

**TLA6400 Series
Logic Analyzers
Installation Manual**

Revision A
www.tektronix.com



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Tektronix

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[W2 – 15AUG04]

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Important safety information

This manual contains information and warnings that must be followed by the user for safe operation and to keep the product in a safe condition.

To safely perform service on this product, additional information is provided at the end of this section. (See page vi, *Service safety summary*.)

General safety summary

Use the product only as specified. Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. Carefully read all instructions. Retain these instructions for future reference.

Comply with local and national safety codes.

For correct and safe operation of the product, it is essential that you follow generally accepted safety procedures in addition to the safety precautions specified in this manual.

The product is designed to be used by trained personnel only.

Only qualified personnel who are aware of the hazards involved should remove the cover for repair, maintenance, or adjustment.

Before use, always check the product with a known source to be sure it is operating correctly.

This product is not intended for detection of hazardous voltages.

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.

When incorporating this equipment into a system, the safety of that system is the responsibility of the assembler of 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.

Do not use the provided power cord for other products.

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, make sure that the product is properly grounded.

Power disconnect. The power cord disconnects the product from the power source. See instructions for the location. Do not position the equipment so that

it is difficult to operate the power cord; it must remain accessible to the user at all times to allow for quick disconnection if needed.

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.

Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal.

The measuring terminals on this product are not rated for connection to mains or Category II, III, or IV circuits.

Do not operate without covers. Do not operate this product with covers or panels removed, or with the case open. Hazardous voltage exposure is possible.

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

Do not operate with suspected failures. If you suspect that there is damage to this product, have it inspected by qualified service personnel.

Disable the product if it is damaged. Do not use the product if it is damaged or operates incorrectly. If in doubt about safety of the product, turn it off and disconnect the power cord. Clearly mark the product to prevent its further operation.

Examine the exterior of the product before you use it. Look for cracks or missing pieces.

Use only specified replacement parts.

Do not operate in wet/damp conditions. Be aware that condensation may occur if a unit is moved from a cold to a warm environment.

Do not operate in an explosive atmosphere.

Keep product surfaces clean and dry. Remove the input signals before you clean the product.

Provide proper ventilation. Refer to the installation instructions in the manual for details on installing the product so it has proper ventilation.

Slots and openings are provided for ventilation and should never be covered or otherwise obstructed. Do not push objects into any of the openings.

Provide a safe working environment. Always place the product in a location convenient for viewing the display and indicators.

Avoid improper or prolonged use of keyboards, pointers, and button pads. Improper or prolonged keyboard or pointer use may result in serious injury.

Be sure your work area meets applicable ergonomic standards. Consult with an ergonomics professional to avoid stress injuries.

Use care when lifting and carrying the product. This product is provided with handles for lifting and carrying.



WARNING. *The product is heavy. To reduce the risk of personal injury or damage to the device get help when lifting or carrying the product.*

Use only the Tektronix rackmount hardware specified for this product.

Service safety summary

The *Service safety summary* section contains additional information required to safely perform service on the product. Only qualified personnel should perform service procedures. Read this *Service safety summary* and the *General safety summary* before performing any service procedures.

To avoid electric shock. Do not touch exposed connections.

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 product power and disconnect the power cord from the mains power before removing any covers or panels, or opening the case for servicing.

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.

Verify safety after repair. Always recheck ground continuity and mains dielectric strength after performing a repair.

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

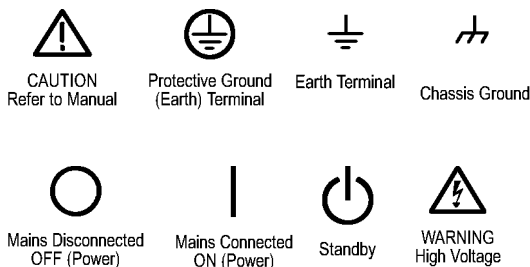
These terms may appear on the product:

- 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.



When this symbol is marked on the product, be sure to consult the manual to find out the nature of the potential hazards and any actions which have to be taken to avoid them. (This symbol may also be used to refer the user to ratings in the manual.)

The following symbol(s) may appear on the product:



Preface

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

To prevent personal injury or damage, consider the following requirements before starting 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.

Product description

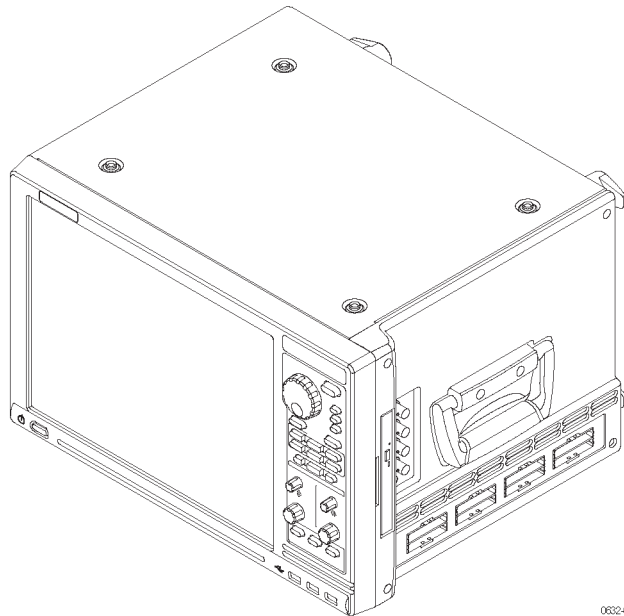
The TLA6400 Series Logic Analyzers are stand-alone logic analyzers; the standard instruments come with 40 ps MagniVu timing, 333 MHz state clock, and 2 Mb record length. The following instruments make up the TLA6400 series family:

