**Instruction Manual** 

# Tektronix

TLA 6UP Logic Analyzer Field Upgrade Kit 071-0719-00

Warning

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

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Tektronix warrants that the products that it manufactures and sells will be free from defects in materials and workmanship for a period of one (1) year from the date of shipment. If a product proves defective during this warranty period, Tektronix, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

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

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#### **TEKTRONIX SERVICE OPTIONS**

Tektronix offers the following service options. These options are modular, flexible, and easy to order with your instrument. Designed to ease installation and start up, to support tracking of calibration to requirements of ISO9000, and to provide for extended repair coverage, these options help fix your long-term maintenance costs and eliminate unplanned expenditures. And these options can be converted from service at Tektronix service depots to service on-site (see Option S1 and S3), which helps keep downtime to a minimum.

Product installation service <sup>1</sup>	Option IN	Provides initial product installation/configura- tion and start-up training session including front panel and product familiarization.
Upgrade installation service <sup>1</sup>	Option IF	Provides installation of product upgrades performed at a Tektronix Service Center.
Three years of calibration services	Option C3	Provides factory calibration certification on delivery, plus two more years of calibration coverage. Throughout the coverage period the instrument will be calibrated according to its Recommended Calibration Interval.
Test data	Option D1	Provides initial Test Data Report from manufacturing.
Test data	Option D3	Provides test data on delivery plus a Test Data Report for every calibration performed during 3 years of coverage – requires Option C3.
Three years repair coverage	Option R3	Extends product repair warranty to a total of three years.
One year upgrade to on-site service <sup>1,2</sup>	Option S1	Upgrades the standard one year, "return to depot" warranty to an on-site warranty.
Three year upgrade to on-site service <sup>1,2</sup>	Option S3	Upgrades any C3, D3, and R3 options pur- chased to on-site coverage for three years

Tektronix Service Options are available at the time you order your instrument. Contact your local Tektronix Sales Office for more information.

- <sup>1</sup> Availability of installation and on-site services depends on the type of product and may vary by geography.
- <sup>2</sup> Upgrade options are ordered with the mainframe products and cover individual modules.

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# **General Safety Summary**

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified.

Only qualified personnel should perform service procedures.

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

To Avoid Fire or	Use Proper Power Cord. Use only the power cord specified for this product and
Personal Injury	certified for the country of use.

**Use Proper Voltage Setting.** Before applying power, ensure that the line selector is in the proper position for the power source being used.

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

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

**Observe All Terminal Ratings.** To avoid fire or shock hazard, observe all ratings and marking 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.

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

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

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

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

Do Not Operate in Wet/Damp Conditions.

Do Not Operate in an Explosive Atmosphere.

Keep Product Surfaces Clean and Dry.

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

#### Symbols and Terms

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



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



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

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

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

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

CAUTION indicates a hazard to property including the product.

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









WARNING High Voltage

Protective Ground (Earth) Terminal CAUTION Refer to Manual

Double Insulated

# Service Safety Summary

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

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

**Disconnect Power.** To avoid electric shock, disconnect the main power by means of the power cord or, if provided, the power switch.

**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 instruction manual contains specific information about the TLA 6UP logic analyzer field upgrades. The logic analyzer field upgrades consist of software and hardware options for the TLA 600 Series logic analyzer. Use the table below to explore your possible upgrade paths.

#### Table i: TLA 6UP Logic Analyzer Field Upgrade Matrix

If you want to take advantage of this	And your current configuration is this	You need to order this	
Upgrade your logic analyzer to 128 MB RAM	TLA 600 Std	TLA 6UP Option 01	
Upgrade your logic analyzer to a larger hard disk drive	TLA 600 Std	TLA 6UP Option 02	

### 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* found at the beginning of this manual.
- The procedures in this manual may only be performed by a qualified service person.

Be sure to follow all warnings, cautions and notes.

### **Adjustment and Certification Interval**

Generally, you should perform the adjustments and certification (calibration) described in the *TLA Series Performance Verification and Adjustment Technical Reference Manual* once per year, or following repairs that affect adjustment or calibration.

