Agilent Technologies
16900 Series Modules

Data Sheet

The Agilent 16900 Series logic analysis modules offer the speed, features, and usability your digital development team needs to quickly debug, validate, and optimize your digital system—at a price that fits your budget.

16900 Series timing and state modules give you the power to:

- Accurately measure precise timing relationships using 4 GHz (250 ps) timing zoom with 64 K depth.

- Extend the measurement window with precision when signals transition less frequently using transitional timing.

- Find anomalies separated in time with deep memory depths.

- Buy what you need today and upgrade in the future. 16900 Series timing/state modules come with independent upgrades for memory depth and state speed.

- Sample high-speed synchronous buses accurately and confidently using eye finder. Eye finder automatically adjusts setup and hold for your highest confidence in measurements on high-speed buses.

- Track problems from symptom to root cause across several measurement modes by viewing time-correlated data in waveform/chart, listing, inverse assembly, source code, or compare display.

- Set up triggers quickly and confidently with intuitive simple, quick, and advanced triggering. This capability combines new trigger functionality with an intuitive user interface.

- The Agilent 16900 Series modules are compatible with the industry's widest range of probing accessories with capacitive loading down to 0.7 pF.

- Monitor and correlate multiple buses using a single module with split analyzer capability. This provides single and multi-bus support using a single module (timing, state, timing/state or state/state configurations).

Agilent Technologies

Agilent 16900 Series Logic Analysis Modules

Agilent Model Number	Support for the Industry's Fastest Buses 16950A	High-Performance 16910A	High-Performance 16911A
Channels per module	68	102	68
Maximum channels on single time base	340	510	340
Timing Mode			
High-speed timing zoom [1]	4 GHz (250 ps) with 64 K depth	4 GHz (250 ps) with 64 K depth	4 GHz (250 ps) with 64 K depth
Maximum timing sample rate: half channel mode	1.2 GHz (833 ps)	1.0 GHz (1 ns)	1.0 GHz (1 ns)
Maximum timing sample rate: full channel mode	600 MHz (1.67 ns)	500 MHz (2.0 ns)	500 MHz (2.0 ns)
Transitional timing	600 MHz (1.67 ns)	500 MHz (2.0 ns)	500 MHz (2.0 ns)
State Mode			
Maximum state clock rate	600 MHz	450 MHz with option 500, 250 MHz with option 250	450 MHz with option 500, 250 MHz with option 250
Maximum state data rate	800 Mb/s	500 Mb/s with option 500, 250 Mb/s with option 250	500 Mb/s with option 500, 250 Mb/s with option 250
Setup/hold window Adjustment resolution	1 ns (600 ps typical), 80 ps typical	80 ps typical	80 ps typical
State clock, data rate (upgradeable)	No	Yes (Agilent E5865A)	Yes (Agilent E5866A)
Eye finder capability	Yes	Yes	Yes
Memory Depth [2]			
64 M	Option 064		
32 M	Option 032	Option 032	Option 032
16 M	Option 016	Option 016	Option 016
4 M	Option 004	Option 004	Option 004
1 M	Option 001	Option 001	Option 001
256 K	Option 256	Option 256	Option 256
Memory depth (upgradeable)	Yes (Agilent E5875A)	Yes (Agilent E5865A)	Yes (Agilent E5866A)
Other			
Supported signal types	Single-ended and differential	Single-ended	Single-ended
Eye scan capability	Yes, in future software release	No	No
Probe compatibility [3]	90-pin cable connector	40-pin cable connector	40-pin cable connector
Voltage threshold	−3 V to 5 V (10 mV increments)	−5 V to 5 V (10 mV increments)	−5 V to 5 V (10 mV increments)

[1] All channels, all the time, simultaneous state and timing through same probe.
[2] Specify desired memory depth using available options.
[3] Probes are ordered separately. Please specify probes when ordering to ensure the correct connection between your logic analyzer and the device under test.

