Tektronix Logic Analyzers

▶ TLA700 Series Mainframes

Breakthrough Solutions for Real-time Digital Systems Analysis

The TLA715 and TLA721 mainframes are card modular mainframes that accept TLA7Axx and TLA7Lx/Mx/Nx/Px/Qx logic analyzer modules, as well as TLA7PG2 pattern generator modules. The TLA715 and TLA721 can be used in conjunction with a TLA7XM expansion mainframe to provide solutions for large numbers of buses and high channel count requirements.

The TLA715 and TLA721 mainframes are built on a Microsoft Windows 2000 Professional PC platform that offers a familiar work environment. TLA applications operate like any other PC application.

The TLA715 and TLA721 mainframes come standard with dual display capability for extended desktop viewing, in addition to an internal CD-RW, hard disk and PC card slots for expansion. A replaceable hard disk is standard on both mainframes, 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 TDS oscilloscopes, for correlating measurement results.

▶ Features & Benefits

Modular Mainframes Provide Flexibility and Expandability

Utilize Logic Analyzer or Pattern Generator Modules

Expansion Mainframe Supports Up to 8160 Logic Analyzer Channels, 60 Independent Buses

All Measurement Modules are Fully Interchangeable Between Portable and Benchtop Mainframes

Integrated View (iView™) Capability Provides up to 6 GHz, 20 GS/s, and 32 Mb Analog Acquisition with a Stand-alone Tektronix TDS Digital Storage Oscilloscope

Microsoft Windows 2000 Professional PC Platform Provides Familiar User Interface With Network Connectivity

View Data in Waveform, Listing, Source Code, Histogram (Performance Analysis) Displays to Perform Cross-domain Analysis

Remote Control Using Microsoft COM/DCOM Technology Supports Advanced Data Analysis

Broad Processor and Bus Support

TLAVu™ and PatGenVu™ Off-line Analysis Capability for Viewing Data and Creating Setups on a Separate PC

▶ Applications

Hardware Debug and Verification

Processor/Bus Debug and Verification

Embedded Software Integration, Debug and Verification

Tektronix
Enabling Innovation

Tektronix Logic Analyzers

▶ TLA700 Series Mainframes

▶ Characteristics

General (TLA715, TLA721, TLA7XM)

Instrument Slots –
TLA715: Holds 4 single-wide or
2 double-wide modules.
TLA721: Holds 10 single-wide or
5 double-wide modules.
TLA7XM: Holds 12 single-wide or
6 double-wide modules.

Quantity of TLA7XMs –

The TLA700 Series Mainframes can support
multiple TLA7XM mainframes.
TLA715: Up to two TLA7XM mainframes can
be used providing 13 dual/26 single instrument
slots.[2][3]
TLA721: Up to ten TLA7XM mainframes can
be used providing 60 dual/120 single instrument
slots.[2][3]
For configurations beyond ten TLA7XM expansion
mainframes, please contact your local Tektronix
account manager.

[2] TLA7XM Expansion Module occupies one single-wide
slot in both the TLA715/TLA721 mainframes and the
TLA7XM expansion mainframe.

[3] Using a TLA7XM expansion mainframe with an existing
TLA714/TLA720 mainframe requires Version 4.0 or higher
TLA application software. TLA720 benchtop mainframes,
S/N: B019999 and lower, require TLA7UP Option 09
TLA720 Benchtop Mainframe Upgrade. Please refer
to the TLA Upgrade Guide for further details.

Mainframe	LA[1]	PG[1]
Max channels per module	136 ch.	64 ch.
TLA715	1,768	832
TLA721	8,160	3,840

[1] All logic analyzer (LA) and pattern generator (PG) modules are dual-wide or occupy two single-wide slots.

TLA700 PC Characteristics (TLA715 and TLA721)

Operating System – Microsoft Windows
2000 Professional.

Processor – Intel Pentium III.

Chipset – Intel 815E.

DRAM – 512 MB SDRAM.

Display Memory – 4 MB.

Dual Monitor Support – 1600x1200 Resolution.

Sound – Built-in PC speaker transducer; multimedia
sound can be added via PC Card interface.

Replaceable Hard Disk Drive –
TLA715: 40 GB.
TLA721: 40 GB.

