

Installation Manual



TLA5000 Series Logic Analyzer

071-1301-00

Warning

The servicing instructions are for use by qualified personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries prior to performing service.

www.tektronix.com

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General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it.

To avoid potential hazards, use this product only as specified.

Only qualified personnel should perform service procedures.

While using this product, you may need to access other parts of the system. Read the *General Safety Summary* in other system manuals for warnings and cautions related to operating the system.

To Avoid Fire or Personal Injury

Use Proper Power Cord. Use only the power cord specified for this product and certified for the country of use.

Connect and Disconnect Properly. Do not connect or disconnect probes or test leads while they are connected to a voltage source.

Ground the Product. This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.

Observe All Terminal Ratings. To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

Connect the ground lead of the probe to earth ground only.

Powering Off. The power cord provides Mains disconnect.

Do Not Operate Without Covers. Do not operate this product with covers or panels removed.

Use Proper Fuse. Use only the fuse type and rating specified for this product.

Avoid Exposed Circuitry. Do not touch exposed connections and components when power is present.

Do Not Operate With Suspected Failures. If you suspect there is damage to this product, have it inspected by qualified service personnel.

Do Not Operate in Wet/Damp Conditions.

Do Not Operate in an Explosive Atmosphere.

Keep Product Surfaces Clean and Dry.

Provide Proper Ventilation. Refer to the manual's installation instructions for details on installing the product so it has proper ventilation.

Symbols and Terms

Terms in this Manual. These terms may appear in this manual:



WARNING. *Warning statements identify conditions or practices that could result in injury or loss of life.*



CAUTION. *Caution statements identify conditions or practices that could result in damage to this product or other property.*

Terms on the Product. These terms may appear on the product:

DANGER indicates an injury hazard immediately accessible as you read the marking.

WARNING indicates an injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

Symbols on the Product. The following symbols may appear on the product:



CAUTION
Refer to Manual



WARNING
High Voltage



Protective Ground
(Earth) Terminal



Mains Disconnected
OFF (Power)



Mains Connected
ON (Power)



Standby

Service Safety Summary

Only qualified personnel should perform service procedures. Read this *Service Safety Summary* and the *General Safety Summary* before performing any service procedures.

Do Not Service Alone. Do not perform internal service or adjustments of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect Power. To avoid electric shock, switch off the instrument power, then disconnect the power cord from the mains power.

Use Care When Servicing With Power On. Dangerous voltages or currents may exist in this product. Disconnect power, remove battery (if applicable), and disconnect test leads before removing protective panels, soldering, or replacing components.

To avoid electric shock, do not touch exposed connections.

Preface

This manual contains all information needed to install your Tektronix logic analyzer and related accessories.

To prevent personal injury or damage, consider the following requirements before attempting service:

- The procedures in this manual should be performed only by qualified service personnel.
- Read the *General Safety Summary* and *Service Safety Summary* found at the beginning of this manual.

Be sure to follow all warnings, cautions, and notes in this manual.

TLA5000 Series Logic Analyzers

The TLA5000 series logic analyzers consist of four portable logic analyzer mainframes, which differ by channel width, and all of the accessories and supports that are used with them. The logic analyzers are built upon the Microsoft Windows operating system, which allows you to install any PC-compatible, third-party hardware and software on the instrument.

A TLA5000 logic analyzer is illustrated in Figure i.

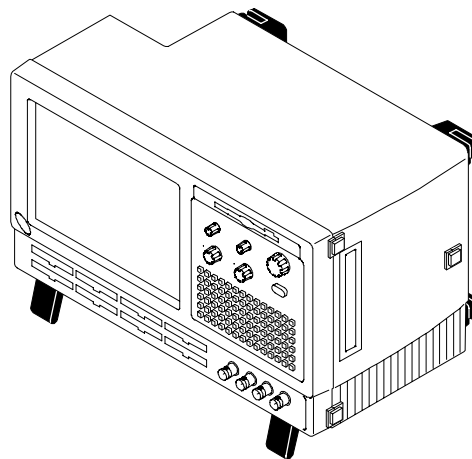


Figure i: TLA5000 series logic analyzers

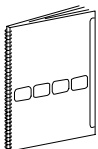
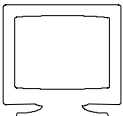

For a complete list of accessories, refer to the online help.

Related Documentation

In addition to this installation manual, several other pieces of documentation are available. Table i lists other documentation that you may need to support your Tektronix logic analyzer product.

For documentation not specified in the table, contact your local Tektronix representative.

Table i: Tektronix Logic Analyzer Family documentation

Location	TLA Documentation
Documents available in printed form and downloadable from the Tektronix web site.	
  tektronix.com	Tektronix Logic Analyzer Family User Manual TLA5000 Series Logic Analyzer Installation Manual P6417 & P6418 Logic Analyzer Probes Instructions P6419 Logic Analyzer Probe Instructions P6434 Mass Termination Probe Instructions TLA6UP Field Upgrade Kit Instructions TLA7QS Quick Start Training Manual TDS5000 Series & TLA5000 Series Rackmount Kit Instructions
Documents available as PDF files on the documentation CD.	
	Tektronix Logic Analyzer Family User Manual TLA5000 Series Logic Analyzer Installation Manual Tektronix Logic Analyzer Programmatic Interface (TPI.net) Tektronix Logic Analyzer Programmatic Interface (TPI.com) P6417 & P6418 Logic Analyzer Probes Instructions P6419 Logic Analyzer Probe Instructions P6434 Mass Termination Probe Instructions TLAVu Readme

Contacting Tektronix

Phone	1-800-833-9200*
Address	Tektronix, Inc. Department or name (if known) 14200 SW Karl Braun Drive P.O. Box 500 Beaverton, OR 97077 USA
Web site	www.tektronix.com
Sales support	1-800-833-9200, select option 1*
Service support	1-800-833-9200, select option 2*
Technical support	Email: techsupport@tektronix.com 1-800-833-9200, select option 3* 6:00 a.m. - 5:00 p.m. Pacific time

* **This phone number is toll free in North America. After office hours, please leave a voice mail message. Outside North America, contact a Tektronix sales office or distributor; see the Tektronix web site for a list of offices.**

Basic Installation

This chapter describes all of the steps needed to install your Tektronix logic analyzer and its related accessories.