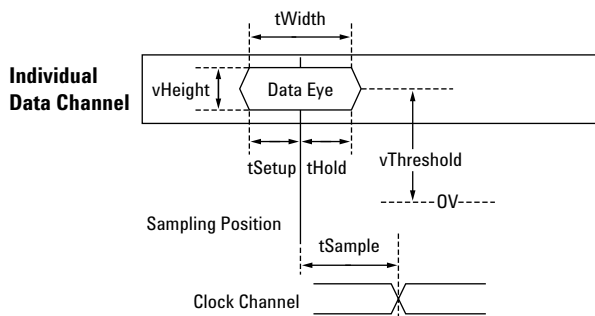# Agilent 16910A and 16911A Specifications and Characteristics

Module Channel Counts	State Analysis 16910A	State Analysis 16911A	Timing Analysis 16910A	Timing Analysis 16911A
1-card module	98 data + 4 clocks	64 data + 4 clocks	102	68
2-card module	200 data + 4 clocks	132 data + 4 clocks	204	136
3-card module	302 data + 4 clocks	200 data + 4 clocks	306	204
4-card module	404 data + 4 clocks	268 data + 4 clocks	408	272
5-card module	506 data + 4 clocks	336 data + 4 clocks	510	340

Probes

A probe must be used to connect the logic analyzer to your target system. Probes are ordered separately from the logic analysis module. For specifications and characteristics of a particular probe, see the documentation that is supplied with your probe or search for the probe's model number in this help system or at **www.agilent.com** or *Probing Solutions for Agilent Technologies Logic Analyzers* Product Overview, publication number 5968-4632E.

Timing Zoom

Timing analysis sample rate	4 GHz

Time interval accuracy
  Within a pod pair
  Between pod pairs
	
	± (1.0 ns + 0.01% of time interval reading)
	± (1.75 ns + 0.01% of time interval reading)

Memory depth	64 K samples
Trigger position	Start, center, end, or user-defined
Minimum data pulse width	1 ns

Agilent 16910A and 16911A Specifications and Characteristics

State (Synchronous) Analysis Mode	Option 250	Option 500
tWidth* [1]	1.5 ns	1.5 ns
tSetup	0.5 tWidth	0.5 tWidth
tHold	0.5 tWidth	0.5 tWidth
tSample range [2]	–3.2 ns to +3.2 ns	–3.2 ns to +3.2 ns
tSample adjustment resolution	80 ps typical	80 ps typical
Maximum state data rate on each channel	250 Mb/s	500 Mb/s
Maximum channels on a single time base and trigger [4]	16910A: 510 – (number of clocks) 16911A: 340 – (number of clocks)	16910A: 510 – (number of clocks) 16911A: 340 – (number of clocks)
Memory depth [4]	Option 256: 256 K samples Option 001: 1 M samples Option 004: 4 M samples Option 016: 16 M samples Option 032: 32 M samples	Option 256: 256 K samples Option 001: 1 M samples Option 004: 4 M samples Option 016: 16 M samples Option 032: 32 M samples
Number of independent analyzers [5]	2	1
Number of clocks [6]	4	1
Number of clock qualifiers [6]	4	N/A
Minimum time between active clock edges* [7]	4.0 ns	2.0 ns
Minimum master to slave clock time	1 ns	N/A
Minimum slave to master clock time	1 ns	N/A
Minimum slave to slave clock time	4.0 ns	N/A

* Items marked with an asterisk (*) are specifications. All others are characteristics.
  "Typical" represents the average or median value of the parameter based on measurements from a significant number of units.
[1] Minimum eye width in system under test.
[2] Sample positions are independently adjustable for each data channel input. A negative sample position causes the input to be synchronously sampled by that amount before each active clock edge. A positive sample position causes the input to be synchronously sampled by that amount after each active clock edge. A sampling position of zero causes the input to be synchronously sampled coincident with each clock edge.
[3] Use of eye finder is recommended in 450 MHz and 500 Mb/s state mode.
[4] In 250 Mb/s state mode, with all pods assigned, memory depth is half the maximum memory depth. With one pod pair (34 channels) unassigned, the memory depth is full. One pod pair (34 channels) must remain unassigned for time tags in 500 Mb/s state mode.
[5] Independent analyzers may be either state or timing. When the 500 Mb/s state mode is selected, only one analyzer may be used.
[6] In the 250 Mb/s state mode, the total number of clocks and qualifiers is 4. All clock and qualifier inputs must be on the master modules.
[7] Tested with input signal Vh = +1.3 V, Vl = +0.7 V, threshold = +1.0 V, tr/tf = 180 ps ± 30 ps (10%, 90%).

