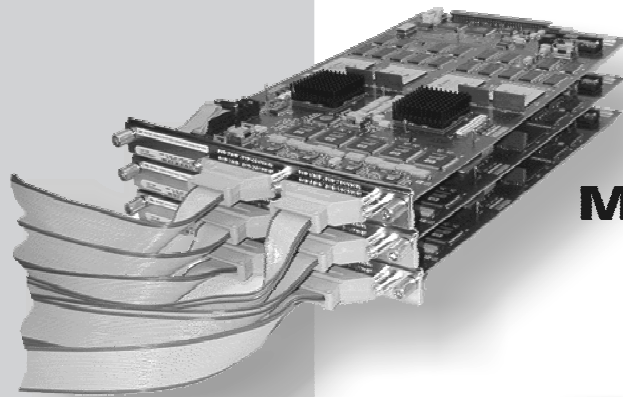


Installation Guide



16700B



**Measurement
Modules**



16702B

Logic Analysis Systems

16allp01


Publication Number 16700-97014

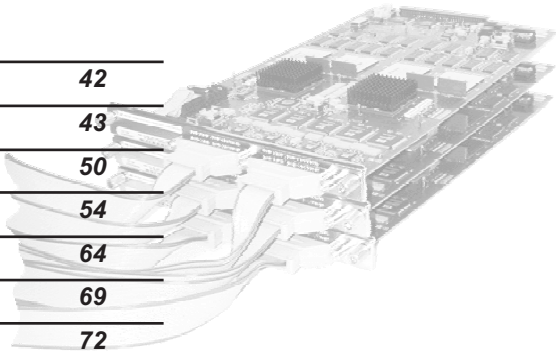
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Agilent Technologies

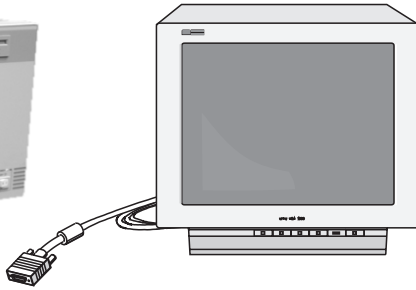
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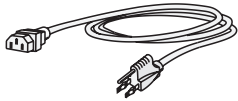


16700B Overview

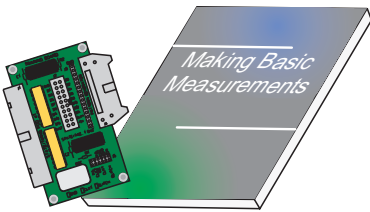
16700B Mainframe



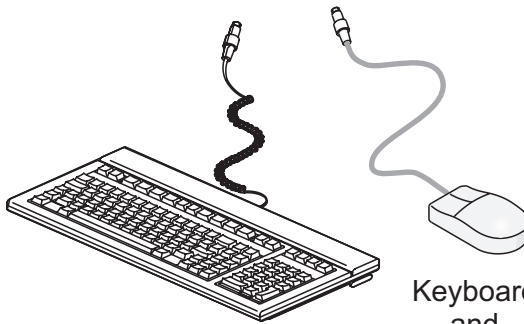
(If ordered)
Monitor
Monitor Cable
Monitor Power Cable



Power Cable

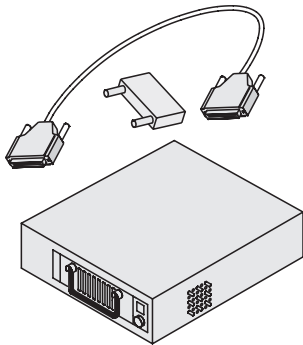


Training Board and Training Kit

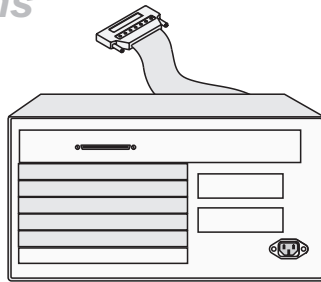


Keyboard
and
Mouse

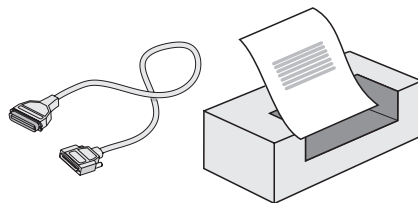
Additional Connections



External Disk Drive and Cable
(Data Drive - Option 008)
(Boot Drive - Option 009)



16701A/B
Expander Frame

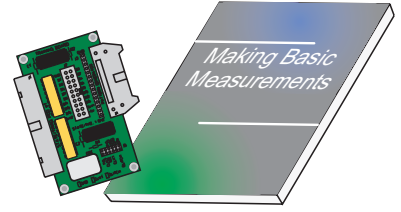


Printer
and
Cable

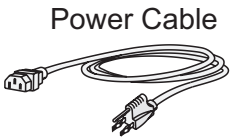
16702B Overview



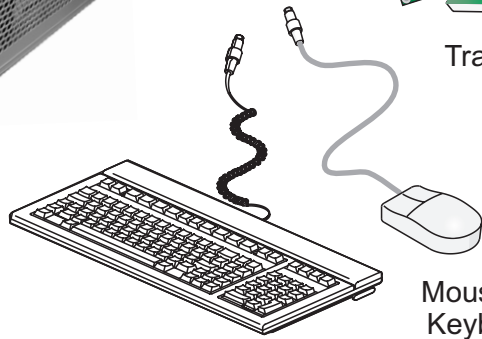
16702B Mainframe



Training Board and Training Kit

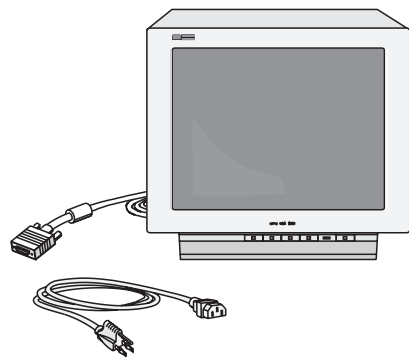


Power Cable

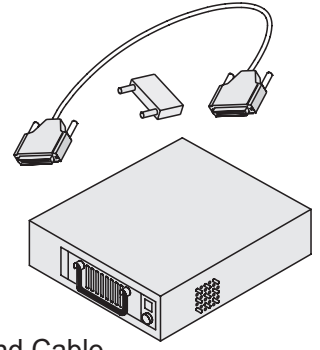


Mouse and Keyboard

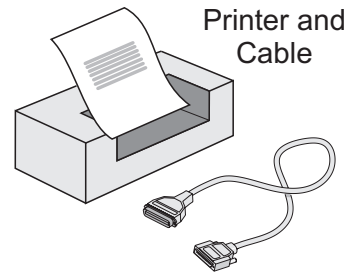
Additional Connections



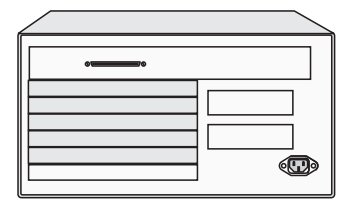
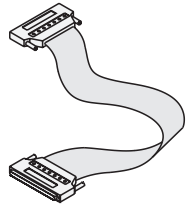
Monitor
Monitor Cable and
Monitor Power Cable
(If ordered)



External Disk Drive and Cable
(Data Drive - Option 008)
(Boot Drive - Option 009)



Printer and
Cable



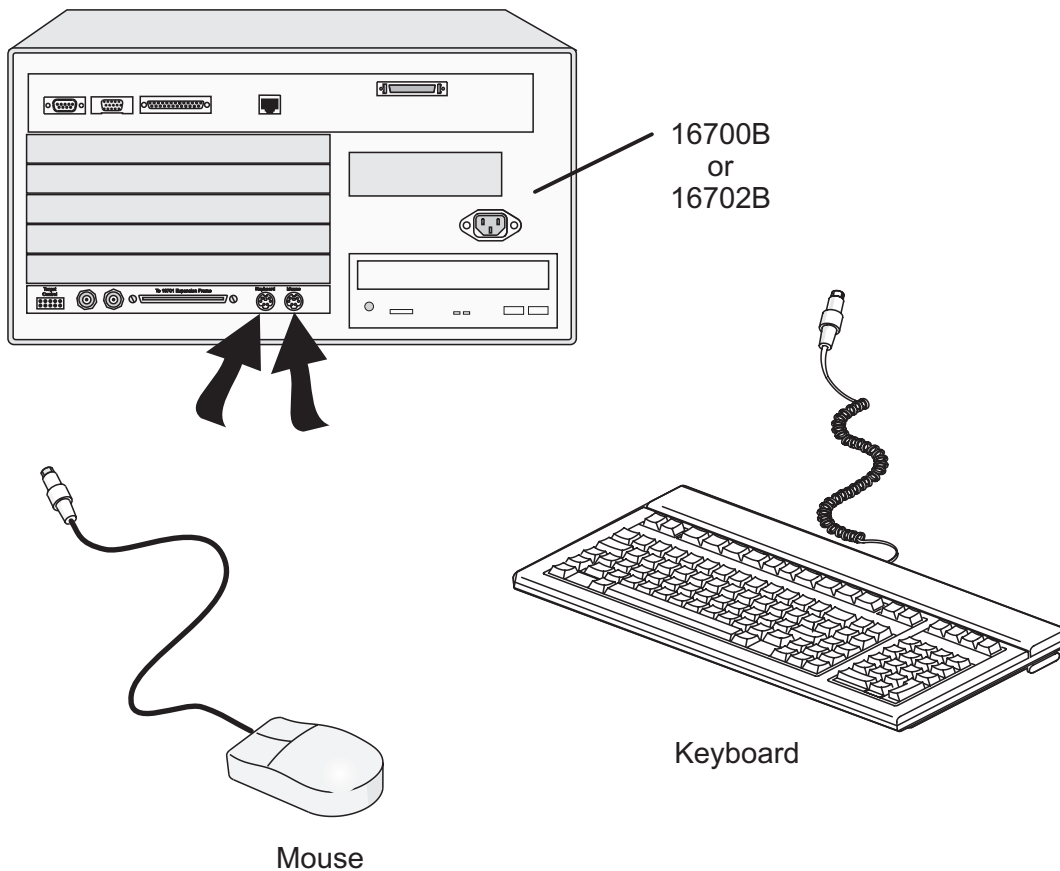
16701A/B Expander Frame

Mouse & Keyboard for 16700B/ 16702B

Note!

The 16700B must have the system mouse and keyboard connected for the system to boot up properly.

Once enabled on the LAN, the system can be operated remotely without a keyboard or mouse.

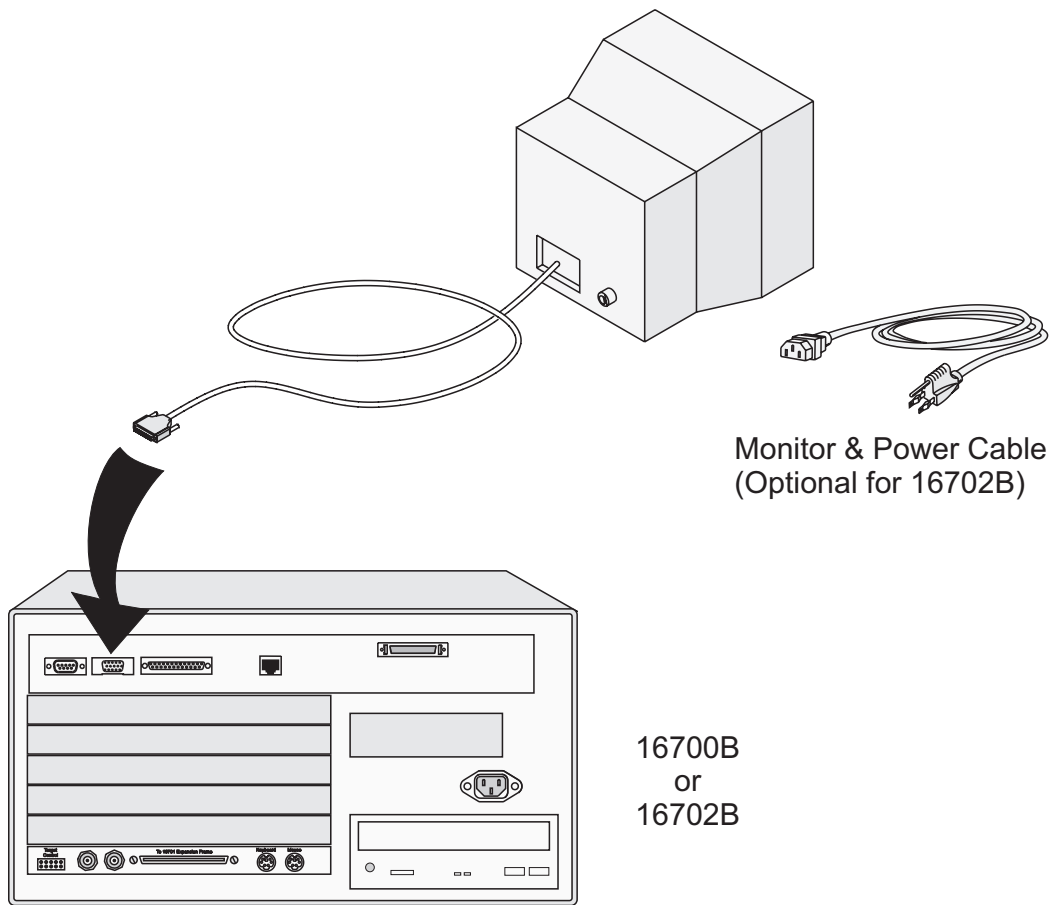


Monitor Connection

for 16700B /16702B

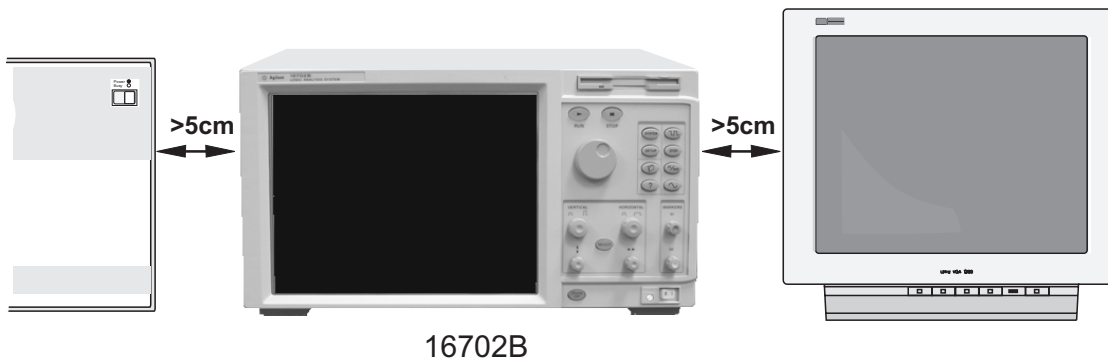
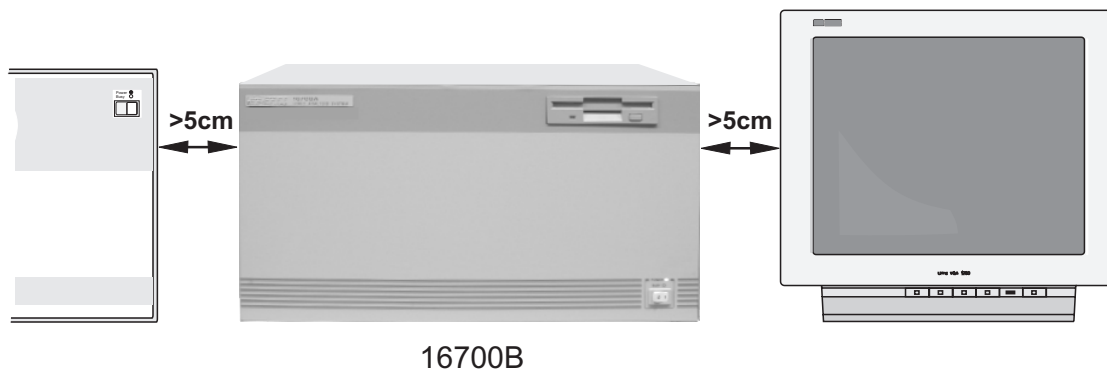
Note!

If applicable, international versions of the power cables can be found in the accessories box.



Proper Cooling for 16700B/ 16702B/ Measurement Modules

Allow a minimum of 5 cm spacing between instruments for proper cooling.



Monitor Configuration for 16700B

If you ordered the optional monitor with your logic analyzer, the monitor resolution setting is pre-configured for 1280 x 1024 at the factory.

If you already have a monitor and ordered your logic analysis system without the optional monitor, you will need to configure your monitor. The display will change on the screen every few seconds as the system cycles through the monitor resolution choices. Make the appropriate selection when it appears.



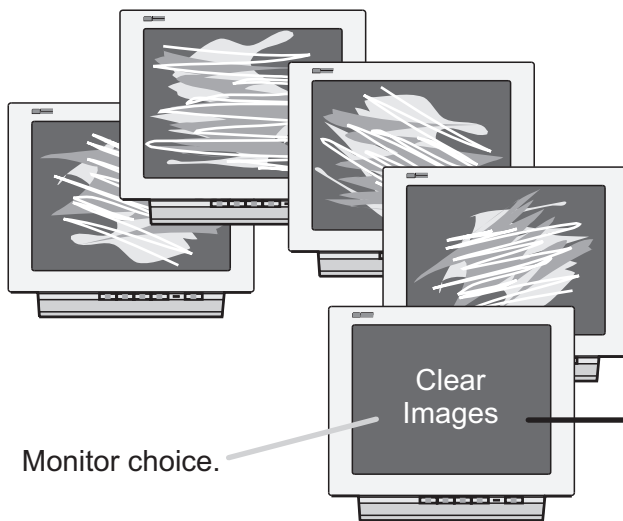
1 Monitor power



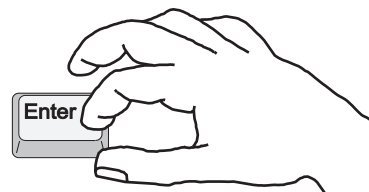
16700B

2 System power

(Cycling choices)



Press ENTER to select the monitor choice and "Y" to confirm.



Monitor Configuration for 16702B

Note!

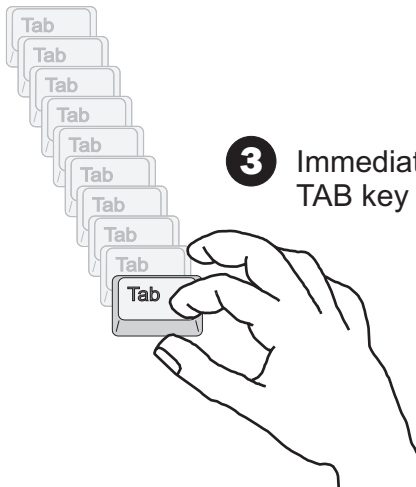
Use this procedure if you wish to configure an optional monitor to an 16702B.



1 Monitor power

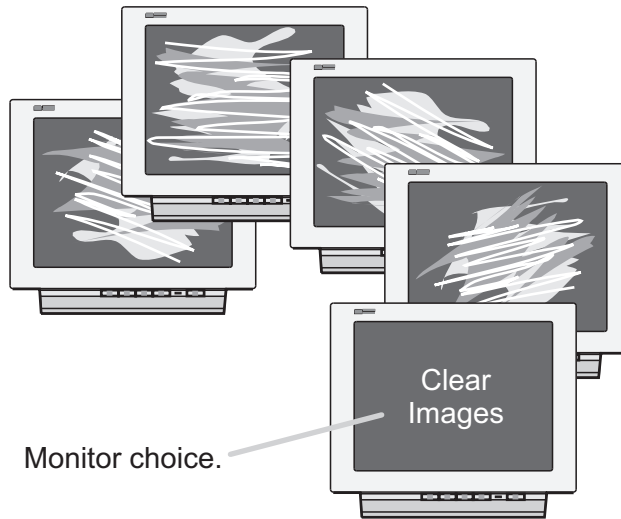


2 System power

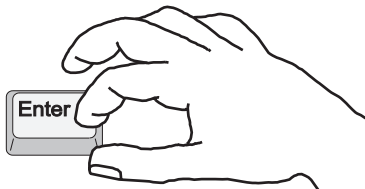


3 Immediately press the TAB key about ten times.

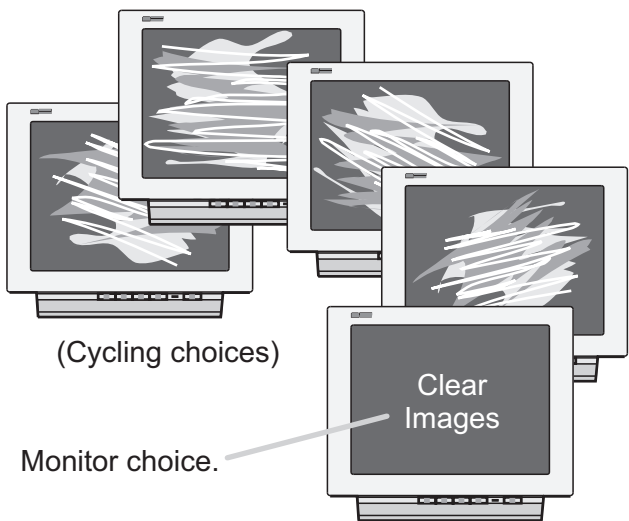
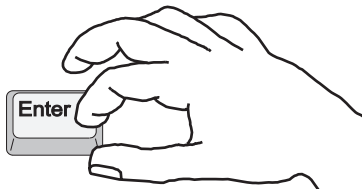
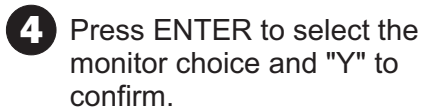
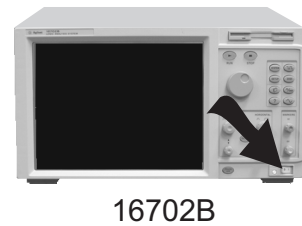
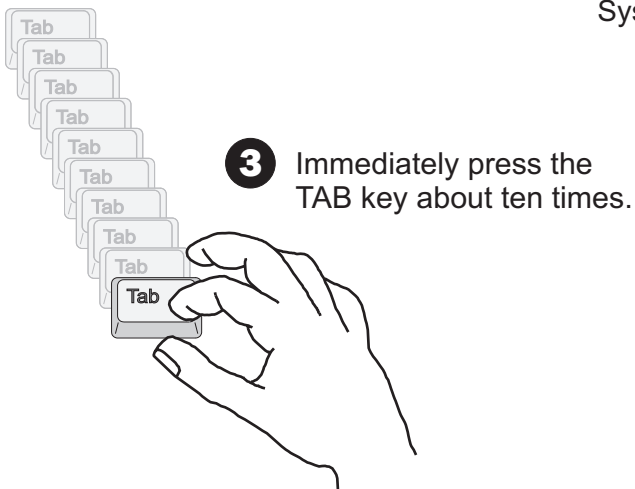
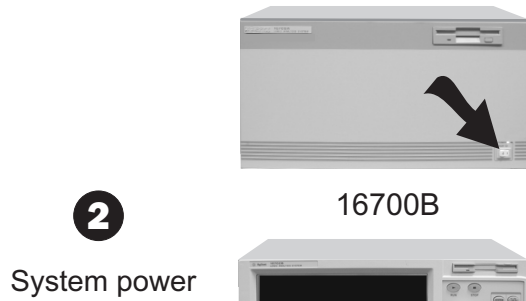
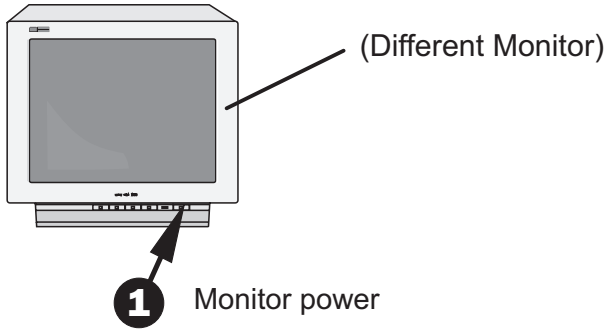
(Cycling choices)



4 Press ENTER to select the monitor choice and "Y" to confirm.

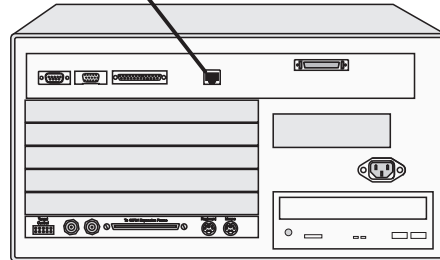
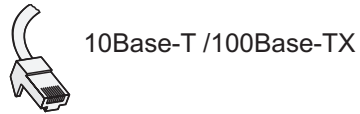
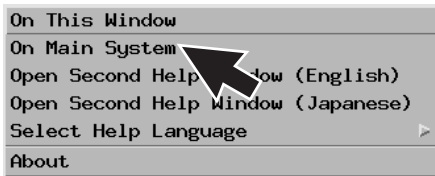


Changing Monitors for 16700B/ 16702B

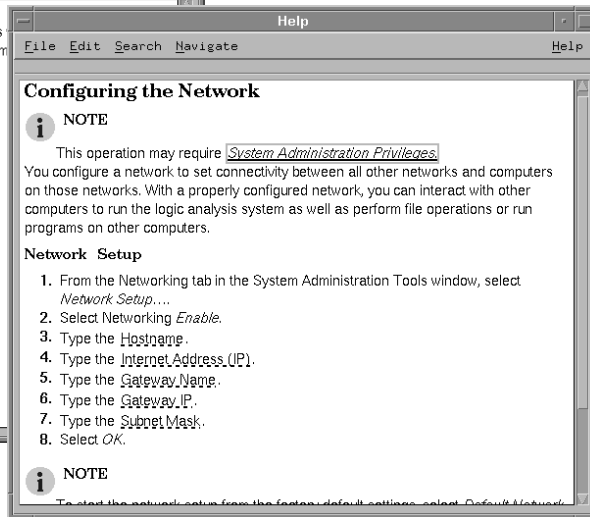
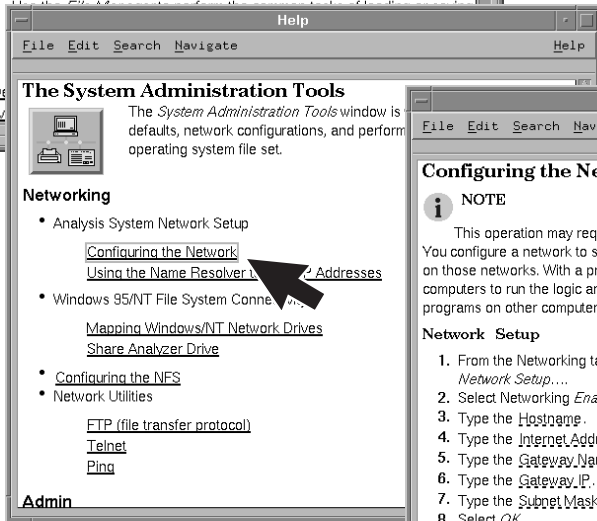
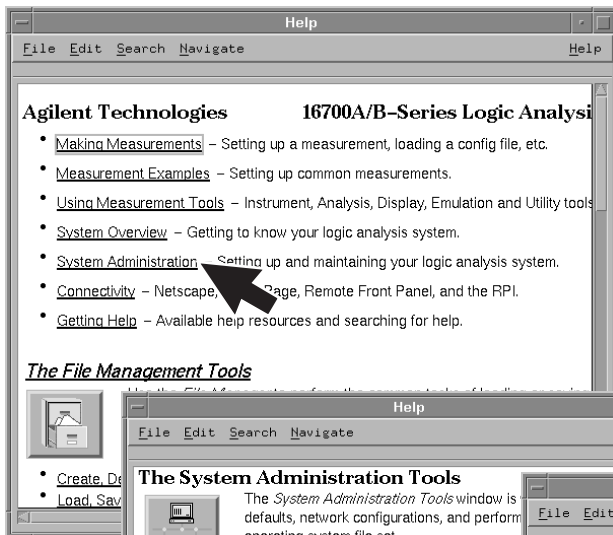


