depth	1 M with option 001 4 M with option 004 16 M with option 016 32 M with option 032	1 M with option 001 4 M with option 004 16 M with option 016 32 M with option 032			
Supported signal types	Single-ended	Single-ended			
Automated threshold/sample position Simultaneous eye diagrams, all channels	Yes	Yes			
Probe compatibility	40-pin cable connector	40-pin cable connector			

1 Pattern generator available with 16821A, 16822A and 16823A.

Choose from eight models to get the measurement capability for your specific application.

Pattern generation for functional verification

Drive down risk early in product development by replacing missing circuits or boards with digital stimulus. Verify operation across a variety of test conditions with normal or faulty digital patterns at full speed or by stepping through individual states. A logic analyzer with an integrated pattern generator lets you control and monitor real-time system operation.

Keysight Model Number	16821A, 16822A, 16823A	
	Half Channel	Full Channel
Maximum clock	300 MHz	180 MHz
Data channels	24	48
Memory depth in vectors	16 M	8 M
Logic levels supported	5 V TTL, 3-state TTL, 3-state TTL/CMOS, 3-state 1.8 V, 3-state 2.5 V, 3-state 3.3 V, ECL, 5 V PECL, 3.3 V LVPECL, LVDS	

Models with a built-in pattern generator give you more measurement flexibility

Accurate measurements start with reliable probing

Keysight offers a wide variety of probing accessories that support your general-purpose and application-specific measurement needs. Keysight consistently delivers the leading edge in probing hardware and techniques to give designers like you access to the very signals that hold the key to your system's problems.

View Scope for tracking down problems across the analog and digital portions of your design

Easily make time-correlated measurements and maintain marker tracking between your 16800 Series logic analyzer and Keysight 6000 Series or Keysight Infiniium 8000, 54800, DSO80000 Series oscilloscopes with standard View Scope software. A simple physical LAN and BNC connection has you quickly validating signal integrity and timing relationships between analog and digital signals. Import scope waveforms into a single, integrated logic analyzer waveform display for easy viewing and analysis.

Keysight 16800 Series portable logic analyzers deliver performance, applications, and usability

15-inch color display, a viewing area more than twice as large as other logic analyzers in its class, allows you to see more data. Viewing relationships between large numbers of signals and buses helps you identify a problem sooner.

View Scope lets you quickly validate signal integrity and timing relationships between analog and digital domains by seamlessly integrating your scope and logic analyzer waveforms into a single display.

Up to **32 M deep memory** for identifying the root cause of a problem and symptom that are widely separated in time

Built-in 48-channel pattern generator (16821A, 16822A and 16823A) provides stimulus and response in a single instrument