Agilent 16910A and 16911A Specifications and Characteristics

State (Synchronous) Analysis Mode	Option 250	Option 500

Minimum state clock pulse width
    Single edge
    Multiple edge
	
	1.0 ns
	1.0 ns
		
		1.0 ns
		2.0 ns

Clock qualifier setup time	500 ps	N/A
Clock qualifier hold time	0	N/A
Time tag resolution	2 ns	1.5 ns
Maximum time count between stored states	32 days	32 days
Maximum trigger sequence speed	250 MHz	500 MHz
Maximum trigger sequence levels	16	16
Trigger sequence level branching	Arbitrary 4-way if/then/else	2-way if/then/else
Trigger position	Start, center, end, or user-defined	Start, center, end, or user-defined

Trigger resources	16 patterns evaluated as =, =/, >, ≥, <, ≤
	14 double-bounded ranges evaluated as
	  in range, not in range
	2 timers per module
	2 global counters
	1 occurrence counter per sequence level
	4 flags
		14 patterns evaluated as =, =/, >, ≥, <, ≤
		7 double-bounded ranges evaluated as
		  in range, not in range
		1 occurrence counter per sequence level
		4 flags

Trigger resource conditions	Arbitrary Boolean combinations	Arbitrary Boolean combinations
Trigger actions	Go To Trigger, send e-mail, and fill memory Trigger and Go To Store/don't store sample Turn on/off default storing Timer start/stop/pause/resume Global counter increment/decrement/reset Occurrence counter reset Flag set/clear	Go To Trigger and fill memory
Store qualification	Default (global) and per sequence level	Default (global)
Maximum global counter	2E+24	N/A
Maximum occurrence counter	2E+24	2E+24
Maximum pattern width	128 bits	128 bits
Maximum range width	32 bits	32 bits
Timers range	60 ns to 2199 seconds	N/A
Timer resolution	2 ns	N/A
Timer accuracy	± (5 ns +0.01%)	N/A
Timer reset latency	60 ns	N/A

Agilent 16910A and 16911A Specifications and Characteristics

Timing (Asynchronous) Analysis Mode	Conventional Timing	Transitional Timing [8]
Sample rate on all channels	500 MHz	500 MHz
Sample rate in half channel mode	1000 MHz	N/A

Number of channels	16910A: 102 x (number of modules)
	
	16911A: 68 x (number of modules)
		16910A: For sample rates < 500 MHz:
		    102 x (number of modules)
		  For 500 MHz sample rate:
		    102 x (number of modules) − 34
		16911A: For sample rates < 500 MHz:
		    68 x (number of modules)
		  For 500 MHz sample rate:
		    68 x (number of modules) − 34

Maximum channels on a single time base and trigger	16910A: 510 16911A: 340	16910A: 510 16911A: 340
Number of independent analyzers [5]	2	2
Sample period (half channel)	1.0 ns	N/A
Minimum sample period (full channel)	2.0 ns	2.0 ns
Minimum data pulse width	1 sample period + 1.0 ns	1 sample period + 1.0 ns
Time interval accuracy	± (1 sample period + 1.25 ns + 0.01% of time interval reading)	± (1 sample period + 1.25 ns + 0.01% of time interval reading)
Memory depth in full channel mode	Option 256: 256 K samples Option 001: 1 M samples Option 004: 4 M samples Option 016: 16 M samples Option 032: 32 M samples	Option 256: 256 K samples Option 001: 1 M samples Option 004: 4 M samples Option 016: 16 M samples Option 032: 32 M samples
Memory depth in half channel mode	Option 256: 512 K samples Option 001: 2 M samples Option 004: 8 M samples Option 016: 32 M samples Option 032: 64 M samples	N/A
Maximum trigger sequence speed	250 MHz	250 MHz
Maximum trigger sequence levels	16	16

[5] Independent analyzers may be either state or timing. When the 500 Mb/s state mode is selected, only one analyzer may be used.
[8] Transitional timing speed and memory depth are halved unless a spare pod pair (34 channels) is unassigned.

