

# **TLA7KUP**

## **Logic Analyzer Field Upgrade Kit**

### **Instructions**

This document applies to TLA System Software Version 5.6

#### **Warning**

These 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](http://www.tektronix.com)

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**Tektronix**

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## **Contacting Tektronix**

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

- In North America, call 1-800-833-9200.
- Worldwide, visit [www.tektronix.com](http://www.tektronix.com) to find contacts in your area.

## Warranty 6

Tektronix warrants that the parts and modules (“parts”) that it manufactures and sells will be free from defects in materials and workmanship for a period of three (3) months from the date of shipment. If any such part proves defective during this warranty period, Tektronix, at its option, either will repair the defective part without charge, or will provide a replacement in exchange for the defective part. Parts and modules used by Tektronix for warranty work may be new or reconditioned to like new performance. All replaced parts and modules become the property of Tektronix.

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# 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. The safety summaries are located in the *Tektronix Logic Analyzer Family Product Safety & Compliance Instructions* (Tektronix part number 071-2591-xx).

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

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

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

To avoid electric shock, do not touch exposed connections.

## Preface

This manual contains specific information about the TLA7KUP logic analyzer field upgrades. The logic analyzer field upgrades consist of software and hardware options for the TLA7000 Series Logic Analyzers.

### Products Eligible for TLA7KUP Upgrades

The following table lists all of the TLA7000 series logic analyzers eligible for upgrades via the TLA7KUP field upgrade kits. The table tells you if your logic analyzer is eligible for an upgrade. If it is, choose one of the possible upgrade paths. (See Table ii.)

**Table i: TLA7000 Series logic analyzers eligible for upgrades**

Configuration	Operating system <sup>1</sup>	TLA application software
TLA7012 Portable, Std TLA7016 Benchtop, Std TLA7PC1 Benchtop, Controller Std	Microsoft Windows XP Professional	Version 5.6
TLA7012 Portable, Std TLA7016 Benchtop, Std TLA7PC1 Benchtop, Controller Std	Microsoft Windows XP Professional	Version 5.1
TLA7012 Portable, Std	Microsoft Windows XP Professional	Version 5.0
TLA720, TLA721, TLA7XM Benchtop Standard (TLA7KUP Option 19 only)	N.A.	N.A.

<sup>1</sup> Windows 2000 is no longer supported on Tektronix logic analyzers with TLA software version 5.6.

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**NOTE.** *The TLA7016 Benchtop Mainframe does NOT include a PC controller.*

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The TLA7KUP upgrade kits are designed for "One TLA7KUP upgrade kit per TLA7012 or TLA7016 with TLA7PC1." If you want to upgrade multiple mainframes, you must order one TLA7KUP upgrade kit with the appropriate options for each mainframe.

The latest TLA Application Software has been tested and can be installed and will be supported by Tektronix only on the Tektronix-supplied version of Windows XP.

Table ii: TLA7KUP Logic Analyzer Field Upgrade Matrix

New capability desired	Current configuration and TLA software version	Please order
<b>Add New Software Features</b> Add new functionality to existing TLA7000 logic analyzers by upgrading to TLA Application Software V5.6; <sup>1</sup> requires Windows XP.	TLA7012 Portable Std, SW V5.1	TLA7KUP Option 46
	TLA7016 Benchtop Std, SW V5.1 TLA7PC1 Benchtop Controller Std with SW V5.1	TLA7KUP Option 46
<b>Add New iView External Oscilloscope Capability</b> Add new iView capability to view data from TDS oscilloscopes correlated directly on the TLA7000 logic analyzer display <sup>2</sup> .  Requires latest TLA Application Software and Windows XP.	TLA7012 Portable Std, SW V5.6	TLA7KUP Option 15
	TLA7016 Benchtop Std, SW V5.6 TLA7PC1 Benchtop Controller Std, SW V5.6	TLA7KUP Options 15 and 46
	TLA7012 Portable Std, SW V5.1	TLA7KUP Options 15 and 46
	TLA7016 Benchtop Std, SW V5.1 TLA7PC1 Benchtop Controller Std, SW V5.1	TLA7KUP Options 15 and 46
<b>Upgrade Logic Analyzer State Speed and Record Length</b> Enhance your current TLA7000 series logic analyzer modules by increasing state speed or record length. Once installed, the PowerFlex Utility software will inform you what upgrades are available. Instructions to obtain an upgrade are provided.	Any TLA7000 series logic analyzer with SW V5.0 or above	TLA7KUP Option PF or visit <a href="http://www.tektronix.com/LA">www.tektronix.com/LA</a> for the PowerFlex Utility software
	TLA7012 Portable Std, SW V5.6 TLA7016 Benchtop Std, SW V5.6 TLA7PC1 Benchtop Controller Std, SW V5.6	-
<b>Add New Measurement Modules to Existing Mainframe:</b> Add new or existing Logic Analyzer modules to your new or existing mainframe.  Requires latest TLA Application Software and Windows XP.	TLA7012 Portable Std, SW V5.1	TLA7KUP Option 46
	TLA7016 Benchtop Std, SW V5.1	
	TLA7PC1 Benchtop Controller Std, SW V5.1	
	TLA7012 Portable Std, SW V5.0	TLA7KUP Option 46
<b>Add Touch Screen to the TLA7012 Portable Mainframe</b>	TLA7012 Portable Std, SW V5.6	TLA7KUP Option 18
	TLA7012 Portable Std, SW V5.1 or V5.0	TLA7KUP Options 18 and 46

Table ii: TLA7KUP Logic Analyzer Field Upgrade Matrix (cont.)

New capability desired	Current configuration and TLA software version	Please order
<b>Convert a TLA720/721/7XM Benchtop Mainframe to a TLA7016 Benchtop Mainframe:</b>	TLA720 Std, SW V5.6 TLA721 Std, SW V5.6 TLA7XM Std	TLA7KUP Option 19 (External PC with Windows XP or TLA7PC1 required to load TLA software)
Requires latest TLA Application Software and Windows XP. External PC or TLA7PC1 require the latest TLA Application Software and Windows XP.	TLA720 Std, SW V5.1 TLA721 Std, SW V5.1 TLA7XM Std	TLA7KUP Options 19 and 46 (External PC with Windows XP or TLA7PC1 required to load TLA software)
	TLA720 Std, SW V4.4 or below TLA721 Std, SW V4.4 or below TLA7XM Std	TLA7KUP Options 19 and 46 (External PC with Windows XP or TLA7PC1 required to load TLA software)
<b>Upgrade a TLA7016 Benchtop Mainframe with a new high-capacity power supply:</b>	TLA7016 Benchtop Std (B02xxxx), SW V5.6	-
Convert a TLA7016 (B01xxxx) with a 1000 W power supply to a TLA7016 with a 1300 W power supply.	TLA7016 Benchtop Std (B02xxxx), SW V5.1	TLA7KUP Option 46 (External PC with Windows XP or TLA7PC1 required to load TLA software)
Requires the latest TLA Application software and Windows XP.	TLA7016 Benchtop Std (B01xxxx), SW V5.1	TLA7KUP Options 21 and 46 (External PC with Windows XP or TLA7PC1 required to load TLA software)
<i>Note: any TLA720/721/7XM must be upgraded with TLA7KUP Option 19 before performing the power supply upgrade.</i>		
<b>Add 3.5-inch USB Floppy Disk Drive</b>	Any TLA7000 series logic analyzer, SW V5.0 or above	TLA7KUP Option 29
<b>Add USB Security Block:</b>	Any TLA7012 Portable Std	TLA7KUP Option 39
Allows you to disable USB ports and continue to use the USB keyboard and mouse.		
<b>Add Cart:</b>	Any TLA7012 or TLA7016 mainframe	Choice of either K4000 or LACART
Add your choice of either the K4000 or LACART instrument cart.		
<b>Add Rackmount Kit</b>	TLA7012 Portable Std	Tektronix part number 020-2664-xx
	TLA7016 Benchtop Std	Tektronix part number 020-2369-xx
<b>Add Wheeled Transport Case for TLA7000 Series Mainframes</b>	TLA7012 Portable Std	Tektronix part number 016-1522-xx
	TLA7016 Benchtop Std	Tektronix part number 016-1651-xx

<sup>1</sup> The latest version of the TLAPG2 PatGen Application Software is available either as part of the TLA Application Software or on the Web. Please visit our Web site at [www.tektronix.com/la](http://www.tektronix.com/la).

<sup>2</sup> For a list of supported Tektronix oscilloscopes, please visit our Web site at [www.tektronix.com/la](http://www.tektronix.com/la).

## Service and Upgrade Notes

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

- Read the *General Safety Summary* and *Service Safety Summary* located in the *Tektronix Logic Analyzer Family Product Safety & Compliance Instructions* (Tektronix part number 071-2591-xx).
- Only qualified service personnel should perform the procedures in this manual.

Be sure to follow all warnings, cautions and notes.

## Adjustment and Certification Interval

Generally, you should perform the adjustments and performance verification procedures for the mainframes described in the *Tektronix Logic Analyzer Series Product Specifications and Performance Verification Technical Reference Manual* once per year, or following repairs that may affect adjustment or calibration. The adjustment and verification procedures for individual modules are described in the respective module service manuals.

## Service Offerings

Tektronix provides service to cover repair under warranty as well as 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 equipped to service your logic analyzer. Services are provided at Tektronix Services Centers.

### Warranty Repair Service

The warranty for this product is located behind the title page in this manual. Tektronix technicians provide warranty service at most Tektronix service locations worldwide. The Tektronix product catalog lists all service locations worldwide, or you can visit us on our *Customer Services World Center* Web site at:

[www.tektronix.com/Measurement/Service](http://www.tektronix.com/Measurement/Service)

### Calibration and Repair Service

In addition to warranty repair, Tektronix Service offers calibration and other services which provide solutions to your service needs and quality standards compliance requirements.

The following services can be tailored to fit your requirements for calibration and/or repair of your logic analyzer.

**Service Options.** Tektronix service options can be selected at the time you purchase your instrument. You select these options to provide the services that best meet your service needs.

**Service Agreements.** If service options are not added to the instrument purchase, then service agreements are available on an annual basis to provide calibration services or post-warranty repair coverage. Service agreements may be customized to meet special turn-around time and/or on-site requirements.

**Service on Demand.** Tektronix offers calibration and repair services on a "per-incident" basis that is available with standard prices.

**Self Service.** Tektronix supports repair to the replaceable-part level by providing for circuit board exchange.

Use this service to reduce down-time for repair by exchanging circuit boards for remanufactured ones. Tektronix ships updated and tested exchange boards. Each board comes with a 90-day service warranty.

**For More Information.** Contact your local Tektronix service center or sales engineer for more information on any of the Calibration and Repair Services just described.

# TLA7KUP Option 15: iView External Oscilloscope Cable Installation

TLA7KUP Option 15 provides the capability of connecting your logic analyzer to an external Tektronix oscilloscope through the iView cable.

## Instruments

Instruments	Serial number range
TLA7000 Series Logic Analyzers	All serial numbers

## Minimum Tool and Equipment List

No special tools or equipment are required.

## Parts List

Table 1: TLA7KUP Option 15 parts list

Quantity	Part number	Description
1 ea	012-1614-xx	iView external oscilloscope cable kit
1 ea	N/A	TLA7KUP kit label

## Installation Prerequisite

Although iView will operate on TLA Instruments with Windows 2000, Tektronix recommends the latest TLA Application Software with Windows XP, and 512 MB minimum mainframe memory. Also requires the latest version of the NI-488.2 software available on the TLA Application software CD; refer to the release notes on the CD for software version history.

## Installation Instructions

Online installation instructions are provided within the TLA application through a wizard. After powering on the instrument, select Add iView External Scope from the System menu and follow the online instructions.

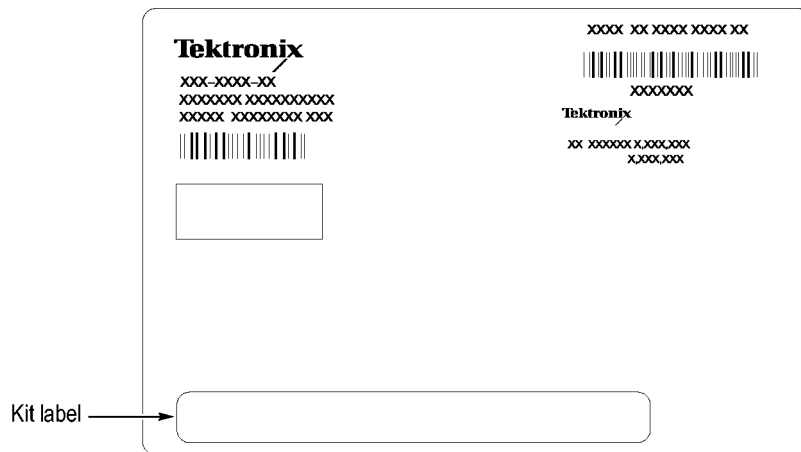
## Attach the Upgrade Kit Label to the Instrument

After completing the previous steps, you need to install the upgrade kit label on the instrument to indicate that the kit is installed. Locate the big label on the bottom of the portable mainframe or on the side of the TLA7016 Interface Module and attach the TLA7KUP kit label as shown. (See Figure 1.)

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**NOTE.** *If there already is an upgrade kit label installed, install the new label just above the old one.*

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**Figure 1: Kit label locations**



# TLA7KUP Option 18: TLA7012 Touchscreen Installation

TLA7KUP Option 18 provides parts and instructions to install a touchscreen display on your TLA7012 Portable Logic Analyzer.

## Instruments

Instruments	Serial number range
TLA7012 Series Logic Analyzers	All serial numbers

## Minimum Tool and Equipment List

T-15 TORX and 5/16 in nut drivers required.

## Parts List

Table 2: TLA7KUP Option 18 parts list

Quantity	Part number	Description
1 ea	650-4676-00	Front Panel Display Assembly with Touchscreen panel
1 ea	119-6107-00	Touchscreen stylus, package of 3
1 ea	N/A	TLA7KUP kit label

## Installation Prerequisite

Requires TLA Application Software V5.6, Windows XP, and 512 MB minimum mainframe memory.

## Installation Instructions

Refer to the illustrations as you perform the following procedures.

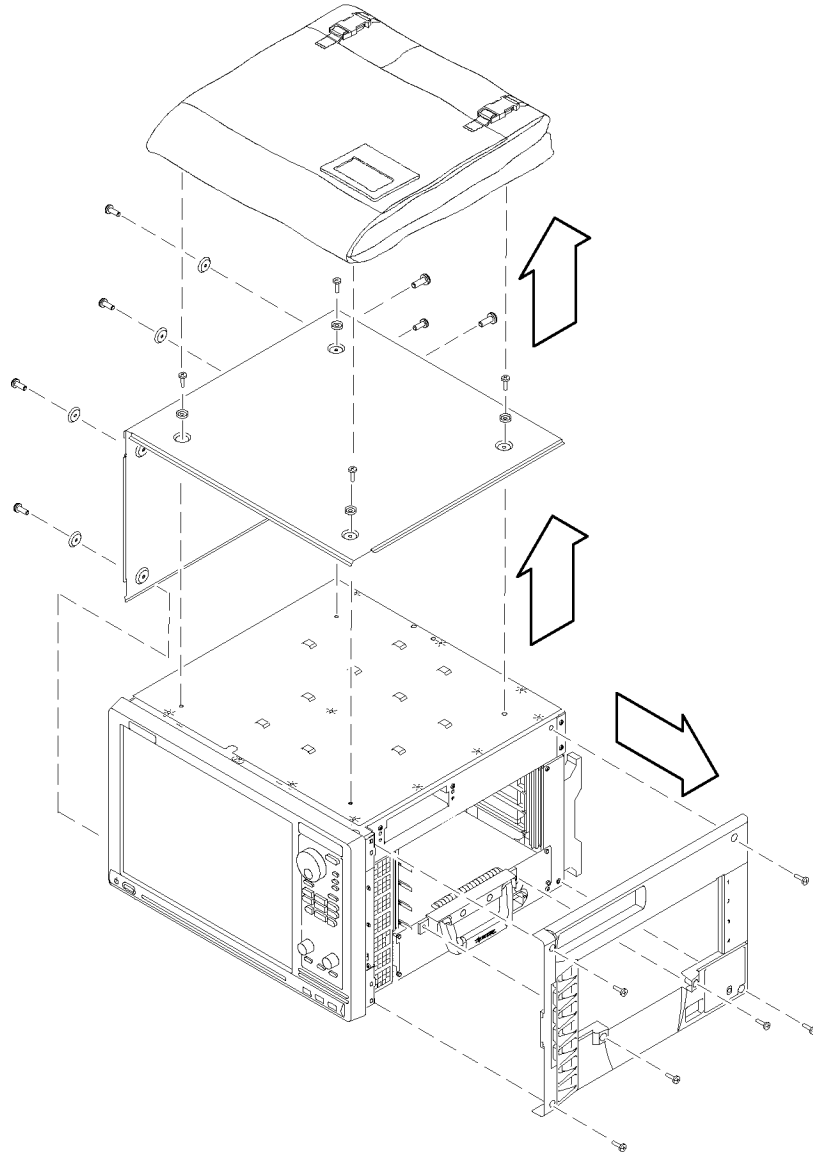


**CAUTION.** To prevent static discharge damage, service the product only in a static-free environment. Observe standard handling precautions for static-sensitive devices while installing this kit. Always wear a grounded wrist strap, grounded foot strap, and static resistant apparel while installing this kit.

**Removal** Begin by removing the instrument enclosure. (See Figure 2.)

1. Disconnect all cords, probes, and modules from the instrument.

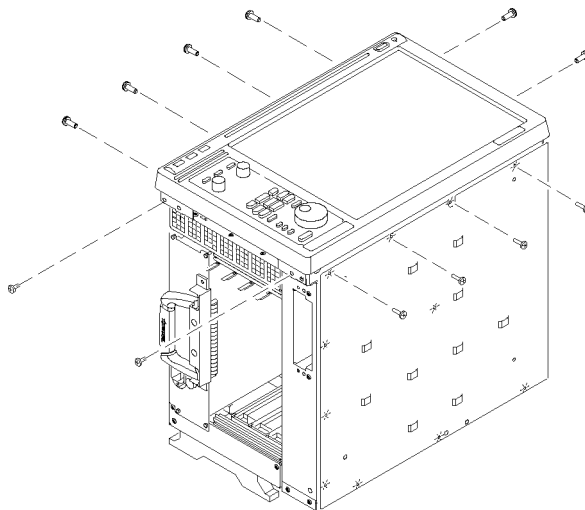
2. Set the instrument on the bottom feet.
3. Remove the six T-15 screws from the right cover and remove the cover.



