

1680 Series Logic Analyzers

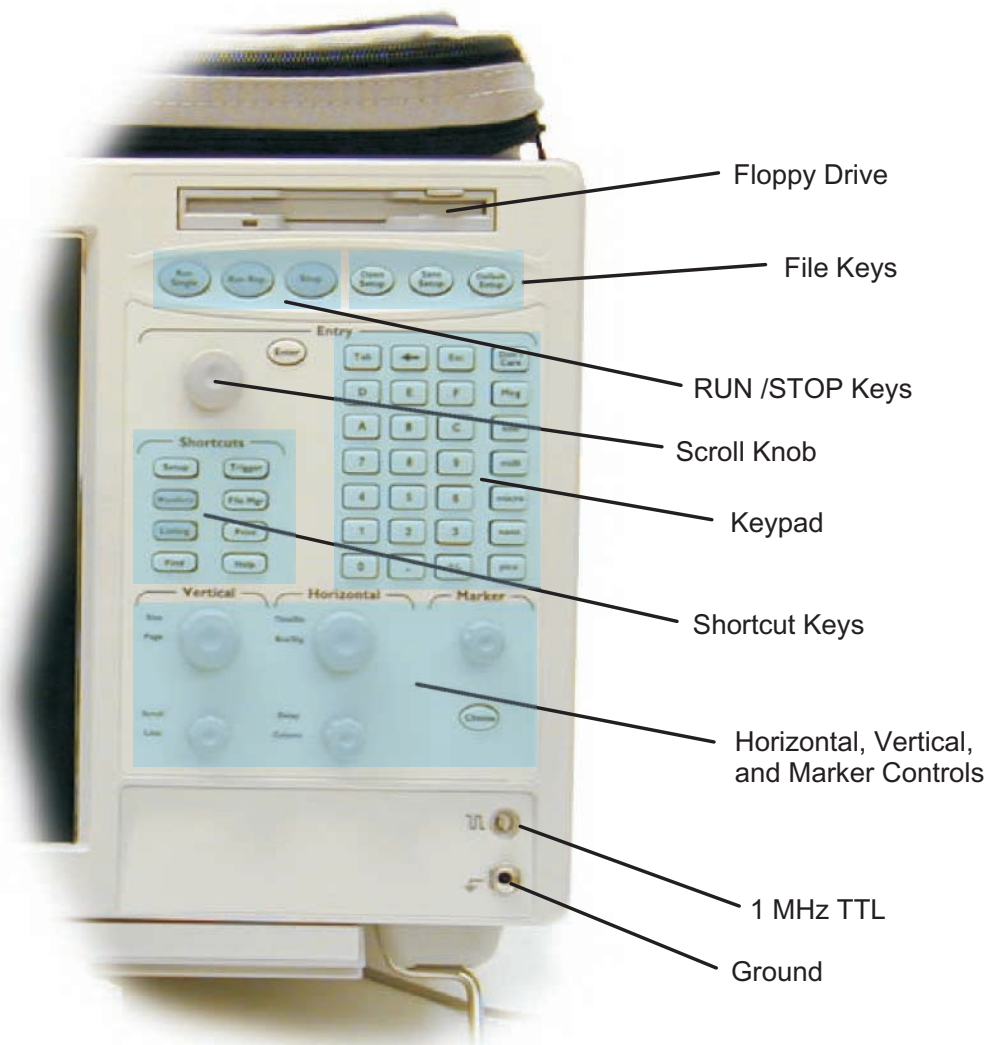
Quick Start /Installation



Agilent Technologies



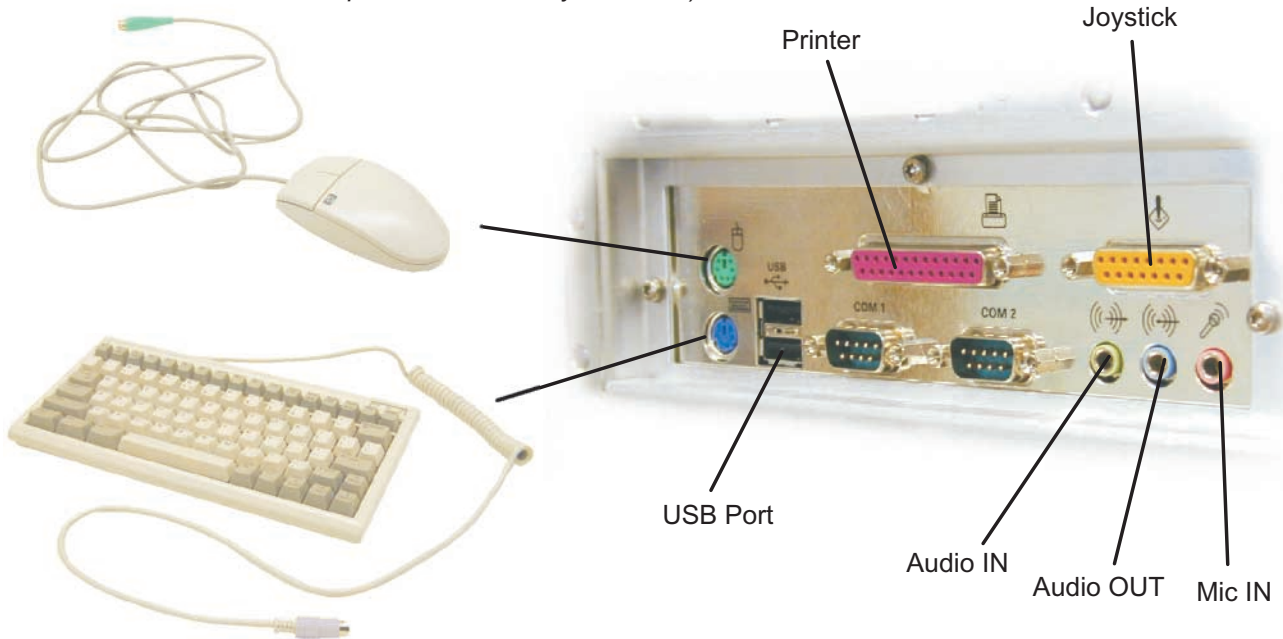
Front Panel Overview



Rear Panel Overview

Note!

Before you turn on the system, connect your mouse and keyboard to the 1680-Series logic analyzer rear panel. (A connected mouse and keyboard are required for normal system use.)



Accessories Pouch

Use the tie-down straps under the top flap to conveniently hold pod cables not in use or during transport.



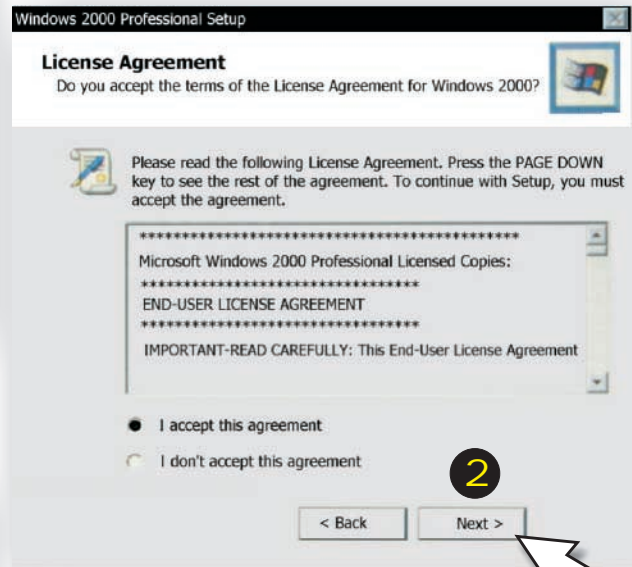
Snap the accessories pouch to the top of the 1680-Series logic analyzer. Use it to store probe leads, accessories, or manuals.