Agilent 16910A and 16911A Specifications and Characteristics

Timing (Asynchronous) Analysis Mode	Conventional Timing	Transitional Timing
Trigger sequence level branching	Arbitrary 4-way if/then/else	Arbitrary 4-way if/then/else
Trigger position	Start, center, end, or user-defined	Start, center, end, or user-defined

Trigger resources	16 patterns evaluated as =, =/, >, ≥, <, ≤
	14 double-bounded ranges evaluated as
	  in range, not in range
	3 edge/glitch
	2 timers per module
	2 global counters
	1 occurrence counter per sequence level
	4 flags
		15 patterns evaluated as =, =/, >, ≥, <, ≤
		14 double-bounded ranges evaluated as
		  in range, not in range
		3 edge/glitch
		2 timers per module
		2 global counters
		1 occurrence counter per sequence level
		4 flags

Trigger resource conditions	Arbitrary Boolean combinations	Arbitrary Boolean combinations
Trigger actions	Go To Trigger, send e-mail, and fill memory Trigger and Go To Turn on/off default storing Timer start/stop/pause/resume Global counter increment/decrement/reset Occurrence counter reset Flag set/clear	Go To Trigger, send e-mail, and fill memory Trigger and Go To Turn on/off default storing Timer start/stop/pause/resume Global counter increment/decrement/reset Occurrence counter reset Flag set/clear
Maximum global counter	2E+24	2E+24
Maximum occurrence counter	2E+24	2E+24
Maximum range width	32 bits	32 bits
Maximum pattern width	128 bits	128 bits
Timer value range	60 ns to 2199 seconds	60 ns to 2199 seconds
Timer resolution	2 ns	2 ns
Timer accuracy	± (5 ns +0.01%)	± (5 ns +0.01%)
Greater than duration	4.0 ns to 67 ms in 4.0 ns increments	4.0 ns to 67 ms in 4.0 ns increments
Less than duration	8.0 ns to 67 ms in 4.0 ns increments	8.0 ns to 67 ms in 4.0 ns increments
Timer reset latency	60 ns	60 ns

Agilent 16910A and 16911A Specifications and Characteristics

Power Requirements

All necessary power is supplied by the backplane connector of the logic analysis system mainframe.

Environmental Characteristics

Indoor use only

Operating Environment

Temperature (except flexible disk media)	0 to 40 °C (+32 to +104 °F) when operating in a 16900A or 16902A mainframe. 0 to 50 °C (+32 to +122 °F) when operating in a 16903A mainframe.
Humidity	0 to 80% relative humidity at 40 °C (+104 °F). Reliability is enhanced when operating within the range 20% to 80% non-condensing.
Altitude	0 to 3000 m (10,000 ft)
Vibration	Random vibration 5 to 500 Hz, 10 minutes per axis, approximately 0.2 g rms

Non-Operating Environment

Temperature	−40 to +75 °C (−40 to +167 °F). Protect the instrument from temperature extremes which cause condensation on the instrument.
Humidity	0 to 90% at 65 °C (149 °F)
Altitude	0 to 15,300 m (50,000 ft)
Vibration (in shipping carton)	Random vibration 5 to 500 Hz, 10 minutes per axis, approximately 2.41 g rms; and swept sine resonant search, 5 to 500 Hz, 0.50 g (0-peak), 5-minute resonant dwell at 4 resonances per axis.

See individual probe Specifications and Characteristics for probe environmental characteristics.

Agilent 16950A Specifications and Characteristics

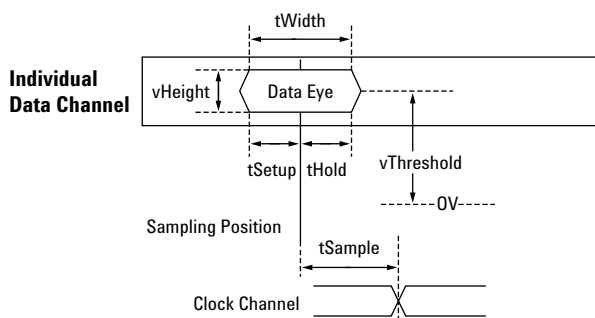| Module Channel Counts	State Analysis	Timing Analysis
1-card module	64 data + 4 clocks	68
2-card module	132 data + 4 clocks	136
3-card module	200 data + 4 clocks	204
4-card module	268 data + 4 clocks	272
5-card module	336 data + 4 clocks	340

Probes

A probe must be used to connect the logic analyzer to your target system. For specifications and characteristics of a particular probe, see the documentation that is supplied with your probe or search for the probe's model number in this help system or at **www.agilent.com**.