# **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 and on-site at your facility, depending on your location.

**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:

Tektronix.com/Measurement/Service

# Calibration and Repair<br/>ServiceIn addition to warranty repair, Tektronix Service offers calibration and other<br/>services which provide solutions to your service needs and quality standards<br/>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. These service options are listed on the *Tektronix Service Options* page following the title page of this manual.

**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.

# **Contacting Tektronix**

Product Support	For questions about using Tektronix measurement products, call toll free in North America: 1-800-833-9200 6:00 a.m. – 5:00 p.m. Pacific time
	Or contact us by e-mail: tm_app_supp@tek.com
	For product support outside of North America, contact your local Tektronix distributor or sales office.
Service support	Tektronix offers a range of services, including Extended Warranty Repair and Calibration services. Contact your local Tektronix distributor or sales office for details.
	For a listing of worldwide service centers, visit our web site.
Toll-free Number	In North America: 1-800-833-9200 An operator can direct your call.
Postal Address	Tektronix, Inc. Department or name (if known) P.O. Box 500 Beaverton, OR 97077 USA
Web site	www.tektronix.com

Preface

# TLA 6UP Option 01 Maximum DRAM Installation

# **Maximum Memory Installation Instructions**

Option 01 supports the upgrade to the maximum memory on your TLA 600 series logic analyzer.

### Instruments

TLA 600 series logic analyzer

All serial numbers

### **Minimum Tool and Equipment List**

#### Table 1–1: Tools required for installing option 01

ltem number	Name	Description
1	Small flat blade screwdriver	Standard tool
2 Torx-drive screwdriver with a T-15 tip		Standard tool

### **Kit Parts List**

Table 1	-2:	Option	01	Part List	
---------	-----	--------	----	-----------	--

Quantity	Part number	Description
1	071-0719-XX	TLA 6UP Logic Analyzer Field Upgrade Kit Instruction Manual
1	156-4827-00	64 MB SO DIMM (Total of 128 MB)
1	N/A	TLA 6UP kit label

## Installation Instructions

These instructions are for personnel who are familiar with servicing the product. If you need further details for disassembling or reassembling the product, refer to the appropriate product manual. Contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service for installation assistance.



**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 Trim and Covers**

Remove the trim and covers as shown in Figure 1–1 on page 1–3 by following this procedure.

- **1.** Turn the logic analyzer off.
- 2. Remove the power cord and all probes.
- **3.** Remove the accessory pouch (it snaps off).
- 4. Remove the top cover trim.
- 5. Remove right and left side trim.
- 6. Remove the front panel trim (it snaps off).
- 7. Remove the input panel.

Remove the internal covers as shown in Figure 1–2 on page 1–4 by following this procedure.

- 8. Remove the bottom cover.
- 9. Remove the bottom right cover.
- **10.** Remove the top left cover.

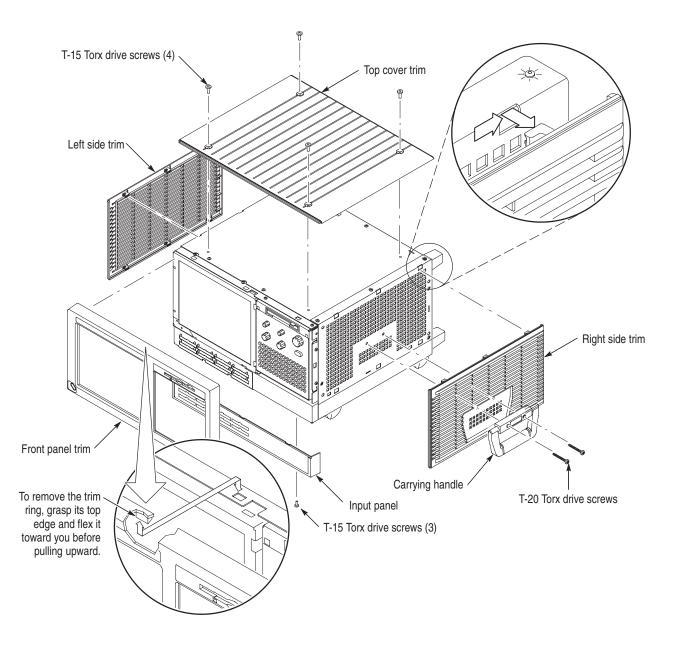


Figure 1–1: Trim and covers

# **Memory Installation**

Use the following procedure to install the new memory boards:

Install the memory board in the location shown in Figure 1–2 on page 1–4.