LAN

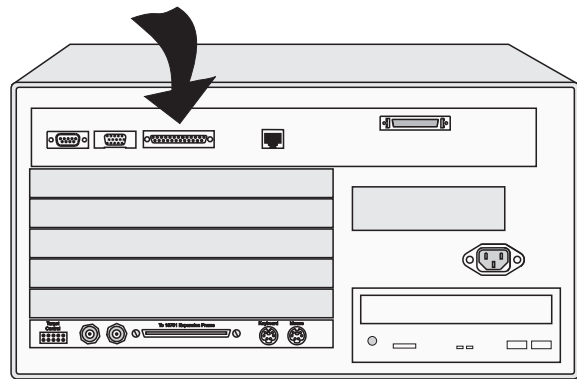
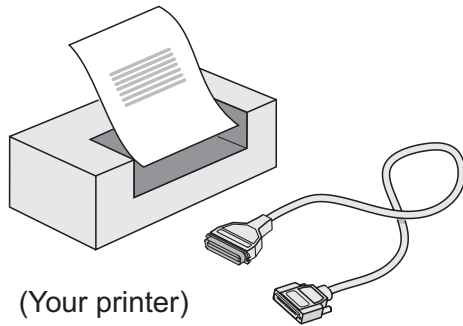
for 16700B/ 16702B



16700B or 16702B



Printers for 16700B/ 16702B

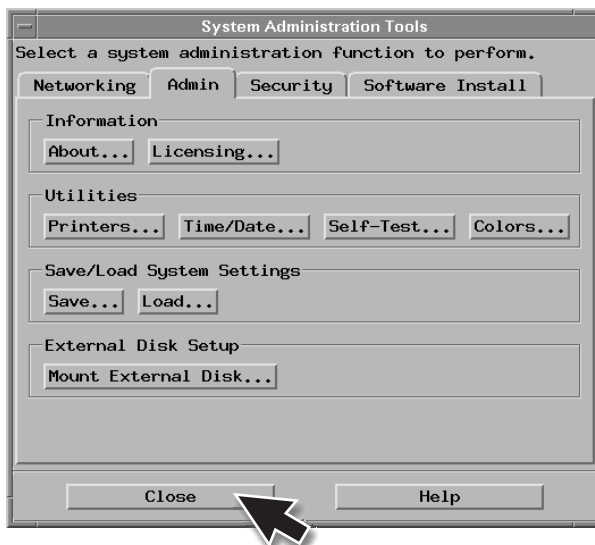
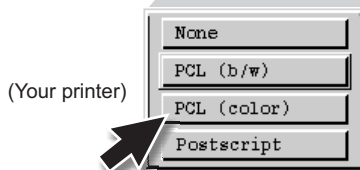
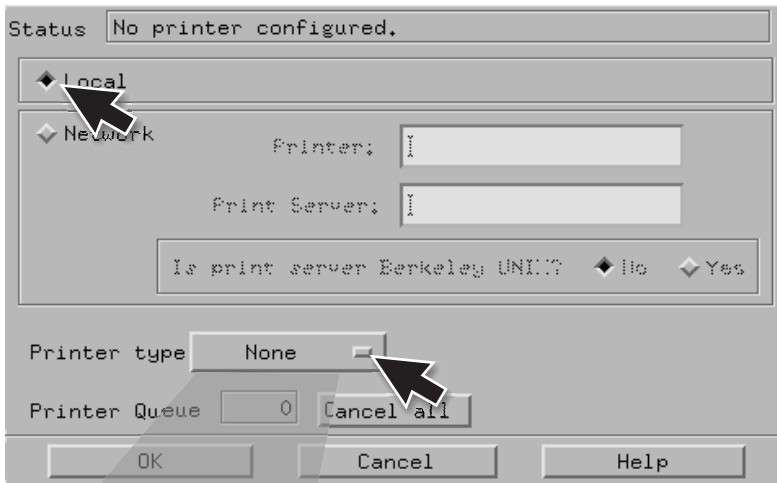


16700B or 16702B



Printers

for 16700B/ 16702B



Note!

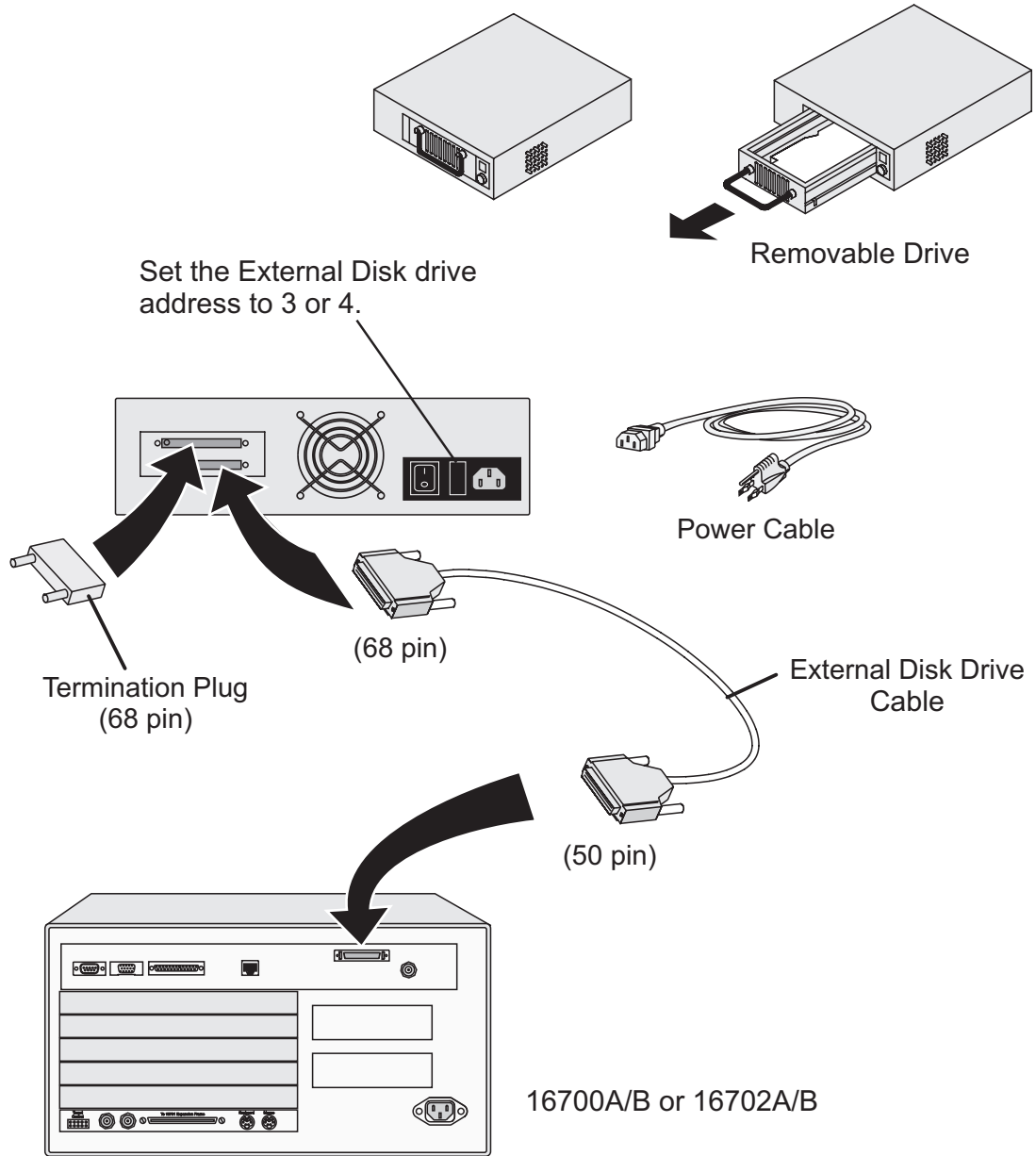
Refer to "Network Printer Setup" in the online help for networked printers.

Printer Setup
Done

External Disk Drive

for 16700A/ 16700B/ 16702A/ 16702B

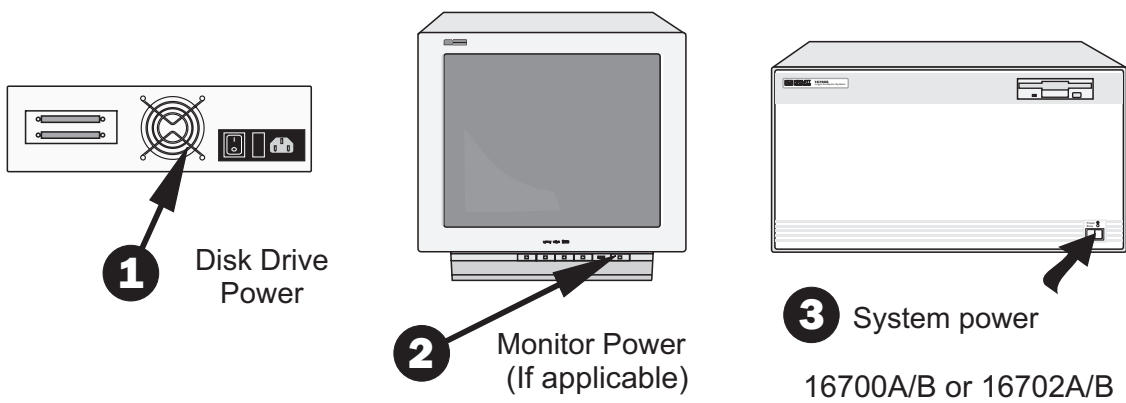
as External Data Drive (Option 008)



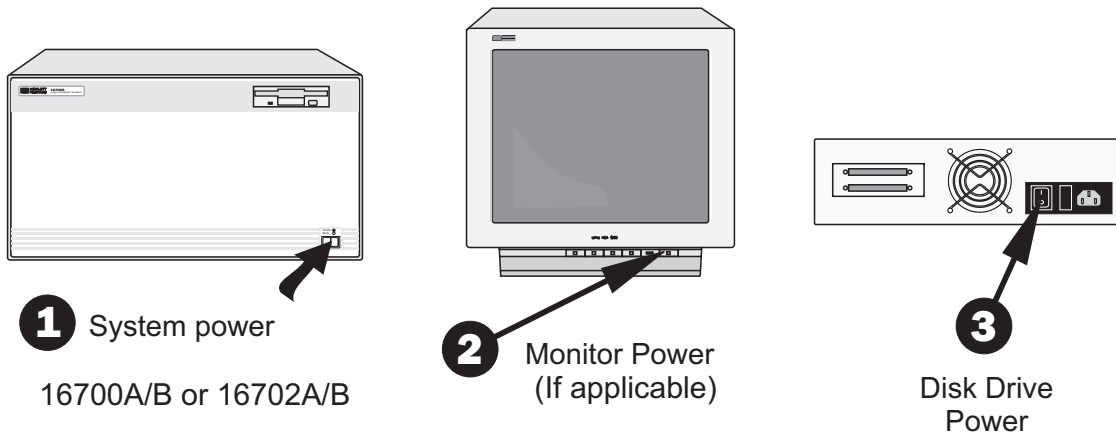
External Disk Drive

for 16700A/ 16700B/ 16702A/ 16702B
as External Data Drive (Option 008)

To power up the system.....



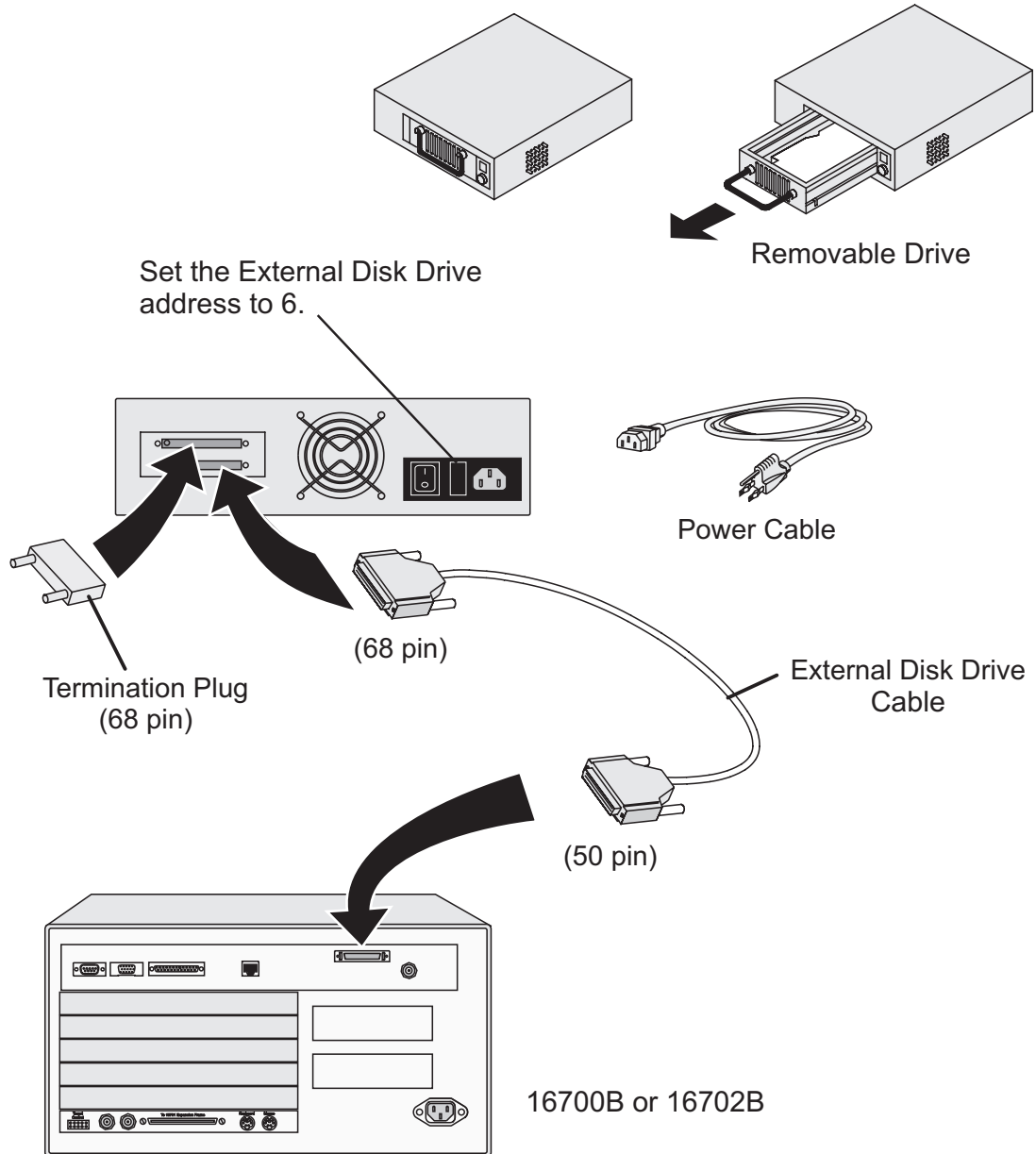
To power down the system.....



Data Drive
Done

External Disk Drive for 16700B/ 16702B

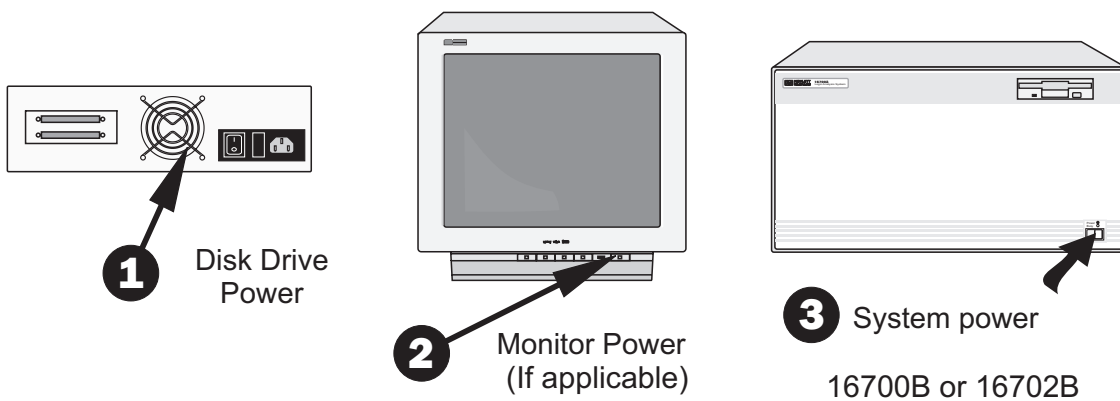
as Removable Boot Drive (Option 009)



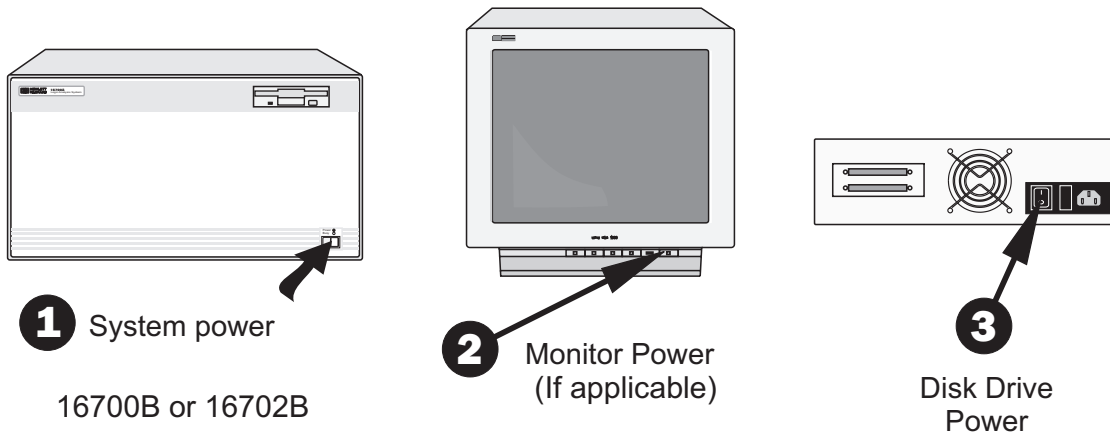
External Disk Drive for 16700B/ 16702B

as Removable Boot Drive (Option 009)

To power up the system.....

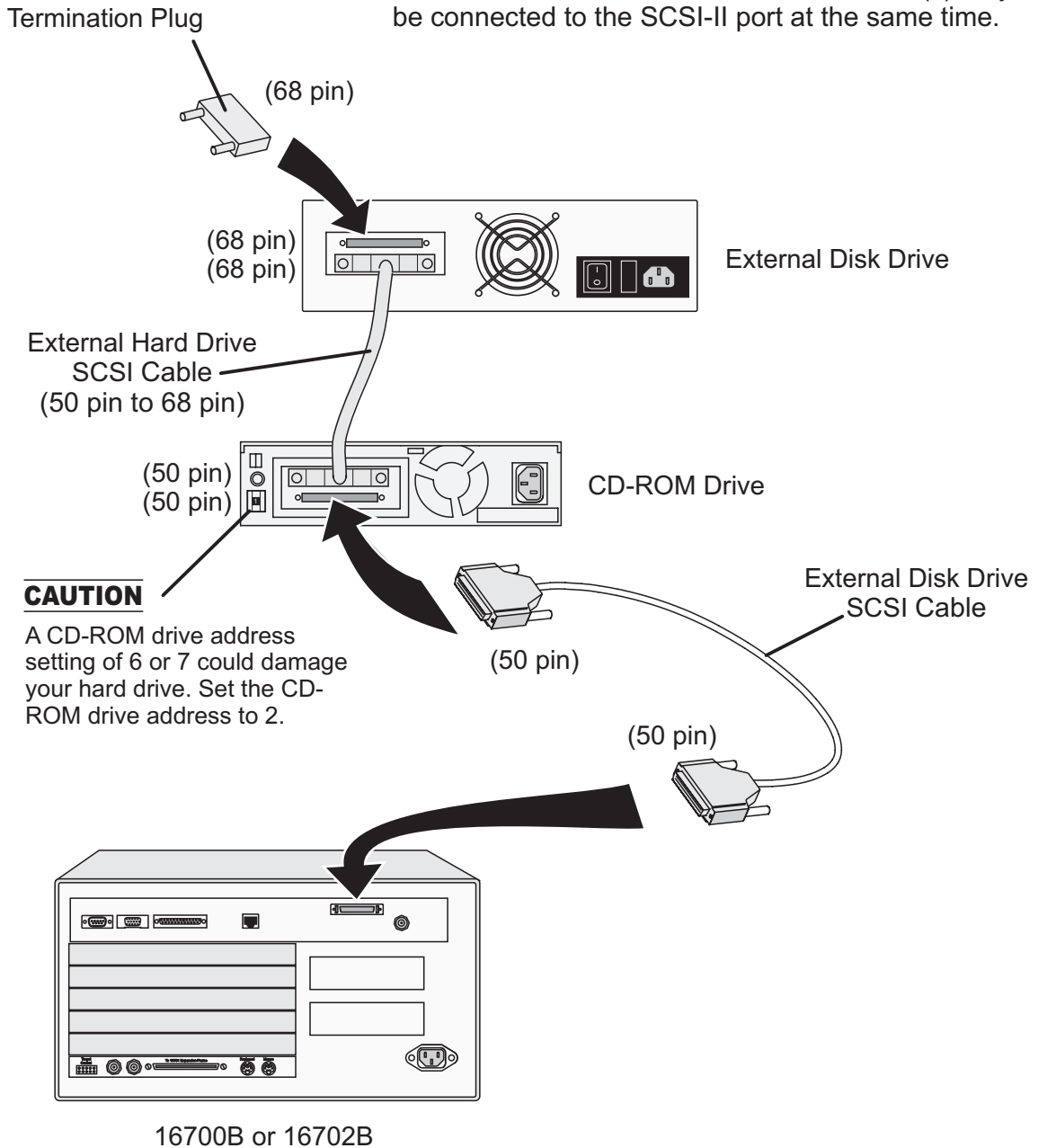


To power down the system.....



External Disk Drive & CD-ROM for 16700B/ 16702B

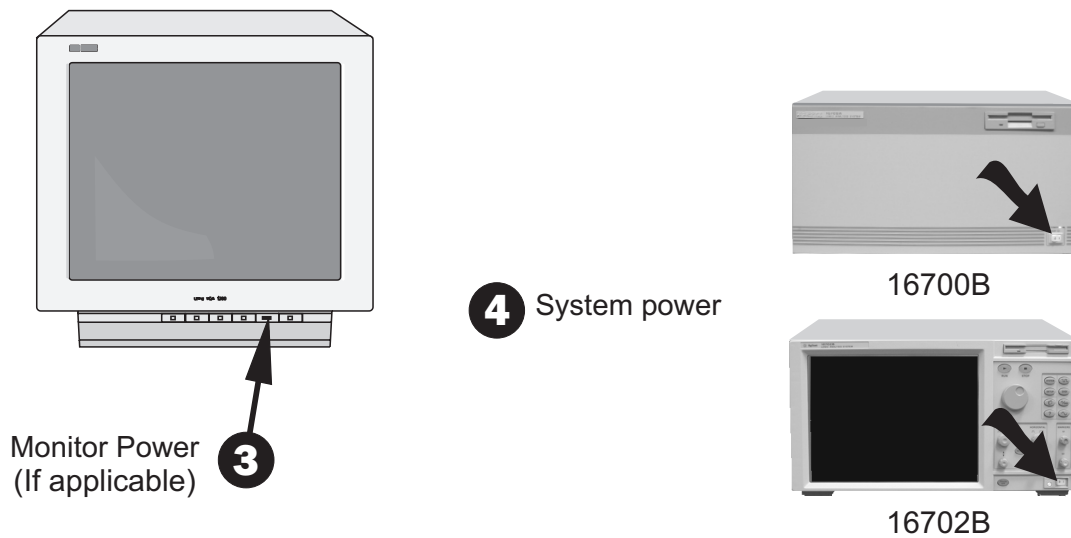
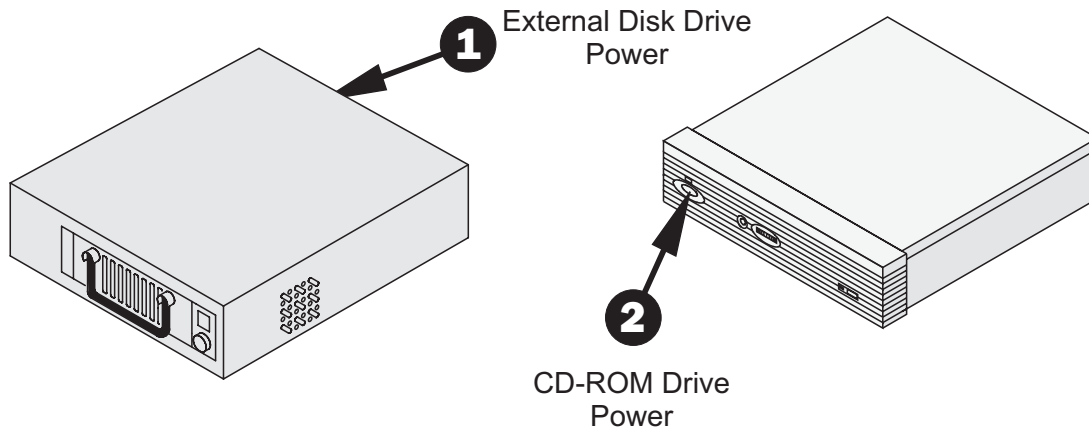
A CD-ROM drive and an external hard drive(s) may be connected to the SCSI-II port at the same time.



External Disk Drive & CD-ROM for 16700B/ 16702B

Note!

When a system is shipped, the factory installs the current operating system and ordered processor support packages and tools.