Timing Zoom

Timing analysis sample rate	4 GHz

Time interval accuracy
    Within a pod pair
    Between pod pairs
	± (1.0 ns + 0.01% of time interval reading)
	± (1.75 ns + 0.01% of time interval reading)

Memory depth	64 K samples
Trigger position	Start, center, end, or user-defined
Minimum data pulse width	750 ps

State (Synchronous) Analysis Mode

Agilent 16950A Specifications and Characteristics

State (Synchronous) Analysis Mode	300 Mb/s State Mode	600 Mb/s State Mode
tWidth* [1, 2]	1 ns*, 600 ps typical	1 ns*, 600 ps typical
tSetup	0.5 tWidth	0.5 tWidth
tHold	0.5 tWidth	0.5 tWidth
tSample range [3]	–4 ns to +4 ns	–4 ns to +4 ns
tSample adjustment resolution	80 ps typical	80 ps typical
tSample accuracy, manual adjustment	± 300 ps	± 300 ps [4]
Maximum state data rate on each channel	300 Mb/s	800 Mb/s
Maximum channels on a single time base and trigger [5]	340 – (number of clocks)	306 – (1 clock)
Memory depth [5]	Option 256: 256 K samples Option 001: 1 M samples Option 004: 4 M samples Option 016: 16 M samples Option 032: 32 M samples Option 064: 64 M samples	Option 256: 256 K samples Option 001: 1 M samples Option 004: 4 M samples Option 016: 16 M samples Option 032: 32 M samples Option 064: 64 M samples
Number of independent analyzers [6]	2	1
Number of clocks [7]	4	1
Number of clock qualifiers [7]	4	N/A
Minimum time between active clock edges* [8]	3.33 ns	1.67 ns
Minimum master to slave clock time	1 ns	N/A
Minimum slave to master clock time	1 ns	N/A
Minimum slave to slave clock time	3.33 ns	N/A

* Items marked with an asterisk (*) are specifications. All others are characteristics.
"Typical" represents the average or median value of the parameter based on measurements from a significant number of units.

[1] Minimum eye width in system under test.

[2] Your choice of probe can limit system bandwidth. Choose a probe rated at 600 Mb/s or greater to maintain system bandwidth.

[3] Sample positions are independently adjustable for each data channel input. A negative sample position causes the input to be synchronously sampled by that amount before each active clock edge. A positive sample position causes the input to be synchronously sampled by that amount after each active clock edge. A sampling position of zero causes the input to be synchronously sampled coincident with each clock edge.

[4] Use of eye finder is recommended in 600 Mb/s state mode.

[5] In 300 Mb/s state mode, with all pods assigned, memory depth is half the maximum memory depth. With one pod pair (34 channels) unassigned, the memory depth is full. One pod pair (34 channels) must remain unassigned for time tags in 600 Mb/s state mode.

[6] Independent analyzers may be either state or timing. When the 600 Mb/s state mode is selected, only one analyzer may be used.

[7] In the 300 Mb/s state mode, the total number of clocks and qualifiers is 4. All clock and qualifier inputs must be on the master modules.

[8] Tested with input signal Vh = +1.125 V, Vl = +0.875 V = 1 V/ns, threshold = +1.0 V, tr/tf = 180 ps ± 30 ps (10%, 90%).