**Figure 2: Instrument enclosure detail**

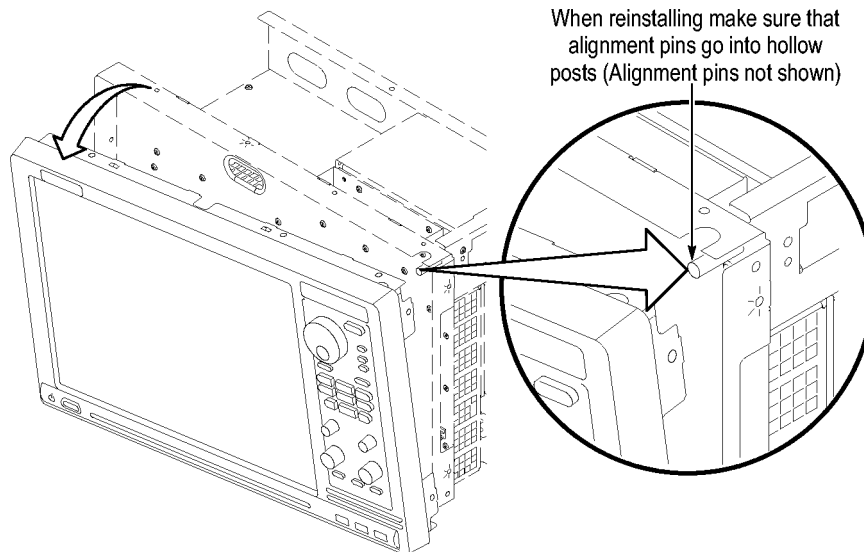
4. Remove the accessory pouch and snap studs (4 T-15 screws).
5. Remove the four skid feet from the left side (4 T-15 screws).
6. Remove the three remaining T-15 screws from the top left cover and then remove the cover.
7. Set the instrument on the rear feet.

8. Remove the 12 T-15 screws from the front-panel trim. (See Figure 3.)



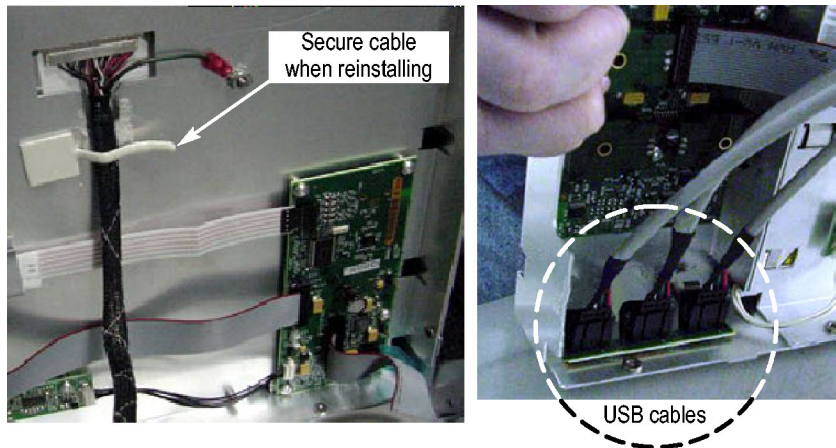
**Figure 3: Remove the front-panel trim screws**

9. Set the instrument back on the bottom feet.
10. Tilt the top of the front panel out about 8 inches. (See Figure 4.)



**Figure 4: Tilt the front panel forward for cable access**

11. Disconnect the two display cables and three USB cables from the front panel assembly. (See Figure 5.)
12. Remove the ground wire with a 5/16 in driver.



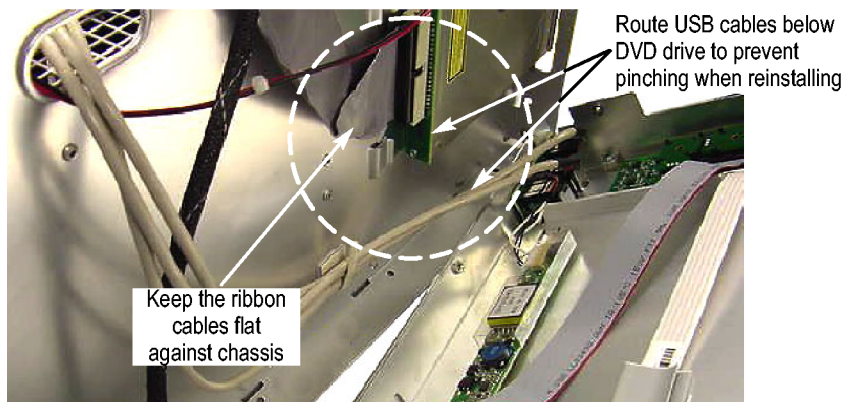
**Figure 5: Front panel cable locations**

13. Remove the front panel assembly.

**Installation**

Install the new touchscreen display assembly by following steps 1 through 13 in reverse. The following hints will help you complete a successful installation:

- When connecting the display cable, carefully line up the centers of the plug and socket before pressing them together. This may require some patience.
- To avoid damaging the USB and DVD cables, dress the cables properly just before you attach the new display assembly to the chassis. (See Figure 6.)



**Figure 6: Dress the cables properly**

**Calibrate the Touchscreen**

Verify the touchscreen operation by doing the following steps.

1. Power on the instrument.
2. In the Windows Quick Launch Taskbar, double-click on the Pointing Device icon (small mouse graphic). The Touch Screen Properties appears.
3. Click Calibrate and follow the on-screen instructions to perform the alignment routine. Use one of the styluses provided with this kit to ensure the best accuracy.

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

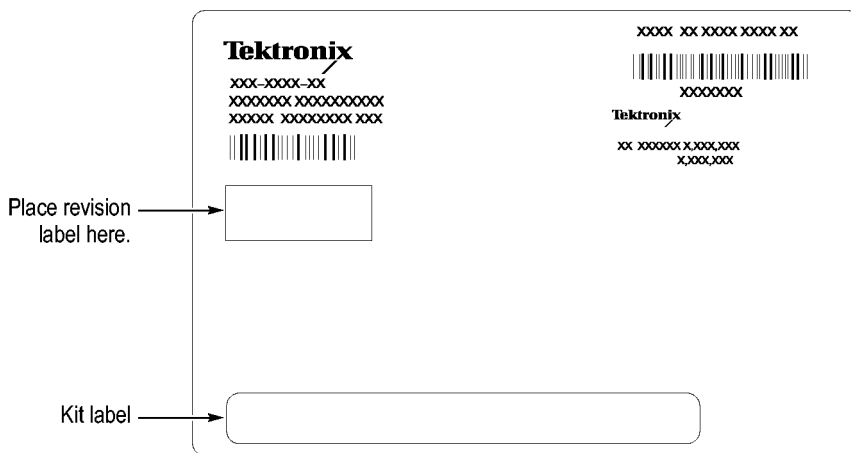
**Attach the Upgrade Kit Label to the Instrument**

After completing the previous steps, you need to install the upgrade kit label on the instrument to indicate that the kit is installed. Locate the big label on the bottom of the instrument, and then attach the TLA7KUP kit label. (See Figure 7.)

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**NOTE.** *If there already is an upgrade kit label installed, install the new label just above or below the old one.*

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**Figure 7: Kit label locations**



# TLA7KUP Option 19: TLA700 Series Benchtop Mainframe Upgrade

TLA7KUP Option 19 provides parts and instructions to upgrade your TLA72X or TLA7XM benchtop mainframe to a TLA7016 Benchtop Mainframe. This kit includes a new Front Panel and Interface Module that, when installed, require a separate PC controller to operate the mainframe. (See page 10, *Installation Prerequisite*.)

This kit also includes a set of brackets that allow you to conveniently secure the TLA7PC1 controller, GbE switch, and TL708EX Hub to your benchtop mainframe without purchasing a separate 19-inch instrument rack.

## Instruments

Instruments	Serial number range
TLA72X Series Logic Analyzers	All serial numbers
TLA7XM Series Logic Analyzers	All serial numbers

## Minimum Tool and Equipment List

T-7 and T-10 TORX, P2 PoziDriv, P1 Phillips screwdriver, Needle-nose pliers

## Parts List

Table 3: TLA7KUP Option 19 parts list

Quantity	Part number	Description
1 ea	650-4868-00	TLA7016 Front Panel w/ 2.5-inch Electroluminescent Display
1 ea	650-4733-00	TLA7016 Single-Slot Interface Module
1 ea	174-5225-00	LAN cable, straight through, RJ-45, shielded, 15 ft
1 ea	174-5019-00	TekLink cable, 2 m
2 ea	131-4356-xx	Jumper with pull-tab
1 ea	407-5127-00	Left side Benchtop System Mounting Bracket w/ preinstalled mounting hardware
1 ea	407-5132-00	Right side Benchtop System Mounting Bracket w/ preinstalled mounting hardware
1 sheet	355-1542-00	Software revision labels
1 ea	N/A	TLA7KUP kit label

## Installation Prerequisite

The controller PC that is connected to the benchtop mainframe must be one of the following devices (referred to as the controller PC throughout this document.)

- User-supplied PC
- Tektronix TLA7PC1 Benchtop Controller
- Tektronix TLA7012 Portable Mainframe
- Tektronix TLA520X Logic Analyzer

Also, the controller PC that you use requires:

- TLA Application Software V5.6
- Windows XP
- 512 MB minimum memory

See the *Preface* in this manual for information on options to upgrade your TLA application software.

## Installation Overview

These procedures must be performed in the following order:

1. Replace the existing front panel with the new display front panel.
2. Replace the existing TLA72X Benchtop Controller with the new TLA7016 Interface Module.
3. Make the proper jumper settings on the Enhanced Monitor Card.
4. Configure the IP properties of the controller PC (loaded with correct software).
5. Connect the LAN cable from the controller PC to the mainframe and upgrade the firmware.
6. Verify the installation and apply the upgrade label to the mainframe.
7. Connect to your test system, using the TekLink cable if necessary.

The following figure shows the connections and describes the network settings for the firmware upgrade.



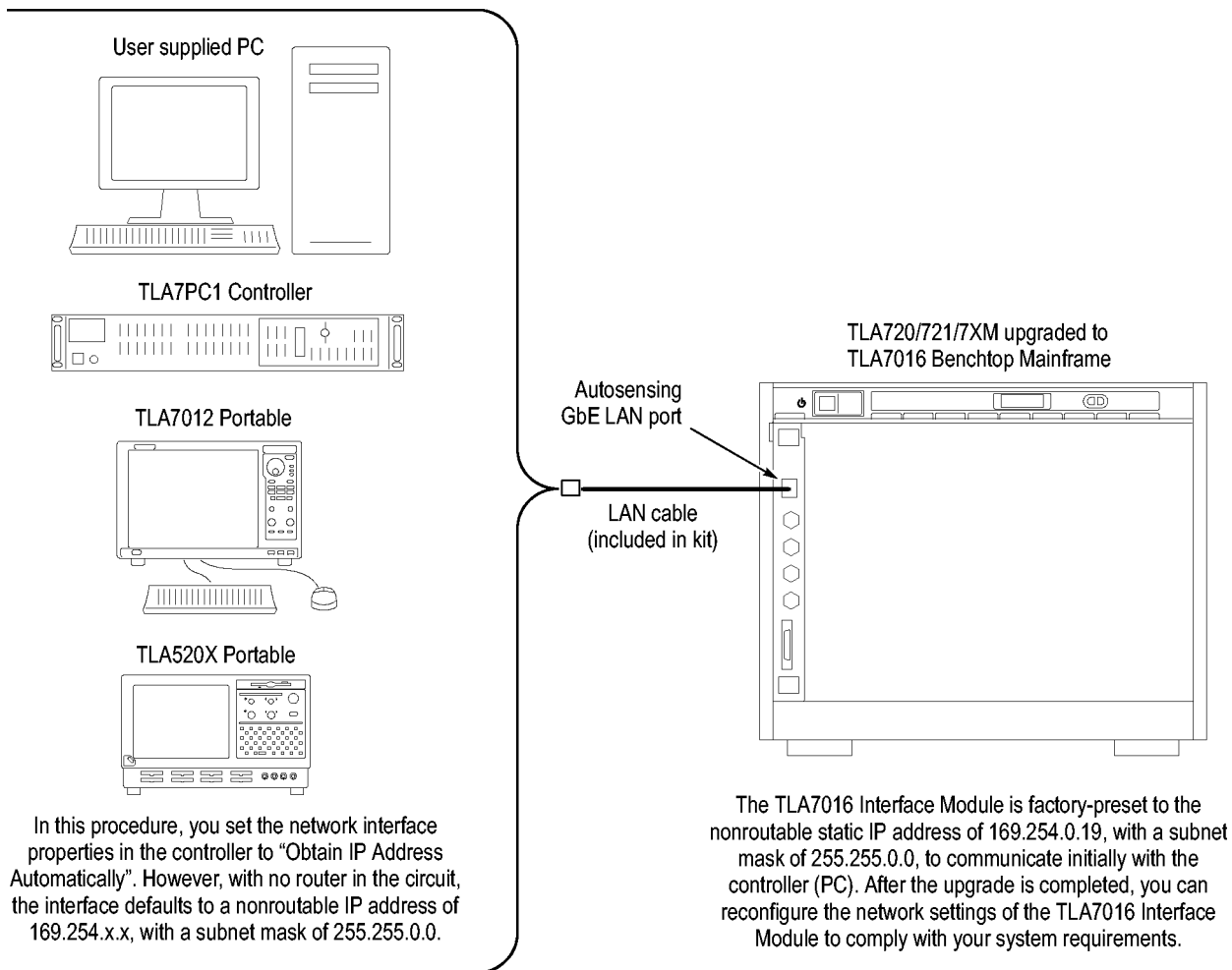


Figure 8: Firmware update configuration

## Installation Instructions

Refer to the illustrations as you perform the following procedures.



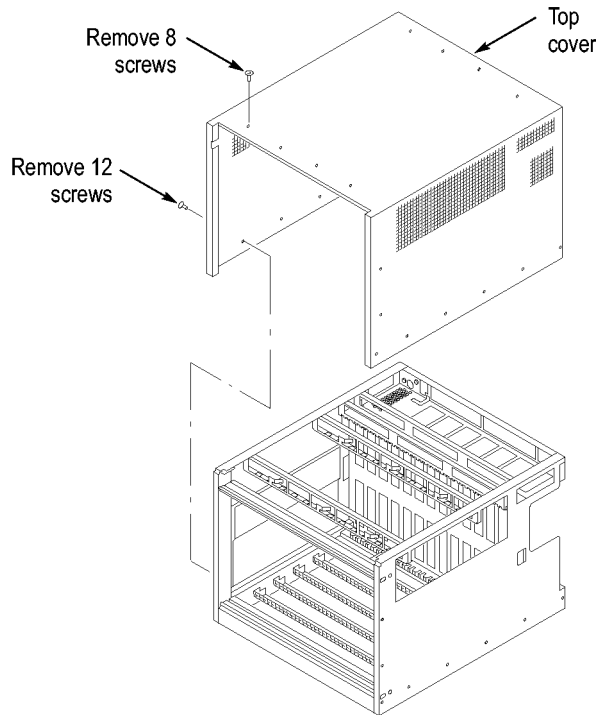
**CAUTION.** To prevent static discharge damage, service the product only in a static-free environment. Observe standard handling precautions for static-sensitive devices while installing this kit. Always wear a grounded wrist strap, grounded foot strap, and static resistant apparel while installing this kit.

### Front Panel Removal

Remove the front panel by performing the following steps:

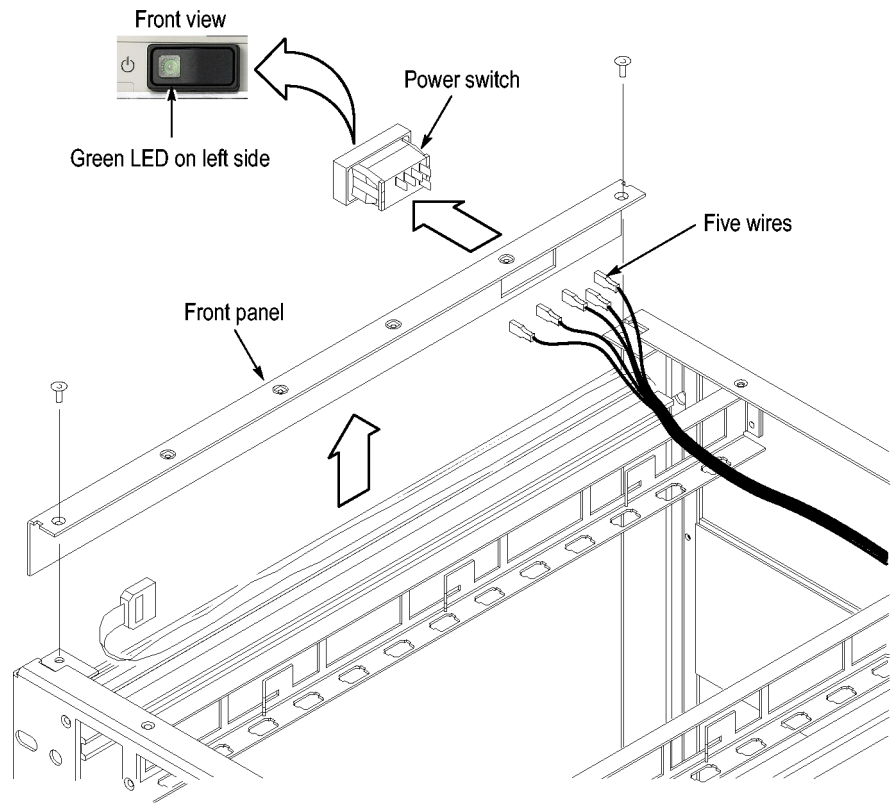
1. Disconnect all cords, probes, and modules from the instrument.
2. Set the instrument on the bottom feet.

3. Remove the eight T-7 screws on the top of the instrument. (See Figure 9.)



**Figure 9: Removing the instrument cover**

4. Remove the twelve T-10 screws, six on each side of the instrument.
5. Pull the top cover off of the instrument.
6. Note the orientation of the power switch. The green LED is toward the front-left side. (See Figure 10.) You will remove the switch from the existing front panel and reinstall it in the new front panel.
7. Using needle-nose pliers, remove the five wires from the power switch. (The color-coded connections are shown later in the installation procedure).
8. Remove the two T-7 screws from the front panel and remove the front panel.