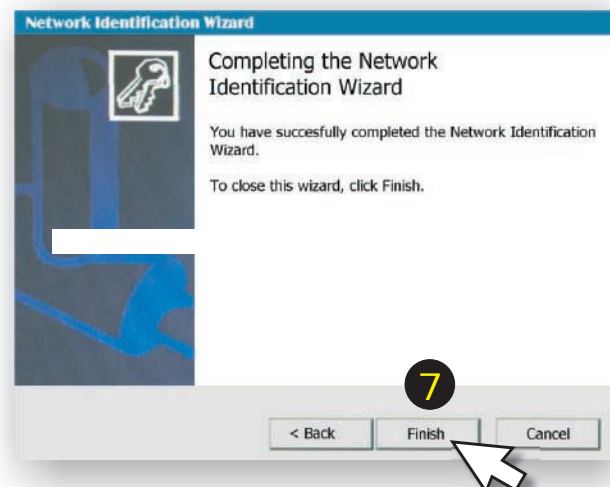
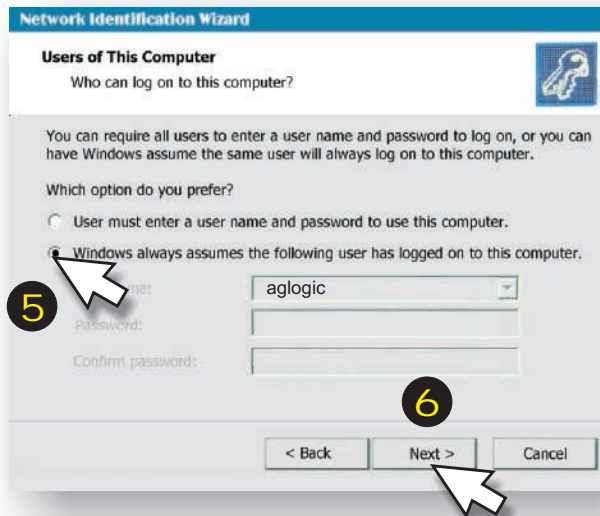
First Time Windows 2000® Setup



You will be prompted to follow the steps in the Windows® 2000 setup wizard the first time you power up the logic analyzer.



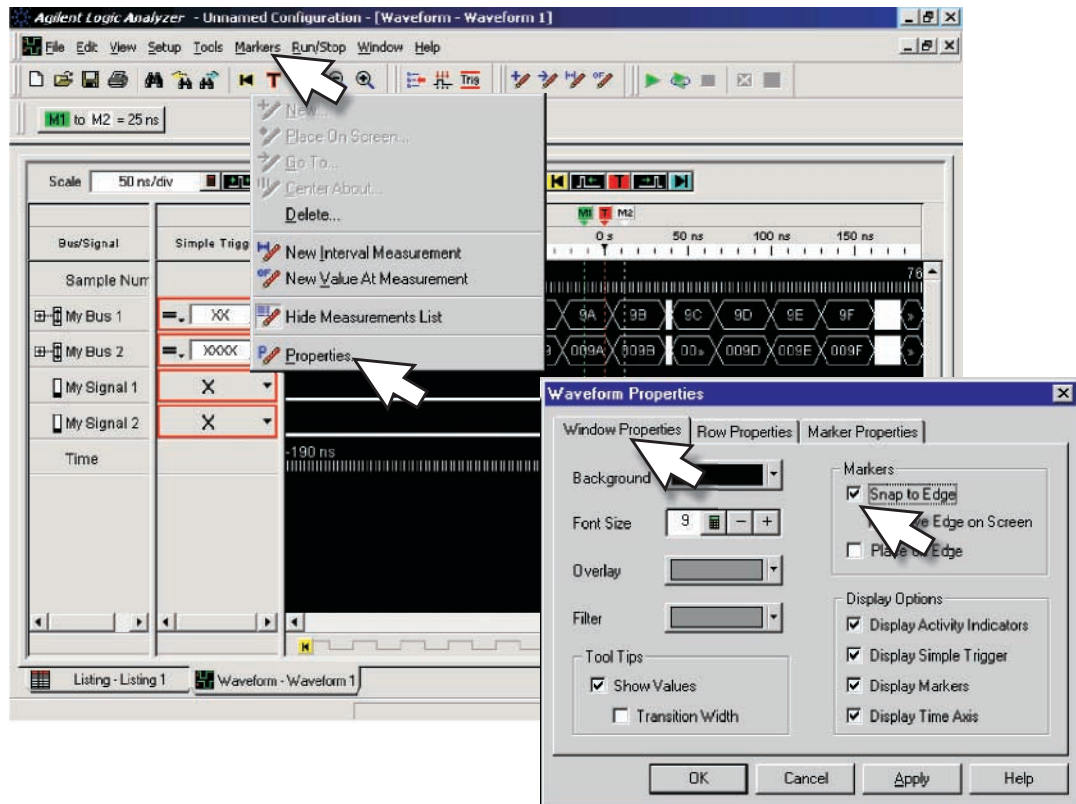
3 **System will Reboot**



Features

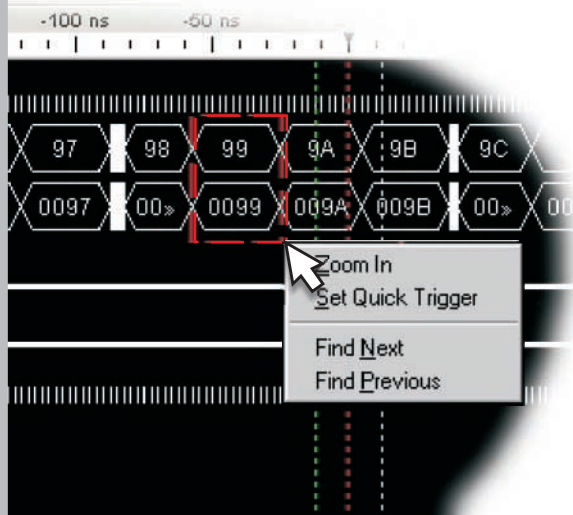
Snap to Edge Markers

You can set the markers to jump to the nearest edge of a waveform. A big red bar will show which edge the marker will jump to.




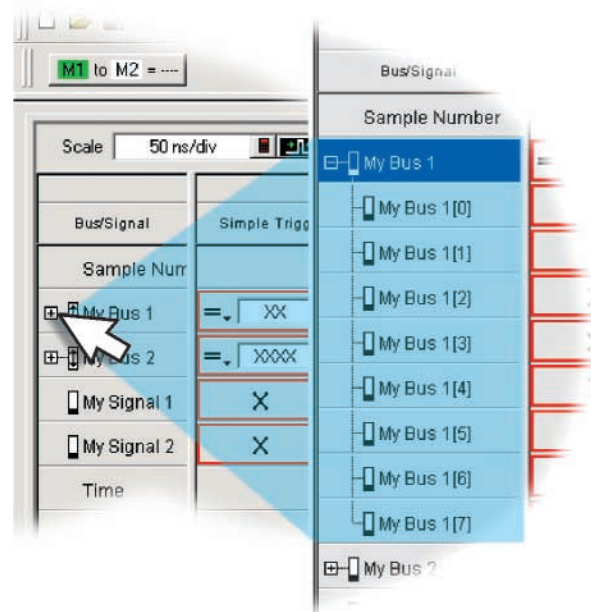
Left-Click Menus

Drag a box around parts of the data. When you release the mouse button, a menu appears.



Tree Structure Labels

Show individual signals in buses by clicking on the  to expand.



Features

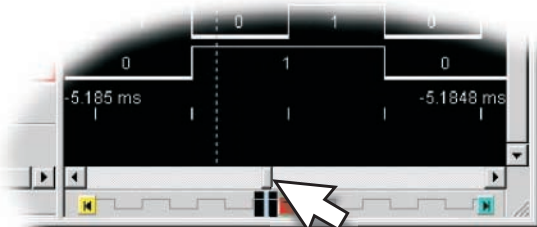
Offline Analysis

Install the logic analyzer software on another Windows NT® or Windows® 2000 PC and you can analyze data without the 1680-Series logic analyzer.



- 1 Load the 1680-Series logic analyzer software on your PC.
(See Software Installations & Upgrades)
- 2 Acquire a trace with the logic analyzer.
- 3 Save a configuration file with data.
- 4 Copy the file to your PC.
- 5 From the offline application software on your PC, open the configuration file.

