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HEWLETT® PACKARD

Installation Guide

HP E2920 Computer Verification Tools PCI Series

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Installation Guide

HP E2920 Computer Verification Tools, PCI Series

HP E2924A, E2925A, E2926A

and all Product Options

HEWLETT® PACKARD

Revision 5.0
July 1998

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Part Number: E2920-91010

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Germany

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Precautions

WARNING: **Do not touch onboard ICs if the device is in use.**

- The operating temperature of the Altera ICs on the PCI Exerciser and Analyzer card can exceed 70 °C (158 F). Take care when handling the board during operation and when removing the card.
- The PCI Exerciser and Analyzer card is not designed for outdoor use. Do not expose it or any of its components to humidity. Protect the PCI Exerciser and Analyzer card from temperature changes which could cause condensation on the modules.
- Do not operate the PCI Exerciser and Analyzer card in the presence of flammable gases, fumes or powders. Operation of any electrical instrument in an environment like this constitutes a serious safety hazard.
- There are no serviceable parts on the PCI Exerciser and Analyzer card. Do not attempt service or adjustment.
- Do not expose the PCI Exerciser and Analyzer card or any of its components to shock or vibration.
- Do not use the card for environmental testing.

CAUTION: **There are electrostatic sensitive components on the PCI Exerciser and Analyzer card. Handle the PCI Exerciser and Analyzer card carefully and as little as possible.**

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Precautions



Electrostatic Discharge (IEC 801-2:1991):

Under normal operating conditions an electrostatic discharge of up to 4kV contact-discharge or 8kV air-discharge may cause erroneous behavior of the Exerciser and Analyzer Card.

Keep such electrical discharges away from the operating instrument.



Electromagnetic Immunity (IEC 801-3:1992):

Under normal operating conditions an electrical field of up to 3 V/m may cause erroneous behavior of the E2925A.

Keep such electrical fields away from operating instrument.



Fast Transients (IEC801-4:1988):

Under normal operating conditions fast transients of up to 0.5kV applied to I/O-cables or for up to 1kV power line cables may cause erroneous behavior of the E2925A.

Keep such fast transients away from cables on the operating instrument.

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Chapter 1 Installation Overview

This chapter gives an overview of the installation of the Exerciser and Analyzer testing equipment.

All available components are briefly introduced. It is shown where the components are to be installed and which steps are needed.

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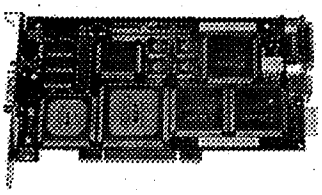
Overview of the Components

The equipment consists of hardware components and software. They are briefly introduced in the following.

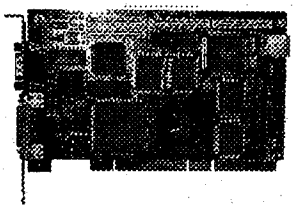
Hardware Components

The following list shows and briefly explains all available hardware of the PCI Exerciser and Analyzer equipment:

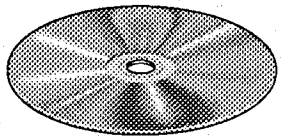
Exerciser and Analyzer Cards and Software



HP E2925A PCI Exerciser and Analyzer Card



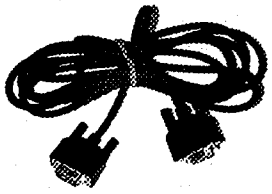
HP E2926A PCI Exerciser and Analyzer Card



Installation CD-ROM

The Exerciser and Analyzer cards provide the test card functions. The cards are controlled by software shipped on CD-ROM.

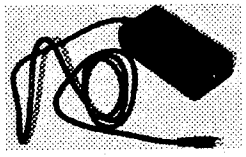
RS-232 Control Interface Cable



To transfer control information between software and Exerciser and Analyzer card by default the serial interface RS-232 can be used.

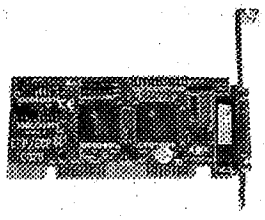
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Power Supply Unit (Option 001)

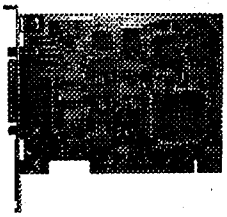


The E2925A Exerciser and Analyzer card can be powered by the PCI bus of the system under test or by an optional external power supply unit. Using the power supply unit relieves the power supply of the system under test.

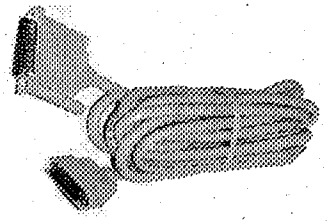
Fast Host Interface Cards (E2925A/E2926A Option 002)



E2925A Option 002 (ISA)



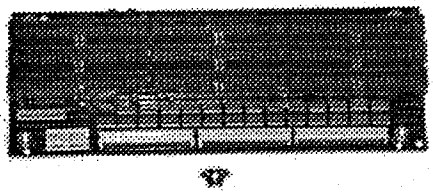
E2926A Option 002 (PCI)



Bi-Directional Centronics Cable

The Fast Host Interface cards transfer control data via the bi-directional centronics/parallel interface instead of the serial interface. This allows faster data transfer to and from the E2925A Exerciser and Analyzer card. The E2926A Fast Host Interface card is a PCI card and provides a faster transfer speed than the E2925A Fast Host Interface card (when used with the E2926A Exerciser and Analyzer card).

Logic Analyzer Adapter (Option 003 or Option 004)

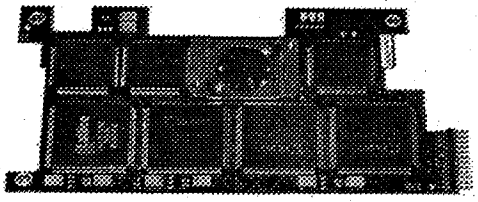


The Exerciser and Analyzer card provides optional adapters to connect an external logic analyzer.

The logic analyzer adapters are shipped with a set of 2 screws which can be used to attach them to the E2925A Exerciser and Analyzer card. (Option 004 is not shown in the figure.)

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Deep Trace Memory Performance Board (E2925A Option 100)



The E2925A Exerciser and Analyzer card provides an optional Deep Trace Memory Board for sophisticated performance measurements.

The Deep Trace Memory Performance Board is

- shipped with a set of 3 screws which can be used to attach it to the E2925A Exerciser and Analyzer card

  or

- mounted to the Exerciser and Analyzer Card by the factory.