Check the Shipping List

Check that you have received all of the parts of your logic analyzer using the shipping list. Also check the following:

- That you have the correct power cords for your geographical area.
- That you have backup copies of the installed software. Store the backup software in a safe location where you can easily retrieve the software for maintenance purposes.
- That you have all the standard and optional accessories that you ordered.

Fill out and return the customer registration card that is packaged with this manual.

Environmental Considerations

Read this section before installing the logic analyzer. This section describes site considerations, power requirements, and ground connections for your logic analyzer.



CAUTION. Allow a 5.1 cm (2 in) clearance at the bottom and sides of the instrument to ensure proper cooling. Inadequate clearances can cause the instrument to overheat and shut down.

You can use the TLA5000 on a bench or on a cart in the normal position (on the bottom feet).

Chassis Ground Connections

Use the chassis ground connections to connect the grounds of the target system (system-under-test) to the logic analyzer to ensure a common ground connection between instruments.



WARNING. To reduce the risk of an electrical shock, do not remove the safety ground screw from the logic analyzer. The safety ground screw must always be in place to ensure proper grounding of the power supply to the logic analyzer.

Figure 1 shows the chassis ground connection on the TLA5000 logic analyzer.

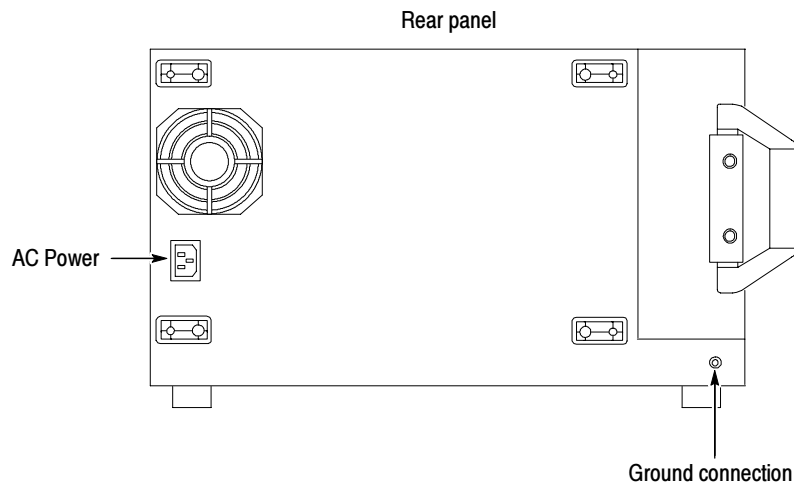


Figure 1: Location of the ground connection on the TLA5000 instruments

Connecting Accessories

After installing the mainframe, you can connect accessories such as an external monitor, keyboard, and printer. Connect the accessories to the side of the instrument. The connection points are shown in Figure 2.