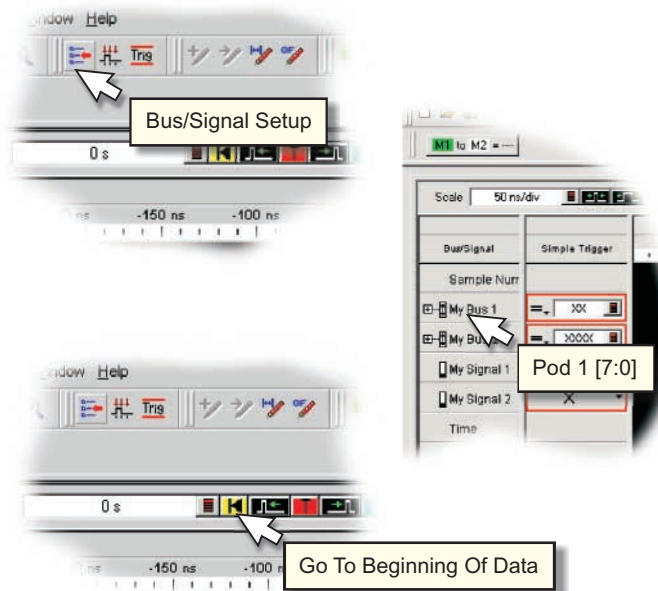
Marker Overview



The marker overview display shows marker locations within the data and the part of data currently being displayed.

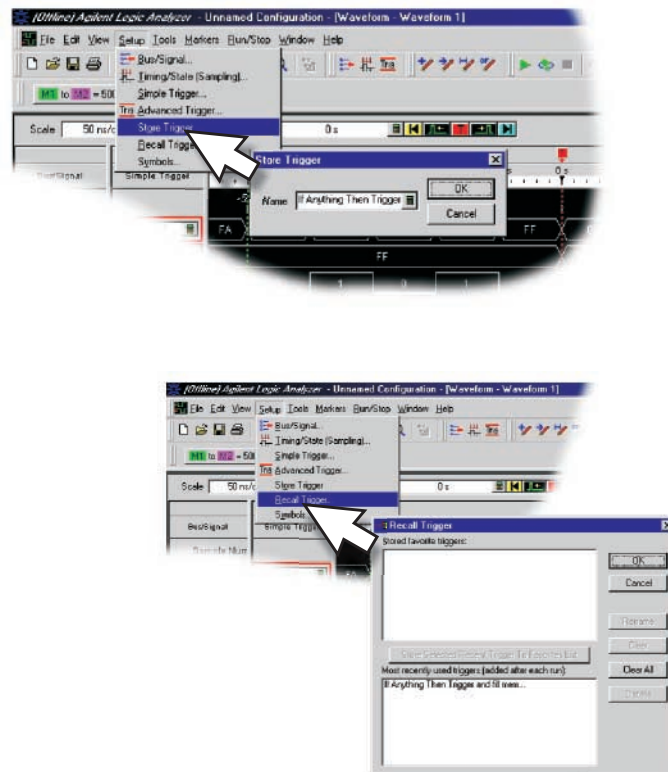
Tool Tips

Pause the cursor over a tool icon and a “Tool Tip Window” will appear.



Trigger History

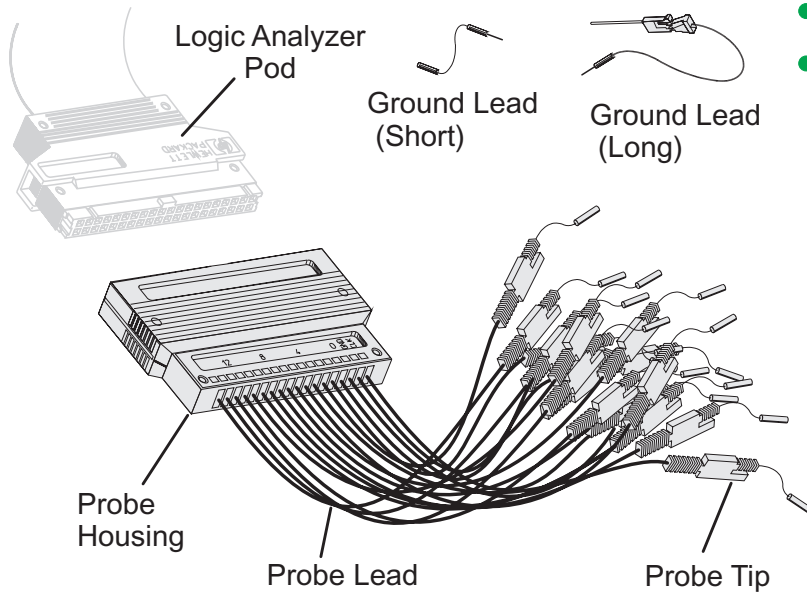
Save and recall trigger settings.



Probing

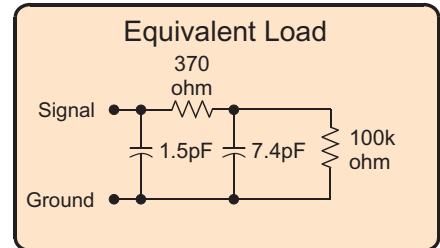
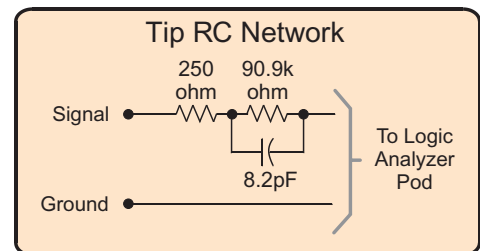
General Purpose Probing

General-purpose probing requires connecting probe leads to individual signal lines. It is generally the most cumbersome method, but it is also the most flexible. Because of the passive design of the probe, there are no active circuits at the outer end of the cable.



**Probe Tip Assembly 01650-61608
(Provided)**

- High input impedance. (See *Equivalent Load*.)
- Signal ground at the probe tip for high-speed timing signals.
- Inexpensive, removable probe tip assemblies.



Includes logic analyzer

The signal and ground leads can be connected directly to the target system. This requires installing 0.63 mm (0.025 inch) square pins, or round pins with a diameter between 0.66 and 0.84 mm (0.026 and 0.033 inch) directly on the board. You can also use an IC test clip with pins with those dimensions.

Agilent Technologies also sells wedge probe adapters like the E2613A. This fits over your chip and allows easy access to individual pins.

Proper grounding will improve the signal quality and is essential for high speed measurements. Each pod has a pod ground lead, which must be used. You can use only this ground, but signal quality for high speed signals will be poor.

For better results, ground not only the pod, but every third or fourth lead.

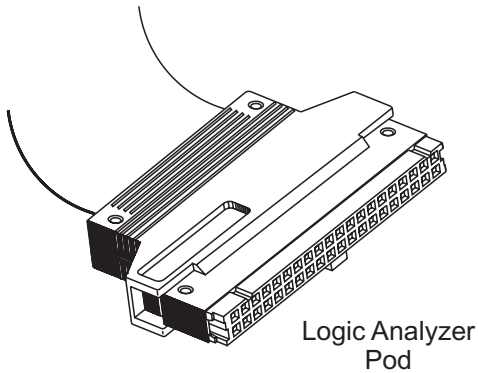
For best results, and when probing signals with rise and fall times of 1 ns or less, ground each probe lead with no more than a 2-inch ground lead as well as grounding the pod with the pod ground lead.

- You can replace damaged leads. Disconnect individual probe leads by pushing on the latch at the lead base with a ball-point pen.
- Connect grabbers to the leads by slipping the end of the lead over the recessed pin located in the side of the grabber.

Note! The minimum input overdrive is the greater of 250 mV or 30% of signal amplitude. The maximum probe input voltage of each logic analyzer probe is 40 volts peak.

