

TLA7000 Logic Analyzers

TLA7000 Series Data Sheet



The modular TLA7000 logic analyzer series provides the speed and flexibility you need to capture logic detail on today's fastest designs. Pinpoint the source of elusive errors and gain the visibility you want with large easy-to-read displays, fast data throughput, and time-correlated views of analog and digital signals through the same probe.

Key performance

- MagniVu™ acquisition technology provides up to 20 ps (50 GHz) timing resolution to find and measure elusive timing problems quickly
- Up to 156 ps (6.4 GHz)/512 Mb Record length timing analysis
- Up to 1.4 GHz Clock with up to 3.0 Gb/s Data with a Data Valid window of 180 ps for state acquisition analysis of high-performance synchronous buses
- D-Max® probing system with 0.5 pF capacitive loading eliminates need for on-board connectors, minimizes intrusion on circuits, and is Ideal for differential signal applications
- PCI Express Gen1 through Gen3 including Gen3 Protocol to physical layer analysis for link widths from x1 through x16 with up to 8.0 GT/s acquisition rates and up to 16 GB deep memory (for x16 link)

Key features

- 68/102/136 channel logic analyzers with up to 512 Mb record length
- Glitch and Setup/Hold triggering and display finds and displays elusive hardware problems
- Transitional storage extends the signal analysis capture time for signals that transition infrequently
- Simultaneous state, high-speed timing, and analog analysis through the same probe pinpoints elusive faults
- Trace problems from symptom back to root cause in real time across multiple modules by viewing time-correlated data in a wide variety of display formats
- Comprehensive PCI Express probing solutions, including midbus, slot interposer, and solder-down connectors
- Modular mainframes provide flexibility and expandability
- Broad processor and bus support

Applications

- MIPI protocol analysis
- DDR2 and DDR3 debug and verification
- Signal integrity
- PCI Express debug from Protocol layer to Physical layer
 - Silicon validation
 - Computer system validation
 - Embedded system debug and validation
- Processor/Bus debug and verification
- Embedded software integration, debug, and verification

Breakthrough solutions for real-time digital systems analysis

Tektronix provides breakthrough digital systems analysis tools that enable digital hardware and software designers to capture and analyze the source of elusive problems that threaten product development schedules. The TLA7000 Series provides the speed you need to capture the source of those elusive problems, plus the visibility you want with large displays and fast system data throughput, while protecting your investment with compatibility with all TLA modules.

TLA7012 and TLA7016 mainframes

The TLA7012 Portable and TLA7016 Benchtop mainframes are modular mainframes that accept TLA logic analyzer and pattern generator modules. The TLA7012 and TLA7016 can be configured as either master or expansion mainframes to provide solutions for large numbers of buses and high channel-count requirements.

The TLA7012 Portable Mainframe offers a familiar work environment for the TLA application software. It provides multiple display capability for extended desktop viewing, in addition to an internal DVD-RW, hard drive, and multiple USB ports for expansion. A replaceable hard drive is standard, ideal for security or enabling individual team members to store personal setups and data. Trigger in/out connections provide an interface to other external instrumentation, such as Tektronix oscilloscopes, for correlating measurement results.

TLA7BBx modules

Today's digital design engineers face daily pressures to speed new products to the marketplace. The TLA7BBx Series logic analyzer modules answer the need with breakthrough solutions for the entire design team, providing the ability to quickly monitor, capture, and analyze real-time digital system operation to debug, verify, optimize, and validate digital systems. Hardware developers, hardware/software integrators, and embedded software developers will appreciate the range of capabilities of the TLA7BBx Series logic analyzer modules. Its broad feature set includes capturing and correlating elusive hardware and software faults; providing simultaneous state, high-speed timing, and analog analysis through the same probe; using deep state acquisition to find the cause of complex problems; real-time, nonintrusive software execution tracing that correlates to source code and to hardware events; and nonintrusive connectorless probing.

The TLA7BBx Series logic analyzer modules offer breakthrough MagniVu™ technology by Tektronix for providing high-speed sampling (up to 50 GHz) that dramatically changes the way logic analyzers work and enables new measurement capabilities. The TLA7BBx modules offer high-speed state synchronous capture, high-speed timing capture, and analog capture through the same set of probes. They capitalize on MagniVu technology to offer up to 20 ps timing on all channels, glitch and setup/hold triggering, and display and time stamp that is always on at up to 20 ps resolution.