Agilent 16950A Specifications and Characteristics

State (Synchronous) Analysis Mode	300 Mb/s State Mode	600 Mb/s State Mode
Minimum state clock pulse width		
Single edge	1.0 ns	500 ps
Multiple edge	1.0 ns	1.67 ns
Clock qualifier setup time	500 ps	N/A
Clock qualifier hold time	0	N/A
Time tag resolution	2 ns	1.5 ns
Maximum time count between stored states	32 days	32 days
Maximum trigger sequence speed	300 MHz	600 MHz
Maximum trigger sequence levels	16	16
Trigger sequence level branching	Arbitrary 4-way if/then/else	2-way if/then/else
Trigger position	Start, center, end, or user-defined	Start, center, end, or user-defined

Trigger resources	16 patterns evaluated as =, =/, >, ≥, <, ≤
	14 double-bounded ranges evaluated as
	  in range, not in range
	2 timers per module
	2 global counters
	1 occurrence counter per sequence level
	4 flags
		14 patterns evaluated as =, =/, >, ≥, <, ≤
		7 double-bounded ranges evaluated as
		  in range, not in range
		1 occurrence counter per sequence level
		4 flags

Trigger resource conditions	Arbitrary Boolean combinations	Arbitrary Boolean combinations
Trigger actions	Go To Trigger, send e-mail, and fill memory Trigger and Go To Store/don't store sample Turn on/off default storing Timer start/stop/pause/resume Global counter increment/decrement/reset Occurrence counter reset Flag set/clear	Go To Trigger and fill memory
Store qualification	Default (global) and per sequence level	Default (global)
Maximum global counter	2E+24	N/A
Maximum occurrence counter	2E+24	2E+24
Maximum pattern width	128 bits	128 bits
Maximum range width	32 bits	32 bits
Timers range	50 ns to 2199 seconds	N/A
Timer resolution	2 ns	N/A
Timer accuracy	± (5 ns +0.01%)	N/A
Timer reset latency	50 ns	N/A

Agilent 16950A Specifications and Characteristics

Timing (Asynchronous) Analysis Mode	Conventional Timing	Transitional Timing [9]
Sample rate on all channels	600 MHz	600 MHz
Sample rate in half channel mode	1200 MHz	N/A
Number of channels	68 x (number of modules)	For sample rates < 600 MHz: 68 x (number of modules). For 600 MHz sample rate: 68 x (number of modules) − 34
Maximum channels on a single time base and trigger	340	340
Number of independent analyzers [6]	2	2
Sample period (half channel)	833 ps	N/A
Minimum sample period (full channel)	1.67 ns	1.67 ns
Minimum data pulse width	1 sample period + 500 ps	1 sample period + 500 ps
Time interval accuracy	± (1 sample period + 1.25 ns + 0.01% of time interval reading)	± (1 sample period + 1.25 ns + 0.01% of time interval reading)
Memory depth in full channel mode	Option 256: 256 K samples Option 001: 1 M samples Option 004: 4 M samples Option 016: 16 M samples Option 032: 32 M samples Option 064: 64 M samples	Option 256: 256 K samples Option 001: 1 M samples Option 004: 4 M samples Option 016: 16 M samples Option 032: 32 M samples Option 064: 64 M samples
Memory depth in half channel mode	Option 256: 512 K samples Option 001: 2 M samples Option 004: 8 M samples Option 016: 32 M samples Option 032: 64 M samples Option 064: 128 M samples	N/A
Maximum trigger sequence speed	300 MHz	300 MHz
Maximum trigger sequence levels	16	16

[6] Independent analyzers may be either state or timing. When the 600 Mb/s state mode is selected, only one analyzer may be used.

[9] Transitional timing speed and memory depth are halved unless a spare pod pair (34 channels) is unassigned.

Agilent 16950A Specifications and Characteristics

Timing (Asynchronous) Analysis Mode	Conventional Timing	Transitional Timing
Trigger sequence level branching	Arbitrary 4-way if/then/else	Arbitrary 4-way if/then/else
Trigger position	Start, center, end, or user-defined	Start, center, end, or user-defined

Trigger resources	16 patterns evaluated as =, =/, >, ≥, <, ≤
	14 double-bounded ranges evaluated as
	  in range, not in range
	3 edge/glitch
	2 timers per module
	2 global counters
	1 occurrence counter per sequence level
	4 flags
		15 patterns evaluated as =, =/, >, ≥, <, ≤
		14 double-bounded ranges evaluated as
		  in range, not in range
		3 edge/glitch
		2 timers per module
		2 global counters
		1 occurrence counter per sequence level
		4 flags