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Software

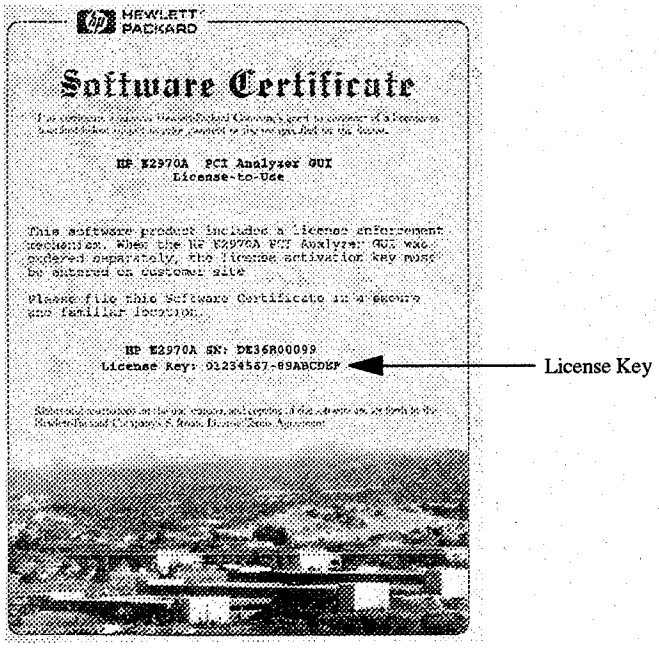
The complete software is shipped on a CD-ROM:

- E2920A Graphical User Interface
- C application programming interface (C-API)

Additionally, you may have ordered software add-ons. In this case, there will be a software certificate providing the license key for each. The following add-ons are available:

- HP E2970 Analyzer GUI
- HP E2971 Exerciser GUI
- HP E2972 PCI Performance Analyzer GUI
- HP E2974 Subsystem Stress Tests
- HP E2975 PCI Protocol Permutator and Randomizer Software

Software Certificate

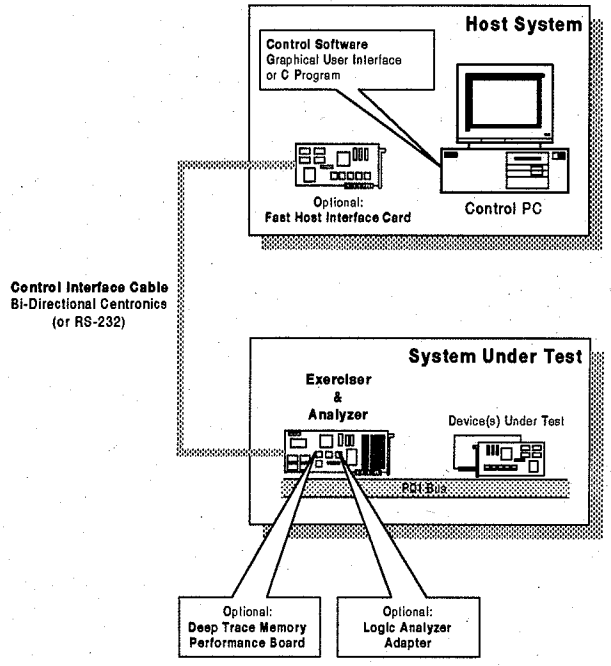


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Installation Overview

Before installing the equipment, you need to know where to install the components. This is shown in the figure:

Test Site Overview



Normally, the Exerciser and Analyzer card is plugged into the system under test (which may contain PCI devices under test) and is controlled from an external host (control PC) via the control interface.

If, however, a small testing environment is required, one PC can serve as the control PC and system under test simultaneously. In this case, the PC's PCI bus can be used as the control interface instead of RS-232 or bi-directional centronics (on a Windows NT system only).

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What is to be Done?

This installation guide covers all steps for a complete installation and update of all parts of the Exerciser and Analyzer equipment. However, if you have already used previous versions or if you only want to add parts of the equipment, you do not need to read the complete guide. The following list describes what is to be done in which situations.

If you are working with the Exerciser and Analyzer equipment for the first time, it is recommended you read the installation guide completely.

- **Complete New Installation**

  If no hardware and software is installed yet, read the following sections:

Section	Page
"Installing the Exerciser and Analyzer Card"	17
"Connecting the Control Interface"	21
"Installing the Software"	28
"Starting the GUI"	30
"Enabling Software Add-Ons"	31
"Connecting to the Card"	33

- **Installing the New Software Version**

  If you change to the most recent software version, read the following sections:

Section	Page
"Installing the Software"	28
"Starting the GUI"	30
"Enabling Software Add-Ons"	31
"Connecting to the Card"	33
"Updating the Hardware" (required only if the connection fails)	36

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- **Adding a Software Add-on**

  If you have purchased a software add-on and now want to enable it, read the following sections:

Section	Page
"Starting the GUI"	30
"Enabling Software Add-Ons"	31

- **Adding a Hardware Component**

  Read the sections in the table below if you do not want to change to another software version but add one of the hardware components:

  – power supply unit
  – logic analyzer adapter
  – deep trace memory board

Section	Page
"Installing the Exerciser and Analyzer Card"	17
"Starting the GUI"	30
"Connecting to the Card"	33
"Updating the Hardware" (required only if the connections fails)	36

- **Adding a Fast Host Interface Card**

  If you have purchased a fast host interface card and want to install it, read the following sections:

Section	Page
"Fast Host Interface Cards (E2925A/E2926A Option 002)"	17
"Starting the GUI"	30
"Connecting to the Card"	33

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Chapter 2 Installing the Hardware

This chapter explains how and where to install the Exerciser and Analyzer hardware:

- What requirements must be met by the test site and the PCs to be used?
- How can additional equipment be connected to the Exerciser and Analyzer card?
- Which Exerciser and Analyzer hardware is plugged into the control PC and which into the system under test?
- How are the control PC and Exerciser and Analyzer card connected?

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Test Site Requirements

You need sufficient power supply sockets for the PCs on the test site. Another socket is needed for the Exerciser and Analyzer card's external power supply if an external power supply is used. For software requirements of the control PC, refer to "Installing the Software" on page 28.

The **security regulations** and, in the EU, the site **attenuation requirements** must be followed:

- for security regulations refer to "Precautions" on page iii
- for site attenuation requirements, refer to "EU Regulatory Instruction – Site Attenuation Requirements" on page 50

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Installing the Exerciser and Analyzer Card

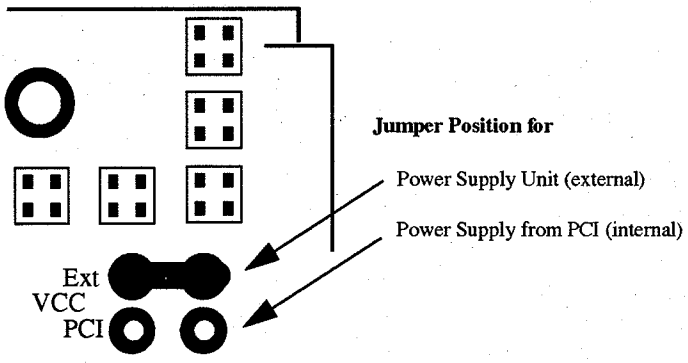
The following sections describe the installation of both, the E2926A *and* E2925A Exerciser and Analyzer cards and their options. The following steps are to be carried out:

1. If you use the external power supply unit, prepare the Exerciser and Analyzer card for this. This is described in "Setting the Jumper for the Power Supply Unit" on page 17.
2. If you use an external logic analyzer in addition to the Exerciser and Analyzer card's analyzer, attach a logic analyzer adapter to the card. This is described in "Attaching the Logic Analyzer Adapter" on page 19.
3. If you use the deep trace memory performance board, attach this also to the card. This is described in "Attaching the Deep Trace Memory Performance Board" on page 20.
4. Plug the Exerciser and Analyzer card with all its optional hardware into the system under test. This is described in "Inserting the Card into the System Under Test" on page 25.
5. Connect the Exerciser and Analyzer card with the control PC. This is described in "Connecting the Control Interface" on page 21.