Module	Timing resolution	State speed	Memory
TLA7BBx	20 ps (50 GHz)	Up to 1.4 GHz	Up to 64 Mb

P6800 and P6900 series probes

With the industry's lowest capacitance, the P6800 and P6900 Series logic analyzer probes protect the integrity of your signal - critical for connecting to fast buses like DDR2 and DDR3 where low intrusion is key to the proper operation of your design. Select from single-ended and differential probes and a variety of attachment mechanisms, including the "connectorless" compression connection that eliminates the need for onboard connectors.

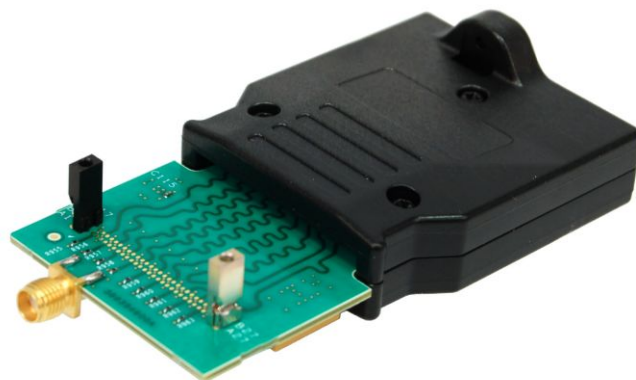
For applications where circuit board space is at a premium, the high-density P6900 Series with D-Max® Probing Technology offers the industry's smallest available footprint. For debugging the signal integrity glitches common on fast buses, the P6900 Series works with the TLA7BBx modules and their iLink™ Tool Set capability to provide iCapture™ simultaneous digital-analog acquisition. This allows you to clearly see the time-correlated digital and analog behavior of your design, without the extra capacitance and setup time of double-probing.

For differential signaling applications where signal integrity is critical, the high-fidelity P6980 and P6982 are perfect for those applications where noise performance is critical. In addition, the P6980 and P6982 can support the small voltage swings that differential signaling often requires. The P6962DBL, when used with a TLA7000 Series logic analyzer with the TLA7BBx module, supports digital validation and debug of DDR3 memory with data rates up to 1600 mega-transfers per second. For board designs that do not include high-density probe footprints, the P6960 with its companion flying leadset provides the flexibility required to meet many different debug needs.

Customer Deskew fixture

For tight time alignment in both synchronous and asynchronous applications (including MagniVu), Tektronix recommends the Customer Deskew fixture. This is an optional accessory to the TLA7BBx modules that is used to perform a channel-to-channel deskew of the probes connected to the TLA7BBx module to ensure tight time alignment between all channels across all probes. Two different fixtures are available:

- Customer Deskew fixture for P6800 series probes
- Customer Deskew fixture for P6960 series probes



For ordering details, please see the *Ordering information* section.

TLA7SAxx PCI Express logic protocol analyzer modules

PCI Express 3.0 introduces new challenges for validation engineers. Time-to-market pressures require a solution that can quickly pinpoint problems. The TLA7SAxx Series logic protocol analyzer modules provide an innovative approach to PCI Express validation that spans all layers of the protocol from the physical layer to the transaction layer.

Reduce your time to information by viewing and searching up to 16 GB deep memory in just seconds with rapid display updates enabled by our industry-leading hardware acceleration. With improved information density you can then quickly ascertain the health of the system and identify patterns of interest (errors, specific transactions, ordered sets, etc.) with statistics using the Summary Profile window. Protocol behavior can be viewed at the packet and transaction level interspersed with physical layer activity in a single innovative Transaction window. Further insight into physical layer details can be gained with the unique Listing window showing packet details at the symbol level by lane and you can view individual lane activity correlated with analog waveforms from your high-bandwidth oscilloscope in the Waveform window.