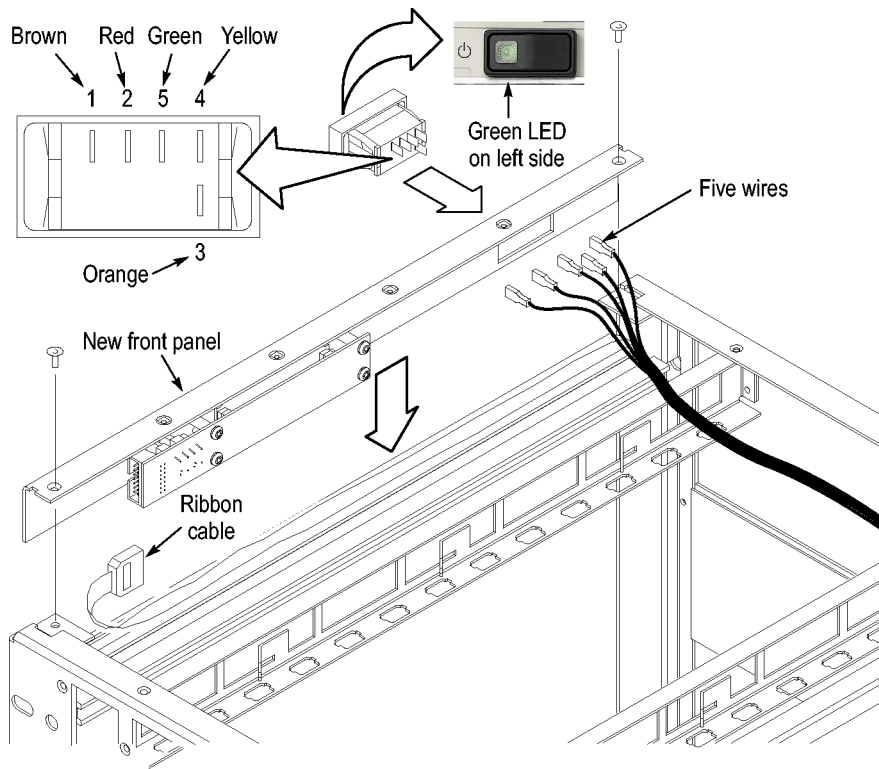
**Figure 10: Removing the instrument front panel**

9. Unsnap the power switch from the front panel by squeezing the snaps on each side of the switch and pushing the switch through the front of the panel.

## Front Panel Installation

Install the new front panel by performing the following steps:

1. Orient the power switch to the new front panel so that the four terminals are on top, and the green LED is toward the front-left side. (See Figure 11.)
2. Snap the power switch into the new front panel.
3. Connect the wires to the power switch as shown. (See Figure 11.)



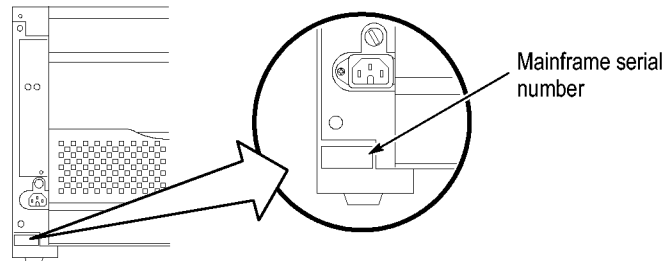
**Figure 11: Installing the new front panel**

4. Connect the ribbon cable from the mainframe to the new front panel.
5. Position the front panel in the chassis. If there is a plastic cable retainer in the way, remove it. Dress the ribbon cable around the display board to avoid pinching the cable.
6. Dress the excess power switch cable towards the back of the chassis, away from the card guides.
7. Attach the front panel to the chassis with one T-7 screw on each side.
8. Replace the cover and partially install the side cover screws first, and then the top screws, until the cover is aligned and all of the screws are started.
9. Tighten all of the cover screws.

### Interface Module Installation

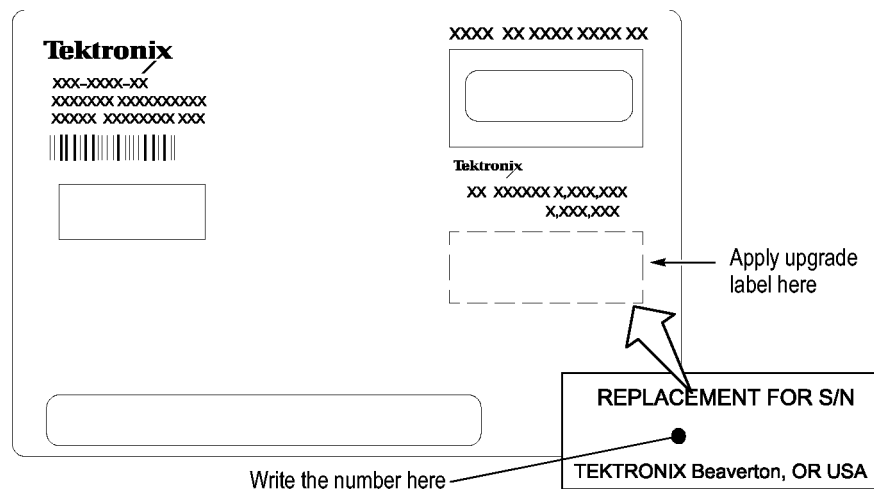
Continue by installing the new TLA7016 Interface Module:

1. Loosen the four Phillips P1 mounting screws (two each on the top and bottom), and remove the existing TLA720/721 Benchtop Controller.
2. Get the serial number of the TLA720/721/7XM mainframe that you are upgrading. It is located on a small white label below the power cord. (See Figure 12.)



**Figure 12: Mainframe serial number location**

3. Write the mainframe serial number on the Replacement For Serial Number label included in the kit. (See Figure 13.)
4. Affix the Replacement For Serial Number Label to the large white label on the side of the new TLA7016 Interface Module. (See Figure 13.)



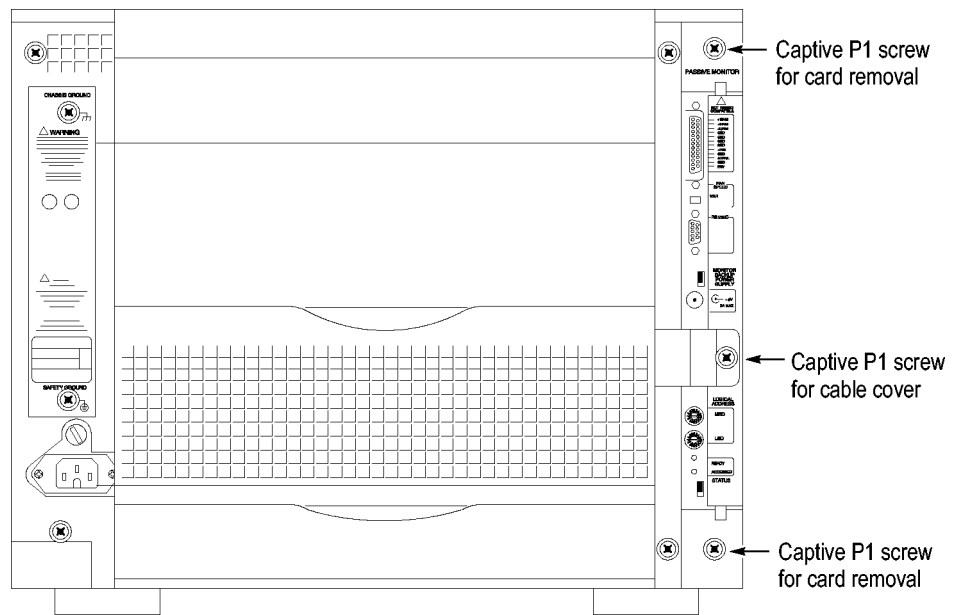
**Figure 13: Adding the mainframe serial number to the Interface Module label**

5. Plug the new TLA7016 Interface Module into the first slot (slot 0) of the mainframe and tighten the two P1 mounting screws.

### Set the Jumpers on the Enhanced Monitor Card

The next steps are done at the back of the instrument.

1. On the Enhanced Monitor Card, loosen the middle captive screw and remove the cable cover near the middle of the card.

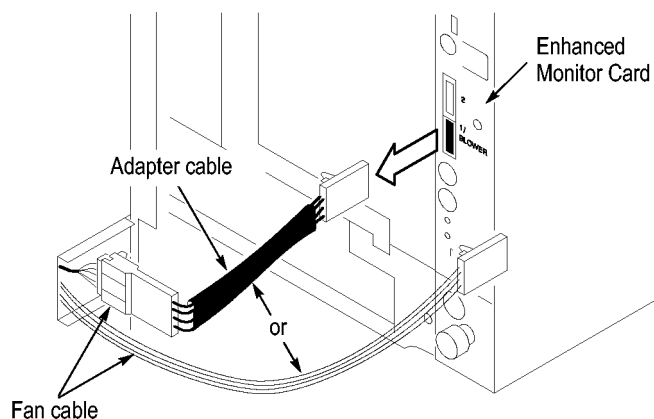


**Figure 14: Remove the cable cover**



**CAUTION.** Do not pull on the fan cable to disconnect the fan cable connector. Pulling on the fan cable can damage the connector or the wires. To remove the fan cable connector, disengage the locking connector on the fan cable connector before removing the fan cable.

2. Disconnect the cable from the Enhanced Monitor Card. There may be a 3-inch adapter cable on the end of the fan cable. (See Figure 15.) The cable configuration will be used to determine the proper jumper settings in step 5.



**Figure 15: Check for an adapter cable and disconnect the cable**

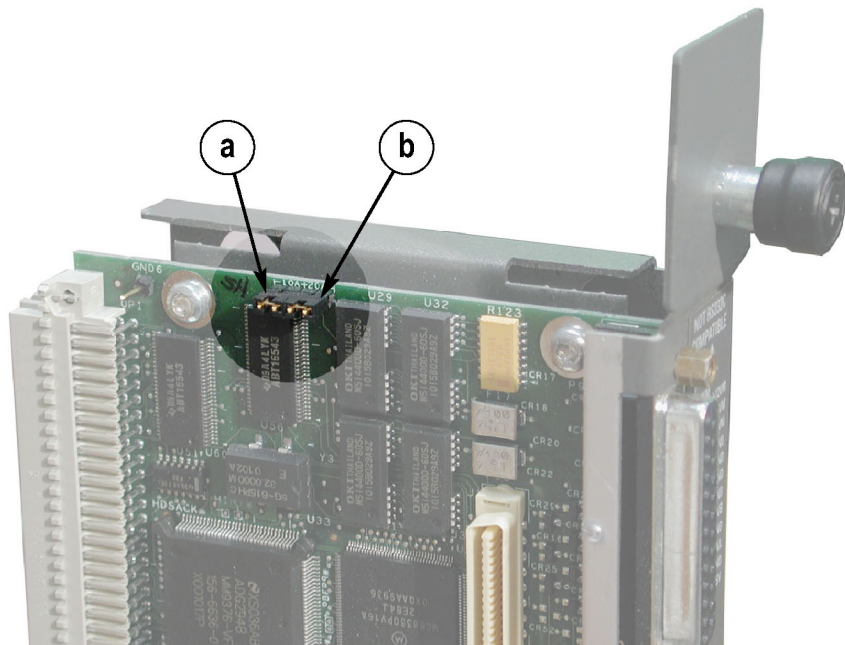
3. Loosen the top and bottom captive P1 screws.

4. Pull the Enhanced Monitor Card out of the mainframe.
5. Note the pair of jumpers at the top of the Enhanced Monitor Card. (See Figure 16.)
  - If your fan has an adapter cable, remove the left jumper **a** and insert the right jumper **b**.
  - If your fan does not have an adapter cable, remove the right jumper **b** and insert the left jumper **a**.

---

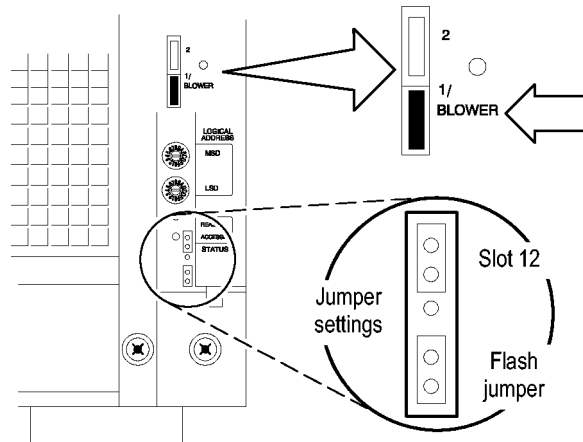
**NOTE.** Correct jumper configuration is important for the new firmware to properly control the fan and to monitor the power supplies.

---



**Figure 16: Set the fan jumpers on the Enhanced Monitor Card**

6. At the back of the Enhanced Monitor Card, connect a jumper on the bottom two flash programming pins. (See Figure 17.)
7. If there are three pins above the flash programming pins, verify that there is another jumper on the upper two pins.



**Figure 17: Connect the flash jumper**

8. Unless you need a static VXI address for the Enhanced Monitor Card, set the arrows on the two white dials to F. This sets the card for VXI dynamic addressing.
9. Plug the Enhanced Monitor Card firmly into the instrument, and tighten the top and bottom P1 screws.
10. Connect the fan cable (or cable adapter) to the connector labeled 1/BLOWER on the Enhanced Monitor Card. (See Figure 17.)
11. Replace the fan cable cover and tighten the P1 screw.

### Set the Controller PC IP Address Properties

Continue the installation by configuring the IP address of the controller PC:

1. Power on the controller PC.

---

**NOTE.** This upgrade kit requires TLA Application Software V5.6 running on the controller PC. If you need to update your software, do so before continuing with these procedures.

---

2. Click Start → Settings → Control Panel → Network Connections.
3. Right-click the Local Area Connection of the LAN card you will use to communicate with the mainframe (see note), and select Properties.

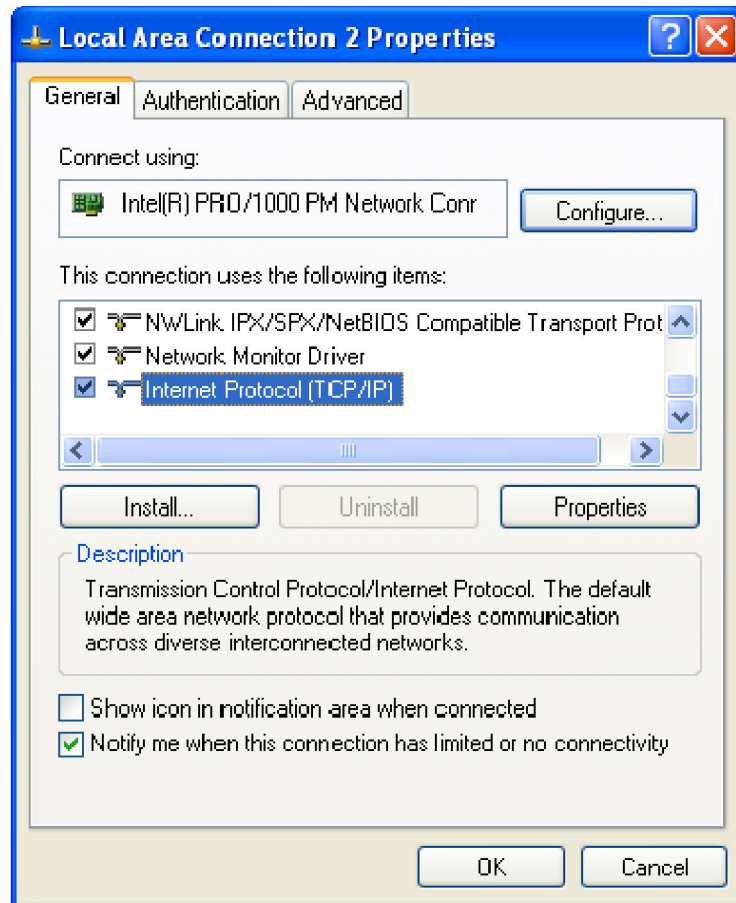
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**NOTE.** If you are using a PC for the controller PC, it may have several LAN cards installed. If so, more than one Local Area Connection will appear in the Network Connections dialog box. You must choose which card you will use to communicate with the mainframe, and then use the LAN connector on that card to connect to the mainframe later in this procedure.

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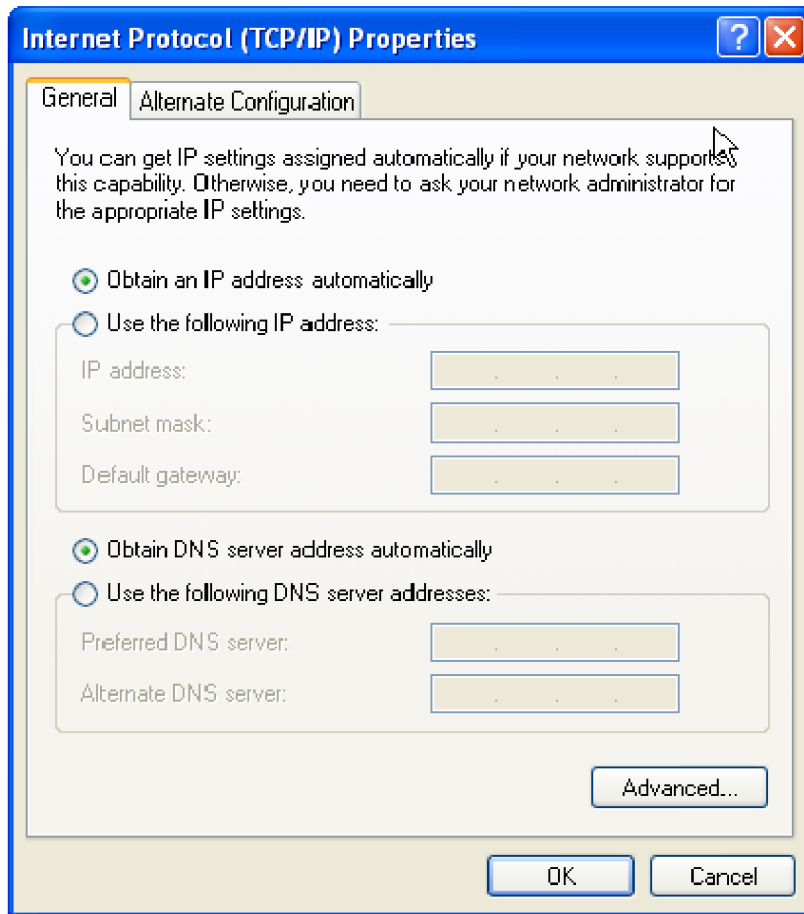


The Local Area Connection Properties dialog box appears. (See Figure 18.)