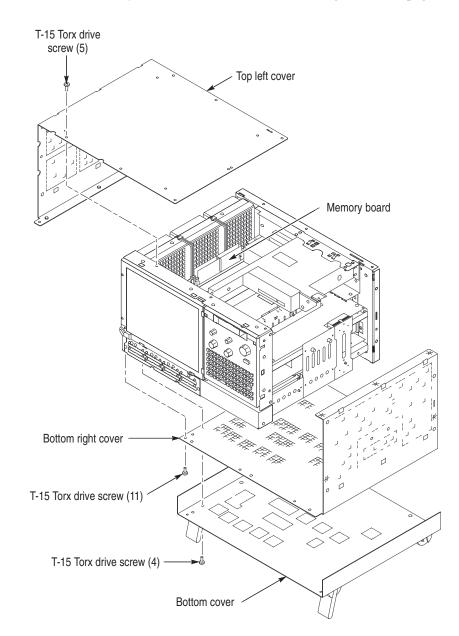


Figure 1–2: Internal covers and memory board location

## **Install Trim and Covers**

Install the internal covers as shown in Figure 1-2 on page 1-4 by following this procedure.

- **1.** Install the top left cover.
- 2. Install the bottom right cover.
- 3. Install the bottom cover.

Install the trim and covers as shown in Figure 1–1 on page 1–3 by following this procedure.

- 4. Install right and left side trim.
- 5. Install the top cover trim.
- 6. Install the front panel trim (it snaps on).
- 7. Install the accessory pouch (it snaps on).

### **Verify Operation**

Follow the steps below to ensure proper operation of the instrument:

- 1. Plug the power cord in and turn the logic analyzer on.
- 2. Turn off all other applications and close any open windows.
- 3. Click Start in the Windows tool bar.
- 4. Select Programs from the Start menu.
- 5. Select the QA+Win32 application from the Programs menu.
- **6.** Run the memory tests from the QA+Win32 menu. If needed, refer to the QA+Win32 online help for more information on running QA+Win32.
- 7. Turn the logic analyzer off, and then on again before running the TLA application software.

# TLA 6UP Option 02 Maximum Hard Disk Drive Installation

# Maximum Hard Disk Drive Upgrade Instructions

TLA 6UP option 02 supports the field upgrade to the maximum sizr of hard disk drive.

### Instruments

TLA 600 Series Logic Analyzer

All Serial Numbers

# **Minimum Tool and Equipment List**

#### Table 2–1: Tools required for installing upgrade

ltem number	Name	Description
8	Small flat blade screwdriver	Standard tool
9	#0 Phillips screwdriver Standard tool	
10	Torx-drive screwdriver with a T-15 tip	Standard tool

# **Kit Parts List**

#### Table 2–2: TLA 6UP Option 04 Part List

Quantity	Part number	Description
1	071-0572-XX	TLA 6UP Logic Analyzer Field Upgrade Kit Instruction Manual
1	650-4019-00	Hard disk drive (no software loaded)
1	063-2895-XX	BIOS software on a floppy disk
1	071-0608-XX	Bootable Floppy Disk Instructions Read This First
1	N/A	TLA 6UP kit label

# Installation Instructions

These instructions are for personnel who are familiar with servicing the product. If you need further details for disassembling or reassembling the product, refer to the appropriate product manual. Contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service for installation assistance.



**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.

These instructions direct you to replace the existing hard disk drive with a greater capacity, but unformatted, hard disk drive.

Prior to performing these procedures, use the Windows Back Up tool to back up any user files stored on the hard disk drive. Use the backup media that was shipped with the instrument to reinstall the operating system and applications.

These instructions assume that you are familiar with servicing the instrument. If you need further details for disassembling or reassembling the instrument, refer to the service manual.

Contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service Center for installation assistance.