Setting the Jumper for the Power Supply Unit

To use the external power supply unit, the card's control jumper must be set. The jumper position depends on the card used:

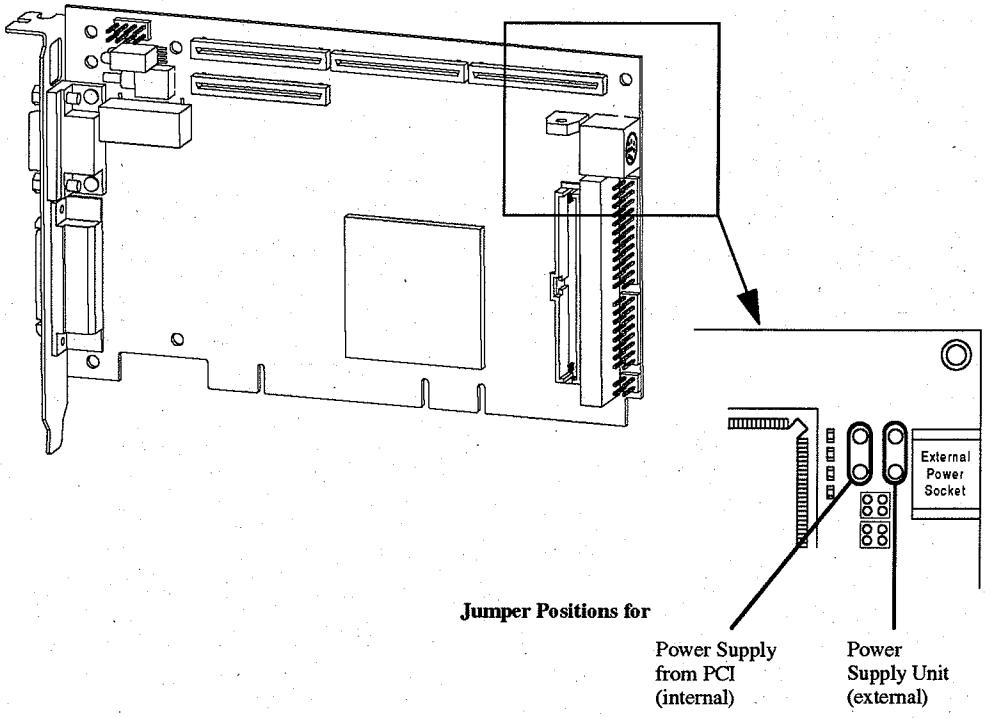
Power Supply Unit Control Jumper of E2925A



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Setting the Jumper for the Power Supply Unit

Power Supply Unit Control Jumper of E2926A



The power supply unit's cable will be plugged in when putting the card into operation. For now, first continue with adding additional hardware options.

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Attaching the Logic Analyzer Adapter

There are two adapters available. Ensure that you use the correct adapter. You can identify them by the part number printed on the adapter's surface.

- **HP Logic Analyzer Adapter Option 003**

  Connects HP Logic Analyzers to the Exerciser and Analyzer card. The part number is **66502**.

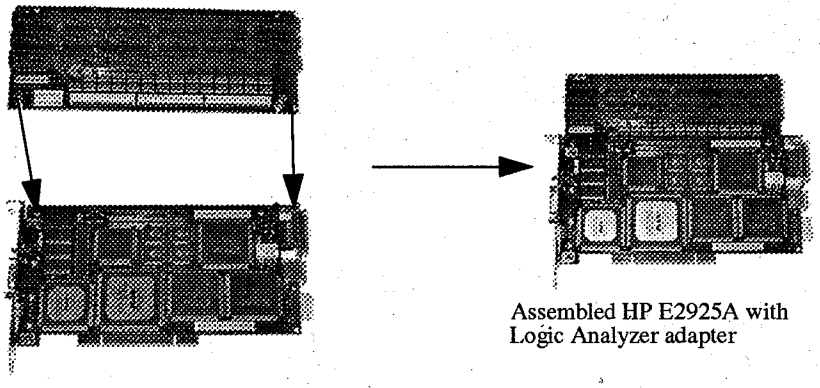
  A file with settings for the logic analyzer is shipped as part of the software release. It can be copied to a floppy and then be loaded to the HP logic analyzer.

- **HP Logic Analyzer Adapter Option 004**

  Connects any other logic analyzer to the Exerciser and Analyzer card. For details, refer to the Exerciser and Analyzer card's User's Guide, "Logic Analyzer Connection". The part number is **66503**.

The E2925A card is used as an example to show how to attach the adapters to the Exerciser and Analyzer card. Proceed in the same way to attach them to the E2926A.

Attaching the Logic Analyzer Adapter



Assembled HP E2925A with Logic Analyzer adapter

1 Align the Exerciser and Analyzer card and the logic analyzer adapter and press them together firmly.

2 Attach the boards with the screws shipped with the logic analyzer adapter. (Skip this step if you still need to attach a Deep Trace Memory Performance Board.)

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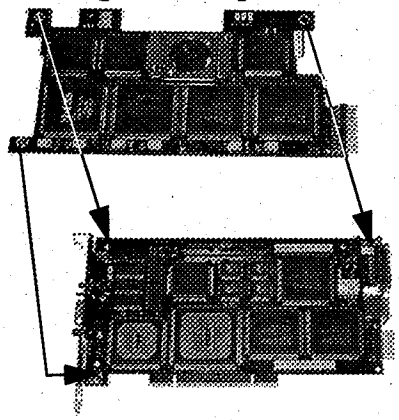
Attaching the Deep Trace Memory Performance Board

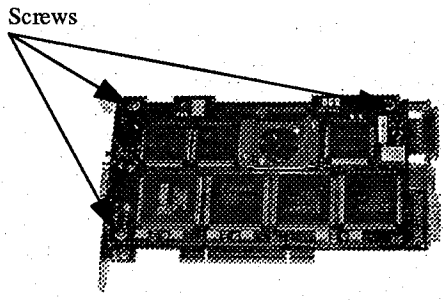
You can skip this section if you:

- use the E2926A Exerciser and Analyzer card.
- have ordered both the E2925A Exerciser and Analyzer card and optional Deep Trace Memory Board together, because they are mounted by the factory.

Otherwise, you will have to attach the the Deep Trace Memory Board to the E2925A Exerciser and Analyzer card. Proceed as follows:

Attaching E2925A Option 100





Assembled HP E2925A with option 100

1 Align the Exerciser and Analyzer card and the Deep Trace Memory Performance Board and press them firmly together.

2 Attach the boards with the shipped screws.

(If you have previously attached a logic analyzer adapter, then it is also attached with two screws from the Deep Trace Memory Performance Board.)