CD ROM – Internal 8/4/32 CD-RW.

Floppy Disk Drive – Built-in 3.5 in. 1.44 MB drive.

▶ *Example of TLA721 with ten TLA7XM Mainframes.*

TLA700 Integral Controls (TLA715 only)

Front-Panel Display –
Size: 10.4 in. diagonal.
Type: Active-matrix color TFT LCD with backlight.
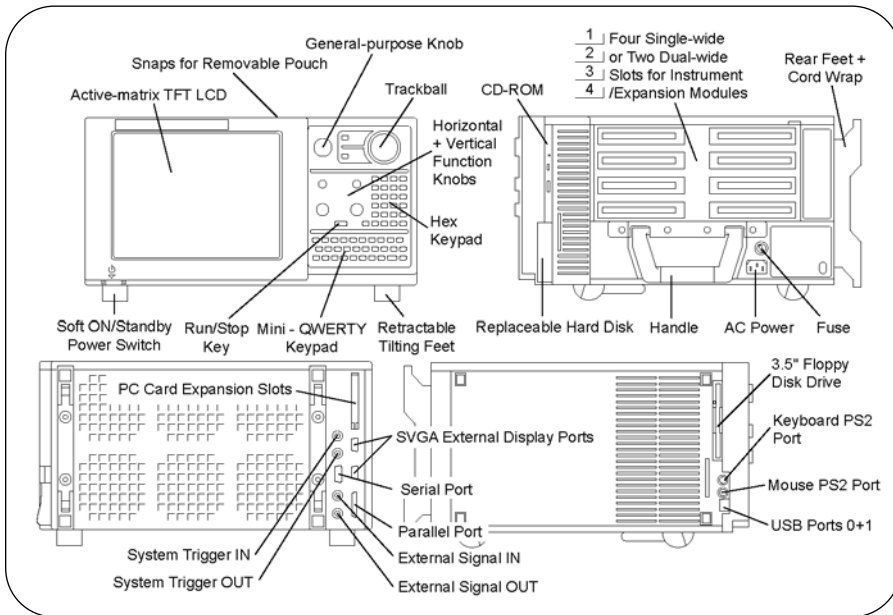Resolution: 800x600.
Colors: 16.8 M (true color).

Simultaneous Display Capability – Both the
front-panel and one external display can be used
simultaneously at 800x600 resolution.

Front-panel Knobs – Special function knobs
for instrument control.

Front-panel QWERTY Keypad – Mini-QWERTY
keypad and Hex keypad.

Front-panel Pointing Device – Trackball.

▶ *TLA715 Portable Mainframe.*

▶ *TLA721 Benchtop Mainframe.*

▶ *TLA7XM Expansion Mainframe.*

TLA700 External Peripheral Interfaces (TLA715 and TLA721)

External Display Port Type – (2) Female DB15 connectors.

External Display Resolution – Up to 1600x1200 non-interlaced at 256 colors, for both primary and secondary displays.

External Display Compatibility – DDC2B (dynamic display configuration 2).

External Keyboard Port Type – PS2 mini-DIN.

External Mouse Port Type – PS2 mini-DIN.

Parallel Interface Port Type – IEEE 1284-C connector (comes standard with adapter to female DB25 connector).

Parallel Interface Modes – Centronics mode, EPP (Extended Parallel Port), ECP (Microsoft high-speed mode).
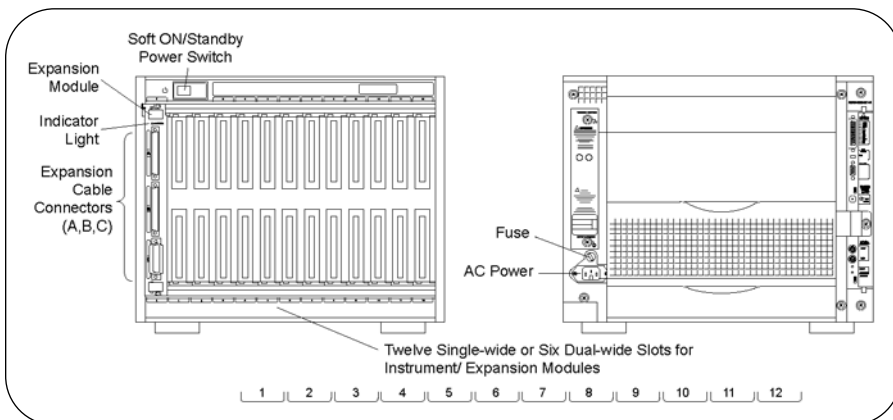
Serial Interface Port Type – Male DB9.