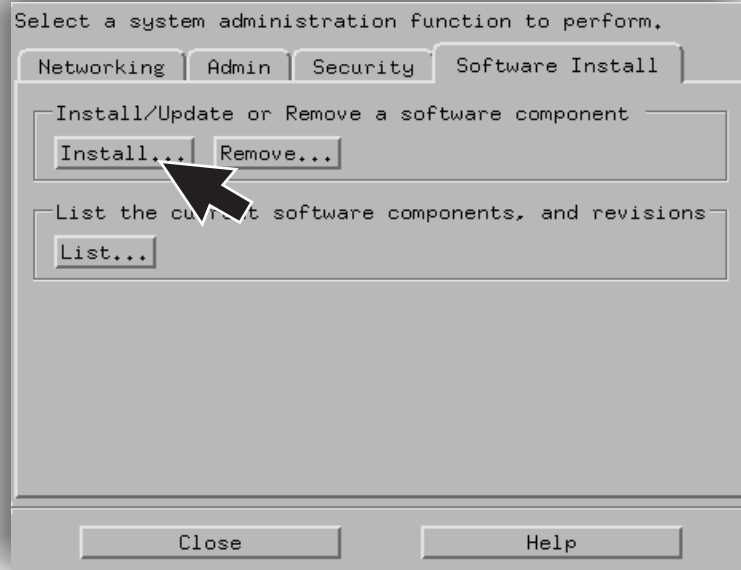
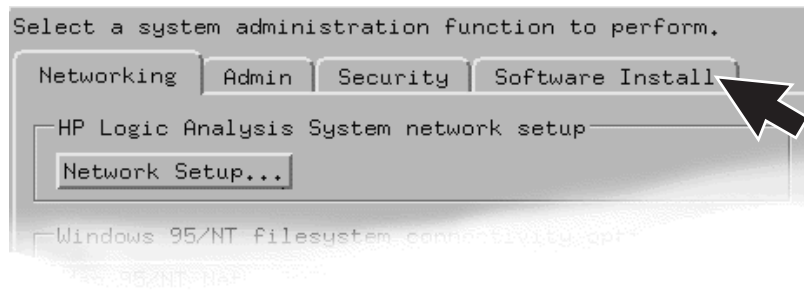
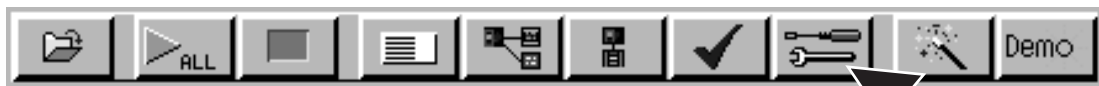


Done

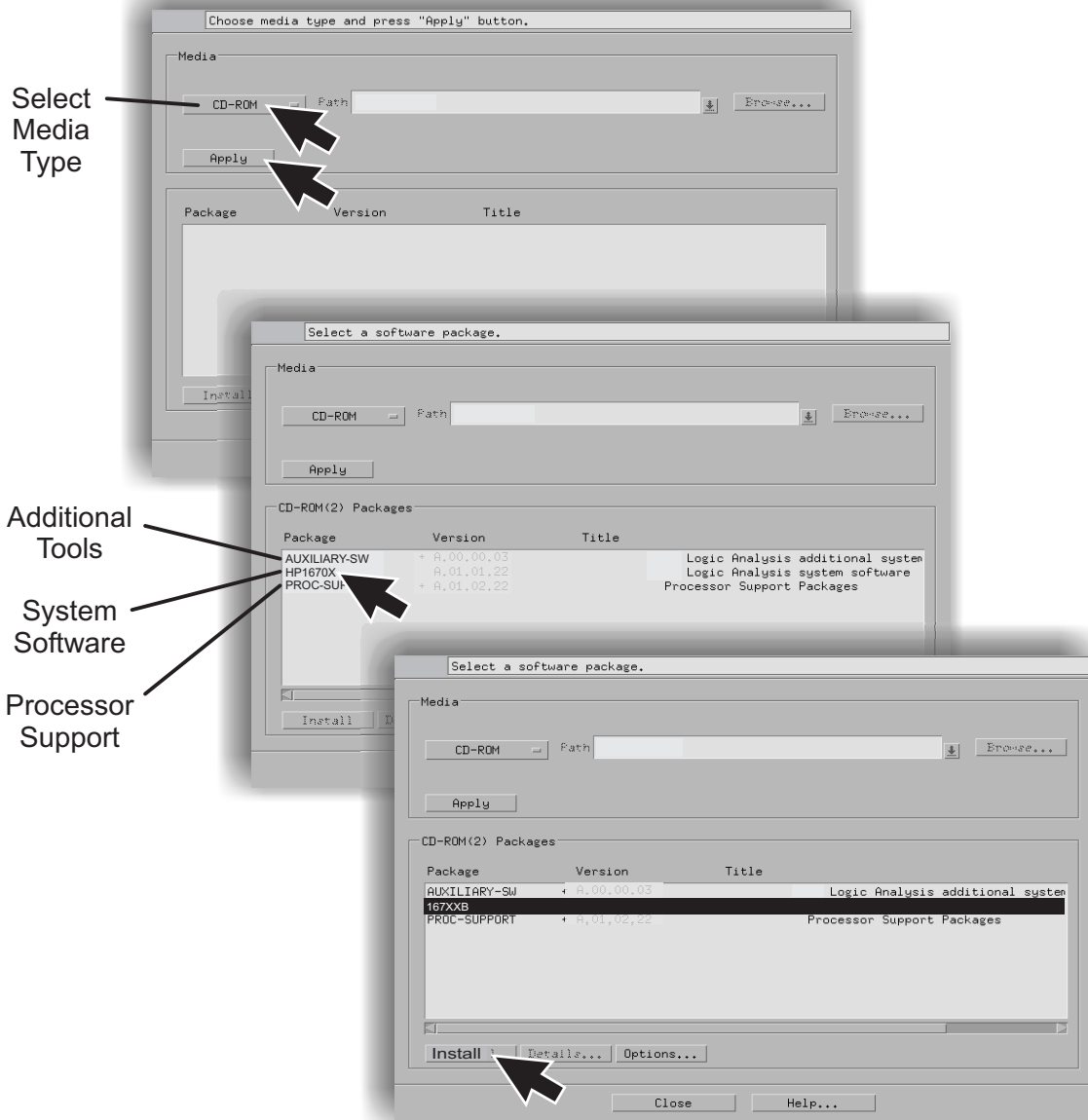
Software Installation for 16700B/ 16702B/ Measurement Modules

Note!

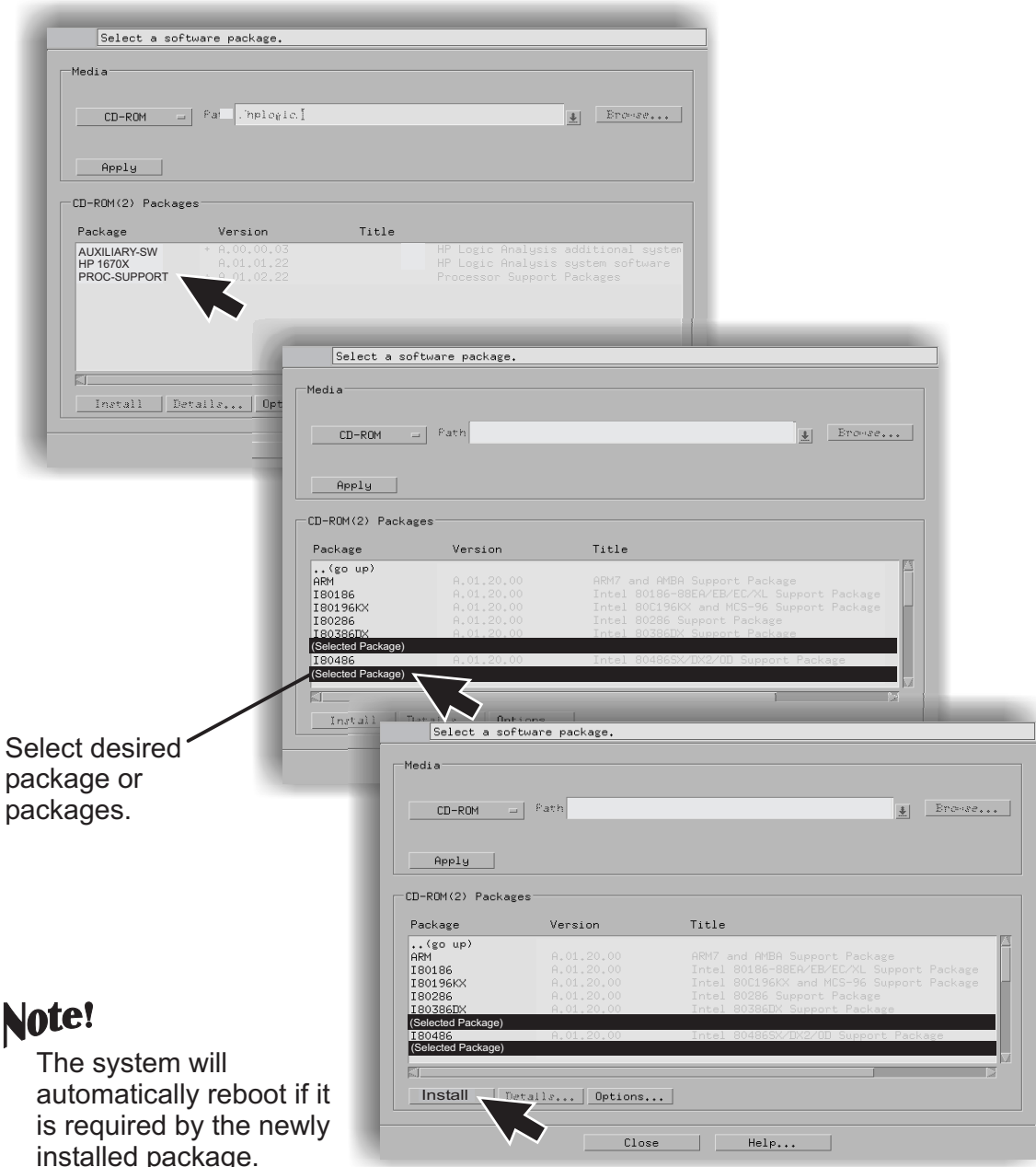
When a system is shipped, the factory installs the current operating system and ordered processor support packages and tools.



Software Installation for 16700B/ 16702B/ Measurement Modules



Software Installation for 16700B/ 16702B/ Measurement Modules



Select desired package or packages.

Note!
The system will automatically reboot if it is required by the newly installed package.

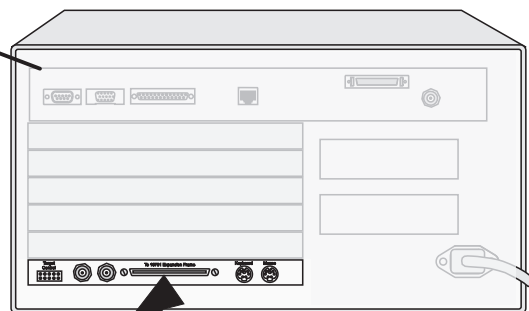
Software Installation
Done

16701A/B Expander Frame

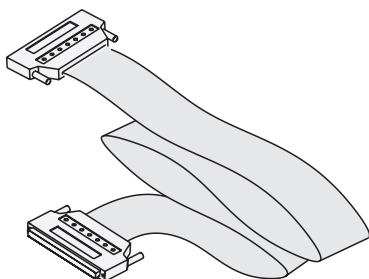
for 16700B/ 16702B/ Measurement Modules

16700B or 16702B

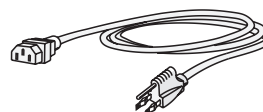
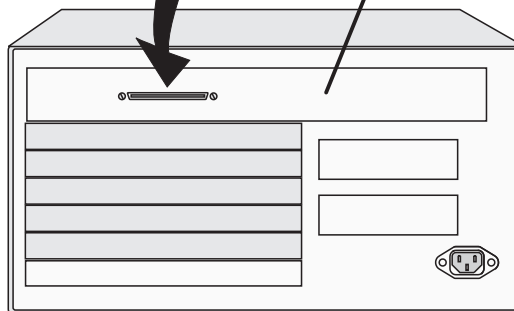
- 1 Install your measurement modules in the 16701A/B expander frame.
- 2 Connect the desired length interconnect cable and tighten the connector screws with the screw driver provided.
- 3 Connect the power cable to the 16701A/B.
- 4 Power up the 16700B or 16702B system.



16701A/B Interconnect Cable
Choose from the 30cm (12 inch) length,
or the 90 cm (36 inch) length.



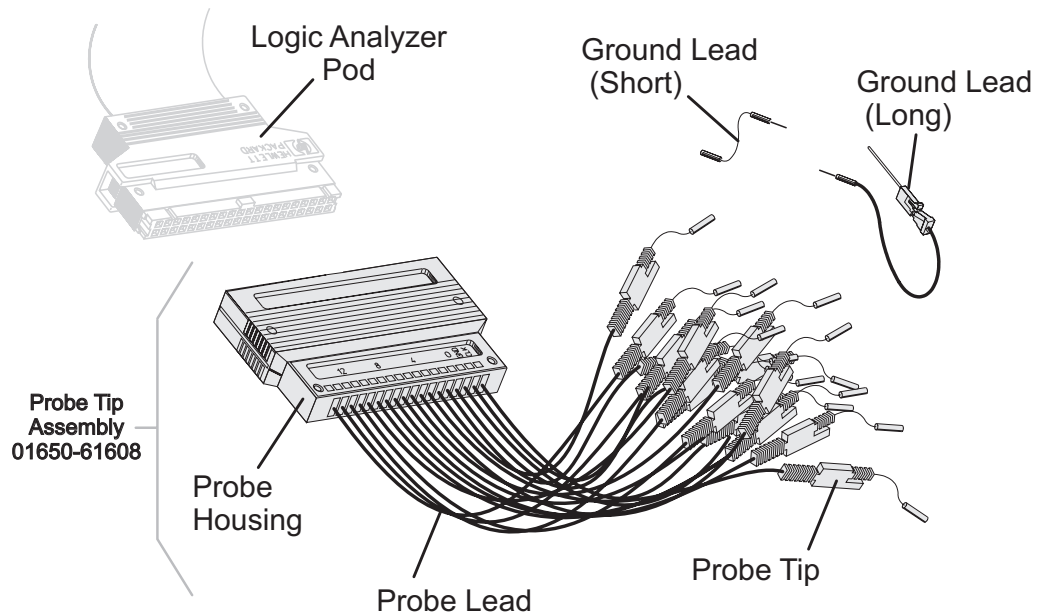
16701A/B



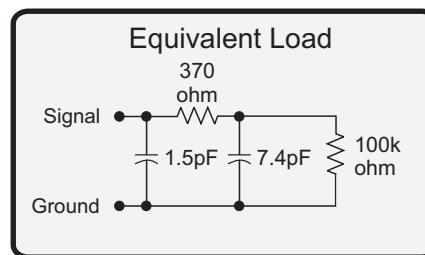
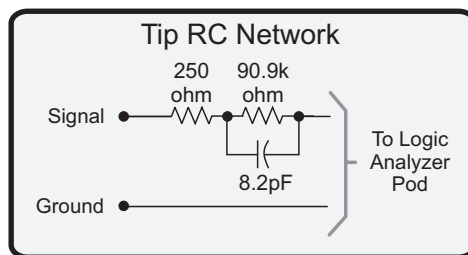
Probing

for 16700B/ 16702B/ Measurement Modules

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.



Includes logic analyzer

The advantages of this are:

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

Probing

for 16700B/ 16702B/ Measurement Modules

General-Purpose Probing

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.

You can also connect the leads using through-hole grabbers, which have small enough hooks to fit around adjacent IC pins, or by using surface-mount grabbers designed for fine surface-mount component leads.

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.

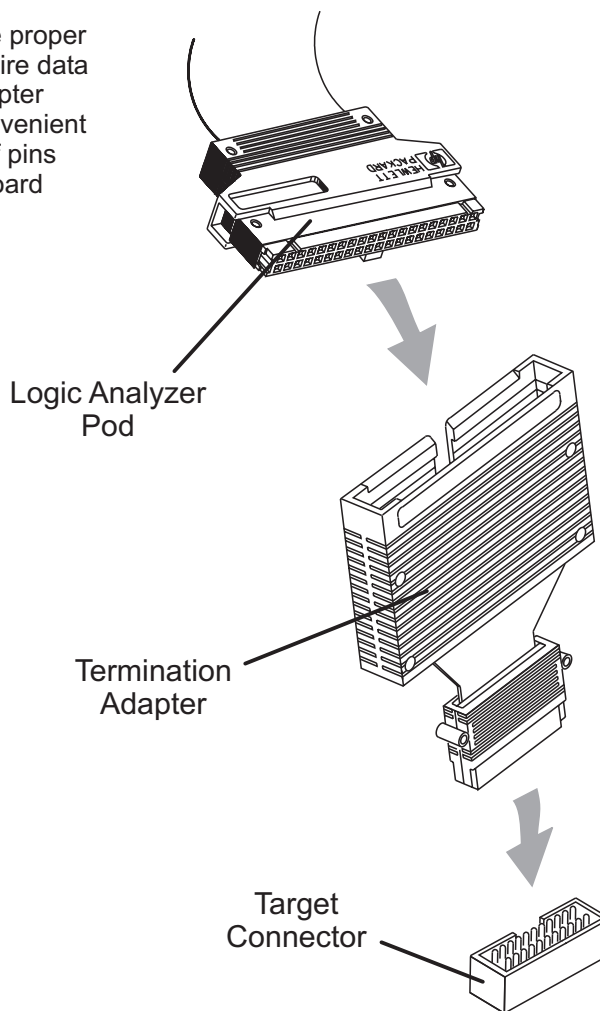
Note! The minimum input overdrive is the greater of 250 mV or 30% of signal amplitude. The maximum probe input voltage of each logic analyzer probe is 40 volts peak.

Probing

for 16700B/ 16702B/ Measurement Modules

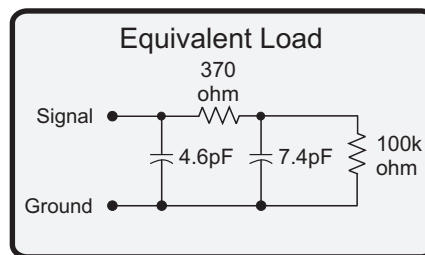
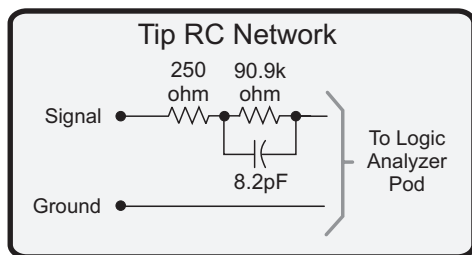
Termination Adapter

The logic analyzer cable must have the proper RC network at its input in order to acquire data correctly. The optional Termination 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.



+5V	1	2	N/C
CLK1	3	4	D15
D14	5	6	D13
D12	7	8	D11
D10	9	10	D9
D8	11	12	D7
D6	13	14	D5
D4	15	16	D3
D2	17	18	D1
D0	19	20	GND

Target Connector Pinout (Top View)

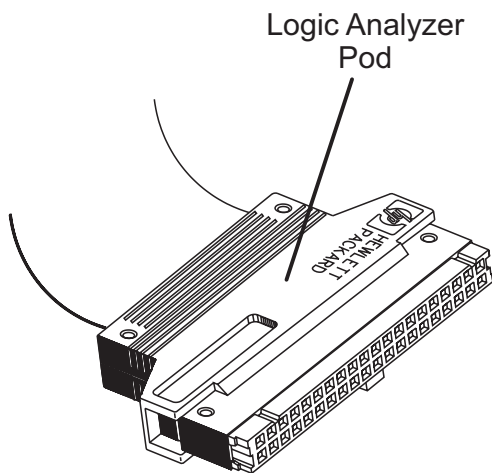


Probing

for 16700B/ 16702B/ Measurement Modules

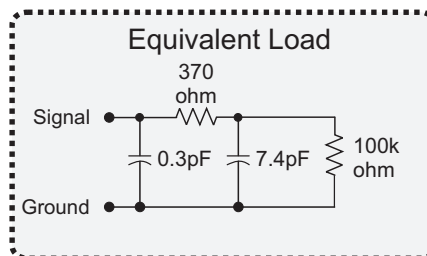
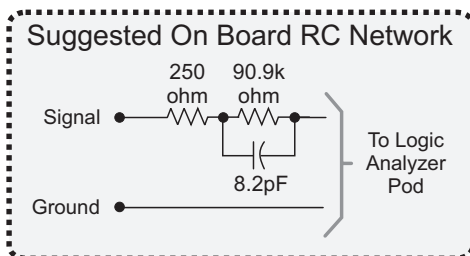
Connecting Probes to a Target System Directly

You can connect the logic analyzer cable directly to a 40-pin connector, but you must install the proper RC network directly onto the target system board. Agilent Technologies recommends three types of RC networks which are described in detail in the Application Note: **Probing Solutions for Agilent 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

Target Connector Pinout
(Top View)



Includes on board RC network and logic analyzer

CAUTION



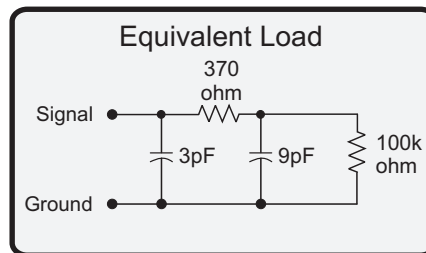
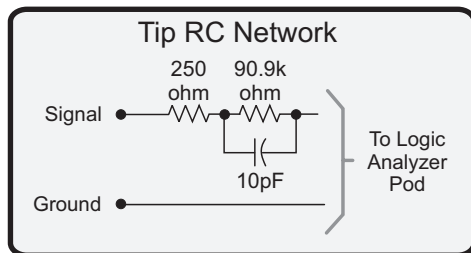
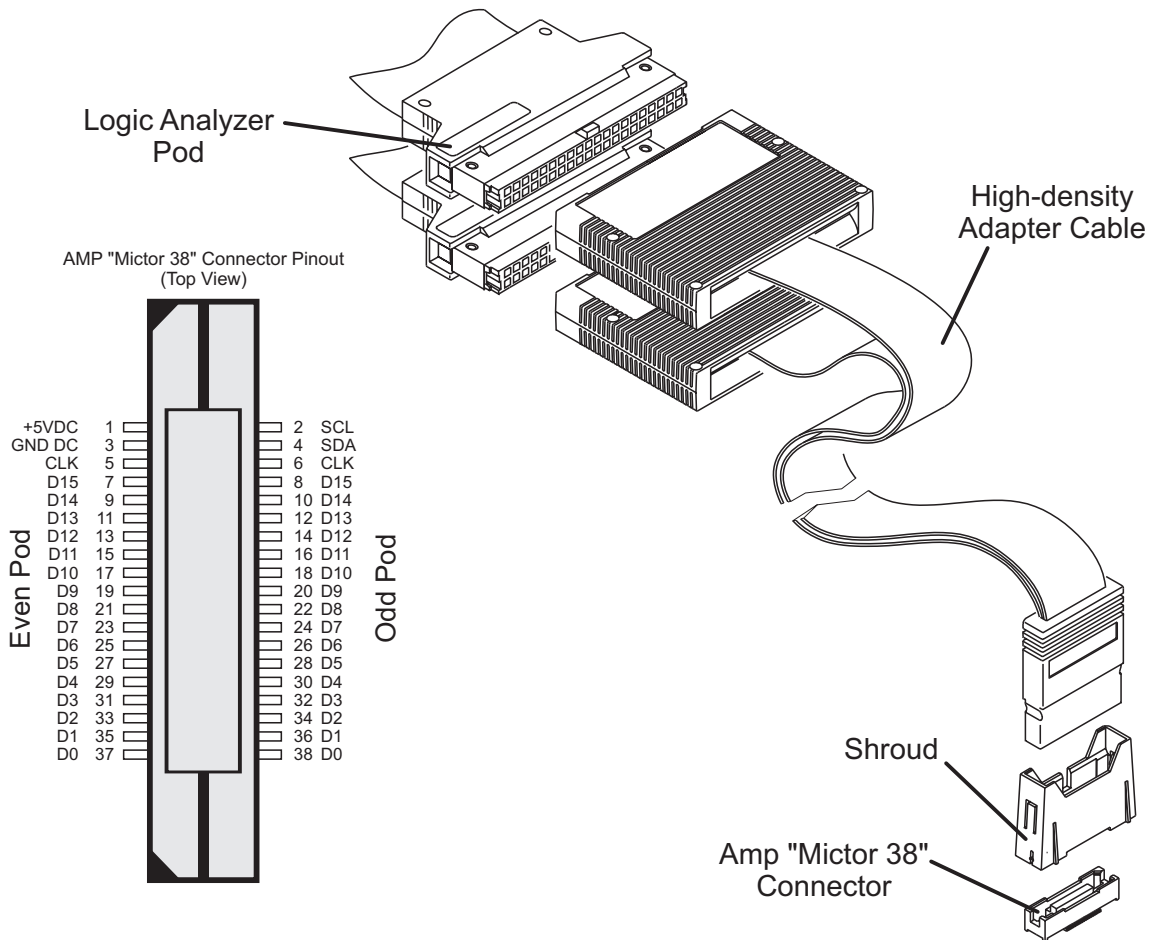
Do not exceed 0.33 amps per cable, or the cable will be damaged. The cable ground lines are chassis (earth) grounds and not "floating" grounds. All the lines are woven into a flat ribbon that is 4.5 feet long.

For more information, contact your Agilent Technologies Sales office and ask for the Application Note: **Probing Solutions for Agilent Logic Analysis Systems**. (Or download from the web at: <http://www.agilent.com/find/go/LA-AppNotes/>)

Probing for 16700B/ 16702B/ Measurement Modules

High Density Adapter E5346A (With Tip RC Network)

The E5346A high-density adapter 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 target system board.

