



ABN 43 064 478 842

➤ 231 osborne avenue clayton south, vic 3169
PO box 1548, clayton south, vic 3169
t 03 9265 7400 f 03 9558 0875
freecall 1800 680 680
www.tmgtestequipment.com.au

Test & Measurement

- sales
- rentals
- calibration
- repair
- disposal

Complimentary Reference Material

This PDF has been made available as a complimentary service for you to assist in evaluating this model for your testing requirements.

TMG offers a wide range of test equipment solutions, from renting short to long term, buying refurbished and purchasing new. Financing options, such as Financial Rental, and Leasing are also available on application.

TMG will assist if you are unsure whether this model will suit your requirements.

Call TMG if you need to organise repair and/or calibrate your unit.

If you click on the “Click-to-Call” logo below, you can call us for FREE!

TMG Corporate Website

TMG Products Website



Click-to-Call
TMG Now



Disclaimer:

All trademarks appearing within this PDF are trademarks of their respective owners.

TLA5000 Series Logic Analyzer Installation Manual

This document supports TLA System Software Version 5.00 and above.

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

071-1301-01

Tektronix

Copyright © Tektronix, Inc. All rights reserved. Licensed software products are owned by Tektronix or its subsidiaries or suppliers, and are protected by national copyright laws and international treaty provisions.

Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specifications and price change privileges reserved.

TEKTRONIX and TEK are registered trademarks of Tektronix, Inc.

Tektronix, Tek, MagniVu, and iView are registered trademarks of Tektronix, Inc.

Contacting Tektronix

Tektronix, Inc.
14200 SW Karl Braun Drive
P.O. Box 500
Beaverton, OR 97077
USA

For product information, sales, service, and technical support:

- In North America, call 1-800-833-9200.
- Worldwide, visit www.tektronix.com to find contacts in your area.

Warranty 2

Tektronix warrants that this product will be free from defects in materials and workmanship for a period of one (1) year from the date of shipment. If any such product proves defective during this warranty period, Tektronix, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product. Parts, modules and replacement products used by Tektronix for warranty work may be new or reconditioned to like new performance. All replaced parts, modules and products become the property of Tektronix.

In order to obtain service under this warranty, Customer must notify Tektronix of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by Tektronix, with shipping charges prepaid. Tektronix shall pay for the return of the product to Customer if the shipment is to a location within the country in which the Tektronix service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. Tektronix shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than Tektronix representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; c) to repair any damage or malfunction caused by the use of non-Tektronix supplies; or d) to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

THIS WARRANTY IS GIVEN BY TEKTRONIX WITH RESPECT TO THE PRODUCT IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. TEKTRONIX AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TEKTRONIX' RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE SOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR BREACH OF THIS WARRANTY. TEKTRONIX AND ITS VENDORS WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER TEKTRONIX OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

Warranty 9(b)

Tektronix warrants that the media on which this software product is furnished and the encoding of the programs on the media will be free from defects in materials and workmanship for a period of three (3) months from the date of shipment. If any such medium or encoding proves defective during the warranty period, Tektronix will provide a replacement in exchange for the defective medium. Except as to the media on which this software product is furnished, this software product is provided "as is" without warranty of any kind, either express or implied. Tektronix does not warrant that the functions contained in this software product will meet Customer's requirements or that the operation of the programs will be uninterrupted or error-free.

In order to obtain service under this warranty, Customer must notify Tektronix of the defect before the expiration of the warranty period. If Tektronix is unable to provide a replacement that is free from defects in materials and workmanship within a reasonable time thereafter, Customer may terminate the license for this software product and return this software product and any associated materials for credit or refund.

THIS WARRANTY IS GIVEN BY TEKTRONIX WITH RESPECT TO THE PRODUCT IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. TEKTRONIX AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TEKTRONIX' RESPONSIBILITY TO REPLACE DEFECTIVE MEDIA OR REFUND CUSTOMER'S PAYMENT IS THE SOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR BREACH OF THIS WARRANTY. TEKTRONIX AND ITS VENDORS WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER TEKTRONIX OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