**Figure 18: LAN Connection Properties dialog box**

4. Scroll down the list and select Internet Protocol (TCP/IP).
5. Click Properties. The IP Properties dialog box appears. (See Figure 19.)



**Figure 19: IP Properties dialog box**

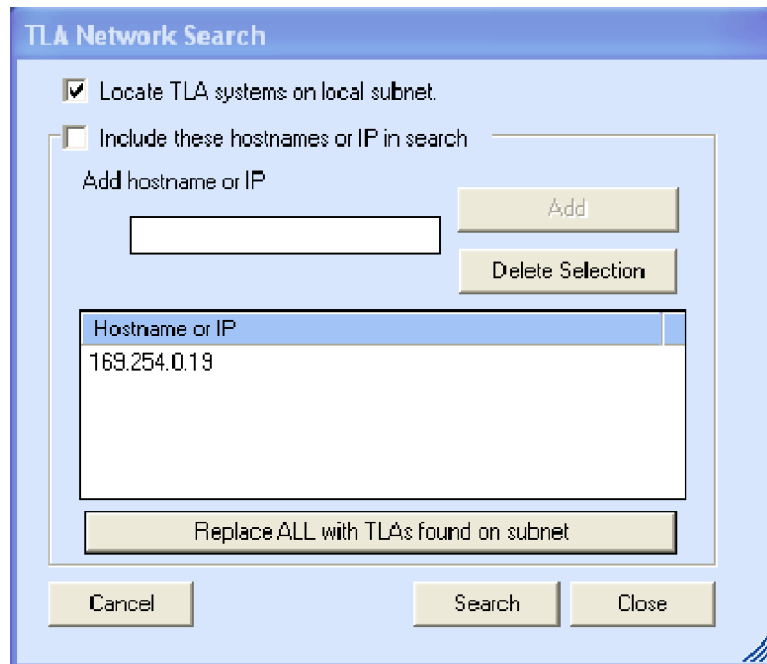
6. Check that the Obtain an IP address automatically radio button is selected. If it is not, select it.
7. Click OK and close the remaining Network Connection windows.

### Update Firmware on the Enhanced Monitor Card

Continue the installation by installing three firmware files. In this procedure, you first load the display firmware and check the mainframe display for proper operation, and then load the remaining two files.

1. Connect the LAN cable (included with the kit) from the controller PC to the LAN connector on the TLA7016 Interface Module in the mainframe.
2. Power on the TLA7016 mainframe. Note that no information appears in the new display. This is normal operation while the flash jumper is installed on the Enhanced Monitor Card.
3. Click Start → All Programs → Tektronix Logic Analyzer → TLA Firmware Loader. The Firmware Loader Connection dialog box appears.

- Click the binoculars icon. The TLA Network Search dialog box appears. (See Figure 20.)



**Figure 20: TLA Network Search dialog box**

- Select Locate TLA systems in local subnet, and click Search.
- When the network search is complete, click on the IP address of the TLA7016 listed in the Connection window and click Connect. The Firmware Loader dialog box appears. (See Figure 21 on page 22.)

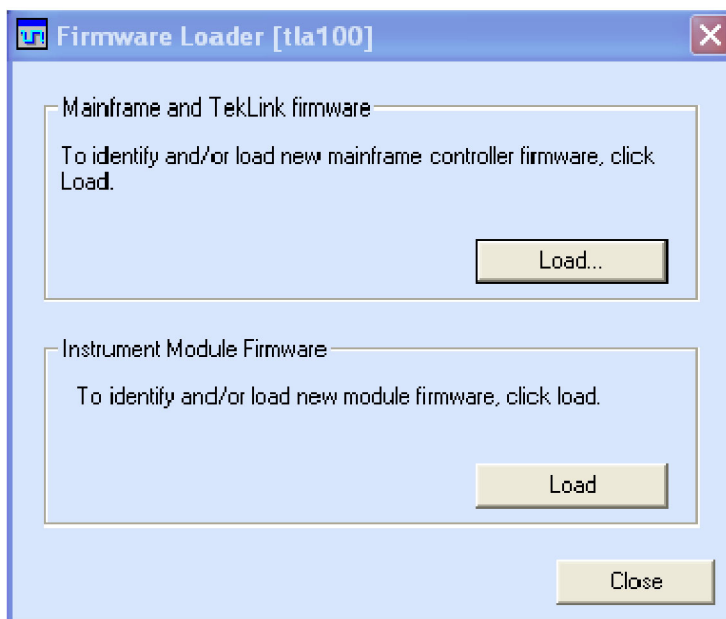
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**NOTE.** *If your mainframe needs updated firmware, upgrade the mainframe firmware before you upgrade the module firmware.*

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- The Firmware Loader dialog box includes two Load buttons. Click the bottom Load button (Instrument Module Firmware).

The firmware search progresses without indicating activity, and may take about a minute to complete.



**Figure 21: Firmware Loader dialog box**

8. When the search is finished, the Firmware Loader dialog box reappears with a list of devices. (See Figure 22 on page 23.)
9. Click on the TLA BT Fan Ctl module displayed in the Devices Supported list in the top portion of the window. This selects the Enhanced Monitor Card for the firmware upgrade.

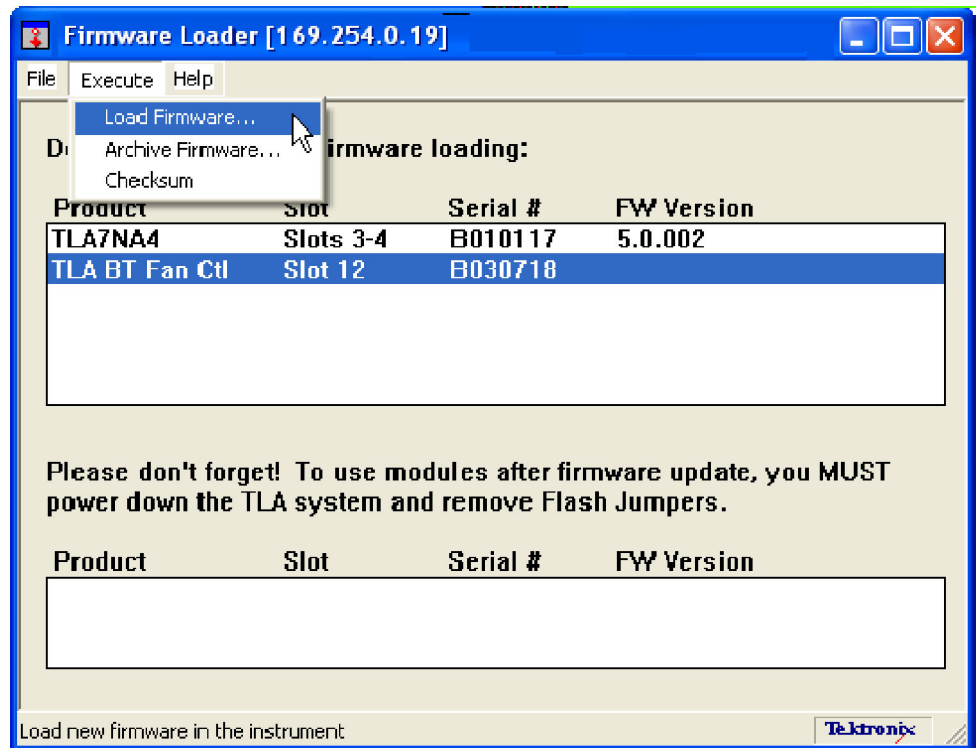


Figure 22: List of modules available for firmware update

10. From the Execute pull-down menu, select Load Firmware. A list of firmware files displays.
11. Click TLA7016monitor.lod and click Open.
12. When prompted to confirm your action, click Yes.
13. The firmware flashing process begins and takes about a minute to finish. When the process is done, click OK and exit the program.
14. Power off the mainframe.
15. Remove the lower flash jumper that you installed on the bottom two flash programming pins of the Enhanced Monitor Card. Leave the upper jumper connected.
16. Check the mainframe display for proper operation.

Power on the mainframe. The mainframe initiates a self-test routine, and the following message appears in the display:

```
TLA7016
Checking Mainframe
```

When the self-test passes, the following message appears in the display:

```
TLA7016
```

### Mainframe OK

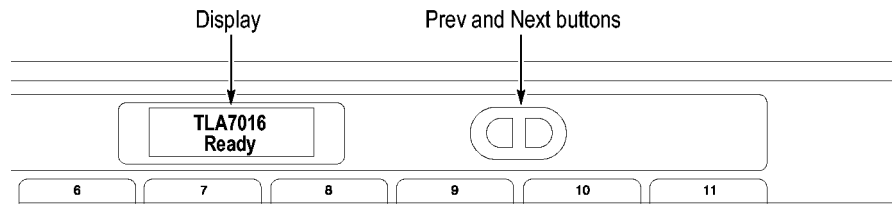
If the following message appears flashing in the display,

**WARN:Clean Filter**

then make sure the rear fan air intake is clear of lint or other obstructions, and then press both **Prev** and **Next** buttons simultaneously to clear the message.

After about a minute, the following message appears in the display:

**TLA7016**  
**Ready**



**Figure 23: New front panel display and control buttons**

You can check mainframe status information by pressing the Prev or Next buttons on the new front panel. Mainframe IP address, power supply values, and chassis temperature are some examples of the information available.

### Complete the Firmware Update

Load the remaining two firmware files:

1. Click Start → All Programs → Tektronix Logic Analyzer → TLA Firmware Loader.
2. Select your instrument from the Firmware Loader - Connection dialog box and click **Connect**.
3. Click **Load** in the upper portion of the Load Firmware dialog box. The Mainframe Firmware dialog box opens. (See Figure 24.)

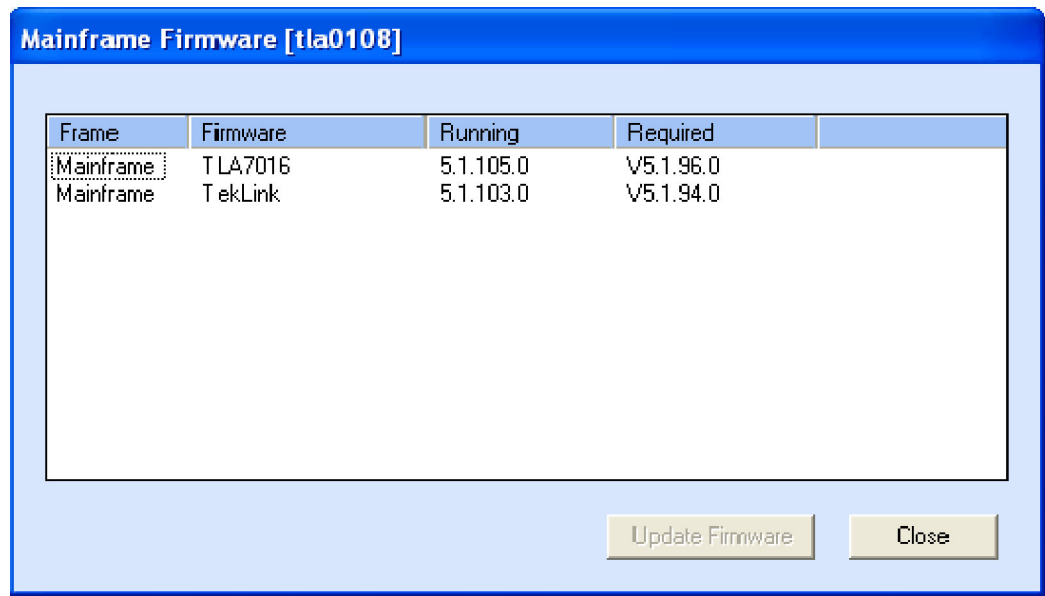


Figure 24: Mainframe Firmware dialog box

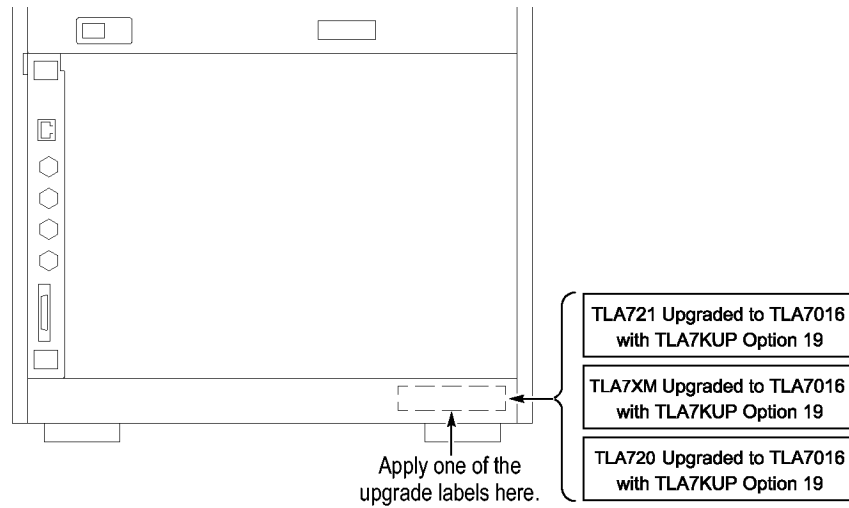
**NOTE.** You must load the firmware files in the order listed below.

4. Select the TLA7016 firmware and then click **Update Firmware**.
5. Follow the on-screen instructions.
6. When the process is done, click OK, and exit the program.
7. Power off the mainframe.
8. Power on the mainframe.
9. Repeat steps 1 through 3.
10. Select the TekLink firmware and then click **Update Firmware**.
11. Repeat steps 5 through 8 for the TekLink firmware.
12. Start the TLA Application and verify that the TLA7016 mainframe appears in the TLA Connection dialog box.

#### Attach the Upgrade Kit Label to the Instrument

After completing the previous steps, you need to install the upgrade kit label on the instrument to indicate that the kit is installed.

1. Select the correct instrument upgrade label from the sheet of labels, and affix it to the lower front panel of the instrument. (See Figure 43.)



**Figure 25: Front panel upgrade label location**

**Connect the Instrument Through TekLink**

TekLink is a mainframe real-time communication system that coordinates trigger signals, input/output signals, and time references between mainframes.

TekLink uses a 2-meter cable (included with this kit) to connect between two TLA7000 Series logic analyzers. If you want to connect more than three benchtop mainframes together, you need a TekLink TL708EX Hub and more TekLink cables.

For more information on connecting TekLink components, refer to the *TLA7000 Series Logic Analyzer Installation Manual*.

**Preset IP Addresses**

You may need to change the IP address of the benchtop mainframe, depending on the requirements of the network that it will be connected to. A preset list of recommended IP addresses is programmed into the TLA7016 Interface Module. For information about entering other IP addresses, refer to the *TLA7000 Series Logic Analyzer Installation Manual*.

To cycle through the list of preset IP addresses, do the following:

1. Press and hold the recessed RESET button on the TLA7016 Interface Module. (See Figure 26.) The front-panel display cycles every 2-3 seconds to the next preset IP address (See Table 4.).



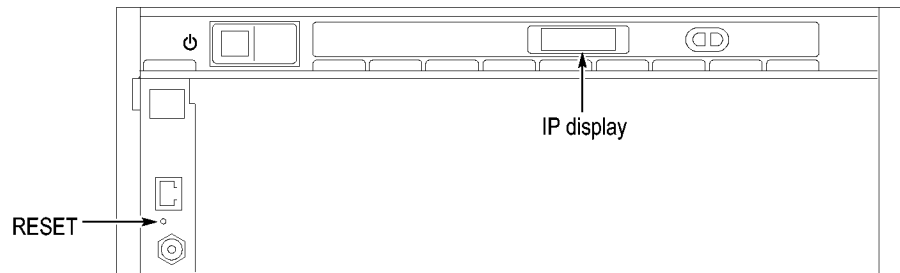


Figure 26: Setting the IP address

Table 4: Preset IP addresses

Selection	IP address	Subnet mask	Default gateway	Comments
Use: DHCP	–	–	–	IP addressing provided by DHCP-capable router
Use: 169.254.0.19	169.254.0.19	255.255.0.0	0.0.0.0	Static, non-routable address used for direct PC connection
Use: 169.254.0.20	169.254.0.20	255.255.0.0	0.0.0.0	Static, non-routable address used for direct PC connection
Use: 192.168.0.19	192.168.0.19	255.255.0.0	0.0.0.0	Static, non-routable address used for private LAN with DHCP-capable router
Use: 192.168.0.20	192.168.0.20	255.255.0.0	0.0.0.0	Static, non-routable address used for private LAN with DHCP-capable router
Factory default	–	–	–	Return to factory settings (Use DHCP and restore default Host Name to TLA7016_<Mainframe S/N>)
No change	–	–	–	Retain current IP address and Host Name

## Installing the Bracket Kit

If you are using your benchtop logic analyzer outside of a rackmount environment, you can use the bracket kit to mount the TLA7PC1 controller, GbE switch, and TL708EX Hub together with your benchtop mainframe.

Left and right-side brackets and mounting screws are included in the kit. (See Figure 27.) Use the following procedure.

1. Place the components you want to mount on top of the logic analyzer, putting the heaviest units lowest in the stack.
2. Align one of the brackets to the frame of the logic analyzer so that the bracket reaches all of the components, but does not extend above the top unit.
3. Fasten the bracket to the logic analyzer with one of the 8-32, P2 Pozidriv screws preinstalled on the bracket.
4. Repeat steps 2 and 3 for the bracket on the other side of the logic analyzer.
5. If necessary, relocate the instrument brackets on the components you are mounting. For example, the brackets on the TL708EX Hub come mounted to the back of the unit, with installation instructions on the bottom of the unit.
6. Using the 10-32, P2 Pozidriv screws preinstalled on the brackets, fasten the components to the brackets.