PC Card (CardBus) Slot Types – Two slots, two PC Card Type I/II or one PC Card Type III.

USB Port – Two (2).

Tektronix Logic Analyzers

▶ TLA700 Series Mainframes

Integrated View (iView™) Capability

TLA mainframe configuration requirements –
TLA714/720/715/721 Series mainframes and TLA6XX instruments.
TLA App S/W V 4.1 or greater.
256 MB DRAM Minimum, 512 MB recommended.

TDS configuration requirements –

The iView™ cable does not fully connect to the TDS1000/2000 Series oscilloscopes without a GPIB extender. Tektronix recommends a standard GPIB cable as an extender, or order a cable extender (National Instruments part number 181638-1). TDS2CMAX Communications Extension Module is required for iView capability on any TDS1000/2000 Series. TDS3GM GPIB/RS232 Interface Module required for iView capability on any TDS3000 series. TDS3GV GPIB/RS232/VGA Interface Module required for iView capability on any TDS3000B series. If using TLA7Axx iConnect with a TDS6404, TDS6604, TDS7154, TDS7404, CSA7154 or CSA7404 oscilloscope, four TCA-BNC connectors are required to be compatible with BNC cables from the TLA7Axx module.

Number of TDS oscilloscopes that can be connected to a TLA system – 1.

External Oscilloscopes Supported –
TDS1002, TDS1012, TDS2002, TDS2012, TDS2014, TDS2022, TDS2024. TDS3012, TDS3014, TDS3032, TDS3034, TDS3052, TDS3054. TDS3012B, TDS3014B, TDS3032B, TDS3034B, TDS3052B, TDS3054B. TDS5032, TDS5034, TDS5052, TDS5054, TDS5104. TDS6404, TDS6604. TDS7054, TDS7104, TDS7154, TDS7404. TDS684C, TDS694C. CSA7154, CSA7404. TDS754C, TDS784C, TDS724D, TDS754D, TDS784D, TDS794D.

TLA Connections – USB, Trigger In, Trigger Out, Clock Out.

TDS Connections – GPIB, Trigger In, Trigger Out, Clock In (when available).

Setup – iView™ external oscilloscope wizard automates setup.

Data Correlation – After TDS oscilloscope acquisition is complete, the data is automatically transferred to the TLA and time correlated with the TLA acquisition data.

Deskew – TDS and TLA data is automatically deskewed and time correlated when using the iView™ external oscilloscope cable.

iView™ External Oscilloscope Cable Length – 2 m.

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 User Manual). If a format is not listed, please contact your local Tektronix representative

▶ *TLA715 Series with TDS7000 Series oscilloscope.*

External Instrumentation Interfaces

System Trigger Output –
Asserted whenever a system trigger occurs (TTL-compatible output, back-terminated into 50 Ω).