Hardware developers, hardware/software integrators, and embedded system designers will appreciate the tight integration with the Tektronix Logic Analyzer. This provides visibility of complete system interactions with time-correlated, multibus analysis on a single display. Cross triggering and a common global time stamp enables accurate and efficient debugging by showing exactly what was happening on one bus relative to another at any given instant of time. Coupled with the P67SA00 Series probing solutions, engineers have flexible options for platform accessibility.

Refer to the *TLASA00 Series Datasheet* (52W-25691-xx) for additional information on the Tektronix PCI Express Logic Protocol Analyzer modules.

P67SA00 series probes for PCI Express

The P67SA00 series probes provide validation engineers with a comprehensive set of PCI Express probing solutions, including midbus, slot interposer, and solder-down connectors. With support for PCI Express Gen3 channel lengths up to 24 in. With two connectors, these probes offer minimal electrical loading with the highest signal fidelity and active equalization to ensure accurate data recovery of closed eyes. All P67SA00 series probes feature a graphical lane swizzling capability for maximum flexibility to accommodate unique circuit board layouts.

TLA7012 and TLA7016 Mainframe specifications

All specifications are guaranteed unless noted otherwise. All specifications apply to all models unless noted otherwise.

General characteristics

Instrument slots	
TLA7012	Holds two TLA modules
TLA7016	Holds six TLA modules
Expansion capability	
	The TLA7000 Series mainframes can be used as either master or expansion mainframes (TL708EX 8-port Instrument Hub and Expander is required for 3-8 mainframes connected together using TekLink™ cable)
TLA7012	Up to eight TLA7012 mainframes can be used, providing support for up to 16 TLA modules (2,176 channels)
TLA7016	Up to eight TLA7016 mainframes can be used, providing support for up to 48 TLA modules (6,528 channels)

TLA7012 PC specifications

Operating system	Microsoft® Windows® 7 64-bit Ultimate
Processor	2.7 GHz i5 Processor
Chipset	Intel® QM77
Memory	Two (2) 4 GB DDR3 1600 MHz SODIMMs
Sound	Line In and Mic Out connectors
Removable hard drive	500 GB, 3.5 in, SATA II, 7200 RPM
Optical drive	Internal 4.7 GB DVD±R/RW
External display	One DVI (2048 x 1536); one HDMI (1920 x 1200); one VGA (2048 x 1200)
Network port	Two (2) 10/100/1000 LAN with RJ-45 connector (Dual Gigabit Ethernet)
USB port	Seven (7); three (3) USB2 in front and four (4) USB3 in rear

TLA7012 integral controls

Front panel display	Size: 15 in. (38.1 cm) diagonal Type: Active-matrix color TFT LCD with backlight Resolution: 1024x768
Front panel	General-purpose knob with dedicated hotkeys and knobs for horizontal and vertical scaling and scrolling
Touchscreen	Available with Option 18

Integrated View (iView™) capability

TLA mainframe configuration requirements	GPIB-iView™ (Opt. 1C) USB-iView™ (Opt. 2C)
Number of Tektronix oscilloscopes that can be connected to a TLA system	1
External oscilloscopes supported	More than 100. For a complete listing of current supported oscilloscopes, please visit our website http://www.tek.com/iview .
TLA connections	USB, Trigger In, Trigger Out, Clock Out
Oscilloscope connections	
GPIB-iView™ (Opt. 1C)	GPIB, Trigger In, Trigger Out, Clock In (when available)
USB-iView™ (Opt. 2C)	USB Device Port, Trigger In, Trigger Out
Setup	iView™ external oscilloscope wizard automates setup.
Data correlation	After oscilloscope acquisition is complete, the data is automatically transferred to the TLA and time correlated with the TLA acquisition data.
Deskew	The oscilloscope and TLA data is automatically deskewed and time correlated when using the iView™ external oscilloscope cable.
GPIB-iView™ (Opt. 1C) External oscilloscope cable length	2 m (6.6 ft.)
USB-iView™ (Opt. 2C) External oscilloscope cable length	2 m (6 ft.)