34, 68, 102, 136 and 204 channel logic analyzer configurations offer flexibility for any application or budget
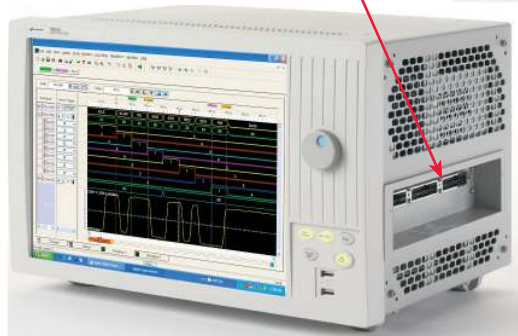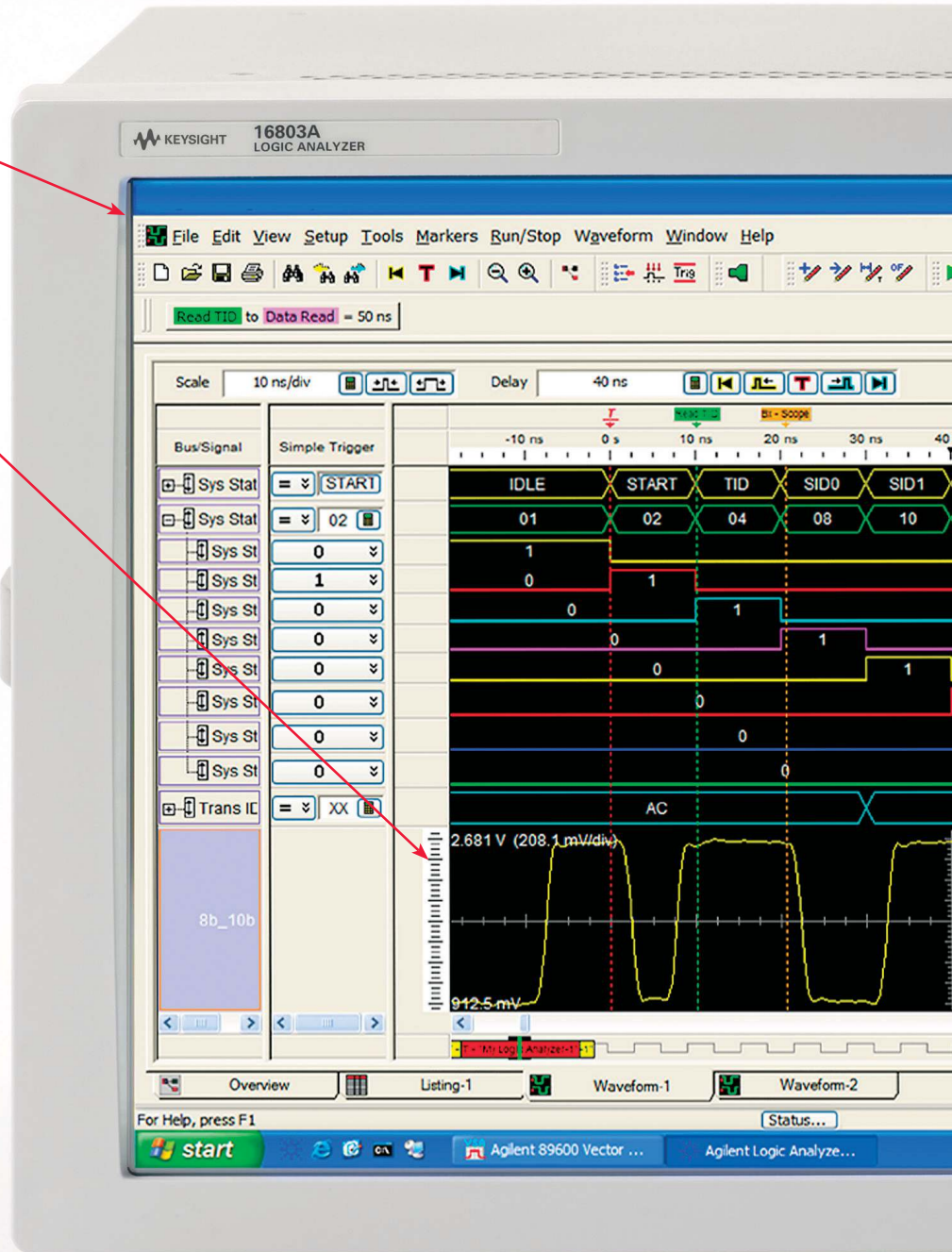
General-purpose knob lets you quickly adjust your viewing and measurement parameters. Select a modifiable variable, then turn the knob to quickly step through values for the variable.

Available **touch screen** gives you direct access to all logic analyzer functionality so you can stay focused on your measurement. "Touch Off" key disables the touch screen and allows you to point out anomalies to a colleague without altering the display settings.

Six 2.0 USB ports, two in front, four in the rear, let you "hot connect"a mouse, keyboard or USB storage drives.

44.32 cm
17.45 in

38.1 cm
15 in

28.88 cm
11.37 in

33.05 cm
13.01 in
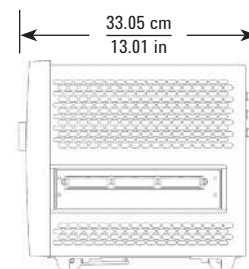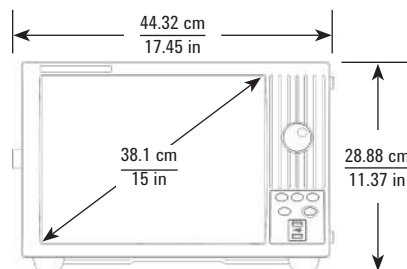
Unprecedented insight into your design with multiple views and analysis tools

Keysight and our partners provide an extensive range of FPGA, bus, processor and analysis tools to accelerate the debugging process for your specific application. The navigation, data views and analysis features provide instant insights into your system's operation so that you spend your time solving problems, not finding them. Only Keysight can provide you with such an extensive breadth of insight and measurement coverage in a logic analyzer.