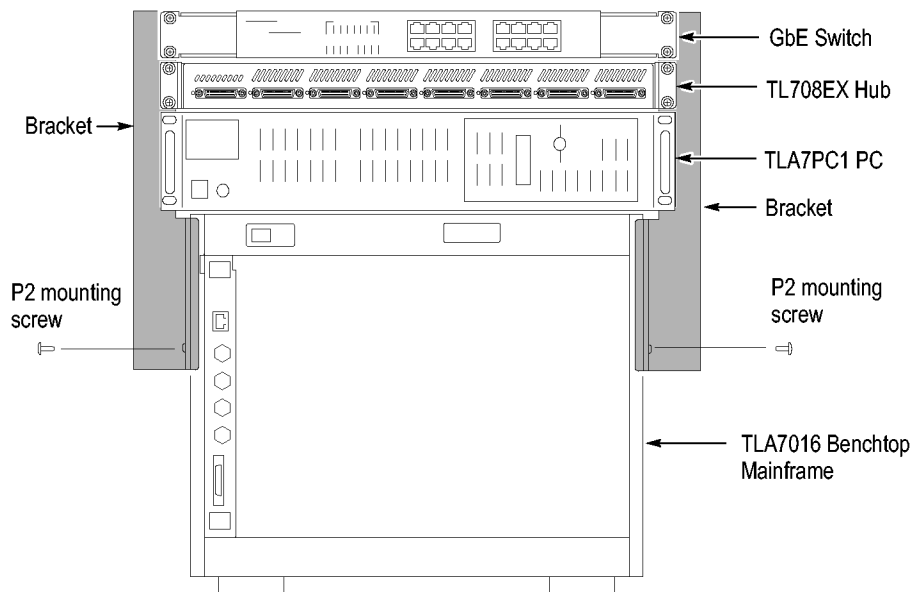
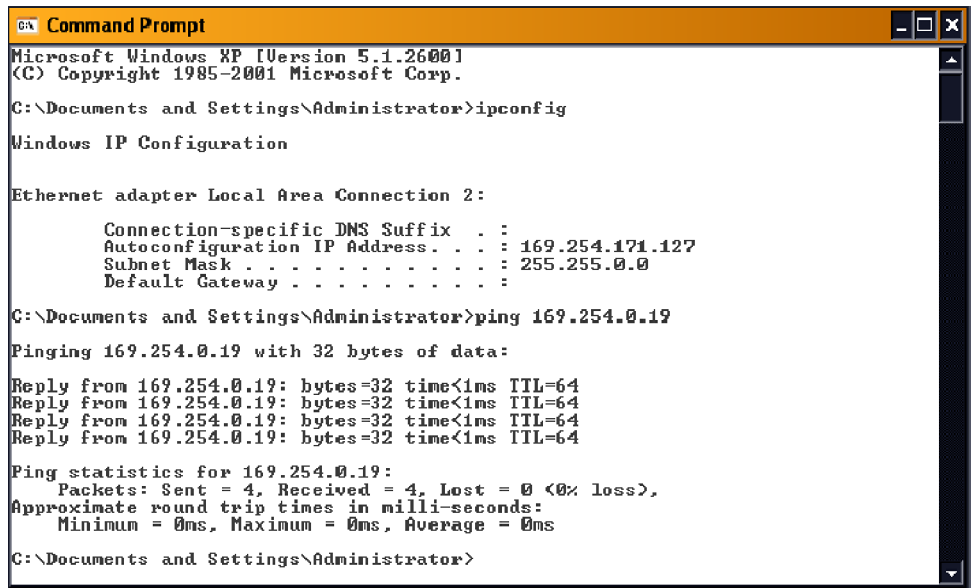


Figure 27: Bracket kit for the TLA7016 benchtop mainframe installed

**Troubleshooting Tips**

If you cannot establish a communication link between the controller and the mainframe, do the following:

1. Bring up the DOS window on the controller and enter **ipconfig**.  
The address that returns should be 169.254.x.x with a subnet mask of 255.255.0.0 (the default IP address of the controller).
2. If the above address is not returned, enter **ipconfig release** and then **ipconfig renew**.
3. Enter **ping 169.254.0.19** (the factory-set IP address of the mainframe). See the following figure for an example of the expected reply from the mainframe.



**Figure 28: Seeking a reply from the mainframe**

4. If you get a reply using the ping command, but cannot see the mainframe in the configuration dialog box, check to see if a firewall is enabled.

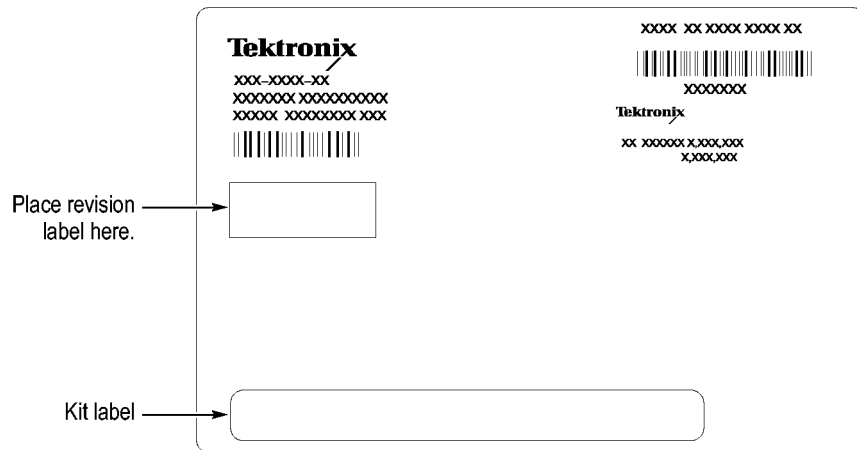
**Attach the Upgrade Kit Label to the Instrument**

After completing all of the previous steps, you need to install the upgrade kit label on the instrument to indicate that the kit is installed. Locate the big label on the side of the TLA7016 Interface Module and attach the TLA7KUP kit label as shown. (See Figure 45.)

---

**NOTE.** *If there already is an upgrade kit label installed, install the new label just above or below the old one.*

---



**Figure 29: Kit label locations**

# TLA7KUP Option 21: Power Supply Upgrade

TLA7KUP Option 21 provides parts and instructions to upgrade your TLA7016 Benchtop Mainframe Logic Analyzer by replacing the power supply with a new higher-capacity power supply.

## Instruments

Instruments	Serial number range
TLA7016 Logic Analyzers	Serial numbers B019999 and below
TLA7016 Logic Analyzers	Upgraded from TLA700 series (with TLA7KUP Option 19)

## Minimum Tool and Equipment List

3/32 hex driver, Phillips P1 screwdriver.

## Parts List

Table 5: TLA7KUP Option 21 parts list

Quantity	Part number	Description
1 ea	650-5105-00	Power supply assembly with label
1 ea	N/A	TLA7KUP kit label
2 ea	131-4356-xx	Jumper with pull-tab
2 ea	131-3199-xx	Low profile jumpers
1 ea	335-1863-xx	TLA7016 Upgraded with TLA7KUP Option 21 front panel label
1 ea	334-9921-xx	TLA7016 rear-panel label

## Installation Prerequisite

Requires TLA Application Software V5.6, Windows XP, and 512 MB minimum mainframe memory.

**NOTE.** *If you have a TLA720, TLA721, or TLA7XM mainframe, you must upgrade it to a TLA7016 Benchtop Mainframe with TLA7KUP Option 19 before continuing with this procedure. Contact your local Tektronix representative for upgrade information.*

## Installation Instructions

Refer to the illustrations as you perform the following procedures.

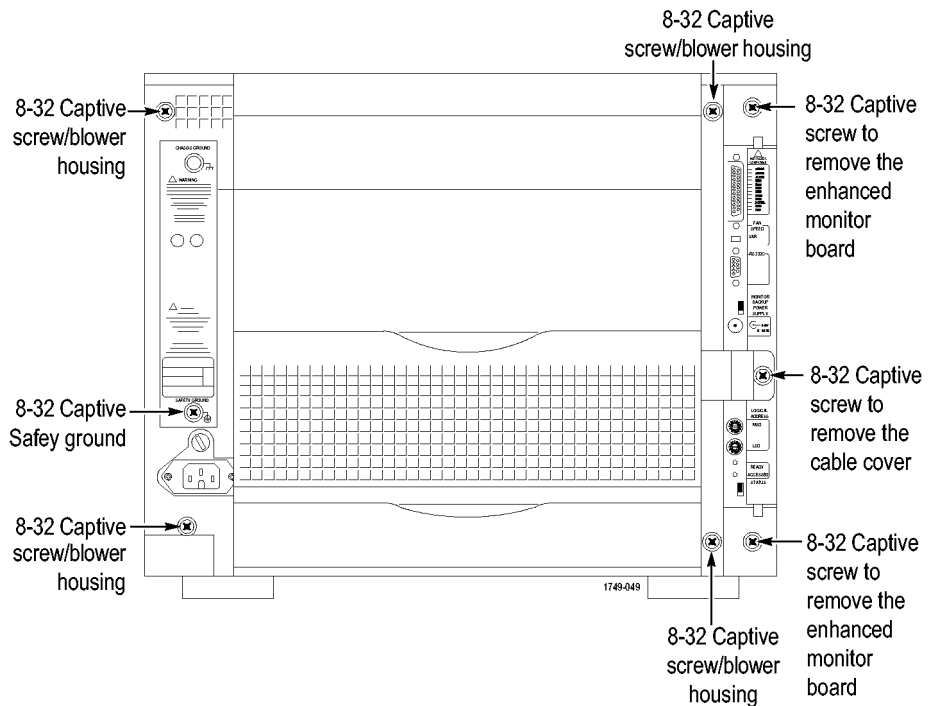


**CAUTION.** To prevent static discharge damage, service the product only in a static-free environment. Observe standard handling precautions for static-sensitive devices while installing this kit. Always wear a grounded wrist strap, grounded foot strap, and static resistant apparel while installing this kit.

### Remove the Blower Assembly

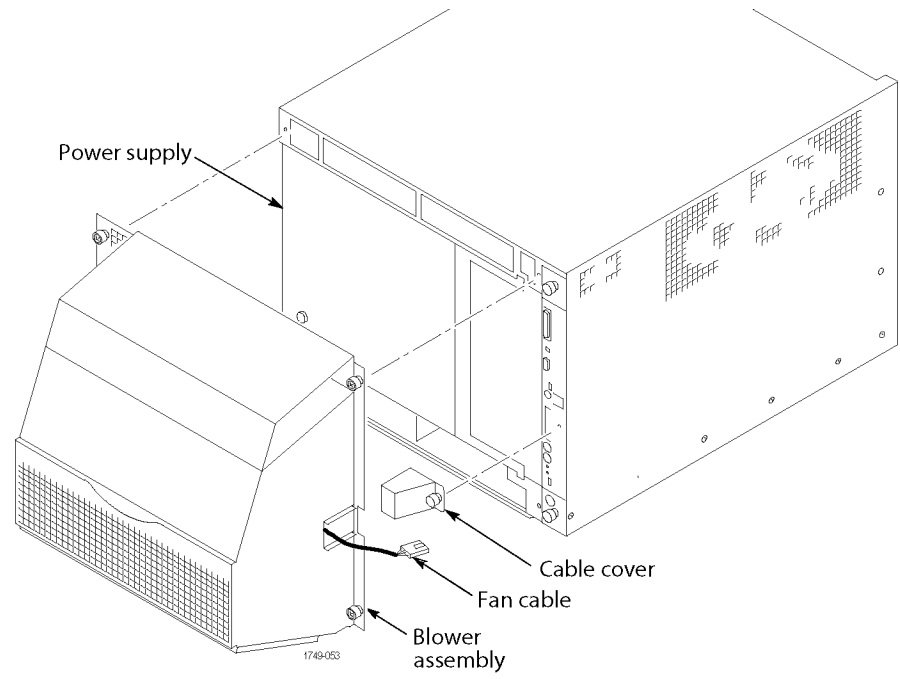
Begin by removing the blower assembly. (See Figure 30.) To remove the blower assembly, perform the following steps:

1. Disconnect all cords, probes, and modules from the instrument.
2. From the back of the chassis, loosen the captive screw attaching the blower cable cover, and then remove the cover.



**Figure 30: Location of blower assembly screws**

3. Unplug the blower cable.
4. From the back of the chassis, loosen the four captive screws attaching the blower assembly to the instrument, and loosen the safety ground captive screw.
5. Remove the blower assembly and set it aside on a clean working surface.

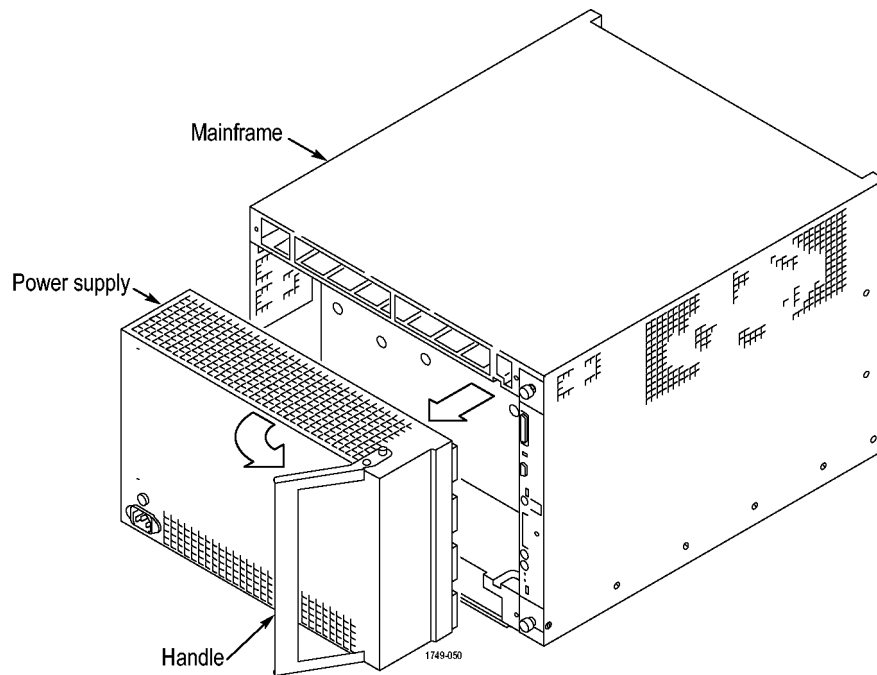


**Figure 31: Remove the blower assembly**

### Remove the Old Power Supply

After you have removed the blower assembly, remove the old power supply from the mainframe by completing the following steps:

1. Using the handle on the power supply, firmly pull out the power supply from the rear of the mainframe.



**Figure 32: Remove the power supply**

2. Remove the two 3/32 hex drive screws and washers to remove the handle from the power supply.



## Install the New Power Supply

Complete the following steps to reinstall the power supply in the mainframe:

1. Reinstall the power supply handle.
2. Slide the power supply into the mainframe.
3. Push the power supply handle in firmly to ensure that the connectors are completely seated into the back plane connectors.
4. Reinstall the blower assembly, making sure that the slot at the bottom of the blower assembly fits to the lip on the mainframe, and the fan cable protrudes through the fan cable opening in the blower assembly shroud.

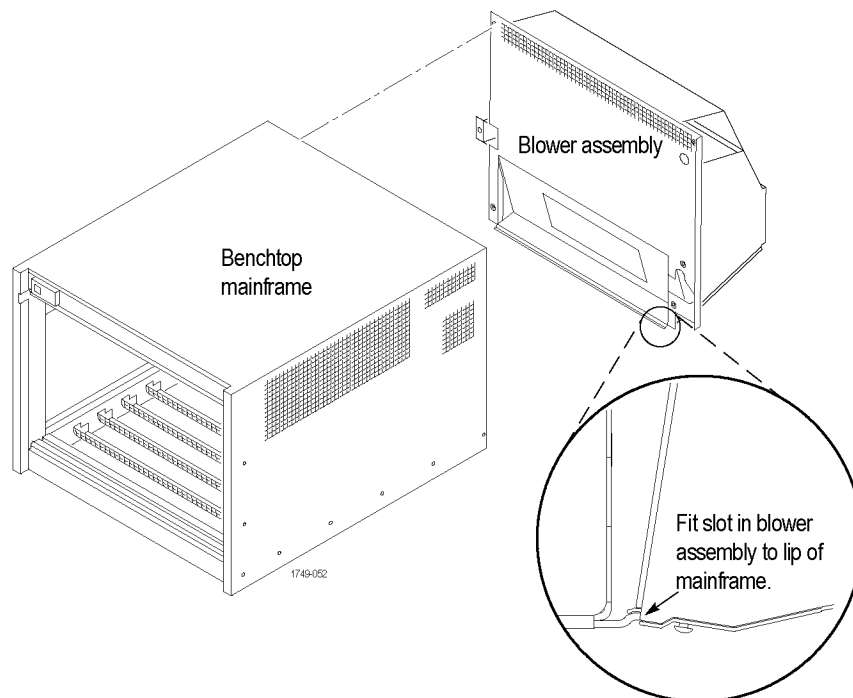


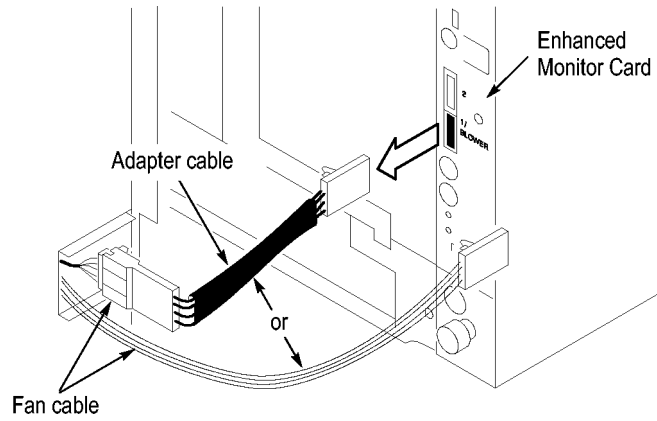
Figure 33: Reinstall the blower assembly

## Set the Jumpers on the Enhanced Monitor Card



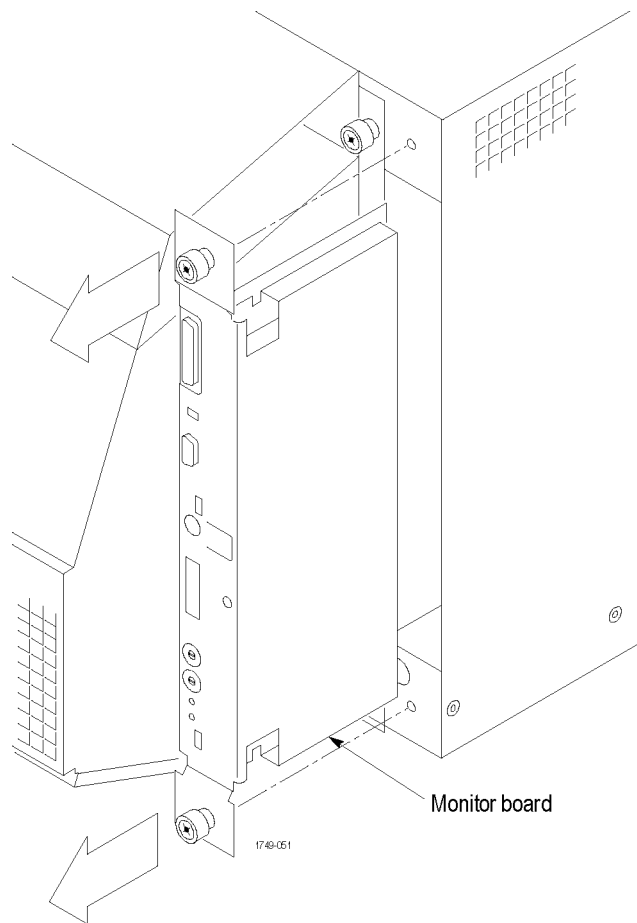
**CAUTION.** Do not pull on the fan cable to disconnect the fan cable connector. Pulling on the fan cable can damage the connector or the wires. To remove the fan cable connector, disengage the locking connector on the fan cable connector before removing the fan cable.