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Connecting the Control Interface

The control interfaces are used to transfer control information between software and card. The Exerciser and Analyzer cards feature the following control interfaces:

- **PCI Port**

  PCI port for in-system validation (when the control PC is the system under test simultaneously). **Only supported for Windows NT.** No cable or hardware required.

- **RS-232 Port**

  The RS-232 port uses the serial interface of the control PC and is used for remote control of the card. Refer to "Serial Interface" on page 22.

- **Parallel Port**

  As with RS-232, but the parallel port provides more bandwidth to transmit data faster. Requires the ISA Fast Host Interface Card (E2925A option 002).

  Refer to "Fast Host Interface Cards (E2925A/E2926A Option 002)" on page 23.

- **Fast Host Interface**

  As with parallel port, but provides even more bandwidth when connected to the E2926A Exerciser and Analyzer card. Requires the E2926A PCI Fast Host Interface Card (E2926A Option 002).

  Refer to "Fast Host Interface Cards (E2925A/E2926A Option 002)" on page 23.

For details on the control interfaces, refer to the E2926A User's Guide, "Control Interfaces".

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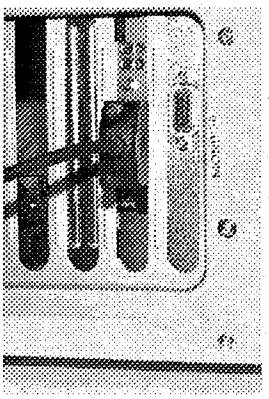
Serial Interface

To use the RS-232 port of the card, a serial interface of the control PC is needed. No additional equipment is required for the control PC. An appropriate RS-232 cable is shipped with each Exerciser and Analyzer card.

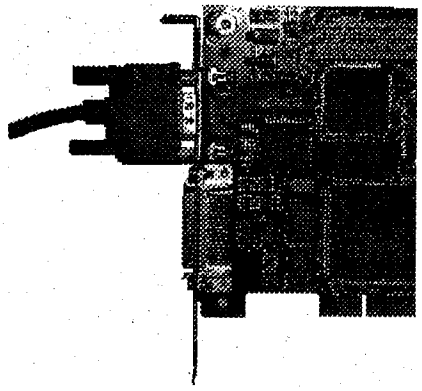
NOTE: If you need a 25-to-9-pin adapter to connect the cable to the control PC's RS-232 interface, ensure that it connects the handshaking lines DTR, RTS, DSR, and CTS.

1. Connect the RS-232 to a serial interface of the control PC.
2. Note the communication port ("COM1", "COM2", or "COM3") to which the interface is connected. This information will later be needed during software configuration.
3. Connect the RS-232 to the Exerciser and Analyzer card as shown in the figure:

RS-232 Connector



E2925A



E2926A

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Fast Host Interface Cards (E2925A/E2926A Option 002)

Both types of Fast Host Interface cards can work with both types of Exerciser and Analyzer cards, but if you mix the types, optimum transfer speed cannot be achieved.

Installing the E2926A Option 002 Fast Host Interface PCI Card

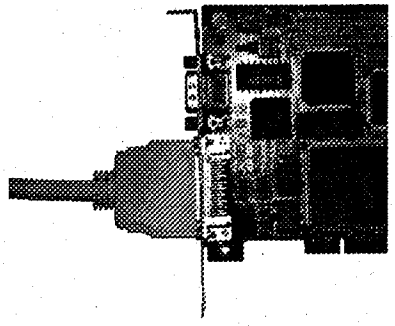
1 Plug the card into a PCI slot of the control PC.

Follow the instructions of the documentation shipped with the control PC.

2 Use the cable shipped with the fast host interface card to connect the control PC and the Exerciser and Analyzer card.

3 Connect the interface cable as shown in the figure below.

E2926A Fast Host Interface Connector



Installing the E2925A Option 002 Fast Host Interface ISA Card

If you use this card as the control interface, set the configuration jumpers before you install the card in the control PC.

Setting Jumpers The Fast Host Interface Card is shipped with the following factory settings:

- LPT2 enabled
- Address 278\h-27F\h
- Channel A

You can change the settings to adapt the card to the control PC. The following tables show the card jumper positions for other settings:

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Fast Host Interface Card Configuration:

Channel A (LPT-A)	Address	JP1-A Position	JP1-B Position	JP1-C Position
Channel B (LPT-B)		JP3-A Position	JP3-B Position	JP3-C Position
LPT1	378-37F\h	2=3	2=3	2=3
LPT2 (default)	278-27F\h	1=2	2=3	2=3
Disabled		1=2	1=2	1=2

Note or store the printer port information. It will be needed when configuring the software.

Connect the control PC and system under test via fast host interface card. Proceed as follows:

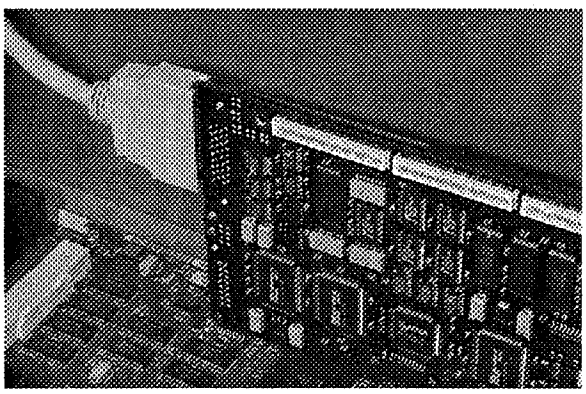
1 Plug the card into an ISA slot of the control PC.

Follow the instructions in the documentation shipped with the control PC.

2 Use the cable shipped with the fast host interface card to connect the control PC and the Exerciser and Analyzer card.

3 Connect the interface cable as shown in the figure below.

E2925A: Connecting Control Interface Cables



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Inserting the Card into the System Under Test

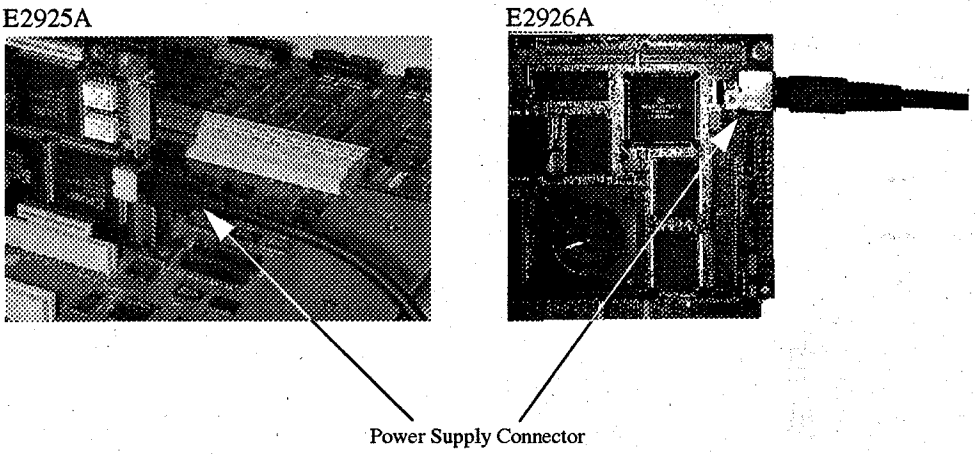
If all optional hardware is attached to the Exerciser and Analyzer card, insert it into the system under test:

1 Plug the Exerciser and Analyzer card into a PCI slot of your system under test.

2 If possible, attach the card's backplane with the screw.

3 If the external power supply unit is used, connect the power supply cable.

Connecting Power Supply



4 Switch on the power:

If the external power supply unit is used, connect it to a power supply socket

or

switch on the device under test.