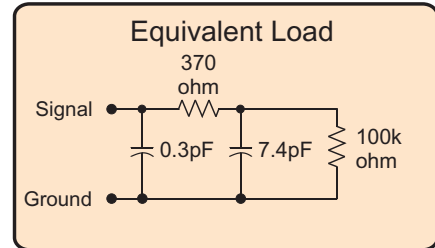
Probing 40-Pin Connector Device Under Test

You can connect the logic analyzer cable directly to a 40-pin connector, but you must install the proper RC network directly onto the device under test. Agilent Technologies recommends two types of RC networks which are described in detail in the Application Note: **Probing Solutions for Agilent Technologies Logic Analysis Systems**.



+5V	1	2	Power GND
CLK1	3	4	Signal GND
N/C	5	6	Signal GND
D15	7	8	Signal GND
D14	9	10	Signal GND
D13	11	12	Signal GND
D12	13	14	Signal GND
D11	15	16	Signal GND
D10	17	18	Signal GND
D9	19	20	Signal GND
D8	21	22	Signal GND
D7	23	24	Signal GND
D6	25	26	Signal GND
D5	27	28	Signal GND
D4	29	30	Signal GND
D3	31	32	Signal GND
D2	33	34	Signal GND
D1	35	36	Signal GND
D0	37	38	Signal GND
+5V	39	40	Power GND

Connector Pinout (Top View)



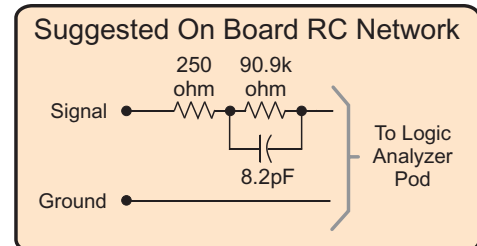
Includes on board RC network and logic analyzer

CAUTION

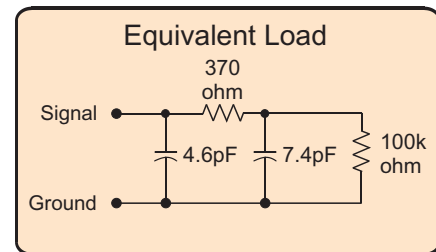
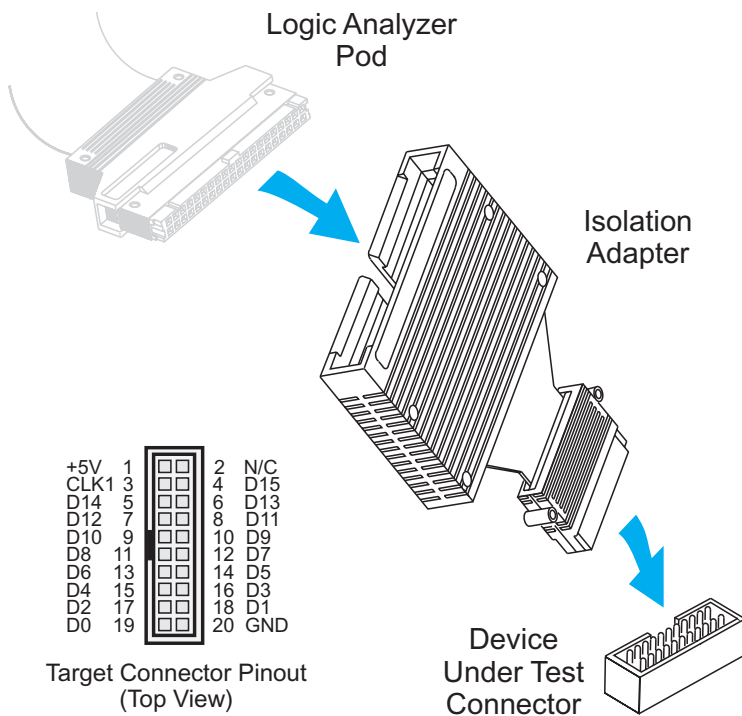
Do not exceed 0.33 amps per cable, or the cable will be damaged. The cable ground lines are chassis (earth) grounds and not "floating" grounds. All the lines are woven into a flat ribbon that is 4.5 feet long.

For more information, contact your Agilent Technologies Sales office and ask for the Application Note: **Probing Solutions for Agilent Technologies Logic Analysis Systems**.

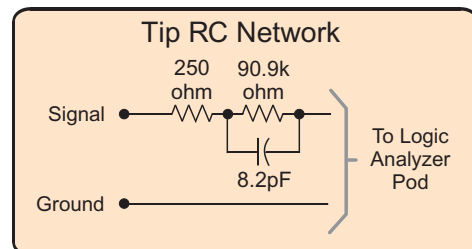
Download from the web at: <http://www.agilent.com/find/LA-AppNotes/>



The logic analyzer cable must have the proper RC network at its input in order to acquire data correctly. The optional Isolation Adapter incorporates the RC network into a convenient package. It also reduces the number of pins required for the header on the target board from 40 pins to 20.



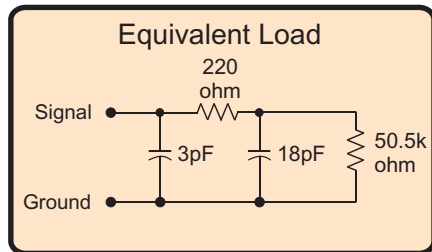
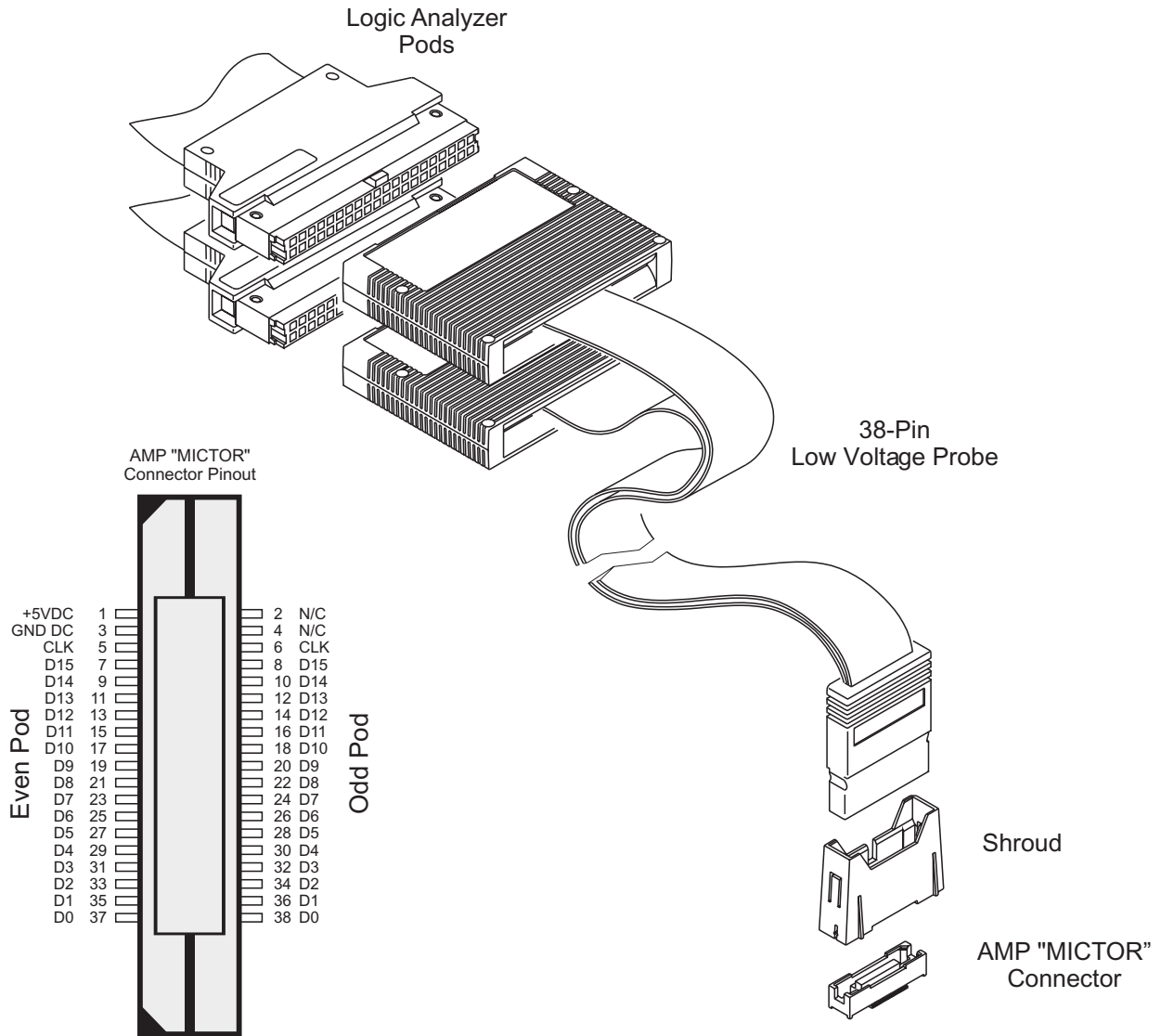
Includes logic analyzer and connector