**CAUTION.** To prevent static discharge damage, service the instrument 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.

These instructions must be performed in the sequence in which they are presented; they include the following procedures:

- *Disassembly*, which removes the external parts needed to access the hard disk drive inside the portable logic analyzer.
- Hard Disk Drive Replacement, which removes the existing hard disk drive and installs the upgrade hard disk drive.

- *Reassembly*, which reinstalls parts removed in *Disassembly*.
- *Verify Operation,* which reinstalls the software on the new hard disk drive and runs some verification tests on the hard disk drive.

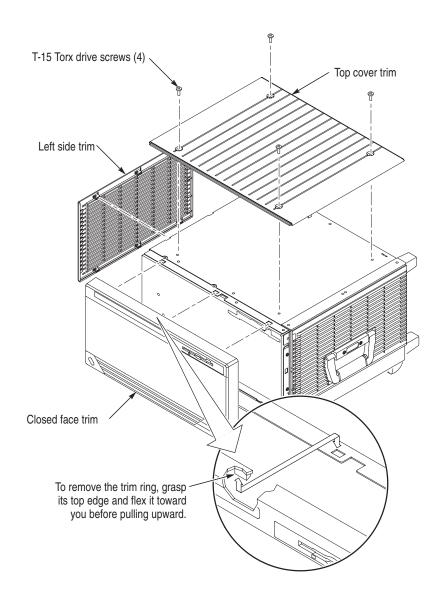
### **Remove Cover and Trim**

Remove the trim and covers as shown in Figure 1–1 on page 1–3 by following this procedure.

- 1. Turn the logic analyzer off.
- 2. Remove the power cord and all probes.
- **3.** Remove the accessory pouch (it snaps off).
- 4. Remove the top cover trim.
- 5. Remove right and left side trim.
- 6. Remove the front panel trim (it snaps off).
- 7. Remove the input panel.

Remove the internal covers as shown in Figure 1–2 on page 1–4 by following this procedure.

- 8. Remove the bottom cover.
- 9. Remove the bottom right cover.
- **10.** Remove the top left cover.





# **Remove Display**

To remove the display, follow these instructions:

- **1.** Remove the screws that attach the flat panel display assembly to the logic analyzer. (See Figure 2–2.)
- **2.** Lift the bottom edge of the flat panel display assembly and rotate it upward and off the front face of the logic analyzer.
- **3.** Detach the flat panel display assembly from the cable connecting to the interface board.

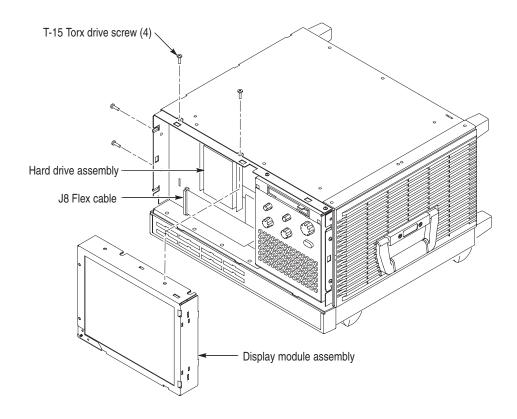


Figure 2–2: Flat panel display assembly removal

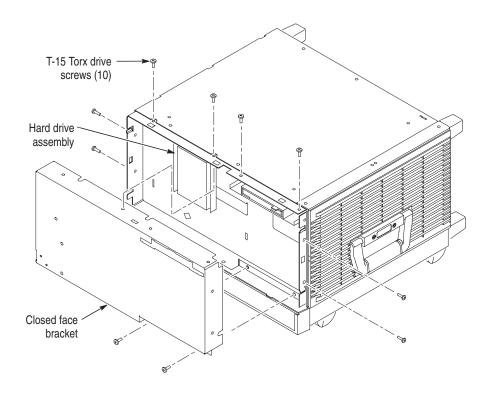


Figure 2–3: Front panel removal of external monitor logic analyzer

## Hard Disk Drive Replacement

You will need screwdrivers with a size T-15 Torx tip and a size T-10 Torx tip to perform this procedure.