- TLA6401, a 34 channel logic analyzer
- TLA6402, a 68 channel logic analyzer
- TLA6403, a 102 channel logic analyzer
- TLA6404 a 136 channel logic analyzer

The logic analyzers are built on the Microsoft Windows operating system, which allows you to install PC-compatible, third-party hardware and software on the instrument.

The user interface operates under the Microsoft Windows operating system. Microsoft recommends the following to make sure your instrument is protected:

- Use an internet firewall.
- Install operating system updates regularly.
- Use up-to-date antivirus software.



0632-001

Figure i: TLA6400 series logic analyzer

Related documentation

The following table lists related documentation, available as printed documents or as PDF documents on the TLA Documentation CD and on the Tektronix Web site (www.tektronix.com). Other documentation, such as online help, is available on the instrument.

Related documentation

| Item | Purpose |
|-------------------------------|--|
| TLA Quick Start User manuals | High-level operational overview |
| Online Help | In-depth operation and UI help |
| Installation Reference sheets | High-level installation information |
| Installation manuals | Detailed first-time installation information |
| XYZs of Logic Analyzers | Logic analyzer basics |

Related documentation (cont.)

| Item | Purpose |
|--|--|
| Declassification and Securities instructions | Data security concerns specific to sanitizing or removing memory devices from Tektronix products |
| Application notes | Collection of logic analyzer application specific notes |
| Product Specifications & Performance Verification procedures | TLA Product specifications and performance verification procedures |
| Field upgrade kits | Upgrade information for your logic analyzer |
| Optional service manuals | Self-service documentation for modules and mainframes |

Basic installation

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

Check the Shipping list

Verify that you have received all of the parts of your logic analyzer using the shipping list and the accessories list. (See page 25, *Accessories*.) Also check for the following:

- Power cords are correct for your geographical area
- Correct probes
- Standard accessories
- All optional accessories that you ordered

Site considerations

Read this section before installing the logic analyzer. This section describes operating considerations and power requirements for your logic analyzer. The environmental considerations apply to all TLA6400 series products.

Table 1: Environmental considerations

| Feature | | Description |
|-------------|--------------|--|
| Temperature | Operating | +5 °C to +40 °C |
| | Nonoperating | -20 °C to +60 °C |
| Humidity | Operating | 20% to 80% relative humidity, non-condensing |
| | Nonoperating | 8% to 80% relative humidity, non-condensing |
| Altitude | Operating | To 3000 m (9842.5 ft.) |
| | Nonoperating | To 12,000 m (39,370 ft.) |



CAUTION. Allow a 15.3 cm (6-in) clearance at the back and sides of the instrument to allow proper cooling. Avoid blocking any exhaust or intake fans or vents when using the instrument on a cart or in an instrument rack. Avoid placing loose paper or other material near the bottom intake vents that could suck against the instrument and block air flow. Inadequate clearances can damage the instrument.

Use the logic analyzer on a bench, in an instrument rack, or on a cart in the normal position (on the bottom feet). The front feet extend to give a better view of the instrument display.

Table 2: Instrument power considerations

| Feature | Description |
|-----------------------------|--|
| Voltage range and frequency | 100-240 VAC \pm 10%, 50-60 Hz \pm 5% |
| Power consumption | 400 W maximum |

Connect the chassis ground

Use the chassis ground connections to connect the grounds of the target system (system-under-test) to the logic analyzer to verify a common ground connection between instruments. (See Figure 1.)



CAUTION.

To reduce the risk of ground-loop noise, ground all of the instruments in the system to the logic analyzer using the ground connections shown.

Connect the accessories

After installing the logic analyzer in the desired location, connect the accessories such as an external monitor, keyboard, and printer. (See Figure 1.)