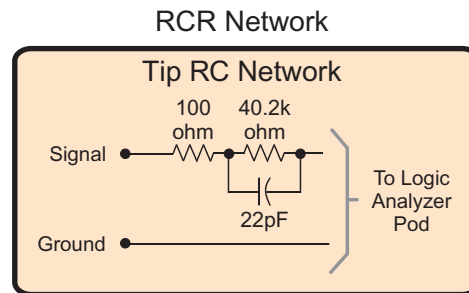
Probing

E5339A 38-Pin Low Voltage Probe

The E5339A 38-pin low voltage probe provides a convenient and easy way to connect two Agilent logic analyzer probe cables to a small area of a device under test. The E5339A is capable of capturing data with voltage swings as low as 250mV Peak-to-Peak. An AMP "MICTOR 38" connector must be installed on your device under test board.



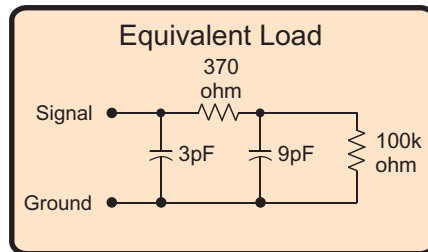
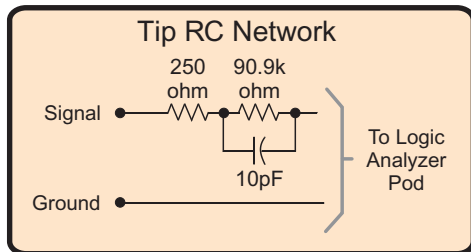
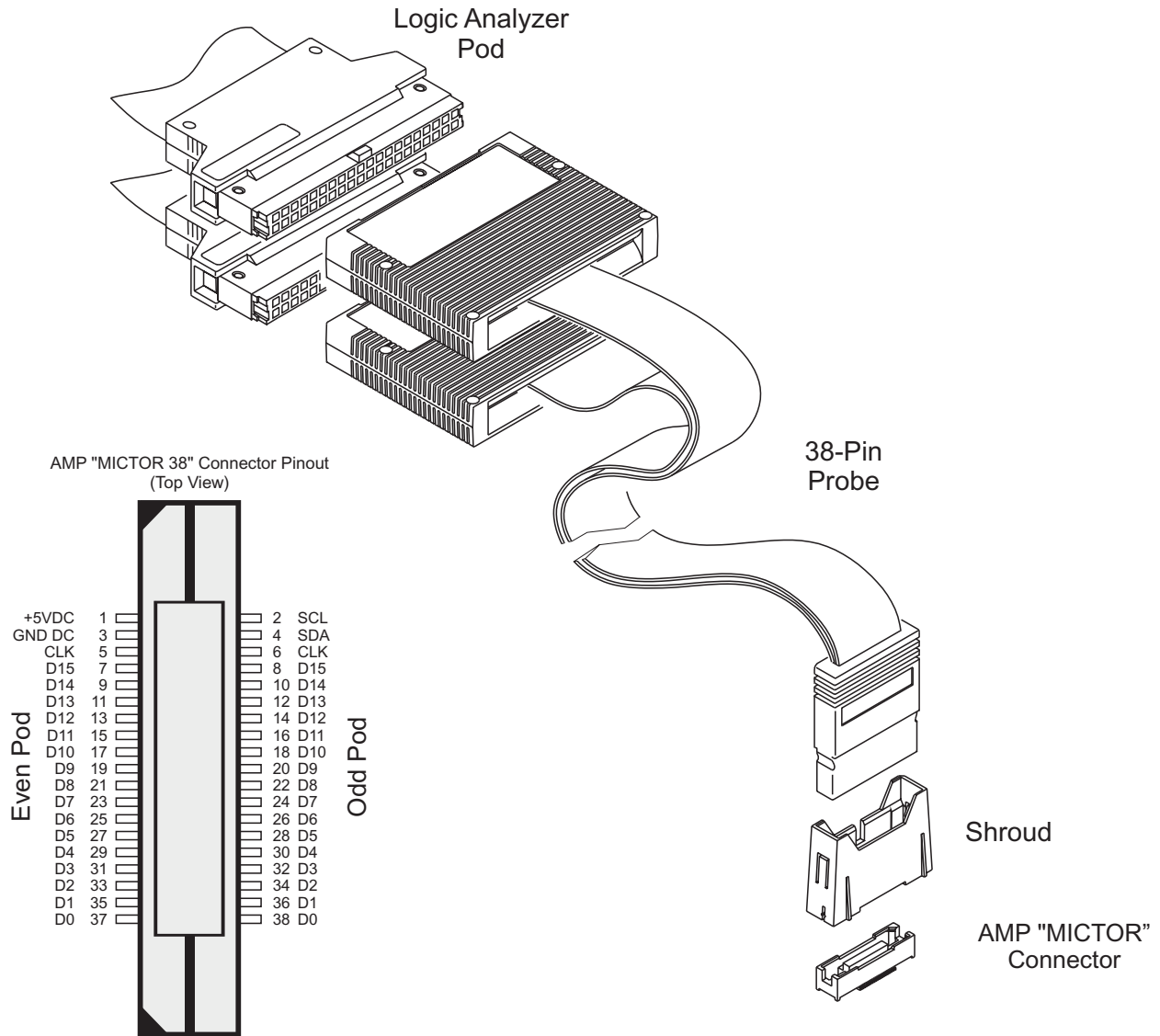
Includes logic analyzer and MICTOR connector.



Probing

E5346A 38-Pin Probe with Tip RC Network

The E5346A 38-pin probe provides a convenient and easy way to connect an Agilent logic analyzer to the signals on your target system for packages that are difficult to probe, such as BGAs. An AMP "MICTOR 38" connector must be installed on your device under test board.