System Trigger Input –
Forces a system trigger (triggers all modules) when asserted (TTL-compatible, 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 (TTL-compatible, level-sensitive).
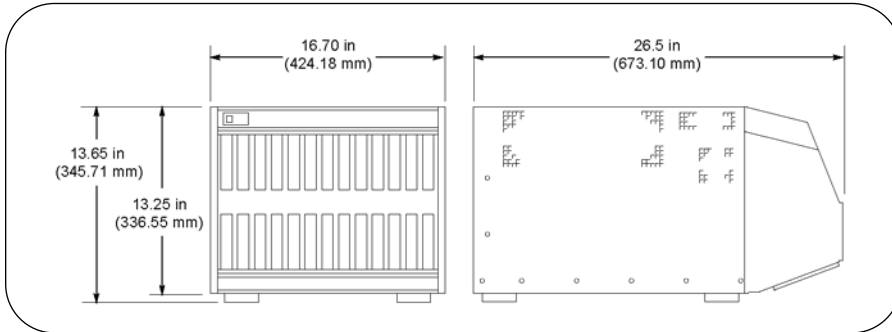
P6041 External Signal Cable Length – (SMB to BNC adapter cable, two each TLA721 only) 1.1 m (42 in.).
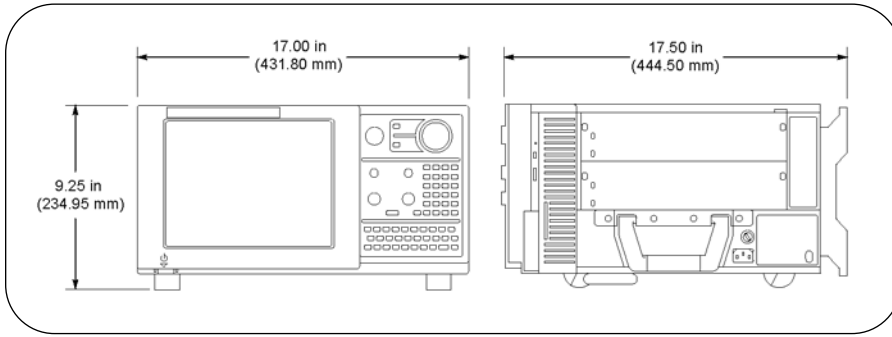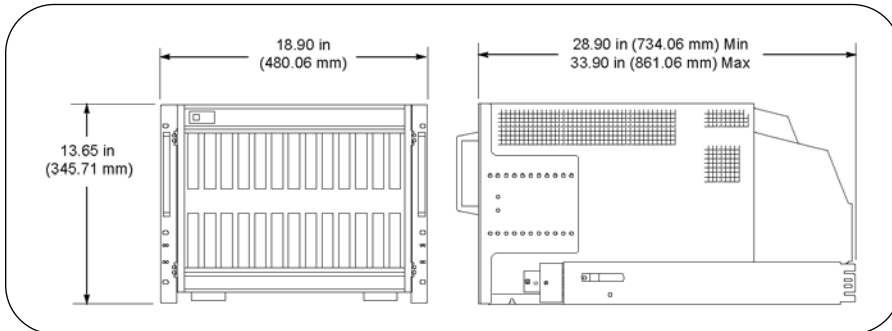
▶ *TLA715 Portable Mainframe.*

▶ *TLA721 and TLA7XM Benchtop and Expansion Mainframes.*

▶ *TLA721 and TLA7XM Benchtop and Expansion Mainframes with TLA721/TLA7XM Rackmount Kit.*

Power

TLA715 –

Voltage range/frequency: 90-250 VAC at 45-66 Hz. 100-132 VAC at 360-440 Hz.
Input current: 6 A maximum at 90 VAC (70 A surge).
Power consumption: 600 W maximum.

TLA721 and TLA7XM –

Voltage range/frequency: 90-250 VAC at 45-66 Hz, 100-132 VAC at 360-440 Hz.
Input current: 16.5 A maximum at 90 VAC (70 A surge).
Power consumption: 1,450 W maximum.

Physical Characteristics

TLA715 Portable

Dimensions	mm	in.
Height	235	9.25
Width	432	17
Depth	455	17.5
Weight	**kg**	**lb.**
Net (w/o modules)	11.4	25
Shipping (typical)	25.5	56

TLA721 Benchtop & TLA7XM Expansion

Dimensions	mm	in.
Height	346	13.65
Width	425	16.7
Depth	673	26.5
Weight	**kg**	**lb.**
Net (w/o modules)	22.7	50
Shipping (typical)	51.8	114

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Environmental

Temperature –
Operating: +5 ℃ to +50 ℃.
Nonoperating: –20 ℃ to +60 ℃.

Humidity – 20% to 80%.
Operating: ≤30 ℃; 80% relative humidity
(29 ℃ maximum wet bulb temperature).
Nonoperating: 8% to 80% (29 ℃ 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.

▶ Ordering Information

TLA715

Dual Monitor Portable Mainframe.

Includes: Wheel mouse, keyboard, LAN PC Card,
front-panel cover, accessory pouch, two dual-wide
panel fillers for empty slots, printer adapter, software,
certificate of calibration and one-year warranty
(return to Tektronix), power cord, and user manual.
Please specify power plug when ordering.