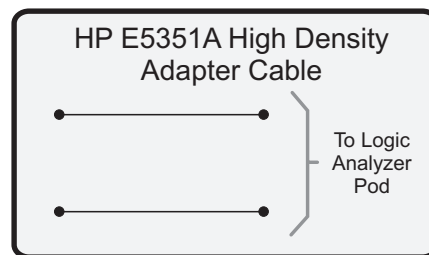
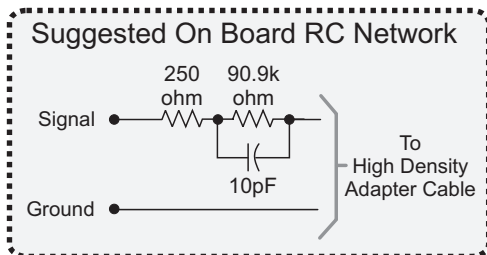
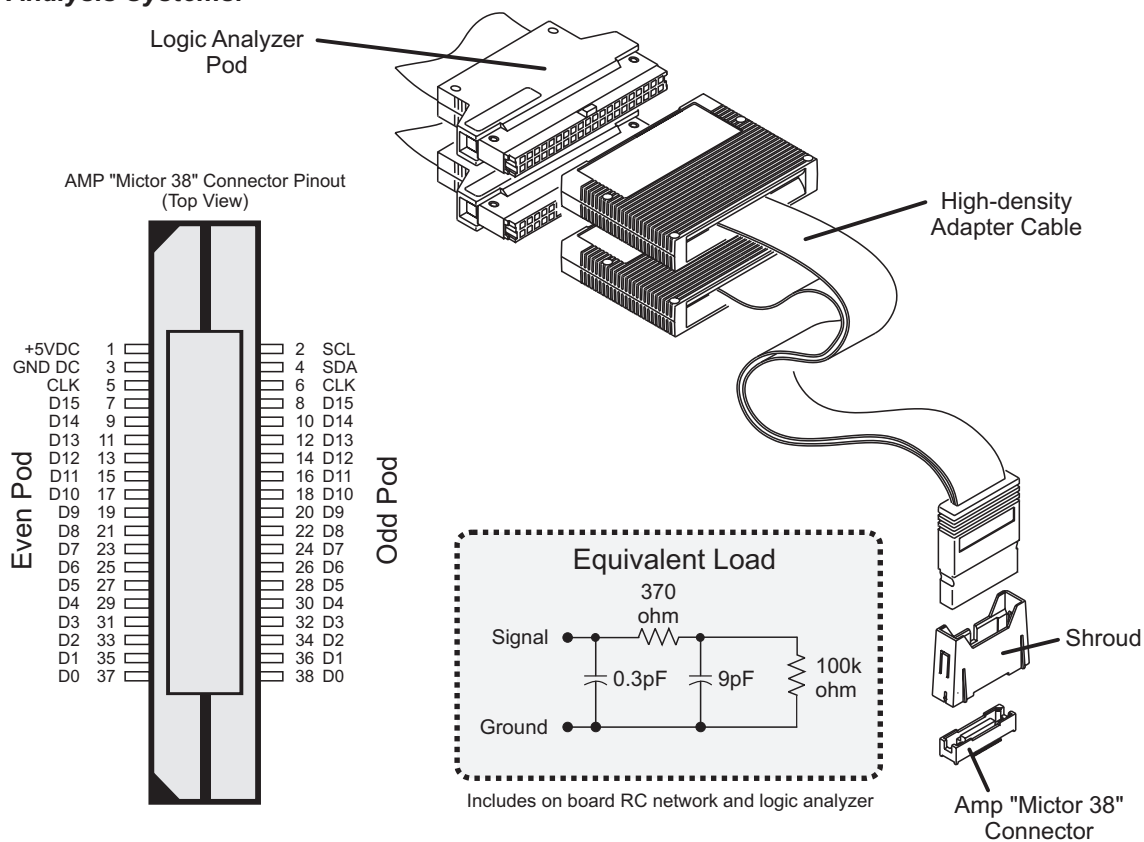


Includes logic analyzer

Probing for 16700B/ 16702B/ Measurement Modules

High Density Adapter E5351A (No Tip Network)

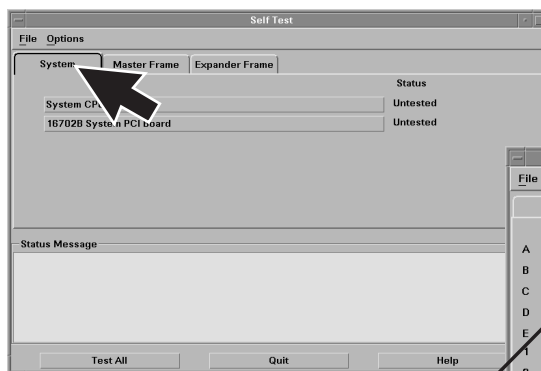
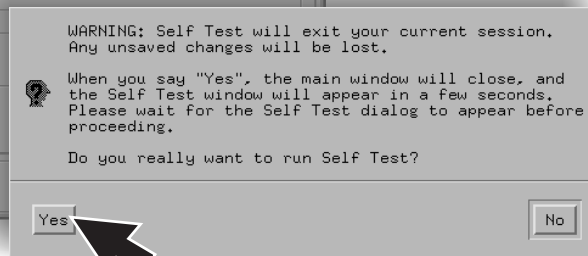
The E5351A high-density adapter provides a convenient and easy way to connect an Agilent logic analyzer to the signals on your target system for packages that are difficult to probe, such as BGAs. The proper RC networks and an AMP "Mictor 38" connector must be installed on your target system board. See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



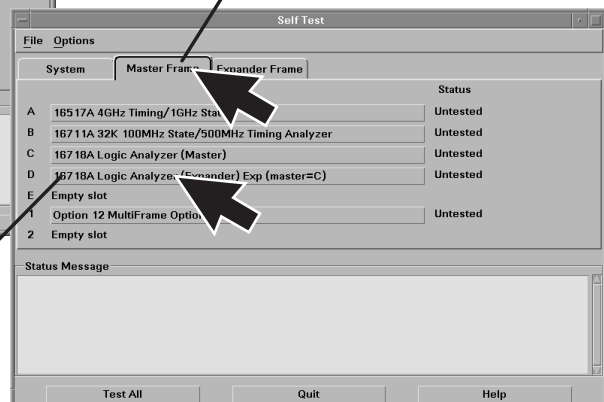
Must be terminated on-board.

Self-Test

for 16700B/ 16702B/ all Measurement Modules



(Measurement Modules)



Choose a module and select the desired test.

Specifications & Characteristics for 16700B/ 16702B/ all Measurement Modules

Help

Select on the Main Menu

Agilent Technologies 16600A/16700A/B-Series Logic Analysis

- [Making Measurements](#) – Setting up a measurement, loading a config file, etc.
- [Measurement Examples](#) – Setting up common measurements.
- [Using Measurement Tools](#) – Instrument, Analysis, Display, Emulation and Utility tools
- [System Overview](#) – Getting to know your logic analysis system.
- [System Administration](#) – Setting up and maintaining your logic analysis system.
- [Connectivity](#) – Networks, Hosts, Buses, Drivers, Front Panels, and GPIB
- [Getting Help](#) – Available help resources

The File Management

Use the [File Management](#) menu to configure internal files.

- [Create, Delete, or Rename](#)
- [Load, Save, Copy, or Paste](#)

Select an instrument

Master List of All Tool Help Volumes

All Instrument, Display, Utility, and Analysis tools, have their own specific help volume. The *Help* menu within each tool window accesses its own help volume. You can access specific *Tool Help Volumes* below, or, you can return to the [Main Help Volume](#).

See Also: [Online Help Information on the World Wide Web](#)

The Instrument Tools

- [16600-Series Built-In Logic Analyzer](#)
- [16517A High Speed Timing Analyzer](#)
- [16522A Pattern Generator](#)
- [16533/34A Oscilloscopes](#)
- [16550A Logic Analyzer](#)
- [16554A Logic Analyzer](#)
- [16555A/D Logic Analyzer](#)
- [16556A/D Logic Analyzer](#)
- [16557D Logic Analyzer](#)
- [16710A Logic Analyzer](#)
- [16711A Logic Analyzer](#)
- [16712A Logic Analyzer](#)
- [16715A Logic Analyzer](#)
- [16716A Logic Analyzer](#)

Using the Help

- [Loading and Saving](#)
- [Testing the Logic Analyzer](#)

Interface Reference

- [The Sampling Tab](#)
- [The Format Tab](#)
- [The Trigger Tab](#)
- [The Symbols Tab](#)
- [Specifications and Characteristics](#)
- [Main System Help](#)
- [Glossary of Terms](#)

Disaster Recovery

Reinstalling the Operating System.

CAUTION *Read this section carefully before you attempt to reinstall the operating system from the CD-ROM using this procedure. **Everything on the hard drive will be overwritten, including user configuration, data files, and license passwords. To save your system's license information, as well as other system settings, refer to "Saving System Settings" and "Reloading System Settings" in this section.** You will need to connect a keyboard to your 16702B in order to execute disaster recovery procedures.*

A batch process is used to autoloading the software and then reboot the instrument. The batch process waits for only a short timeout period for user interaction to abort the process. Otherwise, the hard drive will be initialized, the operating system will be uploaded, and the instrument will reboot.

The reinstallation process takes approximately one hour depending on the speed of the attached CD-ROM.

- 1** *If required, follow the steps in "Saving System Settings" and "Reloading System Settings" to create a backup file of your system settings and license passwords.*
- 2** *If required, follow the steps in this book to setup the instrument and CD-ROM drive. Insert the CD-ROM containing the instrument operating software into the CD-ROM drive. Allow a couple of moments for the media to settle after inserting the media.*
- 3** *If the LAN cable is connected, disconnect it from the instrument. If needed, turn on the system and initiate the monitor selection mode. (See the section in this book.) Otherwise, proceed to step 4.*
- 4** *Turn on the instrument and repeatedly press the [ESC] key on the keyboard to terminate the boot process. When the boot process is terminated, a prompt will be displayed.*

Main Menu: Enter command >

Press: <Enter>

Type: SEA <Enter>

The instrument will search for all viable boot devices on the bus, including the CD-ROM drive. The display will then show the boot devices:

Path Number	Device Path	Device Type
P0	SESCSI.6.0	IBM DNES-309170W
P1	SESCSI.1.0	PLEXTOR CD-ROM PX-40TS

Disaster Recovery

Reinstalling the Operating System.

- 5** At the prompt:

```
Main Menu: Enter command >
```

```
Type: BO P1 <Enter>
```

```
Interact with IPL (Y, N, Q) ?>
```

```
Type: N <Enter>
```

- 6** After about 30 seconds you will see the message:

```
WARNING: The configuration information calls for a non-interactive  
installation.
```

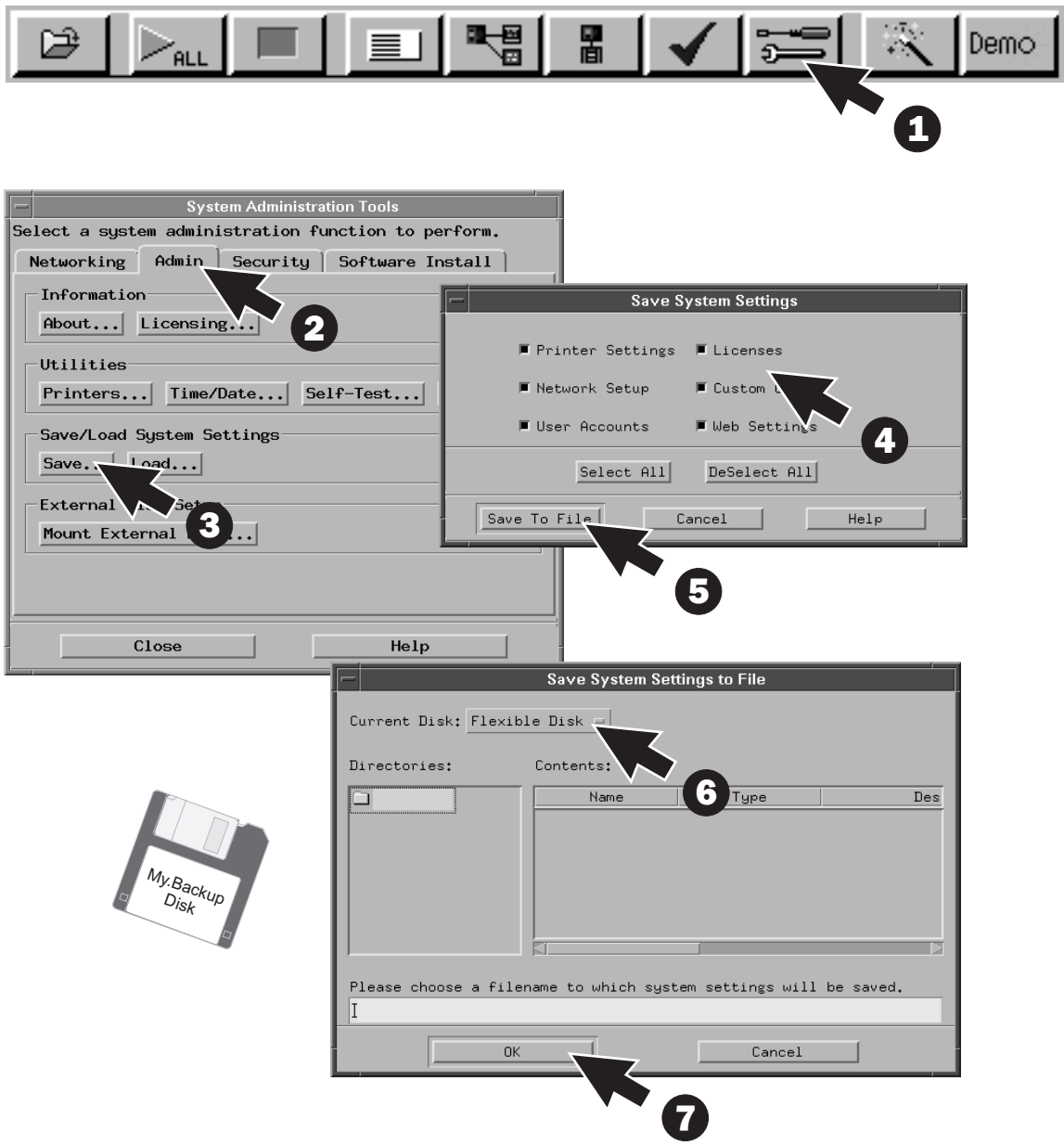
```
Press <Return> within 10 seconds to cancel batch mode  
installation:
```

- 7** **To abort the reinstallation process at this point:**
Press the [Return] key on the keyboard within 10 seconds. (If you do nothing within the 10 second timeout, the reinstallation process will begin. The instrument will completely reload the operating system software onto the hard disk drive.)
- 8** Processor Support Packages, Auxiliary Software, and user files must be installed manually once the operating system has been reinstalled.
- 9** Follow the steps in “Reloading System Settings” to restore any license passwords and system settings saved in step 1.

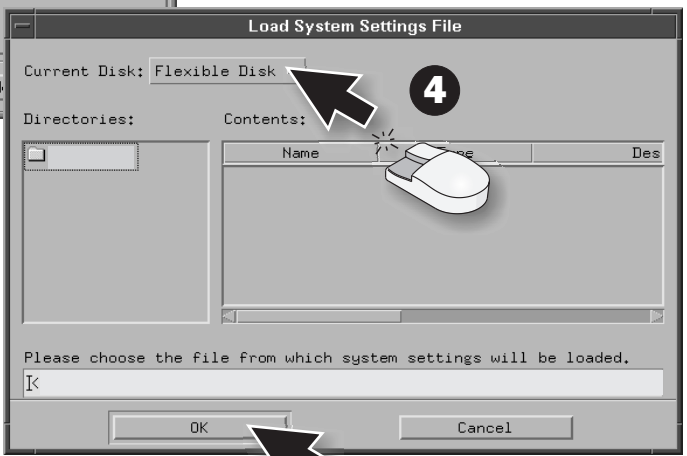
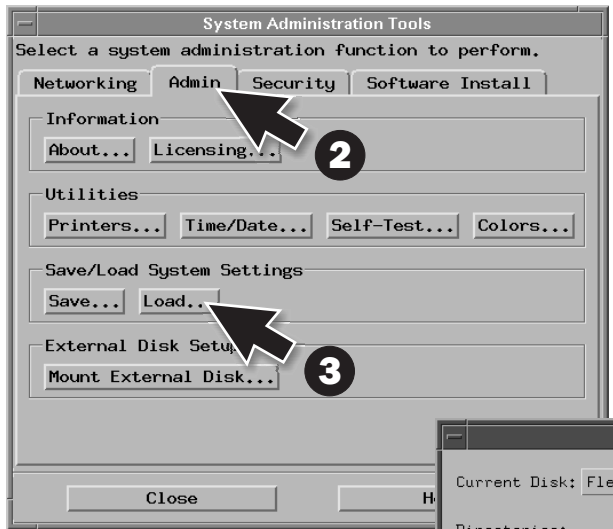
Done

Saving System Settings

By saving your system settings to a flexible disk or a mounted directory, you create a backup file that can be used to quickly setup systems, or restore current system settings after the Disaster Recovery procedure.



Reloading System Settings



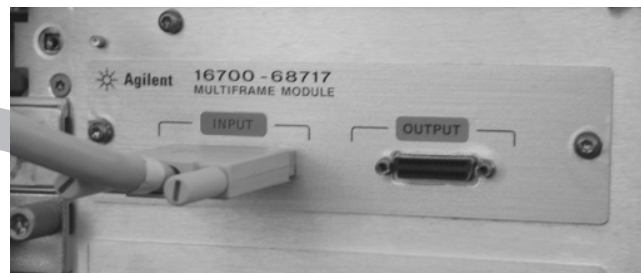
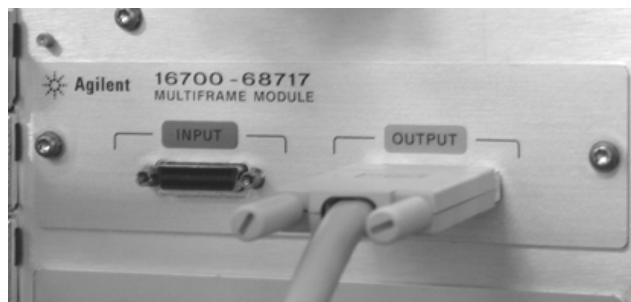
If an item is not valid, or was not initially saved to the file, the selection will be greyed out in the interface. Also, if no file extension is added, a "set" extension is automatically added for you.

Multiframe for 16700B/ 16702B

As many as eight 16700B's and/or 16702B's with Agilent 16700-68717 multiframe modules installed may be connected together.

The frame at the beginning of the series must have its **INPUT** port open and the last frame in the series must have its **OUTPUT** port open.

Multiframe requires software Rev. A.02.00.00 or higher. Agilent 16700B and 16702B logic analysis systems ordered with the multiframe option installed will have the current operating system software installed.

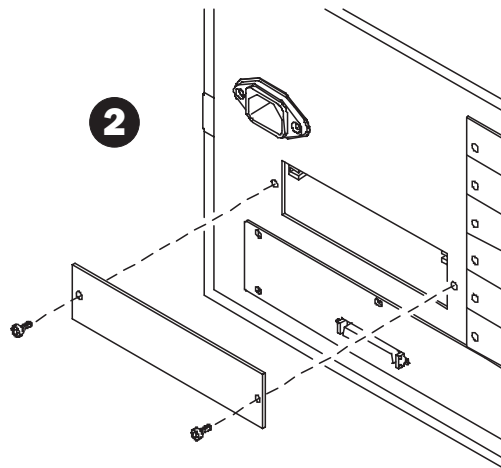
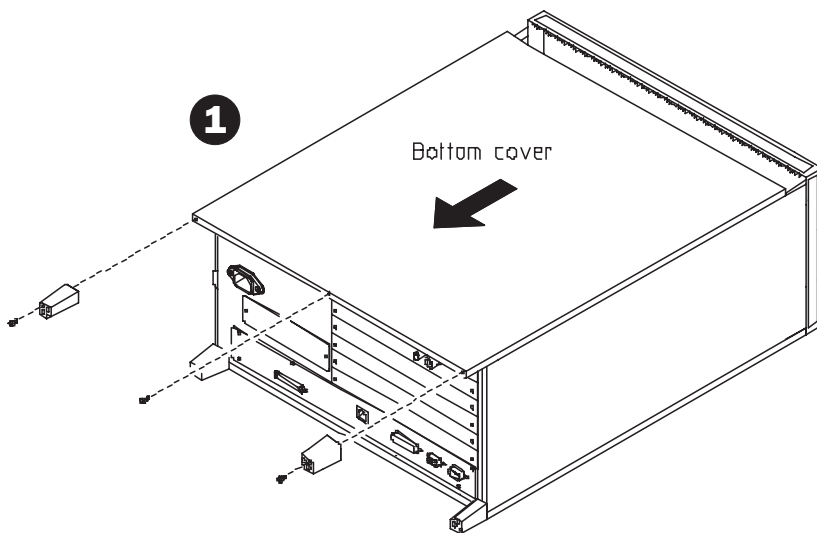


Multiframe

for 16700B/ 16702B

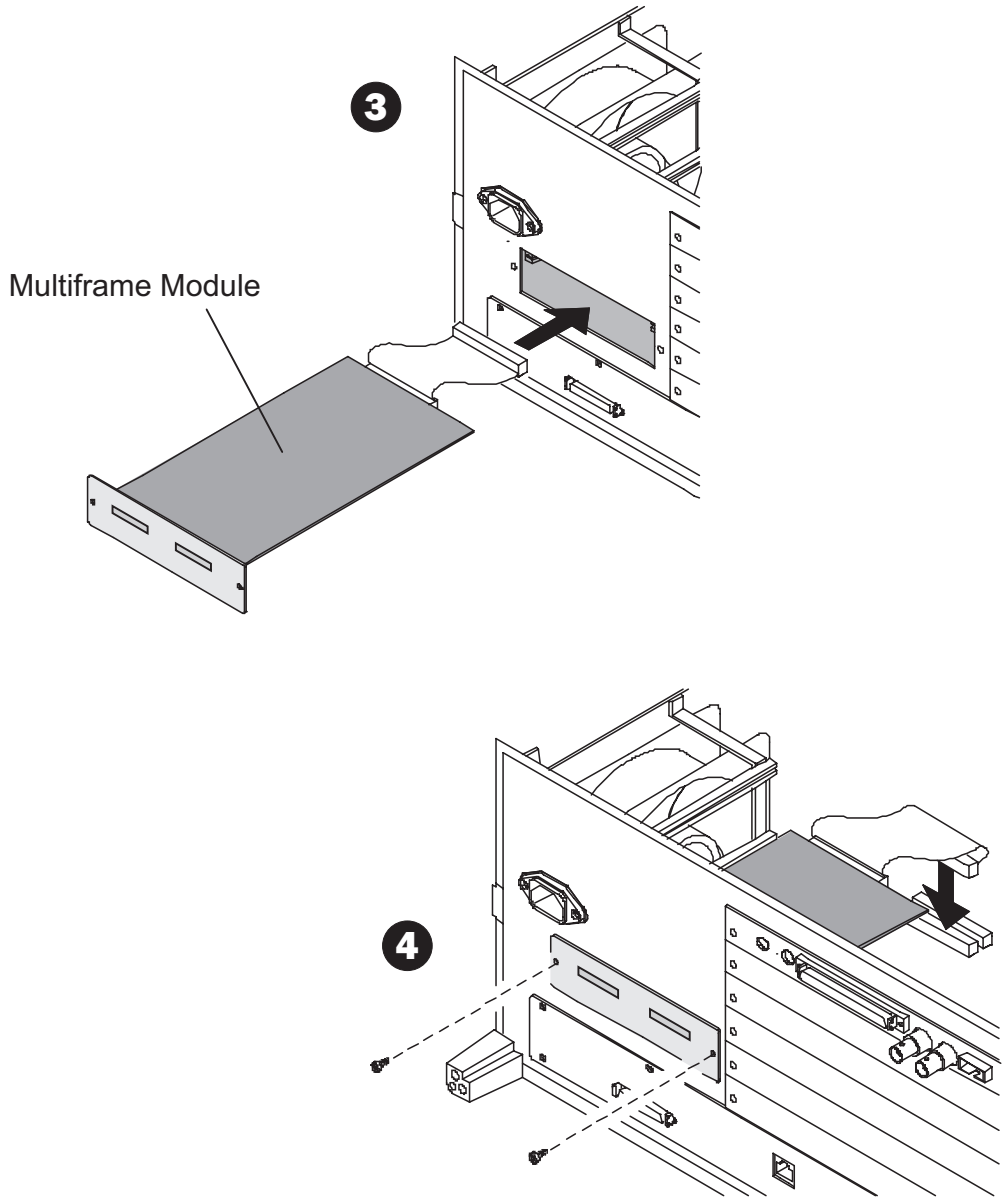
Install the Multiframe Modules into 16700B or 16702B frames.

CAUTION Be sure to unplug the power cable before beginning this procedure.



Multiframe

for 16700B/ 16702B



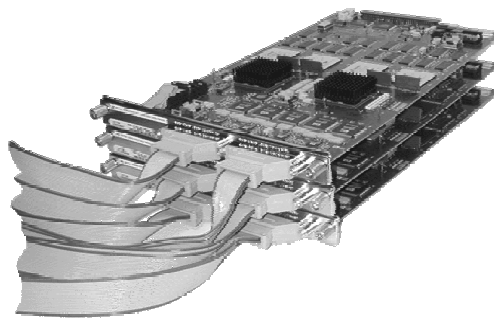
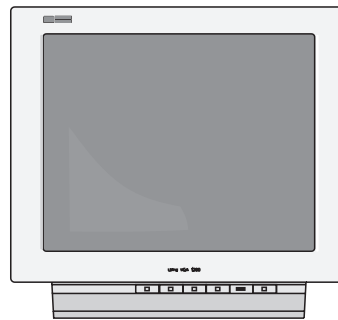
Proper Cleaning

for 16700B/ 16702B/ all Measurement Modules

Instrument Cabinet and Module Front Panels

CAUTION

With the instrument unplugged, use mild soap and water to clean the cabinet of the instrument or the front of the modules. Harsh soap might damage the water-based paint. ***Do not immerse the instrument or modules in water.***



Measurement Modules

16517/18A

16522A

16533/34A

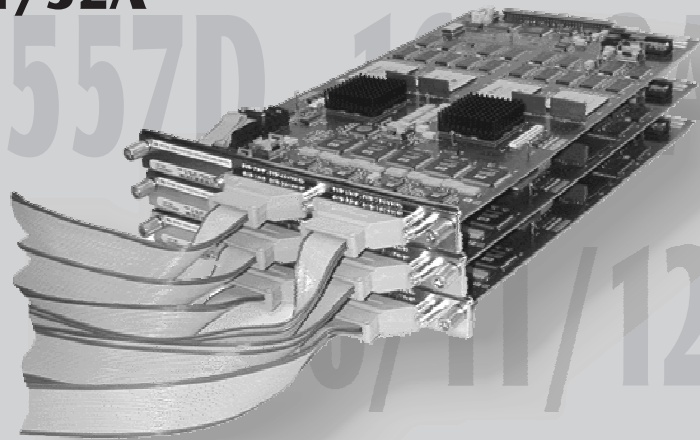
16557D

16710/11/12A

16715/16/17/18/19A

16720A

16750/51/52A



16517/18A

for 16700A/B

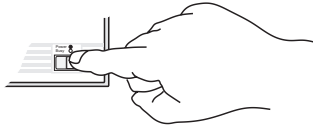
16702A/B

16701A/B

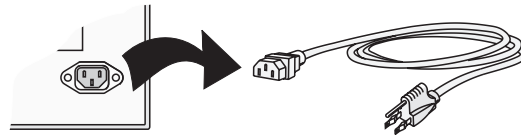
Measurement Modules

General Installation

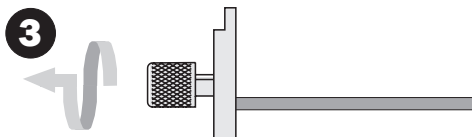
CAUTION Be sure the frame is unplugged before removing or installing modules.