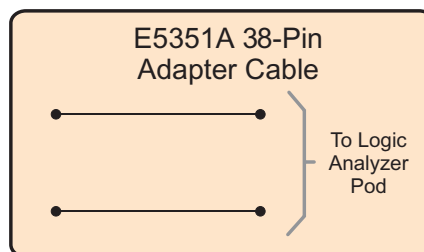
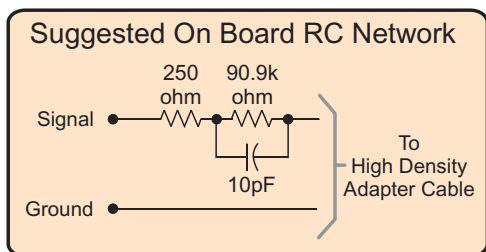
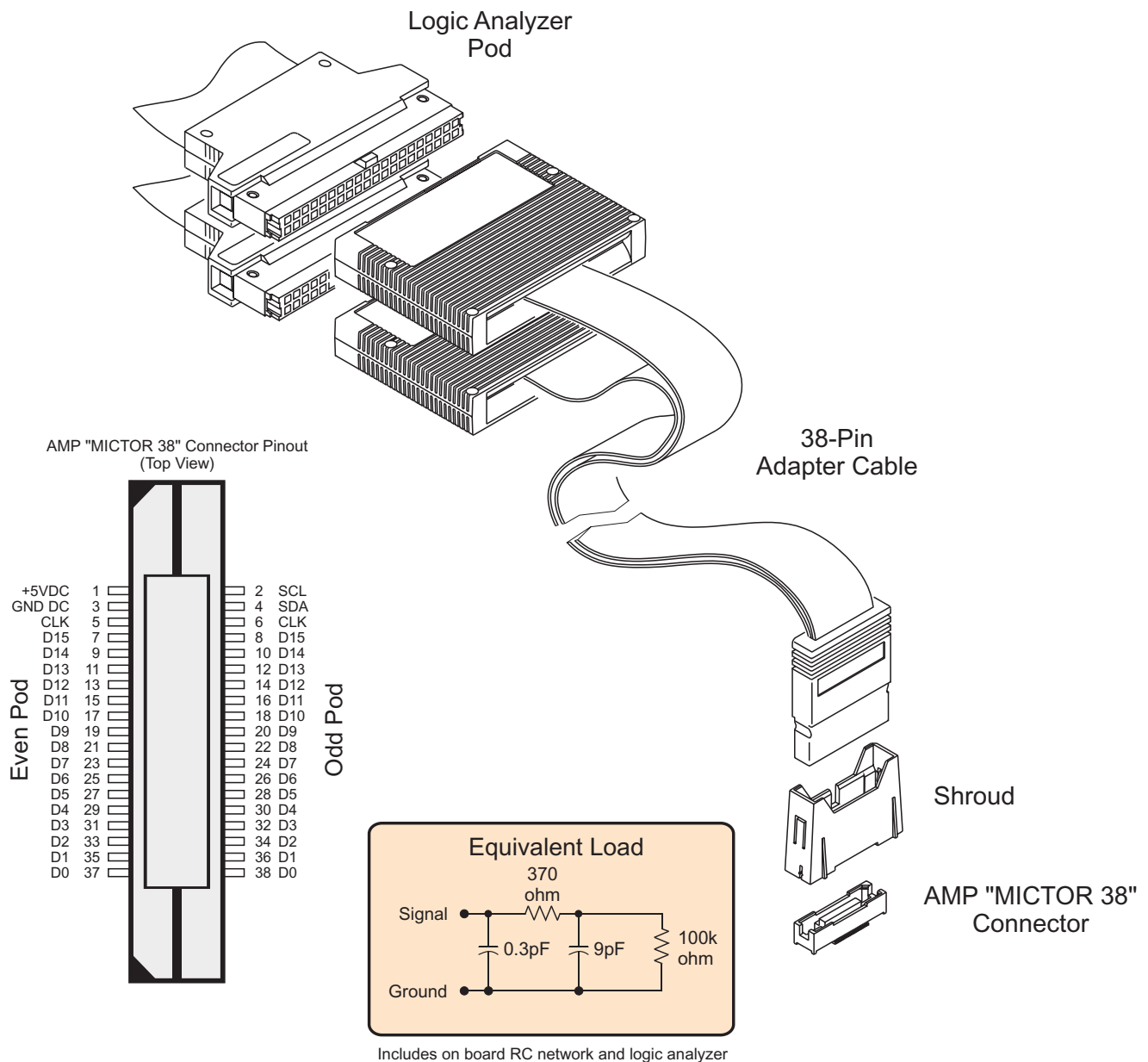


Includes logic analyzer and MICTOR connector.

Probing

E5351A 38-Pin Adapter Cable - No Tip Network

The E5351A 38-pin adapter cable provides a convenient and easy way to connect an Agilent logic analyzer to the signals on your device under test for packages that are difficult to probe, such as BGAs. The proper RC networks and an AMP "MICTOR 38" connector must be installed on your device under test system board. See Application Note: **Probing Solutions for Agilent Technologies Logic Analysis Systems**.

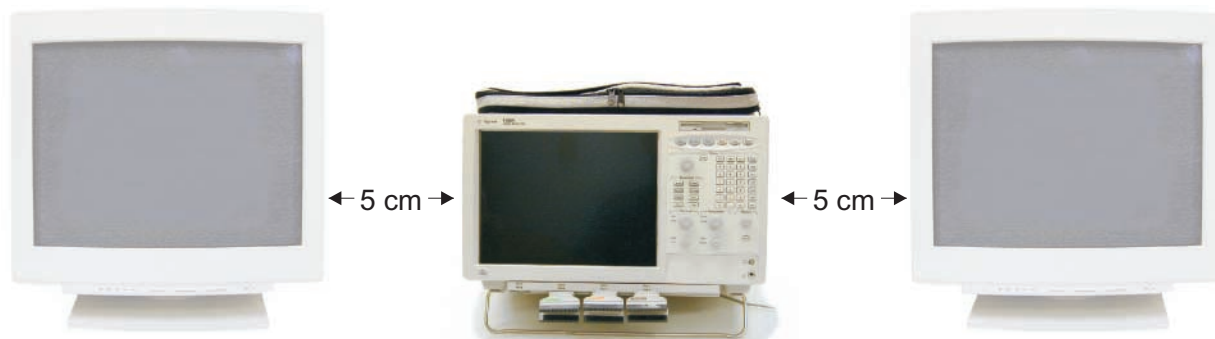


Must be terminated on-board.

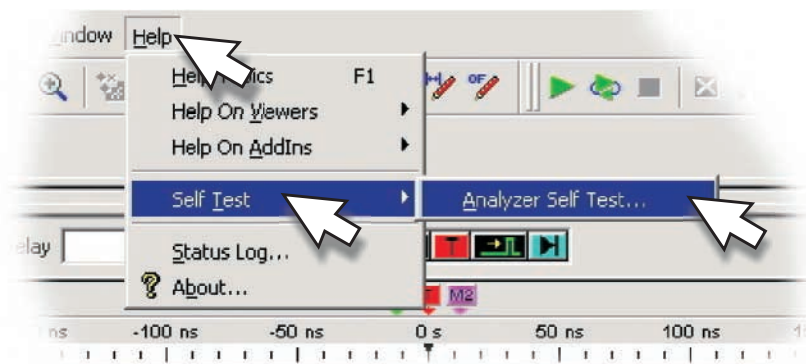
Installation

Proper Cooling

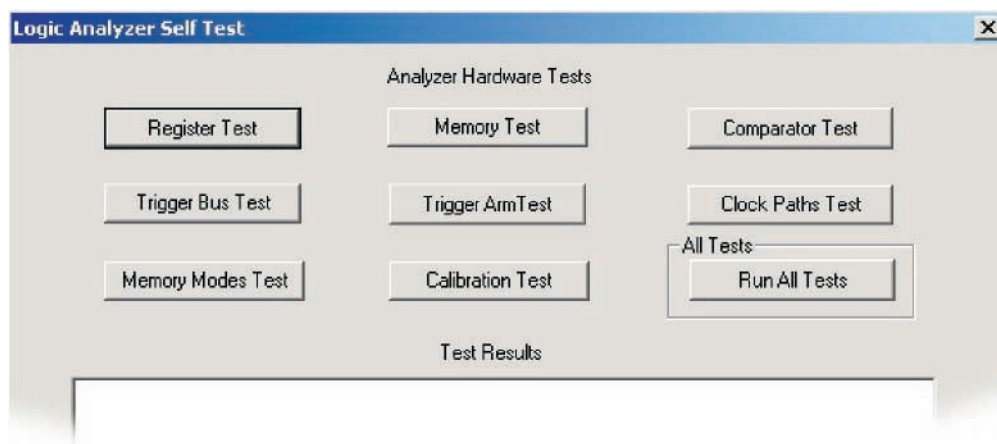
Allow at least 5 cm of space between instruments for proper cooling.



Self-Test



Select the desired test.