FPGA

Gain visibility into your FPGA's internal activity and get "x-ray vision" into your design. You can automate setup with custom signal names, and measure new groups of signals in seconds – without stopping your FPGA, changing your design, or impacting the timing.

## Digital VSA

Perform in-depth time, frequency, and modulation domain analysis on your digital baseband and IF signals. Keysight's 89600 Vector Signal Analysis software provides flexible tools for making quality RF and modulation measurements on digital communication signals.
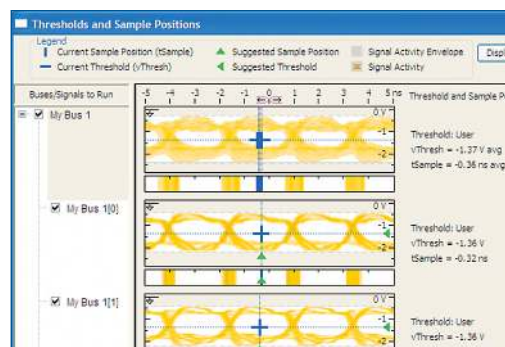
Eye Scan

Identify problem signals quickly by viewing eye diagrams across all buses and signals simultaneously.

Logic analyzers with performance you can use, priced to fit your budget
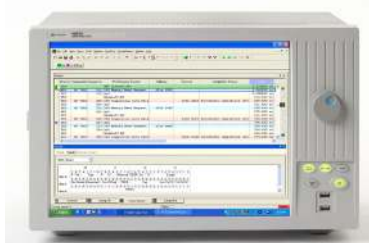
Like what you see but you want more flexibility?
The 16900 Series provides everything the 16800 Series offers and more...
– Modularity to configure a system the way you want
– Higher timing/state speeds
– Channel counts > 204
– Deeper memory depths, up to 256 M across all channels
– Differential as well as single-ended signal support

Selecting a logic analyzer to meet your application and budget is as easy as 1, 2, 3

1. Choose measurement capability	2. Choose the channel count				
34 channels	68 channels	102 channels	136 channels	204 channels	
Logic analyzer	16801A	16802A	16803A	16804A	16806A
Logic analyzer with 48-channel pattern generator	16821A	16822A	16823A	–	–

3. Choose the memory depth and state speed

Memory depth	1 M: <Model number>-001 4 M: <Model number>-004 16 M: <Model number>-016 32 M: <Model number>-032
State speeds	250 MHz: <Model number>-250 450 MHz: <Model number>-500*

* Applies to 68, 102, 136 and 204 channel models

Additional Considerations

Touch screen: <Model number>-103

Extend the life of your equipment:
Upgrade your 16800 Series logic analyzer by "turning on" additional memory depth and state speed when you need more. Purchase the capability you need now, then upgrade as your needs evolve.

Probes are ordered separately:
Please specify probes when ordering to ensure the correct connection between your logic analyzer, pattern generator, and device under test. See the 16800 Series data sheet (5989-5063EN) for an extensive list of pattern generator clock and data pods. Order any combination and quantity of the following probes for the logic analyzer:

General purpose flying lead probe
– 17-ch E5383A

Connector probes
– Mictor: 34-ch E5346A
– Samtec: 34-ch E5385A

Connectorless probes
– 17-ch E5396A soft touch
– 34-ch E5394A soft touch
– 34-ch E5404A pro-series soft touch

Related Literature

Publication Title	Publication Type	Publication Number
Keysight 16800 Series Logic Analyzers	Data sheet	5989-5063EN
Considerations When Selecting a Logic Analyzer	Application note	5989-5138EN
Keysight Technologies 16900 Series Logic Analysis Systems	Color brochure	5989-0420EN
Keysight Technologies Measurement Modules for the 16900 Series	Data sheet	5989-0422EN
Keysight Technologies B4655A FPGA Dynamic Probe	Data sheet	5989-0423EN
Probing Solutions for Keysight Technologies Logic Analyzers	Catalog	5968-4632E
Processor and Bus Support for Keysight Technologies Logic Analyzers	Catalog	5966-4365E

Product Web site

For the most up-to-date and complete application and product information, please visit our product Web site at:
www.keysight.com/find/logic

www.keysight.com/find/16800

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

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Taiwan	0800 047 866
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