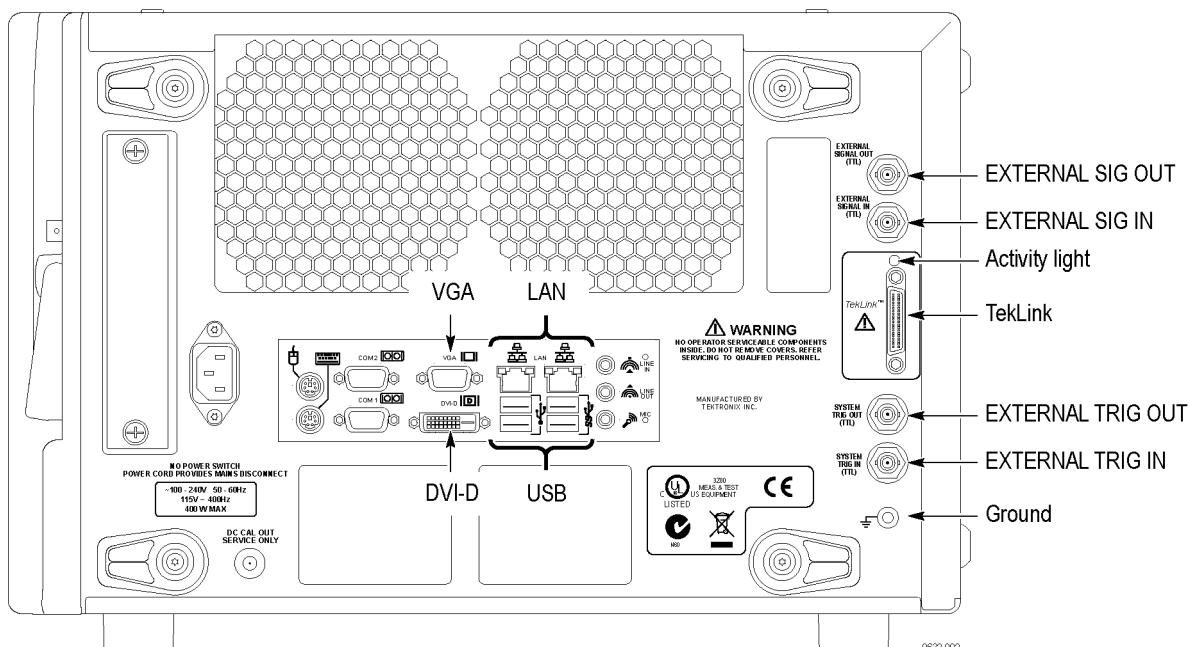


Figure 1: Accessories connections

Connect additional accessories as needed. (See Table 3.)

Table 3: Additional accessory connection information

| Item | Description |
|---------|--|
| Monitor | <p>There are two display ports on the logic analyzer: VGA, and DVI. Simulscan mode displays the same information on the internal display and the external monitor connected to either Primary or Secondary. To change the display settings, right-click the mouse on the desktop, and select Properties > Settings > Advanced > Intel Graphics. Note that some of the display settings may not function until you connect an external monitor.</p> <p>To connect a VGA monitor to the DVI connector, use a VGA-to-DVI adapter. If you use a nonstandard monitor, you may need to change the Windows display settings to obtain the proper resolution.</p> |
| LAN | <p>Connect the logic analyzer to your network through the Gbit LAN connectors. Remotely control the logic analyzer through a LAN switch using a PC (loaded with the TLA application software).</p> |
| Printer | <p>The instruments send printer information to the USB ports. Use any of the four USB ports for your printer.</p> |

Connect the probes to the instrument

After you have connected all the accessories, connect the probes to the logic analyzer.

NOTE. Attach the labels to the probes before connecting the probes to instrument. Refer to the respective probe instruction manual for the probe labeling procedures. The probe instruction manuals are on the TLA Documentation CD or can be downloaded from the Tektronix Web site (www.tektronix.com/manuals).

1. Match the label of the logic analyzer-end of the probe to the probe connector label on the side of instrument.

Insert the probe into the respective probe connector and lock it in place.

2. To remove the probe from the instrument, press the button on the probe connector and pull the connector from the instrument.

For additional information on the individual probes, refer to the instructions that accompanied your probes. (See Figure 2.)

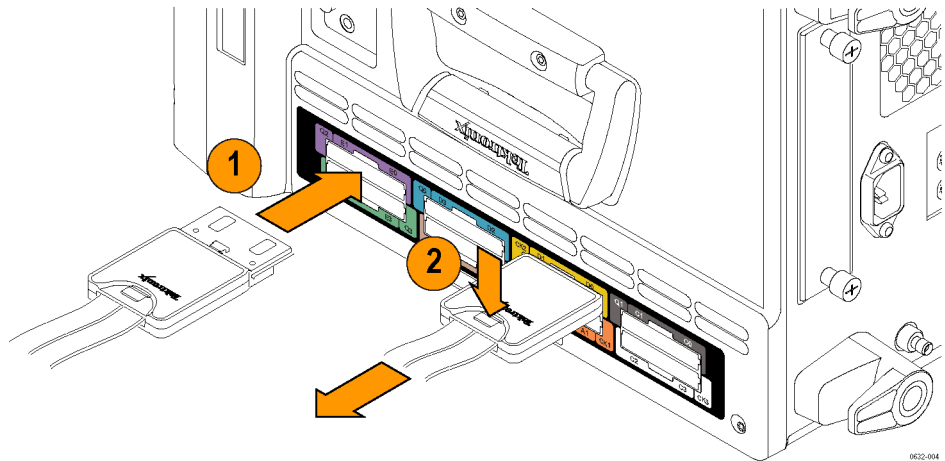


Figure 2: Connecting and disconnecting probes

First time operation

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

Power on the instrument

Follow these steps to power on the logic analyzer:

1. Connect the power cord to the logic analyzer.
2. If you have an external monitor, connect the power cord and turn on the monitor.
3. Press the On/Standby switch to turn on the logic analyzer. (See Figure 3.)
4. Wait for the logic analyzer to complete the power-on self tests.