Table of Contents

General Safety Summary	iii
Service Safety Summary.....	v
Environmental Considerations	vi
Preface	vii
TLA5000 Series Logic Analyzers	vii
Documentation	vii
Basic Installation	1
Check the Shipping List.....	1
Environmental Considerations	1
Chassis Ground Connections	1
Connecting Accessories.....	2
Connecting Probes.....	4
First Time Operation	5
Performing the Incoming Inspection	7
Backing Up User Files	7
Connecting Probes to the Target System	7
Additional Information.....	8
Product Overview	9
Front Panel Controls.....	9
External Connectors	9
Restoring and Installing Software	11
Restoring the Hard Disk Image	11
Reinstalling the Hard Disk Image.....	11
Installing the TLA Application Software	14
Upgrading or Restoring Firmware	16
Appendix A: User Service Procedures	17
General Care	17
Self Calibration	17
Preventive Maintenance.....	17
In Case of Problems	19
Repacking for Shipment	22
Appendix B: Accessories and Options	23
Standard Accessories.....	23
Optional Accessories	23
Options.....	24
Index	

List of Figures

Figure i: TLA5000 series logic analyzer.....	vii
Figure 1: Location of the ground connection.....	2
Figure 2: Accessory connections	3
Figure 3: Connecting the P64xx logic analyzer probes	5
Figure 4: Power cord connector location	6
Figure 5: Logic analyzer front panel	9

List of Tables

Table i: Related Documentation	viii
Table 1: Accessory connection information	4
Table 2: TLA user file suffixes.....	12
Table 3: BIOS Boot settings for reinstalling software from the CD-ROM	13
Table 4: Failure symptoms and possible causes.....	21

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 a larger system. Read the safety sections of the other component 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.

The inputs are not rated for connection to mains or Category II, III, or IV circuits.

Connect the probe reference lead to earth ground only.

Power Disconnect. The power cord disconnects the product from the power source. Do not block the power cord; it must remain accessible to the user at all times.

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

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

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

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

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.

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.*



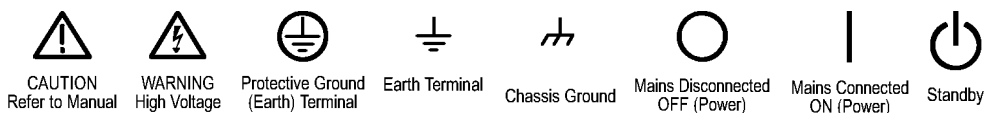
CAUTION. *Caution statements identify conditions or practices that could result in damage to this product or other property.*

Symbols and 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.

The following symbols may appear on the product:



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.

Environmental Considerations

This section provides information about the environmental impact of the product.

Product End-of-Life Handling

Observe the following guidelines when recycling an instrument or component:

Equipment Recycling. Production of this equipment required the extraction and use of natural resources. The equipment may contain substances that could be harmful to the environment or human health if improperly handled at the product's end of life. In order to avoid release of such substances into the environment and to reduce the use of natural resources, we encourage you to recycle this product in an appropriate system that will ensure that most of the materials are reused or recycled appropriately.

The symbol shown below indicates that this product complies with the European Union's requirements according to Directive 2002/96/EC on waste electrical and electronic equipment (WEEE). For information about recycling options, check the Support/Service section of the Tektronix Web site (www.tektronix.com).



Mercury Notification. This product uses an LCD backlight lamp that contains mercury. Disposal may be regulated due to environmental considerations. Please contact your local authorities or, within the United States, the Electronics Industries Alliance (www.eiae.org) for disposal or recycling information.

Restriction of Hazardous Substances

This product has been classified as Monitoring and Control equipment, and is outside the scope of the 2002/95/EC RoHS Directive. This product is known to contain lead, cadmium, mercury, and hexavalent chromium.

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 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.

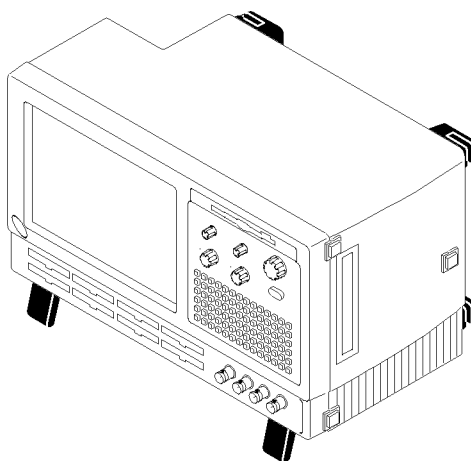
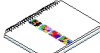
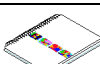
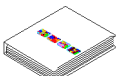


Figure i: TLA5000 series logic analyzer

Documentation

The following table lists related documentation available for your logic analyzer. The documentation is available on the TLA Documentation CD and on the Tektronix Web site (www.Tektronix.com).