1. Note whether there is a 3-inch adapter cable on the end of the fan cable. (See Figure 34.) The cable configuration will be used to determine the proper jumper settings in step 4.



**Figure 34: Disconnect the fan cable**

2. Loosen the top and bottom captive screws.
3. Pull the Enhanced Monitor Card out of the mainframe.



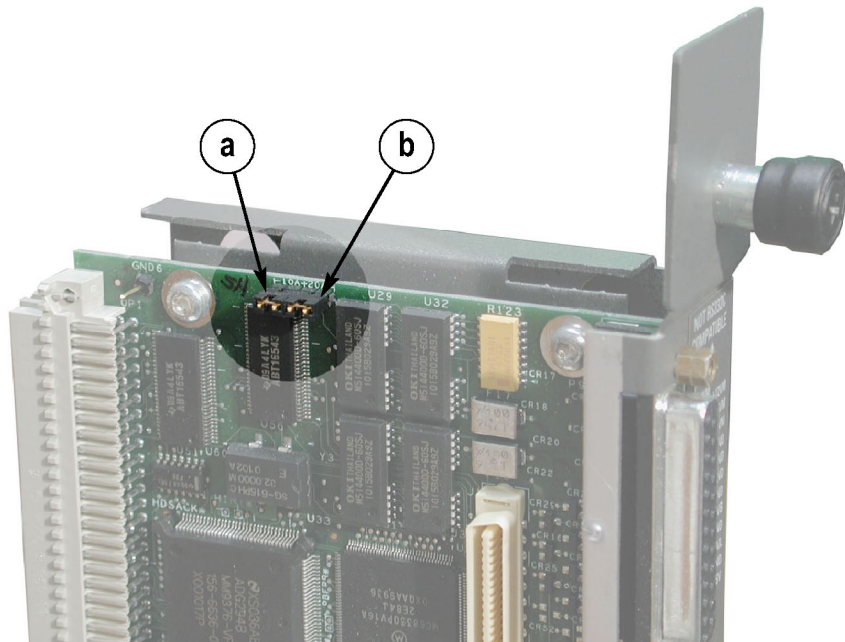
**Figure 35: Remove the Enhanced Monitor Card**

4. Note the pair of jumpers at the top of the Enhanced Monitor Card. (See Figure 36.) Also note the circuit board number label near the bottom of the Enhanced Monitor Card.
  - If your fan has an adapter cable, insert both jumpers **a** and **b**.
  - If your fan does not have an adapter cable and the circuit board number starts with 679-3982, remove both jumpers **a** and **b**.
  - If the circuit board number is 679-6146, there should not be an adaptor cable. Insert both jumpers **a** and **b**.

---

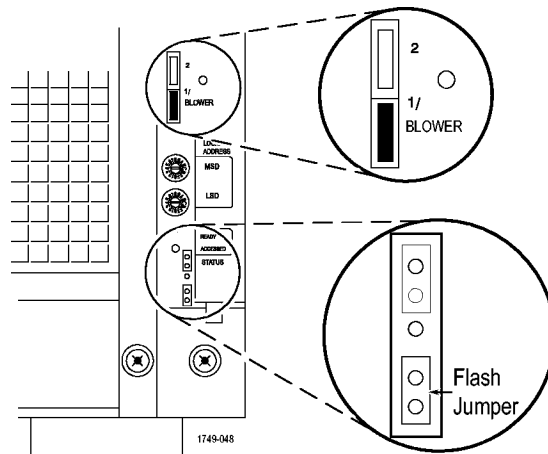
**NOTE.** Correct jumper configuration is important for the new firmware to properly control the fan and to monitor the power supplies.

---



**Figure 36: Set the jumpers on the Enhanced Monitor Card**

5. At the back of the Enhanced Monitor Card, connect a jumper (with a pull-tab) on the bottom two flash programming pins. (See Figure 37.)
6. If there are three pins above the flash programming pins, verify that there is another jumper on the upper two pins.



**Figure 37: Connect the flash jumper**

7. Unless you need a static VXI address for the Enhanced Monitor Card, set the arrows on the two white dials to F. This sets the card for VXI dynamic addressing.
8. Plug the Enhanced Monitor Card firmly into the instrument, and tighten the top and bottom captive screws.
9. Reconnect the fan cable (or cable adapter) to the connector labeled 1/BLOWER on the Enhanced Monitor Card. (See Figure 37.)
10. Replace the fan cable cover and tighten the captive screw.

### Update the Enhanced Monitor Card Firmware

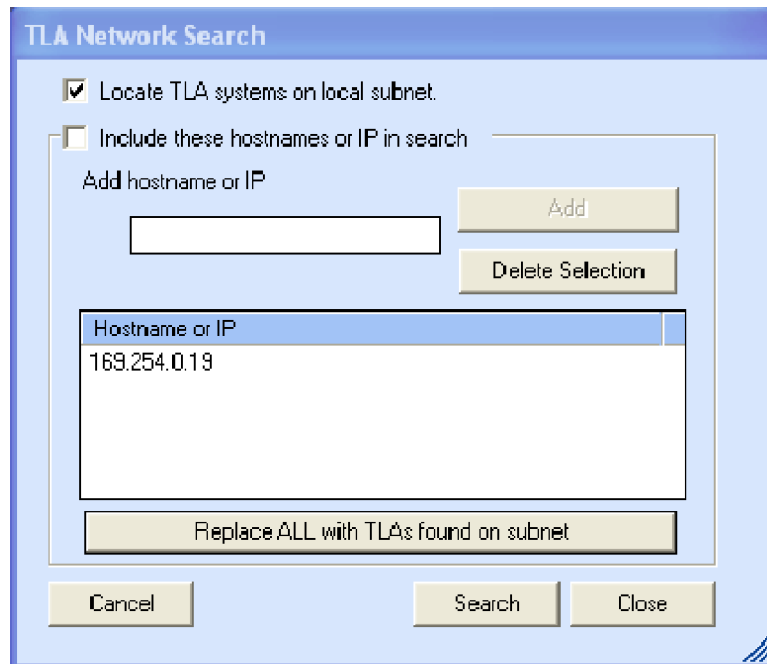
Complete the following steps to update the monitor firmware and to check the mainframe for proper operation.

---

**NOTE.** *If your mainframe needs updated firmware, upgrade the mainframe firmware before you upgrade the module firmware.*

---

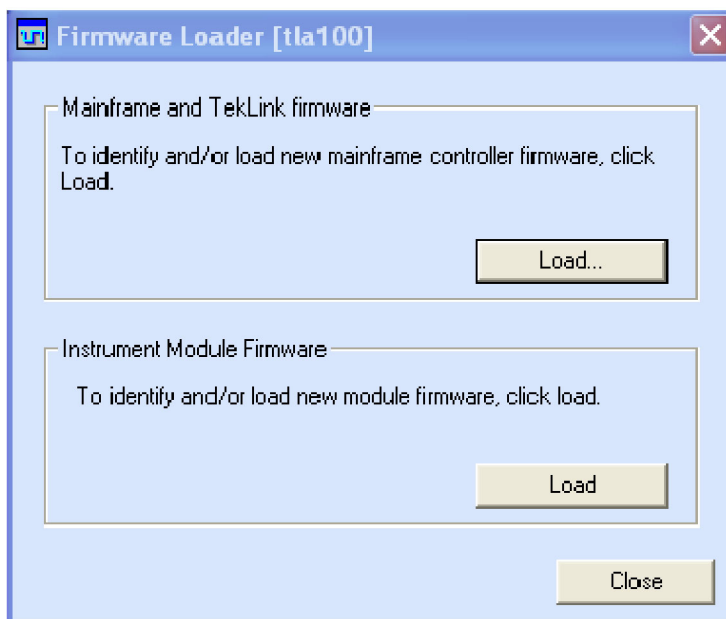
1. If you have not already done so, connect the LAN cable from the controller PC to the LAN connector on the TLA7016 Interface Module in the mainframe.
2. Power on the TLA7016 mainframe. Note that no information appears in the display. This is normal operation while the flash jumper is installed on the Enhanced Monitor Card.
3. Click Start → All Programs → Tektronix Logic Analyzer → TLA Firmware Loader. The Firmware Loader Connection dialog box appears.
4. Click the binoculars icon. The TLA Network Search dialog box appears. (See Figure 38.)



**Figure 38: TLA Network Search dialog box**

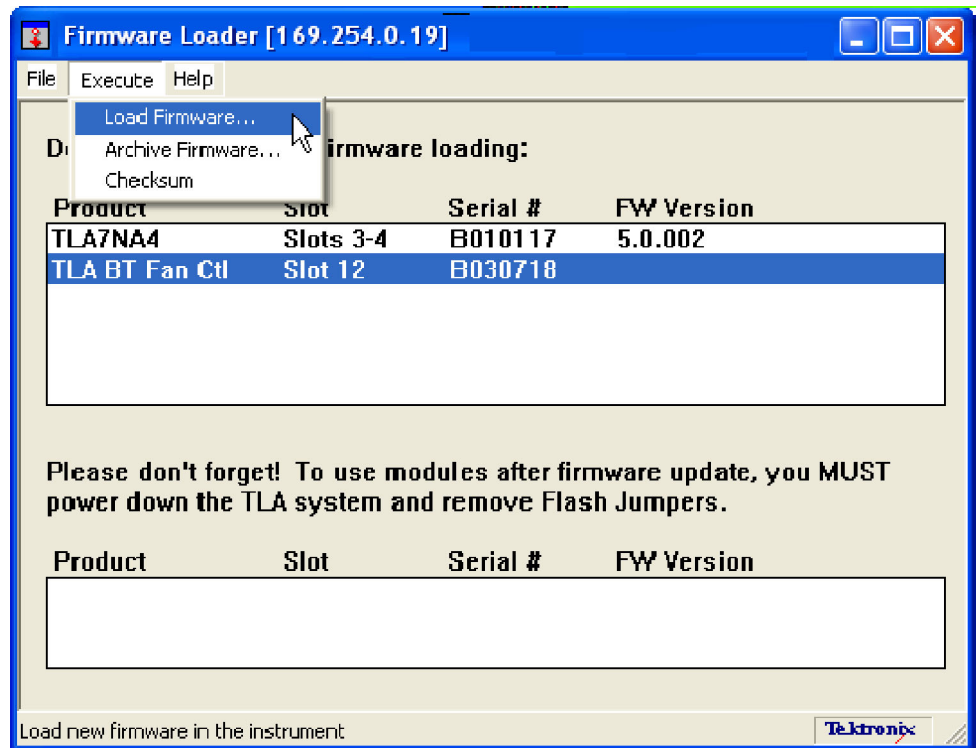
5. Select Locate TLA systems in local subnet, and click Search.
6. When the network search is complete, click on the IP address of the TLA7016 listed in the Connection window and click Connect. The Firmware Loader dialog box appears. (See Figure 39 on page 40.)
7. The Firmware Loader dialog box includes two Load buttons. Click the bottom Load button (Instrument Module Firmware).

The firmware search progresses without indicating activity, and may take about a minute to complete.



**Figure 39: Firmware Loader dialog box**

8. When the search is finished, the Firmware Loader dialog box reappears with a list of devices. (See Figure 40 on page 41.)
9. Click on the TLA BT Fan Ctl module displayed in the Devices Supported list in the top portion of the window. This selects the Enhanced Monitor Card for the firmware upgrade.



**Figure 40: List of modules available for firmware update**

10. From the Execute pull-down menu, select Load Firmware. A list of firmware files displays.
11. Click TLA7016monitor.lod and click Open.
12. When prompted to confirm your action, click Yes.
13. The firmware flashing process begins and takes about a minute to finish. When the process is done, click OK and exit the program.
14. Power off the mainframe.
15. Remove the lower flash jumper that you installed on the bottom two flash programming pins of the Enhanced Monitor Card. Leave the upper jumper connected.
16. Check the mainframe display for proper operation.

Power on the mainframe. The mainframe initiates a self-test routine, and the following message appears in the display:

```
TLA7016
Checking Mainframe
```

When the self-test passes, the following message appears in the display:

```
TLA7016
```

Mainframe OK

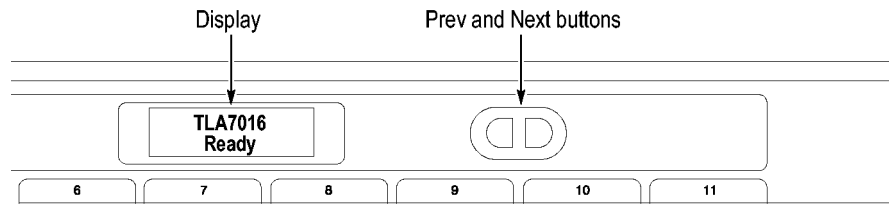
If the following message appears flashing in the display,

WARN:Clean Filter

then make sure the rear fan air intake is clear of lint or other obstructions, and then press both **Prev** and **Next** buttons simultaneously to clear the message.

After about a minute, the following message appears in the display:

TLA7016  
Ready



**Figure 41: Front panel display and control buttons**

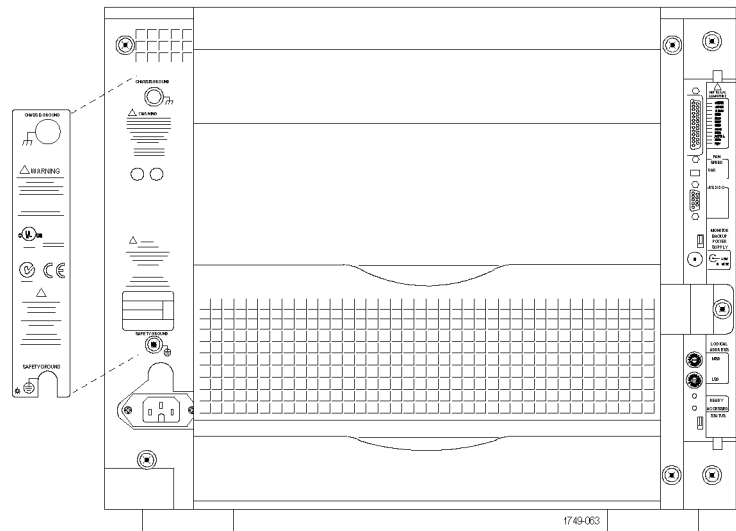
You can check mainframe status information by pressing the Prev or Next buttons on the new front panel. Mainframe IP address, power supply values, and chassis temperature are some examples of the information available.

### **Attach the Upgrade Kit Labels to the Instrument**

After completing the previous steps, you need to install the upgrade kit labels on the instrument to indicate that the kit is installed.

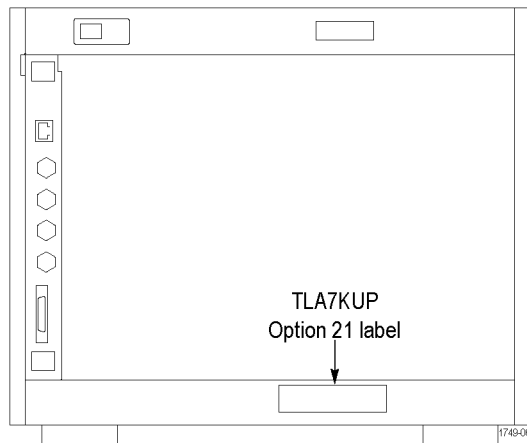
1. Locate the new power label and attach it to the rear of the instrument over the old label. (See Figure 42.)





**Figure 42: Power label location**

2. Locate the instrument upgrade label (“Upgraded with TLA7KUP Option 21”) and affix it to the lower front panel of the instrument as shown. (See Figure 43.) If there already is another label on the front panel, place the new label next to the old label.



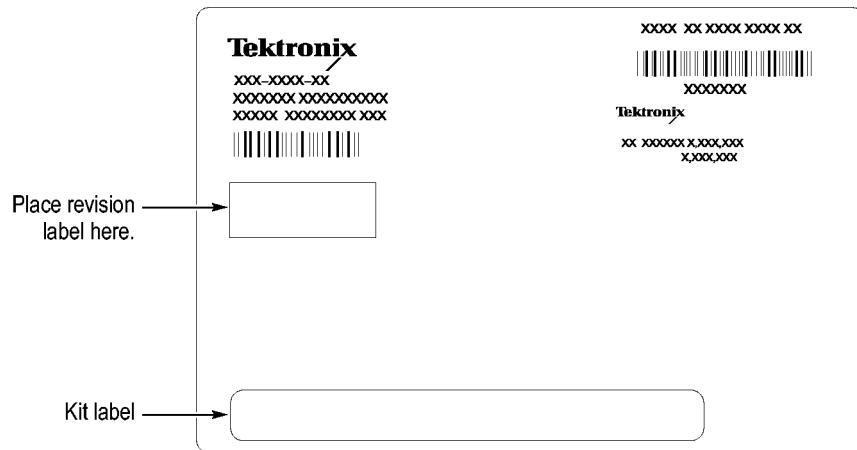
**Figure 43: Front panel upgrade label location**

3. Locate the big label on the side of the TLA7016 Interface Module and attach the TLA7KUP kit label as shown. (See Figure 45.)

---

**NOTE.** If there already is an upgrade kit label installed, install the new label just above or below the old one.

---



**Figure 44: Kit label locations**

# TLA7KUP Option 29: Floppy Disk Drive

TLA7KUP Option 29 provides parts and instructions to add an USB floppy disk drive to your TLA7000 series logic analyzer.

## Instruments

Instruments	Serial number range
TLA7012 Series Logic Analyzers	All serial numbers
TLA7PC1 Benchtop Controllers	All serial numbers

## Minimum Tool and Equipment List

No special tools or equipment are required.

## Parts List

Table 6: TLA7KUP Option 29 parts list

Quantity	Part number	Description
1 ea	119-6960-xx	3.5 in floppy disk drive, USB
1 ea	N/A	TLA7KUP kit label

## Installation Prerequisite

Requires TLA Application Software V5.0 or higher, Windows XP, and 512 MB minimum mainframe memory.

## Installation Instructions

Follow the instructions that come with the floppy disk drive. Connect the floppy disk drive to one of the unused USB ports on the logic analyzer or external controller.