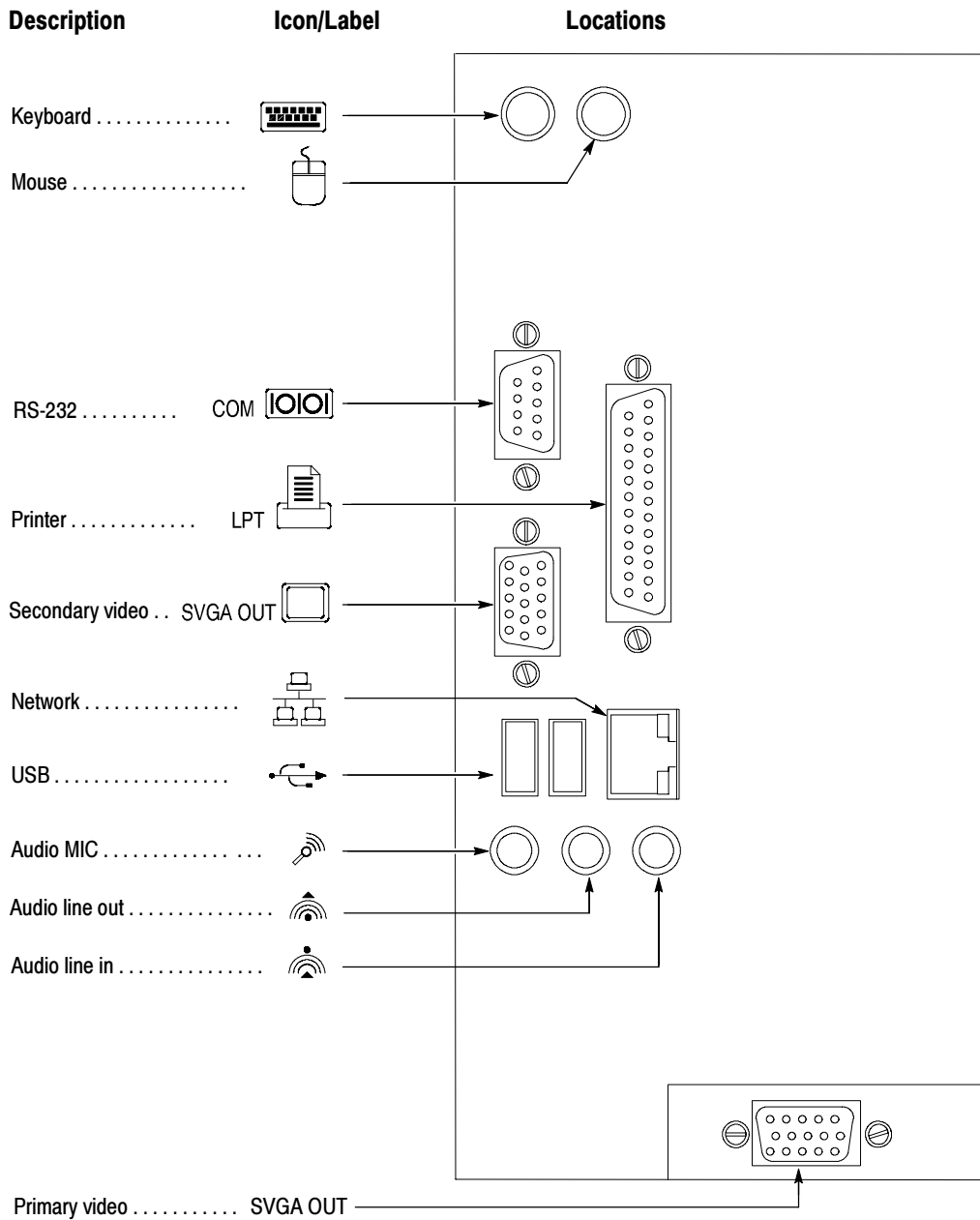


Figure 2: TLA5000 series accessory connections

Table 1 provides additional information on accessories.

Table 1: Accessory connection information

Item	Description
Monitor	If you use a non plug & play monitor, you may need to change the the Windows display settings to achieve the proper resolution.
Printer	Connect the printer to the LPT (parallel) port
Rackmount	The TLA5000 series logic analyzers can be installed in rackmount kits. Refer to the respective rackmount kit instructions for installation information.

Connecting Probes

After you have connected all the accessories, you can connect the probes to the instrument. Refer to the appropriate section for your instrument.

For additional information on the individual probes, refer to the instructions that accompanied your probes.



CAUTION. *When attaching the probe to the logic analyzer, you must use care to evenly tighten probe screws until they are snug. First slightly tighten screws, then snug each screw to 4 in-lbs (max). Undertightening the probe screws can result in intermittent performance. Over tightening can result in stripped screws.*

Connect the logic analyzer probes and the optional retaining brackets as shown in Figure 3.

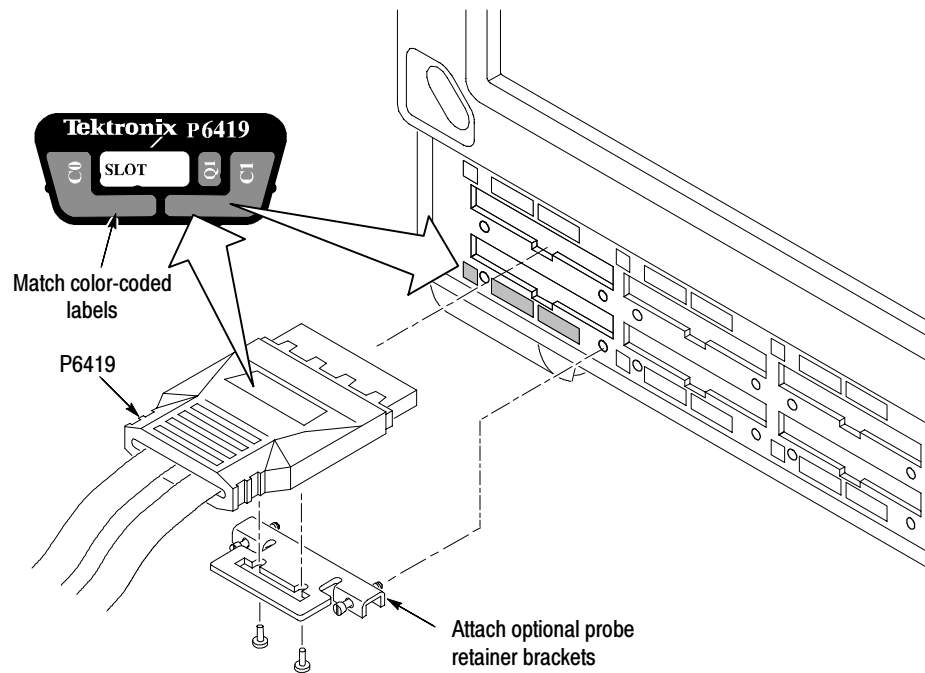


Figure 3: Connecting the P64xx logic analyzer probes to the TLA5000 logic analyzer

First Time Operation

Use the information in this section to turn on the logic analyzer for the first time.



CAUTION. Connect the keyboard, mouse, and other accessories before applying power to the logic analyzer. Connecting the accessories after turning on the logic analyzer can damage the accessories.

Follow these steps to turn on the TLA5000 series logic analyzer for the first time:

1. Connect the power cord. See Figure 4.
2. If you have an external monitor, connect the power cord and turn on the monitor.