Table i: Related Documentation

Item	Purpose	Location
TLA Quick Start User Manual	High-level operational overview	 
Online Help	In depth operation and UI help	
Installation Quick Reference Cards	High-level installation information	 
Installation Manuals	Detailed first-time installation information	 
XYZs of Logic Analyzers	Introduction to logic analyzer basics	
TLA Product Specifications	Complete list of TLA product specifications	
TPI.NET Documentation	Detailed information for controlling the logic analyzer using .NET	
Field upgrade kits	Upgrade information for logic analyzer products	 
Optional Service Manuals	Self-service documentation for modules and mainframes	 

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 around the top, back, and sides of the instrument to ensure proper cooling. Inadequate clearances can cause the instrument to overheat and shut down.*

You can use the logic analyzer 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. (See Figure 1.)

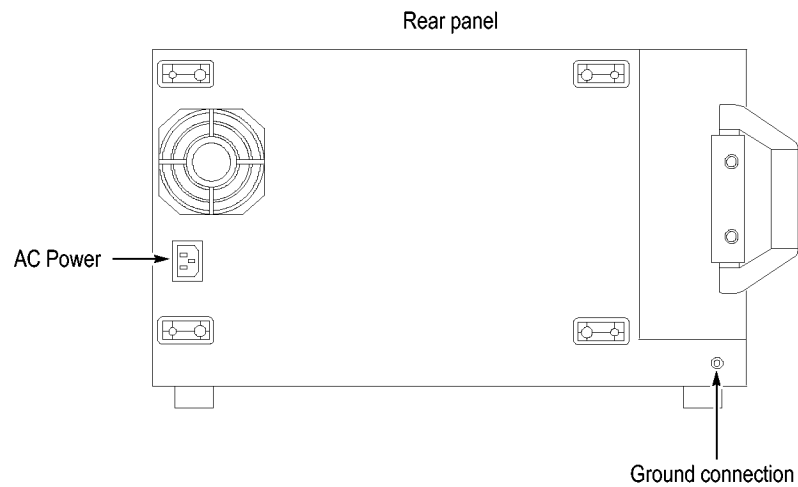


Figure 1: Location of the ground connection

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; depending on your model, the number of connectors and locations may differ. (See Figure 2.)