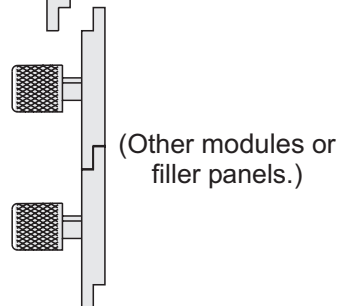
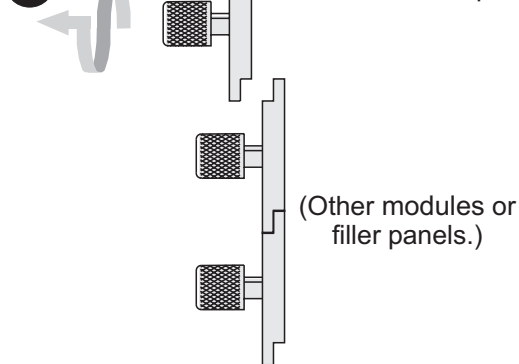
1 Power down the system.



2 Disconnect the power cable.



3 Remove modules or filler panels.



CAUTION

Use a grounded wrist strap and mat when handling the modules. Gently apply pressure to the center of the module or filler panel while tightening the thumb screws. Use filler panels in empty slots for proper cooling.

Carefully slide the module into the frame and hand tighten the thumb screws. *If you are inserting more than one module, the tightening order is bottom module to top module.*

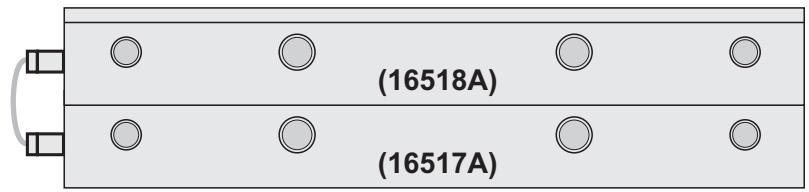
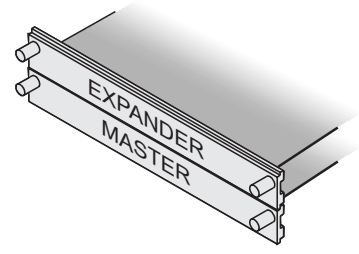
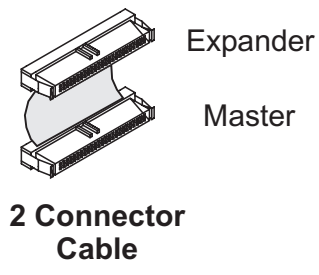
A single-module configuration can be installed in any available slot.

Note!

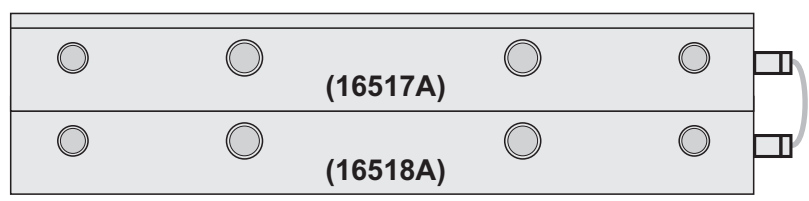
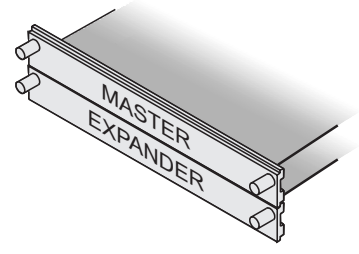
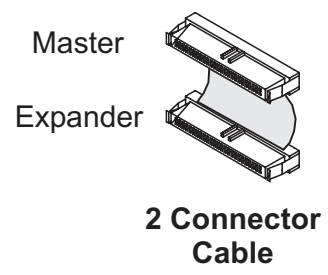
Some modules require calibration if they are moved to a different slot. For calibration information, refer to the online help for the individual modules.

16517A/18A

2-Card Module

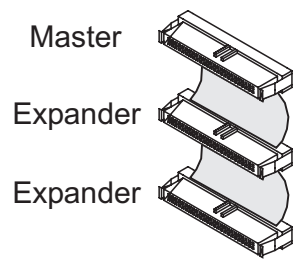


OR

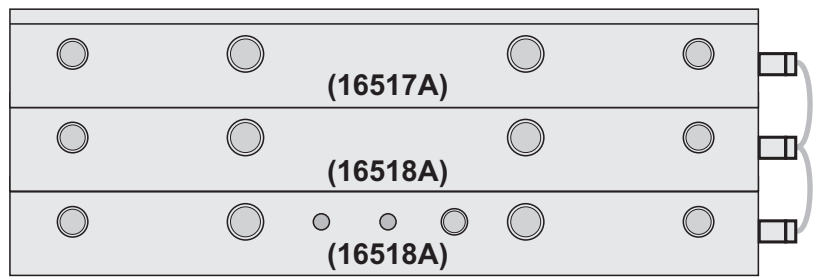
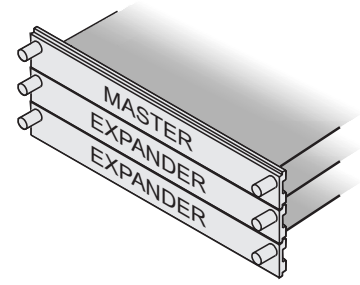


16517A/18A

3-Card Module



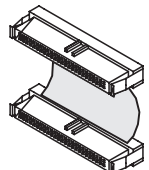
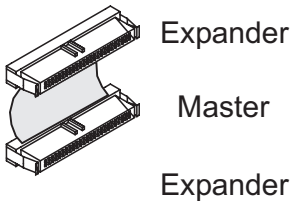
3 Connector Cable



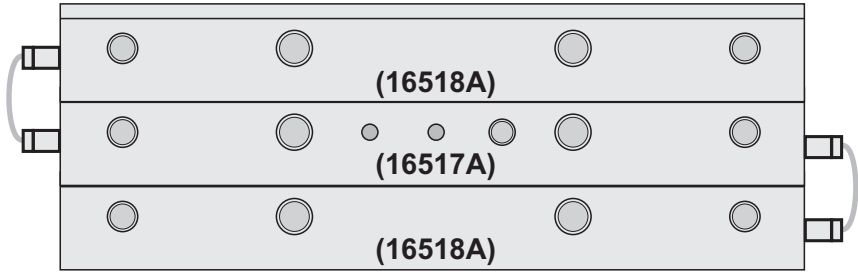
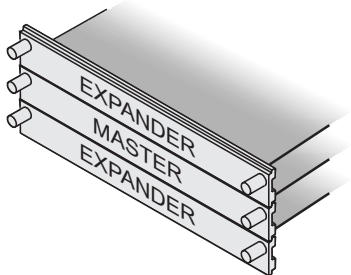
16517A/18A

3-Card Module

2 Connector
Cable

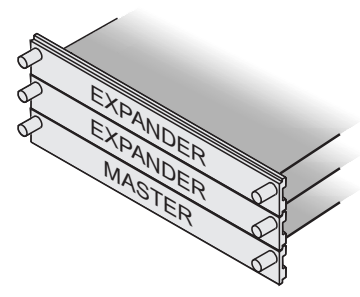
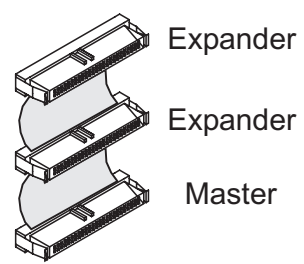


2 Connector
Cable

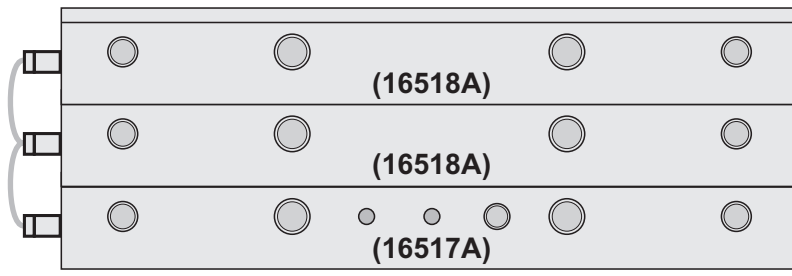


16517A/18A

3-Card Module



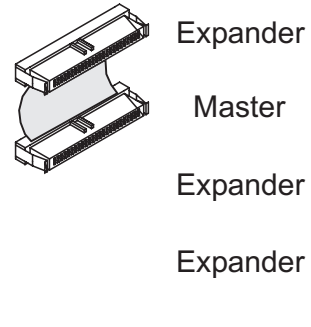
3 Connector Cable



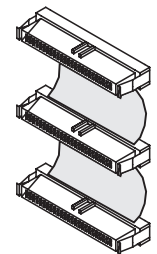
16517A/18A

4-Card Module

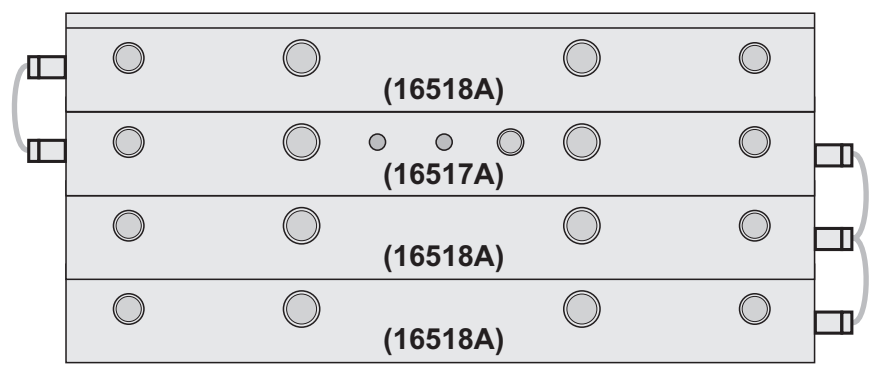
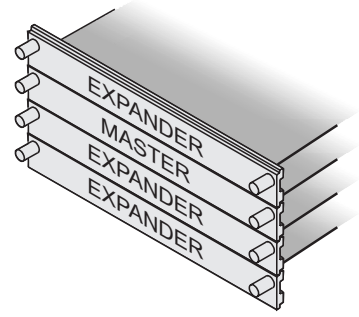
2 Connector Cable



Expander
Expander

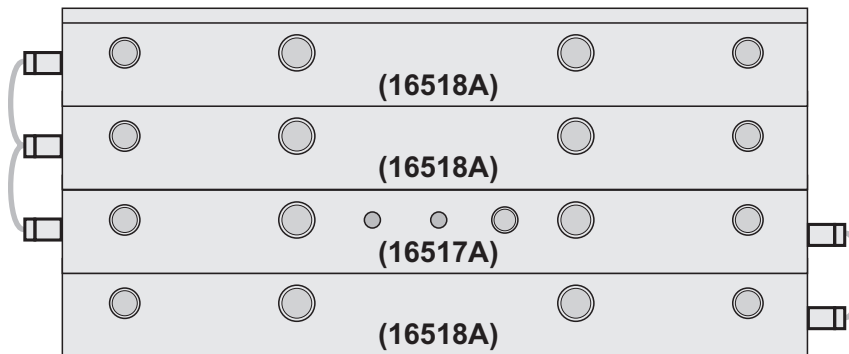
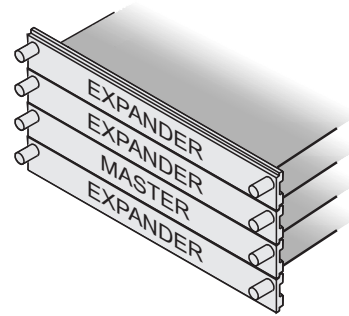
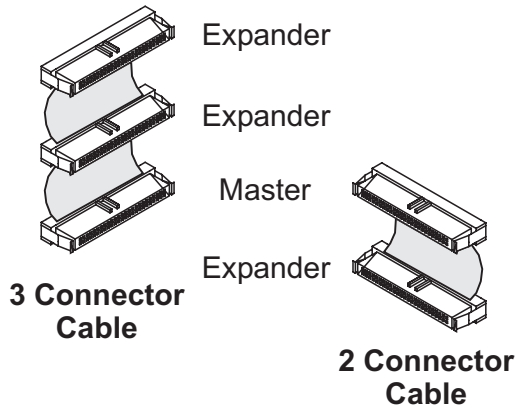


3 Connector Cable



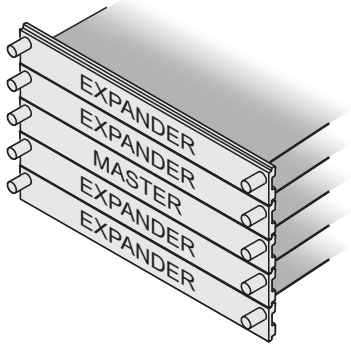
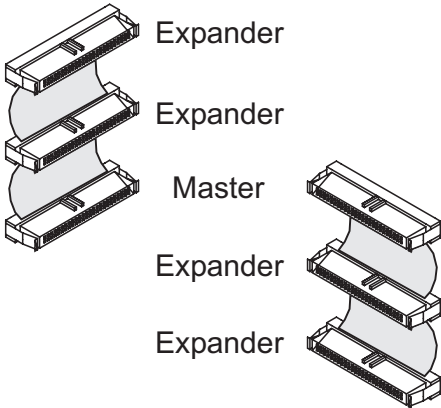
16517A/18A

4-Card Module

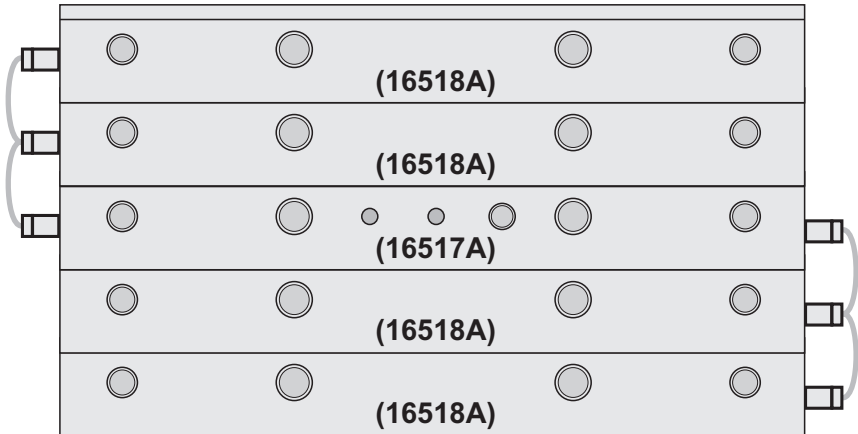


16517A/18A

5-Card Module



3 Connector Cables
(Need 2)



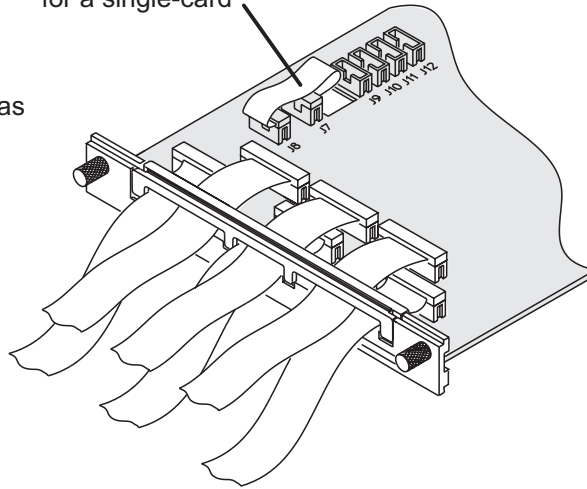
16517/18
Done

16522A

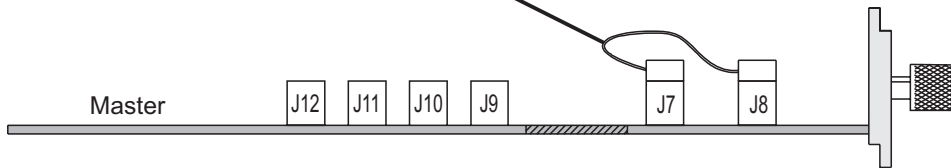
Single-Card Module

Each 16522A shipped stand alone has the **2x10 cable** connected in the single-card module configuration.

2x10 cable connection for a single-card



2x10 cable



Master

J12

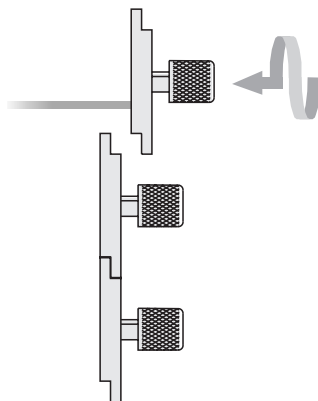
J11

J10

J9

J7

J8



A single-card module configuration can be installed in any available slot.

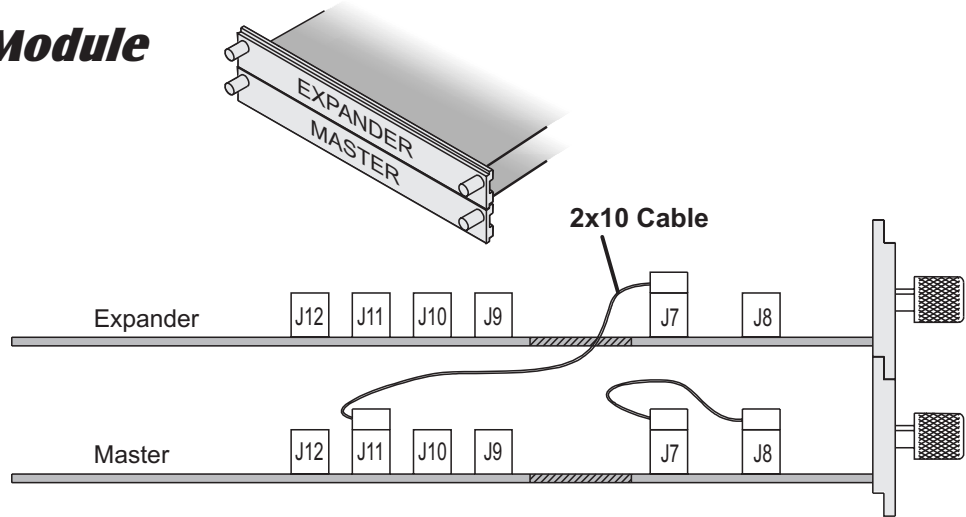
CAUTION

Be sure the frame is unplugged before removing or installing modules.

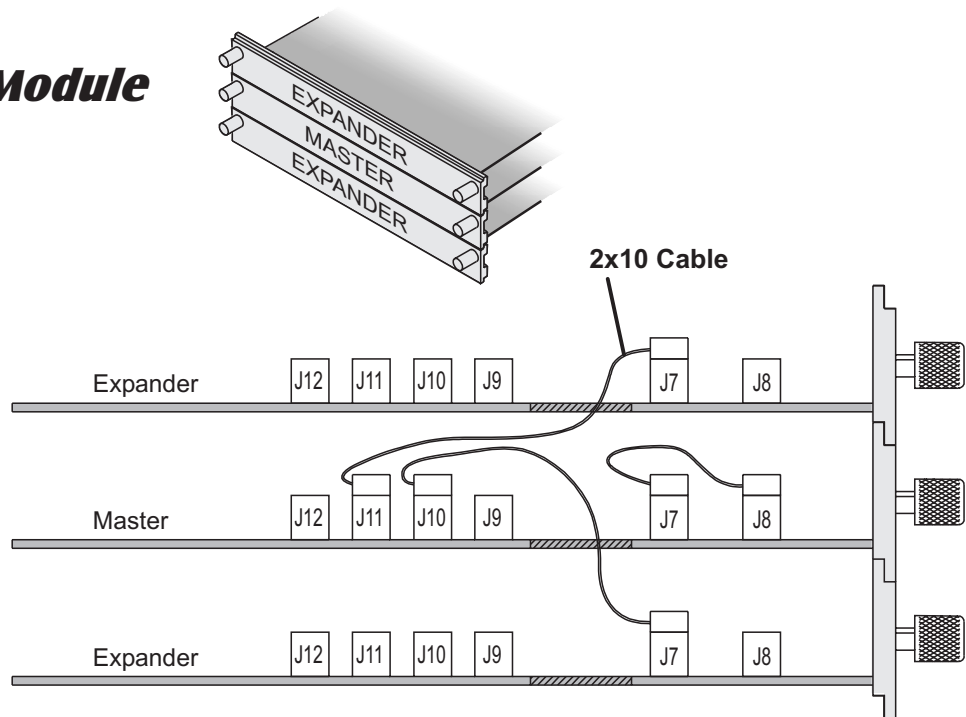
The following pages will show you how to connect the **2x10 cables** to configure two, three, four, and five-card modules.

16522A

2-Card Module



3-Card Module



16522A

4-Card Module

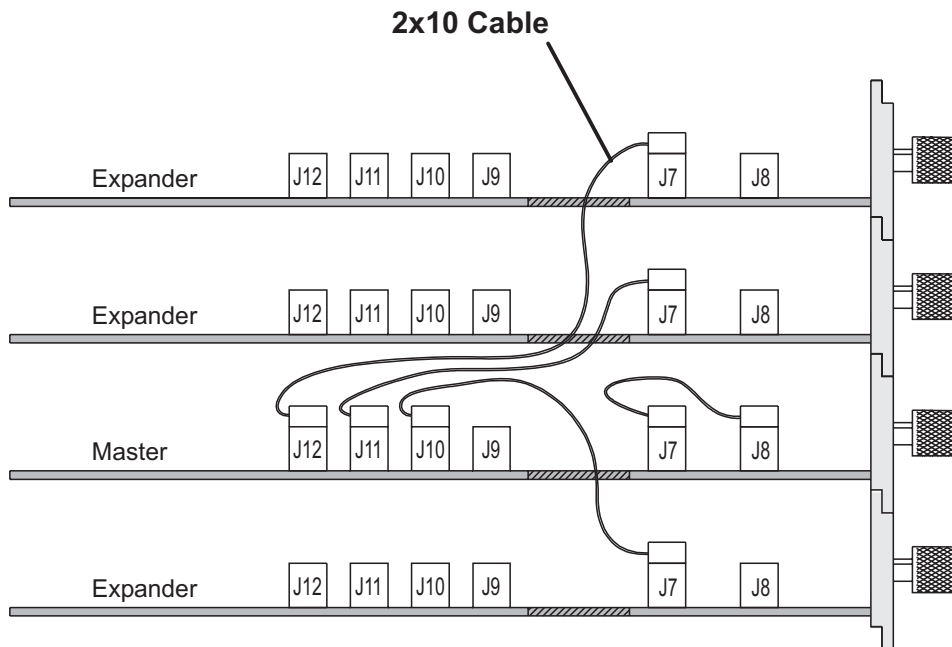
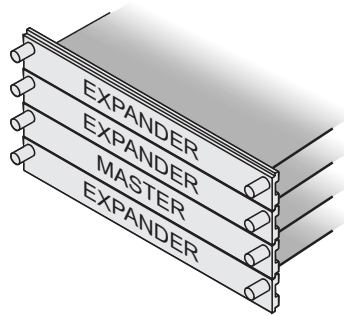
Note!

Carefully slide the four cards half way into the mainframe slots.

Cable the bottom Expander to the Master Card first.

Cable the upper two Expanders to the Master Card.

Gently slide the cabled assembly fully into the frame and tighten.



16522A

5-Card Module

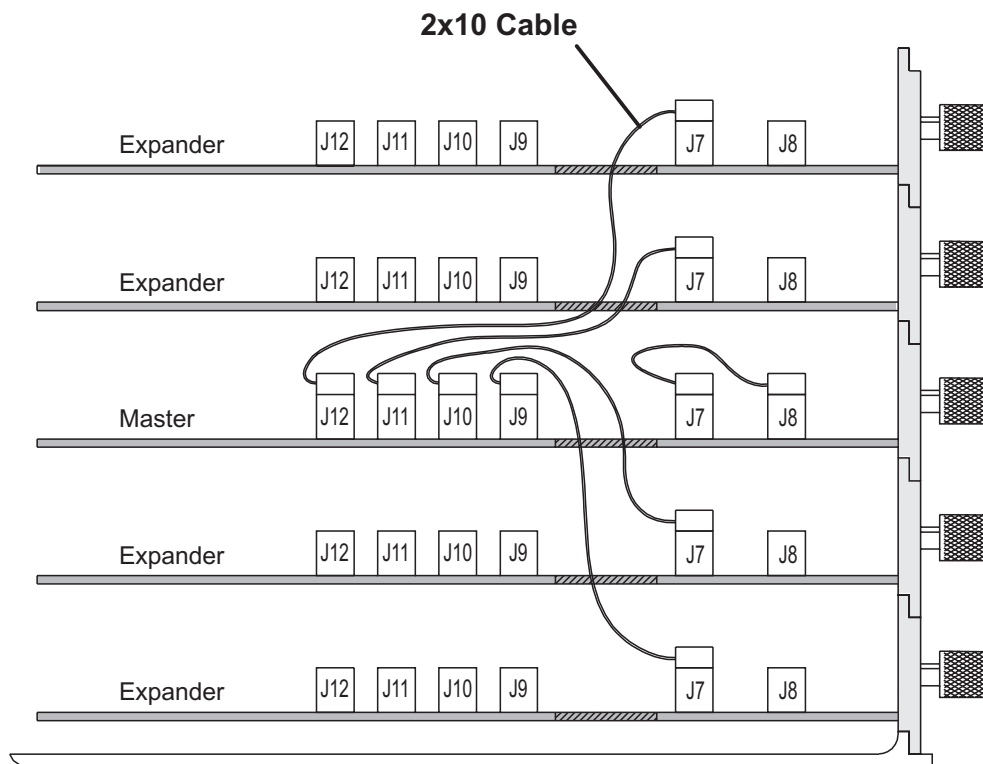
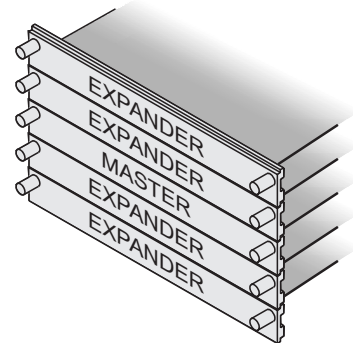
Note!

Carefully slide the five cards half way into the mainframe slots.

Cable the bottom two Expanders to the Master first.

Cable the upper two Expanders to the Master.

Gently slide the cabled assembly fully into the frame and tighten.

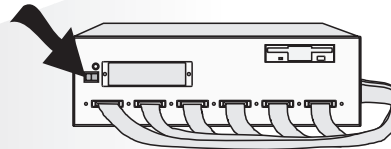


16522A

Done

16533/34A Calibration

Single-Card Module



16600A Series

- 1 Power down the mainframe.