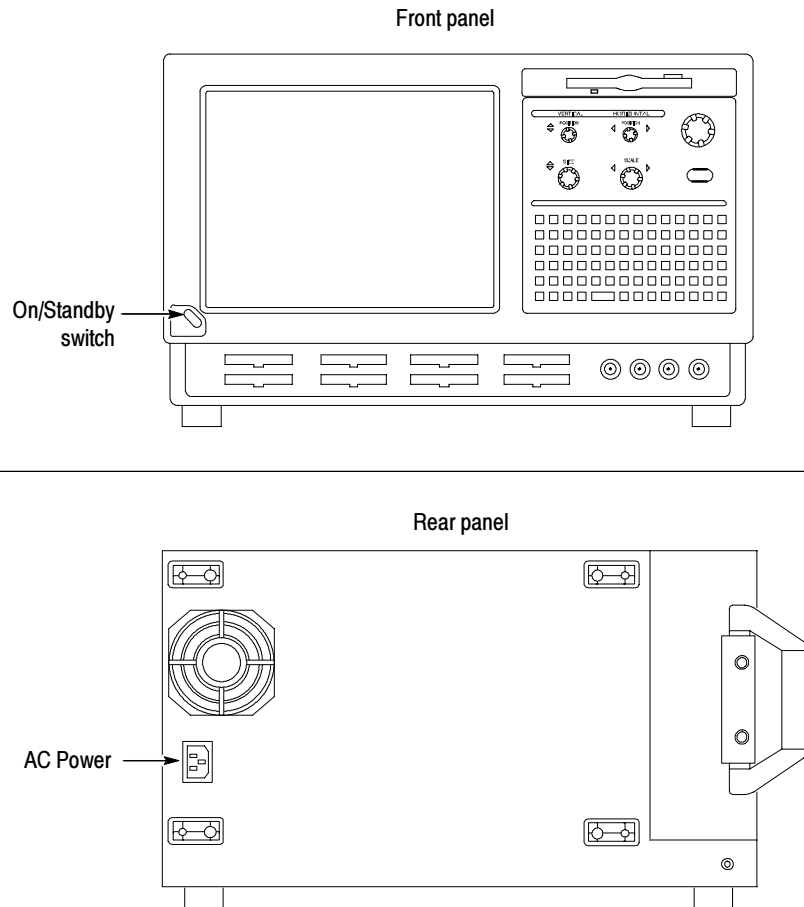


Figure 4: TLA5000 power cord connector location

3. Turn on the logic analyzer as follows:
 - a. Press the On/Standby switch on the front of the instrument to turn on the logic analyzer (see Figure 4 for the switch location).
 - b. Wait for the logic analyzer to complete power-on self-tests and start Windows.

Performing the Incoming Inspection

Incoming inspection consists of verifying the basic operation of the logic analyzer. The power-on diagnostics check the basic functionality. The diagnostics run every time you turn on the logic analyzer.

You can also verify more detailed functionality by running the self-calibration and extended diagnostics.

NOTE. Allow the mainframe to warm up for 30 minutes before running the self-calibration.

To run self-calibration and diagnostics, perform the following:

1. Disconnect any probes that are attached to the input connectors.
2. Select the System menu and click Calibration and Diagnostics.
3. Run the self-calibration and then the extended diagnostics by selecting the proper tab. Results of the tests display on the individual property page.

Checking the P64xx Logic Analyzer Probes (Optional)

Connect the P64xx logic analyzer probes to a signal source, start an acquisition, and verify that the acquired data is displayed in either the listing or waveform windows. You can also use the Activity Indicators in the logic analyzer Setup window to view signal activity at the probe tips.

NOTE. If you connect probes to any channels other than the A2 and A3 groups, you must define the groups and channels in the Setup window before acquiring data on other probe channels.

Backing Up User Files

Back up your user files on a regular basis. Use the Windows back up tools or copy the files to or to another media. Always keep a backup copy of files that you access on a regular basis.

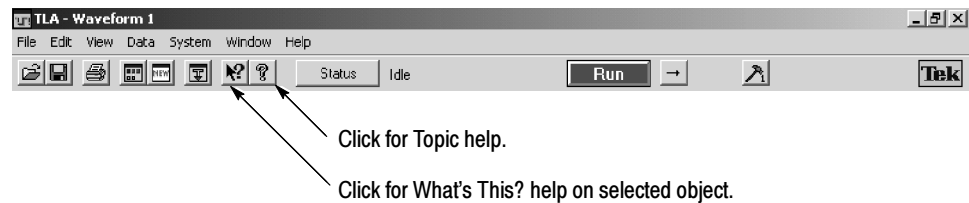
Connecting Probes to the Target System

The logic analyzer connects to the target system through probes. The logic analyzer probes allow you to connect to the target system in several different ways. For probe-specific connection details, refer to the appropriate probe instruction manual or browse the Tektronix Web site.

Additional Information

For a quick overview of your Tektronix logic analyzer, refer to *Product Overview* beginning on page 9. For detailed information on using the logic analyzer refer to the *Tektronix Logic Analyzer Family User Manual* or to the TLA online help.

To access main online help, go to the Help menu or click the toolbar buttons shown:



TPI Online Help. Select Help on TPI from the drop-down help menu for information on using the TLA Programmatic Interface. A printable version of the TPI online help is available on the instrument. Click Start > Programs > Tektronix Logic Analyzer > TLA Documentation > TPI Manual.