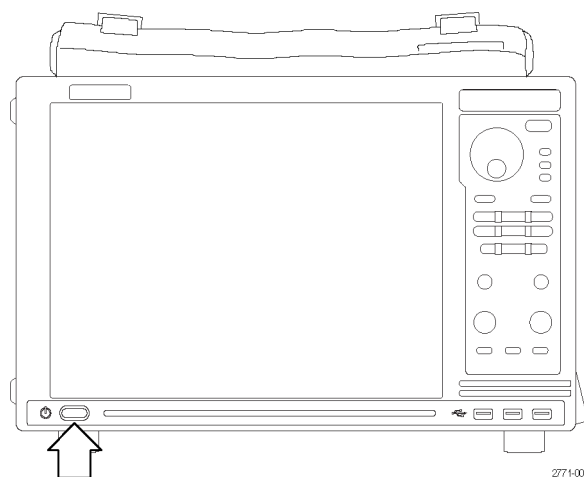


Figure 3: On/Standby switch location

Power off the instrument

To power off the logic analyzer, press the On/Standby switch. The logic analyzer has a built-in soft power-off function that safely powers off the logic analyzer when you press the On/Standby switch.



WARNING. To avoid the chance of electrical shock when opening the instrument or accessing any location that may have a voltage applied, always unplug the instrument to disconnect it from the mains power. Do not unplug the instrument when it is powered on otherwise you can damage the instrument.

Create operating system restore discs

The instrument does not ship with an operating system restore disc. Use the following procedure to create a set of discs that enable you to restore the operating system if the need arises.

NOTE. *This procedure creates a set of restore discs for the Microsoft Windows operating system. After restoring the operating system, use the TLA Application disc to reinstall the TLA application software. (See page 13, Restore the operating system.)*

Complete the following steps to create a set of restore discs. You will need blank discs (one for each backup file).

1. Insert a blank disc in the instrument DVD drive.
2. Open the Windows Explorer and navigate to C:\backup.

The backup folder contains the operating system restore files. You will need to create one disc per file in the folder.

3. Right-click the first file and select **Burn image to disc**.
4. Repeat the previous step for each file in the folder.

Perform 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 extended diagnostics.

To run the extended diagnostics, perform the following:

1. Disconnect any probes attached to the instrument.
2. Select the System menu and click Calibration and Diagnostics.
3. Run the extended diagnostics by selecting the Extended Diagnostics tab. The results of the tests display in the property page.
4. Verify that all tests pass.

Verify the probes (Optional)

Connect the logic analyzer probes to a signal source and (if necessary) adjust the threshold levels for the probes to acquire the signals. Use the threshold and activity indicators in the LA Setup window to verify signal activity at the probe tips.

To check the mainframe diagnostics not covered by the TLA Application software, run the TLA Mainframe Diagnostics located under the Windows Start menu using the following path: Start > All Programs > Tektronix Logic Analyzer > TLA Mainframe Diagnostics. Exit the TLA Application before running the external diagnostics.

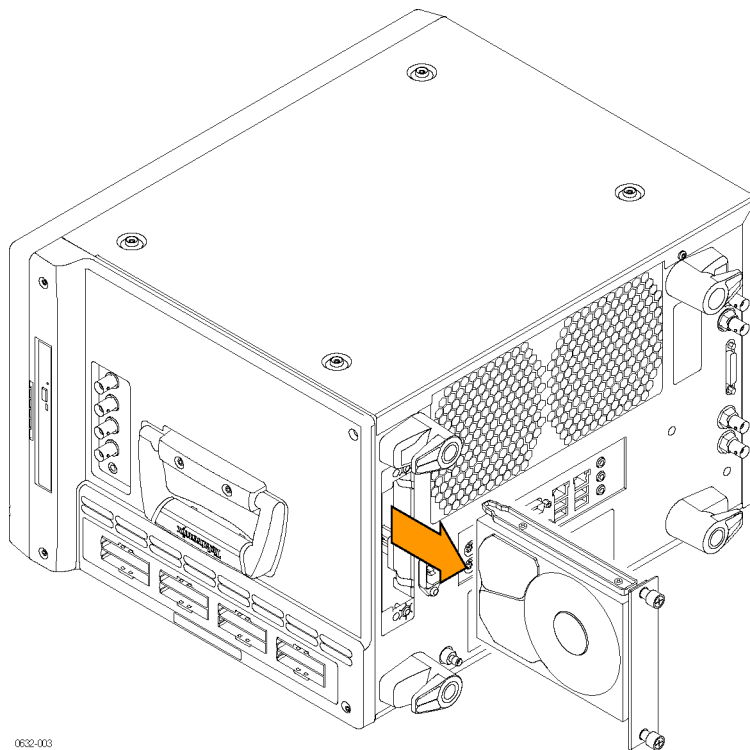
Back up the user files

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

Remove the replaceable disk drive

CAUTION. *To avoid permanently damaging the replaceable disk drive, do not remove it while the instrument is powered on. Always power off the instrument before removing the disk drive.*

1. Verify that the instrument is powered off.
2. Loosen the thumb screws on the hard disk drive carrier.
3. Pull on the replaceable hard disk drive cartridge to remove it from the chassis.