### TLA721

Dual Monitor Benchtop Mainframe.

Includes: Wheel mouse, keyboard, LAN PC Card,
five dual-wide panel fillers for empty slots, printer
adapter, two P6041 SMB to BNC adapter cables;
software, certificate of calibration and one-year
warranty (return to Tektronix), power cord, and user
manual. Please specify power plug when ordering.
Display is not included – order Opt. 3M or Opt. 4M
or use any SVGA monitor.

TLA7XM

Expansion Mainframe.

If installing a TLA7XM expansion mainframe into a
TLA700 Series mainframe, please consult the TLA
Family Upgrade Guide for upgrade information.

Includes: Two expansion modules, three expansion
cables, six dual-wide panel fillers for empty slots,
one single-wide panel filler for empty slot, state-
ment of compliance and one-year warranty (return
to Tektronix), power cord, and user manual. Please
specify power plug when ordering.
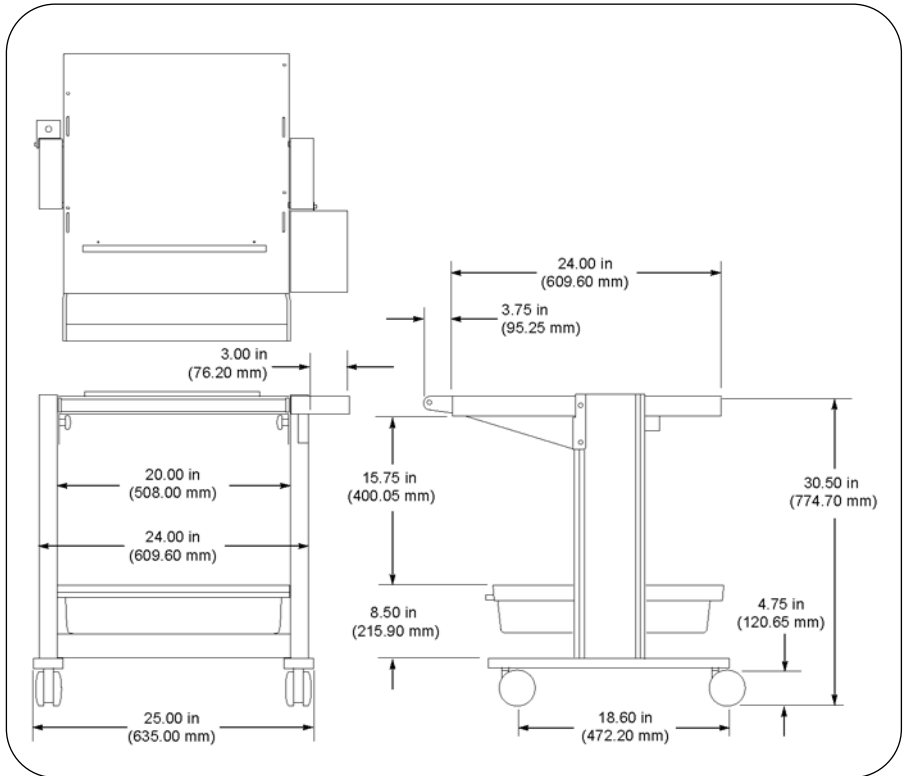
▶ *LACART Instrument Cart (adjustable probe skyhook not shown).*

TLA715/721 Options

Opt. 1C – Add iView™ external oscilloscope
interface kit (012-1614-01).

Opt. 1K – Add LACART logic analyzer cart.

Opt. 3M – Add 18 in. 1280x1024 flat-panel
display (119-6568-00).

Opt. 4M – Add 21 in. 1600x1200 flat-panel
display (119-6569-00).

Power Plug Options

Opt. A0 – North America power.

Opt. A1 – Universal EURO power.

Opt. A2 – United Kingdom power.