Symbolic support

Number of symbols/ranges	Unlimited (limited only by amount of virtual memory available on TLA)
Object file formats supported	IEEE695, OMF 51, OMF 86, OMF 166, OMF 286, OMF 386, COFF, Elf/Dwarf 1 and 2, Elf/Stabs, TSF (If your software development tools do not generate output in one of the above formats, TSF, or the Tektronix symbol file, a generic ASCII file format is supported. The generic ASCII file format is documented in the TLA online help). If a format is not listed, please contact your local Tektronix representative.

External instrumentation interface

System Trigger output	Asserted whenever a system trigger occurs (TTL-compatible output, back-terminated into 50 Ω)
System Trigger input	Forces a system trigger when asserted (adjustable threshold between 0.5 V and 1.5 V, edge sensitive, falling-edge latched)
External Signal output	Can be used to drive external circuitry from a module's trigger mechanism (TTL-compatible output, back-terminated into 50 Ω)
External Signal input	Can be used to provide an external signal to arm or trigger any or all modules (adjustable threshold between 0.5 V and 1.5 V, level sensitive)

Power

Power

Voltage range/frequency	90-250 V AC at 45-66 Hz 100-132 V AC at 360-440 Hz
Input current	7 A maximum at 90 V AC (70 A surge)
Power consumption	750 W maximum

TLA7016 Voltage range/frequency	Ratings apply to mainframes with serial numbers B020000 and higher.
Configuration A, Maximum load 1000 W	100 V _{rms} to 120 V _{rms} , 50 Hz to 60 Hz and 115 _{rms} , 400 Hz, 1450 W maximum
Configuration B, Maximum load 1000 W	120 V _{rms} to 240 V _{rms} , 50 Hz to 60 Hz, 1900 W maximum

TL708EX

Voltage range/frequency	100-240 V AC at 50-60 Hz
Input current	2 A maximum at 100 V AC
Power consumption	200 W maximum

Environmental

Temperature

Operating	+5 °C to +45 °C
Nonoperating	-20 °C to +60 °C

Humidity

Operating	20% to 80%
Nonoperating	≤30 °C; 80% relative humidity (29 °C maximum wet-bulb temperature) 8% to 80% (29 °C maximum wet-bulb temperature)

Altitude

Operating: -1,000 ft. to 10,000 ft. (-305 meters to 3,050 meters)

Safety

UL3111-1, CSA1010.1, EN61010-1, IEC61010-1

TLA7012 Portable Mainframe physical specifications

Dimensions

Height	295 mm (11.6 in.)
Width	451 mm (17.75 in.)
Depth	460 mm (18.1 in.)

Weight

Net (without modules)	14 kg (30 lb.)
Shipping (typical)	27 kg (59 lb.)

TLA7016 Benchtop Mainframe physical specifications**Dimensions**

Height	350 mm (13.7 in.)
Width	425 mm (16.7 in.)
Depth	673 mm (26.5 in.)

Weight

Net (without modules)	25 kg (55 lb.)
Shipping (typical)	51.8 kg (115 lb.)

TLA708EX 8-port instrument Hub and expander physical specifications**Dimensions**

Height	51 mm (2.0 in.)
Width	455 mm (17.5 in.)
Depth	305 mm (12.0 in.)

Weight

Net	3 kg (6 lb.)
Shipping	5 kg (11 lb.)

TLA7BBx logic analyzer module specifications

All specifications are guaranteed unless noted otherwise. All specifications apply to all TLA7BBx models unless noted otherwise.

General specifications

Number of channels	All channels are acquired including clocks
TLA7BB2	68 channels (4 are clock channels)
TLA7BB3	102 channels (4 are clock and 2 are qualifier channels)
TLA7BB4	136 channels (4 are clock and 4 are qualifier channels)
Channel grouping	No limit to number of groups or number of channels per group (all channels can be reused in multiple groups)
Module merging	Up to five 68-channel, 102-channel, or 136-channel modules can be "merged" to make up to a 680-channel module. Merged modules exhibit the same depth as the lesser of the five individual modules. Word/setup-and-hold/glitch/transition recognizers span all five modules. Range recognizers limited to three-module merge. Only one set of clock connections is required.
Time stamp	54 bits at 20 ps resolution (>4 days duration)
Clocking/Acquisition modes	Asynchronous and synchronous. 20 ps (50 GHz) MagniVu high-speed timing is available simultaneous with all modes
Number of mainframe instrument slots required per TLA series module	2