0632-003

Figure 4: Removing the replaceable disk drive

Connect the probes to the target system

The logic analyzer connects to the target system through the 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.

Product overview

This chapter describes the product controls and connectors of the logic analyzers. Refer to the *TLA Quick Start User Manual* for operating information on the logic analyzer.

Front panel controls

Use the front-panel controls to operate most of the logic analyzer. (See Figure 5.)

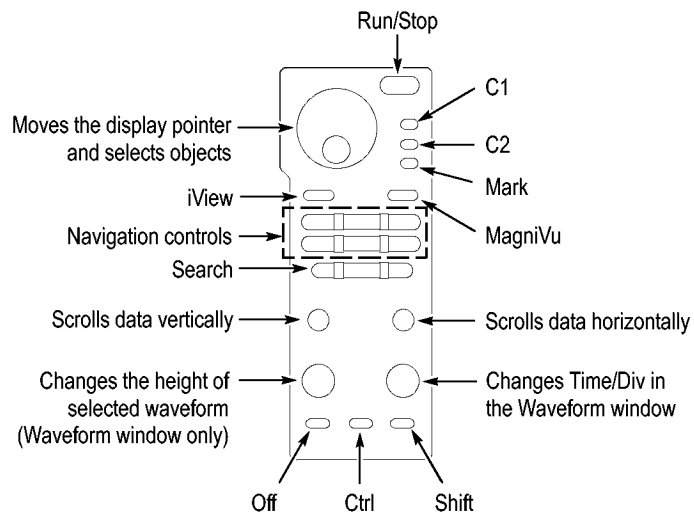


Figure 5: Logic analyzer front panel

Side panel connectors

The following connections are available on the side panel of the instrument. (See Figure 6.)

- Probe connectors. The number of connectors depend on your instrument type.
- Analog output connectors. Connect a BNC cable to one of these connectors to provide an analog output signal to another instrument. (Refer to the TLA online help for information on using the *iCapture Analog Feeds*.)

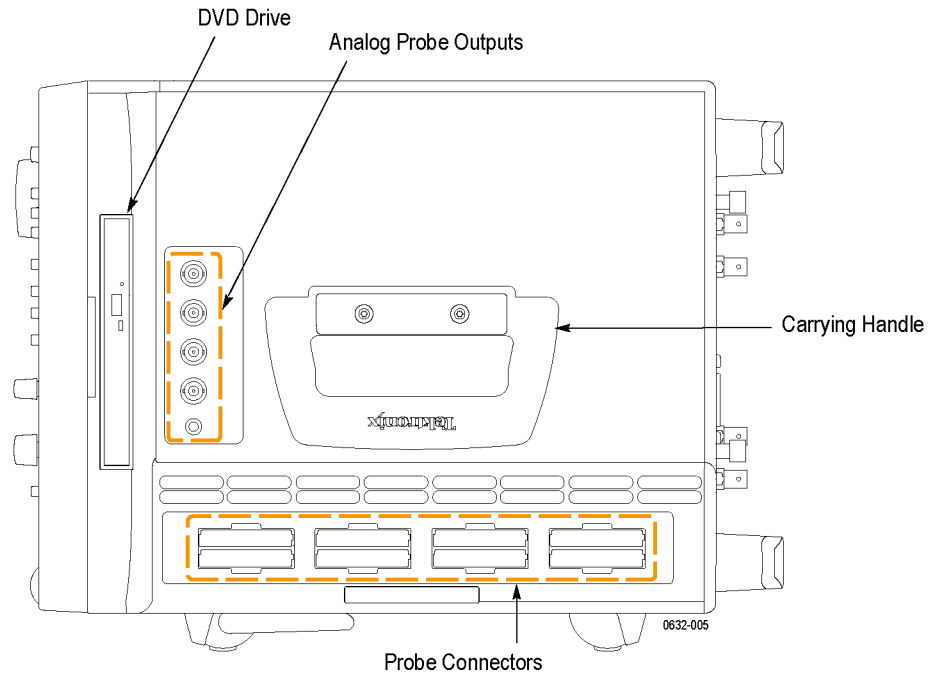


Figure 6: Side panel connectors

Rear panel connectors

The following external connections are available on the rear panel of the instrument. (See Figure 7 on page 11.)