TLAScript Online Help. TLAScript is a script that works with TPI. Select Help from the menu bar within the TLAScript application. To start TLAScript, select Start > Programs > Tektronix Logic Analyzer > TLAScript.

TLAVu and PatGenVu Software. TLAVu and PatGenVu software applications provide you with the ability to view your TLA data offline on your own Microsoft Windows-based PC.

Release Notes. To access the Logic Analyzer Release Notes, click Start > Programs > Tektronix Logic Analyzer > TLA Release Notes. To access the Pattern Generator Release Notes, click Start > Programs > Tektronix Pattern Generator > Pattern Generator Release Notes.

Product Overview

This chapter briefly describes the product controls and connectors of the logic analyzers. Refer to the online help for detailed operating information for the logic analyzer.

Front Panel Controls

You can use the front panel controls to operate the TLA5000 series logic analyzers. You can also attach an external keyboard, monitor, and mouse to operate the logic analyzers.

You can use the front panel keys as an alternative to an external keyboard. Most keys and key combinations are available using the front panel. See Figure 5.

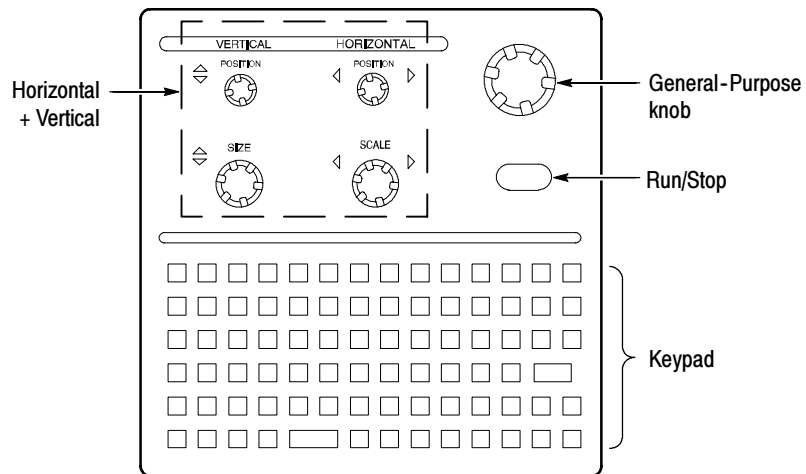


Figure 5: TLA5000 Logic analyzer front panel

TLA5000 Series External Connectors

The external connectors on the rear panel of the TLA5000 series logic analyzer are shown in Figure 2 on page 3.

Restoring and Reinstalling Software

Most of the software comes factory-installed when you receive your logic analyzer. You only need to refer to this section if you reinstall your software. These instructions only refer to reinstalling the application software and operating system. This section also provides information on installing related logic analyzer software on a PC for remote operation or for offline applications.

NOTE. *If you install or reinstall software on a remote PC, make sure that the software version matches that of the main application on the logic analyzer.*

Restoring the Hard Disk Image



CAUTION. *The software installation procedure using the Hard Disk Image CD will overwrite the **entire contents** of your hard disk. If you want to save files or software applications from the hard disk, back them up to another media (second hard disk drive, CD, or network drive) before continuing with this procedure.*

Setting up the TLA5000 Controller BIOS

This procedure is necessary after replacing the hard disk or when the BIOS settings are corrupted or lost. To configure the Controller BIOS, complete the following steps:

1. Power on the logic analyzer and press the F2 function key before the logic analyzer boots the Windows operating system.
2. Press the F9 function key, select Yes, and then press Enter to set all settings to their default values. Verify that the hard disk was auto-recognized and that the correct size of the hard disk is displayed in the Primary Master setting.
3. Using the arrow keys, navigate to the Advanced page.
4. Under Peripheral Configuration, perform the following:
 - a. Set the Parallel Port Mode to ECP
 - b. Set the Audio to Disabled.
5. Under Diskette Configuration, set the Diskette Controller to Disabled.
6. Under Video Configuration, set the Primary Video Adapter to PCI.

7. Press the F10 function key to exit and save the BIOS setup.

Reinstalling the Hard Disk Image

The Tektronix Logic Analyzer comes with a CD containing the Microsoft Windows operating system and the latest application software. All software required to run the logic analyzer comes with the CD except for any microprocessor support packages or non-logic analyzer application software. The process of reloading the software on the hard disk will destroy any files or programs installed on the hard disk.

Use the appropriate CD for your application.

- For TLA5000 instruments, use the CD labeled *TLA5000 Hard Disk Image*.



CAUTION. To avoid destroying the *entire contents* of your hard disk, save any files or applications by backing them up to another media (CD, network drive, or an external hard drive connected to the USB port) before continuing with this procedure.

Backing Up Files

Before loading the Hard Disk Image software, make sure that you back up any files and personal documents to an external storage device.

You can find most TLA user files using the Windows Search utility. For example, open Windows Explorer and select the C:\My Documents folder. Right click on the folder and select Search. Enter one of the suffixes from Table 2 to locate the files in the current folder and all subfolders (you may want to search for other file suffixes depending on the files installed on your logic analyzer).

Table 2: TLA user file suffixes

Suffix	Description
.tla	TLA setup files
.tsf	TLA symbol files
.tbf	Tektronix binary format
.tls	TLA script file
.tpg	Tektronix pattern generator files
.txt	Tektronix TLA data exchange format files
.stk	Stack files
.spz	Protocol files

Once you find the files, copy them to the external storage device. Use this procedure to find any files or applications that you may want to save.