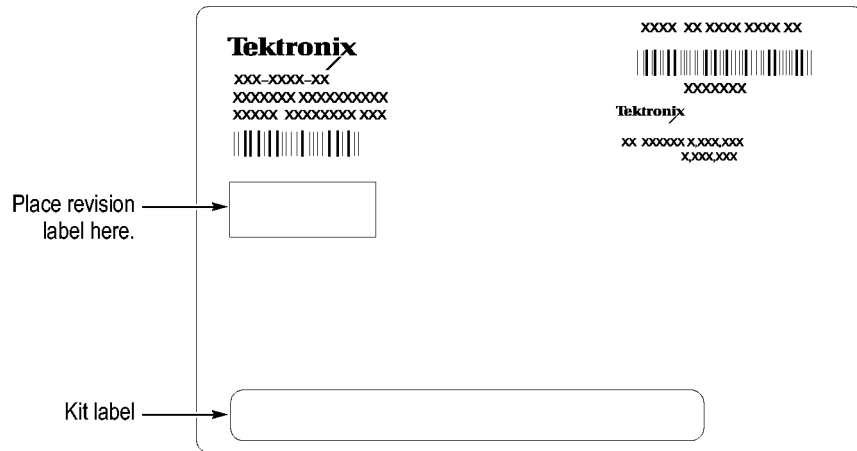
### Attach the Upgrade Kit Label to the Instrument

After completing the previous steps, you need to install the upgrade kit label on the instrument to indicate that the kit is installed.

Locate the big label on the bottom of the portable mainframe or on the side of the TLA7016 Interface Module and attach the TLA7KUP kit label as shown. (See Figure 45.)

**NOTE.** *If there already is an upgrade kit label installed, install the new label just above or below the old one.*

---



**Figure 45: Kit label locations**

# TLA7KUP Option 39: USB Security Block for TLA7012 Series Logic Analyzers

TLA7KUP Option 39 provides parts and instructions to add a USB Security block to your TLA7012 Logic Analyzer.

## Instruments

Instruments	Serial number range
TLA7012 Series Logic Analyzers	All serial numbers

## Minimum Tool and Equipment List

T-15 TORX driver

## Parts List

Table 7: TLA7KUP Option 39 parts list

Quantity	Part number	Description
1 ea	407-5154-00	USB Security block, bracket, lock housing, main
1 ea	407-5155-00	USB Security block, bracket, lock housing, cover
2 ea	211-0721-00	Bracket screw (one spare included)
1 ea	335-1469-00	Set of USB Security block labels
1 ea	N/A	TLA7KUP Kit labels

## Installation Prerequisite

None

## Installation Instructions

This procedure contains three parts:

- Disconnect the USB cables from inside the front of the instrument (you must remove the front panel display assembly to gain access).
- Mount the lock assembly over the USB connectors on the rear of the instrument.
- Apply labels.



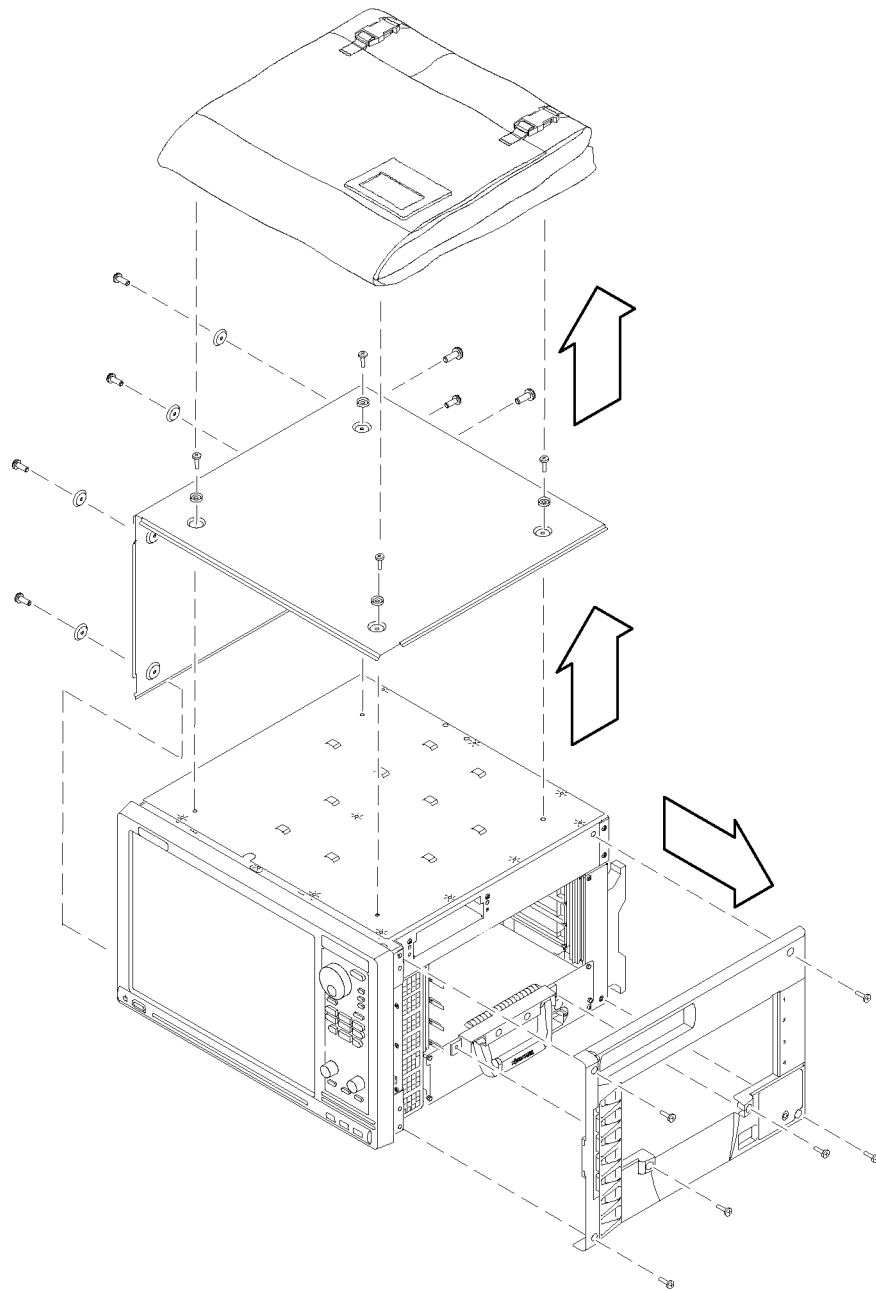
**CAUTION.** *To prevent static discharge damage, service the product only in a static-free environment. Observe standard handling precautions for static-sensitive devices while installing this kit. Always wear a grounded wrist strap, grounded foot strap, and static resistant apparel while installing this kit.*

---

### **Disable the Front-Panel USB Connections**

Start the installation by doing the following steps. (See Figure 46.)

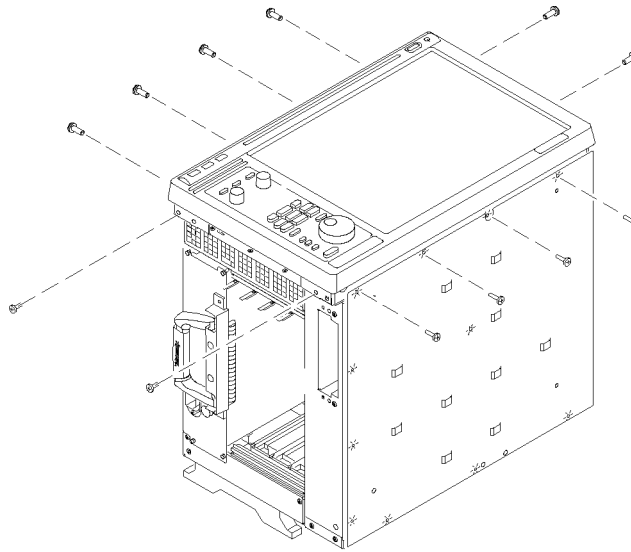
1. Disconnect all cords, probes, and modules from the instrument.
2. Set the instrument on the bottom feet.
3. Remove the six T-15 screws from the right cover and remove the cover.



**Figure 46: Remove the instrument enclosure**

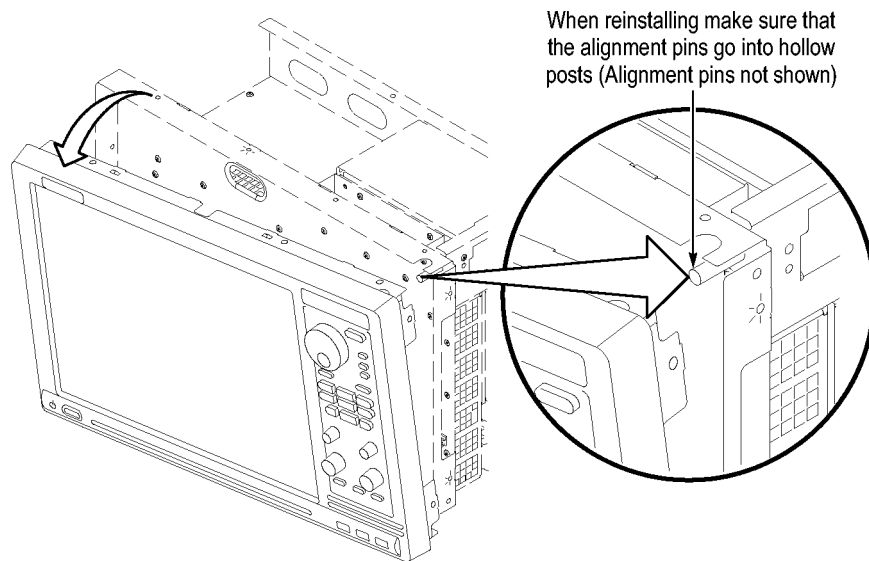
4. Remove the accessory pouch and snap studs (4 T-15 screws).
5. Remove the four skid feet from the left side (4 T-15 screws).
6. Remove the three remaining T-15 screws from the top left cover and then remove the cover.
7. Set the instrument on the rear feet.

8. Remove the 12 T-15 screws from the front panel trim. (See Figure 47.)



**Figure 47: Remove the front-panel trim screws**

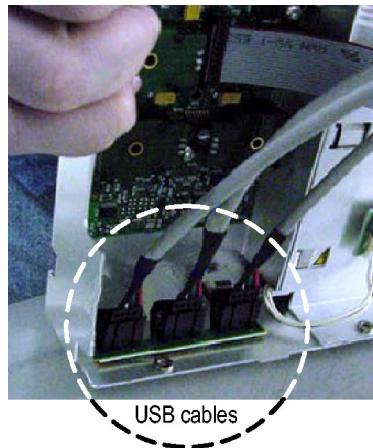
9. Set the instrument back on the bottom feet.
10. Tilt the top of the front panel trim out about 8 inches. (See Figure 48.)



**Figure 48: Tilt the front panel forward for cable access**

11. Disconnect the three USB cables from the front panel assembly. (See Figure 49.)





**Figure 49: Disconnect the USB cables from the front panel**

12. Reinstall the front panel assembly by following steps 1 through 11 in reverse. To avoid damaging the USB and DVD cables, dress the cables properly just before you attach the front panel to the chassis. (See Figure 50.)

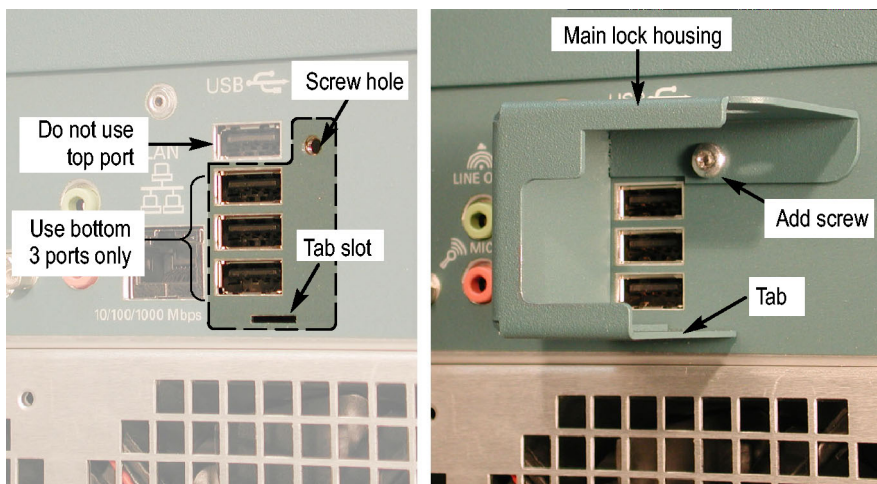


**Figure 50: Dress the cables properly**

### **Attach Rear-Panel USB Security Block**

Continue the installation with the following procedure:

1. Set the instrument on the bottom feet with the rear panel facing you.
2. Insert the tab of the main lock housing into the slot on the instrument under the USB connectors. Fasten the lock housing to the instrument with the T-15 screw. (See Figure 51.)



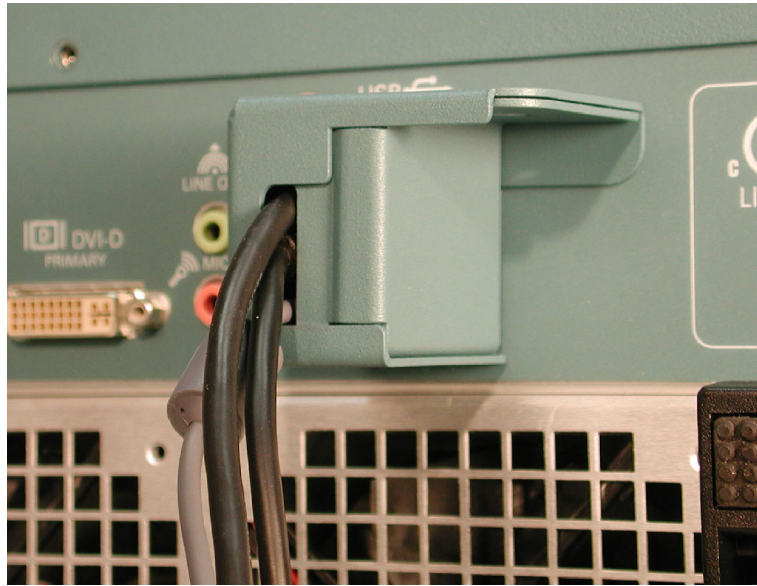
**Figure 51: Mount the main lock housing to the instrument**

3. Connect the cables. Do not use the top port. (See Figure 52.)



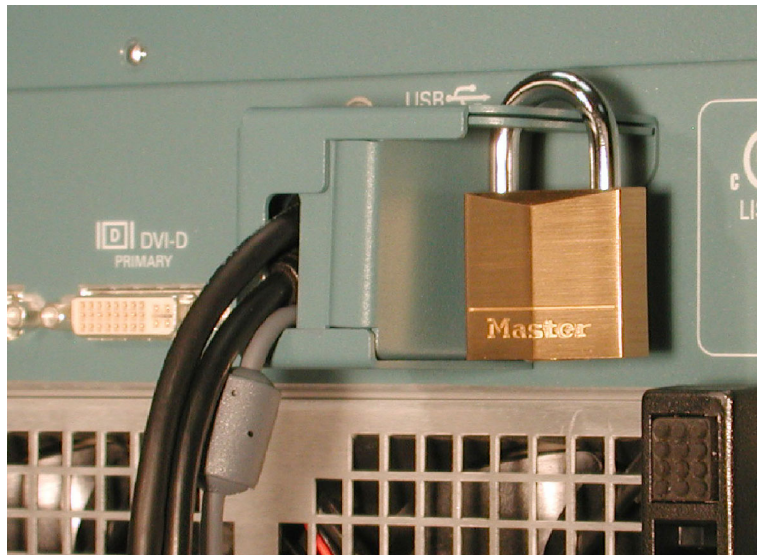
**Figure 52: Connect the cables**

4. Slide the lock housing cover into the main lock housing and over the cables so that the padlock holes line up. (See Figure 53.)



**Figure 53: Slide the housing cover into place**

5. Attach a padlock through the padlock holes. The holes will accommodate a 9/32-in shackle. (See Figure 54.)



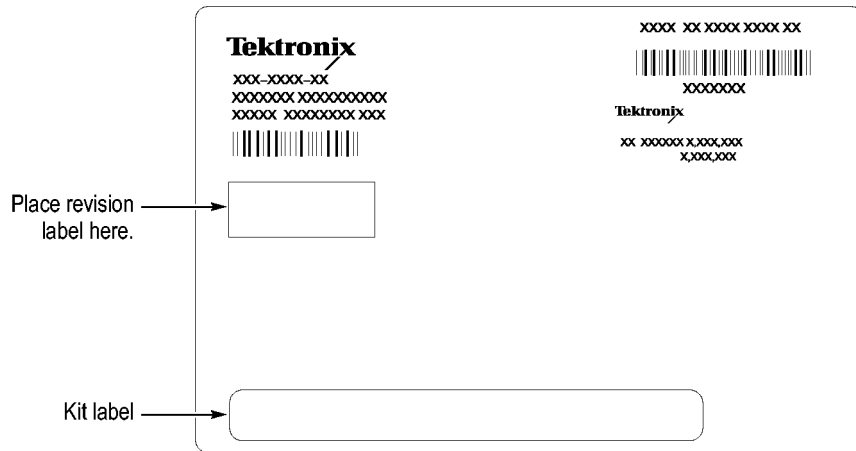
**Figure 54: Attach a padlock**

### **Attach the Upgrade Kit Labels to the Instrument**

After completing the previous steps, you need to install the upgrade kit labels on the instrument to indicate that the kit is installed.

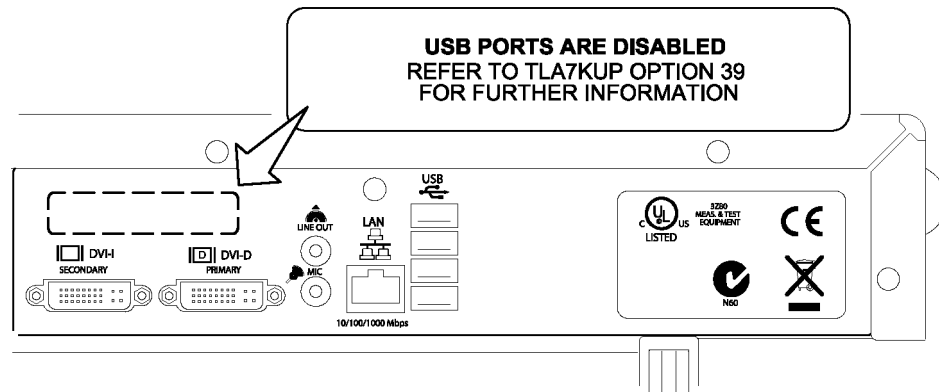
1. Locate the big label on the bottom of the instrument, and then attach the TLA7KUP kit label. (See Figure 55.)