**Removal** Use the following procedure to remove the hard disk drive:

- **1.** Locate the hard disk drive in Figure 2–2 or Figure 2–3.
- **2.** Detach the cable at the bottom of the hard disk drive by pressing down (away from the hard disk drive) on the connector.
- 3. Remove the four screws that attach the hard disk drive bracket to the chassis.
- 4. Lift the hard disk drive and bracket out of the chassis.
- 5. Remove the four screws that attach the hard disk drive to the bracket and lift out the hard disk drive.

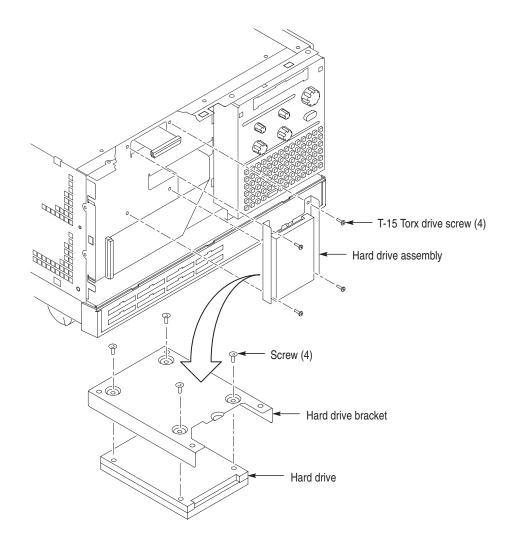


Figure 2–4: Hard disk drive replacement

- **Installation** Use the following procedure to install the hard disk drive:
  - **1.** Reposition the hard disk drive in the bracket.
  - 2. Install the four screws that attach the hard disk drive to the bracket.
  - **3.** Reattach the cable to the hard disk drive by carefully aligning the pins on the hard disk drive to the cable connector.
  - 4. Reposition the hard disk drive and bracket in the chassis.
  - 5. Install the four screws that attach the hard disk drive bracket to the chassis.

## Reassembly

Use the following procedure to reassemble the instrument:

- **1.** Reattach the cable connecting the flat panel display assembly to the interface board.
- **2.** Reinstall the flat panel display assembly by first inserting the top edge and then rotating it downward into position.
- **3.** Install the screws that attach the flat panel display assembly to the logic analyzer. Refer Figure 2–2 on page 2–5.
- **4.** Replace the trim ring on the front panel. Start at the top edge and work around to the bottom (using care not to damage the light pipe or power switch), until the three plastic snaps engage.

Press the trim ring down all around the edges until it is completely seated.

- 5. Reinstall the plastic trim.
- 6. Reattach the accessory pouch to the top.
- 7. Reinstall the probes that were removed during disassembly.
- 8. Connect the power cord to the logic analyzer.

### **Reinstalling Software**

To install software on the new hard disk, follow the procedures in *Installing Software on the TLA 600 Series* section in the *Tektronix Logic Analyzer Family Version 3.2 Software User Manual.* 

# TLA 6UP Option IF Upgrade Installation Service

## **Upgrade Installation Service**

TLA 6UP option IF provides installation of product upgrades performed at a Tektronix service location.

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

### Instruments

TLA 601	All Serial Numbers
TLA 602	All Serial Numbers
TLA 603	All Serial Numbers
TLA 604	All Serial Numbers
TLA 611	All Serial Numbers
TLA 612	All Serial Numbers
TLA 613	All Serial Numbers
TLA 614	All Serial Numbers
TLA 621	All Serial Numbers
TLA 622	All Serial Numbers
TLA 623	All Serial Numbers
TLA 624	All Serial Numbers

# TLA 6UP Option IN Product Installation Service

## **Product Installation Service**

TLA 6UP option IN provides initial product installation/configuration and start up training session including front panel and product familiarization at your site.

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

### Instruments

TLA 601	All Serial Numbers
TLA 602	All Serial Numbers
TLA 603	All Serial Numbers
TLA 604	All Serial Numbers
TLA 611	All Serial Numbers
TLA 612	All Serial Numbers
TLA 613	All Serial Numbers
TLA 614	All Serial Numbers
TLA 621	All Serial Numbers
TLA 622	All Serial Numbers
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