NOTE: **Be careful when handling the board during operation and when removing the card. The operating temperature of the some ICs on the Exerciser and Analyzer card and its hardware options may exceed 70 °C (158 F).**

A LED on the card's backplane indicates stable power.

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Chapter 3 Installing and Using the Software

The graphical user interface (GUI) allows quick and comprehensive control of the Exerciser and Analyzer card without the need to write a program.

This chapter guides you through the installation and the first steps with the graphical user interface of the software. It also shows and describes the required steps to establish a control connection to the Exerciser and Analyzer card.

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Installing the Software

Before you insert the CD and start the setup program consider how to handle previous software versions, and whether the PC can run the software.

How to Handle Previous Versions

If there is a **previous version** of the software on the control PC, you may decide to maintain or uninstall it:

- **Multiple versions on one control PC**

  All versions of the Exerciser and Analyzer card software can co-exist on a control PC. However, do not install them into the same subdirectory.

- **Removing an old version**

  To remove a version, use the *Uninstaller* software of the operating system. In case this does not work properly:

  1 Move your data files to a secure place.

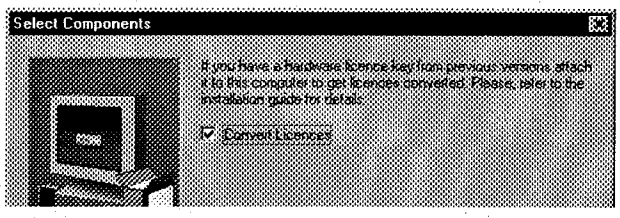
  2 Delete the directory that contains the software.

  3 Install the new version as described in "Installation Procedure" on page 29.

- **Dongle**

  The dongle stores license key information of previous versions of the software and is not required anymore. For license key conversion, **plug in the dongle before installation**. The installation program will convert the license keys stored in the dongle into new license keys.

Converting Licenses



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System Requirements

The requirements a PC must meet to run the software are summarized in the following table:

Control PC Requirements

Resource	Requirement/Recommendation
Computer	IBM-PC or 100% compatible with recommended minimum 90 MHz Pentium CPU and CD-ROM drive.
Graphics	800 x 600 required, recommended 1024 x 768 SVGA
Operating System	Windows 95 or Windows NT for the GUI. (C-API sources available for compilation under other operating systems.)
Memory	16 MB minimum, 24 MB recommended
Hard Disk	Minimum of 50 MB free disk space, 100 MB recommended

Installation Procedure

NOTE:

The installation program will suggest to install **Adobe Acrobat Reader** version 3.0 or greater with the software. Acrobat Reader is required to view and print the user documentation. Therefore, first determine whether Acrobat Reader is already available to you and, if so, which version.

You need **Administrator Privileges** to install the software on Windows NT.

To install the software, proceed as follows:

1. Start the control PC.
2. Insert the CD-ROM into the CD-ROM drive of the control PC.
3. Read the `README.TXT` file in the root directory of the CD-ROM.
4. Start `SETUP.EXE.` in the `\DISK1` subdirectory of the CD-ROM.
5. Follow the instructions on the screen.

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Starting the GUI

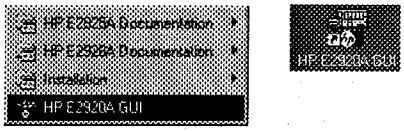
In the following, it is assumed that the software was installed on a Windows 95 system. The steps are the same for Windows NT.

NOTE: Ensure that the font size in the display properties of your operating system is set to "Small Font". (You can do this as follows: move the mouse pointer on the desktop, click on the right mouse button and select "Settings", change to the "Settings" tab and pick "Small Fonts" from the "Font Size" list.)

To start the GUI, proceed as follows:

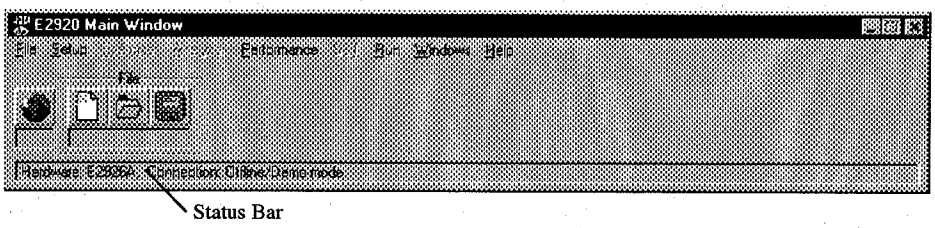
1 Click on the program icon in the start menu or in the program group.

Start Menu Entry and Program Icon



The main window appears:

Main Window



From the main window, you can call all functions to control an Exerciser and Analyzer card, either by picking a function from the main menu or by clicking an icon.

The footer of the main window contains a status bar displaying the type of Exerciser and Analyzer card the program is currently set to control, and the connection status.

NOTE: To control multiple Exerciser and Analyzer cards from one control PC, start the GUI once for each card.

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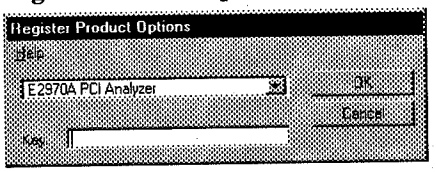
Enabling Software Add-Ons

If you have purchased software add-ons, they need to be enabled after installation. To do this, have the software certificates ready and proceed as follows:

1 From the "Setup" menu, select "Testcard Configuration".

2 From the "HW Config" menu, select "Register Product Options".

Register Product Options Window



Repeat the following steps for each software add-on to be enabled:

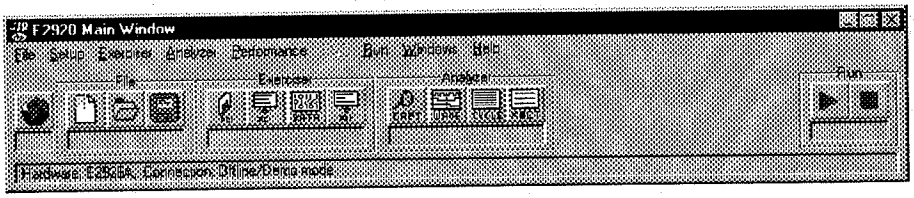
3 Select the software add-on from the list.

4 Enter the license key printed on the software certificate in the "Key" text field.

5 Click on "OK".

The software add-ons providing GUI functions now become visible in the main window:

Main Window with Software Option Enabled



NOTE:

"E2972A PCI Performance" needs to be enabled additionally. Refer to the E2972A PCI Performance Analyzer Software User's Guide.

"E2975A PPR" is a C library and cannot be used with the GUI.

Store the software certificates in a safe place.