**NOTE.** If there already is an upgrade kit label installed, install the new label just above or below the old one.



**Figure 55: Attach the revision and kit labels**

2. Attach one of the USB PORTS ARE DISABLED notification labels on the top rear of the instrument. (See Figure 56.)



**Figure 56: Attach the notification label to the rear of the instrument**

3. Attach another USB PORTS ARE DISABLED notification label on the front of the instrument, over the USB connectors. (See Figure 57.)

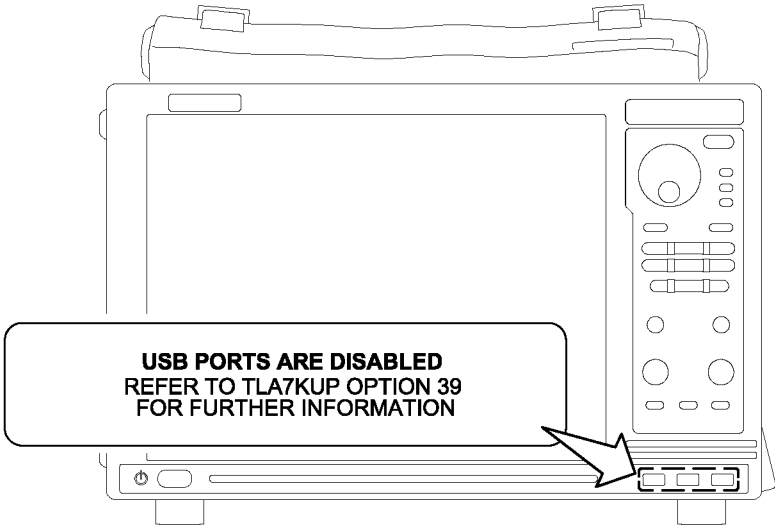


Figure 57: Attach the notification label over the front-panel USB connectors



# TLA7KUP Option 46: TLA Application Software Upgrade

TLA7KUP Option 46 supports the upgrade to TLA Application Software V5.6. This kit provides instructions to upgrade the TLA application software and firmware for a TLA7000 Series logic analyzer with TLA Application Software V5.0 or higher. This software will run only on instruments with Windows XP purchased from Tektronix. The software will also run on a PC with Windows XP.

## Instruments

Instruments	Serial number range
TLA7000 Series Logic Analyzers	All serial numbers

## Installation Prerequisite

Requires TLA Application Software V5.0 (or higher), Windows XP.

## Parts List

Table 8: TLA7KUP Option 46 parts list

Quantity	Part number	Description
1 ea	N/A	Tektronix Logic Analyzer Family Application Software V5.6
1 ea	N/A	Nero software CD
1 sheet	N/A	Software revision labels
5 ea	131-4356-xx	Jumper with pull-tab
1 ea	N/A	TLA7KUP kit label

## Minimum Tool and Equipment List

No special tools or equipment are required to install this option.

## Upgrade Instruction Overview

**NOTE.** *Third-party software applications are included to use with your logic analyzer. These applications may include software license agreements. Be sure to abide by those license agreements.*

While performing the upgrade procedures, keep the following items in mind:

- Throughout this procedure you will see the term "log on as Administrator." The instrument is set up to automatically log on as Administrator (with no password) so you may not see the log on 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.
- After logging on as administrator, quit any applications.
- If your instrument does not display the file extensions, you need to change your folder options to display the file extensions. (From the Control Panel, double-click Folder Options, select the View tab, and then deselect the "Hide file extensions for known file types" selection.)
- Use the Microsoft Windows Add or Remove Programs Control Panel utility to remove existing software.
- You may be asked to restart the instrument after you install each software package. If you do not restart the instrument when prompted, your software may not install properly and can cause unpredictable behavior.
- If the instrument does not restart normally, press and hold the On/Standby button for five or six seconds to force a shutdown.

## Update the Software

---

**NOTE.** You may want to compare the software version listed under Software Compatibility in the release notes against the software on your instrument. If the software versions do not match, remove the old software using the Microsoft Windows Add or Remove Programs utility and then install the new software from the TLA Application CD.

*When you reinstall the CheckIt Utilities software, you will be prompted for a serial number; use U7-999999.*

*Follow the instructions to install the NI-GPIB software to use with iView. (See page 65, Install the NI-GPIB Software.)*

---

The TLA Application software uses a wizard to remove older software and install the new software for your instrument.



1. Log on as Administrator.
2. Insert the first CD of the TLA Application software in the instrument.
3. Start Windows Explorer and browse to and execute D:\TLA Application SW\Setup.exe.
4. Click **Yes** to start the installation.
5. Follow any on-screen instructions. If you are asked for permission to overwrite any read-only files, select **Yes to All**.
6. After the software has been successfully installed, restart the instrument.

## Upgrade the Instrument Firmware

Complete the following steps to upgrade the instrument firmware. Refer to *Update the TLA Module Firmware* to upgrade module firmware. (See page 60.)



**CAUTION.** *You MUST perform these steps to ensure that your Mainframe firmware has been upgraded. Failure to do so can result in the instrument not functioning properly and the instrument might need to be repaired at the factory.*

1. Log on as Administrator.
2. Exit the logic analyzer application.
3. Click Start → All Programs → Tektronix Logic Analyzer → TLA Firmware Loader.
4. Select your instrument from the Firmware Loader - Connection dialog box and click **Connect**.
5. Click **Load** in the *upper* portion of the Load Firmware dialog box to identify or to load mainframe firmware.
6. Compare the version numbers in the two columns. If the **Running** version does not match the **Required** version, you *MUST* upgrade the firmware.
7. In the Frame column, click the **Mainframe** name that corresponds to the firmware that requires upgrading and then click **Update Firmware**.
8. The next dialog box will have the correct .upd file selected in the file name box. Click **Open**.
9. When the next window appears, click **Start Flash Operation**. The operation may take several minutes.
10. Follow the remaining on-screen instructions.
11. Repeat the above steps for each mainframe firmware that is out of date.

## Update TLA Module Firmware

Complete the following steps if the TLA startup messages indicate that you need to upgrade module firmware. You can update multiple modules and module types during a single firmware update session.

---

**NOTE.** *If you accidentally closed the startup messages indicating which modules need firmware upgrades, restart the TLA application.*

---

1. Log on as Administrator.
2. Note the modules that require new firmware.
  - a. For TLA7Bxx/TLA7Axx/TLA7NAx series logic analyzer modules skip steps 3 through 9 and go directly to step 10.
  - b. For all other module types continue with step 3.
3. Turn off the instrument and disconnect the power cord.
4. Remove the module requiring the upgrade from the instrument.
5. Locate the flash programming pins on the rear of the module. (See Figure 58.)
6. Install a jumper on the flash programming pins (use one of the spare jumpers that came with your logic analyzer).
7. Reinstall the module(s) in the instrument.
8. Reconnect the power cord and then power on the logic analyzer.

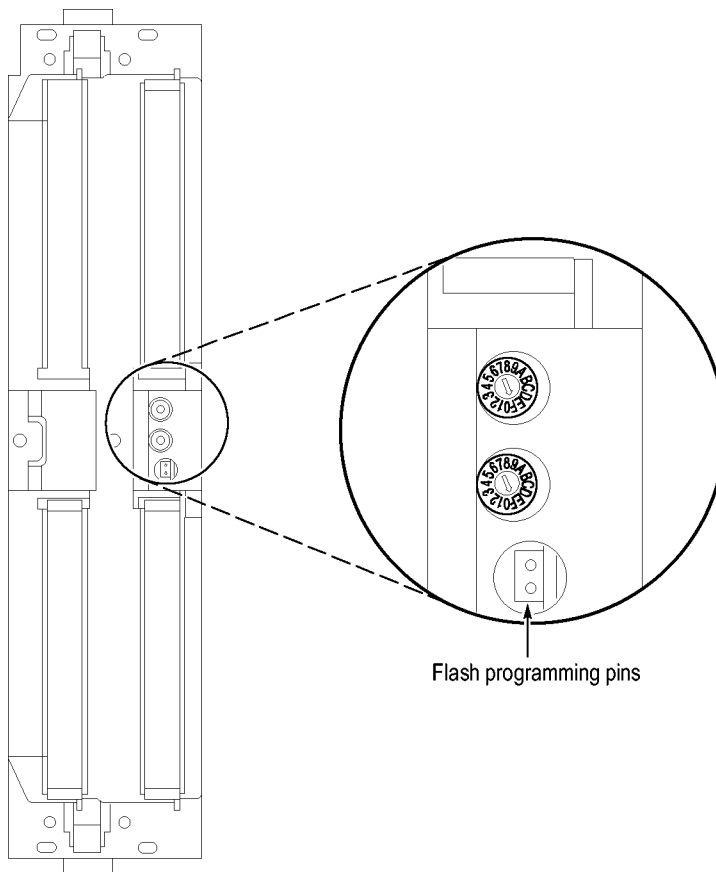
---

**NOTE.** *Any modules with the flash programming jumper installed will not display in the TLA or Pattern Generator System window.*

---

9. Log on as Administrator and then wait for the TLA application to start.
10. Exit the logic analyzer application.
11. Click Start → All Programs → Tektronix Logic Analyzer → TLA Firmware Loader.
12. Select your instrument from the Firmware Loader - Connection dialog box and click **Connect**.
13. Click **Load** in the lower portion of the Firmware Loader dialog box.
14. Select the modules that you want to update from the list of modules displayed in the Supported list box near the top of the menu. If you are updating more than one module at a time, note the slot location of the module in the selection box.

15. Select **Load Firmware** from the Execute menu.



**Figure 58: Flash programming pins**

16. Click the proper .lod file for the selected module. (See Table 9.)

---

**NOTE.** Be sure to select the proper .lod file for each module. Note the slot number in the title bar so that you select the correct module for the .lod file.

---

**Table 9: TLA firmware files**

Module type	.lod file
TLA7NAX logic analyzer modules	TLA7NAX.lod
TLA7Axx logic analyzer modules	TLA7AXX.lod
TLA7Bxx logic analyzer modules	TLA7BXX.lod
TLA7Nx, TLA7Px, TLA7Qx logic analyzer modules	TLA7NPQ.lod
TLA7Lx and TLA7Mx logic analyzer modules	TLA7LM.lod
TLA7Dx and TLA7Ex DSO modules	FirmwareDSO.lod

**Table 9: TLA firmware files (cont.)**

Module type	.lod file
TLA7PG2 Pattern Generator modules <sup>1</sup>	tla7pg2.lod

<sup>1</sup> The .lod files for the pattern generator modules are located in the C:\Program Files\Tektronix Pattern Generator\Firmware folder. All other files are located in the C:\Program files\TLA 700\Firmware folder.

**17. Click *Open*.** When prompted to confirm your action; click **Yes**.

---

**NOTE.** *The program will not allow you to load firmware to an incompatible module. For example, the program will not load DSO firmware to a logic analyzer module.*

---

The program will load the firmware for each module one at a time. The process may take several minutes per module.

- 18.** When the upgrade is complete, exit the firmware loader program.
- 19.** Turn off the instrument and disconnect the power cord.
- 20.** Remove the module from the instrument.
- 21.** For all modules except the TLA7Bxx, TLA7Axx or TLA7NAX modules, remove the jumper from the Flash programming pins on the rear of the module. Keep the jumper for future updates.
- 22.** Reinstall the module in the instrument, tighten the hold-down screws, and then reconnect the probes.
- 23.** Reconnect the power cord and power on the instrument.
- 24.** Verify that the power-on diagnostics pass.

## Upgrading Firmware on the Interface Module and the TL708EX TekLink 8-Port Hub

Use the following procedure to upgrade the firmware on the benchtop mainframe interface module and the hub.

1. Start the Firmware Loader.
2. A list of installed mainframes displays. Select the mainframe you want to upgrade and click Connect.
3. The Firmware Loader dialog box appears. You have the choice to load Mainframe or Instrument Module firmware. Click the Load button corresponding to Mainframe and TekLink firmware.
4. A list of all the currently installed Mainframe and TekLink firmware displays. The list shows the version currently running and the version available for installation. Select the items you wish to load.
5. Click the Update Firmware button. A file dialog box displays a list of firmware images available.
6. Select the appropriate file. Click Open to open the selected firmware image. You must do this for each firmware image selected.
7. 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.
8. As the flash operation runs, it identifies what steps are being performed. When complete, it will inform you to reboot the system you just flashed.
9. Turn off and restart the TLA system after the flash operation is complete.

## Calibrate the Instrument

After verifying proper operation, you need to calibrate the logic analyzer.

1. Allow the instrument to warm up for at least 30 minutes before continuing.
2. In the System window, select Calibration and Diagnostics from the System menu.
3. Click the Self Calibration tab.
4. Select the Run button and click Yes to any confirmation messages.

---

**NOTE.** *The calibration process may take several minutes.*

---

The Status column indicates Running while the instrument is being calibrated.

5. Verify that the Status column changes to Calibrated.
6. Close the dialog box.

## 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.
- To control a logic analyzer with the same TLA application software version over 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:

- The NI-GPIB 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.

---

**NOTE.** *Several third-party software applications are included to use with your logic analyzer. These applications may include software license agreements. Be sure to abide by those license agreements.*

---

**Install the NI-GPIB Software.** Complete the following steps to install the third-party software on your PC:

1. Insert 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.
3. Follow the on-screen instructions and note the items below:
  - a. When prompted, select the Typical installation option.
  - b. When the Add GPIB wizard appears, click Cancel.
  - c. After restarting the instrument, the NI-488.2 Getting Started wizard displays. This is not needed; select **Do not show at Windows startup** and then click X to exit.
  - d. When you first connect the iView cable, the instrument will detect the new hardware. Select **Install the software automatically (Recommended)**.

**Install the Snagit Software.** Complete the following steps to install the Snagit software on your PC:

1. Browse to the Snagit folder on the CD and run the Setup.exe program.
2. 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.

## Attach the Upgrade Kit Label to the Instrument

After completing the previous steps, you need to install the upgrade kit label on the instrument to indicate that the kit is installed.

1. Turn off the instrument and disconnect the power cord.
2. Remove any of the instrument modules where you have installed new firmware.
3. Locate the big label on the side of instrument modules and then attach the revision label and the TLA7KUP kit label as shown. (See Figure 59.)
4. Complete the following steps if you are updating a TLA7016 Logic Analyzer:
  - a. Remove the TLA7016 Interface Module from the mainframe.
  - b. Locate the big label on the side of the TLA7016 Interface Module and attach the revision label and the TLA7KUP kit label as shown. (See Figure 59.)

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**NOTE.** *If there already is an upgrade kit label installed, install the new label just above or below the old one. However, ensure that you install the software revision label over the old revision label to indicate the current version of software on your instrument.*

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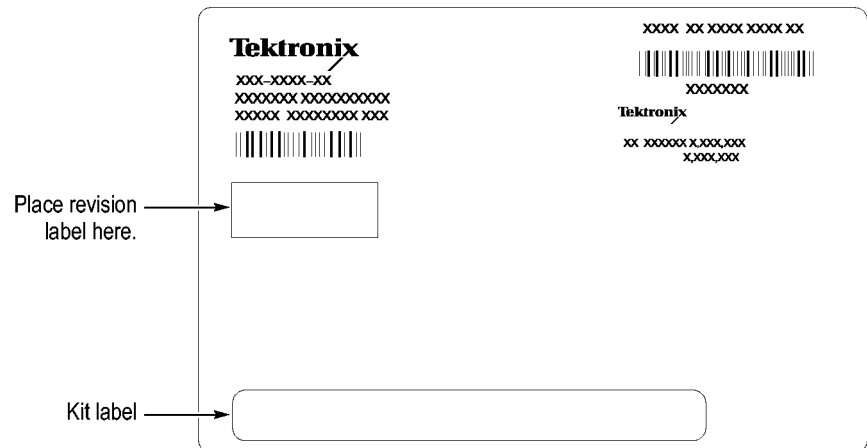
5. Complete the following steps if you have a TLA7012 Portable Mainframe:
  - Locate the big label on the bottom of the portable mainframe and attach the revision label and the TLA7KUP kit label as shown. (See Figure 59.)

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**NOTE.** *If there already is an upgrade kit label installed, install the new label just above or below the old one. However, ensure that you install the software revision label over the old revision label to indicate the current version of software on your instrument.*

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**Figure 59: Revision and kit label locations**

6. Reinstall any modules that you removed earlier and tighten the hold-down screws.
7. Reconnect the power cord and power on the instrument.
8. Verify that all power-on diagnostics pass.



# TLA7KUP Option 4C: iCapture Cables

TLA7KUP Option 4C adds four iCapture, BNC-to-BNC, low-loss, 10x cables for your TLA7Axx or TLA7Bxx logic analyzer modules.

## Instruments

Instruments	Serial number range
TLA7012 Series Logic Analyzers with TLA7Axx or TLA7Bxx logic analyzer modules	All serial numbers
TLA7016 Series Logic Analyzers with TLA7Axx or TLA7Bxx logic analyzer modules	All serial numbers

## Parts List

Table 10: TLA7KUP Option 4C parts list

Quantity	Part number	Description
4 ea	N/A	iCapture Analog Output, BNC-to-BNC, low-loss, 10x cable, 36-in.
1 ea	N/A	TLA7KUP kit label

## Minimum Tool and Equipment List

No special tools or equipment are required to install this option.



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# TLA7KUP Option IF: Upgrade Installation Service

TLA7KUP Option IF provides installation of product upgrades performed at a Tektronix service location.

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**NOTE.** *Availability of installation and on-site services depend on the type of product and may vary by geography.*

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## Instruments

Instruments	Serial number range
TLA7012 Series Logic Analyzers	All serial numbers
TLA7016 Series Logic Analyzers	All serial numbers



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# TLA7KUP Option IN: On-Site Installation Service

TLA7KUP Option IN provides initial product installation/configuration and start up training session including front panel and product familiarization at your site (excludes network integration).

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**NOTE.** *Availability of installation and on-site services depend on the type of product and may vary by geography.*

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## Instruments

<b>Instruments</b>	<b>Serial number range</b>
TLA7012 Series Logic Analyzers	All serial numbers
TLA7016 Series Logic Analyzers	All serial numbers
TLA7PC1	All serial numbers