Emergency Recovery

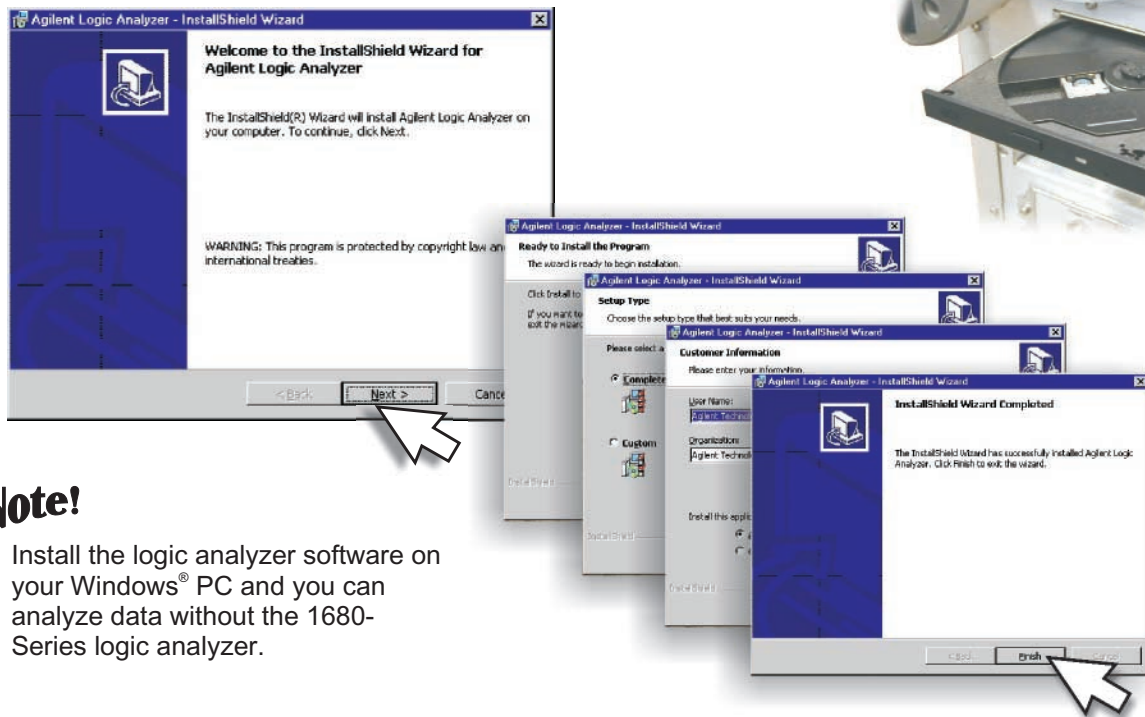
Insert the 1680-Series software CD-ROM in the CD reader. Cycle the power on the logic analyzer and follow the steps. This will only restore factory program files. User files and other programs will then need to be restored from your backup files.

Software Installation and Upgrades

Note! Before you can install 1680-Series software or install a software upgrade, you must first uninstall any existing 1680-Series software from the instrument hard drive. If you try to install the software without first completing an uninstall, a prompt will appear asking for the uninstall.



To install the 1680-Series software, insert the CD-ROM into the system's CD-ROM reader. Follow the steps in the InstallShield wizard.



Note! Install the logic analyzer software on your Windows® PC and you can analyze data without the 1680-Series logic analyzer.

Cleaning

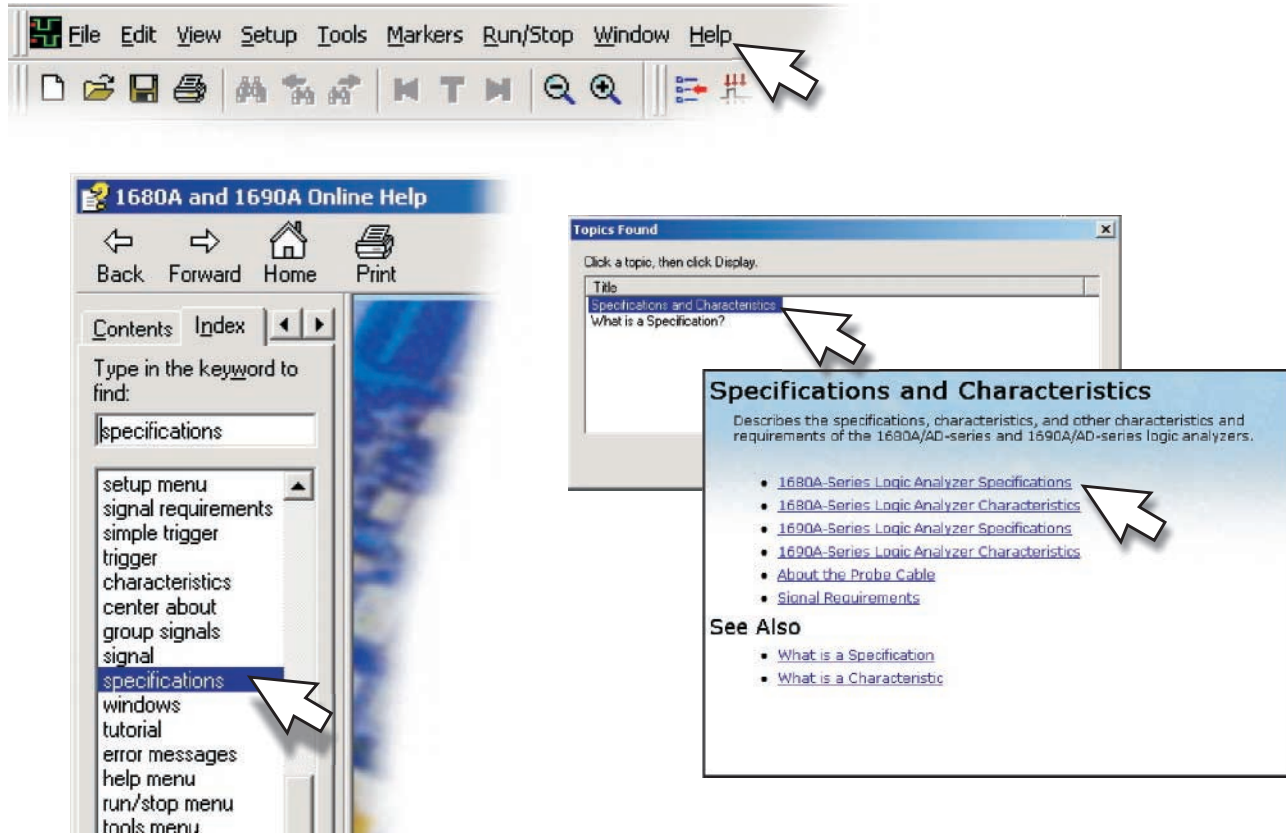
CAUTION

With the instrument unplugged, use mild soap and water to clean the cabinet and front panel of the instrument. Harsh soap might damage the water-based paint.

Do not immerse the instrument in water.



Specifications and Characteristics



The screenshot shows the '1680A and 1690A Online Help' application. The main window has a menu bar (File, Edit, View, Setup, Tools, Markers, Run/Stop, Window, Help) and a toolbar. The 'Contents' pane on the left shows a search for 'specifications' with a list of results including 'specifications'. A 'Topics Found' dialog box is open, showing a list of topics with 'Specifications and Characteristics' selected. A preview window for 'Specifications and Characteristics' is also shown, containing a description and a list of links.

Definitions Installation category (overvoltage category) I: Signal level, special equipment or parts of equipment, telecommunication, electronic etc., with smaller transient overvoltages than installation (overvoltage category) II.

Installation category (overvoltage category) II: Local level, appliances, portable equipment etc., with smaller transient overvoltages than installation category III.

Environmental Conditions Indoor use only.
Altitude up to 3000 m. (10,000 ft.)