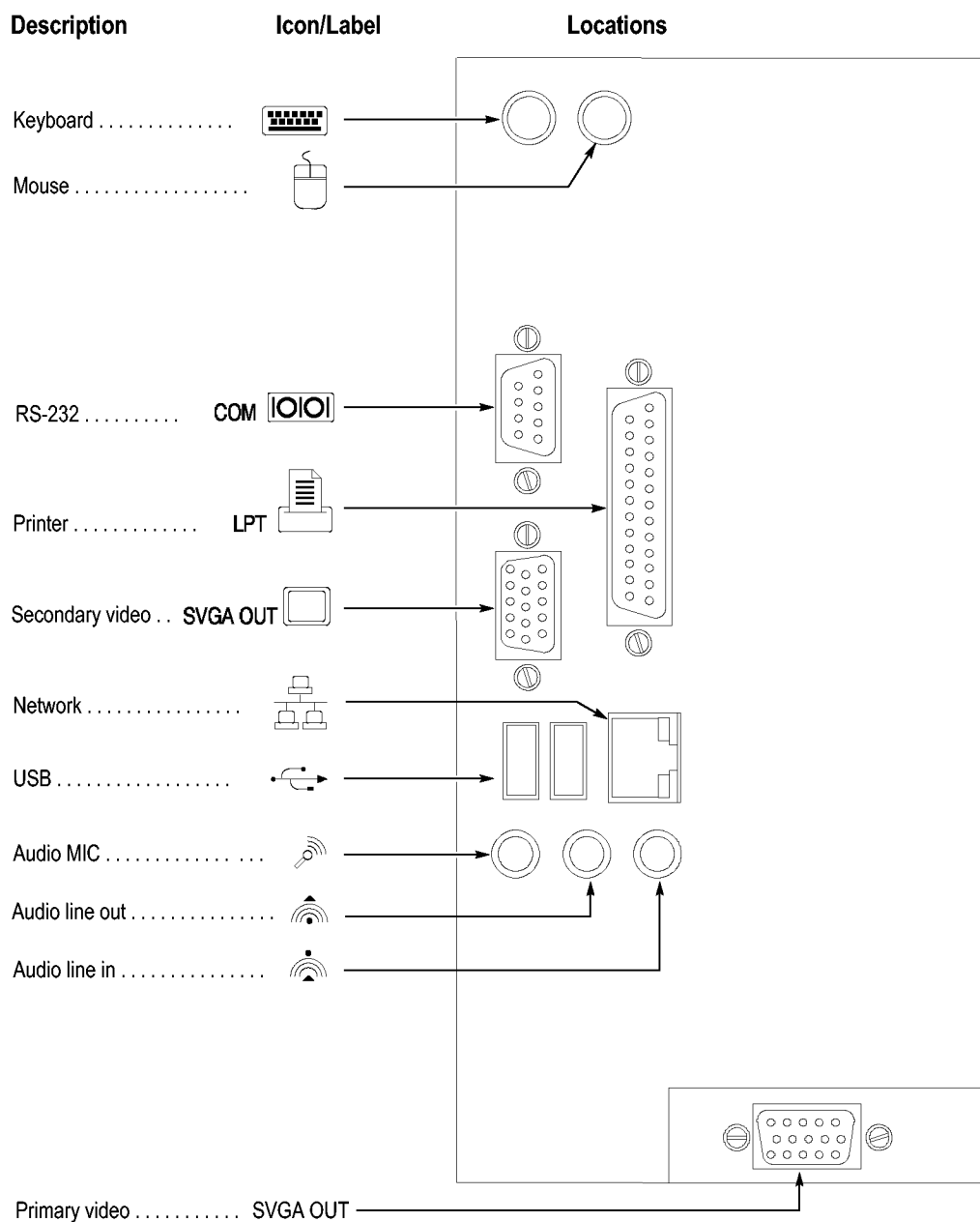


Figure 2: Accessory connections

Additional information on accessories is provided. (See Table 1.)

Table 1: Accessory connection information

Item	Description
Monitor	If you use a non plug & play monitor, you may need to change the Windows display settings to achieve the proper resolution.
Printer	Connect the printer to the LPT (parallel) port.
Rackmount	The logic analyzer 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. (See Figure 3.)

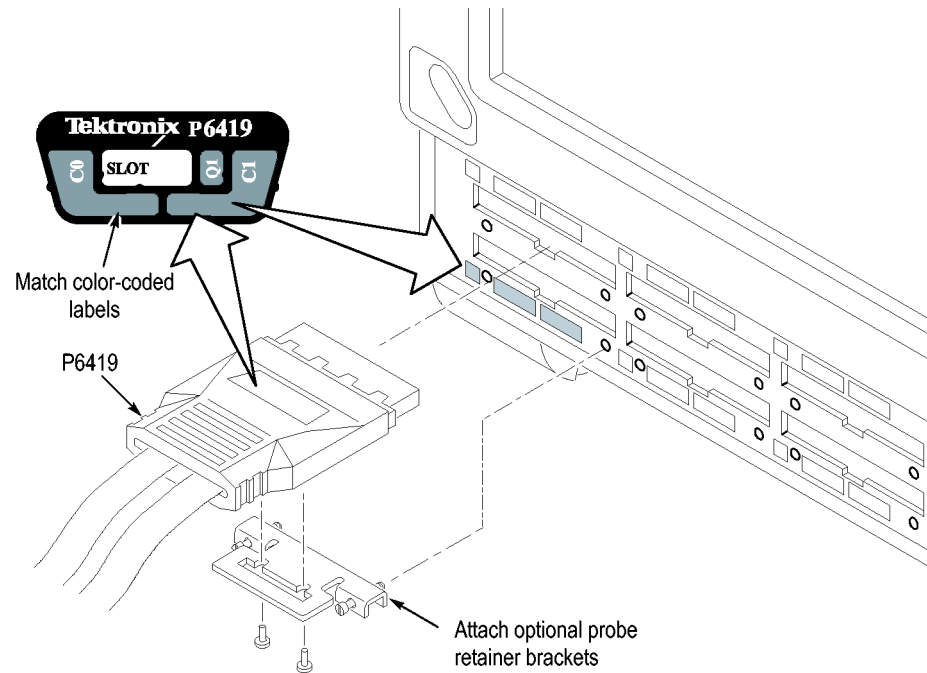


Figure 3: Connecting the P64xx logic analyzer probes

First Time Operation



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 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.