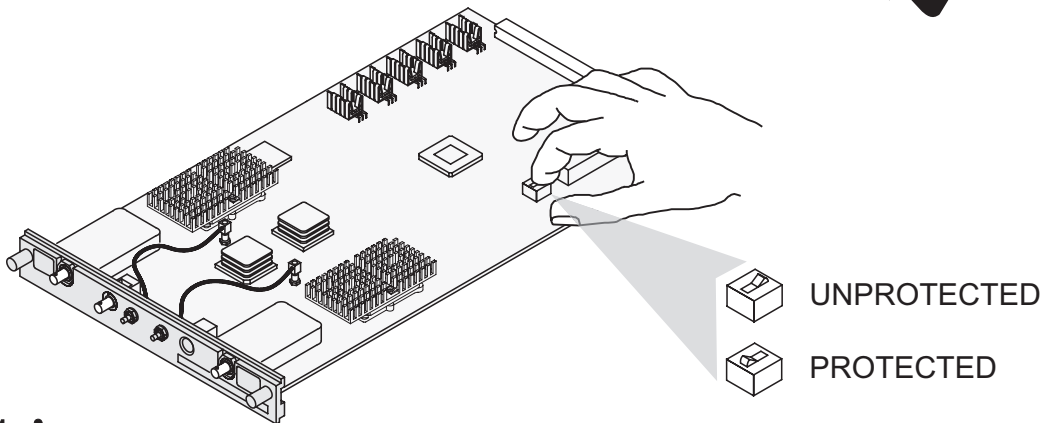


16700A/B

- 2 Remove the module from the mainframe and set the PROTECTED / UNPROTECTED switch to UNPROTECTED.



16702A/B

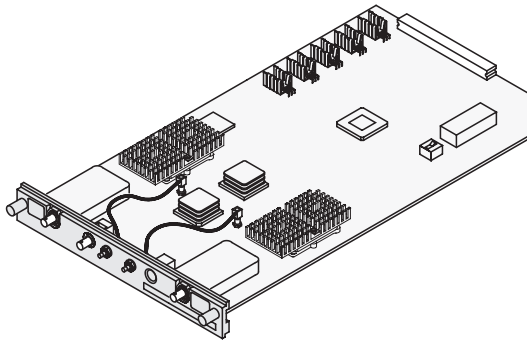
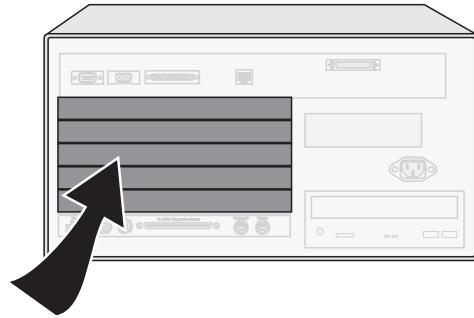
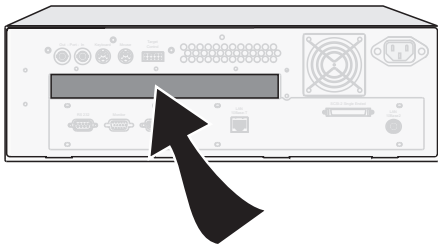


Note!

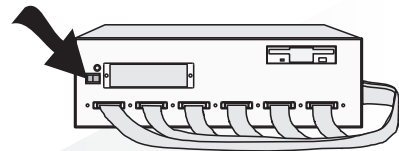
If you calibrate this module without unprotecting the memory, the new calibration settings will not be saved when the system is shut down. The system will default to the previous settings. The new calibration settings would be effective for the current active session only.

16533/34A Calibration

Single-Card Module



- 3** Reinstall the 16533A/34A module into the mainframe and reconnect the power cable.



16600A Series

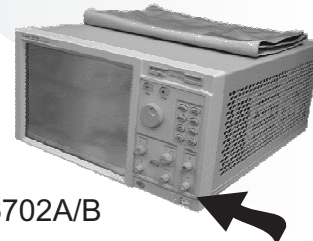


Monitor power ON.
(If applicable)

- 5** System power ON



16700A/B



16702A/B

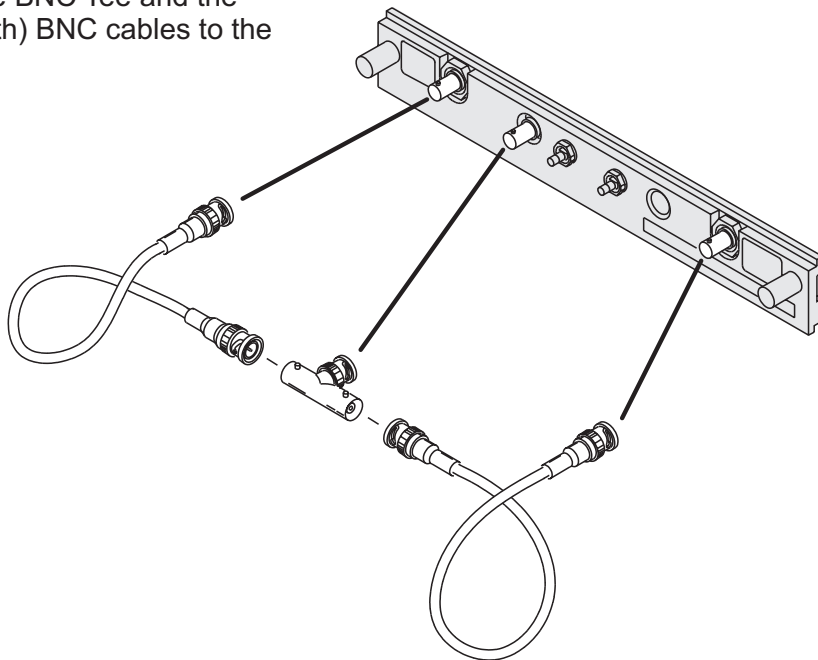
16533/34A Calibration

Single-Card Module



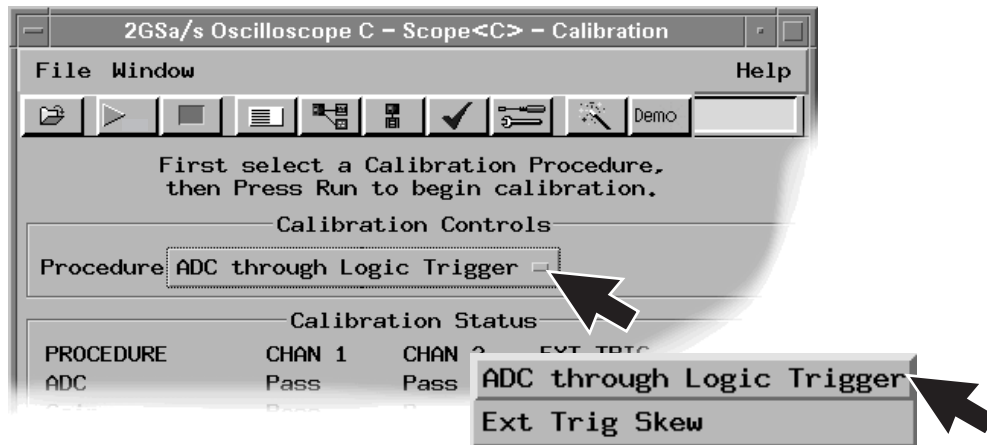
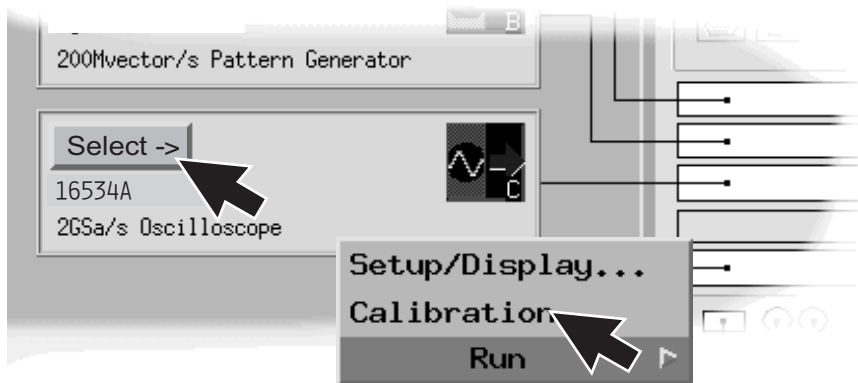
- 6** For more accurate calibration, allow the system 30 minutes to warm up.

- 7** Connect the BNC Tee and the (equal length) BNC cables to the module.



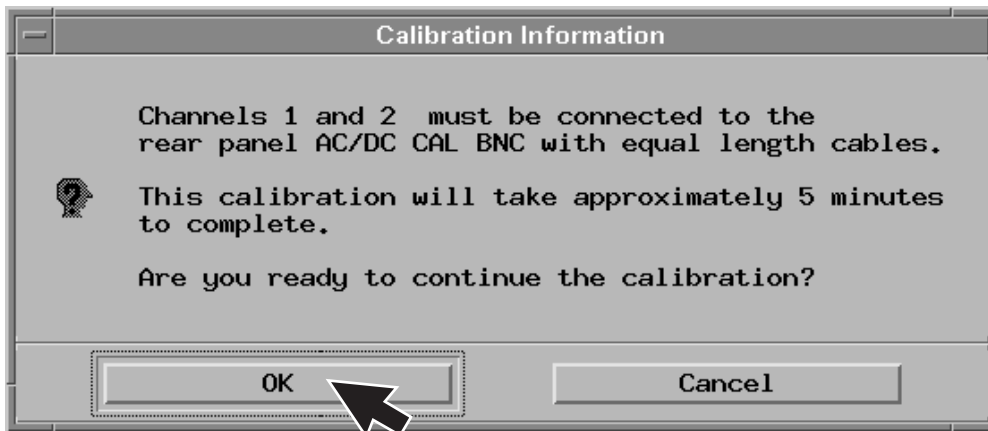
16533/34A Calibration

Single-Card Module



16533/34A Calibration

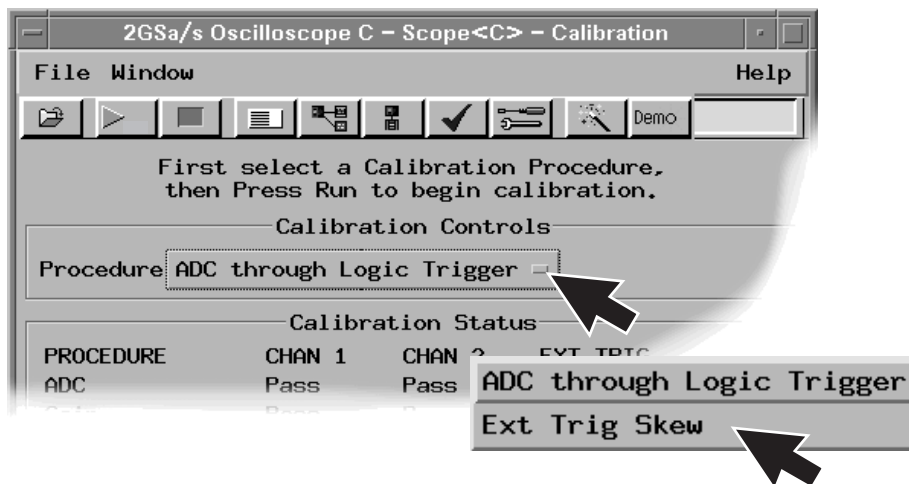
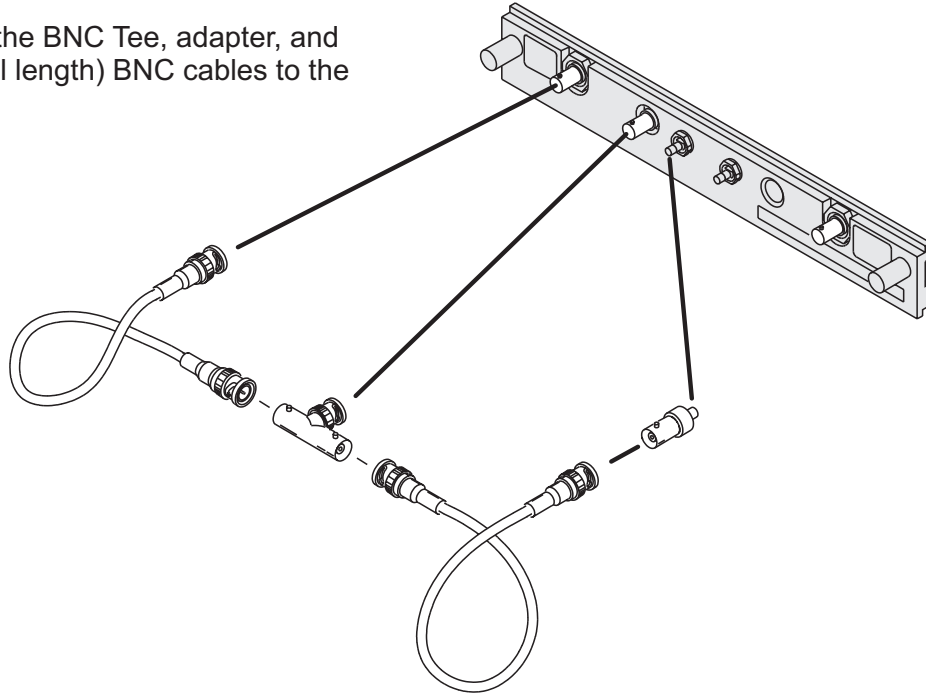
Single-Card Module



16533/34A Calibration

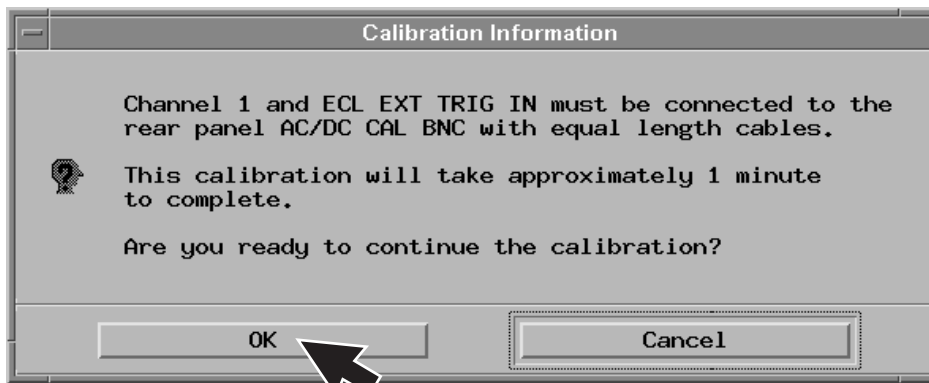
Single-Card Module

Connect the BNC Tee, adapter, and the (equal length) BNC cables to the module.



16533/34A Calibration

Single-Card Module



Note!

Remember to set the PROTECTED/UNPROTECTED switch back to PROTECTED.

If you just calibrated this card as one of a multi-card set, you must leave the PROTECTED/UNPROTECTED switch in the UNPROTECTED position until you have completed the multi-card calibration procedure on the following pages.

Single Module
Calibration

Done

16533/34A Calibration

Multi-Card Module

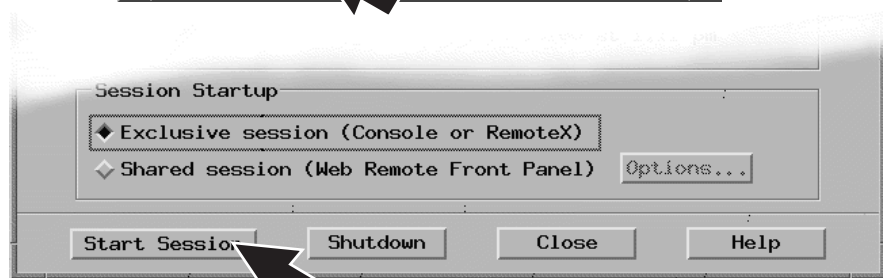
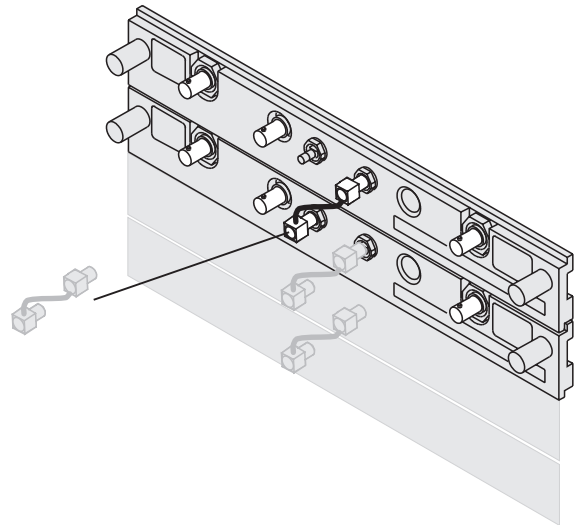
Note!

Each of the individual boards of a multi-card module must first be calibrated as a single. (See previous pages: *16533/34A Single-Card Module*.)

The following example is of a two board arrangement. Up to four cards may be configured in a 16700A, 16700B, 16702A, or 16702B mainframe.

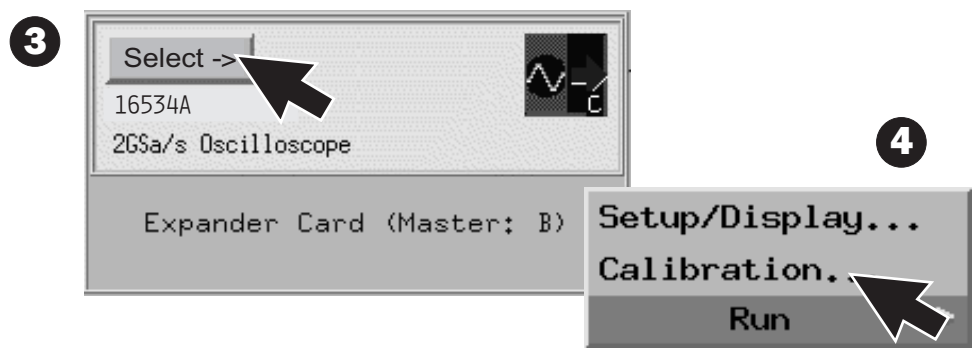
<input type="radio"/>	Master	<input type="radio"/>
<input type="radio"/>	Expander 1	<input type="radio"/>
<input type="radio"/>	Expander 2	<input type="radio"/>
<input type="radio"/>	Expander 3	<input type="radio"/>

- 1** Connect the module cables.
- 2** Exit the current session and restart.



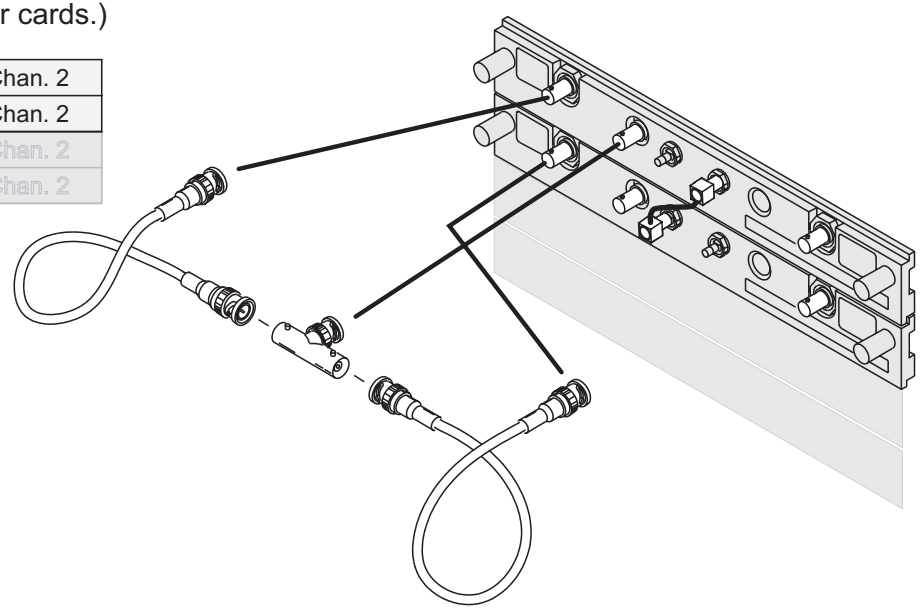
16533/34A Calibration

Multi-Card Module



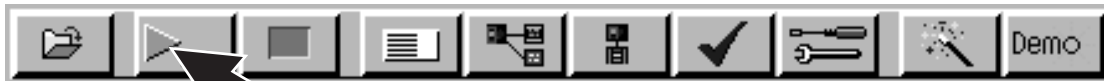
5 Connect the (equal length) BNC calibration between channel 1, AC/DC cal, and channel 1 of the second card. (Channel 1 of the third card next time etc. up to four cards.)

Chan. 1	Chan. 2
Chan. 1	Chan. 2
Chan. 1	Chan. 2
Chan. 1	Chan. 2

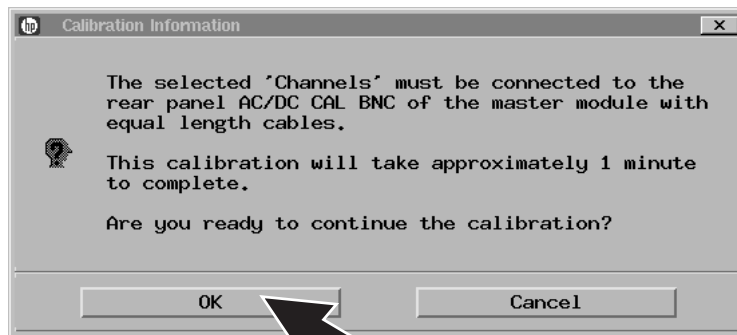


16533/34A Calibration

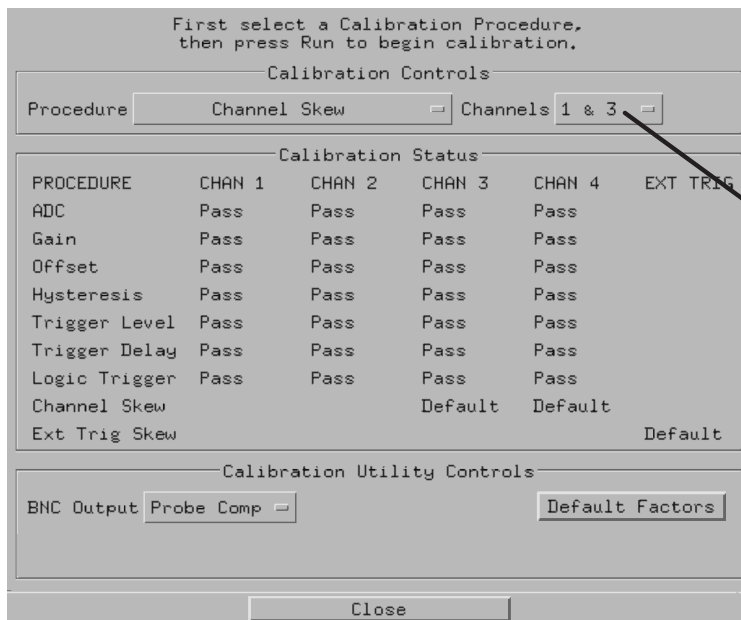
Multi-Card Module



6 RUN



7



Note!

Repeat steps 3 through 7 for each additional card in your multi-card module.

Select the appropriate combination for each additional card.

Remember to set the PROTECTED/UNPROTECTED switch back to PROTECTED.

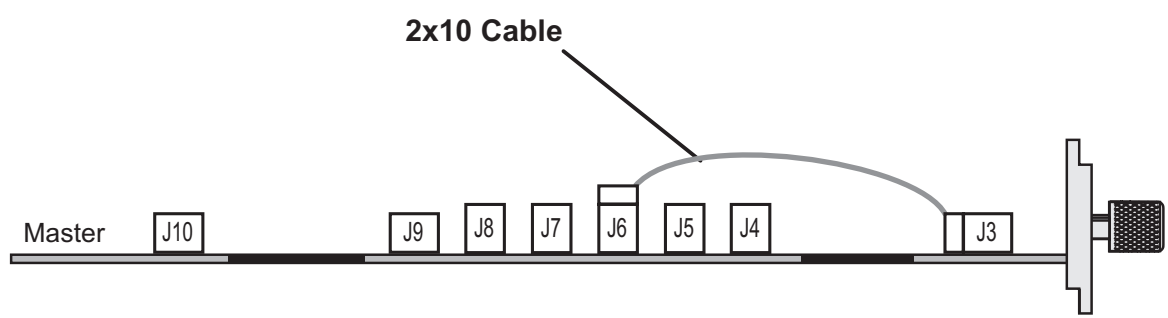
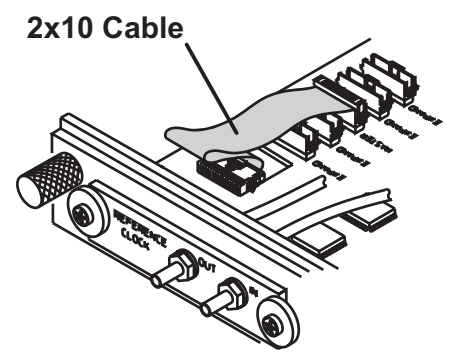
Multi-Module Calibration

Done

16557D

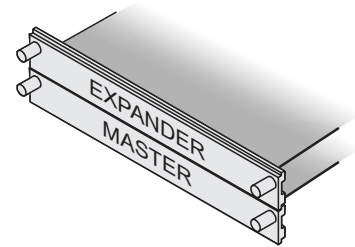
Single-Card Module

When ordered as a single card, the 16557D is shipped with the **2x10 cable** factory configured as a single card module.