- System Trigger In and System Trigger Out, used to receive or send a trigger from/to an external source
- External Signal In and External Signal Out, used to receive or send a signal from/to an external source
- Accessory connections, such as USB, LAN, and audio/video outputs

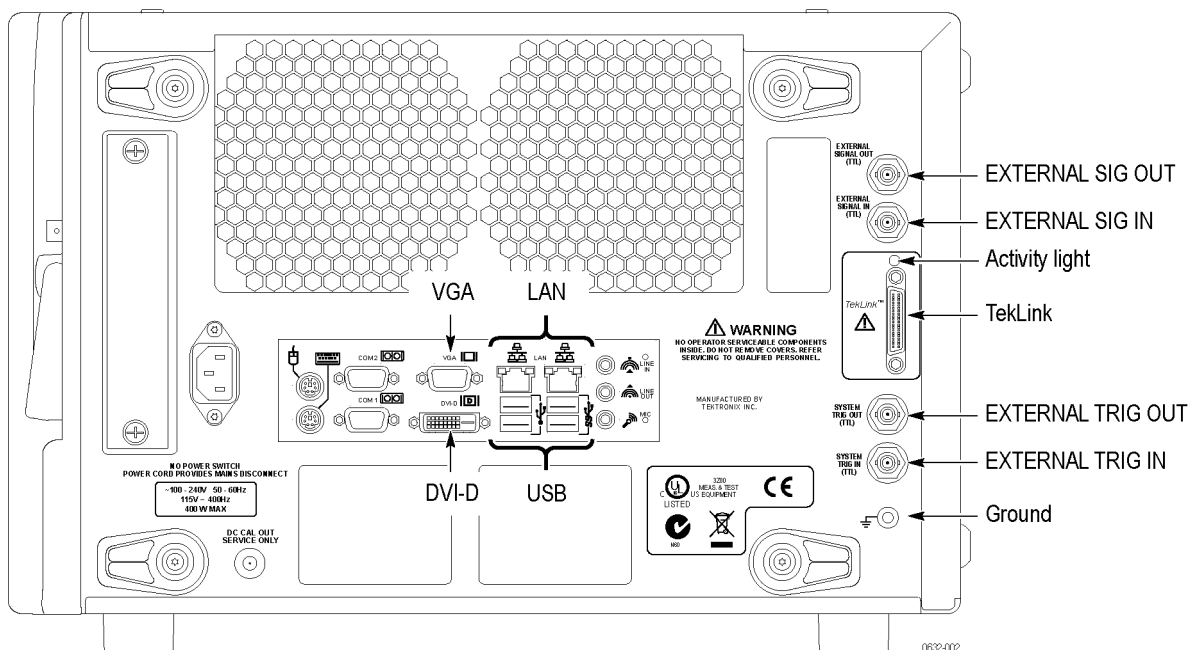


Figure 7: Rear panel connectors

Restoring and reinstalling software

Most of the software is installed when your instrument is shipped from the factory. Refer to this section if you need to reinstall your software. These instructions refer only to reinstalling the TLA application software and operating system. To upgrade to a newer TLA application software version, download the latest software version from the Tektronix Web site at www.tektronix.com/software/downloads. 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.*

Restore the operating system

If the need arises, the instrument contains an operating system restore file on a separate partition of the hard drive or you can restore the operating system from discs that you may have created. (See page 6, *Create operating system restore discs.*)



CAUTION. *Restoring the operating system reformats the hard disk drive. All saved will be lost. Save important files to external media before restoring the operating system.*

1. Restart the instrument. During the startup process, you will see the following message at the top of the screen:

Starting Acronis Loader press F5 for Acronis Startup
Recovery Manager

NOTE. *To successfully complete the system restore process you must use the Windows version of the Acronis software. Using a generic MAC keyboard starts the DOS version of the Acronis software. Do not use a MAC keyboard.*

2. Repeatedly press the F5 key until the Acronis True Image Tool opens. There is a short delay from the time the message appears until the instrument proceeds with the normal instrument startup. If the instrument does not open the Acronis application, power off the instrument, and then power on the instrument and try again.

3. Click Recover.
4. In the Confirmation dialog box, click Yes to restore the instrument operating system, or No to exit the restore process. The restore process takes approximately 30 minutes; the actual time depends on the instrument configuration.

Reinstall the TLA Application Software

Complete the following steps to reinstall the latest version of the TLA application software. Use these steps as a first resort to recovering from application software problems. If you still experience problems you may have to restore the hard disk image. (See page 13, *Restore the operating system.*)

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 the TLA Application Software CD in the CD drive of the logic analyzer.
3. If the installation software does not start automatically, click Run in the Windows Start menu to display the Run dialog box. Enter D:\TLA Application SW\Setup.exe in the Run dialog box (if your CD drive is not the D-drive, enter the appropriate letter for your drive).
4. 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 to remove it. Follow the on-screen instructions to remove the software, answering "Yes" to any prompts.

5. After the software is successfully installed, restart the instrument.

Remote operation

Install the TLA application software on a PC for the following purposes:

- Run the TLA application software in the Offline mode.
- Control a logic analyzer with the same TLA Application Software over a network.