If you purchased any microprocessor support packages, you need to reinstall the application after you reinstall the hard disk image. If you don't have a copy of the microprocessor support software, contract your Tektronix Account Manager to order a replacement copy. If you cannot contact the account manager, contact the Tektronix Support Center (refer to *Contacting Tektronix* on page ix at the beginning of this document).

NOTE. *You can reinstall the Microsoft Windows operating system and other software only from the Hard Disk Image CD that came with your instrument. These software applications are licensed and cannot be reinstalled by any other method without violating the license agreements. The SnagIt and CheckIt Utilities are also available on the Tektronix application CD.*

Installing the Operating System and TLA Application Software

This procedure overwrites all data on the hard drive with the new product software image. Because this procedure reformats the hard disk drive, be sure to back up any files or software that you want to preserve by following the steps in the previous section.



CAUTION. *To avoid losing user files on your hard disk, back them up before proceeding.*

Change the BIOS Boot Settings. Before installing the Hard Disk Image, you may need to change the BIOS settings to enable booting the logic analyzer from the CD-ROM.

1. Restart the logic analyzer and then press the F2 function key to enter the BIOS setup.
2. In the BIOS setup, go to the Boot menu.

3. Set the Boot devices for your instrument as shown in Table 3 (follow the on-screen instructions to change the settings).

Table 3: BIOS Boot settings for reinstalling software from the CD-ROM

Instrument	Setting
TLA5000 series	First Boot Device: [ATAPI CDROM Drive]
	Second Boot Device: [Floppy]
	Third Boot Device: [IDE-HDD]

4. Save the settings by pressing function key F10 and confirm that you want to save the new settings.

Load the Hard Disk Image. Complete the following steps to load the Hard Disk Image:

1. Insert the Hard Disk Image CD in the CD-ROM drive.
2. Reboot the logic analyzer.
3. Review the license agreement. If you agree to the terms of the license agreement, proceed with the next step.

NOTE. Use care when proceeding through the software license agreement. Ensure that you make the proper selections.

4. After you review the software license agreement, the dialog box prompts you to either continue or cancel the upgrade process. Click Continue to begin loading the hard disk image.
5. There is a warning that the contents of your hard disk will be destroyed if you choose to continue. Click Yes to continue the process.
6. The program will automatically start and guide you through the rest of the procedure. The image loading procedure is fully automatic and takes approximately 15 minutes to complete.

The image loading procedure automatically installs and sets up the logic analyzer application. You do not need to make any changes to the setup to use the logic analyzer.

7. After the image is loaded, remove the CD from the CD-ROM drive and reboot the logic analyzer.

8. The Systems Settings Change error message displays, prompting you to restart the instrument before your changes can take effect. Click Yes to restart the instrument.
9. Reinstall any user files that you backed up previously. Reinstall any software (such as the microprocessor support packages) that you want to use on the logic analyzer.
10. If desired, reconfigure the TLA network interface.

Reinstalling the TLA Application Software

Complete the following steps to reinstall the latest version of the TLA application software or the pattern generator application software. Use these steps as a first resort to recovering from application software problems. If you still experience problems with the software after completing these steps, follow the instructions under *Restoring the Hard Disk Image* beginning on page 11.

While using this procedure you will be asked to log on as Administrator. The logic analyzer is initially set up to automatically log on as Administrator (with no password) so you may not see the login prompt. If the network setups have been changed on your instrument, make sure that you log on as Administrator or as a user who has administrator privileges. Failure to do so can prevent the software upgrade from completing successfully.

1. Log on to the instrument as Administrator and quit any applications.
2. Install Disc 1 of the Tektronix Logic Analyzer Family Application Software in the CD-ROM drive of the logic analyzer.
3. Click Run in the Windows Start menu to display the Run dialog box.
4. To reinstall the TLA application software, enter D:\TLA Application SW\Setup.exe in the Run dialog box (if your CD-ROM drive is not the D-drive, enter the appropriate letter for your drive).
5. Click OK to perform the installation.

If you have an older version of the software on the hard disk, the installation program will detect it and ask if you want to remove it. Follow the on-screen instructions to remove the software, answering “Yes” to any prompts. Restart the instrument when prompted. Repeat Step 4 to reinstall the software, following any on-screen prompts.

6. After the software has been successfully installed, restart the instrument.

Installing the TPI Remote Operation Software

The TPI client software package allows you to remotely control the logic analyzer from a remote PC. This software package is located on Disc 1 of the TLA application software set. You must ensure that the version of the TPI client software is the same as that of the TLA application on your logic analyzer.

Complete the following steps to update the TPI client software packages on your PC. If you have an older version already installed on your PC, the program will automatically detect it and replace it during the upgrade process.

1. Install Disc 1 of the Tektronix Logic Analyzer Family Application Software in the CD-ROM drive of the PC.
2. Click Run in the Windows Start menu to display the Run dialog box.
3. To install the TPI client software, enter D:\TPI Client SW\Setup.exe in the Run dialog box.
4. Click OK to perform the installation. Follow any on-screen instructions.
5. If you have an earlier version of either software package installed on your PC, the Setup.exe program will uninstall the application before installing the new version. If you are prompted for permission to remove unused shared files or any read-only files, select Yes to All.

NOTE. You may also want to refer to the TPI online help for configuration instructions for the TPI and PPI client software.

Installing the TLAVu Software on a PC

TLAVu application software allows you to view data and create setups for your logic analyzer on a PC. You must ensure that the version of the software is the same as that of the TLA application. The TLAVu and application software is located on Disc 2 of the Tektronix Logic Analyzer Family Application Software set.