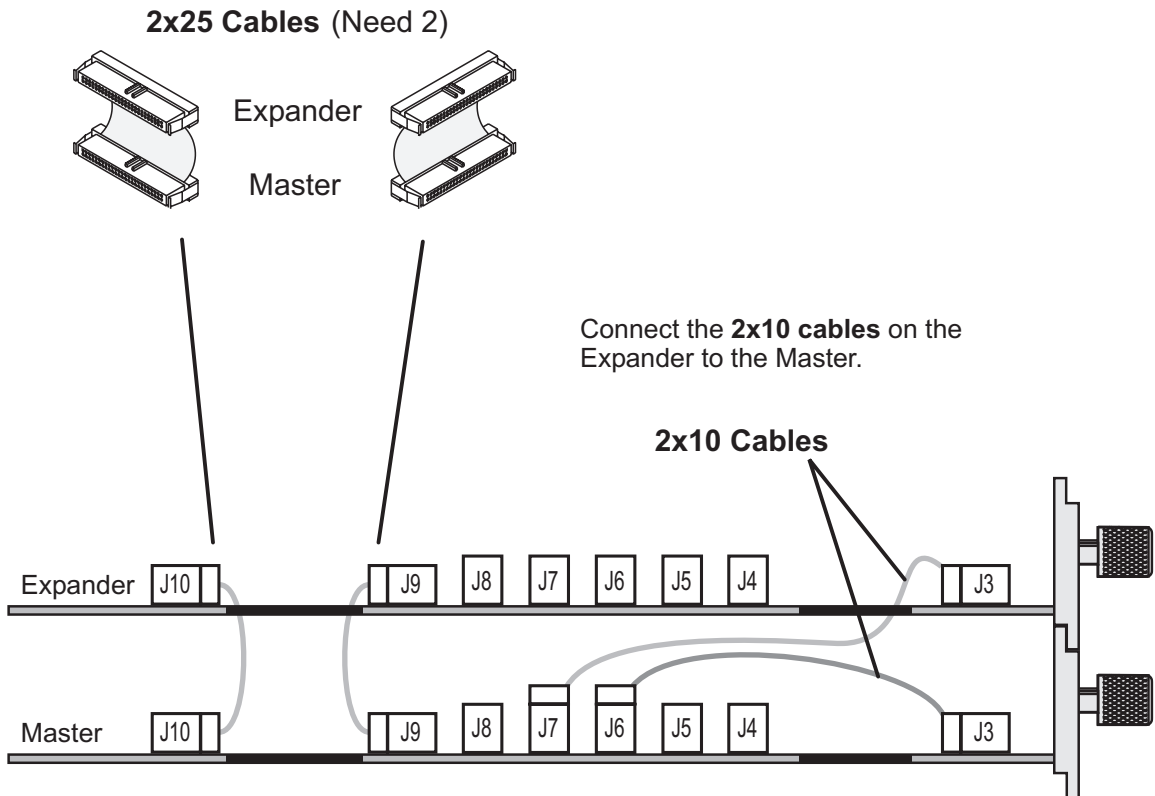


16557D

2-Card Module



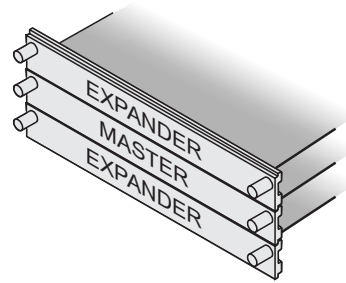
Find the required two connector **2x25 cables** and connect the cables as shown.



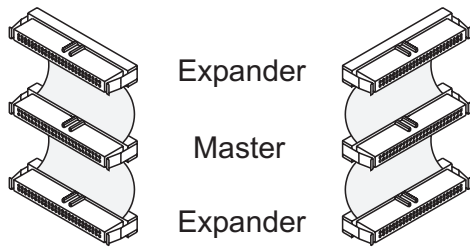
16557D

3-Card Module

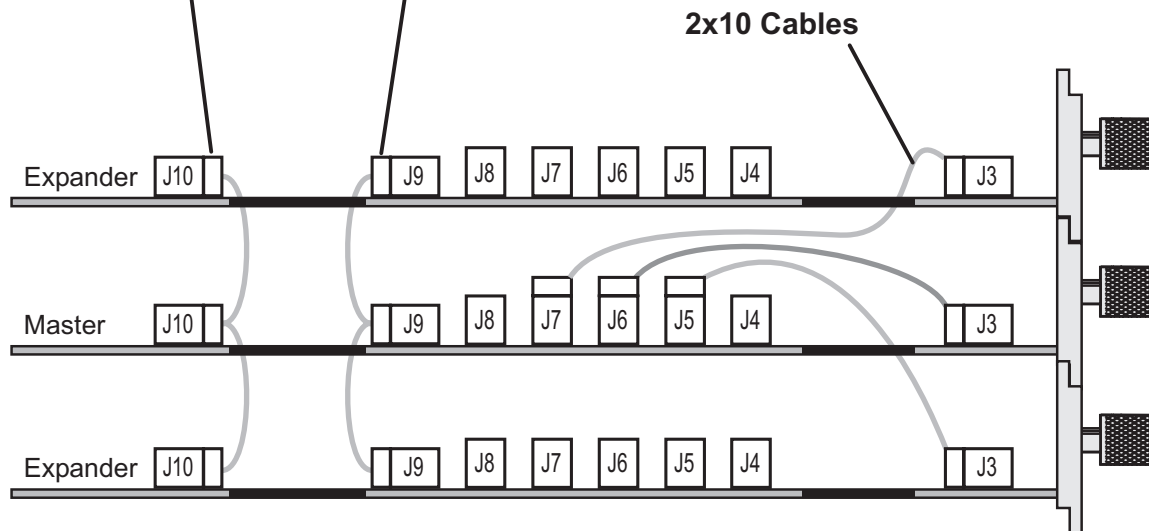
Find the required three connector **2x25 cables** and connect the cables as shown.



2x25 Cables (Need 2)



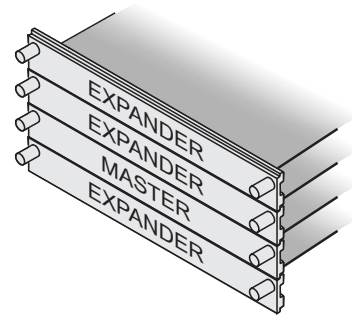
Connect the **2x10 cables** on the Expanders to the Master.



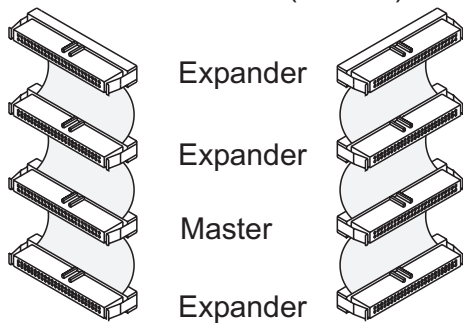
16557D

4-Card Module

Find the required four connector **2x25 cables** and connect the cables as shown.

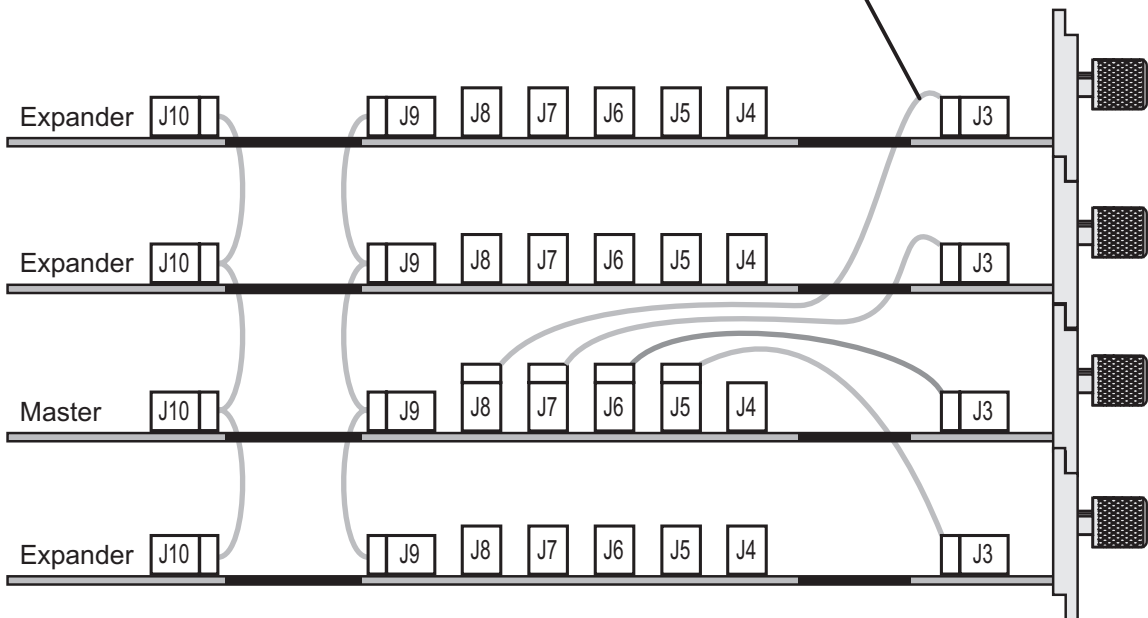


2x25 Cables (Need 2)



Connect the **2x10 cables** on the Expanders to the Master.

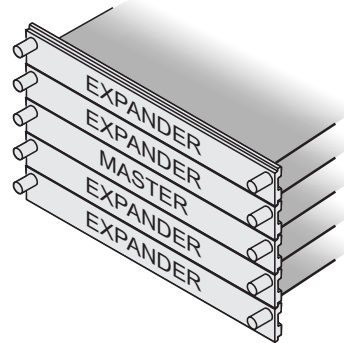
2x10 Cables



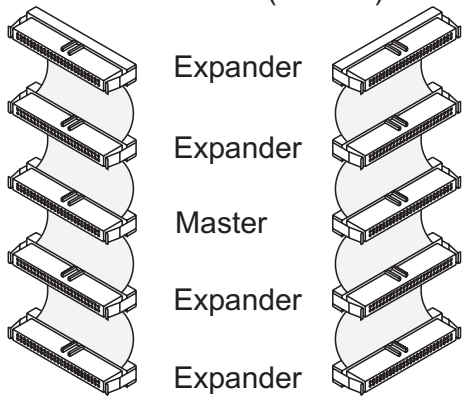
16557D

5-Card Module

Find the required five connector **2x25 cables** and connect the cables as shown.

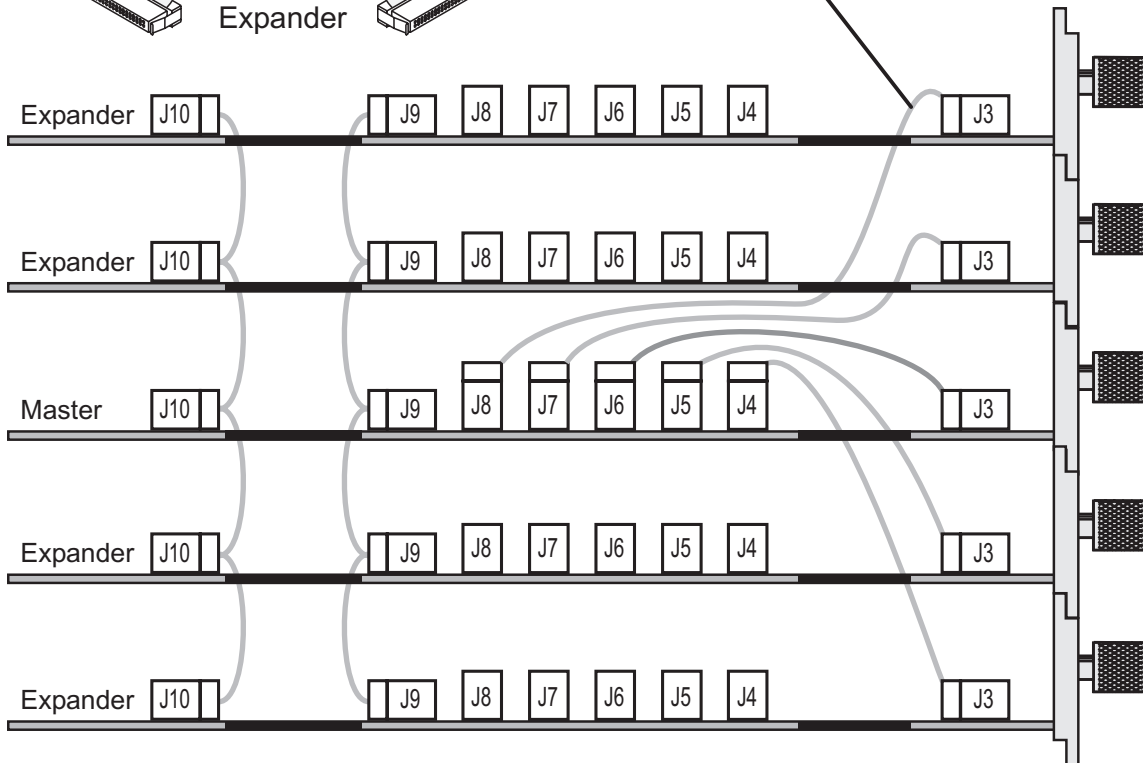


2x25 Cables (Need 2)



Connect the **2x10 cables** on the Expanders to the Master.

2x10 Cables



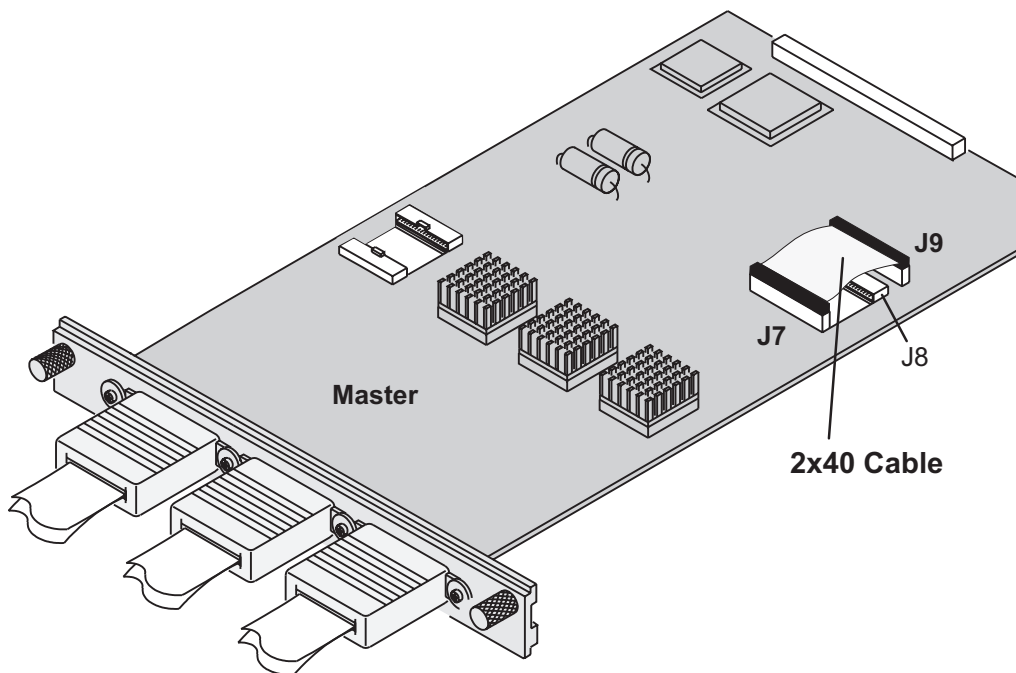
16710/ 11/ 12A

Single-Card Module

Note!

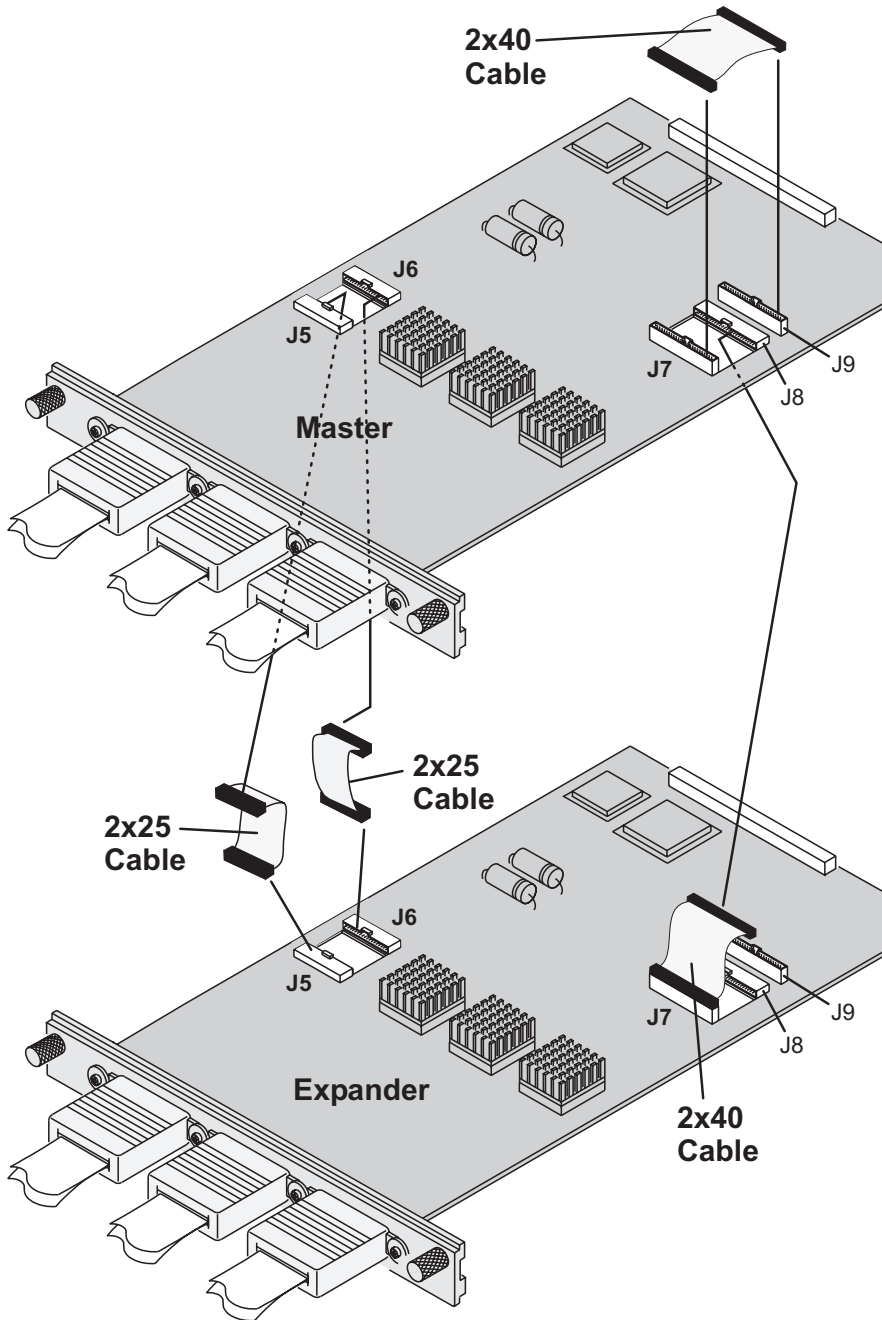
The 16700A, 16700B, 16702A and 16702B require Rev. A.01.20.00 or higher. See the Software Installation chapter in the book. Select 1660X-70XA.

A single 16710A, 16711A, and 16712A will have the **2x40** cable connected in the single-card configuration.



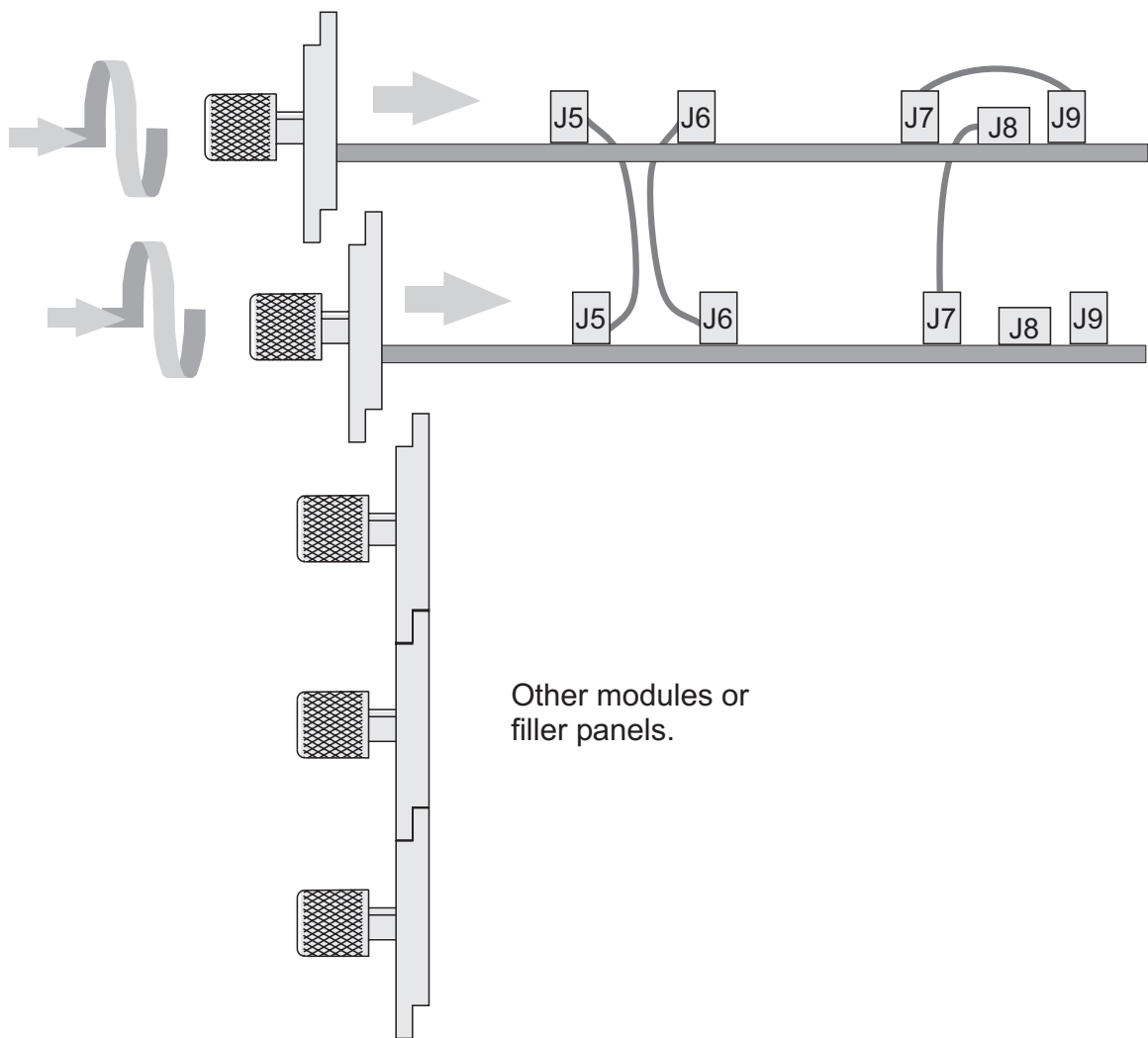
16710/ 11/ 12A

Multi-Card Module



16710/ 11/ 12A

Multi-Card Module



Multi-Card
Module

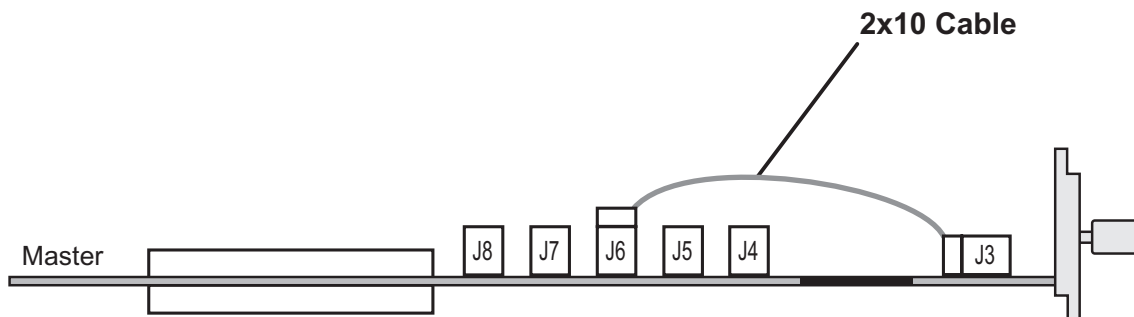
Done

16715/ 16/ 17/ 18/ 19A 16750/ 51/ 52A

Single-Card Module

Note!

A single 16715/ 16/ 17/ 18/ 19A or 16750/ 51/ 52A will have the **2x40** cable connected in the single-card configuration.



Note!

The 16715/ 16/ 17A's require software Rev. A.01.40.00 or higher.

The 16718/ 19A's require software Rev. A.01.50.00 or higher.

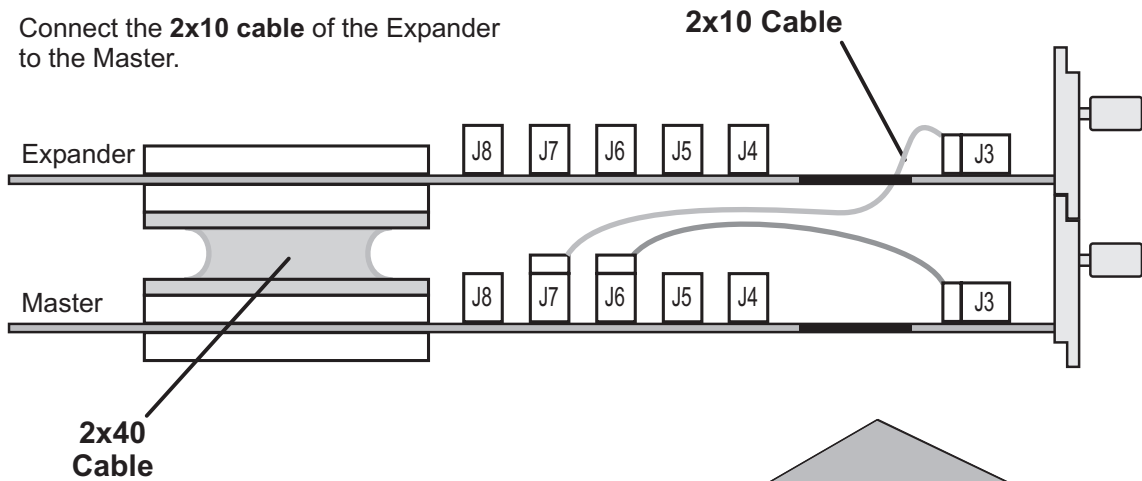
The 16750/ 51/ 52A require software Rev. A.02.00.00 or higher.

See the Software Installation chapter in this book.

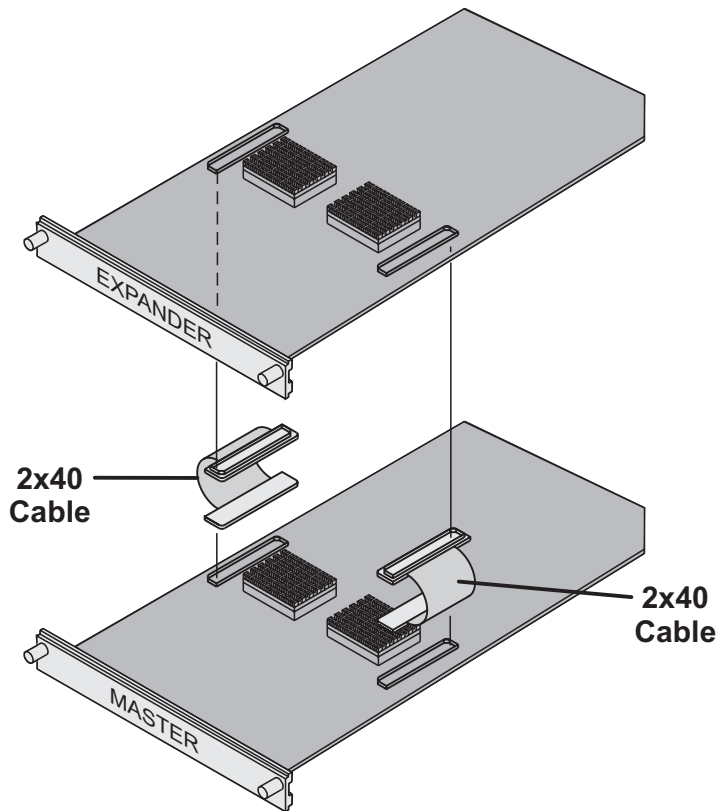
16715/ 16/ 17/ 18/ 19A 16750/ 51/ 52A

2-Card Module

Connect the **2x10 cable** of the Expander to the Master.