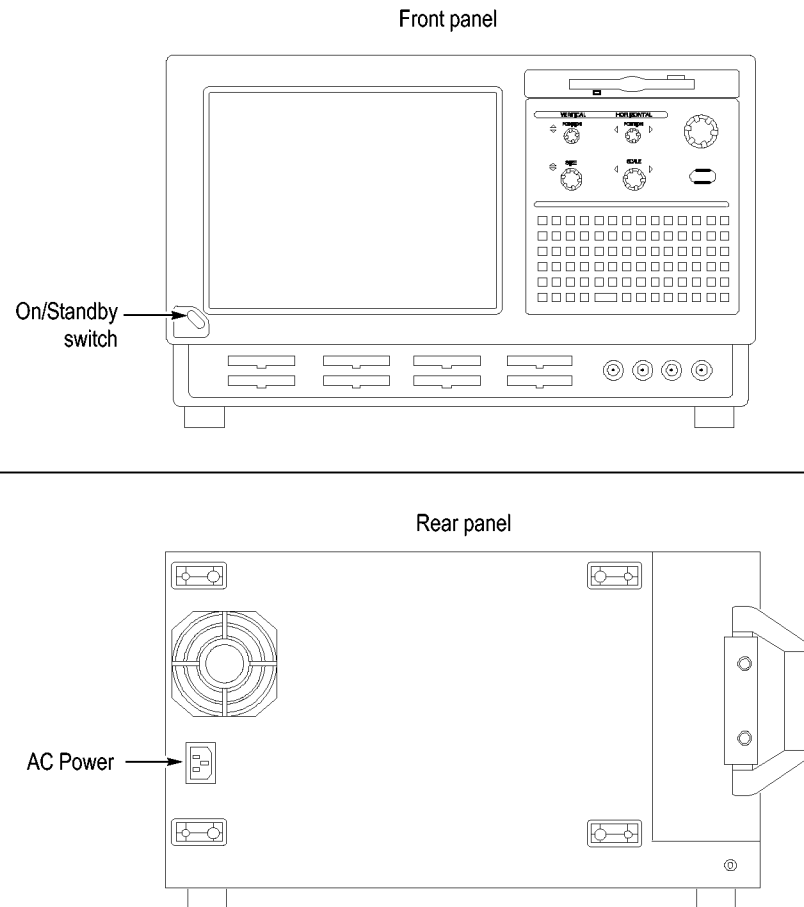


Figure 4: Power cord connector location

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.)
 - 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 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

Product Overview provides a quick overview of your Tektronix logic analyzer. (See page 9.) For detailed information on using the logic analyzer refer to the TLA online help.

Release Notes. To access the Logic Analyzer Release Notes, click Start → Programs → Tektronix Logic Analyzer → TLA 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 logic analyzer. You can also attach an external keyboard, monitor, and mouse to operate the logic analyzer.

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.)

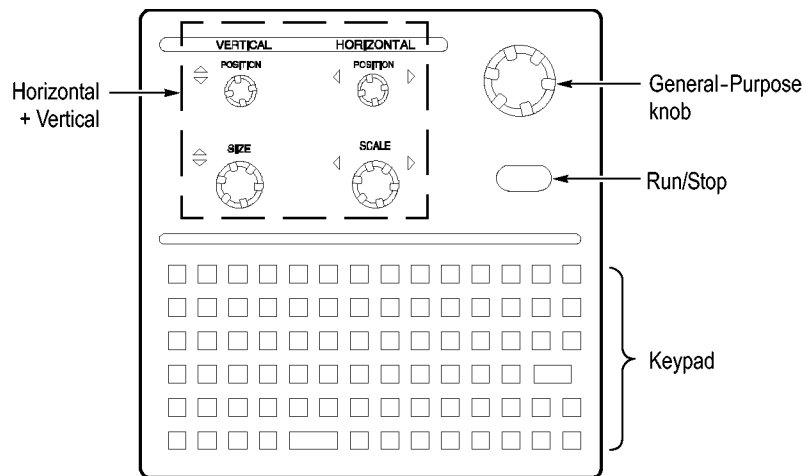


Figure 5: Logic analyzer front panel

External Connectors

Use the external connectors on the rear panel of the logic analyzer to connect external accessories. (See Figure 2 on page 3.)

Use the four front panel BNC connectors to send signals between the logic analyzer and other instruments. For example, use the iView cable to connect the logic analyzer to an oscilloscope.

Restoring and Installing Software

Most of the software comes factory-installed when you receive your logic analyzer. Refer to this section if you need to 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. To save files or software applications from the hard disk, back them up to another media before continuing with this procedure.*

Setting up the 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 CDs containing the Microsoft Windows operating system and the latest application software. All software required to run

the logic analyzer comes with the CDs 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.



CAUTION. *To avoid destroying the entire contents of your hard disk, save any files or applications by backing them up to another media 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. Locate the files in the current folder and all subfolders using file suffixes. (See Table 2.) You may want to search for other file suffixes depending on the files installed on your instrument.