Complete the following steps to update the application software on your PC:

1. Install Disc 2 of the Tektronix Logic Analyzer Family Application Software in the CD-ROM drive of the PC.
2. Click Run in the Windows Start menu to display the Run dialog box.
3. To install the TLAVu software, enter D:\TLAVu\Setup.exe in the Run dialog box.
4. Click OK to perform the installation. Follow any on-screen instructions.
5. If you have an earlier version of the TLAVu application installed on your PC, the Setup.exe program will uninstall the old application before installing the new version. If you are prompted for permission to remove unused shared files or any read-only files, select Yes to All.

NOTE. *The ReadMe file for the TLAVu application contains most of the information that you need to run the application. Access the ReadMe file by selecting: Start → Programs → Tektronix Logic Analyzer → TLA Documentation → TLAVu ReadMe.*

Upgrading or Restoring Firmware

You may have to upgrade the firmware on the logic analyzer or on individual modules if the firmware version is not compatible with the TLA application software version. This may be evident when a module does not appear in the TLA System window. The most current firmware for the TLA application software resides in a file on the hard disk of the logic analyzer.

Use the following procedure to upgrade the firmware for the TLA5000 series logic analyzers. Because the TLA5000 series logic analyzers are monolithic instruments you can easily tell if the firmware needs updating by the absence of the logic analyzer module in the System window.

1. Disconnect any probes connected to the logic analyzer.
2. Exit the logic analyzer application.
3. Click Start → Programs → Tektronix Logic Analyzer → TLA Firmware Loader.
4. You will be prompted to cycle the power on the mainframe after completing the upgrade operation. Click Yes to continue.
5. Select the module from the Supported list box near the top of the window.
6. Select Load Firmware from the Execute menu.
7. Click the TLA520x.lod file.
8. Click OK. You will be prompted to confirm your action; click Yes.
9. Exit the firmware loader program and power down the logic analyzer. You must power down the logic analyzer to allow the TLA application to start up properly.
10. Locate the big label on the back of the instrument.
11. Record the firmware version that is printed on the label. You will need this information to see that the firmware version matches the label.
12. Power on the instrument.
13. After the logic analyzer completes the power-on diagnostics, select System Properties from the System menu.
14. Click the LA1 tab.
15. Verify that the firmware version matches the version on the label that you recorded in step 11.
16. If the firmware versions do not match, update the label on the back of the instrument.

Appendix A: User Service Procedures

This appendix describes high-level service information and procedures for the Tektronix logic analyzers. Additional troubleshooting procedures are located in the service manual.

General Care

Protect the instrument from adverse weather conditions. The instrument is not waterproof.

Do not store or leave the instrument where the LCD display will be exposed to direct sunlight for long periods of time.



CAUTION. *To avoid damage to the instrument, do not expose it to sprays, liquids, or solvents.*

Self Calibration

Use the Self Calibration property page to run self calibration procedures for the instrument. You will want to run these procedures after repair. At a minimum, run these procedures once a year.

Perform self-calibration after a 30 minute warm up.

Complete the following steps to run the self-calibration procedure:

1. From the System menu and select Calibration and Diagnostics.
2. Click the Self Calibration tab.
3. Select the instrument to calibrate.
4. Click the Run button.

Preventive Maintenance

Once a year the electrical performance should be checked and the instrument accuracy certified (calibrated). This service must be performed by a qualified service technician using the procedures outlined in the appropriate service manual for the Tektronix Logic Analyzer product.

Preventive maintenance mainly consists of periodic cleaning. Periodic cleaning reduces instrument breakdown and increases reliability. Clean the instrument as needed, based on the operating environment. Dirty conditions may require more frequent cleaning than computer room conditions.

Cleaning the Flat Panel Display

The LCD flat panel is a soft plastic display and must be treated with care during cleaning.



CAUTION. *Improper cleaning agents or methods can damage the flat panel display.*

Do not use abrasive cleaners or commercial glass cleaners to clean the display surface.

Do not spray liquids directly on the display surface.

Do not scrub the display with excessive force.

Avoid getting moisture inside the instrument while cleaning the display; use only enough solution to dampen the wipe.

Clean the flat panel display surface by gently rubbing the display with a cleanroom wipe (such as Wypall Medium Duty Wipes, #05701, available from Kimberly-Clark Corporation).

If the display is very dirty, moisten the wipe with distilled water or a 75% isopropyl alcohol solution and gently rub the display surface. Avoid using excess force or you may damage the plastic display surface.

Exterior Surfaces

Clean the exterior surfaces with a dry, lint-free cloth or a soft-bristle brush. If dirt remains, use a cloth or swab dampened with a 75% isopropyl alcohol solution. A swab is useful for cleaning in narrow spaces around the controls and connectors. Do not use abrasive compounds on any part of the instrument.



CAUTION. *To avoid damaging the instrument, follow these precautions:*

Avoid getting moisture inside the instrument during external cleaning and use only enough solution to dampen the cloth or swab.

Do not wash the front-panel On/Standby switch. Cover the switch while washing the instrument.

Use only deionized water when cleaning. Use a 75% isopropyl alcohol solution as a cleanser and rinse with deionized water.

Do not use chemical cleaning agents; they may damage the instrument. Avoid chemicals that contain benzene, toluene, xylene, acetone, or similar solvents.

Floppy Disk Drive

The floppy disk drive requires routine maintenance to operate at maximum efficiency. The disks can be damaged if dirt and dust accumulate on the recording surfaces. To prevent damage, store the disks in their protective containers where they will not be exposed to dust or dirt. In addition, you must clean the disk drive head periodically.