NOTE. Be sure to abide by the license agreements for any third-party software installed on your PC or on the instrument.

Install the TLA Application Software on a PC

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 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 software by double-clicking on the TLA Application icon. The TLA Startup dialog box displays.

1. Select an instrument in the TLA Connection dialog box, and then click the Connect button. If your instrument is connected to a network, you can connect to any instrument on your local network that has a TLA server running, enabled, and is not being used by another user.
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 a real instrument. You can analyze previously acquired data from a logic analyzer, create or modify reference memories, or perform system tests without being connected to a real instrument.

Calibrate the touchscreen

Perform the following steps to calibrate the touchscreen:

1. Go to the Windows desktop and double-click the Touchscreen Configurator (the pointing Device icon or small mouse graphic).
2. Follow the on-screen instructions to perform the alignment routine. Use a stylus for the best accuracy.

You can also customize some of the functions of your touchscreen in the Touch Screen Properties window. Right-click the selection text to view a description of the function.

Other software installation information

If you purchased any microprocessor support packages, you need to reinstall them after you reinstall the operating system and TLA application. If you do not 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).

Upgrade or restore the firmware

You may have to upgrade the firmware on the logic analyzer if the firmware version is not compatible with the TLA application software version. This will be indicated by one or more messages when you start the logic analyzer. 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:

1. Exit the logic analyzer application.
2. Click Start > All Programs > Tektronix Logic Analyzer > TLA Firmware Loader.
3. If the Connection dialog box appears, select the instrument that you want to upgrade (typically the Local instrument) and click Connect.
4. The Firmware Loader dialog box appears. You have the choice of loading either Mainframe Firmware or Instrument Module Firmware. Click the Load button corresponding to Mainframe Firmware (top part of the dialog box).
5. A list of all the currently installed Mainframe firmware displays. The list shows the version currently running and the version available for installation. Select the items that you want to load. If all firmware versions are up-to-date, click Close and go to step 14.
6. Click the Update Firmware button. A dialog box displays a list of available firmware images.
7. Select the appropriate file. Click Open to open the selected firmware image. You must do this for each firmware image selected.
8. The Firmware Load Progress dialog displays. Click the Start Flash Operation button to start the flash operation for the selected flash images. Once the flash operation is started it cannot be canceled.
9. As the flash operation runs, it identifies what steps are being performed. When complete, it will inform you to restart the instrument.
10. Turn off and restart the instrument after the flash operation is complete.
11. Exit the logic analyzer application.

12. Click Start > All Programs > Tektronix Logic Analyzer > TLA Firmware Loader.
13. If the Connection dialog box appears, select the instrument that you want to upgrade (typically the Local instrument) and click Connect.
14. Click the Load button in the Instrument Module Firmware section (bottom part of the dialog box).
15. If the firmware version is less than the FW Required version, then select Load Firmware from the Execute menu.
16. Select the proper firmware file (TLA640X.lod).
17. Click OK. You will be prompted to confirm your action; click Yes.
18. When the process has completed, exit the firmware loader program and power off the logic analyzer. You must power off the logic analyzer to allow the TLA application to start up properly.
19. Locate the big label on the instrument.
20. Record the firmware version that is printed on the label. You will need this information to see that the firmware version matches the label.
21. Power on the logic analyzer.
22. After the logic analyzer completes the power-on diagnostics, select System Properties from the System menu.
23. Click the LA1 tab.
24. Verify that the firmware version matches the version on the label that you recorded in step 20.
25. If the firmware versions do not match, power off the instrument, and update the label.

Appendix A: User service procedures

This appendix describes high-level service information and procedures for the Tektronix logic analyzers.

Service offerings

Tektronix provides service to cover repair under warranty and other services that are designed to meet your specific service needs.

Whether providing warranty repair service or any of the other services listed below, Tektronix service technicians are well equipped to service the logic analyzers. *Services are provided at Tektronix Service Centers and on-site at your facility, depending on your location.*

Warranty repair service

Tektronix warrants this product as described in the warranty statements at the front of this manual. Tektronix technicians provide warranty service at most Tektronix service locations worldwide. The Tektronix product catalog lists all service locations worldwide.

Calibration and repair service

In addition to warranty repair, Tektronix Service offers calibration and other services that provide cost-effective solutions to your service needs and quality-standards compliance requirements. Our instruments are supported worldwide by the leading-edge design, manufacturing, and service resources of Tektronix to provide the best possible service.

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.*

Preventive maintenance

Once a year the electrical performance should be checked and the instrument accuracy should be 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.

Refer to your logic analyzer probe instructions for specific cleaning procedures for the probes and probe connectors.

Clean 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.

Clean the 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.

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.

Troubleshooting

Review the following sections if you encounter any problems with your instrument. For additional help, contact your local Tektronix Service Representative.