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.

If you purchased any microprocessor support packages, you need to reinstall the software 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* at the beginning of this document).

NOTE. *You can reinstall the Microsoft Windows operating system and other software only from the Hard Disk Image CDs that came with your instrument. These software applications are licensed and cannot be reinstalled by any other method without violating the license agreements.*

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. (See 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 and follow the on-screen instructions. The procedure automatically installs and sets up the logic analyzer application.
3. After the image is loaded, remove the CD and reboot the logic analyzer.
4. 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.
5. Reinstall any user files that you backed up previously. Reinstall any software (such as the microprocessor support software) to use on the logic analyzer.
6. If desired, reconfigure the TLA network interface.

Installing the TLA Application Software

The TLA application software is installed when your instrument is shipped from the factory. The TLA application software includes the TPI client software that allows you to programmatically control the logic analyzer from a remote PC. Perform the following procedure to reinstall the latest version of the TLA application software on your logic analyzer or to install the software on a PC for remote or offline operation. Use these steps as a first resort to recovering from application software problems. If you experience problems with the software after completing these steps, you may have to restore your software. (See page 11, *Restoring the Hard Disk Image*.)

Installing the TLA Application Software on the Logic Analyzer

When using this procedure with the logic analyzer 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 the TLA Application Software CD in the CD-ROM drive of the logic analyzer.
3. If the installation software does not start automatically, browse to the TLA Application software folder on the CD and run the Setup.exe program.
4. Follow the on-screen instructions.

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 3 to reinstall the software.

Installing the TLA Application Software on a PC

You can install the TLA application software on a PC for the following purposes:

- To run the TLA application software in the Offline mode (similar to TLAVu in earlier software versions).
- To control a logic analyzer with TLA Application Software 5.0, or higher, over a network. Refer to the TLA online help for information on connecting the logic analyzer to a network.

Install Third-Party Software.

To use all of the features of the TLA application software on your PC, you must install additional third-party software. The following third-party software is available on the TLA Application Software CD V5.0, or higher:

- The NI-GPIB-USB software allows you to use the iView software with your PC.
- The SnagIt software is useful for copying screen shots of logic analyzer data for use with other applications.

Complete the following steps to install the third-party software on your PC:

1. Install the TLA Application Software CD in the CD drive.
2. Browse to the NI-GPIB-USB folder on the CD and run the Setup.exe program.

Follow the on-screen instructions and note the items below:

- When prompted, select the **Typical** installation option.
 - When the Add GPIB wizard appears, select **GPIB-USB-B**.
 - After restarting the instrument, the NI-488.2 Getting Started wizard displays. This is not need; select **Do not show at Windows startup**.
 - When you first connect the iView cable, the instrument will detect the new hardware. Select **Install the software automatically (Recommended)**.
3. Browse to the SnagIt folder on the CD and run the Setup.exe program. Follow the on-screen instructions.

Install the TLA Application Software. Browse to the TLA Application software folder on the CD and run the Setup.exe program. Follow the on-screen instructions to install the TLA application software.

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 and run the Setup.exe program again.

Start the TLA Application. If you have installed the TLA application software on a PC for remote operation, start the software by double-clicking on the TLA Application icon. The TLA Connection dialog box displays.

1. Select an instrument in the TLA Connection dialog box and then click **Connect**. If your instrument is connected to a network, you can connect to any unused instrument on your local network.
2. Click **Offline** to start an offline version of the TLA application software. The TLA Offline software allows you to run the TLA application without connecting to an instrument. You can analyze previously acquired data from a logic analyzer, create or modify reference memories, or perform system tests without being connected to an instrument.

Upgrading or Restoring Firmware

You may have to upgrade the firmware on the logic analyzer if the firmware version is not compatible with the current TLA application software version. The most current firmware for the TLA application software resides in a file on the hard disk of the logic analyzer.

1. Exit the logic analyzer application.
2. Click Start → Programs → Tektronix Logic Analyzer → TLA Firmware Loader. If the TLA Connection dialog box displays, select an instrument, and click the **Connect** button.
3. Select the module from the Supported list box near the top of the window.
4. Select Load Firmware from the Execute menu.
5. Click the TLA520x.lod file.
6. Click OK. You will be prompted to confirm your action; click Yes.
7. Locate the big label on the back of the instrument.
8. Record the firmware version that is printed on the label. You will need this information to see that the firmware version matches the label.
9. Power on the instrument.
10. After the logic analyzer completes the power-on diagnostics, select System Properties from the System menu.
11. Click the LA1 tab.
12. Verify that the firmware version matches the version on the label that you recorded earlier.
13. 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 instrument.