Trigger resource conditions	Arbitrary Boolean combinations	Arbitrary Boolean combinations
Trigger actions	Go To Trigger, send e-mail, and fill memory Trigger and Go To Turn on/off default storing Timer start/stop/pause/resume Global counter increment/decrement/reset Occurrence counter reset Flag set/clear	Go To Trigger, send e-mail, and fill memory Trigger and Go To Turn on/off default storing Timer start/stop/pause/resume Global counter increment/decrement/reset Occurrence counter reset Flag set/clear
Maximum global counter	2E+24	2E+24
Maximum occurrence counter	2E+24	2E+24
Maximum pattern/range width	32 bits	32 bits
Maximum pattern width	128 bits	128 bits
Timer value range	50 ns to 2199 seconds	50 ns to 2199 seconds
Timer resolution	2 ns	2 ns
Timer accuracy	± (5 ns +0.01%)	± (5 ns +0.01%)
Greater than duration	3.33 ns to 55 ms in 3.3 ns increments	3.33 ns to 55 ms in 3.3 ns increments
Less than duration	6.67 ns to 55 ms in 3.3 ns increments	6.67 ns to 55 ms in 3.3 ns increments
Timer reset latency	50 ns	50 ns

Agilent 16950A Specifications and Characteristics

Eye Scan Mode

Equivalent rise time	150 ps
Equivalent bandwidth [10]	2.33 GHz
Sample position range relative to clock	–5 ns to +5 ns
Sample (time) position resolution	10 ps
Sample (time) position accuracy	± (50 ps + 0.01 x sample position)
Number of channels	68 x (number of modules) – 1
Input dynamic range	–3.0 Vdc to +5.0 Vdc
Threshold range	–3.0 Vdc to +5.0 Vdc
Threshold resolution	1 mV
Threshold accuracy	± (30 mV + 2% of setting)
Minimum detectable pulse width at minimum signal amplitude	600 ps
Jitter	40 ps RMS
Noise floor	40 mV p-p
Channel-to-channel skew, maximum between any two channels	100 ps

Power Requirements

All necessary power is supplied by the backplane connector of the logic analysis system mainframe.

Environmental Characteristics

Indoor use only

[10] Calculated from rise time.

Agilent 16950A Specifications and Characteristics

Operating Environment

Temperature (except flexible disk media)	0 to 40 °C (+32 to +104 °F) when operating in a 16900A or 16902A mainframe. 0 to 50 °C (+32 to +122 °F) when operating in a 16903A mainframe.
Humidity	0 to 80% relative humidity at 40 °C (+104 °F). Reliability is enhanced when operating within the range 20% to 80% non-condensing.
Altitude	0 to 3000 m (10,000 ft)
Vibration	Random vibration 5 to 500 Hz, 10 minutes per axis, approximately 0.2 g rms

Non-Operating Environment

Temperature	−40 to +75 °C (−40 to +167 °F). Protect the instrument from temperature extremes which cause condensation on the instrument.
Humidity	0 to 90% at 65 °C (149 °F)
Altitude	0 to 15,300 m (50,000 ft)
Vibration (in shipping carton)	Random vibration 5 to 500 Hz, 10 minutes per axis, approximately 2.41 g rms; and swept sine resonant search, 5 to 500 Hz, 0.50 g (0-peak), 5-minute resonant dwell at 4 resonances per axis.

See individual probe Specifications and Characteristics for probe environmental characteristics.

The 16900 Series logic analysis system also supports the following 16700 Series logic analysis modules.

Pattern Generation Module

16720A (in future software release)

State/Timing Modules

16740A, 16741A, 16742A
16750A/B, 16751A/B, 16752A/B
16753A, 16754A, 16755A, 16756A

Related Literature

Publication Title	Publication Type	Publication Number
Agilent Technologies 16900 Series Logic Analysis Systems	Color Brochure	5989-0420EN
Agilent Technologies 16900 Series Logic Analysis Systems	Data Sheet	5989-0421EN
Agilent Technologies FPGA Dynamic Probe	Data Sheet	5989-0423EN
Probing Solutions for Agilent Technologies Logic Analyzers	Product Overview	5968-4632E
Processor and Bus Support for Agilent Technologies Logic Analyzers	Configuration Guide	5966-4365E

Agilent Technologies' Test and Measurement Support, Services, and Assistance
Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise
Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

Your Advantage
Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

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