Temperature Instrument - 0 degrees C to 50 degrees C (32 degrees F to 122 degrees F)
Disk Media - 10 degrees C to 40 degrees C (50 degrees F to 104 degrees F)
Probes/cables - 0 degrees C to 65 degrees C (32 degrees F to 149 degrees F)

Humidity Relative humidity 8 to 80% at 40 degrees C (104 degrees F)

Ferrites In order to ensure compliance of the Agilent 1680-Series and 1690-Series logic analyzers to the CISPR 11 Class A radio frequency interference (RFI) limits, you must install the ferrite to absorb radio frequency energy. Adding or removing ferrites will not affect the normal operation of the analyzer.

Sound Pressure Level: Less than 60 dBA.

Power CAT II, Pollution degree 2
All Frames: ~Line 115/230 volts +/- 20%, 48-66 Hz, 610 Watts max.

Declaration of Conformity

According to ISO/IEC Guide 22 and CEN/CENELEC EN 45014

Manufacturer's Name: Agilent Technologies, Inc.
Manufacturer's Address: 1900 Garden of the Gods Road
Colorado Springs, Colorado 80907 USA
declares, that the product **Product Name:** Logic Analyzer
Model Number(s): 1680A, 1680A/D, 1681A, 1681A/D, 1682A, 1682A/D, 1683A, 1683A/D
Product Options(s): This declaration covers all options of the above product(s).

EMC:	Standard	Limit
Conforms with the following product standards:	IEC 61326-1:1997+A1:1998/EN 61326-1:1997+A1:1998	Group 1, Class A* 4kV CD, 8kV AD 3V/m, 80-1000 MHz 0.5kV signal lines, 1kV power lines 3V, 0.15-80 MHz
	CISPR 11:1990 / EN 55011:1991 -	
	IEC 61000-4-2:1995+A1:1998/EN 61000-4-2:1995	
	IEC 61000-4-3:1995/EN 61000-4-3:1995	
	IEC 61000-4-4:1995/EN 61000-4-4:1995	
	IEC 61000-4-6:1996/EN61000-4-6:1996	
	Australia/New Zealand: AS/NZS 2064.1	
Safety:	IEC 61010-1:1990+A1:1992+A2:1995/EN61010-1:1993+A2:1995 Canada: CSA C22.2 No. 1010-1:1992	

Conformity / Supplemental Information:

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC (including 93/68/EEC) and carries the CE marking accordingly. (European Union)

*The product was tested in a typical configuration with Agilent Technologies test systems.

Date: 03/21/2001



For further information, please contact your local Agilent Technologies sales office, agent, or distributor.

Ken Wyatt / Product Regulations Manager

Product Regulations

EMC: IEC 61326-1:1997+A1:1998/EN 61326-1:1997+A1:1998
CISPR 11:1990 / EN 55011:1991
CE IEC 61000-4-2:1995+A1:1998/EN 61000-4-2:1995
ISM 1-A IEC 61000-4-3:1995/EN 61000-4-3:1995
IEC 61000-4-4:1995/EN 61000-4-4:1995
N 10149 IEC 61000-4-6:1996/EN61000-4-6:1996
Australia/New Zealand: AS/NZS 2064.1
Safety: IEC 61010-1:1990+A1:1992+A2:1995/EN61010-1:1994+A2:1995
Canada: CSA C22.2 No. 1010-1:1992

Performance Criteria:*

A
A
A
A

Additional Information

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC (including 93/68/ECC) and carries the CE Marking accordingly (European Union).

****Performance Criteria:**
A Pass - Normal operation, no effect.
B Pass - Temporary degradation, self recoverable.
C Pass - Temporary degradation, operator intervention required.
D Pass - Not recoverable, component damage.

Sound Pressure Level: Less than 60 dBA.

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395 Page Mill Road
Palo Alto, California 94304
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Document Warranty

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Agilent Technologies Inc. makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability or fitness for a particular purpose.

Agilent Technologies Inc. shall not be liable for errors contained herein or for damages in connection with the furnishing, performance, or use of this material.

Safety

This apparatus has been designed and tested in accordance with IEC Publication 1010, Safety Requirements for Measuring Apparatus, and has been supplied in a safe condition. This is a Safety Class I instrument (provided with terminal for protective earthing). Before applying power, verify that the correct safety precautions are taken (see the following warnings). In addition, note the external markings on the instrument that are described under "Safety Symbols."

Warning

● Before turning on the instrument, you must connect the protective earth terminal of the instrument to the protective conductor of the (mains) power cord. The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. You must not negate the protective action by using an extension cord (power cable) without a protective conductor (grounding). Grounding one conductor of a two-conductor outlet is not sufficient protection. Whenever it is likely that the ground protection is impaired, you must make the instrument inoperative and secure it against any unintended operation.

● Only fuses with the required rated current, voltage, and specified type (normal blow, time delay, etc.) should be used. Do not use repaired fuses or short-circuited fuseholders. To do so could cause a shock or fire hazard.

● Service instructions are for trained service personnel. To avoid dangerous electric shock, do not perform any service unless qualified to do so. Do not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.

● If you energize this instrument by an auto transformer (for voltage reduction), make sure the common terminal is connected to the earth terminal of the power source.

● Do not operate the instrument in the presence of flammable gasses or fumes. Operation of any electrical instrument in such an environment constitutes a definite safety hazard.

● Do not install substitute parts or perform any unauthorized modification to the instrument.

● Capacitors inside the instrument may retain a charge even if the instrument is disconnected from its source of supply.

● The instrument should not be used in a manner not specified by the manufacturer..

Safety Symbols



Instruction manual symbol: the product is marked with this symbol when it is necessary for you to refer to the instruction manual in order to protect against damage to the product.



Hazardous voltage symbol.



Earth terminal symbol: Used to indicate a circuit common connected to grounded chassis.

WARNING

The Warning sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a Warning sign until the indicated conditions are fully understood and met.

CAUTION

The Caution sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product. Do not proceed beyond a Caution symbol until the indicated conditions are fully understood or met.

Product Warranty

This Agilent Technologies Inc. product has a warranty against defects in material and workmanship for a period of one year from date of shipment. Some newly manufactured Agilent Technologies Inc. products may contain remanufactured parts which are equivalent to new in performance. During the warranty period, Agilent Technologies Inc. will, at its option, either repair or replace products that prove to be defective.

For warranty service or repair, this product must be returned to a service facility designated by Agilent Technologies Inc.

For products returned to Agilent Technologies Inc. for warranty service, the Buyer shall prepay shipping charges to Agilent Technologies Inc. and Agilent Technologies Inc. shall pay shipping charges to return the product to the Buyer. However, the Buyer shall pay all shipping charges, duties, and taxes for products returned to Agilent Technologies from another country.

Agilent Technologies warrants that its software and firmware designated by Agilent Technologies for use with an instrument will execute its programming instructions when properly installed on that instrument. Agilent Technologies does not warrant that the operation of the instrument software, or firmware will be uninterrupted or error free.

Limitation of Warranty

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance by the Buyer, Buyer-supplied software or interfacing, unauthorized modification or misuse, operation outside of the environmental specifications for the product, or improper site preparation or maintenance.

No other warranty is expressed or implied. Agilent Technologies Inc. specifically disclaims the implied warranties of merchantability or fitness for a particular purpose.

Exclusive Remedies

The remedies provided herein are the buyer's sole and exclusive remedies. Agilent Technologies Inc. shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory.

Assistance

Product maintenance agreements and other customer assistance agreements are available for Agilent Technologies Inc. products. For any assistance, contact your nearest Agilent Technologies Sales Office.

Agilent Technologies
P. O. Box 2197
1900 Garden of the Gods Road
Colorado Springs, CO. 80907

Certification

Agilent Technologies Inc. certifies that this product met its published specifications at the time of shipment from the factory. Agilent Technologies Inc. further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology, to the extent allowed by the Institute's calibration facility, and to the calibration facilities of other International Standards Organization members.

About this edition

Publication number
01680-97006 January 2002
Printed in USA.

Previous versions:
01680-97002 June 2001

New editions are complete revisions of the manual. Many product updates do not require manual changes; and, conversely, manual corrections may be done without accompanying product changes. Therefore, do not expect a one-to-one correspondence between product updates and manual updates.



01680-97006