Opt. A3 – Australia power.
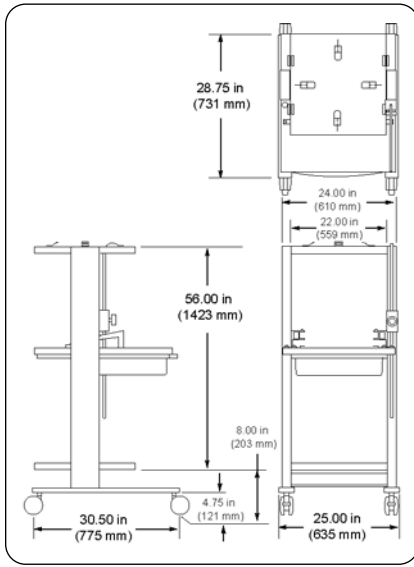
Opt. A4 – 240 V, North America power.

Opt. A5 – Switzerland power.

Opt. A6 – Japan power.

Opt. A10 – China power.

Opt. A99 – No power cord or AC adapter.

▶ *K4000 Instrument Cart.*

Language Options for User Manuals

Opt. L0 – English.

Opt. L10 – Russian.

Opt. L99 – No Manuals.

TLA715/TLA721/TLA7XM Factory Configuration

Opt. 88 – Install modules in mainframe at factory (excludes merging of Logic Analyzer modules).

TLA704/714/715 TLA711/720/721 TLA7XM Optional Accessories

Logic Analyzer Cart – LACART, K4000.

TLA711 Rackmount Kit – Order 020-2197-00.

TLA720/TLA721/TLA7XM Rackmount Kit – Order 020-2369-00.

TLA704/714/715 Wheeled Transport Case – Order 016-1522-00.

TLA711/720/721/TLA7XM Wheeled Transport Case – Order 016-1651-00.

Wheeled Transport Case for 18 in. 1280x1024 Flat-panel Display – Order 016-1895-00.

Wheeled Transport Case for 21 in. 1600x1200 Flat-panel Display – Order 016-1896-00.

83 Key Notebook Keyboard, PS2-Compatible – Order 118-9402-00.

TLA7QS– TLA Family training package. (TLA700 configuration required: 102-Channel logic analyzer module (required) plus 2-Channel digitizing oscilloscope module (optional) plus 64-Channel pattern generator module (optional)).

TLA7QS Technical Reference Support Kit – Order 020-2211-02.

Displays

18 in. 1280x1024 Flat-panel Display with U.S. Standard, 120 V; 60 Hz Power Plug – Order 119-6568-02.

20 in. 1600x1200 Flat-panel Display with U.S. Standard, 120 V; 60 Hz Power Plug – Order 119-6569-01.

Power Cord Options for Displays

Power Cord, IEC320 C5 Universal Euro, Straight – Order 161-0311-00.

Power Cord, IEC320 C5 UK, Straight – Order 161-0312-00.

Power Cord, IEC320 C5 Australian, Straight – Order 161-0313-00.

Power Cord, IEC320 C5 Switzerland, Straight – Order 161-0314-00.

TLA700 Series Manuals

TLA Family User Manual – Order 071-1236-00 (for Version 4.3 TLA application software).

TLA7QS QuickStart™ Training Manual – Order 070-9717-05.

TLA700 Series Service Manuals and Test Fixtures

TLA715 Service Manual (includes performance verification and adjustment procedures) – Order 071-0913-01.

TLA721/7XM Service Manual (includes performance verification and adjustment procedures) – Order 071-0912-01.

TLA700 Series Mainframe Upgrades

You can upgrade the operating system, TLA application software, increase DRAM and hard disk, add existing modules as well as other new capabilities to your existing TLA714/715/720/721 mainframe.

Please refer to the TLA Family Upgrade Guide for further details.

Service Options

Opt. C3 – Calibration Service 3 Years.

Opt. C5 – Calibration Service 5 Years.

Opt. D1 – Calibration Data Report.

Opt. D3 – Calibration Data Report 3 Years (with Option C3).

Opt. D5 – Calibration Data Report 5 Years (with Option C5).

Opt. R3 – Repair Service 3 Years.

Opt. R5 – Repair Service 5 Years.

Opt. IN – Product Installation Service.

Opt. S1 – On-site Service 1 Year.

Opt. S3 – On-site Service 3 Years (with R or C Option).

Tektronix Logic Analyzers

▶ TLA700 Series Mainframes

Our most up-to-date product information is available at:
www.tektronix.com

Product(s) are manufactured
in ISO registered facilities.   CE   ISO 9001

01/04   HB/SFI   52W-15053-2

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