Other Diagnostic Software. Other diagnostic software may be installed on your instrument and accessible from the Windows Start menu. This diagnostic software may vary depending on your instrument. Use the online help that comes with

the diagnostic software or check with your local Tektronix representative for additional information on troubleshooting instrument problems.

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. (See page 11, *Restoring and Installing 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 any other diagnostic software on your instrument to identify possible problems.

Network Connection Problems

Version 5.0 or higher of the TLA application software allows you to connect your instrument to a network where you can control the instrument from a PC. Verify that the PC and the logic analyzer are connected to the network. The TLA application software must be installed on the PC and the logic analyzer. The TLA server must be running on the logic analyzer.

Complete the following steps to start the TLA server:

1. On the logic analyzer, click Start → Programs → Tektronix Logic Analyzer → TLA Server. An icon with a red circle appears in the toolbar.
2. Right-click the TLA Server icon and select **Start TLA Server**. The red circle disappears indicating the server is running.

Check with your system administrator to address other network problems.

Check for Common Problems

Use the following table 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.	Verify that the power cord is connected to the instrument and to the power source. Check that the instrument receives power when you press the On/Standby switch. Check that fans start and that front-panel indicators light. Check that power is available at the power source. Instrument failure: contact your local Tektronix service center.
External monitor does not turn on.	Check the monitor power cord connection. Check for failed fuse, if one exists. Check external display connection. Monitor failure: contact the vendor of your monitor for corrective action.
Monitor display is blank.	Check that the monitor is connected to the mainframe; replace the cable if necessary. If instrument display is blank, try connecting an external monitor; if both displays are blank, contact your local Tektronix service center. External monitor controls turned down; adjust monitor controls for brightness and contrast. Check the controller BIOS setups for the monitor. Faulty monitor: contact the vendor of your monitor for corrective action.
Instrument turns on but does not complete the power-on sequence.	Make sure that the instrument boots from the hard disk drive. Remove any disks from the floppy disk drive. Possible software failure or corrupted hard disk drive; see <i>Software Problems</i> at the beginning of this chapter.
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.	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. Faulty or corrupt software. Reinstall the application software.

Table 4: Failure symptoms and possible causes, (cont.)

Symptom	Possible causes and recommended action
Windows comes up in Safe mode.	Exit the Safe mode and restart the instrument. Incompatible hardware and hardware driver software. Either install hardware driver or remove the incompatible hardware.
Application starts but modules do not display in System window.	Firmware has not been updated. Instrument failure: contact your local Tektronix service center.

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.

Appendix B: Accessories and Options

Standard Accessories

Quantity	Accessory	Part number
1	TLA Family Application Software CD, V5.0	—
1	TLA520x Hard Disk Image CD	—
1	Mouse, optical, wheeled, USB	119-7054-xx
1	Keyboard, mini, USB	119-7083-xx
1	Accessory Pouch	016-1935-xx
1	Front-Panel Cover	200-4651-xx
1	EasyRestore License (for TLA HD Recovery CD)	063-3430-xx
1	Nero OEM Suite 3 License	061-xxxx-xx
1	Windows XP Professional License	—
1	Windows XP Professional Certificate of Authenticity	—
1	CheckIt Utilities Sticker	—
1	TLA Mouse Pad	016-1524-xx
1	Certificate of Traceable Calibration	—
2	Probe retainer brackets with fasteners (TLA5201)	407-4435-xx
4	Probe retainer brackets with fasteners (TLA5202)	407-4435-xx
6	Probe retainer brackets with fasteners (TLA5203)	407-4435-xx
8	Probe retainer brackets with fasteners (TLA5204)	407-4435-xx
1	Literature Package	001-1366-xx

Optional Accessories

Accessory	Part number
17-channel general purpose logic analyzer probe with accessories	P6417
P6417 Probe replacement kit	020-2196-xx
P6417 Podlet replacement kit	020-2200-xx
17-channel general purpose logic analyzer probe with accessories	P6418
P6417/P6418 Probe accessories kit	020-2198-xx
17-channel high-density compression probe	P6419
34-channel probe interface kit -barrel connectors	020-2199-xx
34-channel probe interface kit -mini PV connectors	020-3000-xx
1-channel reduced bias voltage leadset	196-3478-xx
8-channel reduced bias voltage leadset	196-3477-xx
34-channel high density mictor probe	P6434