You will need a 3.5-inch floppy disk head-cleaning kit for routine maintenance. Perform the routine maintenance as follows:

Clean the face of the floppy disk drive monthly with a dampened cloth.



CAUTION. *Do not allow moisture to enter the disk drive. When power is applied, the internal components can be damaged.*

Clean the disk drive head monthly following the instructions provided with the head-cleaning kit.

In Case of Problems

This section provides information to help you address problems you may encounter while installing and using your logic analyzer.

Diagnostics

The logic analyzer runs power-on diagnostics every time you power on the instrument. You can view the results of the diagnostics by selecting Calibration and Diagnostics from the System menu. You can run more detailed diagnostics by selecting Extended diagnostics. Here you can run all tests, loop on one or more tests, or loop on a test until a failure occurs.

The following diagnostic tools are available with your logic analyzer:

Power-On Diagnostics. Power-on diagnostics run when you turn on the logic analyzer, or when you start the TLA or the pattern generator application. If any diagnostic failures occur during turn on, the Calibration and Diagnostics property page appears.

Extended Diagnostics. Extended diagnostics test the logic analyzer more thoroughly than the power-on diagnostics. You can use the extended diagnostics to isolate problems to an individual module.

Before running the extended diagnostics, disconnect any attached probes.

TLA Mainframe Diagnostics. The TLA mainframe diagnostics program is a stand-alone application. These diagnostics check the operation of the mainframe beyond the basic PC circuitry. These diagnostics also check the front-panel knobs of the TLA5000 mainframe.

CheckIt Utilities. The CheckIt Utilities is a separate application located in the Windows Start Programs menu (Start > Programs > CheckIt Utilities). The diagnostics check the basic PC operations of the controller.

Software Problems

Your logic analyzer comes with most software installed. Before running any of the diagnostics, check the online release notes to verify that the logic analyzer software is compatible with the module firmware.

Many software problems can be due to corrupted or missing software files. In most cases the easiest way to solve software problems is to reinstall the software and follow the on-screen instructions. Refer to *Restoring and Reinstalling Software* beginning on page 11 for instructions on reinstalling or upgrading software.

If you suspect problems with the application software, contact your local Tektronix representative.

Hardware Problems

If you are certain that you have installed the logic analyzer correctly, run the extended diagnostics (located under the System menu) to identify any problems. If your logic analyzer powers up so that you have access to the desktop, run the CheckIt Utilities software to identify possible controller hardware problems.

You can also run the external TLA mainframe diagnostics to identify problems not covered by other diagnostics. The TLA mainframe diagnostics are located under the Start menu under the Tektronix Logic Analyzer programs.

Check for Common Problems

Use Table 4 to help isolate problems. This list is not exhaustive, but it may help you eliminate problems that are easy to fix, such as an open fuse.

Table 4: Failure symptoms and possible causes

Symptom	Possible causes and recommended action
Instrument does not turn on.	<p>Verify that the power cord is connected to the instrument and to the power source.</p> <p>Check that the instrument receives power when you press the On/Standby switch.</p> <p>Check that fans start and that front-panel indicators light.</p> <p>Check that power is available at the power source.</p> <p>Instrument failure: contact your local Tektronix service center.</p>
External monitor does not turn on.	<p>Check the monitor power cord connection.</p> <p>Check for failed fuse, if one exists.</p> <p>Check external display connection.</p> <p>Monitor failure: contact the vendor of your monitor for corrective action.</p>
Monitor display is blank.	<p>Check that the monitor is connected to the mainframe; replace the cable if necessary.</p> <p>If instrument display is blank, try connecting an external monitor; if both displays are blank, contact your local Tektronix service center.</p> <p>External monitor controls turned down; adjust monitor controls for brightness and contrast.</p> <p>Check the controller BIOS setups for the monitor.</p> <p>Faulty monitor: contact the vendor of your monitor for corrective action.</p>
After flashing BIOS, the monitor display is blank.	
Instrument turns on but does not complete the power-on sequence.	<p>Make sure that the instrument boots from the hard disk drive. Remove any disks from the floppy disk drive.</p> <p>Possible software failure or corrupted hard disk drive; see <i>Software Problems</i> at the beginning of this chapter.</p>
Power-on diagnostics fail.	Instrument failure: contact your local Tektronix service center.
Instrument does not recognize accessories such as monitor, printer, or keyboard.	Check that accessories are properly connected or installed. Try connecting other standard PC accessories or contact your local Tektronix service center.
Windows comes up but the TLA application does not.	<p>Instrument not set up to start the TLA application at power-on. Start application from the desktop, by double-clicking the TLA icon located on your desktop.</p> <p>Faulty or corrupt software. Reinstall the application software.</p>
Windows comes up in Safe mode.	<p>Exit the Safe mode and restart the instrument.</p> <p>Incompatible hardware and hardware driver software. Either install hardware driver or remove the incompatible hardware.</p>
Application starts but modules do not display in System window.	<p>Firmware has not been updated.</p> <p>Instrument failure: contact your local Tektronix service center.</p>

Repacking for Shipment

If a mainframe or module is to be shipped to a Tektronix service center for repair, attach a tag to the mainframe or module showing the owner's name and address, the serial number, and a description of the problem(s) encountered and/or service required. Always include the module and the probes so that the entire unit can be tested.

When packing an instrument for shipment, use the original packaging. If it is unavailable or not fit for use, contact your Tektronix representative to obtain new packaging.

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