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Changing the Software Configuration

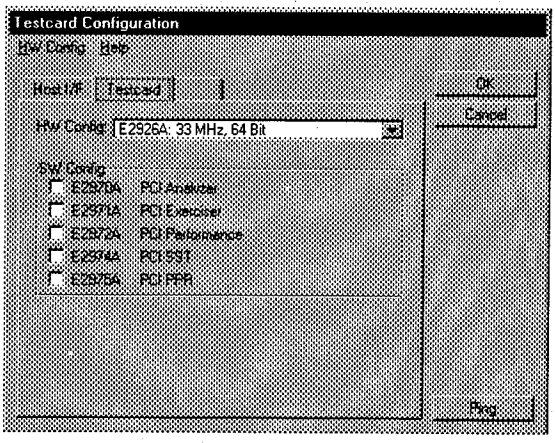
In the Offline/Demo mode, the "Testcard Configuration" tab allows you to configure the E2920 graphical user interface (GUI) to emulate the specified hardware and software configuration. This capability enables you to:

- use the GUI for offline analysis of stored waveform files (*.wfm)
- generate configuration files (*.bst) for use online at a later time.

Configure the hardware and software as needed to match the configuration that you are using:

1 From the "Setup" menu, select "Testcard Configuration" and change to the "Testcard" tab.

Testcard Tab



2 In the "SW Config" group, activate or deactivate the software add-ons according to your requirements.

3 Click on "OK".

You can now perform offline analysis of waveform files stored with this configuration or generate configuration files.

NOTE: The settings in the "Testcard Configuration" tab can only be altered in "Offline/Demo Mode". Refer to "Connecting to the Card" on page 33.

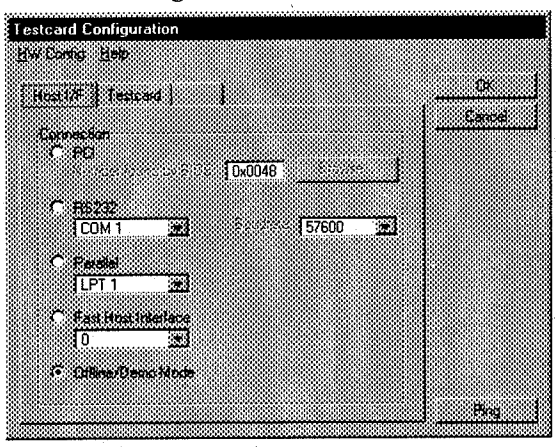
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Connecting to the Card

Now establish and test the control connection. Proceed as follows:

1 From the "Setup" menu, select "Testcard Configuration".

Testcard Configuration Window



2 In the "Connection" group, select the control interface to the Exerciser and Analyzer card.

- **PCI Interface**

  The PCI bus is only supported as a control interface by Windows NT if the Exerciser and Analyzer card is plugged into the control PC.

  On the PCI bus, the Exerciser and Analyzer card is identified by a number assigned by the BIOS. Select the correct identifier as follows:

  1 Click on the "Browse" button

  2 Select "Hewlett Packard PCI Bus Exerciser".

  3 Click on "OK".

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– **RS-232**

Communication is done via the RS-232 serial interface.

1 Select the communication interface between "COM1" and "COM4" from the list.

2 Select an appropriate baud rate from the "Baudrate" list.

This depends on the maximum baud rate supported by the control PC's serial interface. The Exerciser and Analyzer card supports up to 57600 Bit/s.

– **Parallel**

Communication is done via the parallel port and ISA Fast Host Interface Card (E2925A Option 002).

1 Select the printer port that is jumpered on the card (LPT1 or LPT2) from the list.

For information on the card's jumpers, refer to "Fast Host Interface Cards (E2925A/E2926A Option 002)" on page 23.

– **Fast Host Interface**

Communication is done via the parallel port and PCI Fast Host Interface Card (E2926A Option 002). The card is automatically detected by the operating system and provided with an identifier. Select the correct identifier for communication as follows:

1 Select the identifier from the list.

2 Click on the "Ping" button.

The "Ping" button is used to identify the card connected to the GUI. If the correct identifier has been selected, the card's LEDs flash three times.

Repeat the steps until you have found the correct identifier.

– **Offline/Demo Mode**

All features of the software can be used without hardware, for example, for analysis of previously stored data or test preparation without hardware. No connection is established.

3 Click on "OK".

The connection will automatically be established by the software unless you have selected "Offline/Demo Mode".

If no errors have occurred, installation is complete.

Otherwise, read the error message carefully and follow the steps described in the error message to eliminate the problem.

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Troubleshooting

If errors occur when establishing the connection, the following table may help:

Error Message	Reason	Help
`Version mismatch ...`	Version conflict.	Refer to "Updating the Hardware" on page 36
`Port is not connected ...`	Cable loose or disconnected.	Ensure that the cable is properly connected.
	Wrong type of RS-232 cable or adapter.	Use a correct adapter. Refer to "Serial Interface" on page 22.
	Wrong bi-directional centronics cable.	Use the cable shipped with your fast host interface card.
	Wrong port settings.	Correct the port settings. Refer to "Connecting to the Card" on page 33.
	E2926A PCI port: wrong setting of user jumper.	Correct the setting of the user jumper, refer to E2926A User's Manual, "Concealing the Card from the System"

You can check the connection at any time while tracking down the error by selecting "Check Connection" from the "Setup" menu in the GUI.

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Updating the Hardware

After a software update, a version conflict with the onboard firmware can occur. In this case, the hardware must be updated.

Checking the Hardware

When connecting to the card and during program start, the hardware check is performed automatically. However, you can also start the check on your own (for example, if you changed to another card without restarting the software):

1 From the "Setup" menu, select "Check Hardware ... "

A message shows whether or not a hardware update is required.

Preparing the Hardware Update

If you use the **E2926A** Exerciser and Analyzer, no preparation is required. Continue with "Performing the Hardware Update" on page 38.

If you use an **E2925A** Exerciser and Analyzer card, the result message of the hardware check will display how to perform the update and can contain the request to set jumpers on the card. In this case, proceed as follows:

1 Power down the Exerciser and Analyzer card (by shutting down the system under test, or unplugging the external power supply).

2 Remove the Exerciser and Analyzer card from the system under test.

3 If an E2925A Deep Trace Memory Performance Board (Option 100) is hooked on the Exerciser and Analyzer card, remove it.

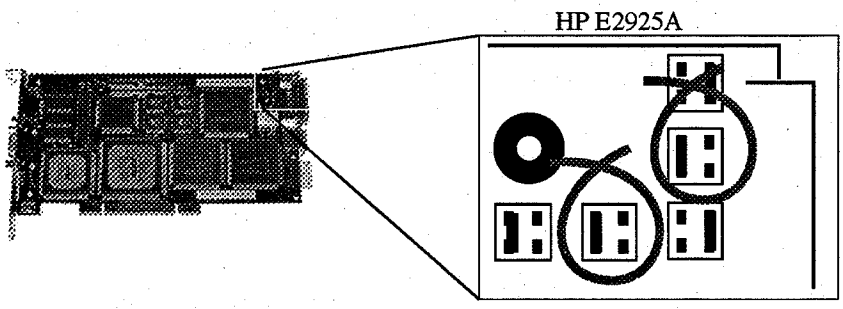
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E2925A: Setting the Jumpers