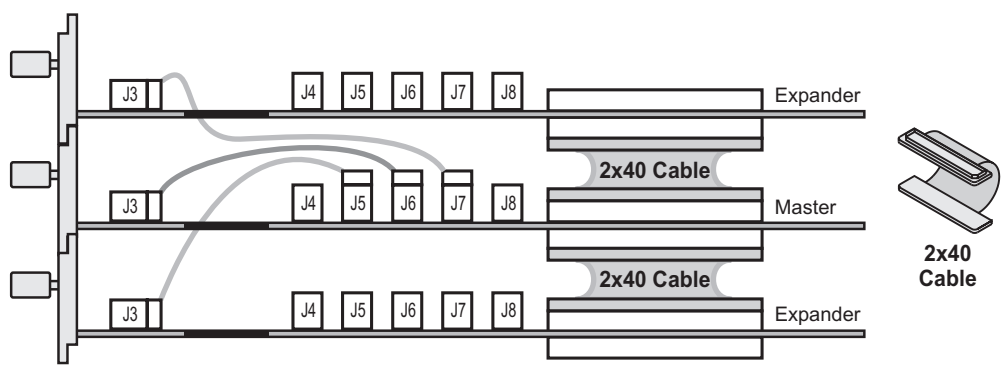
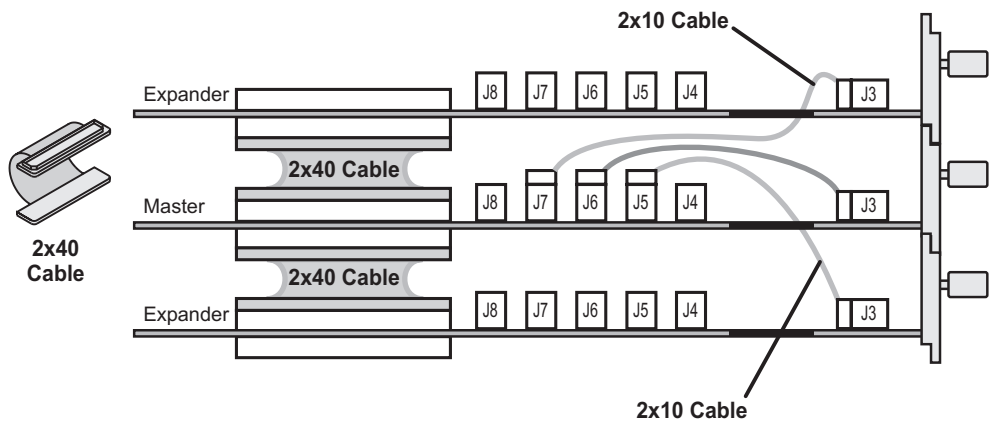
Open the accessory pouch and find two of the required **2x40 cables**. Connect the **2x40 cables** on the modules as shown.



16715/ 16/ 17/ 18/ 19A 16750/ 51/ 52A

3-Card Module

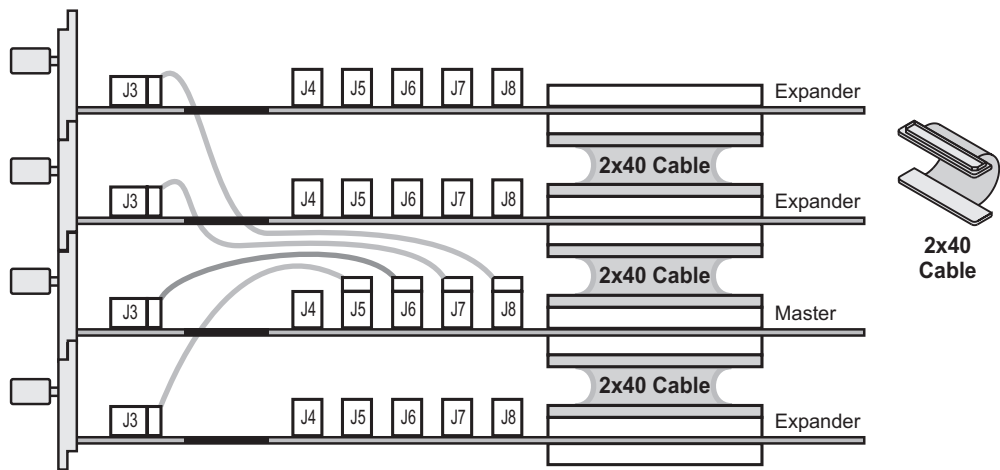
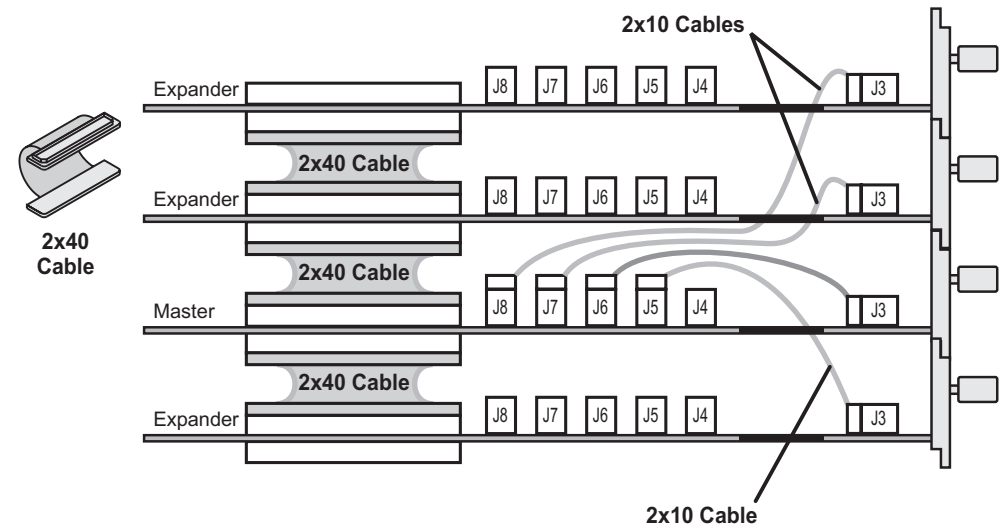
Connect the **2x10 cables** of the Expanders to the Master. Find the **2x40 cables** in the accessory pouch and connect them between the modules.



16715/ 16/ 17/ 18/ 19A 16750/ 51/ 52A

4-Card Module

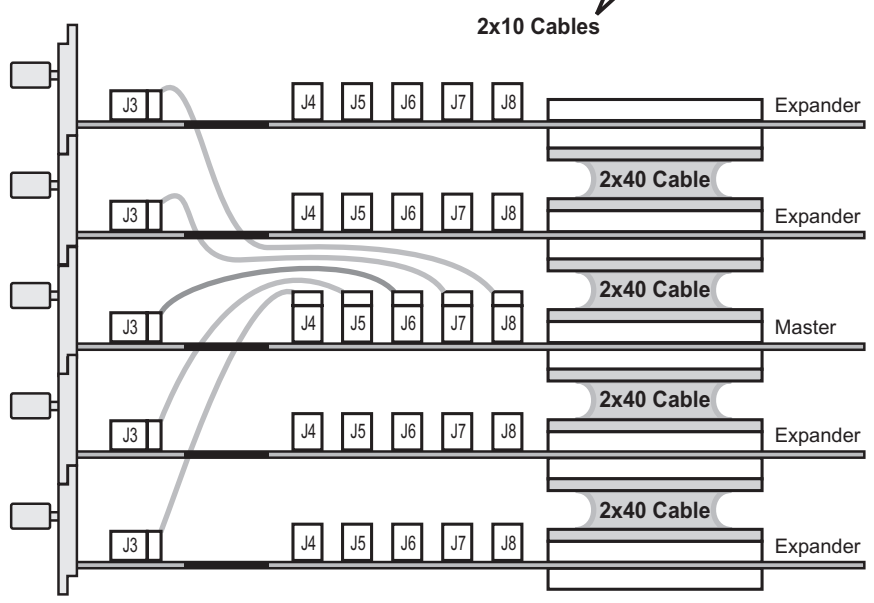
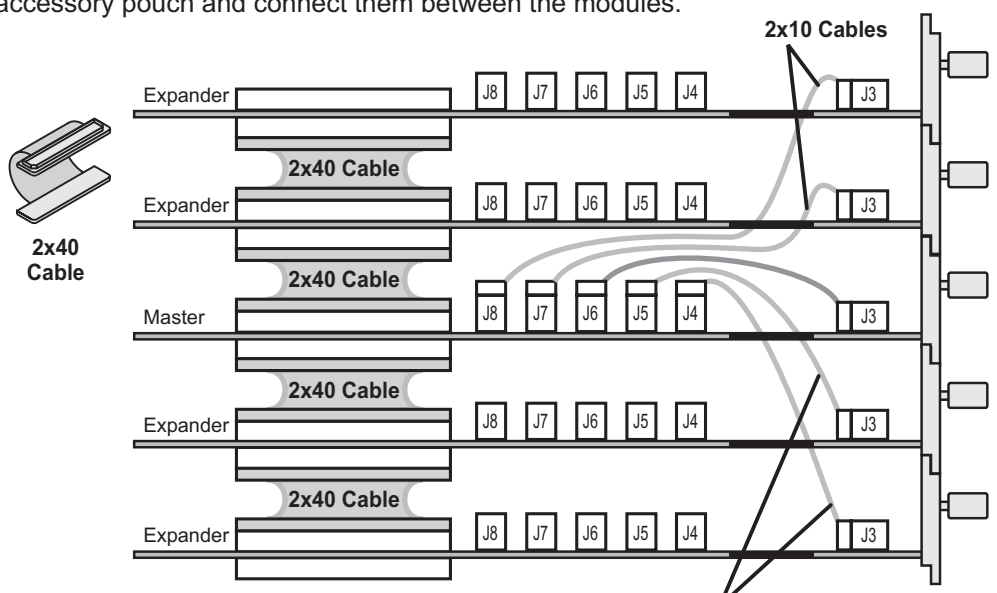
Connect the **2x10 cables** of the Expanders to the Master. Find the **2x40 cables** in the accessory pouch and connect them between the modules.



16715/ 16/ 17/ 18/ 19A 16750/ 51/ 52A

5-Card Module

Connect the **2x10 cables** of the Expanders to the Master. Find the **2x40 cables** in the accessory pouch and connect them between the modules.

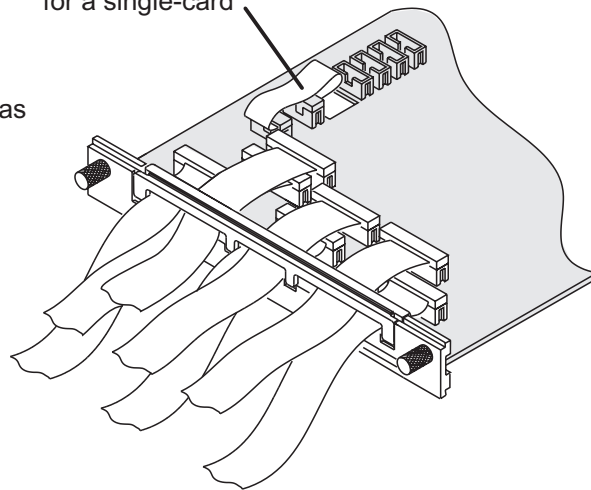


16720A

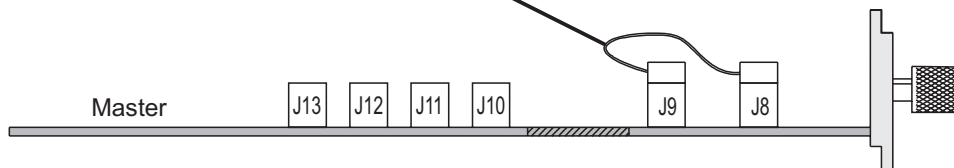
Single-Card Module

Each 16720A shipped stand alone has the **2x10 cable** connected in the single-card module configuration.

2x10 cable connection for a single-card



2x10 cable



Master

J13

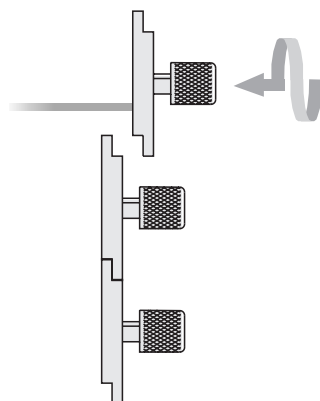
J12

J11

J10

J9

J8



A single-card module configuration can be installed in any available slot.

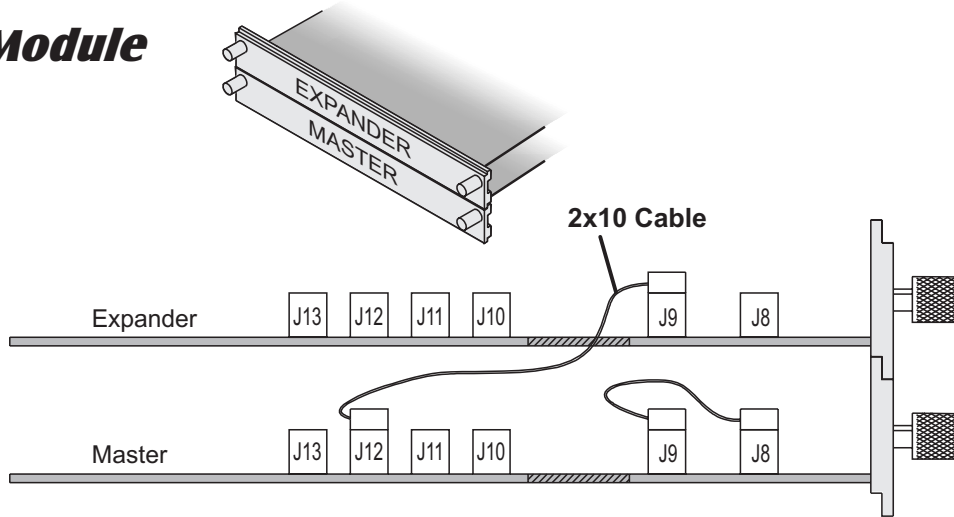
CAUTION Be sure the frame is unplugged before removing or installing modules.

The 16720A requires software Rev. A.02.00.00 or higher.

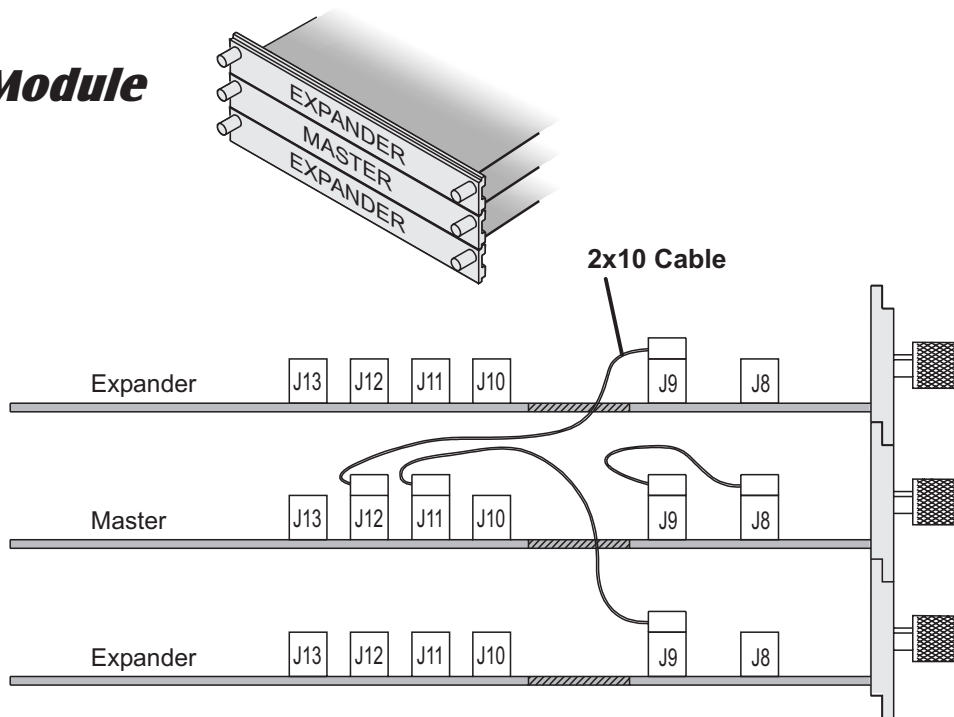
The following pages will show you how to connect the **2x10 cables** to configure two, three, four, and five-card modules.

16720A

2-Card Module



3-Card Module



16720A

4-Card Module

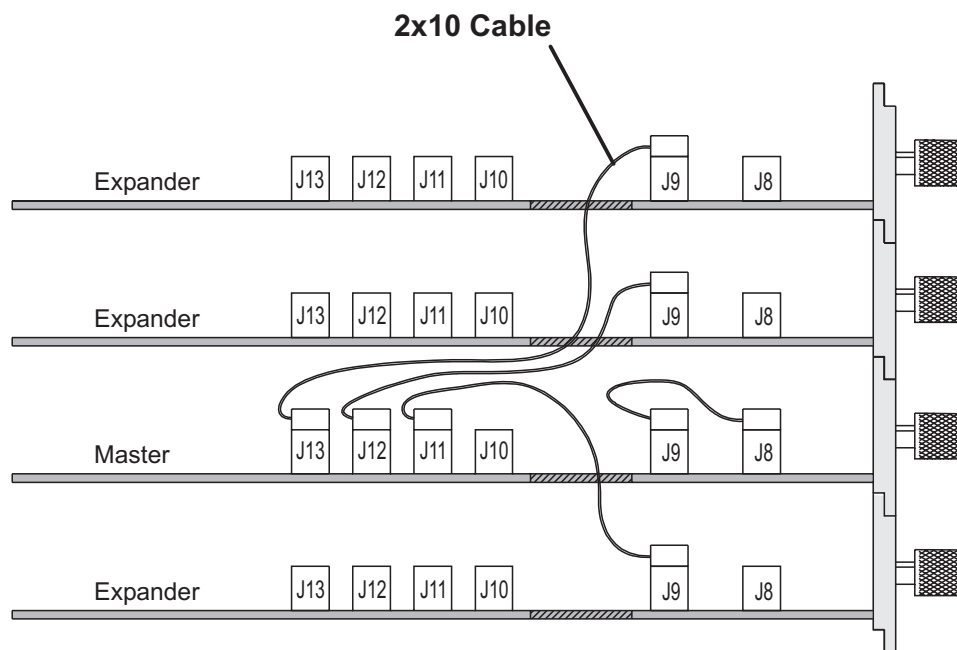
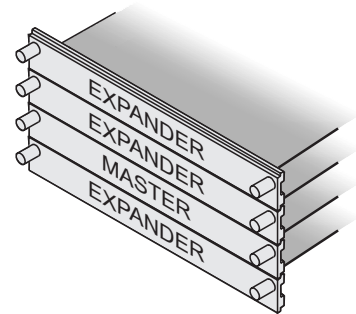
Note!

Carefully slide the four cards half way into the mainframe slots.

Cable the bottom Expander to the Master Card first.

Cable the upper two Expanders to the Master Card.

Gently slide the cabled assembly fully into the frame and tighten.



16720A

5-Card Module

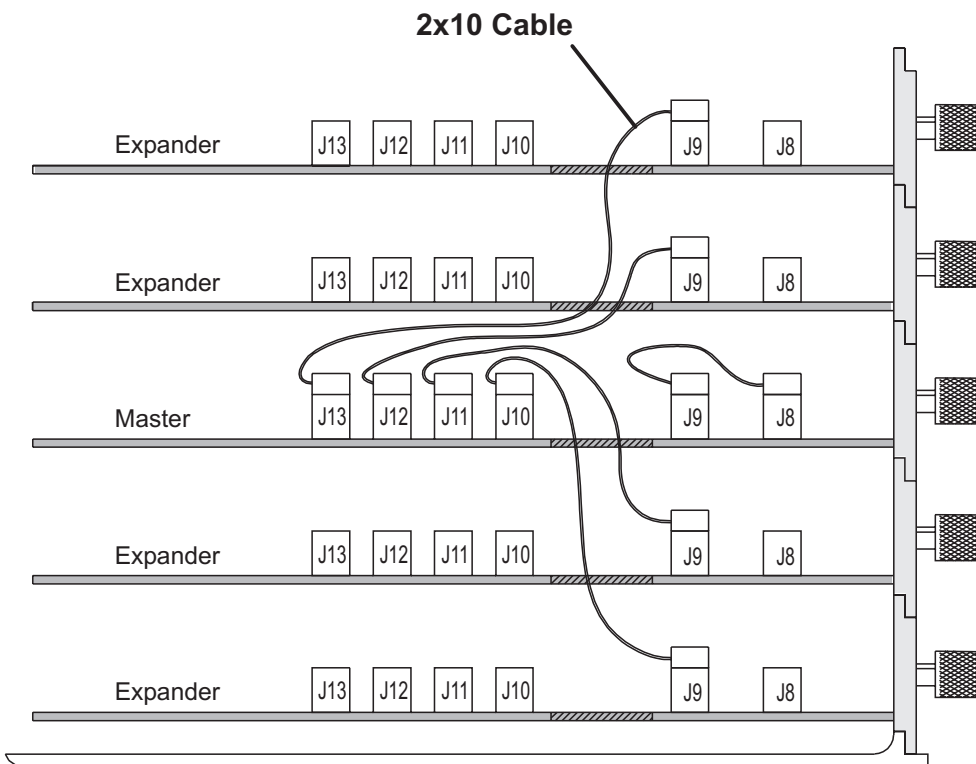
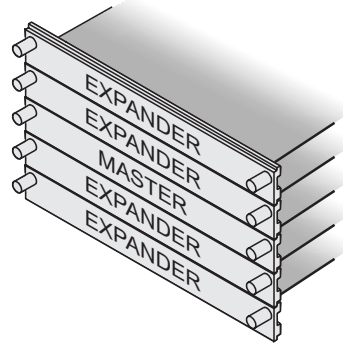
Note!

Carefully slide the five cards half way into the mainframe slots.

Cable the bottom two Expanders to the Master first.

Cable the upper two Expanders to the Master.

Gently slide the cabled assembly fully into the frame and tighten.



16720A

Done

DECLARATION OF CONFORMITY

according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name: Agilent Technologies, Inc.
Manufacturer's Address: 1900 Garden of the Gods Road
Colorado Springs, CO 80907 USA

declares, that the product

Product Name: Logic Analyzer System Mainframe
Model Number(s): 16700B, 16701B, 16702B
Product Options(s): All options based on the above

Is in conformity with:

EMC: IEC 61326-1:1997+A1:1998/EN 61326-1:1997+A1:1998
CISPR 11:1990 / EN 55011:1991 - Group 1, Class A*
IEC 61000-4-2:1995+A1:1998/EN 61000-4-2:1995 (ESD 4kV CD, 8kV AD)
IEC 61000-4-3:1995/EN 61000-4-3:1995 (3V/m 80% AM)
IEC 61000-4-4:1995/EN 61000-4-4:1995 (0.5kV line-line, 1kV line-earth)
IEC 61000-4-6:1996/EN61000-4-6:1996 (3V 80% AM, power line)
Australia/New Zealand: AS/NZS 2064.1

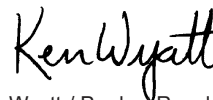
Safety: IEC 61010-1:1990+A1:1992+A2:1995/EN61010-1:1994+A2:1995
Canada: CSA C22.2 No. 1010-1:1992
USA: UL 3111-1:1994

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/EEC) and carries the CE marking accordingly. (European Union)

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

Date: 11/18/99



Ken Wyatt / Product Regulations Manager

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

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)

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

DECLARATION OF CONFORMITY

according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name: Agilent Technologies
Manufacturer's Address: Colorado Springs Division
1900 Garden of the Gods Road
Colorado Springs, CO 80907 USA

declares, that the product

Product Name: Measurement Modules
Model Number(s): 16517A, 16518A, 16522A, 16533A, 16534A,
16557D, 16710A, 16711A, 16712A, 16715A,
16716A, 16717A, 16718A, 16719A
Product Options(s): All

conforms to the following Product Specifications:

Safety: IEC 1010-1:1990+A1 / EN 61010-1:1993
UL 3111
CSA-C22.2 No. 1010.1:1993

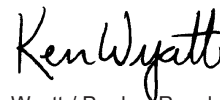
EMC: CISPR 11:1990 / EN 55011:1991 Group 1, Class A
IEC 801-2:1991 / EN 50082-1:1992 4 kV CD, 8 kV AD
IEC 801-3:1984 / EN 50082-1:1992 3 V/m, {1kHz 80% AM, 27-1000 MHz}
IEC 801-4:1988 / EN 50082-1:1992 0.5 kV Sig. Lines, 1kV Power Lines

Supplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC, and carries the CE marking accordingly.

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

Colorado Springs, 10/03/96



Ken Wyatt / Product Regulations Manager

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

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)

Power (From host frame.)

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: Measurement Modules
Model Number(s): 16720A, 16750A, 16751A, and 16752A
Product Options(s): All options based on the above

Is in conformity with:

EMC: IEC 61326-1:1997+A1:1998/EN 61326-1:1997+A1:1998
CISPR 11:1990 / EN 55011:1991 - Group 1, Class A*
IEC 61000-4-2:1995+A1:1998/EN 61000-4-2:1995 (ESD 4kV CD, 8kV AD)
IEC 61000-4-3:1995/EN 61000-4-3:1995 (3V/m 80% AM)
IEC 61000-4-4:1995/EN 61000-4-4:1995 (0.5kV line-line, 1kV line-earth)
IEC 61000-4-6:1996/EN61000-4-6:1996 (3V 80% AM, power line)
Australia/New Zealand: AS/NZS 2064.1

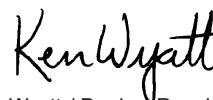
Safety: IEC 61010-1:1990+A1:1992+A2:1995/EN61010-1:1994+A2:1995
Canada: CSA C22.2 No. 1010-1:1992
USA: UL 3111-1:1994

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/EEC) and carries the CE marking accordingly. (European Union)

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

Date: 02/08/2000



Ken Wyatt / Product Regulations Manager

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

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)

Power (From host frame.)

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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.
- 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.

● Whenever it is likely that the ground protection is impaired, you must make the instrument inoperative and secure it against any unintended operation.

● 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.

● Use caution when exposing or handling the CRT. Handling or replacing the CRT shall be done only by qualified maintenance personnel.

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.

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About this edition

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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.