Common problems

Use the following table to 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 discs from the disk drive. Possible software failure or corrupted hard disk drive. (See page 22, <i>Software problems</i> .) |
| 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. |

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

| Symptom | Possible causes and recommended action |
|---|---|
| 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. |
| Windows comes up in Safe mode | Exit the Safe mode and restart the instrument. Incompatible hardware and hardware driver software. Either install the hardware driver or remove the incompatible hardware. |

Diagnostics The logic analyzer runs power-on diagnostics every time you start the TLA application if the box is checked in the Configuration dialog box. View the results of the diagnostics by selecting Calibration and Diagnostics from the System menu. If desired, 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.

Before running the extended diagnostics, disconnect any attached probes.

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 portable mainframe.

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 are 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 13, *Restoring and reinstalling software*.)

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. 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.

Network connection problems Version 5.6 or higher of the TLA application software allows you to connect the logic analyzer 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.

Repacking for shipment

If the logic analyzer 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 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

Accessories

Table 5: Standard accessories

| Quantity | Accessory | Part number |
|----------|--|-------------|
| 1 ea | Power cord clip | 343-1213-00 |
| 1 ea | Mini keyboard | 119-7275-00 |
| 1 ea | USB optical wheeled mouse | 119-7054-00 |
| 1 ea | Front panel cover | 200-4939-00 |
| | Product CD, TLA application software V6.1 | |
| | Microsoft Windows 7 (64-bit) Certificate of Authenticity (COA) for New PCs | |
| | Certificate of Traceable Calibration | |

Table 6: Recommended accessories

| Quantity | Accessory | Part number |
|----------|---|-------------|
| | Logic analyzer cart | |
| | 2-shelf cart | LACART |
| | 3-shelf cart | K4000 |
| 1 ea | Wheeled transit case | 016-2066-xx |
| 1 ea | Rackmount kit | 020-2664-xx |
| 1 ea | Additional removable hard drive assembly; no software | 650-4815-xx |

Options

| Option | Description |
|--------|---|
| 18 | Add touchscreen |
| 1C | Add iView External Oscilloscope Cable kit |
| 2C | Add USB-iView External Oscilloscope Cable kit |
| PO | Add accessory pouch |
| 1S | Increase to 4 Mb record length |
| 2S | Increase to 8 Mb record length |
| 3S | Increase to 16 Mb record length |
| 4S | Increase to 32 Mb record length |
| 5S | Increase to 64 Mb record length |
| 1T | Increase to 667 MHz state clock |
| AM | Enables Analog Mux and adds four iCapture, BNC-to-BNC, low-loss, 10x cables |

| Option | Description |
|--------------------------|--|
| Manuals | |
| L0 | Add English manuals (TLA Product Safety & Compliance Instructions and TLA Documentation CD) |
| L5 | Add Japanese manuals (TLA Product Safety & Compliance Instructions and TLA Documentation CD) |
| L10 | Add Russian manuals (TLA Product Safety & Compliance Instructions and TLA Documentation CD) |
| L99 | No manuals |
| Service offerings | |
| C3 | Calibration services extended to cover three years |
| C5 | Calibration services extended to cover five years |
| D1 | Calibration data report |
| D3 | Test Data for calibration services in Opt. C3 |
| D5 | Test Data for calibration services in Opt. C5 |
| R3 | Repair warranty extended to cover three years |
| R5 | Repair warranty extended to cover five years |
| R3DW | Repair service coverage three years (includes product warranty period); three year period starts at time of customer instrument purchase |
| R5DW | Repair service coverage five years (includes product warranty period); five year period starts at time of customer instrument purchase |

Table 7: Power cords

| Option | Description |
|--------|----------------------------------|
| A0 | North America, IEC320 C13 |
| A1 | Universal European, IEC320 C13 |
| A2 | United Kingdom, IEC320 C13 |
| A3 | Australia, IEC320 C13 |
| A4 | 240 V North American, IEC320 C13 |
| A5 | Switzerland, IEC320 C13 |
| A6 | Japan, IEC320 C13 |
| A10 | China, IEC320 C13 |
| A11 | India/South Africa, IEC320 C13 |
| A12 | Brazil, IEC320 C13 |
| A99 | No power cord |

Appendix C: Network installation site survey

Photocopy this sheet and use it for your system installation.

Customer:

Installer:

Date:

Networking information (Share with customer IT department)

| Item | Description | Value |
|------|-------------------------------|---|
| 1 | IP address default | DHCP |
| 2 | Operating System/Service Pack | |
| 3 | Computer name | |
| 4 | Admin password | |
| 5 | Firewall | Microsoft, enabled |
| 6 | Virus Scanner | None |
| 7 | Network Port Information | TLA Application – port 111 TPI.NET – port 9000 |

Network installation information (Provided by IT department)

| Item | Description | Value |
|------|---------------------------------|-------|
| 1 | User Name | |
| 2 | Default password | |
| 3 | Domain name | |
| 4 | DNS suffix | |
| 5 | IP address (Fixed or DHCP) | |
| 6 | Security requirements | |
| 7 | Computer naming convention | |
| 8 | DNS address | |
| 9 | Proxy Server address | |
| 10 | RJ45 outlet location/activation | |

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