To put the E2925A card into programming mode, the following jumpers must be set:

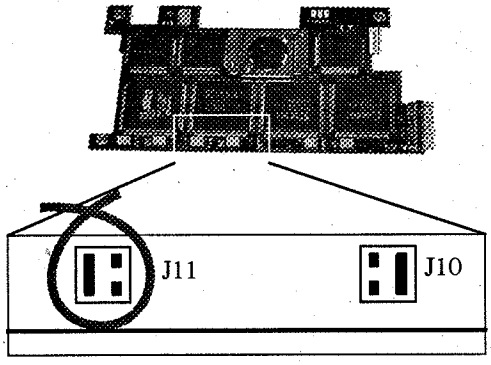
1 On the E2925A Exerciser and Analyzer card, set the jumpers to programming position:

Programming Jumpers of the E2925A Exerciser and Analyzer Card



2 On the E2925A Deep Trace Memory Performance Board (Option 100), set jumper 11 to programming position (left hand side):

Programming Jumpers of the E2925A Deep Trace Memory Performance Board



3 Attach the Deep Trace Memory Performance Board on the Exerciser and Analyzer card.

4 Plug the cards into the system under test.

5 Power on the cards (by switching on the system under test, or plugging in the external power supply).

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Performing the Hardware Update

CAUTION: **The hardware update of the E2925A Exerciser and Analyzer card must not be interrupted! Ensure that the control PC is not powered down during the hardware update procedure, for example, with power saving functions.**

If you cannot connect to the E2925A anymore after an interrupted hardware update, contact the HP support (for phone numbers please refer to your delivery papers).

(If the E2926A hardware update is interrupted, just restart the procedure.)

To perform the hardware update, proceed as follows:

1. From the "Setup" menu, select "Update HW ...".
2. In the "Port" group, select the control interface to be used and enter the required parameters for that control interface (refer to "Connecting to the Card" on page 33).
3. Click on "OK".

   The flashing red/green indicator will show the progess of the update. A message will appear after the hardware update has been successfully completed.
4. If you have changed jumper settings previously, reset the jumpers from programming to normal position.
5. From the "Setup" menu, select "Check Hardware ... " to verify that hardware and software can cooperate now.

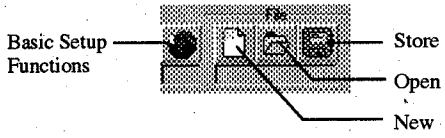
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Saving and Restoring a Test Setup

All settings entered in the GUI are stored when exiting the program. Because you might need different settings for different tests, you can also store the settings in separate test setup files.

The setup file functions can quickly be accessed via the "File" icon buttons. An additional button provides quick access to basic setup functions.

Setup File Buttons



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Chapter 4 User Documentation

This chapter shows how to view and print the user documentation of the Exerciser and Analyzer cards and their hardware and software options.

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Accessing the User Documentation

The user documentation is shipped in Adobe's Portable Document Format (PDF) and can be read and printed with Adobe Acrobat Reader.

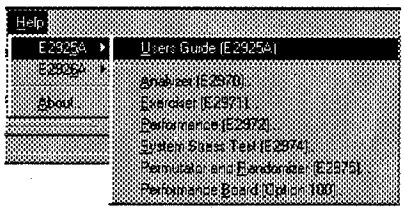
Both, documents and reader, are shipped with the Exerciser and Analyzer card's installation CD-ROM. During installation you have been asked whether or not you want to install Acrobat Reader and which parts of the documentation you want to install. In the following it is assumed that Acrobat Reader and the complete documentation are installed.

To access the user documentation , proceed as follows:

1 In the "Help" menu, select "E2925A >" or "E2926A >" for E2925A or E2926A documentation.

2 From list, select the document you wish to read or print.

E2925A User Documentation



The Acrobat Reader will be started with the selected document.

3 For help on the Acrobat Reader, click on the "F1" key in the Acrobat Reader window.

4 To print the document, use the print function of the Acrobat Reader.

NOTE: If the text in the document appears on black background, select "Preferences | General ..." from the Acrobat Reader's "File" menu and deactivate "Smooth Text and Monochrome Images".

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Roadmap of the User Documentation

The user documentation is specific for each Exerciser and Analyzer card, their hardware options and software add-ons.

The following tables give an overview of the available documentation. If you are looking for a certain piece of information, this may help you to classify a problem and quickly find an answer to your question.

Hardware Documentation

Menu Item	Document Title	Contents
E2925A CAPI	HP E2925A PCI Exerciser and Analyzer User's Guide	Detailed information on the E2925A card and its functions. Program examples for C-API and CLI. C-API reference.
E2926A CAPI	HP E2926A PCI Exerciser and Analyzer User's Guide	Detailed information on the E2926A card and its functions. Program examples for C-API. E2925A compatibility notes. C-API reference.
E2924A CAPI	HP E2924A PCI Host Interface Adapter	Detailed information on the E2926A card and its functions. Program examples for C-API. C-API reference.
E2925A #100 CAPI	HP E2925A Option 100 1 M Memory Performance Board User's Guide	Detailed information on the E2925A option 100 hardware and its functions. Program examples. C-API reference.

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Software Documentation

Menu Item	Document Title	Contents
E2971A Exerciser	HP E2971A PCI Bus GUI User's Guide	Introductory information on the exerciser. A "Getting started" guide and detailed information on the exerciser GUI. Bus Transaction Language (BTL) reference.
E2970A Analyzer	HP E2970A PCI Bus Analyzer GUI User's Guide	Introductory information on the analyzer. A "Getting started" guide and detailed information on the analyzer GUI.
E2972A Performance	HP E2972A PCI Performance Analyzer Software User's Guide	Introductory and detailed information on PCI performance measurement, evaluation and optimization. A "Getting Started" guide through the Performance Analyzer GUI. Detailed examples of measurement and analysis. Reference of definitions, parameters, measures, and results.
E2974A System Stress Test	HP E2974A Subsystem Stress Test Software User's Guide	Introductory and detailed information on Subsystem Stress Tests. A "Getting Started" guide through the GUI. Detailed examples of customizing and executing Subsystem Stress Tests. Detailed analysis of a Subsystem Stress Test report. C-API reference.

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Menu Item	Document Title	Contents
E2975A Protocol Permutator and Randomizer	HP E2975A PCI Protocol Permutator and Randomizer Software User's Guide	Introductory information on the purpose of protocol permutation and variation. Introductory and detailed information on permutation and randomizing algorithms. Commented example program and report. C-API reference.

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Chapter 5 Appendix

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Replacement Part Numbers

The following table lists the HP replacement numbers. Call the HP support for replacement parts or if your shipment was incomplete.