Data input with P6800 or P6900 series probes

Capacitive loading	
P6900 series	0.5 pF clock/data
P6800 series	<0.7 pF clock/data
P6810 (In group configuration)	1.0 pF
Threshold selection range	From -2.0 V to +4.5 V in 5 mV increments Threshold presets include TTL (1.5 V), CMOS (1.65 V), ECL (-1.3 V), PECL (3.7 V), LVPECL (2.0 V), LVCMOS 1.5 V (0.75 V), LVCMOS 1.8 V (0.9 V), LVCMOS 2.5 V (1.25 V), LVCMOS 3.3 V (1.65 V), LVDS (0 V), and user defined.
Threshold selection channel granularity	Separate selection for each of the clock/qualifier and individual channels.
Threshold accuracy (including probe)	$\pm(35 \text{ mV} + 1\%)$
Input voltage range	
Operating	2.5 V to 5.0 V
Nondestructive	$\pm 15 \text{ V}$
Minimum Input Signal Swing	
Single-ended	200 mV
Differential	$V_{\text{MAX}} - V_{\text{MIN}} > 100 \text{ mV}$
Input signal minimum slew rate	200 mV/ns typical

State acquisition with P6800 or P6900 series probes

Channel configurations	Configuration	Full channel	Half channel
	750 MHz Standard	750 MHz / 750 Mb/s (1 sample/clock) 750 MHz / 1.5 Gb/s (2 samples/clock)	750 MHz / 3 Gb/s (4 samples/clock)
	1.4 GHz Optional	1.4 GHz / 1.4 Gb/s (1 sample/clock)	1.4 GHz / 2.8 Gb/s (2 samples/clock)

State record length with Time stamps (Quarter/Half/Full channels) 4/2 Mb, 8/4 Mb, 16/8 Mb, 32/16 Mb, 64/32 Mb, 128/64 Mb per channel

Setup and Hold time selection range From 15 ns before, to 7.5 ns after clock edge in 20 ps increments. Range may be shifted towards the setup region by 0 ns [+7.5, -7.5] ns, 2.5 ns [+10, -5] ns, or 7.5 ns [+15, 0] ns.

Setup and Hold window, single channel 180 ps typical

Minimum clock pulse width 200 ps (P6960, P6962, P6964, P6980, P6982, P6860), 250 ps (P6910)

Demux channel selection Channels can be demultiplexed to other channels through user interface with 8-channel granularity.

Timing acquisition (with P6800 or P6900 probes)

MagniVu™ timing 20 ps max, adjustments to 40 ps, 80 ps, 160 ps, 320 ps, and 640 ps

MagniVu timing record length 128 Kb per channel, with adjustable trigger position

Deep timing resolution (Quarter/Half/Full channels)
1.25 ps / 312.5 ps / 625 ps to 50 ms

Deep timing resolution with glitch storage enabled 1.25 ns to 50 ms

Deep timing record length (Quarter/Half/Full channels)
8/4/2 Mb, 16/8/4 Mb, 32/16/8 Mb, 64/32/16 Mb, 128/64/32 Mb, 256/128/64 Mb per channel

Deep timing record length with glitch storage enabled Half of default main memory depth

Channel-to-channel skew (Module + probe)
Before customer deskew ±80 ps typical
After customer deskew ±20 ps typical

Minimum recognizable pulse/glitch width (single channel) 200 ps (P6960, P6962, P6964, P6980, P6982, P6860)
250 ps (P6910)

Minimum detectable Setup/Hold violation 40 ps

Minimum recognizable multichannel Trigger event Sample period + channel-to-channel skew

Analog acquisition (with P6800 or P6900 probes)

Bandwidth	3 HGz typical
Attenuation	10X, $\pm 1\%$
Offset and gain (Accuracy)	± 50 mV, $\pm 2\%$ of signal amplitude
Channels demultiplexed	4
Run/Stop requirements	None, analog outputs are always active
iCapture™ Analog outputs	Compatible with any supported Tektronix oscilloscope
iCapture Analog output BNC cables	Four (4) low loss, 10X, 36 in.