Options

Option	Description	Part number
1C	Add iView External Oscilloscope Cable Kit	012-1614-xx
7S	Increase acquisition record length to 2 M @ 235 MHz	—
8S	Increase acquisition record length to 8 M @ 235 MHz	—
L0	English Manuals	
	TLA5000 Installation Manual	071-1301-xx
	Tektronix Logic Analyzer Quick Start User Manual	071-1575-xx
	TLA5000 Logic Analyzer Quick Reference Installation Card	071-1343-xx
	Tektronix Logic Analyzer Documentation CD	063-3671-xx
	Windows XP Professional, Multi-Language Instruction Sheet	071-1533-xx
L5	Japanese Manuals	
	TLA5000 Installation Manual (Japanese)	071-1435-xx
	Tektronix Logic Analyzer Quick Start User Manual (Japanese)	071-1746-xx
	TLA5000 Logic Analyzer Quick Reference Installation Card	071-1343-xx
	Tektronix Logic Analyzer Documentation CD	063-3671-xx
	Windows XP Professional, Multi-Language Instruction Sheet	071-1533-xx
L10	Russian Manuals	
	TLA5000 Installation Manual	071-1301-xx
	Tektronix Logic Analyzer Quick Start User Manual (Russian)	071-1578-xx
	TLA5000 Logic Analyzer Quick Reference Installation Card	071-1343-xx
	Tektronix Logic Analyzer Documentation CD	063-3671-xx
	Windows XP Professional, Multi-Language Instruction Sheet	071-1533-xx
L99	No Manuals	—
A0	North America Power Cord	161-0104-00
A1	Universal Euro Power Cord	161-0104-06
A2	United Kingdom Power Cord	161-0104-07
A3	Australia Power Cord	161-0104-14
A4	240 V North America Power Cord	161-0104-08
A5	Switzerland Power Cord	161-0167-00
A6	Japan Power Cord	161-0322-00
A10	China Power Cord	161-0306-00
A99	No power cord or AC adapter (Option A99)	—

Index

A

Accessories, 23
 connecting, 2
 optional accessories, 23
 standard accessories, 23

B

BIOS,
 configuring, 11

C

Chassis ground location, 1
Checking the shipping list, 1
Cleaning, 18
 LCD display, 18
Connecting,
 accessories, 2
 probes, 4
Customer registration card, 1

D

Diagnostics, 19
 extended, 19
 instrument, 19
 power on, 19
 TLA Mainframe, 19
Documentation, vii

E

Extended diagnostics, 19

F

Firmware,
 upgrading, 16
Front panel controls, 9

G

General maintenance, 17

H

Hard disk image,
 installing, 11
Hard disk,
 reformatting, 13

I

Incoming inspection,
 checking probes, 7
 performing, 7
Installing,
 software on a PC, 14
 software, 13
 software: TPI software, 14

K

Keypad, 9

L

Logic analyzer description, vii
Logic analyzer,
 chassis ground connections, 1
 connecting probes, 4
 incoming inspection, 7
 installing software, 11
 reinstalling software, 11
 self calibration, 17
 shipping list, 1
 site considerations, 1

M

Maintenance,
 BIOS configuration, 11
 common problem
 checklist, 21
 installing software, 11

N

Network connection problems, 20

O

Optional accessories, 23
Options, 24

P

Power-on diagnostics, 19
Preventive maintenance, 17
 cleaning, 18
 disks, floppy disk drive, 18
 LCD display, 18
Probes,
 connecting, 4
Problems,
 checklist, 21
 software, 20

R

Registration card, 1
Reinstalling software, 13
 TLA application software, 14
Related documentation, vii
Remote operation, 15
Repacking for shipment, 22
Requirements,
 site consideration, 1

S

Safety Summary, iii
Self calibration, 17
Service,
 common problem
 checklist, 21
 instrument diagnostics, 19
Service, user,
 preventive maintenance, 17
Shipping list,
 checking, 1
Shipping, 22

Software,

- BIOS configuration, 11
- extended diagnostics, 19
- installing on a PC, 14
- installing, 11
- installing:TPI software, 14
- other diagnostics, 19
- power on diagnostics, 19
- problems, 20
- third-party, 14
- TLA Mainframe
 - diagnostics, 19

Standard accessories, 23

T

- Third-party software, 14
- TLA Offline, 15
- TLA Online, 15
- TLA Server, 20
- Troubleshooting, 19
 - common problem
 - checklist, 21
 - network problems, 20

U

- Upgrading firmware, 16
- User service,
 - general maintenance, 17
 - preventive maintenance, 17