Part	Number
E2926A PCI Bus Exerciser and Analyzer Hardware	E2926-69501
E2925A PCI Bus Exerciser and Analyzer Hardware	E2925-69501
E2924A PCI Host Interface Adapter	E2924-69501
External Power Supply Unit, Option 001	0950-3166
E2926A Fast Host Interface Card (PCI), Option 002	E2926-66503
E2925A Fast Host Interface Card (ISA), Option 002	E2925-66505
HP Logic Analyzer Adapter, Option 003	E2925-66502
Generic Logic Analyzer Adapter, Option 004	E2925-66503
E2925A Deep Trace Memory Card, Option 100	E2925-69504
RS-232 Cable for E2925A	5180-2474
RS-232 Cable for E2926A	5180-2406
Bi-Directional Centronics Cable	8120-8724

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Declaration of Conformity

Manufacturer: Hewlett-Packard GmbH
Boeblingen Verification Solution Operation
Herrenberger Str.110 - 140
D-71034 Boeblingen, Germany

We declare that the system:

HP E2920	**Computer Verification Tools and associated hardware and software products**
HP E2925A	**PCI-Bus Exerciser/Analyzer; 32bit; 33MHz**
HP E2926A	**PCI-Bus Exerciser/Analyzer; 64bit; 33MHz**

conforms to the following standards:

Safety:	IEC 1010-1:1990 +A1:1992	EN61010-1:1993
EMC:	EN 55011:1991 / CISPR 11 Group 1, Class A (1)	
	EN 50082-1:1997	
	EN61000-4-2:1991	ESD: 4kV cd, 8kV ad (not done)
	EN61000-4-3:1992	Radiated Immunity: 3V/m
	ENV 50204 :1995	Radiated Immunity: 3V/m, 900 MHz, 50% duty cycle, 200 Hz pulsed
	EN61000-4-4:1988	Fast Transients: 0.5kV, 1kV
	EN61000-4-5:1995	Surges 1kV / 2kV
	EN61000-4-6:1995	Conducted Immunity: 3V, 80% AM, 1kHz
	EN61000-4-111994	Voltage dips and interruptions

Supplementary Information:

The product herewith complies with the requirements of the

- Low Voltage Directive (73/23/EEC) and the
- EMC Directive (89/336/EEC).

(1) The product exceeds the requirements in setups given from the standards. A Technical Construction File (TCF) got a certificate (#K129923H Version 3) from a Competent Body. For installations in an EU country, the Site Attenuation Requirement must be attended to. They are stated in the Installation Guide E2920-91010.

Boeblingen, May 18th 1998

Wolfgang Fenske
Regulations Consultant

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EU Regulatory Instruction – Site Attenuation Requirements

Introduction

For all products installed in Europe (EEC Countries), the requirements of the EC Directive on EMC, 89/336/EEC have to be adhered to.

For this system, the derived standards as well as the classes are noted in the Declaration of Conformity in this guide.

Conformity from a Competent Body

The EMC Directive (Para. 10.2) requires a Technical Construction File (TCF) with a Declaration of Conformity from a Competent Body (CB). For the Site Attenuation Requirements and the methods stated herein, a review by a CB is mandatory.

Technical Rational

The product/system concerned here meets all requirements, except the Radiated Emissions of CISPR11/EN55011. This is mainly driven by cables, which provide limited shielding for higher frequencies and thus cause electromagnetic radiation like from an antenna.

In order to meet the requirements in situ, prevention has to be considered, before the product/system is turned on for its intended application. The methods described herein are sufficient to keep the system within the given limits of the standard.

For preparation of the data for the required site attenuation, the system was evaluated in a test site; the radiation values exceeding the limits were taken as reference of the required Target Values for this installation instruction. This way, the subtraction of the site attenuation from the measured radiation leads to a radiation level, requested by the standard.

Site Attenuation

This document describes the methods for a Site Attenuation to meet the requirements of Class A. **The required value for Target Site Attenuation is 17 dB for HP E2920 Computer Verification Tools, PCI Series.**

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Installation Instruction

If your site has got an allowance from a local (PTT) agency to exceed the levels of radiation, this exceeded level has to be considered. In case of i.e. +10 dB, subtract this ratio from the Target Site Attenuation.

Based on the location where the system is to be installed, obtain the Available Site Attenuation. The calculating method is described in the section *Calculating Method.* Some site preparations may have to be done. Try to optimize the location as well as the consideration of available walls or walls to be installed.

NOTE:

When the location is finally determined, make an overall calculation of the Available Site Attenuation.

The Available Site Attenuation has to be greater than the Target Site Attenuation!

In case that this requirement is not achievable, consider other methods like the use of a Shielded Cabin with specified shielding performance. Other shielding methods like conductive wall paper, metal walls, etc. require an approval test (in situ) by a local (PTT) agency. Appropriate arrangements have to be organized. Install the system as described in the Installation Manual.

The product installation then meets the requirements for radiation levels of Class A, of CISPR 11/EN55011.

Calculating Method

To obtain the necessary attenuation at the customer's site:

1. The attenuation of a concrete wall (W) (without any openings) = 10 dB
2. The distance (D) (the distance from the equipment to the exterior wall plus 30 meters) increases the attenuation by X and can be calculated as follows:

   $X = 20 * \log (D/30)$

   where: X = attenuation in dB, D= distance in meters
3. The total attenuation (A) is calculated as follows:

   $A = n * W + X$

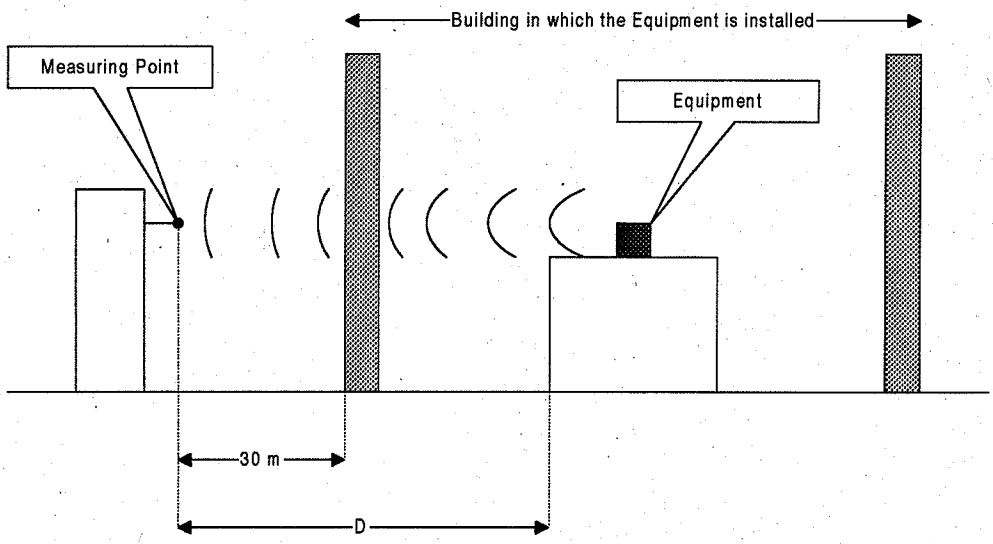
   where: A = total attenuation in dB, n = number of concrete walls within distance D, W = 10 (dB)

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Appendix

EU Regulatory Instruction – Site Attenuation Requirements

Site Attenuation Calculation



This method yields to the following requirements at the installation site:

Required Site Attenuation in dB	Number of Walls	Remaining Attenuation Requirement in dB	Real Estate Border Distance in m
17	0	16	236
17	1	6	67
17	2	-4	19

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