Trigger system

Independent Trigger states	16
Maximum independent If/Then clauses per state	16
Maximum number of events per If/Then clause	8
Maximum number of actions per If/Then clause	8
Maximum number of Trigger events	26 (2 counters/timers plus any 24 other resources)
Number of word recognizers	24
Number of transition recognizers	24
Number of range recognizers	8
Number of counters/timers	
Trigger event types	Word, Group, Channel, Transition, Range, Anything, Counter Value, Timer Value, Signal, Glitch, Setup-and-Hold Violation, Snapshot
Trigger action types	Trigger Module, Trigger All Modules, Trigger Main, Trigger MagniVu, Store, Don't Store, Store Sample, Increment Counter, Decrement Counter, Reset Counter, Start Timer, Stop Timer, Reset Timer, Snapshot Current Sample, Goto State, Set/Clear Signal, Do Nothing
Maximum triggerable data rate	3.0 Gb/s
Trigger machine sequence rate	DC to 800 MHz (1.25 ns)
Counter/timer range	48 bits each (~4 days at 1.25 ns)
Counter rate	DC to 800 MHz (1.25 ns)
Timer clock rate	800 MHz (1.25 ns)

Trigger system

Counter/timer test latency	0 ns
Range recognizers	Double bounded (408 channel maximum). Can be as wide as any group, must be grouped according to specified order of significance.
Setup-and-hold violation recognizer setup time range	From 7.5 ns before, to 7.5 ns after clock edge in 20 ps increments. This range may be shifted toward the positive region by 0 ns, 2.5 ns, 5 ns, or 7.5 ns.
Setup-and-hold violation recognizer hold time range	From 7.5 ns before, to 7.5 ns after clock edge in 20 ps increments. This range may be shifted toward the positive region by 0 ns, 2.5 ns, 5 ns, or 7.5 ns.
Trigger position	Any data sample
MagniVu trigger position	MagniVu position can be set from 0% to 60% centered around the MagniVu trigger
Storage control (data qualification)	Global (conditional), by state (start/stop), block, by trigger action, or transitional. Also force main prefill selection available.

Physical characteristics**Dimensions**

Height	262 mm (10.3 in.)
Width	61 mm (2.4 in.)
Depth	381 mm (15.0 in.)

Weight

Net	3.1 kg (6.7 lb.)
Shipping	6.3 kg (13.7 lb.)

Ordering information**TLA7012 standard accessories**

TLA7012 Portable Logic Analyzer Mainframe, holds two TLA modules.

Part number	Description
119-7275-xx	Mini keyboard
119-7054-xx	Optical wheel mouse
200-4939-xx	Front-panel cover
333-4206-xx	One dual-wide panel filler for empty slots
063-3881-xx	TLA application software CD
-	Certificate of traceable calibration

Please specify power cord, language, and service options when ordering.

TLA7012 Options

Option	Description	Order number
Opt. 18	Add touch screen	N/A
Opt. 1C	Add GPIB-iView™ external oscilloscope interface kit (requires TLA Application SW V5.0 or greater)	012-1614-xx
Opt. 2C	Add USB-iView external oscilloscope interface kit (requires TLA Application SW V5.8 or greater)	N/A
Opt. PO	Add Accessory Pouch for TLA7012	016-1441-xx
Opt. TL	Add Teklink Cable	174-5019-xx
Opt. 1K	Add LACART logic analyzer cart	LACART
Opt. 88	Factory install of module	N/A

TLA7012 recommended accessories

Accessory	Description
650-4815-xx	Additional removable hard drive assembly (no SW)
020-2664-xx	Rackmount kit
016-1522-xx	Wheeled transport case

TLA7016 standard accessories

TLA7016 Benchtop Logic Analyzer Mainframe, holds six TLA modules.

Part number	Description
333-4206-xx	Five (5) dual-wide panel fillers for empty slots
174-5225-xx	LAN cable, straight-through, RJ-45
063-3671-xx	TLA application software CD
-	Certificate of traceable calibration

Please specify power cord, language, and service options when ordering.

