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Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent/Keysight 1653B

Agilent Keysight 1653B Logic Analyzer 32 Channel The HP 1653B is a 32-channel 1650-series logic analyzer with a built-in 2-channel oscilloscope (the 32-channel analog of 1652B). OEM 1652B/1653B literature lists 32 LA channels plus a 400 MSa/s-class 2-channel scope for parametric measurements when the timing analyzer finds a failure. Microprocessor and digital timing/state debug on HP 1650-series benchtop analyzers. Instrument Type: Standalone logic analyzer The HP 1653B is a 32-channel 1650-series logic analyzer with a built-in 2-channel oscilloscope (the 32-channel analog of 1652B). OEM 1652B/1653B literature lists 32 LA channels plus a 400 MSa/s-class 2-channel scope for parametric measurements when the timing analyzer finds a failure. Microprocessor and digital timing/state debug on HP 1650-series benchtop analyzers. Instrument Type: Standalone logic analyzer State Speed: 35 MHz class of 1651B analyzer



MODEL

**Agilent / Keysight
1653B**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

1653B

LISTING

<https://aumictechlabs.com/products/1653b-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Agilent/Keysight 1653B is a logic analyzer combining oscilloscope and state/timing analysis in a single instrument for digital system debugging and verification. It delivers two simultaneous 400 MSa/s analog channels with 100 MHz bandwidth and 2,048 samples per channel, plus 80/32 channels of logic analysis. Time-correlated state, timing, and oscilloscope displays appear on one screen, observe hardware and software interactions with sub-nanosecond timing resolution. The

instrument captures non-repeating events and glitches with accuracy better than 1 ns, supports asynchronous pattern triggering with duration specifications, and includes deep memory for extended captures at high sample rates.

Technical Specifications

Oscilloscope Channels

Two simultaneous 400 MSa/s digitizing channels 100 MHz bandwidth per channel 2,048 samples per channel Precision voltage and time interval measurements, autoscale, waveform math, auto-calibration, infinite persistence, and averaging display modes

Logic Analysis

80/32 channels for state and timing analysis Deep memory architecture for long-duration captures Timing waveform display: 10 ns/div to 100 s/div with 0.01% resolution Hardware delay: 20 ns to 10 ms Maximum 24 displayed waveform lines Accumulate and overlay display modes

Timing Accuracy

Sample period accuracy: 0.01% of sample period Channel-to-channel skew: 4 ns typical Time interval accuracy: $\pm (\text{sample period} + \text{channel-to-channel skew} + 0.01\% \text{ of time interval reading})$ Trigger accuracy: +20 ns to -0 ns

Trigger Capabilities

Asynchronous pattern triggering on patterns with duration specifications Greater than duration: 40 ns to 10 ms with 10 ns or 0.01% resolution Pattern validity minimum: 20 ns

Input Characteristics

Minimum input voltage swing: 600 mV peak-to-peak Input threshold accuracy: ± 150 mV over -2.0 to 2.0 V; ± 300 mV over -9.9 to -2.1 V and 2.1 to 9.9 V Input dynamic range: ± 10 V about threshold Minimum input overdrive: 250 mV or 30% of input amplitude

Key Features

Pattern definition via logical AND of low, high, or don't-care states per channel Non-repeating event capture with glitch detection Built-in disk drives Support for popular processors and bus interfaces

Typical Applications

Real-time digital system characterization and timing parameter validation Microprocessor and embedded system debugging Bus protocol analysis and verification

Compatibility & Integration

Supports popular processors and bus interfaces for direct integration into development environments.

1653B Characteristics / Specifications

PARAMETER	VALUE
Model	1653B
Instrument Type	Standalone logic analyzer
Series Family	HP 1650/1651/1652/1653
Logic Channels	32
State Speed	35 MHz class of 1651B analyzer
Timing Speed	100 MHz
Form Factor	benchtop logic analyzer
Display	CRT state/timing listings and waveforms
Storage	3.5 inch floppy class of 1650-series
Remote Class	HP-IB on optioned 1650-series units
Trigger	pattern, edge, and sequence triggering class
Probing	1650-series pod and grabber leads
Application	8/16-bit microprocessor debug
User Interface	dedicated keypad and CRT menus
Documentation	HP 1650/1651/1653 operating and service literature
Operating Environment	laboratory ambient per 165x manual
Power	AC mains operated
Clocking	state clocks and qualifiers class of 1650-series
Glitch	glitch capture class on timing analyzer
Compare	trace compare class
Print	HP-IB printer support class
Oscilloscope Channels	2 (1653B combines 32-channel LA with built-in scope like 1652B 80-channel plus scope)
Oscilloscope Sample Rate Class	400 MSa/s class of 1652B/1653B built-in scopes
Sibling 1652B	80-channel logic analyzer plus 2-channel scope

1653B Specifications

PARAMETER	VALUE
Agilent Keysight 1653B Logic Analyzer 32 Channel	Overview
Applications	Microprocessor and digital timing/state debug on HP 1650-series benchtop analyzers.
Key Features	32 logic channels plus 2-channel scope
Technical Specifications	Model: 1653B

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
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Model	1653B
Instrument Type	Standalone logic analyzer
Series Family	HP 1650/1651/1652/1653
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Oscilloscope Channels	2 (1653B combines 32-channel LA with built-in scope like 1652B 80-channel plus scope)
Oscilloscope Sample Rate Class	400 MSa/s class of 1652B/1653B built-in scopes
Sibling 1652B	80-channel logic analyzer plus 2-channel scope
Notes	
Channel count, 35 MHz class of 1651B analyzer state, and 100 MHz timing from HP 1650-series product	

literature for 1653B. Oscilloscope rows apply only when listed.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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NIST-traceable calibration · SAM registered ·
30-day returns
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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.