TLA7016 Options

Option	Description	Order number
Opt. 1C	Add GPIB-iView™ external oscilloscope interface kit (requires TLA Application SW V5.0 or greater)	012-1614-xx
Opt. 2C	Add USB-iView external oscilloscope interface kit (requires TLA Application SW V5.8 or greater)	N/A
Opt. TL	Add Teklink Cable	174-5019-xx
Opt. BTB	Add benchtop system mounting brackets	407-5127-xx (Left) 407-5132-xx (Right)
Opt. 1K	Add K4000 logic analyzer cart	K4000
Opt. 88	Factory install of module	N/A

TLA7016 recommended accessories

Accessory	Description
020-2369-xx	Rackmount kit
016-1651-xx	Wheeled transport case

TL708EX	TekLink™ 8-port Instrument Hub and Expander (Used for connecting 3-to-8 TLA7012 or TLA7016 mainframes). Includes: Instruction sheet (071-1765-xx, English only). Please specify power cord and service options when ordering.
----------------	---

TLA 7000 series options

TLA7000 series power cord options

Opt. A0	North America power plug (115 V, 60 Hz)
Opt. A1	Universal Euro power plug (220 V, 50 Hz)
Opt. A2	United Kingdom power plug (240 V, 50 Hz)
Opt. A3	Australia power plug (240 V, 50 Hz)
Opt. A4	North America power plug (240 V, 50 Hz)
Opt. A5	Switzerland power plug (220 V, 50 Hz)
Opt. A6	Japan power plug (100 V, 50/60 Hz)
Opt. A10	China power plug (50 Hz)
Opt. A11	India power plug (50 Hz)
Opt. A12	Brazil power plug (60 Hz)
Opt. A99	No power cord

Language options

Opt. L0	English manual
Opt. L5	Japanese manual
Opt. L10	Russian manual
Opt. L99	No manual

Installation options

LAINSTAL-SM	Installation of single mainframe and up to 3 modules or 1 to 3 modules in existing mainframe.
LAINSTAL-LG	Installation of single mainframe and 4 to 6 modules.

Gigabit LAN (GbE) switch

020-2666-xx	16-port Gigabit LAN (GbE) switch with U.S. standard (120 V, 60 Hz) power cord
--------------------	---

Power cords for Gigabit (GbE) switch

161-0066-00	Power cord, IEC320 C13, North American, straight
161-0066-09	Power cord, IEC320 C13, Universal Euro, straight
161-0066-10	Power cord, IEC320 C13, Universal Euro, straight
161-0066-11	Power cord, IEC320 C13, Australian, straight
161-0066-12	Power cord, IEC320 C13, North American, straight
161-0154-00	Power cord, IEC320 C13, Switzerland, straight
161-0298-00	Power cord, IEC320 C13, Japan, straight
161-0304-00	Power cord, IEC320 C13, China, straight
TLA7000 series upgrades	Add new capabilities to your existing TLA mainframe or increase the state speed or memory depth of existing TLA modules by ordering the appropriate upgrade kit. Please refer to the TLA Family Upgrade Guide for further details.

TLA7BBx logic analyzer modules

TLA7BBx modules	Includes: Certificate of calibration, and one-year warranty (return to Tektronix). Probes must be ordered separately.
TLA7BB2	68-channel Logic Analyzer module, 50 GHz MagniVu timing, 750 MHz state clock, 2 Mb record length. Options for up to 64 Mb record length and/or up to 1.4 GHz state clock.
TLA7BB3	102-channel Logic Analyzer module, 50 GHz MagniVu timing, 750 MHz state clock, 2 Mb record length. Options for up to 64 Mb record length and/or up to 1.4 GHz state clock.
TLA7BB4	136-channel Logic Analyzer module, 50 GHz MagniVu timing, 750 MHz state clock, 2 Mb record length. Options for up to 64 Mb record length and/or up to 1.4 GHz state clock.

TLA7BBx module options

Base configuration is 2 Mb record length at 750 MHz state clock with full Analog Multiplexer capability.

Opt. 1S	Increase to 4 Mb record length at 750 MHz state clock
Opt. 2S	Increase to 8 Mb record length at 750 MHz state clock
Opt. 3S	Increase to 16 Mb record length at 750 MHz state clock
Opt. 4S	Increase to 32 Mb record length at 750 MHz state clock
Opt. 5S	Increase to 64 Mb record length at 750 MHz state clock
Opt. 6S	Increase to 2 Mb record length at 1.4 GHz state clock
Opt. 7S	Increase to 4 Mb record length at 1.4 GHz state clock
Opt. 8S	Increase to 8 Mb record length at 1.4 GHz state clock
Opt. 9S	Increase to 16 Mb record length at 1.4 GHz state clock
Opt. AS	Increase to 32 Mb record length at 1.4 GHz state clock
Opt. BS	Increase to 64 Mb record length at 1.4 GHz state clock
Opt. 88	Factory install

TLA7BBx Customer Deskew fixture

020-2942-xx	TLA7BBx Customer Deskew fixture for P6800 series probes
020-2940-xx	TLA7BBx Customer Deskew fixture for P6960 series probes

TLA7BBx language options

Opt. L0	English manual
Opt. L5	Japanese manual
Opt. L10	Russian manual
Opt. L99	No manual

Service options

The following service options are offered for the TLA logic analyzer products.

Option	TLA7000 mainframes	TLA7BBx modules	TLA7SAxx modules
Opt. C3 Calibration service 3 years	X	X	X
Opt. C5 Calibration service 5 years	X	X	X
Opt. D1 Calibration data report	X	X	
Opt. D3 Calibration data report 3 years (with Opt. C3)	X	X	
Opt. D5 Calibration data report 5 years (with Opt. C5)	X	X	
Opt. G3 Complete care 3 years (includes loaner, scheduled calibration and more). TLA7012, TLA7BB2, TLA7BB3, TLA7BB4, TLA7SA08, TLA7SA16 only		X	X
Opt. G5 Complete care 5 years (includes loaner, scheduled calibration and more). TLA7012, TLA7BB2, TLA7BB3, TLA7BB4, TLA7SA08, TLA7SA16 only		X	X
Opt. R3 Repair service 3 years	X	X	X
Opt. R5 Repair service 5 years	X	X	X
Opt. S1 On-site service 1 year	X		
Opt. S3 On-site service 3 years (with R or C options)	X		
Opt. R3DW Repair service coverage 3 years (includes product warranty period). 3-year period starts at time of instrument purchase.	X	X	X
Opt. R5DW Repair service coverage 5 years (includes product warranty period). 5-year period starts at time of instrument purchase.	X	X	X

Warranty

One-year warranty covering all parts and labor excluding probes.



Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.

ASEAN / Australasia (65) 6356 3900
Belgium 00800 2255 4835*
Central East Europe and the Baltics +41 52 675 3777
Finland +41 52 675 3777
Hong Kong 400 820 5835
Japan 81 (3) 6714 3086
Middle East, Asia, and North Africa +41 52 675 3777
People's Republic of China 400 820 5835
Republic of Korea +822 6917 5084, 822 6917 5080
Spain 00800 2255 4835*
Taiwan 886 (2) 2656 6688

Austria 00800 2255 4835*
Brazil +55 (11) 3759 7627
Central Europe & Greece +41 52 675 3777
France 00800 2255 4835*
India 000 800 650 1835
Luxembourg +41 52 675 3777
The Netherlands 00800 2255 4835*
Poland +41 52 675 3777
Russia & CIS +7 (495) 6647564
Sweden 00800 2255 4835*
United Kingdom & Ireland 00800 2255 4835*

Balkans, Israel, South Africa and other ISE Countries +41 52 675 3777
Canada 1 800 833 9200
Denmark +45 80 88 1401
Germany 00800 2255 4835*
Italy 00800 2255 4835*
Mexico, Central/South America & Caribbean 52 (55) 56 04 50 90
Norway 800 16098
Portugal 80 08 12370
South Africa +41 52 675 3777
Switzerland 00800 2255 4835*
USA 1 800 833 9200

* European toll-free number. If not accessible, call: +41 52 675 3777

For Further Information. Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit www.tek.com.

Copyright © Tektronix, Inc. All rights reserved. Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specification and price change privileges reserved. TEKTRONIX and TEK are registered trademarks of Tektronix, Inc. All other trade names referenced are the service marks, trademarks, or registered trademarks of their respective companies.

